Lane to the East of Downend Road, Portchester

Proof of Evidence on Transport Matters of Mr T Wall

Client: Miller Homes

PINS Ref: APP/A1720/W/21/3272188

i-Transport Ref: TW/ITB12212-064c

Date: 05 July 2021

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SECTION 1 Qualifications, Experience and Scope of Evidence

1.1 Personal Qualifications and Experience

1.1.1 My name is Tim Wall. I hold a Degree (BA) in Geography from the University of Plymouth and a Masters' Degree (MSc) in Transport Planning and Engineering from the University of Southampton. I am a Member of the Chartered Institute of Highways and Transportation (MCIHT) and a Chartered Member of the Institute of Logistics and Transport (CMILT).

1.1.2 I have worked in the field of traffic engineering and transport planning for some 17 years, having previously led the Highways Development Planning Team at Hampshire County Council before joining i-Transport LLP in mid-2014.

1.1.3 I am a Partner of i-Transport LLP (based in the Basingstoke office) with responsibility for development planning, in particular with regard to travel planning, highways and traffic issues.

1.1.4 The evidence that I have prepared and provide for this appeal (APP/A1720/W/21/3272188) in this proof of evidence is true and has been prepared, and is given in accordance with, the guidance of my professional institution. I confirm that the opinions expressed are my true and professional opinions and are provided to the inquiry irrespective of by whom I am instructed.

1.2 Background of Appointment

1.2.1 i-Transport LLP was appointed by Miller Homes in 2016 to provide transport and highways advice for the Appeal Site.

1.2.2 I am very familiar with the Appeal Site and the surrounding transport network. I have visited the Appeal Site and the surrounding area on many occasions during my involvement with the site during weekday highway network peak and off-peak periods.

1.2.3 i-Transport LLP prepared and presented the access design (CD2.2.1), Transport Assessment (CD1.10), Framework Travel Plan (CD1.11) and supplementary technical transport submissions relating to the application (CD2.2).

1.2.4 During the course of the planning application all transport matters (including access, accessibility, and traffic impacts) were agreed with the local highway authority, Hampshire County Council (HCC) (CD3.4.1), and an Agreed Statement on Transport Matters (ASoTM) has been completed to confirm the matters of agreement with the County Council.

1.3 2019 Planning Appeal

1.3.1 The Appellant's SoC presents the relevant planning history for the Appeal Site, in particular explaining the context of the earlier planning application and appeal, and this background is expanded on in Ms Mulliner's evidence.

1.3.2 In transport terms, the earlier Appeal ('2019 Appeal' – APP/A1720/W/3230015) was dismissed for a singular reason, that being the (in)adequacy of the proposed improvement schemes to the Downend Road bridge (CD7.1).

1.3.3 Other matters relevant to the transport considerations of the Appeal Site (i.e. site access arrangements, and traffic impacts (beyond the Downend Road bridge)) were not reasons for the 2019 Appeal being dismissed. Whilst at the time the Council considered that the Appeal Site was not a sustainable location for residential development, despite its promotion as an emerging housing allocation in its local plan, the 2019 Appeal Inspector considered the Appeal Site suitable for residential uses, and to offer "*not unreasonable*" levels of accessibility. The Appeal Site remains an emerging allocation in the Council's Local Plan (CD5.1).

1.3.4 Central to the 2019 Appeal was the form of proposed improvement to the Downend Road bridge, and the 2019 Appeal considered two options for its improvement:

- **Option 2 – Footway Improvement** - This included narrowing of the carriageway to 4.8m width to enable a 1.2m footway to be delivered; and
- **Option 3 – Priority Shuttle Working** - This included the provision of a signed priority working arrangement with priority given to northbound vehicles, and a 2.0m footway.

1.3.5 Option 2 was dismissed due to the inadequate provision made for pedestrians via Downend Road, essentially the Inspector considered a 1.2m footway to be inadequate.

1.3.6 Option 3 was dismissed because of the potential impacts of vehicle queuing and driver delay which would arise as a result of the proposed scheme, and bridge operation (priority working).

1.3.7 Importantly, Option 3 was not dismissed on pedestrian movement grounds, the Inspector confirming it delivered suitable provisions for pedestrian movement at the bridge (CD7.1 – para 97). It was also common ground with the Council in 2019 (**Appendix A** – Matter 4) that the Option 3 scheme provided adequate pedestrian provisions.

1.3.8 The Option 3 improvement and the current improvement scheme are essentially the same in relation to pedestrian movement and access, with the only difference being the method of traffic control across the bridge. The Council agree the scheme is 'similar' to Option 3 (TSoCG – 1(q)).

1.4 Scope of Evidence

1.4.1 My evidence addresses the single RfR of the application (CD3.3) and the first 'Main Issue' identified in the Case Management Conference Note:

> ***"The effect of the proposed development on the operation of the local highway network, with particular reference to vehicular and pedestrian movement across the Down End Road bridge across the railway line, and the provision for pedestrian crossing of Down End Road"***

1.4.2 Whilst there are obvious interrelationships between these two elements, I address these matters in two parts; the first considering the effect of the proposed development on vehicular movement across the bridge (**Section 3**); and secondly, I address the provisions made in the scheme for pedestrian movement at the bridge and across Downend Road (**Section 4**).

Matters of Common Ground

1.4.3 A Statement of Common Ground (TSoCG) on transport matters has been prepared with the Council to seek to narrow the issues that need to be addressed in evidence. This confirms agreement of various parameters and baseline conditions, and that:

- The 2019 Appeal Inspector's assessment of the accessibility of the site is accepted (1(a));
- The 2019 Inspector considered matters of access to the Appeal Site and concluded that the access is acceptable (1(o));
- The proposed improvement scheme to Downend Road bridge:
  - Is similar to that considered as Option 3 for the 2019 Appeal, other than in relation to the method of traffic control across the bridge (1(q));
  - Will provide a significant benefit to pedestrian safety across the bridge when compared to the existing situation, and will make the route more attractive (1(p);
- The peak hours for the bridge are agreed to be 07:30-08:30 and 17:00-18:00 (1(s));
- The operation of Downend Road bridge should correctly be assessed using LinSig software (1(r)) and further that the LinSig model construction is appropriate to assess the scheme in terms of the calculation of saturation flows, model geometry and phasing.

  The detail of the Matters of Disagreement in relation to the model remain somewhat unclear to me at the time of preparing evidence, but I understand these relate to the Council's suggestion that the model assessments should include cycling clearance phases through the junction, the delivery of a separate pedestrian phase, and disagreement on the calculation of intergreen periods.

Additional Matters raised beyond the Reason for Refusal

1.4.4 Through discussions with the Council on matters of the TSoCG, the Council's evolving case has started to crystalise and confirms to me that the case the Council is now seeking to make has extended far beyond the Reason for Refusal itself.

1.4.5 Beyond matters related to the operation of the Downend Road bridge in terms of queuing and delay (and impact thereafter on safety and convenience), as well as the adequacy and safety of pedestrian crossing facilities of Downend Road, the Council is now seeking to raise wider and conflated concerns related to:

- The safety of the site access design, including whether there are departures from standard in the design, and if so, whether these unacceptably impact on highway safety;
- The accessibility of the Appeal Site, on the basis that the Council consider it to be '*reasonably accessible*' in line with the 2019 Appeal Decision, but that it is not highly sustainable, such that travel demands by active modes may be reduced and vehicles increased. They anecdotally allege this affects future traffic demands at the bridge; and
- The relative safety / attractiveness of alternative pedestrian and cycle routes to access local facilities and public transport, alleging that the limitations of alternative pedestrian and cycle routes (i.e. to Cams Bridge) increases the attraction and importance of pedestrian and cycle access to Downend Road. The Council confirmed to me that this concern is primarily focussed on the adequacy of crossing facilities proposed to the A27 at The Thicket for access to westbound bus services, not wider movements to services.

1.4.6 I address these further matters, which I consider to be wholly outside of the RfR in **Section 5**.

1.4.7 In **Section 6**, I address matters raised by interested parties. In **Section 7**, I explain the scheme benefits, and within **Section 8** I consider the scheme against relevant policy at the local and national level.

SECTION 2 Existing Conditions on Downend Road

2.1.1 Significant information on the existing operation of Downend Road and its bridge is contained in the TA (CD1.10 - Section 4), and I summarise only the key information for context.

2.2 Existing Highway Geometry at Downend Road Bridge

2.2.1 The existing bridge is formed by two brick built parapets with a metal grate fence on top. The bridge structure is curved meaning there is not a consistent width. The narrowest point of the bridge between parapets is 6.2m (reduced effectively to 6.1m as a result of the small inward lean of the top of the parapet wall). The carriageway area is denoted by edge of carriageway markings and a centre-line. The marked carriageway area varies between 3.85m and 4.72m.

2.2.2 There is no formal footway provision across the bridge. To the east of the carriageway is a hard strip margin beyond the edge of carriageway marking which varies in width between 0.65m and 1.05m. On the western side of the bridge, there is a demarked hard strip margin which serves as a virtual footway connecting the existing footway provision on Downend Road either side of the bridge. The margin varies in width but is generally 1m wide across the bridge (**Image 2.1**).

Image 2.1: Existing highway geometry at Downend Road Bridge

2.2.3 I have observed the operation of the bridge on many occasions. Vehicles *generally* travel within the marked carriageway area denoted by the edge of carriageway markings, whereas pedestrians almost exclusively walk within the margin on the north-western side of the bridge.

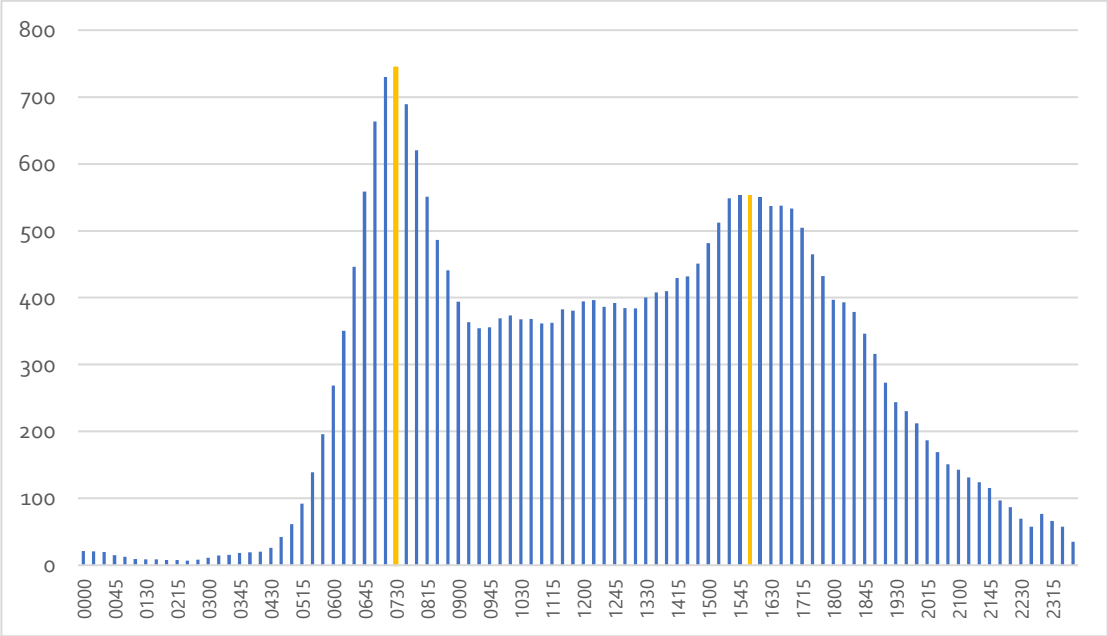
2.3 Vehicular Flows and Speeds

2.3.1 A seven-day Automatic Traffic Count (ATC) survey was undertaken immediately north of the Downend Road bridge between 7-13 November 2016, outside of any school holiday times.

2.3.2 The TA (CD1.10 – Table 4.5) considered traffic flow changes on Downend Road between 2016 and 2019. The 2019 traffic flows, pre-COVID, were generally lower than the 2016 data. The 2016 data therefore remains a reasonable assessment basis, as agreed with HCC (ASoTM).

2.3.3 Analysis of the ATC data demonstrates that the existing peak hours on Downend Road at the bridge are 07:30 – 08:30 and 16:00-17:00 (albeit when future development demands are added and vehicles are converted to PCUs, the evening peak hour becomes 17:00-18:00 for modelling purposes). This has therefore assessed the average weekday peak conditions. **Graph 2.1** presents the rolling hourly profile of existing vehicles using Downend Road.

Graph 2.1 – Downend Road Observed Traffic Profile – Rolling Hour



2.3.4 During the peak hours, the survey recorded a total of 744 two-way vehicle movements in the morning peak hour and 553 vehicles in the evening peak, based on the five-day weekday average. Across a 12 hour period (07:00 – 19:00), there are 5,562 two-way movements, rising to 6,808 across the 24 hour period. I consider that Downend Road is a moderately trafficked road.

Vehicle Classification

2.3.5 Of these vehicles, around 3.2% (215 vehicles) are goods vehicles (taken as both medium and heavy vehicles), with a total of only 12 HGVs using Downend Road each day (0.17% of vehicles). The highest hourly HGV flow is two vehicles. I consider lorry and particularly HGV use of Downend Road to be very low in both number and proportion. For context MfS2 (CD8.9 – para 10.1.8) sets out that (for visibility), specific consideration to heavy vehicle use should not be assessed where HGV and bus flows are below 5%.

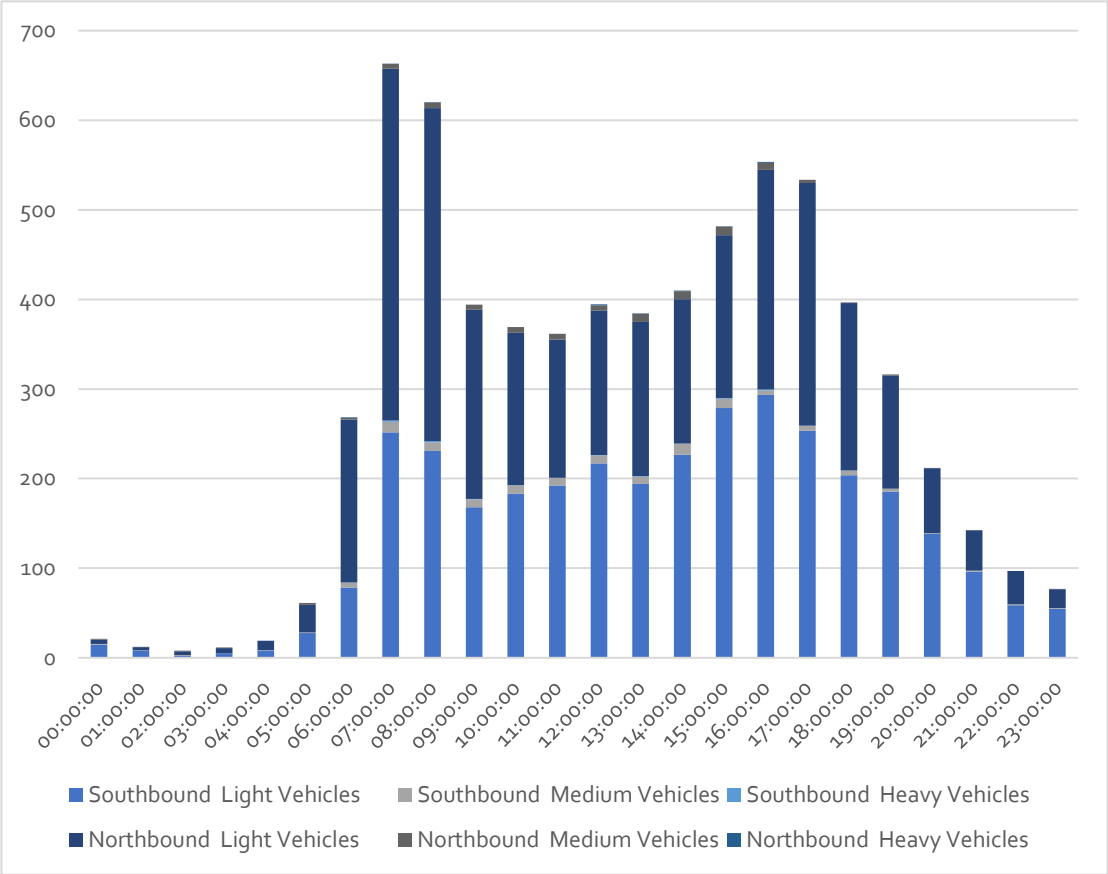
2.3.6 **Table 2.1** presents the vehicle classification across the survey period.

Table 2.1: Downend Road Vehicle Classification

Time (Hour Commencing)	Northbound			Southbound			Total Two-Way		
	Light	Medium	Heavy	Light	Medium	Heavy	Light	Medium	Heavy
00:00	5	1	0	15	1	0	20	2	0
01:00	4	0	0	8	0	0	12	1	0
02:00	4	0	0	2	1	0	7	1	0
03:00	6	1	0	5	0	0	11	1	0
04:00	11	0	0	8	0	0	19	0	0
05:00	31	2	0	28	1	0	59	3	0
06:00	182	2	1	78	6	0	260	8	1
07:00	393	6	0	252	12	1	644	17	2
0730-08:30	*433*	*7*	*0*	*289*	*12*	*2*	*722*	*19*	*2*
08:00	372	7	0	231	10	1	602	16	2
09:00	211	6	0	168	9	0	379	14	0
10:00	170	6	0	183	9	0	353	16	0
11:00	154	6	0	192	9	0	347	15	0
12:00	161	6	1	217	9	1	378	15	2
13:00	172	9	0	194	8	0	367	17	0
14:00	161	9	1	227	12	0	388	21	1
15:00	182	9	1	279	11	1	460	20	1
16:00	245	8	1	293	5	1	538	13	2
17:00	271	4	0	253	5	0	524	9	0
18:00	187	1	0	204	5	0	390	6	0
19:00	127	1	0	186	3	0	312	4	0
20:00	72	0	0	138	1	0	211	1	0
21:00	45	0	0	96	1	0	141	1	0
22:00	37	0	0	59	1	0	96	1	0
23:00	21	0	0	55	1	0	76	1	0
Total	**3,223**	**84**	**4**	**3,370**	**119**	**7**	**6,594**	**203**	**12**

2.3.7 The hourly classified traffic profile is shown in **Graph 2.2**.

Graph 2.2 – Downend Road Observed Traffic Profile – Classified



Vehicle Speeds

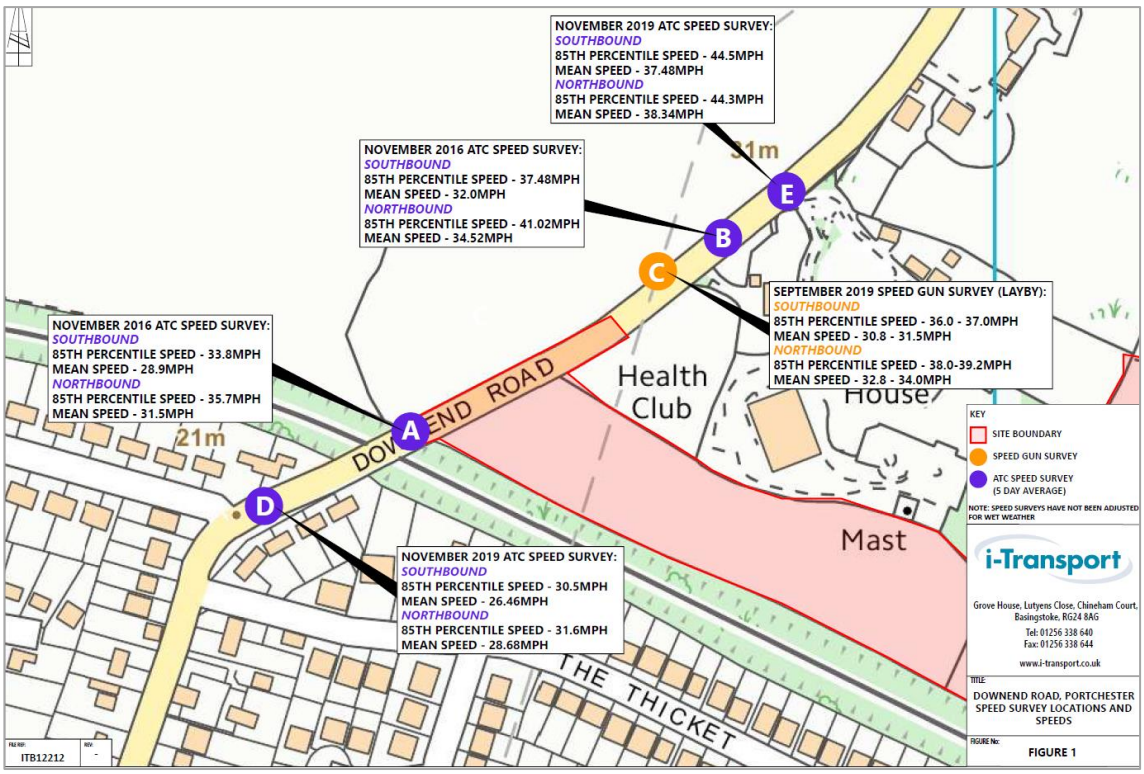
2.3.8 Five speed surveys have been carried out at and in the vicinity of the bridge between 2016 and 2019. **Image 2.2** presents the summary results, which are agreed in the TSoCG (Figure S1).

