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Si. 30/11/11

knight, shirley(R&D)

From: Bown, Kevin [Kevin.Bown@highways.gsi.gov.uk]
Sent: 29 November 2011 16:10
To: representations, planning
Cc: Harwood, Paul
Subject: FAO Carly Stoddart: Highways Agency comments re application MC/11/2516 Lodge Hill
Attachments: 2011-11-28 HA reps MC11-2516.pdf; 2011-11-28 AECOM TN re MC11-2516 Lodge Hill.doc (attachment).doc; 2011-11-28 HA TR110 re 11-2516.pdf

Dear Sirs

Please find attached 3 documents comprising the HAs comments on the above application.

You will note that in view of the need for further information and clarifications to be supplied, the Secretary of State is not yet able to come to a final view on the application and in order to safeguard her position it is necessary to issue a 56 day Holding Direction.

I would be grateful if you could acknowledge safe receipt of this email and its contents. Si

Should you have any queries regarding this matter, please contact me.

Yours sincerely,

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Our ref:
Your ref: MC/11/2516

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Ms C Stoddart
Development, Economy &
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Direct Line: 01306 878621
28 November 2011

Dear Ms Stoddart

**APPLICATION MC/11/2516
LAND AT LODGE HILL, CHATTENDEN, ROCHESTER, KENT**

Thank you for consulting the Highways Agency regarding the above application. The Highways Agency representations on behalf of the Secretary of State for Transport comprise three documents; namely

1. This cover letter that provides general comments and suggestions;
2. A Technical Note produced by AECOM dated 30 September 2011 that sets out more detailed comments and suggestions, with which the HA concurs; and
3. A Highways Agency form TR110 that constitutes the Secretary of State's formal position in connection with this application.

Background

The HA and its consultants, AECOM, have worked with Medway Council's agents Mott MacDonald for a number of years in connection with the Medway Traffic Model; and more latterly with Hyder Consulting regarding the Lodge Hill Transport Assessment and Interim Travel Plan.

The HA has assessed the various main and supporting documents produced in connection with these processes against those submitted with application MC/11/2516 and in their own right.

Consideration of Application MC/11/2516

While we are encouraged by the work completed to-date we have a number of concerns and comments that are set out in detail in the accompanying Technical Note dated 30 September. We note that it has been up-dated in part but the following key issues remain:-

1. The Transport Assessment presented indicates that the A2/M2 will suffer a material impact from the proposed development.

2. Due to errors within the capacity assessments presented for A2/M2 Junction 1, these are not able to be accepted. These should be reviewed, corrected and revised assessments presented to the HA.
3. The assessments currently presented do however indicate that elements of the A2/M2 Junction 1 interchange will be overloaded. The Transport Assessment has suggested that potentially a ramp metering scheme could be introduced for the A289 approach. A potential layout and assessment of this scheme has not however been presented. If the applicants wish to take forward this option, further details and evidence supporting such a response will need to be provided.
4. The TA suggests that the operation of the Junction 1 westbound diverge will be monitored to see whether upgrade is required. It is not clear how the upgrade will be monitored and funded. Therefore further information should be provided.
5. We also consider that the developer should provide details of the additional trips that are predicted to be generated by the proposed development at M2 Junctions 2 and 3, both on the mainline carriageways, the slip roads and turning movements at the junctions. If the development traffic flows at these junctions exceeds 30 two-way vehicle trips in an hour, junction and merge/ diverge capacity assessments should be undertaken. This requirement is in accordance with the HA's Protocol for Dealing With Planning Applications.

We recognise the complex layout at M2 Junction 3 presents a challenge in assessing the predicted impact from the proposed development. This should not however deter the developer in seeking to define the traffic impact of the proposed development, define/agree how any impact could be managed / mitigated as appropriate, in discussion with Medway Council and the HA.

Conclusion

Given our concerns as set out in this letter and the accompanying Technical Note, the HA is not currently in a position to offer no objection to the application and/or to agree any necessary mitigation or conditions. Therefore please find attached the TR110 form that constitutes a Holding Direction for a period of 56 days to allow sufficient information to address our concerns to be provided to, and assessed by, the HA.

Should you have any queries regarding this matter, please contact me.