2.3.9 **Table 2.2** presents the recorded speeds immediately north of the bridge, with the survey carried out at the speed limit transition. Average speeds across the bridge are recorded to be 28-32mph, with 85%ile speeds being 33-36mph. The bridge forms the speed limit transition between 30mph (south) and 40mph (north), and recorded speeds are consistent with this.

Table 2.2 – Observed Traffic Speeds on Downend Road (north of bridge - location A)

Time Period	Northbound		Southbound	
	Average Speed	85%ile Speed	Average Speed	85%ile Speed
Morning Peak	31.5mph	35.3mph	29.9mph	33.8mph
Evening Peak	31.9mph	35.7mph	27.7mph	32.8mph
Daily	31.6mph	35.8mph	29.2mph	34.1mph

Image 2.2 – Speed Survey Locations and Summary Results – Downend Road



2.4 Observed Pedestrian and Cyclist Flows

2.4.1 During the course of the 2019 Appeal various pedestrian surveys were carried out at the bridge and are presented in the TA (Table 4.9 of CD1.10). On average there were 42 daily pedestrian trips across the bridge, generally spread through the day between 07:00 – 21:00. Existgin pedestrian use of the bridge is regular but light.

2.4.2 The November 2016 ATC survey also recorded pedal cyclists travelling across the bridge. This recorded (using the 5-day average) 28 northbound cyclists between 07:00 and 19:00, rising to 36 cyclists across the 24 hour period; and 36 southbound cyclists in the 12-hour period, rising to 43 across the 24 hour period. During the busiest hour on the network (morning peak hour (07:30-08:30)) there were a total of 9 cyclists observed, with 3 cyclists travelling southbound and 6 travelling northbound across the bridge.

2.4.3 I conclude that the bridge is regularly, but lightly used by cyclists.

2.5 Personal Injury Accident Records

2.5.1 The TA (CD1.10 – Section 4.6 and Appendix J) assessed Personal Injury Accident (PIA) records obtained from Hampshire Constabulary for the period between 1 July 2014 and 31 December 2019. At the time the application was submitted, this was the latest data set available.

2.5.2 At that time, there was only one recorded PIA at the bridge, occurring on 04/05/2016 and resulting from a collision between two vehicles. Hampshire Constabulary identify that the southbound vehicle veered onto the wrong side of the road and collided with a northbound vehicle, causing minor injury. The possible causation factor was '*distraction in vehicle*'.

2.5.3 In view of the time that has passed since the submission of the application, I have obtained updated PIA data from Hampshire Constabulary (**Appendix B).**

2.5.4 As reported anecdotally in the TA (CD1.10), in June 2020 there was a further accident at the bridge which sadly resulted in fatal injuries. The accident occurred late at night (00:39) and was a result of one vehicle travelling south westbound, hitting the verge and then colliding with the bridge, resulting in the ejection of both passengers, one of which died. The causation factors are identified as '*careless / reckless / in a hurry*' and '*impaired by alcohol*'.

2.5.5 The development proposals will assist in reducing traffic speeds on Downend Road through changing the environment and character of the approach to Portchester, the introduction of traffic islands as part of the site access arrangement, alteration to the horizontal alignment of the road, improvements to the Downend Road bridge to implement traffic signal control and the proposed re-location of the 30mph speed limit to the north of the access. Overall, this will assist in improving road safety in this location. This is agreed with HCC (ASoTM).

SECTION 3 Effect on Vehicles at Downend Road Bridge

3.1.1 The first part of the Council's RfR, and the first of the Inspector's 'Main Issues', relates to the potential effects of the development on vehicles at the Downend Road bridge.

3.1.2 The application proposes improvement of the bridge to deliver a traffic signal controlled shuttle working arrangement as well as a footway on the western side of the bridge, where vehicles crossing the bridge both northbound and southbound would be controlled by traffic signals.

3.1.3 The Council alleges that the development breaches Policies CS5 of the adopted FBC Strategy 2011 and Policy DSP40 of the adopted Local Plan Part 2: Development Sites and Policies Plan in that there would be unacceptable queuing and delay which would result in unacceptable harm to the safety and convenience of users of the highway, and to amenity and the environment.

3.1.4 The Council has not presented information on what harm to the convenience and safety of the highway the works would result in. No modelling has been provided as part of either the Council's SoC or SoC Transport Addendum.

3.1.5 I consider that this part of the RfR is narrow, being the impact of queueing and delay on the users of the highway. No part of the RfR sought to raise any issue with design aspects of the improvement relative to the safe passage of vehicles across the bridge, nor was that any part of the Council's case at the 2019 Appeal in relation to the Option 3 scheme (**Appendix C**).

3.2 Traffic Modelling of Downend Road Bridge

3.2.1 It is common ground that the future operation of the bridge should be considered using JCT's LinSig software (TSoCG).

3.2.2 I have utilised the latest version of the JCT LinSig 3 software to carry out various assessments of the performance of the bridge, in order to forecast future conditions that will arise, and so to quantify expected levels of queuing and delay at the bridge. On this basis I assess the impacts of the scheme.

Inputs to the LinSig Model

3.2.3 I have provided the LinSig modelling files (and supporting data) to the Council and sought to agree the model parameters that underpin the model with the Council.

3.2.4 The LinSig model for the Downend Road Bridge is in real terms a simple model comprising two arms to the junction. There are only two signal phases, one controlling northbound traffic and the other southbound traffic. There are no pedestrian stages required in the LinSig Model.

3.2.5 The main LinSig Model parameters applied in the model comprise:

- **Lane Saturation Flows** – *'meaning the maximum flow (expressed in Passenger Car Units) that can be discharged from a traffic lane when there is continuous green indication and a continuous queue on the approach.'*

  As a new junction, lane saturation flows are calculated based on the proposed junction geometry in line with TRRL RR67 guidance, and the LinSig user manual.

  The northbound approach has a small uphill gradient, and consequently the saturation flow was adjusted using an assumed +5% gradient to 1,705 PCU/HR. The actual approach gradient on the northbound arm is +2.5% (TSoCG 1(m) / **Appendix D**) and so a saturation flow of 1,810 PCUs (+6.2%) could be applied. My assumed saturation flows for the northbound approach are therefore pessimistic and the assessment is robust.

  The southbound junction approach is on a downhill gradient (of -3.2%), and so a saturation flow of 1,915 PCU/Hr in line with RR67 values is applied. Where there is a negative gradient on approach, RR67 identifies that no adjustment should be made.

- **Intergreen Periods** – *'meaning the clearance time between the green period terminating on a traffic signal phase which is losing right of way and the start of the green period on a phase gaining right of way where vehicle movements conflict.'*

  An intergreen period of 10 seconds has been applied in the model.

  The calculated x-distances are 38m northbound and 42m southbound (**Appendix E**), which would require an intergreen period of 9 seconds against the Traffic Signs Manual Chapter 6 Table 6.1. The use of a 10 second intergreen period is robust.

  To provide a 'sense-check' of the intergreen period, a vehicle travelling at 20mph (8.94m/s) through the junction will travel 89m past the stop line during the 10 second intergreen period if passing at the end of the green period / start of the intergreen. The collision area of the junction is 52-54m (**Appendix E**), with the distance between stop lines being 66m (TSoCG). At 20mph, it would take a vehicle 6 seconds to clear the collision area (54m) and 7.5 seconds to clear the whole junction area (66m). Therefore, a vehicle travelling at 20mph across the bridge will be well clear of the junction by the cessation of the 10 second intergreen period.

  My calculation of intergreen periods has been confirmed with the LinSig software owners (JCT) (SoC Appendix 13) and agreed with HCC.

I have also sought advice from a specialist traffic signal consultancy (Integrated Traffic Services Ltd – **Appendix M**) who prepare the detailed design and specifications for traffic signal installations, and commission these schemes on site. ITS Ltd confirm that a 9 second intergreen would be sound in this case making a 10 second assumption robust.

- **Lane Widths** – *'meaning the width of the lanes approaching the junction.'*

  On both northbound and southbound approaches to the bridge, the lane widths are 3.0m, in line with the proposed design drawing (ITB12212-GA-051D – CD2.2.3).

- **Cycle Times** – *'meaning the time taken to complete one cycle of the junction phases'.*

  For each time period assessed, cycle times are optimised in the model. Cycle times range between 38 seconds and 60 seconds, all short cycle times in real terms.

  In practice, Micro-processer Optimised Vehicle Actuation (MOVA) would be likely to be implemented as part of the detailed scheme which dynamically varies green time at the junction based on actual traffic demands observed. This means that cycle times will vary.

- **Signal Phasing** – *'the conditions that fix the pattern of movements and signal stages'*

  For this model, there are only two phases, one controlling northbound traffic, the second southbound traffic. Estimated green times in the most constrained period (07:30 – 08:30) are assumed to be 17 seconds southbound and 23 seconds northbound (based on 60 second cycle). The phases are separated by the (10 second) intergreen period.

- **Modelling Periods** – *'The time periods over which the model assessment is considered.'*

  For this model, junction operation was considered across a 24 hour period, and during the network peak hours. The busiest hour is the morning peak between 07:30-08:30.

3.2.6 Whilst the Council raise concerns that the LinSig model does not reflect the impact of and provisions required for cyclists, and that the junction should include a dedicated pedestrian stage, I understand it raises no material concerns with the construction of the model itself.

3.2.7 The Council has identified that a Matter of Disagreement is the calculation of intergreen periods but at this stage has provided no information to me on why it does not consider the intergreen periods I have calculated against the TSM to be acceptable, nor has the Council supplied any information on what it considered the intergreen periods should be.

Traffic Demand Parameters

3.2.8 The inputs to the LinSig model comprise traffic flow data from the observed ATC traffic counts at the bridge, projections of background traffic growth, and estimates of development demand.

3.2.9 The following parameters are used in the assessment:

- **Baseline Traffic Flows –** Baseline traffic demand (including cyclists and motorcyclists) is derived from the ATC survey at the bridge in November 2016, using the 5-day weekday average conditions.

  The TA (CD1.10) demonstrates that between 2016 and 2019 there was no overall increase in traffic flows along Downend Road and that the 2016 data remained reliable. HCC confirmed the 2016 data is suitable for use (ASoTM).

- **Assessment Year** – Network conditions are assessed at the junction in the future year of 2026, which is in line with the forecast year agreed with HCC.

- **Future Year Traffic Flows** – The 2016 baseline traffic flows are adjusted to replicate 2026 Future Year conditions using DfT TEMPro derived background traffic growth rates.

- **Development Traffic Demand** – Traffic that would be generated by the development is added to the Future Year conditions, based on the vehicle trip rate (TRICS derived) and traffic distribution and assignment methodology agreed with HCC (ASoTM).

- **PCU Conversion** – Total vehicular demands (from the Future Year and Development Demand) are adjusted to Passenger Car Units (PCUs) to reflect the relative space on the highway network that each type of vehicle takes up.

  A PCU factor of 1.0 is used for cars / light vehicles, 1.5 for medium vehicles and 2.3 for HGVs, in line with standard PCU equivalents including as presented in the TSM Chapter 6 Table 7.1 (CD8.16). I have also applied a PCU factor of 1.0 to cyclists and motorcyclists which is a robust assessment, with the respective PCU factors for those users being 0.2 and 0.4 PCUs, again demonstrating a robust assessment.

3.2.10 The Council has stated that it does not agree with the future year demand in 2026 that I have assessed but has provided no information on why it does not agree with this assessment, other than anecdote relating to its assessment of the accessibility of the site impacting traffic demand.

3.2.11 The Council also consider that that an additional future year test is needed, being 2031.

JCT Independent Audit of the LinSig Model

3.2.12 In view of the Council's concerns about the approach to modelling of the junction (indeed the FBC Member's assertion that any modelling is inaccurate and cannot be relied on), I submitted the LinSig model to the owners and developers of the software, JCT Consultancy, for independent review (Appellant SoC Appendix 13).

3.2.13 JCT were provided with the LinSig Model, the traffic demands (the baseline ATC traffic data as well as forecast traffic flows at the junction) and the scheme details (including CAD versions of the scheme drawing) in order for them to conduct their review.

3.2.14 The JCT Audit considered the adequacy of the LinSig model to accurately model the operation of the junction. The Audit found that:

- The layout of the models accurately represented that of the layouts in the provided drawings with one northbound and one southbound lane only (para 2.0.5);
- The modelling required two traffic phases that were set to run 7" minimum green times. (para 2.0.11) and that these phases were correctly assigned with phase A controlling northbound movement and phase B controlling the southbound (para 2.0.11);
- Cycle times of 50" and 45" were used in the AM and PM peak period respectively. These would be considered reasonable as an average cycle time, although there would be flexibility for higher/lower values from cycle to cycle using adaptive control (para 2.0.13);
- Saturation flow is defined as the number of PCUs which could cross the stopline in an hour if the signals were green and the queue of traffic was infinite. As the junction is a proposed option the saturation flows must be predicted. The industry standard method is to use Research Report 67 (RR67) which was a study on predicting saturation flows for road junctions controlled by traffic signals and was conducted by the Transport and Road Research Laboratory. One of the factors that determine saturation flows are the road widths with wider roads increasing driver confidence to drive at higher speeds thus creating higher saturation flows. The correct widths were used in the model (para 2.0.14).

3.2.15 The JCT Audit raised two matters for consideration:

1. The model submitted to JCT considered hourly operation across the 24 hour period, with the busiest period being 08:00-09:00. However, JCT identified that there was a higher hourly flow between 07:30-08:30; and
2. The intergreens used in the model <u>could</u> be considered too low.

3.2.16 JCT then carried out Sensitivity Testing of the model to consider the AM Peak (07:30 – 08:30) and to test a longer Intergreen period (of 12 seconds rather 10 seconds).

3.2.17 Under its additional Sensitivity Tests, JCT concluded that the junction operated within capacity and with a positive Practical Reserve Capapcity.

3.2.18 I subsequently contacted JCT to determine the most appropriate calculation of the Intergreen period, (Appellant SoC Appendix 13) and supplied drawings to demonstrate how the 'X-Distance' has been calculated (the x-distance is the value used by the Traffic Signs Manual (CD8.16) to derive Intergreen periods). I provided an assessment against the Traffic Signs Manual which determines that the correct Intergreen period would be 9 seconds. For robustness and flexibility of design, I have always relied on an Intergreen period of 10 seconds.

3.2.19 JCT confirm that their Sensitivity Testing approach (to apply a 12 second intergreen) took an "*overly robust approach*" and that furthermore they "*would not argue at all*" with the methodology of calculating Intergreen periods that I have applied in the model.

3.3 Projected Operation of the Downend Road Bridge

3.3.1 Based on the LinSig parameters applied and the traffic demand profiles I have explained, I forecast that post-development (assuming full occupation of the Appeal Site) the bridge junction will operate as presented in **Table 3.1** and **Table 3.2**.

Table 3.1 - LinSig Results – 2026 with Development – Morning Period

Approach	Time Period	Degree of Saturation	Mean Max Queue (pcu)	Average Delay per PCU (s/pcu)	Practical Reserve Capacity
Downend Road – South (NB)	0700 - 0800	68.4%	6.1	21.7	+26.6%
	07:30 – 08:30	**72.3%**	**8.1**	**24.6**	**+24.5%**
	0800 – 0900	68.2%	6.1	21.6	+26.2%
	0900 – 1000	53.2%	3.1	19.2	+69.2%
Downend Road – North (SB)	0700 - 0800	71.1%	5.6	29.1	+26.6%
	07:30 – 08:30	**69.6%**	**7.0**	**28.8**	**+24.5%**
	0800 – 0900	71.3%	5.7	29.2	+26.2%
	0900 – 1000	50.8%	2.8	20.5	+69.2%

Table 3.2 - LinSig Results – 2026 with Development – Evening Period

Approach	Time Period	Degree of Saturation	Mean Max Queue (pcu)	Average Delay per PCU (s/pcu)	Practical Reserve Capacity
Downend Road – South (NB)	1600 – 1700	63.7%	4.4	22.6	+39.1%
	1700 – 1800	**66.3%**	**5.0**	**22.2**	**+35.7%**
	1800 – 1900	54.6%	3.0	20.8	+64.8%
Downend Road – North (SB)	1600 – 1700	64.7%	4.8	23.1	+39.1%
	1700 – 1800	**63.4%**	**4.4**	**24.1**	**+35.7%**
	1800 – 1900	51.1%	3.0	19.2	+64.8%

3.3.2 Practical Reserve Capacity (PRC) indicates the Degree of Saturation (DOS) of a junction, identifying the spare capacity the junction exhibits during each model period. PRC is calculated from the maximum Degree of Saturation on a Lane and is a measure of how much additional traffic could pass through a junction whilst maintaining a maximum DOS of 90% (not 100%). This therefore inherently includes a 10% '*comfort*' to account for daily traffic fluctuations and random behaviour. A positive PRC indicates a junction operating with spare capacity.

3.3.3 The busiest hour on the network is the morning peak hour between 07:30 and 08:30. During this period I forecast a Practical Reserve Capacity of +24.5% at the junction, with similar levels of spare capacity in the morning shoulder periods (07:00 – 08:00 and 08:00-09:00). During the evening peak hour (17:00-18:00) I forecast PRC of +36%, i.e. significant reserve capacity.

3.3.4 Mean Maximum Queuing (MMQ) (which is the estimated mean number of PCUs which have added onto the back of the queue up to the time when the queue finally clears) would be modest during the morning peak hour, with 7 vehicles southbound and 8 vehicles northbound, and with around 6 vehicles in each direction in the morning shoulder periods. During the evening peak hour, Mean Maximum Queues would be 4-5 vehicles. Under normal or average conditions across all time periods, all vehicles queueing would clear the junction within a single signal cycle.

3.3.5 Average delay in the morning peak hour would be modest at around 25-30 seconds. Outside of the peak hour, delays would be an average of 20-25 seconds for each arriving vehicle.

3.3.6 Under any reasonable interpretation, the proposed junction operates well within capacity and without any excessive queuing and delay. HCC agree (ASoTM).

3.3.7 In practice and on the ground, the signal operation is expected to operate under MOVA control which is a method of signal control that detects traffic demands on each junction approach and dynamically assigns green time to the junction based on those demands. It is not possible to fully reflect MOVA operation in LinSig, with MOVA operating a different cycle time for each cycle of the junction, whilst LinSig considers fixed time operation. However, MOVA will mean that, when delivered, the junction would operate better than I have projected in Tables 3.1-3.2.

3.3.8 The Council's RfR identified the FBC Member's concern that the queueing and delay at the junction would cause safety and convenience issues. It is evident that both queuing and delay at the junction are modest and that these concerns are unfounded.

3.4 Mayer Brown Review of the Scheme

3.4.1 During the 2019 Appeal the Council employed transport consultancy Mayer Brown to act on its behalf and has since retained Mayer Brown to advise them on matters relating to the Local Plan.

3.4.2 In 2020, the Council commissioned Mayer Brown to consider the continued allocation of the Land East of Downend Road site (HA4) in its emerging Local Plan. Mayer Brown prepared a technical report (Appellant SoC App 3) which considered the acceptability of the Appeal Site, assessing this in the context of the Appeal application which at that time was undetermined.

3.4.3 The Report concluded that:

> ***"4.7 The capacity of the proposed improvement has been assessed by i-Transport using industry standard software LinSig. Predicted degrees of saturation of less than 90% indicate that a signalised junction will operate within capacity with minimal queuing. The assessment for the future year of 2026 with development traffic shows maximum degrees of saturation of 71% and 66% for the AM and PM peaks, respectively, indicating that the junction will operate well within capacity. The predicted maximum average queues of 5-6 vehicles are modest.***
>
> ***5.5 The site promoter has submitted a new application for development on allocation HA4, which is essentially the same as the previous application on all transport proposals, except the proposals for pedestrian access at Downend Road bridge. The new application for development on allocation HA4 proposes a signalised shuttle arrangement at the Downend Road bridge which addresses the single reason for dismissal of the appeal and will not result in a severe impact on the road network.***
>
> ***5.14 In summary, allocation HA4 should not result in any unacceptable highway safety impacts or severe residual cumulative traffic impacts and is compliant with the NPPF and should be brought forward as proposed in the Publication Plan."***

3.4.4 It is clear that the Council's retained transport consultant has considered the potential development of the Appeal Site, in the context of the latest Appeal application and Transport Assessment and concludes that the scheme is acceptable.

3.5 Hampshire County Council Review of the Model

3.5.1 HCC is the local highway authority, and therefore the statutory body responsible for ensuring the safety and efficiency of the local highway network.

3.5.2 I have been engaging with HCC on the revised improvement scheme for the bridge since the dismissal of the 2019 Appeal and have presented various iterations of the LinSig model to HCC throughout this engagement. HCC's specialist Intelligent Traffic Systems (ITS) team carried out its own internal review of the LinSig model, concluding it was appropriate and acceptable. HCC has subsequently considered revised modelling of the junction (addressing the minor geometric changes where the northern stop line was relocated north by 4m) and the peak hour model, and again has confirmed this is acceptable (ASoTM – para 4.3.13).

3.5.3 The model, and scheme generally, has been given significant scrutiny throughout the application process by HCC. As is clear from the HCC response to the application (CD3.4.1) and the ASoTM itself, HCC consider both the assessment and forecast operation of the junction to be acceptable.

3.6 Council's Suggested Model Scenarios

3.6.1 During the preparation of evidence, the Council has been developing its case. The Council raises four broad matters which it considers need to be further considered through additional modelling, albeit at the time of preparing evidence, the Council has presented no assessments of the junction, nor any detail of how it considered these matters should be addressed.

3.6.2 I understand the Council's concerns to be:

- Assessment of the operation of the scheme in a further future year, being 2031;
- The need to include an extended Intergreen period / bonus green time to reflect on-road cycling use of Downend Road;
- The inclusion of a dedicated pedestrian phase in the model; and
- Assessment of the potential for increased development traffic demands, owing to its concerns about the accessibility of the Appeal Site.

3.6.3 I disagree with the Council that these assessments are necessary.

3.6.4 The model that I have prepared has been developed in association with the Local Highway Authority (HCC) and has been audited by the software creators (JCT). No such concerns were raised by FBC's retained transport consultant (Mayer Brown). My model is based on data local to the site and faithfully reflects the expected conditions on the network.

3.6.5 Nevertheless, I address each of these matters in turn.

2031 Sensitivity Test

3.6.6 My assessments consider highway network conditions in 2026. This was the agreed Assessment Year for the 2019 Appeal, and I confirmed that this remained appropriate with HCC before preparing the TA that supports the Appeal application.

3.6.7 By 2026 the development will be occupied. Highways England Guidance is clear that the assessment of a scheme for mitigation purposes is to be made at the point of opening, assuming full occupation (Extracts at **Appendix F**). Further assessments into the future are for information rather than assessment. This position was confirmed in a recent Appeal in Didcot (**Appendix G**) where in that case the Council sought a longer Assessment Period (end of Local Plan Period).

3.6.8 I am not aware of any local or national guidance available which advises that the scheme need to be assessed during a different / later time period to that set out in the HE Guidance.

3.6.9 Whilst I maintain that assessment of the scheme in 2026 is appropriate, as agreed with HCC, the Council suggests that the assessment should consider a further future year being 2031.

3.6.10 To assess a 2031 scenario, revised assumptions of background traffic growth are required.

3.6.11 I have acquired updated traffic growth estimates from the DfT's TEMPro database (**Appendix H**) to convert the 2016 Baseline traffic data to 2031 conditions, adjusted in line with the methodology outlined at TA Appendix R to remove the double counting effects of land use assumptions in TEMPro and development directly input to my assessment.

3.6.12 I would note that, as outlined in the TA (CD1.10 – Section 7.5), within my assessment I retained traffic growth forecasts from the original 2019 Appeal TA which utilised the latest TEMPro version available at that time.

3.6.13 However, the traffic growth estimates in the latest version of the database (TEMPro version 7.2) are lower than those forecast in the TA, the DfT having revised down their traffic flow forecasts between the two versions of the database. I retained the higher growth forecasts to present a robust appraisal, but this approach has the effect of overestimating growth in traffic.

3.6.14 In reviewing the traffic growth rates in the context of the Council's assertion that a 2031 assessment should be presented, it is clear that by applying the latest TEMPro dataset (Version 7.2), traffic growth forecast to 2031 are below those already applied in my assessment for a future year of 2026. **Table 3.3** presents the comparative TEMPro growth rates, considered against those utilised in the TA and my modelling assessments (**Table 3.1** and **Table 3.2**).

Table 3.3 – TEMPRO Growth Forecast Comparison – 2016-2026 & 2016-2031

Time Period	TEMPro (TA)	TEMPro 7.2 (Latest)	
	2016-2026	2016-2026	2016-2031
AM Peak	1.0574	1.0388	1.0503
PM Peak	1.0372	1.0190	1.0258

3.6.15 My Sensitivity Test assessment of conditions at the junction in 2031, using the updated growth rates from the latest TEMPro database version 7.2 are presented in **Table 3.4** for the morning peak period, being the most constrained time period at the junction. The full results are presented in **Appendix I**.

Table 3.4 - LinSig Results – 2031 with Development – Morning Peak Period

Approach	Time Period	Degree of Saturation	Mean Max Queue (pcu)	Average Delay per PCU (s/pcu)	Practical Reserve Capacity
Downend Road - South	0700 - 0800	67.9%	6.1	21.5	27.3%
	07:30 – 08:30	**72.6%**	**8.2**	**24.7**	**24.0%**
	0800 – 0900	67.9%	6.1	21.5	26.9%
	0900 – 1000	53.0%	3.0	19.1	69.9%
Downend Road – North	0700 - 0800	70.7%	5.6	28.9	27.3%
	07:30 – 08:30	**71.0%**	**7.2**	**29.3**	**24.0%**
	0800 – 0900	70.9%	5.6	29.0	26.9%
	0900 – 1000	50.3%	2.8	20.4	69.9%

3.6.16 As with the 2026 assessment, even considering a future year of 2031 the junction operates effectively and with significant reserve capacity (PRC +24%). Queueing and delay are in line with that projected in my earlier 2026 assessments.

Extended Intergreen period for Cycling

3.6.17 The Council considers that extended intergreen periods / additional bonus green time should be included in the LinSig model to account for the use of Downend Road (on carriageway) by cyclists which may be moving more slowly than vehicles through the shuttle working bridge. It relies on guidance in the Traffic Signs Manual (Chapter 6) (CD8.16), but at this time has not presented any information on how it considers this should be reflected in the model, or what assumptions / allowances should be made.

3.6.18 A proper reading of Chapter 12 of the TSM demonstrates that this is not necessary, and that the guidance is really aimed at traffic signal junctions which include specific cycle stages.

3.6.19 The introductory paragraph of Section 12 of the Ch 6 TSM confirms that adjustments may be beneficial under some circumstances, but that validation on site will be needed.

> ***"12.2.1. At junctions where no specific facilities for cyclists are provided, adjustments to signal timings for cyclists may nevertheless be beneficial, particularly at larger junctions, or where a junction arm has an uphill gradient. At all junctions where cyclists are present, timings should be validated on site to ensure the available clearance time for cyclists is correct"***

3.6.20 In this case, the junction is small and simple. Whilst there is a small uphill gradient on the northbound approach to the junction, this is not significant (2.5%, so below the criteria set out in TSM Table 12-1 / 12-2). There are no site specific requirements that would lead to the need to include a cycle phase or specific allowances for cycling clearance.

3.6.21 Indeed, the presence, or expectation, of cyclists being present on the road approaches to the junction is the same for any other junction on the local network.

3.6.22 If it was intended that cycling intergreen times should be applied in the manner the Council is claiming, these would be applied to all junctions as standard, but this is not the case. HCC has confirmed that it does not include cycling intergreens at any of its signal controlled junctions locally (**Appendix J**), despite the presence of cyclists on the road across its network, instead relying on vehicle detection and All Red phase extensions.

3.6.23 In view of the limited cycling demands at the junction (43 daily movements which I estimate will increase by around 5 cyclists as a result of the development) and the nature of the junction which includes cyclists travelling in a straight path and fully visible to oncoming traffic, use of extended green periods / intergreens times in a traffic model as standard is unnecessary.

3.6.24 Instead, the proper approach is to ensure the delivery of suitable detection equipment at the junction which can identify slow moving vehicles or cyclists travelling within the junction beyond the green period which will then call an extension to the intergreen period / 'all red' phase, to allow these vehicles (including cyclists) to clear the junction. Detection of vehicles within and across the junction will be incorporated at this junction, as it is with most others and is a matter for the detailed design of the signal scheme. This is the standard approach that I understand HCC applies across its network and at similar sites.

3.6.25 I sought HCC's views on the need to model an intergreen period for cyclists at the junction. Their response is provided at **Appendix J** which confirms that:

- i Cycle levels are too low to reflect specifically in the LinSig Model, with the low demands having an imperceivable impact on timings in the model;
- ii The signals would have all red detection which would extend the green time as required for cyclists and slow moving vehicles; and
- iii None of the other signal junctions in Fareham include cycle intergreens, and none of the modelling of other junctions has included longer intergreens for cyclist movement.

3.6.26 The intergreen period allows for clearance of the junction by vehicles which cross the stop line at the end of the green period.

3.6.27 Whilst a cyclist <u>may on occasion r</u>each the stop line at the end of the green period, this will not be commonplace, and most cyclists will travel through the junction on the green phase.

3.6.28 Vehicle detection systems (capable of detecting cyclists) would be installed as part of the detailed scheme design (in line with TSM Ch 6 12.3.1) and are able to extend the intergreen period in the event of a slow moving vehicle (including a cyclist). This would be the exception and there is no need to seek to try to model this irregular occurrence.

3.6.29 The inclusion of extended intergreen periods in the model is simply unnecessary:

1. In peak periods the junction would likely operate a cycle time of 50-60 seconds, meaning there will be 60-72 signal cycles in the peak hour;
2. There are some 10 cyclists expected to use Downend Road in the busiest hour (9 observed cyclists + around 1 development cycle trip);
3. A cyclist may therefore be present in around 1 of every 6-7 signal cycles;
4. The TSM intergreen period (CD8.16 – Table 6-1) appropriate for the junction is 9 seconds, but for robustness and flexibility my LinSig model assumes 10 seconds. On site, the intergreen period will be calibrated and set to the minimum safe period for clearance. LinSig assesses the average conditions across the model period;
5. For modelling purposes, if the model were to include a specific cycle intergreen or allowance in line with demands, it would be appropriate to use a 9 second vehicle intergreen for all signal cycles with no cyclists, and then allow for extended intergreens in every 6-7 cycles when cyclists are detected;
6. TSM Table 12-2 identifies cycle intergreens for junctions with cycling phases. It does not identify an intergreen time for a junction with an X distance of 38-42m as is the case here, stopping at 36m (12 second intergreen). Even applying a very conservative estimate of an intergreen for cycle use of say 18 seconds, based on a cycle demand every 6-7 cycles and assuming each cycle where a cyclists is present would trigger an 'All Red' extension of 8 seconds, that would result in an average intergreen period of 10.25-10.50 seconds across the peak hour period (**Appendix K**).
7. This is consistent with the 10 seconds intergreen I have applied in the model. There should be no concerns about whether the modelling fairly reflects future conditions at the junction, taking account of cyclists.
8. Notwithstanding this, to consider the robustness of this approach, I have also tested the impact of an assumed 11 second average intergreen, more than would be required. This demonstrates that the junction continues to operate effectively and within capacity with a PRC of +18.1% (**Table 3.5 / Appendix L**).

Table 3.5 – Sensitivity Test – 11 Second Intergreen Period (07:30 – 08:30)

Approach	Degree of Saturation	Mean Max Queue (pcu)	Average Delay per PCU (s/pcu)	Practical Reserve Capacity
Downend Road – South (NB)	76.2%	8.8	27.5	18.1%
Downend Road – North (SB)	75.6%	7.7	32.9	

3.6.30 An alternative way of looking at the issue alleged by the Council is to consider the adequacy of the assumed 10 second intergreen period to accommodate cyclists clearing the junction.

3.6.31 Drawing ITB12212-GA-065 (**Appendix E**) identifies the vehicle collision points used in the calculations of intergreen periods. There is 66m between stop lines, with the X-distances being 38m & 42m. In each direction, a cyclist would need to travel around 52-54m to clear the bridge to a point where a car and cyclist can safely pass (i.e. to clear the collision area).

3.6.32 Assuming a cycle speed of 20 kph (5.55m/s) (TSM Ch 6 Table 12-1 and TSoCG 1(l)), which in my view is conservative for many cyclists, it would take an average cyclist 9-10 seconds to clear the junction collision area (52-54m), if the cyclist crossed the stop line at the end of the green period.

3.6.33 The intergreen period is assumed in the model as 10 seconds, and so would on average be sufficient (on average) for the clearance of cyclists without the need for any phase extensions.

3.6.34 In real terms, by virtue of the generally straight alignment of the junction and good intervisibility between drivers at each stop line and of the whole junction area, any cyclist (or slow moving vehicle) travelling through the junction will be fully visible to traffic seeking to enter the junction from the opposite direction. A driver simply will not set off to cross the bridge if a cyclist (or indeed slow moving vehicle) is travelling through the junction in the opposite direction. There will be no safety concerns and the commissioning of the junction on the ground would include the necessary and appropriate detection technology and phase timings to address the presence of slow moving vehicles and call an all-red phase extension if needed.

Detection of Cyclists / Slow Moving Vehicles

3.6.35 The detailed design of the junction (at the Section 278 Detailed Design Stage) will determine the most appropriate method of control and detection equipment. Despite this and in view of the Council's concerns on the matter, I have sought advice from a specialist traffic signal consultancy (Integrated Traffic Services Ltd) and provide their advice in **Appendix M**.

3.6.36 Detection would most likely be achieved through use of above ground detectors (Radar or Microwave Vehicle Detectors (MVD)), mounted on the secondary signal poles and directed to the bridge, which would give sufficient coverage of the junction area. It could be achieved by below ground detection (i.e. inductance loops) but that is less likely in this case.

3.6.37 These Radar and MVD detectors can detect vehicles (including cyclists) from a speed of 4kph (1.1m/s), with any cyclist on the bridge likely to be comfortably exceeding that speed (Table 3.6). In the event a cyclist or slow moving vehicle being detected, an All-Red phase would be triggered sufficient to enable safe clearance of the junction.

3.6.38 The Council alleges that Advanced Stop Lines are required at the junction to enable detection of cyclists and to trigger associated intergreen extensions (Matter of Disagreement (2i)).

3.6.39 This is simply wrong, and the inclusion in the design of detection technology across the bridge as I have explained will ensure any intergreen extension required is properly triggered. Under fault conditions, the detection would run to the maximum extensions, ensuring the safety of users whilst any fault could be corrected.

Impact of Cyclists on Junction Operation

3.6.40 The other concern raised by the Council relates to the impact on the operation of the junction when a cyclist is present on the junction approach, on the basis that cyclists move more slowly than motor vehicles.

3.6.41 If a cyclist was present at the stop line at the start of the green phase, and assuming the (conservative) acceleration rates (0.5m/s) and cycling speeds (20kph / 5.55m/s) presented in the TSM Table 12-1, then it would take a cyclist a total of 17.5 seconds to clear the junction area (66m) in line with the green time, with 15 seconds to clear the collision area (52-54m).

3.6.42 This uses the acceleration formula:

$$S = V_o t + at^2/2$$

3.6.43 The green time assumed in the model is 17-23 seconds in the peak hour for each approach. Therefore, by the end of the (shortest) green period (southbound), a cyclist would be 64m from the stop line, clear of the junction collision area and reaching the opposing stop line.

Table 3.6 – Cycle Distance from Stop Line during Green Period

Seconds after Green	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Cycle Speed (m/s)	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	5.55					
Distance Travelled (m)	0.3	1.0	2.3	4.0	6.3	9.0	12.3	16.0	20.3	25.0	30.3	35.8	41.4	46.9	52.5	58.0	63.6
Stage	Green Time																

3.6.44 By the end of the modelled 10 second intergreen period, a cyclist would be 119m from the stop line, some 53m beyond the opposing stop line (**Table 3.7**).