Yours sincerely,



Kevin Bown
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Project: Highways Agency Spatial Planning Arrangement Job No: **60218471 SM003.001**
Subject: **Medway – Chattenden (Lodge Hill) TA and ITP - Review**
Prepared by: **Liz Judson** Date: **23rd September 2011**
Approved by: **John Alderman** Date: **30th September 2011**

1. Introduction

- 1.1 This technical note has been prepared by AECOM to summarise a review of a Transport Assessment (TA) associated with potential development at Lodge Hill, Medway. The TA has been prepared by Hyder Consulting. At the time of writing the TA does not support a planning application for the Lodge Hill development; rather it has been presented as evidence in support of a Development Brief document for the Lodge Hill development.
- 1.2 Discussion between the HA/ AECOM regarding the TA and associated Medway Transport Model (MTM), which has been developed as the primary transport evidence base used to support the Draft Core Strategy (DCS), has been ongoing for some time. A number of items have been agreed regarding the approach to the TA, which will be discussed further within this review.
- 1.3 Furthermore the HA has been involved in reviewing the MTM to determine whether it is suitable tool for predicting the future impact of development in Medway on the strategic road network (SRN). The base model has been accepted by the HA and the forecast model is considered reasonable with the exception of the assumptions made regarding the Lodge Hill development in Chattenden, which has a number of outstanding issues related to it.
- 1.4 This technical note includes a review of the TA, taking account of discussions that have already occurred regarding the development. As the primary intention of the TA at this stage is to support the evidence base associated with the DCS, the review will consider it in this context. However, in order to ease the planning process further down the line, recommendations will also be made regarding the requirements for the TA if it is to be subsequently submitted in support of a planning application for Lodge Hill.

2. Development proposals and location

- 2.1 Table 2.1 of the TA provides information regarding the quantum of development proposed for the site. The new development is intended to meet Government sustainability objectives by reducing the need for travel outside the site by providing a mix of residential, retail, employment, leisure and healthcare land uses. Further information is then provided within table 13.1, detailing the breakdown of dwellings into four categories. Information from these two tables is summarised in table 1 below.

Table 1: Lodge Hill development proposals

Land Use	Development Quantum (GFA unless stated)
Private houses	3,385 units
Rented houses	485 units
Private flats	367 units
Rented flats	763 units
Local retail	1,966m ²

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B1 offices	35,000m ²
B2 offices	7,000m ²
Food superstore	3,088m ²
Hotel	13,400m ²
Community Centre	760m ²
Primary school	9,648m ²
Secondary school	13,000m ²
GP surgeries	1,425m ²
Nursing home	120 residential units
Garden Centre	500m ²

2.2 The proposed development is located on the Hoo Peninsula in Medway. More specifically the development will be to the north of Chattenden village, between Wainscott and Hoo St Werburgh. The development is located approximately 6.5km from M2 Junctions 1 and 2 and 10km from Junction 3 as the crow flies. The closest existing rail station to the site is in Strood, approximately 3.5km from the development site.

3. Trip rates

- 3.1 A number of previous discussions and consultations have taken place between the developers, the HA, AECOM and the local authority over the last few years, regarding the proposed trip rates and subsequent trip generation for the site in the context of the MTM. Additional discussions have also taken place regarding the trip rates to be used for future development sites within the MTM.
- 3.2 A trip rate report was prepared to support the Lodge Hill proposals (June 2009). This report sets out appropriate trip rates for the Lodge Hill development, through the comparison of trip rates from a number of sources, including the MTM, the Kent Thameside Model and TRICS 85th percentile and average trip rates. The trip rate report (summarised in section 12.1 of the TA) concluded that the trip rates used within the MTM represented a realistic starting point for determining the traffic attraction potential of the site with the exception of the rented houses and flats.
- 3.3 Sections 2.6.1 and 2.7 of the trip rate report (Appendix N of the TA) indicates that the trip rates used within the MTM for rented houses and flats were too high and therefore they were adjusted using factors calculated from TRICS.
- 3.4 Table 12.1 of the TA demonstrates the trip rates proposed for all future development types within the MTM. AECOM has undertaken checks on those trip rates shown in Table 12.1, to determine whether they are appropriate to apply to the Lodge Hill site. The checks have been undertaken using the TRICS database and Tables 2 and 3 below present a comparison between the MTM and AECOM trip rates, for the AM and PM peaks respectively. It should be noted that those trip rates demonstrated within the Table 12.1 of the TA and calculated from TRICS by AECOM do not include any reductions for linked trips, travel plan measures or internalisation, which may be applicable to the Lodge Hill site. These reductions are discussed later in this section.

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Table 2: MTM and AECOM average vehicle trip rate comparison, Lodge Hill land uses - AM peak

Land Use	Per	MTM			AECOM			Difference		
		Arr	Dep	2-way	Arr	Dep	2-way	Arr	Dep	2-way
Private houses	Unit	0.250	0.350	0.600	0.155	0.434	0.589	-0.095	0.084	-0.011
PTAL-1	Unit	0.090	0.210	0.300	-	-	-	-	-	-
PTAL-2	Unit	0.070	0.170	0.240	-	-	-	-	-	-
Rented houses	Unit	0.151	0.212	0.364	0.140	0.149	0.289	-0.011	-0.063	-0.075
PTAL-1	Unit	0.090	0.210	0.300	-	-	-	-	-	-
PTAL-2	Unit	0.070	0.170	0.240	-	-	-	-	-	-
Private flats	Unit	0.060	0.230	0.290	0.083	0.252	0.335	0.023	0.022	0.045
Rented flats	Unit	0.038	0.144	0.182	0.091	0.086	0.177	0.053	-0.058	-0.005
Local retail	100m ²	5.144	4.828	9.972	4.507	4.261	8.768	-0.637	-0.567	-1.204
B1 offices	100m ²	1.090	0.290	1.380	2.097	0.222	2.319	1.007	-0.068	0.939
B2 offices	100m ²	0.840	0.380	1.220	0.422	0.083	0.505	-0.418	-0.297	-0.715
Food superstore	100m ²	4.200	2.740	6.940	3.998	2.899	6.897	-0.202	0.159	-0.043
Hotel	Per bed	0.150	0.210	0.360	0.218	0.288	0.506	0.068	0.078	0.146
Community Centre*	100m ²	0.461	0.307	0.768	0.794	0.217	1.011	0.333	-0.09	0.243
Primary school	100m ²	4.933	3.597	8.530	4.893	3.377	8.27	-0.04	-0.22	-0.26
Secondary school	100m ²	1.765	1.133	2.898	1.764	1.140	2.904	-0.001	0.007	0.006
GP surgeries	100m ²	4.890	2.129	7.019	6.607	2.940	9.547	1.717	0.811	2.528
Nursing home	100m ²	0.070	0.058	0.129	0.056	0.051	0.107	-0.014	-0.007	-0.022
Garden Centre*	100m ²	0.351	0.054	0.405	0.334	0.051	0.385	-0.017	-0.003	-0.02

*These trip rates have been calculated by Hyder using TRICS

Table 3: MTM and AECOM average vehicle trip rate comparison, Lodge Hill land uses - PM peak

Land Use	Per	MTM			AECOM			Difference		
		Arr	Dep	2-way	Arr	Dep	2-way	Arr	Dep	2-way
Private houses	Unit	0.310	0.270	0.580	0.429	0.256	0.685	0.119	-0.014	0.105
PTAL-1	Unit	0.180	0.130	0.310	-	-	-	-	-	-
PTAL-2	Unit	0.140	0.100	0.240	-	-	-	-	-	-
Rented houses	Unit	0.221	0.193	0.414	0.245	0.152	0.397	0.024	-0.041	-0.017
PTAL-1	Unit	0.180	0.130	0.240	-	-	-	-	-	-
PTAL-2	Unit	0.140	0.100	0.240	-	-	-	-	-	-
Private flats	Unit	0.210	0.090	0.300	0.243	0.110	0.353	0.033	0.02	0.053
Rented flats	Unit	0.151	0.065	0.215	0.099	0.124	0.223	-0.052	0.059	0.008
Local retail	100m ²	6.112	6.401	12.513	5.180	5.314	10.494	-0.932	-1.087	-2.019
B1 offices	100m ²	0.140	0.790	0.930	0.188	1.907	2.095	0.048	1.117	1.165
B2 offices	100m ²	0.220	0.720	0.940	0.035	0.321	0.356	-0.185	-0.399	-0.584
Food superstore	100m ²	7.610	8.040	15.650	7.119	7.304	14.423	-0.491	-0.736	-1.227
Hotel	Per bed	0.190	0.140	0.330	0.253	0.189	0.442	0.063	0.049	0.112
Community Centre*	100m ²	0.841	0.673	1.514	1.516	0.866	2.382	0.675	0.193	0.868
Primary school	100m ²	0.301	0.554	0.855	0.314	0.548	0.862	0.013	-0.006	0.007
Secondary school	100m ²	0.200	0.332	0.532	0.159	0.281	0.44	-0.041	-0.051	-0.092
GP surgeries	100m ²	2.583	3.786	6.389	2.858	4.542	7.400	0.275	0.756	1.011
Nursing home	100m ²	0.049	0.073	0.122	0.038	0.064	0.102	-0.011	-0.009	-0.02
Garden Centre*	100m ²	0.108	0.270	0.378	0.154	0.308	0.462	0.046	0.038	0.084

*These trip rates have been calculated by Hyder using TRICS

3.5 Tables 2 and 3 include some trip rate values for PTAL categories. PTAL trip rates are more commonly applied to development sites within London which have particularly good access to public transport services. These reduced trip rates have been used for some future year developments in the MTM due to their location in areas with good sustainable transport options.