Table 3.7 – Cycle Distance from Stop Line during Intergreen Period

Seconds after Green	17	18	19	20	21	22	23	24	25	26	27
Cycle Speed (m/s)	5.55										
Distance Travelled (m)	63.6	69.1	74.7	80.3	85.8	91.4	96.9	102.5	108.0	113.5	119
Stage	Green	Intergreen Period									

3.6.45 Clearly therefore, a cyclist would be far clear of the junction by the time the opposing traffic stage (green time) was called.

3.6.46 The presence of a cyclist at the start of the stage (i.e. at the stop line when the signal turns green) would control vehicle speeds in the traffic queue behind to cycling speed (i.e. 20kph), with traffic following a cyclist through the junction (there is insufficient space for a cyclist and vehicle to pass on the bridge).

3.6.47 The mean maximum queues in the busiest period (07:30-08:30) are 8 PCUs northbound and 7 PCUs southbound. If vehicles are constrained to average cycle speeds, they will be travelling at 5.55m/s behind a cyclist, meaning a distance of 11m is needed for each vehicle to maintain the recommended 2 second gap / headway to the preceding vehicle. In practice many vehicles drive with less than the recommended 2 second gap so this is pessimistic.

3.6.48 Based on the MMQ of 7-8 vehicles, this means the average maximum platoon of traffic behind a cyclist would reach 77-88m (7/8PCUs x 11m). By the end of the intergreen period (assuming 17 seconds Green), the cyclist will be 119m from the stop line, so the last vehicle in the platoon will be 31m past the stop line. To clear the junction area (66m) would take a further 6-7 seconds of intergreen (5.55m/s x 7 seconds is 39m), which would comprise an 'All Red' extension.

3.6.49 As I have set out in para 3.6.29, assuming an extended intergreen of 18 seconds when a cyclist is present (so adding 8/9 seconds not 6-7), results in an average intergreen across the modelled period of 10.25-10.50 seconds, in line with what I have modelled.

3.6.50 In practice, this would only occur if a cyclist were present at the head of the traffic queue. In reality, cyclists would be distributed throughout the queue, which would lessen any impact, with vehicles ahead in the queue travelling faster and not controlled to average cycle speeds.

Inclusion of a Pedestrian Phase

3.6.51 The Council contends that the (alleged) limitations in visibility at the proposed pedestrian refuge island crossing and absence of suitable gaps in traffic necessitates the inclusion of a specific pedestrian phase to the junction. These concerns fail to understand how the junction and access scheme would, in practice, operate.

Visibility at the Pedestrian Crossings

3.6.52 The Council's concerns appear to relate to the visibility from the pedestrian refuge island to oncoming traffic, to the extent that a pedestrian would be able to appreciate the gaps in traffic needed to cross the road safely. The Council is concerned that traffic that may be queuing in the right turn lane at the access which will impede visibility to the north, and that traffic waiting at the southbound stop line may inhibit visibility from the refuge to the junction to the south.

Achievable Visibility vs TSM Requirements

3.6.53 Drawing ITB12212-GA-078 (**Appendix N**) identifies the pedestrian visibility splays at the pedestrian refuge island (including the potential effects of queued vehicles), considered against the TSM requirements (CD8.16 - Table 15-1), using a 35mph 85%ile speed in line with Table 2.2.

Image 3.1 – TSM Recommended Pedestrian Crossing Visibility Distances

Table 15-1 Recommended visibility distances for pedestrian crossings

85th percentile speed (mph)	20	25	30	35	40
Recommended Stopping Sight Distance (m)	22	31	40	51	80

3.6.54 In my opinion applying a 35mph 85%ile speed to the visibility requirements at this junction is a significantly robust assumption. The scheme will deliver reductions in northbound vehicle speeds through the narrowing of the road across the bridge, and the introduction of the traffic islands, site access, traffic signals, speed limit changes and horizontal alignment changes to the north of the bridge will materially reduce southbound vehicle speeds.

3.6.55 In my opinion traffic speeds across the bridge are unlikely to exceed 20-25mph, with southbound approach speeds likely to be less than 30mph.

3.6.56 In the absence of traffic, Drawing ITB12212-GA-078 demonstrates visibility of 1.5m x 51m to be available in both the northbound and southbound direction, from all approaches to the refuge island crossing. The minimum TSM visibility requirements are met.

3.6.57 Indeed, Drawing ITB12212-GA-061A (CD2.2.9) demonstrates that substantially greater visibility is available, with pedestrian visibility of 1.5m x 160m to the north from the refuge island and 1.5m x 90m to the south, far in excess of the TSM requirements.

3.6.58 I have considered the available visibility in the context of the TSM crossing gap acceptance of 4-6 seconds (CD8.16 – para 13.5). A vehicle travelling at 30mph on approach to the crossing will be travelling at 13.4m/s, meaning that for a pedestrian to understand a gap of 4 seconds requires 54m visibility and to appreciate a gap of 6 seconds requires a gap of 80m. Visibility of 90m (south) and 160m (north) far exceeds this requirement, taking no account of the slowing of traffic on approach to the junction, or the reduced speeds that will be achieved through the scheme.

Impact on visibility of a vehicle in the Right Turn Lane

3.6.59 If a vehicle is waiting to access the Appeal Site, it would form a limited and temporary restriction on visibility, meaning that a visibility splay of 1.5m x 51m can be achieved in line with TSM, but to the centre of the southbound traffic lane rather than to the centreline of the road.

3.6.60 To put this into context, TA Table 7.10 presents the results of the traffic modelling of the proposed site access junction using TRL's Junctions 9 software, with the model agreed with the County Council. This identifies that the average queue in the right turn lane seeking entry to the Appeal Site will be 0.1 vehicles in the morning peak hour and 0.2 vehicles in the evening peak hour. Vehicles would be delayed at Downend Road for some 7 seconds on average.

3.6.61 Therefore, for the significant majority of time, there will be no obstruction to visibility resulting from the right-turn lane, and any obstructions will be short-lived and temporary. Even if a vehicle were in the right turn lane, pedestrian visibility in line with the TSM requirements is met, albeit to the centreline of the southbound lane.

3.6.62 I do not consider that there is any material risk that queued vehicles will significantly affect visibility to the north such that pedestrians on the refuge island crossing cannot locate and accept traffic gaps in westbound traffic.

3.6.63 Moreover, national design guidance (MfS 2 – CD8.9) identifies that

> ***"9.4.9 - Where right turn lanes are to be provided or retained, refuges should be provided within ghost islands to facilitate pedestrian crossings."***

3.6.64 In each and every case, there will be a period of time where vehicles in the right-turn lane impede visibility at the refuge island. That does not make a crossing unacceptable; instead, it is a simple function of the provision of refuge island crossings at right turn lane junctions.

Impact on visibility of a vehicle queued in the southbound stop line

3.6.65 Vehicles queueing at the southbound stop line towards the bridge would provide a temporary restriction on visibility available for pedestrians seeking to cross from the refuge island to the footway on the western side of Downend Road, reducing achievable visibility to 40m to the centre of the carriageway across the bridge, assuming an X-distance of 1.5m (the distance from the front of the refuge island that visibility is taken from).

3.6.66 This level of visibility is equivalent to the TSM Chapter 6 pedestrian visibility requirement for an 85%ile speed of 30mph (**Image 3.1**).

3.6.67 As I have explained, the narrowing of the carriageway across the bridge to 3m between edge markings will have the effect of reducing traffic speeds. I would estimate traffic speeds across the bridge of around 20-25mph, which means that even allowing for the impact of southbound queues impacting visibility, sufficient visibility will be achieved. The TSM identifies pedestrian visibility splays for 20mph of 22m. and for 25mph of 31m.

3.6.68 A visibility distance of 40m allows a pedestrian to appreciate a vehicle some 3.5-5 seconds downstream (assuming 20-25mph vehicle speeds through the single working section). To cross from the refuge island to the western footway (a distance of ~3.0m) would take 2.5 - 3.0 seconds. On that basis, sufficient visibility is available for vehicles to safely cross, irrespective of temporary obstructions.

3.6.69 In practice most pedestrians will assess gaps in traffic from a distance less than 1.5m back from the edge of the refuge island. Assuming a pedestrian assesses visibility from an x-distance of 0.75m back from the front of the refuge island, clear visibility to the northbound stop line is achieved, in excess of 80m, unobstructed by traffic queuing on the southbound bridge approach.

3.6.70 Forward visibility for northbound traffic to the refuge island is good, with clear intervisibility between the northbound stop line and the refuge island, meaning that any approaching vehicle will be able to clearly see a pedestrian on the island and approaching the road to cross.

3.6.71 More fundamentally, the location of the refuge island relative to the proposed bridge traffic signals will mean that pedestrians crossing from the refuge island to the western footway will know and appreciate that when the southbound traffic streams are moving through the junction, that no northbound traffic will be approaching. This will deliver significant gaps in traffic to enable safe crossing of the road.

Visibility Summary

3.6.72 Visibility to and from the pedestrian refuge island is good and exceeds that required by the TSM, indeed visibility in line with HCC's TG3 policy (MfS Based) and DMRB requirements is achieved.

3.6.73 Vehicles queued in the right turn lane and southbound stop line will reduce available visibility to a limited degree, but these are temporary obstructions to visibility which are not uncommon and will quickly pass, and the remaining visibility accepting these temporary obstructions, is sufficient to ensure safe crossing movements at the refuge island.

3.6.74 The scheme, including the crossing refuge island, was subject to independent Road Safety Audit, raising no such issues, and is in essence the same as that considered by the 2019 Appeal. FBC raised no such concerns at that time in relation to the crossing island.

Availability of gaps in traffic to cross

3.6.75 The pedestrian crossing refuge enables two-stage crossing of the road, with pedestrians required to identify gaps in traffic to cross the two x 3m wide lanes.

3.6.76 The two-stage operation of the crossing means that gaps in traffic need to only be understood for a single direction at a time.

3.6.77 Assuming a modest walking speed of 1.2m per second (TSM), it would take a pedestrian 2.5 seconds to cross each lane of traffic, around 3 seconds from kerb to kerb.

3.6.78 TSM Ch 6 (para 13.5) identifies that a gap of 4-6 seconds in traffic may be acceptable at normal urban traffic speeds, rising to 10-12 seconds for other situations and groups. There are no site specific requirements here that lead to the need for longer gaps to be formed to enable safe crossing. A crossing period of 4-6 seconds is agreed with the Council as appropriate in this situation (TSoCG). This would however comprise the crossing of the whole road, and in this case the crossing is able to be achieved in two stages.

3.6.79 In the 2026 'with development' scenario, I forecast northbound traffic flows of 494 vehicles and southbound traffic flows of 401 vehicles during the busiest hour. **Table 3.8** considers the vehicle frequency on Downend Road taking account of the forecast demand, to consider the availability of gaps in traffic to safely cross the road from the pedestrian refuge island.

Table 3.8 – Vehicle Frequency on Downend Road – AM Peak Hour (07:30-08:30)

Time Period	Northbound			Southbound		
	Vehicles	Veh/Sec	Frequency (Sec / Veh)	Vehicles	Veh/Sec	Frequency (Sec / Veh)
07:30	126	0.14	7.1	97	0.11	9.3
07:45	120	0.13	7.1	113	0.13	8.0
08:00	132	0.15	7.1	97	0.11	9.3
08:15	115	0.13	7.1	93	0.10	9.6
Hour	**494**	**0.14**	**7.3**	**401**	**0.11**	**9.0**

3.6.80 Northbound traffic, if considered to arrive in a uniform pattern, has a vehicle frequency of one vehicle every 7 seconds, with southbound vehicles a frequency of one vehicle every 9 seconds.

3.6.81 Considered against the TSM guidance that pedestrians generally need a gap of 4-6 seconds to cross the road, in both directions there will be sufficient gaps.

3.6.82 In practice, vehicles do not arrive in a uniform pattern and there will be regular instances of one, two or three vehicles travelling along Downend Road together, significantly increasing the gaps in traffic available for pedestrians to cross. This mirrors what can be appreciated on site at present where it is relatively easy to find gaps in traffic to cross the road safely.

3.6.83 The location of the crossing relative to the adjacent signal junction means that for periods where the signal crossing is on a red phase for southbound traffic, vehicles will be queueing on approach to the junction. This will generate periods of stationary traffic through which pedestrians can cross. At the detailed design stage, the opportunity for this can be enhanced through the provision of coloured surfacing or road markings, at the point of the refuge island, highlighting the crossing to approaching drivers and identifying the crossing area. Drivers, on a practical basis, will allow pedestrians to move to the refuge island without difficulty.

3.6.84 Moreover, vehicles travelling northbound through the traffic signal junction will be grouped together in vehicle platoons. The modelled green time (in the busiest peak hour) for southbound vehicles is 17 seconds, and so there will be at least that amount of time available as 'gaps' in northbound vehicles available for pedestrians to cross the lane, each and every cycle. Pedestrians will appreciate that when southbound vehicles are moving through the junction, they will be able to cross the eastbound carriageway unopposed.

PMV2 Assessment

3.6.85 To validate the decision to provide a refuge island crossing, I have also carried out a PmV^2 Assessment of Downend Road (Appellant SoC Appendix 14). PmV^2 is a numerical assessment of crossing need and considers various factors that affect crossing difficulty including crossing distance, vehicle speed, traffic demand and pedestrian demand and mobility.

3.6.86 In its SoC Transport Addendum (para 3.4), the Council seek to downplay the validity of a PmV^2 assessment, considering that the assessment methodology is outdated.

3.6.87 In reality, PmV^2 assessments remains an extensively used assessment criteria across the country and provides an effective quantitative assessment tool to inform crossing choice.

3.6.88 Hampshire County Council, the highway authority, continue to utilise a modified PV^2 assessment to consider the need and funding of crossing requests, and the assessment process is enshrined in its current Traffic Management Policy (extracts at **Appendix O**) which confirms:

> ***"The County Council uses a well established objective numerical assessment for considering requests for controlled crossings based on the PV2 value (where 'P' is the number of pedestrians, cyclists and horse riders, and 'V' the number of vehicles). It is used to identify the difficulty pedestrians have in crossing a road"***

3.6.89 The assessment was modified by HCC and other local authorities to take greater account of other important factors which affect crossing difficulty, including age and mobility of pedestrians, and barrier effects such as speed. HCC uses a PmV^2 methodology.

> ***"In order to take account of other important factors in the PV2 value, a weighting factor will be applied to vulnerable pedestrians (children, older people and disabled pedestrians), and the barrier effect of a busy road that is difficult to cross shall be included by taking account of the speed limit, width and accident history of the road. This will produce the PmV 2 value."***

3.6.90 Based on my PmV^2 assessment, a controlled crossing is not justified by the traffic flow and pedestrian demands projected at Downend Road. It does not come close to reaching the criteria where a controlled crossing is justified. I assess a PmV^2 value at Downend Road of 0.09-0.30, whereas a PmV^2 value of 1.0 is needed to justify a controlled crossing (**Appendix O**).

3.6.91 For PmV^2 values of between 0.2-0.5 the HCC Policy identifies that these sites would:

> ***"not normally be suitable for a controlled crossing. Alternatives such as a pedestrian refuge island or a zebra crossing may be considered."***

3.6.92 HCC also publishes guidance on its website in relation to pedestrian crossing provision (extract at **Appendix P**) which states:

"Several factors are taken into account when assessing whether a formal signal controlled or zebra crossing is appropriate.

We apply Department for Transport criteria to ensure that pedestrian crossings are placed where they will be most beneficial. The criteria considers factors such as:

- ***numbers of pedestrians crossing***
- ***traffic flow***
- ***traffic composition***
- ***road use, site characteristics***
- ***surrounding environment, accident history, traffic speeds, accessibility and visibility***

Whether a crossing is needed at a location depends upon the overall pedestrian and traffic flow over the busiest four hours of the day. There should be at least 50 pedestrians and 1000 vehicles passing through the location every hour.

The underlying principle is that crossings will only operate correctly if they are used on a regular basis throughout the day. If there are too few pedestrians for most of the day drivers may tend to ignore the crossing and put pedestrians at risk on the occasions when they are using the facility. Conversely, if traffic flows are low then pedestrians can comfortably cross in the gaps without needing a crossing."

3.6.93 In this case, there are no instances where traffic flows exceed 1,000 vehicles in any hour, and pedestrian demands will be light, not reaching anywhere near the 50 crossings per hour that HCC identify as reaching a level where controlled crossings are necessary.

Pedestrian Crossing Summary

3.6.94 I do not accept the Council's concerns that there will be insufficient gaps in traffic, or visibility available for pedestrians to appreciate and understand gaps in traffic, such that the pedestrian crossing refuge is not suitable.

3.6.95 My assessment demonstrates visibility to and from the refuge island in excess of TSM requirements. Whilst visibility may be temporarily impacted by queued vehicles, any impact is small and temporary and does not impede the ability for pedestrians to safely cross the road.

3.6.96 An assessment of vehicle frequency on Downend Road identifies gaps in traffic of 7-9 seconds assuming a uniform arrival pattern, in excess of the TSM gap acceptable requirement of 4-6 seconds. My assessment using PmV^2 demonstrates that a refuge island is a suitable crossing taking into account the site specific considerations at Downend Road.

3.6.97 The principle of the refuge crossing is agreed with HCC (ASoTM), was agreed as part of the earlier 2019 Appeal, where the Council raised no such concerns as confirmed in the 2019 SoCG (**Appendix A**) and where the Inspector was satisfied with the pedestrian provisions for the Option 3 scheme (CD7.1).

3.6.98 Therefore, no pedestrian phase is required at the junction and I do not accept that this is a necessary model scenario to consider.

3.7 Assessment of the RfR relating to Vehicle Impacts

3.7.1 The Council's RfR alleges that the queuing and delay that would arise at the bridge will create unacceptable safety and convenience impacts on the local highway network. These matters should be taken in turn.

Impacts on Convenience of Drivers and Vehicles

3.7.2 In relation to convenience, I assess this to be the level of delay and discomfort that vehicles will experience at the junction.

3.7.3 I have identified in Tables 3.1 and 3.2 that drivers using Downend Road would experience delays of around 25-30 seconds during the busiest periods on the network, with 20-25 seconds delay outside of peak hours.

3.7.4 This is far from a significant inconvenience to drivers on the network and would not lead to frustration or any material inconvenience. Drivers queuing at the junction would clear the junction in the next available cycle (green period) and cycle times are short.

3.7.5 In practice, any delay for southbound vehicles would likely be 'made up' at the A27 Downend Road junction where delays exceed 25 seconds (CD1.10 – Table 7.20), meaning there will be no practical difference to journey times. Delays for northbound traffic of around 25 seconds would have no material effect on the wider journey time or driver experience.

3.7.6 The Council, in preparing its Local Plan Evidence Base, identified various thresholds for significance of impacts in relation to traffic delay, presented in the Appellant SoC (para 5.66) which identified that 'severe' impacts would comprise a situation where delay is greater than 120 seconds, and has increased by more than 60 seconds. In this case, total delay is around 25-30 seconds, far below this significance threshold.

3.7.7 In relation to cyclists, which will travel on road, the introduction of traffic signal control will have no greater impact on convenience than it would for vehicles. Cyclists will be able to pass through the junction within a single phase, unopposed by vehicles, and detection equipment would be included in the scheme will ensure that cyclists safely clear the junction. I have demonstrated that the presence of a cyclist in the traffic stream will not materially affect the passage of vehicles through the junction.