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- 3.6 However, the location of Lodge Hill outside of the primary urban areas and away from significant public transport provision means that it is not considered by AECOM to be appropriate to apply the discounted PTAL trip rates to any part of the proposed development. It is unclear from the TA whether these PTAL trip rates have been applied.
- 3.7 In general, although there are some discrepancies between the trip rates used within the MTM model and those calculated by AECOM using TRICS, the MTM trip rates are considered to be broadly reasonable. However, some trip rates used within the MTM are considered by AECOM to be low, in particular those associated with the B1 offices, GP surgery and Community Centre.
- 3.8 The GP surgery and Community Centre are likely to serve the local Lodge Hill community and potentially a small catchment area further afield. Therefore these trips are unlikely to make use of the SRN and therefore the differences are not considered material.
- 3.9 However, the trip rates associated with the proposed B1 office development are considerably lower within the MTM than calculated by AECOM from TRICS. If these trip rates are applied to the estimated B1 Gross Floor Area (GFA), AECOM predict that there could be an additional 329 and 408 B1 office two way trips generated in the AM and PM peaks respectively when compared to the MTM. The reason for these low B1 office trip rates should be provided within the TA.
- 3.10 Furthermore, the trip rates calculated by AECOM for the Private Houses and Private Flats in the PM peak are in most cases higher than those used in the MTM. Although the differences in trip rates may appear to be relatively small, due to the large number of residential units which are proposed for the site, these small differences may be significant when converted to trip numbers.

4. Trip generation

- 4.1 Section 13 of the TA provides information regarding the trip generation for the site. The gross trip generation is based on the trip rates detailed in Tables 2 and 3 of this technical note and is shown in Tables 4 and 5 below.

Table 4: MTM and AECOM vehicle trip number comparison, Lodge Hill land uses - AM peak

Land Use	MTM			AECOM			Difference		
	Arr	Dep	2-way	Arr	Dep	2-way	Arr	Dep	2-way
Private houses	846	1,185	2,031	525	1,469	1,994	-322	284	-37
Rented houses	73	103	177	68	72	140	-5	-31	-36
Private flats	55	78	133	51	55	106	-4	-23	-27
Rented flats	29	110	139	69	66	135	40	-44	-4
Local retail	101	95	196	89	84	172	-13	-11	-24
B1 offices	382	102	483	734	78	812	352	-24	329
B2 offices	59	27	85	30	6	35	-29	-21	-50
Food superstore	130	85	214	123	90	213	-6	5	-1
Hotel	20	28	48	29	39	68	9	10	20
Community Centre*	4	2	6	6	2	8	3	-1	2
Primary school	476	347	823	472	326	798	-4	-21	-25
Secondary school	229	147	377	229	148	378	0	1	1
GP surgeries	70	30	100	94	42	136	24	12	36
Nursing home	8	7	15	7	6	13	-2	-1	-3
Garden Centre*	2	0	2	2	0	2	0	0	0
Total	2,484	2,346	4,830	2,528	2,483	5,011	44	137	181

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Table 5: MTM and AECOM vehicle trip number comparison, Lodge Hill land uses - PM peak

Land Use	MTM			AECOM			Difference		
	Arr	Dep	2-way	Arr	Dep	2-way	Arr	Dep	2-way
Private houses	1,049	914	1,963	1452	867	2,319	403	-47	355
Rented houses	107	94	201	119	74	193	12	-20	-8
Private flats	77	33	110	89	40	130	12	7	19
Rented flats	115	50	164	76	95	170	-40	45	6
Local retail	120	126	246	102	104	206	-18	-21	-40
B1 offices	49	277	326	66	667	733	17	391	408
B2 offices	15	50	66	2	22	25	-13	-28	-41
Food superstore	235	248	483	220	226	445	-15	-23	-38
Hotel	25	19	44	34	25	59	8	7	15
Community Centre*	6	5	12	12	7	18	5	1	7
Primary school	29	53	82	30	53	83	1	-1	1
Secondary school	26	43	69	21	37	57	-5	-7	-12
GP surgeries	37	54	91	41	65	105	4	11	14
Nursing home	6	9	15	5	8	12	-1	-1	-2
Garden Centre*	1	1	2	1	2	2	0	0	0
Total	1,898	1,976	3,874	2,268	2,290	4,559	370	316	685

- 4.2 Tables 4 and 5 demonstrate that there are differences between the volume of traffic predicted to be generated by the Lodge Hill development when comparing the MTM and AECOM trip numbers. This discrepancy is particularly prevalent in the PM peak, where AECOM predict that the site could generate 685 more two way trips than is included within the model.
- 4.3 The reason for these differences is consistent with the trip rate differences shown in Tables 2 and 3 of this technical note. The primary land uses which influence the discrepancies in both time periods is the Private Houses and B1 offices trip rates. In the AM peak the overall differences in trip numbers are unlikely to have a significant impact on the SRN within the model; however a greater impact may be recognised in the PM peak.
- 4.4 Following the calculation of the gross trip generation a number of discounts have been applied to reduce the trip generation due to various factors such as travel plan measures, linked trips and internalisation. Following the gross trip generation summarised in Tables 4 and 5 above, AECOM considers whether the application of these reductions is appropriate, if they have been applied correctly and the affect this could have on the external trip generation.

Linked trips

- 4.5 Due to the size and mixed use nature of the Lodge Hill site, Hyder has identified the likelihood that trips will be linked between some land uses and will therefore only generate one two-way trip for the site rather than two or more.
- 4.6 AECOM considers it appropriate to reduce the trip numbers associated with the site to take account of linked trips. Hyder has applied a percentage reduction to retail and school trips based on evidence provided within the associated 'Trip Generation Report' (July, 2009).
- 4.7 Section 2.6 of the Trip Generation Report makes use of evidence from the TRICS research report 95/2 'Pass By & Diverted Traffic' to determine the number of linked trips associated with the retail development. Based on this analysis the TA indicates that a 30% reduction will be applied to all retail trips based on this evidence.

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- 4.8 The TA includes a quote from the Research Report which indicates that *"the proportion of trips generally accepted to be non primary is 30%"*. It appears this quote has been taken from section 4.3 of the Report. Following AECOM's review of the document it is considered to be a reasonable assumption.
- 4.9 The 'Trip Generation Report' also provides evidence to support a reduction for linked trips to the AM peak school trip total. The evidence was collected from a report entitled 'Transport Trends 2000 Edition' (DETR) and indicated that approximately one in five school run trips in the morning made by car drivers are followed by a work trip. Therefore the TA assumes a 20% reduction in AM peak school trips to take into account these linked trips. No reduction has been applied in the PM peak. While a copy of the DETR report has not been provided within the TA appendices, AECOM considers this reduction to be reasonable.

Internalisation

- 4.10 The TA indicates that a reduction for internal trips will be applied to a number of the proposed land uses. Internal trips are those that have an origin and destination within the site boundary and therefore do not impact on the wider highway network. Internalisation should be reflected in the distribution applied to the various trip purposes. AECOM considers it reasonable to reduce the trip generation due to internalisation as this would generate the same effect as internal distribution of trips. The following paragraphs will review the reductions applied for internal trips between Lodge Hill land uses, as detailed within the TA and Trip Generation Report provided within the appendices, and determine whether they are reasonable.

Retail Internalisation

- 4.11 Information provided in the TA and TA appendices regarding retail trip internalisation is not consistent. The TA indicates that 53% of trips will be internal to the site. This is based on the anticipated revenue that the residential uses within Lodge Hill are expected to generate (£13m) compared with the total expected incoming revenue of the retail uses (£24.5m). Of the 47% that are predicted to be external to the site the TA predicts that due to the scarcity of retail on the peninsular and the relative abundance within the rest of Medway that 35% of the 47% will come from outside the peninsular (i.e. 16% of total retail trips).
- 4.12 However, section 2.9 of the Trip Generation Report in the TA appendices indicates that 50% of retail trips will remain internal to the site, although how this percentage is calculated is not stated.
- 4.13 The TA does not provide further information regarding how the anticipated revenue that is expected to be from the residential development was calculated and therefore it has not been possible to check this further. However, due to the provision of alternative retail facilities within the rest of Medway, AECOM considers that the provision of the Lodge Hill retail will primarily be for Lodge Hill and Hoo Peninsular residents. Therefore, while evidence to support the TA conclusion that 16% of retail trips will travel outside the Hoo Peninsular, this assumption is considered reasonable.

Employment Internalisation

- 4.14 2001 Census data provides information regarding the distance that Medway residents travel to work. The TA makes use of this information to indicate that 21% of residents travel less than 2km to work. Therefore it is assumed that this trend will be replicated at the Lodge Hill development and that 21% of residents will live and work on site. Employment trip generation has therefore been reduced by 21% accordingly. Census data indicates that a further 23% of Medway residents work

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within 5km of their home (44% in total). The TA has therefore assumed that a total of 30% of employment trips will be internal to the peninsula which is considered reasonable.