3.7.8 The NPPF sets a high-bar when determining if traffic impacts should result in a scheme being considered unacceptable. Paragraph 109 of the NPPF states:

"Development should only be prevented or refused on highway grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe."

3.7.9 In the context of the local network, a localised delay at the Downend Road bridge between 20-30 seconds is in my view plainly not a severe impact.

Impacts on Safety

3.7.10 Despite various requests, the Council has not clarified how the queueing and delay that would be generated by the conversion of the bridge to traffic signalisation would result in a safety issue. No clarity on this matter was provided in the Council's SoC or its Addendum.

3.7.11 An independent Road Safety Audit of the scheme has been carried out and raises no residual safety issues. The matters that were raised are addressed in the Designers Response to the Audit.

3.7.12 The queueing that is projected to occur at the junction, a Mean Maximum Queue in the most constrained period of 7 vehicles southbound and 8 vehicles northbound, would not impact on adjacent junctions (the Causeway to the south and the Appeal Site access to the north).

3.7.13 In reality, the site access works in combination with the improvement to the bridge would serve to reduce traffic speeds in the area and on the southbound approach to Portchester which will benefit network conditions. HCC agree (ASoTM and CD3.4.1) that the scheme delivers safety benefit.

3.7.14 Allegations that the proposed pedestrian crossing refuge is not safe by virtue of insufficient visibility or gaps in traffic is unfounded and not supported by a proper assessment of the scheme. No designated pedestrian phase is required.

3.7.15 I conclude that any localised impacts at the bridge will be immaterial to the operation of the local network, are acceptable, and that the proposals comply with relevant policy.

SECTION 4 Effects on Pedestrians at Downend Road

4.1.1 The 'Main Issue' identifies two matters in relation to pedestrians; pedestrian movement across the Downend Road bridge; and pedestrian crossing of Downend Road to reach the Appeal Site.

4.1.2 The improvement scheme proposes the delivery of a new footway across the Downend Road bridge where no facilities currently exist, as well as the delivery of a pedestrian refuge island crossing of Downend Road to connect to the site. Informal crossings are provided south of the bridge to improve existing provisions.

4.1.3 Fundamentally, the proposed improvements for pedestrians at the bridge mirror those considered at the 2019 appeal in relation to the Option 3 scheme. The Council agree they are 'similar' (TSoCG). At the 2019 Appeal the Council agreed that the pedestrian provisions of the Option 3 scheme were acceptable (**Appendix A**). The Inspector raised no concerns with the arrangement (CD7.1).

4.2 Pedestrian Movement across Downend Road Bridge

4.2.1 There is no footway present at the existing bridge and pedestrians walk in the carriageway shared with vehicles, primarily behind a white-lined carriageway demarcation.

4.2.2 I have carried out various surveys of the bridge, including four pedestrian surveys, which demonstrate that some 43 pedestrians (on average) use the bridge on a daily basis. The Council's case at the 2019 Appeal was that the existing bridge is unsafe for pedestrians. The development will generate around 56 daily pedestrian movements to Downend Road (or 130 using the Councils estimates), of which it was common ground in the 2019 Appeal that 36-38 would cross the bridge each day. Overall total forecast demand would be around 80 pedestrians across the bridge each day, which comprises light pedestrian flows in real terms.

4.2.3 The proposed improvement to Downend Road bridge will deliver a significant improvement to pedestrian facilities, comprising a 2.0m wide footway across the bridge, sufficient for unimpeded pedestrian two-way movement. The footway will connect the existing footways on the western side of Downend Road either side of the bridge and provide access to the Paradise Lane footpath (a well-used recreational route), the Ellerslie Hotel and Gym, as well as access to the Appeal Site.

4.2.4 It is common ground with the Council (TSoCG – para 1(p)) that the improvements to the bridge deliver a <u>significant improvement</u> to the safety and attractiveness of pedestrian facilities at the bridge compared with the existing situation.

4.2.5 HCC has considered the improvements, as has an Independent Road Safety Audit. HCC confirms the proposals are acceptable and the RSA raises no safety issues with pedestrian provision.

4.2.6 In my opinion, the delivery of a standard width footway across the bridge can only be viewed as a benefit to the safe pedestrian movement at the bridge.

4.3 Pedestrian Movement across Downend Road

4.3.1 The scheme proposes the delivery of a pedestrian crossing refuge of Downend Road, formed in the southern taper of the turning lane for the site access junction. In refusing the application, FBC Members were concerned about the safety of the pedestrian crossing provision.

4.3.2 First and foremost, the pedestrian refuge island is the same provision that was proposed as part of the 2019 Appeal (CD7.1). In contesting the 2019 Appeal, the Council raised no concerns about the provisions made for pedestrians in the corresponding Option 3 scheme (the only substantive difference being the mode of traffic control over the bridge). It was common ground (**Appendix A**) that the Option 3 scheme, which the current Appeal scheme mirrors, was acceptable for pedestrians. The Inspector raised no concerns with the crossing provision, and HCC agrees that the works are acceptable (ASoTM).

4.3.3 It is common ground that the refuge island meets the TSM preferred width and depth recommendations (TSoCG – para 1(i)).

4.3.4 I have presented as part of the SoC Appendix 14 an assessment of the crossing provision against HCC's PmV^2 guidance, explained in greater detail earlier in my evidence. PmV^2 guidance is based on a long established assessment methodology to consider the type of crossing provision taking account of the users of the road (pedestrians and vehicles) and crossing difficulty. The PmV^2 assessment demonstrates that a refuge island crossing is the most appropriate form of crossing taking account the traffic and pedestrian demands and geometric characteristics of the road.

4.3.5 I have addressed in Section 3 the Council's criticism of visibility and crossing difficulty at the refuge island location which led them to consider the need for a pedestrian phase at the signal junction. For the reasons I have explained, this is unnecessary, and the refuge island delivers safe and suitable crossing for pedestrians.

4.3.6 An Independent Road Safety Audit has been carried out and raises no safety concerns with the pedestrian crossing provision.

4.3.7 In my opinion there are no reasonable safety concerns with the provision of a pedestrian crossing refuge island in this location.

4.4 Adequacy of the Pedestrian Crossing Provision South of Bridge

4.4.1 Whilst not the focus of the RfR, I have also assessed the informal crossing proposed to the south of the bridge. This would replace an existing informal crossing point immediately at the southern side of the bridge and offer an improved location for crossing benefiting local people.

4.4.2 This crossing would experience limited use, really only serving those properties on the eastern side of Downend Road and The Thicket who are seeking to travel north across the bridge, to Paradise Lane and to the hotel / gym.

4.4.3 Drawing ITB12212-GA-078 (**Appendix N**) demonstrates that adequate visibility is provided at the crossing to the north for pedestrians in line with TSM recommendations for a 35mph 85%ile speed (51m). The crossing from the eastern side of Downend Road is more constrained but still delivers visibility to the north in line with the TSM Table 15-1. Visibility to the south is some 90m from both sides of Downend Road, far in excess of what the TSM recommends.

4.4.4 The narrowing of the bridge to single working will reduce speeds to a point well below 35mph. In my opinion traffic speeds across the bridge will be 20-25mph, where visibility of 22-31m is recommended by the TSM (**Image 3.1**). Visibility far in excess of this requirement is available.

4.4.5 Pedestrians will be able to safely cross the road in this location, using the gaps that are generated by the operation of the bridge by traffic signals.

4.4.6 The Independent Road Safety Audit raises no concerns about the crossing to the south of the bridge, and I see no reason that there should be any safety concerns with its provision.

4.5 Alternative Pedestrian Routes

4.5.1 I do not accept that the pedestrian provisions proposed to Downend Road are unsafe or unattractive and conversely believe these will offer a realistic and attractive option for walking for pedestrians of the development area and wider community. Aside from raising concerns with the safety of the refuge crossing island, it is common ground that the improvements at Downend Road will provide <u>significant improvement</u> to the safety and attractiveness of Downend Road for pedestrians when compared to existing facilities (TSoCG (1(p)).

4.5.2 Notwithstanding this, the Appeal development is not reliant only on pedestrian access to Downend Road for access to local facilities, but instead also provides two further points of connection, at Cams Bridge (Route 2) and at Upper Cornaway Lane (Route 3) (**Image 4.1**).

4.5.3 The location of the site relative to key services and facilities is provided in **Appendix Q** which was common ground with the Council for the 2019 Appeal.

Image 4.1: Pedestrian and Cycle Access Routes

4.5.4 Upper Cornaway Lane provides access towards Portchester and serves a different range of facilities than Downend Road.

4.5.5 For all facilities west of Downend Road, the distance from the centre of the site to the A27 / Downend Road junction, using Downend Road and Cams Bridge to The Thicket are equidistant.

4.5.6 The access route to Cams Bridge provides direct access to The Thicket, where good quality lit footways are present on both sides of the road, and onwards to the A27 corridor which has footways on both sides of the road as well as formal cycling facilities, through a combination of on-road and off-road provision, as well as providing access to the National Cycle Network.

4.5.7 The Appeal scheme proposes improvements to these routes including improvement of Cams Bridge to deliver a dedicated pedestrian / cycle access, creation of a new crossing (refuge) to the A27 and informal crossing provisions in the wider area. I address the council's concerns with this route in Section 5 which I believe to be entirely without merit.

4.5.8 Therefore, if residents do not find the route to Downend Road 'attractive' there is a good quality equidistant alternative route that will be available to users of the scheme.

4.5.9 Indeed, the shape of the Appeal Site means the majority of the built development will be formed in the central and eastern parts of the site, where users would need to travel past Cams Bridge to reach Downend Road. For the majority of people, the natural choice would in my view be to use Cams Bridge to access the scheme in preference to Downend Road.

Satchell Lane, Hamble

4.5.10 A development proposal at Satchell Lane in Eastleigh was subject to a Public Inquiry in October 2018 and considered a similar matter (APP/W1715/W/18/3194846 - **Appendix R**).

4.5.11 This was a development of 70 dwellings, with the Council (Eastleigh Borough Council (EBC)) having refused planning consent for reasons of accessibility. There were three routes available to local facilities. One of the primary issues considered by the Inspector was the safety of the available route to the north of the site, which provided the shortest route to some facilities:

> ***34 - As clarified at the Inquiry, the Council's sole objection on sustainability/accessibility grounds focused on one point. That was whether accessibility by walking along the northerly route on Satchell Lane to Hamble Secondary School, the health centre and other facilities was safe and acceptable.***

4.5.12 The Inspector found that the northerly route, which had no footways on much of the route, was not safe. Nor did he accept the proposed central route.

4.5.13 However, he considered that because of the availability of an alternative route to the south, which in that case provided a longer (but acceptable) travel distance to some key facilities than the disputed northerly route, the proposals were acceptable, and consent was granted:

> ***38. If the use of the northern part of Satchell Lane as a safe walking route to the facilities, especially the school, were a policy requirement and there was no alternative, I might have a very different view on this issue. However there is no such policy requirement and, in any event, alternative modes of transport and walking routes exist.***
>
> ***39. There is no necessity to use the northern route as access to the school because the southern routes (possibly including a short cut through a housing area) is within a reasonable walking distance. The shortest of these is within the distance considered acceptable for secondary school children by the education authority. As a further alternative, a pedestrian could start along the southern route and then take a bus from the end of Satchell Lane for the remainder of the journey.***
>
> ***41. The Council's position in closing was that anyone "..attending the secondary school, health centre or the railway station will either have to risk walking along the northern route.....or navigate fields and unauthorised footpaths, or go by car." However this omits the southern walking route(s), the part walking and part bus option, and the agreed acceptability of cycling by either route.***

4.5.14 For context, the northerly route in dispute served the secondary school and nearest train station. Using the northerly route, these facilities were 1.01km and 1.58km away. Using the southern route (considered safe), the distance to these facilities was 3.8km to the school, 2.62 km to the rail station and this was considered to be an acceptable walking distance.

4.5.15 EBC challenged this decision on the grounds that the Inspector had erred in law in concluding that the site was accessible by walking. This was considered in the High Court (**Appendix R**) with the Decision issued on 17/07/2019. This found that

> ***33. There was no doubt that there was a safe, sustainable and short walking route from the site to many facilities to the south and west. The problem concerned facilities to the north, notably the school and the healthcare facility. I accept Mr Stinchcombe's submission that the adequacy of the route to the facilities in the north was one of the main issues in dispute before the Inspector; in fact, he describes it (at DL34) as the "Council's sole objection on accessibility/accessibility grounds".***
>
> ***34. However, in my view, on its proper construction, Policy 100.T is concerned with the provision of <u>means</u> of sustainable transport. Similarly, the focus of paragraph 35 of the NPPF is on providing <u>opportunities</u> for sustainable modes of transport, such as walking. Whilst it is undeniably the case that a development would not properly be regarded as "well served" by a walking route that was unsafe (and the contrary was not suggested before me), and that it is implicit in paragraph 35 that the opportunities to be provided are opportunities for a safe mode of transport, there is nothing, express or implied, in either policy that requires every possible route from the development to be safe. What matters is whether there was a safe route, and there was.***
>
> ***35. Nor, in my judgment, is there an obligation on the decision maker to assess whether residents of the development are likely to make use of unsafe routes between the site and particular facilities. It may well be the case that 14-year-old children living on the site would be tempted to use the shorter, northerly route to school, even though, in the Inspector's view, that is unsafe, rather than the markedly longer, but safer, southern route. But that does not mean that the site is not adequately served by a perfectly adequate, safe walking route. It is. The southern route is longer but safe. Nor does the existence of an unsafe alternative mean that there are no adequate opportunities for sustainable modes of transport, such as walking, which is entirely safe. There are. It just happens that, as regards the school and the health centre, those opportunities involve a longer route. I see no error of interpretation in the Inspector's approach.***

4.5.16 Whilst I maintain that the improvements proposed to Downend Road and agreed with the HCC deliver a safe and attractive walking route, it is clear from this Decision that even if some residents did not feel safe or attracted to walk on Downend Road, the availability of alternative (in this case equidistant) routes to facilities west of the site using Cams Bridge, means that the Appeal Site does still provide opportunities for sustainable travel. Whilst the High Court decision refers to paragraph 35 of the 2012 NPPF, the same overarching policy requirements are contained in the 2019 NPPF at paragraphs 102(c),103 and 108(a) and apply in this case.

SECTION 5 Other Matters Raised by the Council

5.1.1 As I explain in Section 1, the Council is seeking to expand its reason for refusal through the process of developing its evidence and now alleges concerns relating to:

- The safety of the site access design, including whether there are departures from standard in the design and if so, whether these unacceptably impact on highway safety;
- The accessibility of the Appeal Site, on the basis that the Council considers it to be '*reasonably accessible*' in line with the 2019 Appeal Decision but is not highly sustainable, such that travel demands by active modes may be reduced and vehicles increased; and
- The relative safety / attractiveness of alternative pedestrian and cycle routes to access local facilities and public transport, alleging that the limitations of alternative pedestrian and cycle routes (i.e. to Cams Bridge) increases the attraction and importance of pedestrian and cycle access to Downend Road. This concern appears to be primarily focussed on the adequacy of crossing facilities proposed to the A27 at The Thicket for access to westbound bus services only.

5.1.2 These are all matters that I consider sitting squarely outside of the Reason for Refusal, which itself was a narrow matter related to the safe and efficient operation of the bridge improvement, and the crossing facilities at Downend Road.

5.1.3 The Council is seeking to conflate these matters to serve to prop up its reason for refusal. For the reasons I outline below, these allegations are without merit and do not affect the assessments I have presented in any material way.

5.2 Access Design Considerations

5.2.1 The Council has raised concerns about the adequacy of the site access arrangement, and its interaction thereafter with the proposed bridge improvement. These concerns principally relate to potential departures from design standards (from DMRB) in combination in relation to:

1. The design speed applied to the scheme, and so relevant design standards / guidance;
2. Connected to (1) the length of the deceleration lane and direct taper of the ghost island right turn lane junction to serve the development site;
3. The length of the tapers to form the ghost island site access junction; and
4. The horizontal alignment of Downend Road.

5.2.2 Whether or not these matters are departures from standard relies on the design speed of the scheme and the associated guidance that should therefore be applied to the scheme design.

5.2.3 My conclusion, and that agreed with Hampshire County Council (the highway authority), is that the scheme is to be considered against guidance in Manual for Streets and Manual for Streets 2, not DMRB standards, and that as a consequence, the concerns the Council raises are not indeed Departures from Standard. DMRB provides relevant guidance and is a design consideration, but it is not a standard to be slavishly achieved on the local road network. This was clearly explained to the Council by HCC (**Appendix T**).

5.2.4 Irrespective of this, the substance of the issues raised does not serve to cause a safety concern with the access, individually or in combination.

Relationship of Access Concerns to the Reason for Refusal

5.2.5 Firstly, the safety and adequacy of the site access does not form part of the reason for refusal.

5.2.6 Indeed, it did not form part of the reasons for refusal for the 2019 Appeal and, despite this, the Council extended its case at that time to raise concerns relating to the access, primarily in relation to the visibility achievable at the site access and impacts on number 28 Downend Road.

5.2.7 The extension of the Council's case to consider matters of site access was subject to a costs award against the Council (**Appendix S**), with relevant sections of the Cost Award being:

"The development's vehicular access and the use of No 28's access 31.

31 The wording of part a) of the reason for refusal was quite specific in highlighting concerns about '… works to the bridge …' affecting the safety of pedestrians and/or the convenience of other road users. The reason for refusal did not identify concerns about either the safe operation of the development's vehicular access or the ability of drivers emerging from No 38 to safely join the public highway (the access concerns). The introduction of the access concerns resulted in the applicant responding to them in its rebuttal statement and also took up some Inquiry time. I found the access concerns not to be of such significance as to warrant the withholding of planning permission. In that regard I would expect the access concerns to be subject to more detailed consideration as part of the process of either discharging conditions imposed on a planning permission or as part of any consenting procedure administered by the highway authority. 32.

32 I therefore consider that it was unreasonable for the Council to have introduced the access concerns as part of its highways evidence, at what was a comparatively late stage in the appeal process, with their introduction causing the applicant to incur unnecessary expense in responding to them before and during the Inquiry. Accordingly, in this respect a partial award of costs against the Council is warranted."

5.2.8 The 2019 Appeal Inspector, faced with evidence from the Council in relation to the proposed site access, considered that the RfR did not include matters of site access, and more critically that having considered the evidence presented by the Council, considered that the concerns expressed were not so significant to withhold planning consent, accepting that matters of detail would (as is ordinarily the case) be considered in discharging conditions / obligations.

5.2.9 It is explicit therefore that despite these allegations being beyond the 2019 RfR, the Council's case in part concerned the adequacy of the access, and that these matters were considered and assessed by the 2019 Appeal Inspector. It is common ground (TSoCG) that the earlier Inspector considered matters of access and considered this to be acceptable.

5.2.10 The RfR for the current appeal is similarly narrow, relating entirely to the impact of the operation of the bridge improvement (on safety and convenience) and to pedestrian crossing provision. Nowhere are any concerns in relation to the site access included in the RfR, nor did they form part of the Council's consideration in refusing the application. In the same manner as the 2019 Appeal, the Council is now seeking to unreasonably expand its case to consider matters of site access. It is common ground (TSoCG) that, aside from the method of control for vehicles crossing the bridge, the scheme is the similar to that considered as Option 3 for the 2019 appeal, and that includes the relationship between the access junction and the bridge improvement.