Primary Schools Internalisation

- 4.15 The Trip Generation Report makes use of data from the Royal Statistical Society Centre for Statistical Education which indicates that 66% of primary school pupils travel less than 2km to school. Therefore it states that the external primary school trips have been reduced by this amount.
- 4.16 However, the TA is not consistent with this methodology and it is unclear why. The TA estimates that there will be very little spare capacity within the Lodge Hill primary schools for external pupils and therefore it is implied that the majority of primary school trips will be internal to the site and that only some vehicle trips will impact on the wider highway network. Furthermore, only 10% of all trips are predicted to exit the Peninsula. Although this percentage is not consistent with the Trip Generation Report, AECOM consider that the primary school trips are unlikely to have a significant impact on the SRN and therefore this is considered to be a reasonable assumption.

Secondary Schools Internalisation

- 4.17 The Trip Generation Report makes use of data from the Royal Statistical Society Centre for Statistical Education which indicates that 41% of secondary school pupils travel less than 2km to school. Therefore it states that the external secondary school trips have been reduced by this amount.
- 4.18 Medway has a grammar school system which serves about 25% of the pupils in the area. The TA therefore indicates that a similar percentage of spaces within the school could be filled with pupils from outside the surrounding area as a quarter of pupils that live on the site could realistically be expected to make use of alternative grammar schools. The TA therefore proposes that 35% of vehicle trips (25% of pupils and 10% representing teacher trips) will be trips external to the peninsula.
- 4.19 The Trip Generation Report indicates that 2001 Census data indicates that 55% of secondary school trips are predicted to be less than 3km and 70% are predicted to be less than 5km. Therefore the assumption that 35% of secondary school trips will originate from outside the peninsular is considered reasonable.

Community Uses Internalisation

- 4.20 The TA indicates that the community land uses such as the GP surgery and community centre are expected to serve the needs of the development community and therefore the majority of trips will not be external. The TA assumes that 10% of trips will be external to the site, which is considered reasonable by AECOM.

Residential Internalisation

- 4.21 The internalisation of residential trips has been calculated based on the assumption that the internal school and employment trips are also internal from their origins. The total internal school and employment trips represent approximately 15% of the total residential trips and therefore the residential trips have been reduced by this amount to show this effect. This is considered to be a reasonable approach.

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Internalisation Summary

- 4.22 In summary, AECOM considers that the percentage reductions applied to trip rates to take into account the linked and internalisation of trips is acceptable.

Travel Planning and bus service provision

- 4.23 In addition to trip reductions applied for linked trips and internalisation, further reductions have been applied within the TA to take account of travel plan measures and a dedicated bus service for the site.
- 4.24 The reductions applied for travel planning measures are consistent with the targets proposed within the Interim Travel Plan supplied within the TA appendices. Section 7 of the Interim Travel Plan and section 13.3 of the TA indicates that the travel plan targets and reductions applied to car driver trips within the TA are as follows:
- Workplace trips will be reduced by 20%;
 - School trips will be reduced by 11%; and
 - Residential trips will be reduced by 4% due to personalised travel planning.
 - Bus travel will experience a 15% increase in patronage as a result of the proposed bus service.
- 4.25 A further overarching target of the travel plan is to ensure that total external peak hour vehicle trips do not exceed the level set out within the Trip Generation Report. This total includes the reductions for travel planning measures as outlined above.
- 4.26 This approach, including reductions for travel plan measures within the overall trip generation for a development site, is consistent with HA protocol which indicates the appropriate approach to trip generation is to consider the '*predicted residual vehicular trip generation based on proposed travel plan measures*'.
- 4.27 However, AECOM considers that the 20% reduction to workplace trips as a result of the travel plan may be unrealistic for the site, particularly considering its location away from the main Medway conurbation. It is likely that a significant number of employees may need to travel to the site from outside the peninsula and that trips making use of the SRN are unlikely to have a viable alternative mode of travel to the car. Therefore the 20% reduction may not be applicable to longer distance trips.
- 4.28 The greatest potential for mode shift from car for external trips is likely to be as a result of the proposed direct bus links. However, the extent of mode shift could depend greatly upon the quality of the services and supporting infrastructure.
- 4.29 The proposed bus service is expected to serve the nearby rail stations of Strood and Chatham which have connections to London and other significant urban areas. Therefore it is anticipated that some longer distance trips could make use of these services rather than travel by car. However, the vehicle trip rate checks undertaken by AECOM using TRICS made use of sites which had an existing bus service or nearby bus stops and therefore the trip rates that were calculated by AECOM are likely to already take account of the effects of bus service provision.