5.2.11 In my opinion, the alteration of the bridge junction to traffic signal control from signed priority control has no material impact on the passage of vehicles through the scheme. Vehicles are still required to pass through the bridge in single file, and priority through the bridge is controlled, with queueing generated on each approach to the bridge, in broadly the same location as the 2019 Appeal Scheme (Option 3 – **Appendix C**).

5.2.12 Despite my view that these matters bear no relation to the RfR, I explain below that the concerns the Council express are unfounded and poorly based.

Consideration of the Access Design

5.2.13 Consent is being sought for development of the site, with means of access to be determined.

5.2.14 That means that the location and form of access to serve the scheme is to be determined.

5.2.15 It does not however mean that the detailed design of the access scheme has been developed or is to be approved at this time, with that forming part of the normal procedure to discharge conditions and to enter agreement with the highway authority (under Section 278 of the Highways Act 1980)) to carry out the works.

5.2.16 To inform the consideration of the scheme for planning purposes, in February 2017 I submitted the access design (alongside an alternative option for a simple priority junction) to HCC under Hampshire County Council's '*Pre-Application Design Review*' process, which is a procedure implemented to consider pre-planning stage submissions. The submission included information on traffic flows, speeds, a conceptual access design and a Stage 1 Road Safety Audit.

5.2.17 HCC prepared its response to the PADR in March 2017 (ASoTM – Appendix B) which confirmed:

- The geometric layouts are generally suitable for this type of development (para 3.1);
- A recommendation to reduce the current speed limit (40mph) by relocating the speed limit north of the scheme (para 3.1);
- The design achieves acceptable visibility (para 3.4);
- A Stage 1 Road Safety Audit was carried out and found no issues with the proposed options. A further Road Safety Audit should be carried out when the scheme is revisited;
- HCC's preferred option for access is a Ghost Island arrangement (Section 6);
- The provision of a pedestrian refuge in the right turn hatching will help to reduce speeds and provide pedestrians a safer way of crossing Downend Road; and
- Departures from Standard could be required with regards to DMRB in relation to visibility and the geometric layout of the right turn lane, but that application of MfS standards potentially resolved these concerns.

5.2.18 I commissioned various independent safety audits of the scheme, initially in relation to the options for site access, and then subsequently in relation to the Option 2 and 3 improvements the subject of the 2019 Appeals. More recently, I commissioned a further Road Safety Audit in relation to the current proposals for the bridge (CD1.10 – Appendix M).

5.2.19 Taking account of the original PADR submission and the subsequent submissions made in relation to the bridge improvement options, in combination with the access design, HCC has consistently confirmed that the access is acceptable:

- 2018 Application Response
- 2019 Appeal ASoTM (CD1.10 - TA Appendix B)
- 2020 Application Response (CD3.4.1)
- 2021 Appeal ASoTM

5.2.20 In my opinion the access design has been subject to significant and appropriate scrutiny by the highway authority and road safety specialists throughout the development of proposals for the Appeal scheme. HCC has considered the scheme since 2017 and has revisited its consideration of the scheme at various intervals since that time in relation to considering the 2019 Appeal scheme, options for improvement of the bridge and the current appeal proposals. At each stage of review, the highway authority has been satisfied that the access design, in association with various options for improvement of the bridge, is acceptable.

Knowledge of Potential Departures from Standard

5.2.21 Part of the Council's concerns appear to centre on whether HCC and the Road Safety Auditors were aware of the potential for departures from standard in the access design.

5.2.22 This concern, as I have explained to the Council directly, and indeed as HCC has explained to the Council (**Appendix T**), are without foundation:

a The original PADR submission for the access comprised a Technical Note presenting the scheme and associated information, which clearly identified that there were three potential departures in relation to the geometry of the right turn lane if considered against DMRB standards;

b The PADR submission was accompanied by an independent Stage 1 Road Safety Audit carried out by GM Traffic. The 2016 Road Safety Audit (RSA) itself clearly identified the potential for departures relating the geometry of the right turn lane against DMRB standards. The Audit specifically considered the potential for these departures, stating that they raised *"no safety issues"*.

c This 2016 RSA was considered as part of the PADR and led HCC to conclude that:

"Departures from Standard could be required with regards to DMRB; as a result of restricted sight lines to the south due to the Railway Bridge and geometric layout of the right turn lane; however the speed checks provided indicate MfS Standards could be applied in this instance and potentially support the departures."

d As part of the 2019 Appeal two options for improvement of the bridge were proposed. These were supported by an independent Road Safety Audit (produced by Fenley Road Safety) of the scheme options, in combination with the access design adjacent. The Audit brief for that RSA identified that there were departures from standard in the scheme when considered against DMRB standards.

e In relation to the current Appeal scheme and proposals for the bridge, a further Road Safety Audit was caried out, again by Fenley Road Safety. Whilst I acknowledge that the brief for the Road Safety Audit omitted reference to the potential departures at the access, the RSA brief included the earlier Stage 1 RSA for the site access and Fenley Road Safety were fully aware of the scheme from their assessment of alternative options.

5.2.23 For the avoidance of any doubt, I have contacted Fenley Road Safety to confirm that they were aware of the potential for Departures. At **Appendix U** Fenley confirm that:

- They were fully aware of the potential DMRB departures from their previous work (considering the 2019 Appeal options) and the earlier 2016 Road Safety Audit which formed part of their brief and was considered in conducting the Audit; and
- That the potential departures (deceleration length, reduced tapers and design speed) raised no further concerns.

5.2.24 Fenley also considered and commented on the updated plans that were submitted as part of the application process (including the relocation of the stop line by 4m), but which post-dated their original Safety Audit and cycling safety. In this regard they confirm the scheme changes would not give rise to any further road safety concerns.

5.2.25 It is unequivocal therefore that HCC was fully aware of the potential for departures in the access design throughout their considerations of the scheme (as clearly explained to the Council by HCC at **Appendix T**), and that HCC's design engineers are aware of the scheme and its geometry. It is also clear that the two separate Road Safety Auditors have been fully aware of the potential departures in the scheme. Safety considerations relevant to these have been fully addressed.

5.2.26 The Council suggests that a formal Departure from Standard should have been progressed at this stage. That is incorrect. Departures from Standard are almost always progressed when the scheme is submitted for a preliminary or detailed design check. That occurs post planning in nearly all cases. At the planning stage, the requirement is to identify if there are likely departures, and to assess if these would be likely to be agreed. That has clearly been done in this case.

Assessment of the Potential Departures from Standard

Design Speed / Reference design standards and guidance

5.2.27 Through discussions on Common Ground, it is clear that there is disagreement about the design speed that should be applied to the access design which is relevant to whether Departures in the scheme exist, and thereafter the extent of any departure.

5.2.28 The Council considers that a 60kph design speed should be applied to the bridge improvement, but that a 70kph design speed should be applied to the access design.

5.2.29 In my view it is entirely inappropriate to seek to apply a different design speed to the assessment of the bridge improvement and the access design, in view of their proximity and relationship.

Speed Measurement on Downend Road

5.2.30 I have carried out five different speed surveys on the Appeal Site frontage to Downend Road and the approach to the junctions. The results are appended to the TSoCG as Figure S1 and summarised in **Table 5.1**.

Table 5.1 – Observed Speeds on Downend Road

	Mean Speeds				85%ile Speeds			
	NB		SB		NB		SB	
North of Access*	32mph	52kph	31mph	50kph	38mph	61kph	36mph	58kph
At the bridge	31.5mph	51kph	28.9mph	47kph	35.7mph	57kph	33.8mph	54kph
South of bridge	28.7mph	46kph	26.5mph	43kph	31.6mph	51kph	30.5mph	49kph

**Presents the results of the survey closest to the Appeal site (150m north of the access)*

5.2.31 A proper assessment of the extensive speed surveying of the road confirms that:

- Southbound traffic is already slowing on approach to the access and bridge and the built up area of Portchester, and is travelling below the posted (40mph) speed limit as it approaches the Appeal Site, below 60kph (85%ile speed);
- Northbound traffic is accelerating as it departs the built up area, but is contained below the posted speed limit as it passes the Appeal Site;
- 85%ile speeds approaching the bridge are 54kph southbound and 51kph northbound;
- 85%ile speeds approaching the access are ~58kph southbound and 57kph northbound.

5.2.32 Most relevant to the design speed of the ghost island right turn lane geometry, i.e. the length of the deceleration length and direct taper, are the northbound approach speeds across the bridge. It is only northbound traffic that will need to slow for and enter the turning lane to the Appeal Site. In this case, northbound speeds south of the access location are 57kph, consistent with a 60kph design speed.

5.2.33 Southbound speeds have no relationship with the deceleration length and direct taper, but irrespective the nearest speed survey east of the scheme show 85%ile speeds of 58kph.

5.2.34 On this basis, I conclude that taking account of observed traffic speeds, the application of a 60kph (30mph) design speed is appropriate to both the access design and bridge improvement. To apply a higher (70kph / 40mph) design speed would be inappropriate and would lead to the overengineering of the design, overtly contrary to MfS Principles.

Speed limit Amendment

5.2.35 HCC's Traffic Management Policy on Speed Limits (TM2 (**Appendix O**) identifies that:

> ***"Speed limits are most likely to be adhered to where the existing average traffic speeds are close to the proposed speed limit."***

5.2.36 Table 5.1 demonstrates that average speeds on Downend Road in the vicinity of the site are already close to the proposed speed limit of 30mph (29mph – 32mph).

5.2.37 Notwithstanding that the existing observed speeds already support the use of a 60kph design speed, the scheme proposes various improvements to Downend Road which will serve to reduce existing traffic speeds, including:

- i Relocation of the 30mph speed limit from the northern side of the bridge to a location around 150m north of the Appeal Site, alongside a gateway feature;
- ii Delivery of traffic signal control at the bridge, with approaching traffic aware of and adapting approaching speeds towards the junction; and
- iii Delivery, through the access works, of a revised horizontal alignment and associated highway features (signing, lining, traffic islands, crossing refuge).

5.2.38 In combination, and in addition to the change of environment that the development will create on the approach to Portchester with development of the Appeal Site, these measures will reduce traffic speeds in the vicinity of the Appeal Site.

5.2.39 The Council has sought to challenge the agreement of the 30mph speed limit with HCC (**Appendix T**). HCC has confirmed that it remains fully supportive of the relocation of the speed limit, based on the combination of factors outlined above, as well as the accident record and the observed speeds. Indeed, it was HCC that originally promoted the speed limit amendment.

5.2.40 A Traffic Regulation Order (TRO) to relocate the speed limit will be progressed as part of the scheme and in my view is a sensible design response to the scheme and local conditions. I expect this TRO to succeed.

5.2.41 In reality, whether or not the TRO succeeds (it is subject to a separate legal process) is irrelevant to the consideration of the scheme. The observed speeds and local conditions already dictate that a 60 kph design speed is appropriate for both the bridge and access junction.

Application of Design Standards

5.2.42 HCC's '*Companion Guide to MfS*' (**Appendix V**) identifies that MfS principles (as outlined in its Companion Guide) are applied to existing highways where 85% of vehicles are recorded as travelling at below 37.5mph (para 1.13).

5.2.43 HCC's visibility policy is contained in its TG3 guidance (Extract at **Appendix V**). This confirms at paragraph 1.3 that:

> ***"1.3. DMRB visibility standards apply where the Design Speed is above 60kph and for all traffic signals regardless of Design Speed. MfS criteria shall apply where the Design Speed is up to and including 60kph. Refer to Section 3.1 for Design Speed"***

5.2.44 Paragraph 3.1.3 of the TG3 Policy explains how design speeds are to be calculated:

> ***"3.1.3. For improvements to existing roads, the Design Speed shall be derived from the measured speeds (regardless of the posted speed limit) as detailed in TA 22/81 (DMRB 5.1.4)."***

5.2.45 In this case, irrespective of the posted 40mph speed limit on Downend Road north of the bridge, the measured speeds would fully support the application of a 60kph design speed for the access junction. On this basis, it is HCC's policy to apply MfS criteria, a point HCC has separately confirmed directly to the Council (**Appendix T**).

5.2.46 MfS2 (CD8.9) provides guidance for the wider application of MfS to the existing street network. In its '*Foreword*' explaining the status and application of the document (page 4) it is clear that:

> ***"DMRB is the design standard for Trunk Roads and Motorways in England, Scotland, Wales and Northern Ireland. The strict application of DMRB to non-trunk roads is rarely appropriate for highway design in built up areas, regardless of traffic volume."***

5.2.47 At paragraph 1.3.2, MfS 2 explains that:

> ***"It is clear from Table 1.1 that most MfS advice can be applied to a highway regardless of speed limit. It is therefore recommended that as a starting point for any scheme affecting non-trunk roads, designers should start with MfS."***

5.2.48 Paragraph 1.3.3 of MfS 2 states:

> ***"Where designers refer to DMRB for detailed technical guidance on specific aspects, for example on strategic inter-urban non-trunk roads, it is recommended they bear in mind the key principles of MfS, and apply DMRB in a way that respects local context."***

5.2.49 Downend Road is not a trunk road. Speed measurement and assessment of the local context clearly supports the use of MfS / MfS2 principles.

5.2.50 Whilst DMRB provides various guidance on junction geometry that is absent in MfS, the use of DMRB guidance in this case is to inform the design, rather than to provide a benchmark against which the scheme must be strictly assessed.

5.2.51 On this basis, it is clear and correct that the access design should be considered against the guidance and principles in MfS and MfS 2 as a starting point, and that slavish adherence to design standards designed for the Trunk Road network (DMRB) are inappropriate. That is the approach that I and HCC have taken in this case.

5.2.52 Notwithstanding this, the visibility (SSD) requirements for the access design and for forward visibility to the signal junction have been based on HCC's TG3 policy. TG3 identifies that for the approach to traffic signal installations, SSD should be considered against DMRB requirements.

5.2.53 As presented on Drawing ITB12212-GA-014 E (CD2.2.1) and ITB12212-GA-062 A (CD2.2.10) and GA-063 A (CD2.2.11), SSD to the signal junction and access visibility is provided in exceedance of DMRB derived visibility requirements and HCC TG3 Policy.

5.2.54 There can be no doubt, in my view, that the access design has considered the appropriate standards and basis for design.

Deceleration lane length and direct taper of the ghost island right turn

5.2.55 I have explained the different views that I and the Council have in relation to the design speed of the site access scheme. As I have agreed with HCC, a design speed of 60kph is appropriate.

5.2.56 MfS/MfS2 do not provide guidance on the length of a deceleration lane or direct taper.

5.2.57 Using a design speed of 60kph, and even if the scheme were to be considered against DMRB CD123 (CD8.11) standards, the scheme would comply in relation to deceleration length (25m), turning length (10m) and direct taper (5m, included in deceleration length).

5.2.58 There is no Departure from DMRB in this case.

The length of the tapers to form the ghost island site access junction

5.2.59 DMRB CD123 (CD8.11 – para 6.1.1) identifies that ghost islands:

> ***"should be developed to their maximum width using the tapers"***

5.2.60 In DMRB, the verb '*should*' indicates *"advice expressed as a recommendation"*. It is not a legal requirement (which are described as '*must*') or a design requirement (expressed as '*shall*') where non-compliance results in a Departure from Standard.

5.2.61 The width of the turning lane is 3.0m, in line with DMRB CD123.

5.2.62 For a design speed of 60kph (as with 70kph) the DMRB (CD8.11) recommendation is to achieve the taper to the turning lane at a gradient of 1:20. As the scheme is formed by single sided widening (into the site), to taper the 3m turning lane width at a 1:20 gradient means that there should be a taper length of 60m, rather than the 22m taper provided in the scheme.

5.2.63 As I have outlined, application of DMRB standards is not appropriate in this case. Even if it did apply, DMRB advice on tapers for ghost island junctions is not a legal or mandatory requirement, where non-compliance results in a Departure from Standard. It is advice.

5.2.64 MfS and MfS2 do not provide guidance on taper lengths.

5.2.65 Therefore, the scheme should be assessed taking into account the horizontal alignment that results from the tapers, swept path analysis and engineering judgement. This is the approach I have taken, and HCC has confirmed to the Council (**Appendix T**).

5.2.66 Drawing ITB12212-GA-076 (**Appendix W**) demonstrates the horizontal alignment of the scheme. As the scheme comprises the removal of the two way operation of the bridge, horizontal alignment has been considered using the centre of the swept path of a vehicle travelling through the scheme, to reflect, properly, the horizontal alignment vehicles will experience.

5.2.67 Through the junction and bridge scheme, I demonstrate that the alignment conforms to MfS2 guidance with a minimum centreline radius of 90m. Table 8-1 of MfS 2 (CD8.9) identifies minimum recommended radii of 64m for a 60kph design speed. Therefore, the minimum radii guidance is comfortably met by the scheme.

5.2.68 To put this into context, the existing road bend on Downend Road, south of the Thicket, has a centreline radius of 54m, significantly smaller than that achieved throughout the scheme.

5.2.69 Drawing ITB12212-GA-074 (**Appendix X**) identifies swept path analysis of a large car passing through the scheme, which was 'tracked' using a 30mph speed.

5.2.70 Under any reasonable review of this assessment, it is clear that the vehicle path is smooth and natural, and that the tapers provided in the scheme do not give rise to any sharp bends or difficult movements by traffic.

5.2.71 Therefore, there is no departure from standard relating to the taper length.

5.2.72 Whilst the length of taper may be less than the guidance in DMRB, that itself is not mandatory (even for Trunk roads) and the application of engineering judgement alongside the guidance in MfS2 demonstrates that the arrangement is acceptable and well considered.

5.2.73 HCC agrees the scheme, and no safety issues are raised in relation to the tapers at the junction in the independent Road Safety Audit.

The horizontal alignment of the southbound Downend Road approach to the junction

5.2.74 The Council raises concerns that the horizontal alignment of the southbound approach to the junction does not conform to the design standards in DMRB CD109 (CD8.14).

5.2.75 I have explained that the design speed of the road / scheme, alongside the local context, means that strict application of DMRB guidance is inappropriate in this location.

5.2.76 MfS2 provides more relevant guidance on the horizontal alignment that should be achieved.

5.2.77 I have considered the horizontal alignment of the southbound approach and conclude that:

- The scheme provides a minimum centreline radius of 90m (**Appendix W**). This complies with / exceeds Manual for Streets 2 Guidance in Table 8.1 for a 60kph design speed (which identifies a minimum centreline radius of 64m).
- The swept path analysis provided in **Appendix X** demonstrates that vehicles travelling westbound through the junction follows a natural path through the junction. There are no sharp 'kinks' or bends as the Council contend.

5.2.78 The Council has also raised a concern that the horizontal alignment of the Downend Road southbound approach north of the access junction would lead to practical scheme delivery difficulties, in relation to the ability to construct the scheme taking account of the adjacent ditch and highway boundary / land ownership control. This is without foundation.

5.2.79 To the north of the access is a ditch which carries highway water. Part of the ditch is outside the defined area of the public highway. The Council are concerned about how the road alignment can be constructed in this location, relative to the ditch.

5.2.80 In this location, there is a minimum verge width of 0.75m beyond the kerb face. Whilst HCC seeks a verge / margin of 2m, it does accept a minimum margin of 0.5m (**Appendix V**) which is achieved even at the narrowest point of the verge.

5.2.81 It is likely that a small retaining structure would be required to match the difference in levels needed which can be achieved in the space available.

5.2.82 The final detail of the design will, as is always the case, be considered and agreed prior to the discharge of conditions and through the HCC's Section 278 design check processes.

In combination effects

5.2.83 The Council contends that rather than the potential departures alone being significant, it is the combination of issues that gives rise to their safety concerns on the scheme.

5.2.84 It is clear to me that the scheme should be designed to a 60kph design speed, which accords with existing observed speeds, irrespective of the speed reduction effect that the scheme will create or the relocation of the speed limit as proposed as part of the scheme.

5.2.85 Correctly using a 60kph design speed means that a deceleration length and direct taper in line with trunk road DMRB guidance would be achieved in any event, if DMRB were to be applied.

5.2.86 There is no Departure from DMRB in relation to the taper length, with this comprising advice not a design standard. In relation to the taper length and associated horizontal alignment of the southbound carriageway of the access / signal approach, I have demonstrated that in line with MfS, this is not a departure at all and that instead the scheme complies with MfS2 requirements. In this context there should be no safety concerns, indeed none are raised by the highway authority or the Safety Auditors.

5.2.87 Therefore, I do not agree that there are 'in combination' issues affecting the design. Instead, the design is appropriate to its local context and complies with the correct design guidance.

Access Summary

5.2.88 I have considered the Council's criticisms of the access design, noting that these fall beyond the RfR. These concerns are simply without merit and are based on an inappropriate application of trunk road design standards to a scheme on a local road where MfS principles should apply, and which fail to take account of the local context of the scheme.

5.2.89 I have presented my access designs to HCC over the past four years, and HCC has closely scrutinised the designs. The access design, individually and in combination with the adjacent improvements to the bridge, have been subject to independent Safety Auditing at various stages over the last four years, with all matters raised being addressed in the scheme.

5.2.90 There is disagreement between the Council and I on whether there are departures from standard in the scheme. A proper application of MfS principles removes any departures. HCC agrees that MfS applies, that there are unlikely to be Departures from Standard, but has in any event confirmed if there are departures required, these are in principle acceptable.

5.2.91 Overall, the access design is safe and suitable, and the Councils' concerns are unfounded.

5.3 Accessibility Considerations

5.3.1 It is common ground that the 2019 Appeal Inspector's conclusions on the accessibility of the Appeal site are accepted.

5.3.2 In respect of accessibility, the 2019 Appeal Inspector (CD7.1) concluded that:

> ***79. So, I think it reasonable to say that the development would fall short of being particularly accessible by transportation modes other than private motor vehicles. In that regard the appellant's estimates for the number of non-private motor vehicle trips may well be quite optimistic. That said this development would be close to many other dwellings in Portchester and the accessibility to local services and facilities would be similar to that for many of the existing residents of the area. Given the existing pattern of development in the area, I consider there would be few opportunities for new housing to be built in Portchester on sites that would be significantly more accessible than the appeal site, something that the maps in Appendix R to Mr Wall's proof of evidence show. In that regard it is of note that the Council is considering allocating this site for development in connection with the preparation of its new local plan.***
>
> ***80. On this issue I therefore conclude that there would not be an unreasonable level of accessibility to local services and facilities for the occupiers of the development by a range of modes of transport. I therefore consider that the development would accord with Policy CS5 of the Core Strategy and Policy DSP40 of the DSP because it would not be situated in an inaccessible location and it would be well related to the existing urban settlement boundary for Portchester.***
>
> ***98. I have found that the accessibility to local services and facilities by modes of transportation other than private motor vehicles would not be unreasonable. That is something that weighs for the social benefits of the development.***

5.3.3 The scheme would therefore not deliver unreasonable levels of accessibility, or to remove the double negative of the sentence, it would deliver reasonable levels of accessibility.

5.3.4 The Council has confirmed that it does not contend that the Appeal Site is not an accessible and acceptable site for residential development (TSoCG) and that it proposes to allocate the site within its Local Plan. On this basis, I have not presented any accessibility assessment, noting that the Transport Assessment (CD1.10) already provides this assessment.

5.3.5 However, the Council continues to maintain that the relative accessibility of the site may lead to lower demands for sustainable travel modes (i.e. more in line with the Council's 2019 evidence). The consequence of this is an inference that higher traffic generation may arise.

5.3.6 As yet, the Council has not presented to me anything but anecdote on this point and it is unknown how the Council intends to develop their argument on this point, or what they consider the impacts of this will be for vehicular trips at Downend Road bridge. I reserve the right to respond to the Council's case on this point when it is presented.

5.3.7 Irrespective of this, I continue to consider that the assessment I have presented in the TA (CD1.10) and that informs my assessment of the operation of the bridge improvement scheme at Downend Road is robust and realistic for the Appeal Site.

5.3.8 The assessment of vehicular traffic generation was carried out by using the TRICS database, which is the industry standard approach to deriving traffic generation rates for new developments and comprises a database of more than 7,000 surveys of development sites. Most Transport Assessments in England utilise TRICS to determine likely traffic generation.

5.3.9 The trip rates I have identified were agreed with HCC during the Transport Assessment Scoping process (Scoping Note at Appendix F of the TA (CD1.10)).

5.3.10 TRICS considers various criteria and parameters to ensure that any assessment of travel demand is appropriate to the local setting of the site. One of the most critical parameters is the locational relevance of the site, and TRICS includes various categories, including 'Town Centre', 'Edge of Town Centre', 'Suburban Areas', 'Edge of Town', 'Neighbourhood Centre' and 'Free Standing sites'. The principle behind this classification is to ensure that the data on which estimates are based, are relatively located to the site being considered, and benefit from similar relationships to the wider community, services and facilities and transport options, therefore accessibility. **Image 5.1** provides a geographical representation of the categories applied in TRICS.

Image 5.1 – TRICS Location Categories

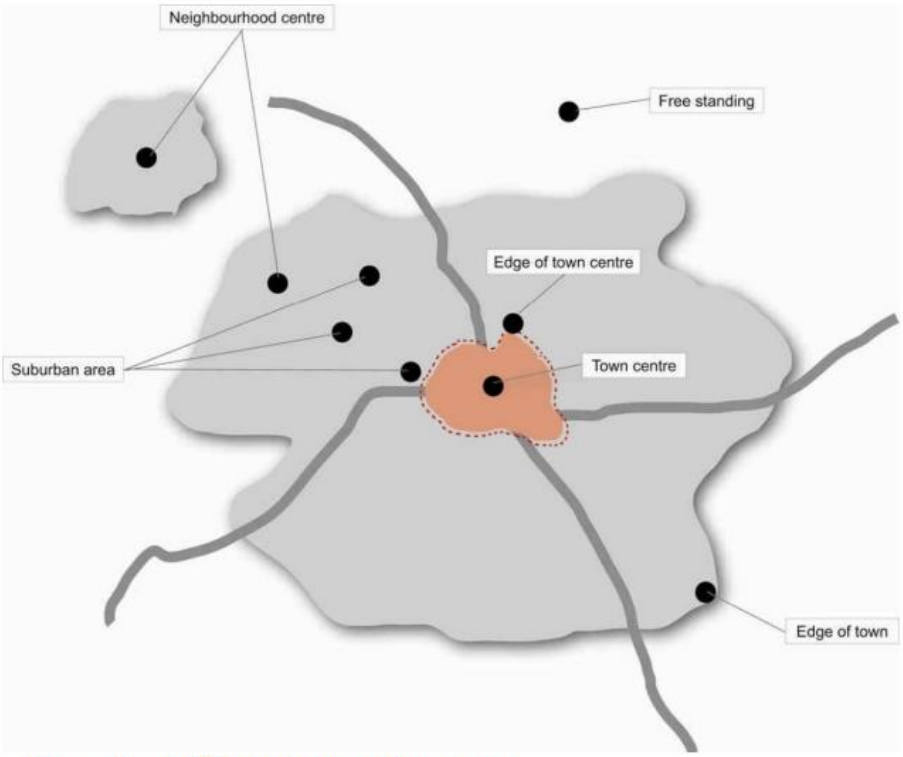


Figure 1 – TRICS Main Location Types

5.3.11 To assess the likely vehicular traffic generation of the Appeal Site, I applied data from sites located in 'suburban', 'Edge of town' and 'neighbourhood centre' sites only. This therefore excludes sites which would exhibit, on average, higher levels of accessibility to the Appeal Site (such as 'town centre' and 'Edge of town centre' sites) and provides information where the relative accessibility of the site is similar to the Appeal Site. In view of the conclusion that the Appeal Site is 'reasonably accessible' I consider this to remain an appropriate assessment of likely vehicular traffic generation.

5.3.12 Beyond this, I assessed different types of development, considering the traffic generation potential for sites which are formed of 'Private Housing Only' (where less than 25% dwellings are affordable), 'Mixed Private and Affordable Housing', and 'Affordable Housing'.

5.3.13 To present a robust assessment within the TA I applied the 'Private Housing Only' trip rate to the scheme. Affordable housing schemes on average generate less vehicular traffic demands in peak periods than private housing schemes, demonstrated consistently through TRICS.

5.3.14 However, the Appeal Site commits to delivering 40% of the dwellings as affordable dwellings. It would therefore have been appropriate to apply a 'Mixed Private and Affordable Housing' trip rate to the scheme rather than assuming the 'Private Housing Only' category, or alternatively to consider the private and affordable elements of the scheme independently against their relevant trip rates. **Table 5.2** demonstrate the impact of these approaches.

Table 5.2 – Trip Rate Comparison

TRICS Category		Morning Peak Hour			Evening Peak Hour		
		In	Out	Total	In	Out	Total
Private Housing only (Used in TA)	Trip Rate	0.155	0.376	0.531	0.37	0.214	0.584
	Vehicles	54	132	186	130	75	204
Mixed Housing	Trip Rate	0.118	0.339	0.457	0.278	0.139	0.417
	Vehicles	41	119	160	97	49	146
Affordable	Tip Rate	0.092	0.172	0.264	0.199	0.147	0.346
Private (60%) / Affordable (40%)	Trip Rate	0.130	0.294	0.424	0.302	0.187	0.489
	Vehicles	45	103	148	106	66	171

5.3.15 If the scheme was considered against a 'Mixed Private and Affordable Housing' trip rate, applying the same locational characteristics which take account of the relative accessibility of the site, the scheme would generate some 160 vehicles in the morning peak, rather than 186 that I have assessed, and in the evening, peak would generate some 146 vehicles rather than 204 assessed. This represents a decrease in vehicular travel demand of some 14% and 29%.

5.3.16 If the private and affordable dwellings were separately considered, based on the 60% / 40% split proposed on the site, the assessment of the morning peak hour vehicle demand would reduce to 148 vehicles not 186 (-20%) and 171 vehicles not 204 vehicles (16%) in the evening peak.

5.3.17 This assessment serves to demonstrate that not only has my assessment already taken account of the locational characteristics of the site (and so relative accessibility), but also that there is a significant robustness in the traffic demands already inherent in the assessment of 15-30%.

5.3.18 Furthermore, this approach does not consider the inclusion of flatted development, considering only housing schemes. It is expected that the scheme will include a proportion of flatted development for both the private and affordable dwellings, with flatted developments exhibiting lower vehicular trip rates in peak hours than housing schemes. Again, my approach is robust.

5.3.19 As a further benchmark, within the TA I also considered the trip rates to be applied in the TA against a survey of traffic generation from an established residential area in Portchester, at Condor Avenue. Condor Avenue shares a similar location to the appeal site and is a reasonable comparator site, albeit I understand it provides limited affordable housing or flats. This assessment identified a traffic generation rate of 0.56 (vehicle trips per dwelling) in the AM Peak and 0.53 in the PM peak, highly consistent to the vehicular trip rates I apply (0.53 and 0.58).

5.3.20 On this basis, I consider that the assessment has properly considered the accessibility and locational characteristics of the site, and that the estimates of traffic generation remain reliable, irrespective of the findings of the 2019 Appeal Inspector.

5.4 Acceptability of alternative pedestrian and cycle routes

5.4.1 A further strand to the Council's case relies on a simple point, that being that it considers that the alternative route options for pedestrians and cyclists (i.e. to Cams Bridge and Upper Cornaway Lane) do not offer attractive walking and cycling routes, to the extent that walkers and cyclists may be dissuaded from using these routes instead preferring Downend Road.

5.4.2 Through dialogue with the Council, it is understood that this really relates to their assessment that the proposed crossing (refuge island) at the A27 The Thicket is unsafe, which is on the connecting route to Cams Bridge. The Council asserts that this will not be attractive to users seeking access to the westbound bus stop provision on the A27 corridor. Their concern does not appear to relate to access to any other facilities beyond westbound bus services.

5.4.3 The 2019 Appeal Inspector considered the acceptability of all pedestrian and cycle routes to serve the scheme, including that to Cams Bridge. The Council provided assessment and appraisal of all of the route options to the 2019 Appeal, considering the quality and attractiveness of each of the routes and produced substantial evidence on this matter. This included to raise concerns about the refuge island crossing.

5.4.4 Having considered this point, the 2019 Appeal Inspector (CD7.1) concluded that:

> ***10. Cams bridge crosses the railway line and currently provides access between the site and a small vehicle repair garage and The Thicket, the latter being a residential street. Separately planning permission has been granted for upgrading works to the Cams bridge to facilitate it use as a pedestrian route for occupiers of the appeal development. On the southern side of Cams bridge there is a tarmacked track leading off The Thicket. With the upgrading of Cams bridge route B would be a pedestrian route of an essentially urban character.***
>
> ***22. ..... Having walked routes A and B, and presuming that a safe pedestrian crossing for the Downend Road railway bridge would be available, I consider that qualitatively there would be very little to differentiate route A from B. I also consider there would be potential for commuters walking between the development and the CHes to vary their routes, to avoid monotony, and to use either route A or B. I am therefore not persuaded that route B would automatically be favoured ahead of route A by those walking to and from the CHes.***

5.4.5 The Inspector, having considered the evidence before him, raised no concern about the ability or propensity for residents to use the Cams Bridge route (Route B), which included the same crossing provision as now proposed. Whilst he found that for reasons of equidistance and route choice users may also use Downend Road as an alternative to Cams Bridge, there was no suggestion that the route via Cams Bridge would not be a viable route for users of the site.

5.4.6 The Appeal scheme proposes improvement to the Cams Bridge route comprising:

- i Improvement of Cams bridge to provide a pedestrian / cycle connection to The Thicket (which is part of NCN236), including surfacing and lighting; and
- ii Delivery of a pedestrian and cycle refuge island crossing of the A27 west of The Thicket to facilitate crossing of the A27.

5.4.7 The scheme was subject to Road Safety Audit (CD1.10 – Appendix K) with no residual safety issues. It has also been agreed as a suitable improvement by HCC (ASoTM).

5.4.8 I understand that the Council's concerns really relate to the use of a pedestrian refuge island crossing rather than a controlled crossing. I consider that the refuge island is a safe and suitable option for users to cross the A27, facilitating two-staged movement, and would provide an improved crossing facility for existing residents of the area.

5.4.9 There are various other uncontrolled refuge island crossings of the A27 corridor in Portchester, demonstrated at **Appendix Y**, including at:

- Cams Hill, east of the A27 Delme Roundabout
- Condor Avenue, either side of the roundabout
- West of Ribble Gardens
- West of Nelson Avenue
- Either side of Westlands Grove
- East of West Street

5.4.10 I have assessed the accident records at each of the crossing facilities provided on the A27 corridor between Delme Roundabout and West Street (using the PIA data in the TA (CD1.10)).

5.4.11 This identifies that there were a total of three accidents that occurred at crossing facilities on the A27 corridor involving pedestrians. Of these, two occurred at signal / controlled crossing (at A27/Cams Hill and A27 / Downend Road) and only one accident occurred at an informal crossing facility, at Cams Hill east of the A27 Delme Roundabout.

5.4.12 The analysis does not demonstrate any pattern of accidents in relation to the use of the existing informal crossing facilities, and I see no reason that the proposed crossing refuge at the A27 / The Thicket proposed as part of the Appeal proposals will not operate in a safe manner, similar to the existing facilities on the corridor.

5.4.13 Furthermore, aside from the westbound bus stops on the A27, for travel to key destinations in the wider area, there is no requirement for residents to use the refuge island if they do not wish to. At the A27 / Downend Road / Shearwater Avenue there are controlled crossings provided at the traffic signal junction, and there is a subway at the Cornaway Lane roundabout, each connecting to The Thicket using the footway on the northern side of the A27 corridor.

5.4.14 The Council's contention that due to its perceived inadequacies of the A27 crossing residents seeking access to westbound bus stops will instead access alternative westbound bus stops via Downend Road fails is in my view unrealistic.

5.4.15 The westbound bus stop west of the Thicket is a 650m walk from the centre of the Appeal Site. The alternative westbound bus stops that the Council consider users may instead access via Downend Road are located either side of Downend Road on the A27, a walking distance of 1.2km from the centre of the site, roughly double the distance.

5.4.16 In my opinion, it is not realistic to assume residents will travel twice the distance than the alternative option which already delivers, in my opinion, a reasonable and safe crossing facility.

SECTION 6 Other Matters Raised by Interested Parties

6.1 Interested parties have raised a number of matters through the course of the application and in response to the Appeal. I have reviewed the content of these comments and summarise how these are addressed through the application and evidence as follows:

Comment Summary		Matter Addressed
Downend Road Bridge	Concerns relate to the provision for pedestrians and cyclists	Addressed in Sections 2 and 3 of my Evidence and in the TA (CD1.10).
	Accident Concerns including the fatal 2020 accident	Section 2 (and Appendix B) provides the latest accident statistics and analysis of the recent fatal accident. The Appeal Scheme will provide an overall safety benefit to Downend Road (ASoTM).
	Impacts at the Downend Road bridge underestimated and modelling unreliable	The Transport Assessment (CD1.10) and Section 3 of my evidence provides a robust and thorough assessment of the likely impacts of development on the bridge. The modelling uses industry standard assessment tools, is agreed with HCC, and has been subject to independent Audit by JCT, the software owners. The assessment demonstrates that the bridge will operate effectively.
	Concern over vehicle speeds	Section 2 and Section 5 provide information on measured traffic speeds on Downend Road (TSoCG Figure S1). Five separate speed surveys have been carried out which demonstrates that observed speeds are generally constrained to the speed limit. The Appeal Scheme will deliver reduced vehicles speeds on Downend Road.
Accessibility	Many shops and businesses have closed	There have been limited changes in the local area. The Wicor Post Office has closed but the Post Office facility has relocated to the nearby Cooperative facility.
	No sign as to when BRT will arrive	HCC (alongside Portsmouth CC) has secured significant funding to deliver improvements to the local area including to deliver bus priority measures (bus lane and priority signals) on the A27 corridor to enable the delivery of the next stages of the BRT service towards Portsmouth. Delivery is required by 2023.
	Buses are not what was reported at the last appeal	The TA (CD1.10) details the current bus services operating in the local area. The only material change between the 2019 Appeal and the current situation is the reduction in service of the bus service F3. This does not materially impact the accessibility of the site.
Traffic Impacts		

Comment Summary		Matter Addressed
Downend Road	Impacts on the A27 / Downend Road junction	The TA (CD1.10) assesses the likely impact of development at the A27 / Downend Road junction. An improvement to the junction is agreed with HCC, which will deliver significant benefits to the operation of the junction and will ameliorate the impact of the development. This will be delivered by the Appeal Scheme.
On local roads	Concerns about rat running on local roads	The TA has considered the impact on local roads and is based on a comprehensive suite of traffic surveys. The TA has specifically considered the impacts of traffic routing along local roads, including The Causeway and The Thicket, concluding that the development will not have a significant impact.
	Concerns about level of traffic assessed in August	The traffic surveys that underpin the Transport Assessment were not carried out in August.
Other	Trucks and Coaches use the bridge and have not been considered	The traffic data used to consider the scheme includes all vehicles on Downend Road. Section 2 explains the results of the classified traffic count of Downend Road. HGVs comprise 0.17% of traffic flows on Downend Road and have been accounted for in the assessment and modelling of the improvements.
	Not Enough parking	The application seeks outline consent, with means of access to be determined. Layout and scale of the development is a reserved matter for consideration in later Reserved Matters applications. At this time the detail of parking to support the scheme will be identified, in line with the adopted Fareham BC Parking Standards.