- 4.30 The travel plan does not indicate any measures other than the bus service that could cause a mode shift in longer distance trips. Section 8 of the TA indicates that the bus will serve the Medway town centres, although no indication is provided that it will serve areas further away.
- 4.31 Discounts are applied to trip totals to take into account of the increase in bus patronage as a result of the proposed development bus service, i.e. it is predicted that bus patronage will increase by 15% over the base bus mode share. How this percentage increase equates to total trips has been subtracted from the total trip generation. It is likely that some of the reductions in workplace trips may be due to the introduction of the bus service and therefore these reductions may have been double counted.
- 4.32 As the travel plan measures and subsequent trip reductions are not expected to have a significant impact on proposed base trip rates and generation, and in particular longer SRN trips it is recommended that Hyder undertakes a sensitivity test on the impact of development trips which are anticipated to use the SRN which does not include the travel plan trip reductions.
- 4.33 AECOM has undertaken a comparison between the total trips external to the peninsula, as calculated within the TA and compared them against the total trip generation if the travel plan reductions are not applied, as shown in Table 6.

Table 6: Lodge Hill vehicle trip generation external to the peninsula

Time period	Inc. TP reductions			Exc. TP reductions			Difference		
	In	Out	Two-way	In	Out	Two-way	In	Out	Two-way
AM peak (08:00 – 09:00)	1,166	1,401	2,568	1,275	1,474	2,749	109	73	181
PM peak (17:00 – 18:00)	1,221	1,168	2,389	1,278	1,253	2,531	57	85	142

- 4.34 Table 6 demonstrates that an additional 142 AM peak and 181 PM peak trips are predicted to be generated by the Lodge Hill site external to the peninsula if the potential travel plan trip reductions are not included within the trip generation calculations.
- 4.35 The TA provides information regarding the total number of trips that will be generated external to the site, including the Hoo Peninsula. 2,833 and 2,609 two way trips are expected to be generated in the AM and PM peaks respectively. Section 13.6 of the TA indicates that the two way, vehicles per hour, traffic generation used in the capacity analysis to establish the impact on the wider network used within the MTM was 2,679 and 2,830 in the AM and PM peak respectively.
- 4.36 The TA states that the MTM therefore includes more trips associated with the site than is calculated within the TA (those external to the peninsula) and that the assessment is robust. However, the trips generated by the site within the model should include all trips external to the site, not just those external to the peninsula. Therefore, the model may be underestimating the total number of trips generated by the site, particularly in the AM peak and by association, the number of trips travelling via the SRN.

5. Trip distribution

- 5.1 Details regarding the trip distribution associated with the Lodge Hill site are not provided within the TA; rather reference is just made to the traffic modelling undertaken using the MTM and the subsequent outputs.

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- 5.2 However, AECOM and the HA have previously corresponded with Hyder regarding the assumed distribution of Lodge Hill trips. Within an AECOM technical note dated 22nd July 2011 the distribution associated with the Lodge Hill development was considered suitable with respect to the strategic road network. The assumed AM and PM peak distributions are detailed below for ease of reference.

Table 7: Lodge Hill Trip Distribution within the 2026 MTM

Origin/ Destination	AM Peak		PM Peak	
	Outbound	Inbound	Outbound	Inbound
Local Area (Area 1)	22%	9%	16%	16%
Gravesend (Area 2)	5%	6%	2%	4%
West/NW/SW (Area 3)	15%	17%	16%	19%
South/East (Area 4)	20%	19%	12%	8%
Urban (Area 5)	38%	49%	53%	54%

- 5.3 While AECOM accepted that these Lodge Hill distributions were a reasonable assumption for the SRN, a further request was made within section 2.7 of the 22nd July technical note for Hyder to provide details of the distribution assumed for each type of development, including internalisation, and what these assumptions are based on. Hyder has provided information regarding internalisation however a breakdown of distribution by land use has not been provided. It is unclear whether the same distribution of trips will be applied to all land uses. Details regarding this should be provided within the TA.

6. Traffic Modelling

- 6.1 The MTM has been used to model the impacts of the proposed Lodge Hill development on the local and strategic road network. The TA indicates that an assessment of the impact on the development on M2 Junction 1 has been undertaken. Assessments do not appear to have been carried out on M2 Junctions 2 and 3, as requested by the HA, although reference is made to this request in section 6.2 of the TA.
- 6.2 The MTM forecast year is 2026. Details should be provided in the TA regarding how the growth from the model base year to 2026 was calculated. Paragraph 35 of DfT Circular 02/2007 states that the review period of ten years after the date of registration of a planning application should normally be adopted. At this stage a planning application has not been submitted and therefore the forecast year associated with Lodge Hill proposals is unknown. If a planning application is submitted for the development consideration should be given to the Circular 02/2007 guidance when preparing the TA.