6.2 The matters raised by interested parties are addressed fully in the application and through the package of transport mitigation proposed for the site agreed with HCC.

SECTION 7 Scheme Benefits

7.1 The Appeal scheme will deliver a number of transport benefits which include:

- ***Improvements to Walking and Cycling Infrastructure***
  - Delivery of improvements to Cams Bridge to facilitate improve walking and cycling connections to The Thicket – This will deliver routes (not currently available) for local people to connect through the site to the public rights of way network beyond, improving accessibility and access to the Countryside;
  - Delivery of improvements to Upper Cornaway Lane to facilitate cycling connections to Lancaster Close and improved walking facilities along the footpath for the benefit of the existing users of the path;
  - Delivery of a Downend Road Railway Bridge improvement scheme for the benefit of existing and future users, providing a missing link footway, and improving safety;
  - Delivery of a pedestrian and cycle crossing refuge at A27 / The Thicket, for the benefit of existing and future users;
  - Financial contributions to improvements to pedestrian and cycle routes in the local area;
- ***Improvements to Public Transport Infrastructure***
  - Financial contributions to improving local bus stops and to help bring forward improvements at A27 Delme roundabout to facilitate the extension of the BRT network into Portchester and beyond;
- ***Improvement to the highway network***
  - Delivery of an improvement to the A27 / Downend Road / Shearwater Avenue junction which will improve capacity and operation. This is shown to halve delay on Downend Road in the morning peak, and significantly reduce delay for the A27 approaches through Portchester, for the benefit of the wider public;
  - Provide a significant financial contribution to A27 corridor improvements including to the longer term aims to improve the A27 Delme Roundabout, including to assist the extension of the BRT network, and to deliver safety improvements on the corridor; and
  - Delivery of improvements at the Downend Road rail bridge, to reduce traffic speeds and increase road safety.

7.2 I consider these benefits to be substantial and weigh in favour of granting the Appeal proposals.

SECTION 8 Consideration against Relevant Policies

8.1 NPPF

8.1.1 The NPPF identifies that development proposals should only be refused where there are '*unacceptable safety impacts*' or where the cumulative residual transport impacts are '*severe*'.

8.1.2 I have demonstrated that the proposed pedestrian improvement scheme for Downend Road is safe, that there are alternative routes available for use, and that the operation of the scheme will not result in a significant, let alone severe, impact. Wider highway impacts are addressed through a package of mitigation agreed with HCC comprising delivery of works to key junctions, accessibility improvements and payment of financial contributions to enable future infrastructure enhancements in line with HCC's wider strategy.

8.1.3 The NPPF also requires that development proposals ensure *"appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location*". I consider that the proposals clearly comply with this requirement, and extend beyond its requirement, providing benefits to the local community. The ASoTM provides detailed information on the Sustainable Transport Strategy proposed.

8.2 CS 5

8.2.1 The Council cites conflict with Policy CS5 which relates to '*Transport Strategy and Infrastructure*' (CD4). Parts two and three of the policy are relevant insofar as they:

2 Require development that generates significant travel demand to be located in accessible areas, well served by public transport, walking and cycling; and

3 Allow for development proposals to be permitted where they provide necessary and appropriate transport infrastructure including management measures, do not adversely affect safety and operation of the network and are designed to encourage safe and reliable journeys by walking, cycling and public transport.

8.2.3 CS5 (2) requires development to be located in accessible areas, that are or will be served by good quality public transport, walking and cycling facilities.

8.2.4 The 2019 Appeal Inspector confirmed that the Appeal Site is 'reasonably accessible'. The Council does not suggest that the site is not suitable for residential development and continues to promote the site for residential development in its emerging local plan (Policy HA4).

8.2.5 The TA (CD1.10) demonstrates that the site is well located to high frequency public transport services (on the A27 corridor) and the scheme connects to walking and cycling infrastructure at Downend Road, Cams Bridge and Upper Cornaway Lane, creating a permeable development. Improvements to each route are proposed as part of the application and are secured by the planning obligation that supports the Appeal application.

8.2.6 I have addressed the Council's concerns relating to the pedestrian crossing provision at Downend Road (and indeed at The Thicket) in my earlier evidence. It is common ground (TSoCG) that the improvements to deliver a footway at Downend Road will deliver significant benefits to the safety and attractiveness of that route. I consider that there will be similar benefits arising from the improvements to Upper Cornaway Lane and Cams Bridge, described in Section 7.

8.2.7 Therefore, I consider that the scheme fully satisfies CS5 (2).

8.2.8 CS5 (3) identifies that development will be permitted where it contributes / provides necessary transport infrastructure, prioritises journeys by walking, cycling and public transport, and where is does not adversely affect the local road network.

8.2.9 I consider the scheme significantly improves pedestrian and cycle connections and does so in a manner that does not adversely impact the safety or operation of the local network.

8.2.10 Sustainable travel options are prioritised through the delivery of the site and its access and mitigation strategy. Necessary transport infrastructure is identified and will be delivered. The development prioritises sustainable travel choices and is located in an accessible area. A substantial package of improvements is proposed which will ensure opportunities for sustainable travel are taken up.

8.2.11 I have also demonstrated that the proposed improvement to Downend Road bridge delivers significant improvement to the pedestrian environment and does so in a manner that does not adversely affect the local road network. The signalisation of the bridge will operate wholly within capacity, with modest queueing and delay. The impacts on the operation of the wider highway network are shown to be limited, resulting in a delay of 20-30 seconds to vehicles on Downend Road. In the context of the wider network and typical journey times, this is insignificant.

8.3 DSP 40

8.3.1 DSP40 (ii) requires development to be well integrated to and related to the existing urban settlements and part (v) requires that proposals will not have any unacceptable traffic implications, or unacceptable impacts on amenity or the environment. I consider the Appeal proposals to comply with this requirement in full.

8.3.2 The appeal Site is plainly well connected to the existing settlement and provides connections to the local area to the east, west and south of the site, and will provide high levels of integration with the existing communities surrounding the site. These connections include improvements to promote sustainable travel, agreed with HCC.

8.3.3 The 2019 Appeal Inspector considered that the Appeal Site would be well related to the existing urban settlement boundary for Portchester:

> ***"80. On this issue I therefore conclude that there would not be an unreasonable level of accessibility to local services and facilities for the occupiers of the development by a range of modes of transport. I therefore consider that the development would accord with Policy CS5 of the Core Strategy and Policy DSP40 of the DSP because it would not be situated in an inaccessible location, and it would be well related to the existing urban settlement boundary for Portchester."***

8.3.4 In Section 3 I have demonstrated that the improvement scheme at Downend Road, to facilitate improved pedestrian provision to the site and for the wider area, will be delivered in a manner that does not give rise to unacceptable traffic implications. The Downend Road bridge improvement would operate well within capacity, with modest queueing and delay. HCC agree the scheme and impacts are acceptable, as does FBC's retained transport consultant.

8.3.5 The Council does not seek to argue that traffic impacts on the wider network are unacceptable (TSoCG), indeed these are mitigated through an agreed package of improvements with HCC.

8.3.6 Therefore, I conclude that the proposals satisfy Policy DSP40.

SECTION 9 Summary and Conclusion

9.1.1 My evidence addresses the Council's Reason for Refusal for the development which relates to the proposed improvement of the Downend Road Bridge. The scheme will deliver a footway across the bridge by converting the bridge to single traffic working controlled by traffic signals.

9.1.2 The RfR itself relates to the impacts of the operation of the proposed Downend Road bridge improvement on the safety and convenience of road users, and the safety of the proposed pedestrian crossing facilities of Downend Road.

9.2 Operation of Downend Road

9.2.1 To assess the future working of the Downend Road bridge, I have prepared a LinSig model which forecasts the operation of the junction. The model is based on industry standard assessment techniques and faithfully reflects the scheme and conditions that I expected to occur. I have included robust assessments of intergreen periods, PCUs and traffic growth rates in the modelling. My model has been audited by HCC, the highway authority, and also by the owners and developers of LinSig software (JCT). Both HCC and JCT confirm that the model is acceptable.

9.2.2 My assessments demonstrate that in all time periods, the bridge junction will operate in capacity, indeed with significant reserve capacity. Queueing and delay are modest and will be well controlled by the operation of the traffic signal installation. The greatest forecast impact of the development occurs in the morning peak hour, where average delays are forecast to be between 25-30 seconds. This is not a significant impact and would fall far below the NPPF threshold for dismissal of a scheme, with the NPPF requiring that residual cumulative impacts must be 'severe'.

9.2.3 The Council's retained transport consultant (Mayer Brown) has considered the site for its ongoing allocation in the Local Plan. Mayer Brown prepared an assessment which considered the site for allocation, in the context of the Appeal Scheme that was at that time a current application. Mayer Brown concluded that the Appeal scheme is acceptable, that the reasons for dismissal of the 2019 Appeal were overcome, and the scheme will not result in unacceptable or severe impacts.

9.2.4 Despite this the Council has now raised various concerns with the approach to the assessment:

- The need to assess cycling in the modelling by using extended intergreen periods;
- The need to include a dedicated pedestrian phase; and
- The need to consider a further future year assessment (2031).

9.3 Impacts of Cyclists on Downend Road

9.3.1 In relation to cycling, demands on Downend Road are now and will remain very low, and below a level that specific assessment of cycling intergreens in the model is required.

9.3.2 The greatest cycling demand in the peak hour would be 10 cyclists, meaning that a cyclist would be present in one of every 6/7 cycles in the busiest hour. I have already allowed a robust intergreen (10 seconds) in the model when the intergreen should more correctly be 9 seconds. Even assuming a conservative assessment of cycling intergreen were made (of 18 seconds) in every 6/7 cycles, average intergreen values across the hour would be 10.25-10.5 seconds, in line with what I have already assessed. I have carried out a sensitivity test to consider the impact of an average of 11 seconds intergreen, which demonstrates the junction still operates effectively. In practice, the junction will include detection systems to identify any cyclist (or slow moving vehicle) at the junction and will dynamically call an intergreen extension where this is needed. HCC agree that no allowance should be made in the assessment for the limited cycle demand.

9.3.3 The presence of cyclists on road on Downend Road will control traffic speeds for vehicles following a cyclist. I have demonstrated that this has no overall impact on the operation of the junction or on forecast conditions on Downend Road.

9.4 Need for a Pedestrian Phase

9.4.1 The Council consider a designated pedestrian phase is needed. This is based on their assessment that the proposed pedestrian refuge crossing at Downend Road will not offer sufficient visibility or that there will be insufficient gaps in traffic to enable safe crossing movements.

9.4.2 I have demonstrated that visibility from the pedestrian refuge island is provided in line with guidance in the Traffic Signs Manual, DMRB and HCC's TG3 policy. Whilst visibility from the crossing may be temporarily and partially limited when traffic queues at the southbound stop line and access junction, these are short-lived obstructions to visibility and will not materially affect the ability of pedestrians to cross the road. The operation of the signal junction in combination with the pedestrian refuge crossing will aid safe movement across Downend Road.

9.4.3 I have considered the ability for pedestrians to find gaps in traffic to safely cross the road. The refuge island enables two-stage crossing of Downend Road. Assuming a gap acceptance requirement of between 4-6 seconds for crossing movements, forecast traffic frequencies on Downend Road will be that one vehicle arrives every 7-9 seconds, more than sufficient for pedestrians to cross.

9.4.4 In reality, traffic does not arrive in a uniform pattern, and practically there will be regular and significant gaps in traffic to ensure a pedestrian can cross efficiently and safely. Moreover, the operation of the Downend Road bridge under signal control will create large gaps in traffic platoons, offering regular and sufficient gaps in traffic for pedestrians.

9.4.5 To confirm my assessment, I have also carried out an assessment using PmV^2, a well-established analytical tool to determine crossing type based on demands and crossing difficulty. This is HCC's policy for considering crossing requests. My assessment demonstrates that a refuge island crossing is suitable in this location and that a controlled crossing would not be justified.

9.4.6 HCC has considered the pedestrian crossing in detail and confirms that this is acceptable, indeed it was originally recommended by HCC. I have commissioned an independent Road Safety Audit of the scheme which raises no safety issues that have not been addressed in the design. The Council at the 2019 Appeal raised no concerns with the refuge crossing, confirming in common ground that the pedestrian provisions for the Option 3 scheme were acceptable. In terms of pedestrian provision, the Appeal Scheme and the Option 3 scheme are essentially the same.

9.5 2031 Future Year Assessment

9.5.1 The Council also considers that a future assessment year (2031) is needed. Whilst I disagree and have assessed the appropriate year (agreed with HCC), I have considered the traffic growth estimates to 2031 compared to those I have already assessed (for 2026).

9.5.2 The latest DfT forecasts for traffic growth are lower than I have already assessed. On that basis, I demonstrate that the junction would operate effectively in 2031, as it would in 2026.

9.6 Summary Conclusion on Impacts of Downend Road Improvement

9.6.1 I consider that the assessments of the operation of the bridge are appropriate, realistic, and robust. This demonstrates, clearly, that the junction will operate effectively. There will be no safety concerns and the impacts of queueing and delay are modest, far below a level that could be considered significant, let alone severe.

9.7 Pedestrian Provision at Downend Road

9.7.1 In relation to pedestrian provisions at Downend Road, the Council agrees that the improvement scheme provides a significant benefit in relation to the safety and attractiveness for pedestrian crossing provision on Downend Road compared to the existing situation.

9.7.2 The Council's concerns in relation to the safety of the pedestrian crossing across Downend Road relate again to pedestrian visibility and the ability to find gaps. I have demonstrated that these concerns are not material and that the crossing will deliver a safe and suitable crossing facility.

9.8 Wider Matters Raised by the Council

9.8.1 Beyond matters related to the RfR, the Council has sought to expand its case, in particular related to the safety of the access arrangements, but also in relation to the impacts of the accessibility matters on travel demands generated by the scheme.

Access Design Considerations

9.8.2 In relation to access matters, the Council's concerns are squarely beyond the RfR and have no material relationship with the bridge improvement. It is common ground that the Appeal scheme and the Option 3 improvement for the 2019 Appeal are essentially the same in relation to access and pedestrian provisions. The 2019 Appeal Inspector considered the Councils concerns on access, finding these to be outside of the RfR, and that they were not material in any event.

9.8.3 The thrust of the Council's concerns on site access matters relate to the application of DMRB based standards to the scheme. DMRB relates to trunk roads and is not an appropriate basis to assess the scheme. I and HCC agree that based on conditions at the site, MfS principles apply.

9.8.4 The Council's concerns on the horizontal alignment of the scheme, the taper gradient and length of the deceleration length are unfounded and addressed by the use of MfS principles. Applying the guidance correctly removes the suggested departures. Irrespective, I have demonstrated that the practical points the Council rases are not significant or material and that the scheme is acceptable. HCC has considered the access scheme over many years, and it has been subject to various safety auditing over the past four years.

Accessibility Matters

9.8.5 In relation to accessibility, the Council is concerned that because the 2019 Inspector found only that the site was *reasonably accessible*, that this may impact on travel demands from the scheme, in relation the traffic demands generated to Downend Road. No information has been supplied at this time to demonstrate the impact the Council alleges on this point. Irrespective, my assessment has considered a robust assessment of traffic generation, using the TRICS database. I have considered the relative accessibility of the site through the TRICS assessment, choosing only sites in comparable locations. I have also based my assessment on the scheme comprising only Private Housing, taking no account of affordable dwellings (which will comprise 40% of the

scheme) or flatted development, both of which exhibit lower peak period trip rates. My assessment of traffic generation has also been validated against local data collected at a residential site in Portchester and remains realistic.

9.8.6 The Council's final concern relates to the relative attractiveness of the Downend Road route when compared to other walking and cycling options. Its concerns appear to relate solely to the proposed pedestrian crossing refuge improvement at the A27 Thicket via the Cams Bridge, and in relation to residents seeking access to westbound bus stops. The adequacy and attractiveness of the Cams Bridge route was considered as part of the 2019 Appeal and the Inspector was satisfied that this would be an acceptable route. The crossing refuge is designed in line with standards, has been considered by independent Road Safety Audit, and is agreed with HCC. It will deliver improved crossing facilities where none currently exist and is consistent with numerous other informal crossings on the A27 corridor in Portchester, which operate safely.

9.8.7 I therefore consider that the Council's allegations to be unfounded, that the assessment presented is realistic and indeed robust, and that this demonstrated the scheme will operate safely, efficiently and without material impact on the convenience or amenity of highway users.

9.9 Matters Raised by Interested Parties

9.9.1 I have considered matters raised by interested parties which relate to concerns on the safety and operation of Downend Road, accessibility, and wider traffic congestion concerns. Each of these matters has been fully addressed either through the application process or in my evidence.

9.10 Wider Scheme Benefits

9.10.1 I have explained that the development will deliver a number of wider transport benefits to the local community, including through improving highway infrastructure to increase capacity and reduce delays, providing improved connectivity for walking and cycling, enhancing existing walking and cycling routes in the local area, and through investment in public transport infrastructure. I consider these benefits to weigh in favour of granting consent for the proposal.

9.11 Compliance with Relevant Policies

9.11.1 I have assessed the development proposals against the relevant policies for the site, which in transport terms comprises the NPPF, CS5 and DSP40.

9.11.2 I conclude that the proposals are fully complaint with the NPPF, and particularly that there are no unacceptable safety impacts and that there is no severe residual cumulative transport impact.

9.11.3 In relation to Development Plan Policies CS5 and DSP40, I conclude that the proposals comply with relevant parts of both CS5 and DSP40, a view shared by HCC (CD9).

9.12 Conclusion

9.12.1 My evidence demonstrates that:

- The Appeal site will be accessible and will ensure opportunities to travel by sustainable modes will be taken up. The proposals go beyond simply addressing demands arising from the site and offer a number of wider benefits to the local community;
- Safe and suitable access to the site can be achieved for all users; and
- The residual cumulative transport impacts of the proposals fall short of the "severe" test set by the NPPF and do not result in unacceptable impacts on highway safety.

9.12.2 It is therefore my conclusion that there are no transport grounds for dismissing the appeals.

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