M2 Junction 1

- 6.3 The TA states that *‘although just over 30% of the trips generated by Lodge Hill are likely to use this Junction, it should operate within its design capacity and would not be likely to generate any significant delays’*.
- 6.4 The layout of M2 Junction 1 results in the A289 merging and diverging directly with the M2/ A2 without an intermediate local at grade junction. The TA includes merge/ diverge assessments for 2026 with and without Lodge Hill development scenarios.

- 6.5 HA protocol indicates that where a proposed development is expected to result in more than 30 additional vehicles on a slip road merge/ diverge assessments should be undertaken to determine whether a layout upgrade is required as a result of development. DfT Circular 02/2007 indicates that the SRN should be 'no worse off' following development than if development had not taken place.
- 6.6 Appendix Q of the TA provides details regarding the merge/ diverge assessments and the additional number of trips expected to be generated on the slip roads following development. The information indicates that the proposed development could result in the following additional trips on the slip roads in 2026:
 - Eastbound diverge – 149 PCUs (AM peak), 76 PCUs (PM peak);
 - Westbound diverge – 229 PCUs (AM peak), 322 PCUs (PM peak);
 - Westbound merge – 126 PCUs (AM peak), 117 PCUs (PM peak); and
 - Eastbound merge – 147 PCUs (AM peak), 295 PCUs (PM peak).
- 6.7 AECOM has undertaken calculations based on the trip generation and distribution identified within the TA and estimates that the potential development trip numbers on the slip roads at M2 Junction 1 could be significantly different to those predicted within the Appendix A of Appendix Q of the TA and detailed above. The TA should clarify the reasons for these discrepancies. It is important the correct development flows are used to assess the impact of development on the junction.
- 6.8 The information provided within Appendix Q is in PCUs rather than vehicles. However, AECOM considers it reasonable to assume that the additional development trips will exceed the HA Protocol threshold of 30 vehicle trips on each slip road as a large proportion will be light vehicles.
- 6.9 As the information regarding additional trips has been provided within the TA and appendices in PCUs rather than vehicles AECOM has been unable to check the merge/ diverge assessments that have been undertaken within the TA. TD 22/06, which is the DMRB document used to calculate the appropriate merge/ diverge layouts, makes use of vehicles rather than PCUs. Appendix C of Appendix Q of the TA, which provides details regarding the DMRB calculations, appears to have calculated the required merge/ diverge layouts using PCUs. It is possible, therefore, that the layouts predicted without and with development in 2026 could be incorrect. Hyder should provide merge/ diverge assessments using M2 Junction 1 flows in vehicles.
- 6.10 Tables 8 – 11 show the merge/ diverge outputs from the Hyder calculations for each slip road. It should be noted that although these outputs are analysed below by AECOM further details are required following Hyder calculations based on vehicles rather than PCUs. It should also be noted that these assessments are based on the assumption that the layout accords to a motorway layout. The motorway does not commence until after the diverge has been passed and should therefore be addressed against an all purpose capacity. The HA may however wish to give consideration to accepting the motorway based assessment given the road layout present.

Table 8: A2 (M2 Junction 1) Eastbound diverge (using motorway criteria)

Scenario	Time period	Diverge type	Downstream mainline lanes	Upstream mainline lanes	Slip road lanes
Existing layout	Both	D	3	4	2
2026 no Lodge Hill	AM	D	2	3	2
	PM	D	3	4	2
2026 with Lodge Hill	AM	E	2	4*	2
	PM	D	3	4	2

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*Table 1 of Appendix Q of the TA indicates that 3 lanes are required upstream, however Appendix C of Appendix Q shows the calculations and demonstrates that 4 lanes are required.

- 6.11 Table 8 suggests that following development the eastbound diverge could require an upgrade from a D layout (lane drop at parallel diverge) to an E layout (2 lane drop) in the AM peak. However, the number of lanes required suggests that the existing layout may be sufficient to support the development traffic.
- 6.12 It should be noted that the traffic flows predicted (in PCUs) exceed the 4 lane capacity value in vehicles for an all purpose road.

Table 9: M2 Junction 1 Westbound diverge

Scenario	Time period	Diverge type	Downstream lanes	Upstream lanes	Slip road lanes
Existing layout	Both	C*	3	4	1
2026 no Lodge Hill	AM	C	3	4	1**
	PM	C	2	3	1**
2026 with Lodge Hill	AM	D	3	4	2
	PM	D	2	3	2

*Table 2 of Appendix Q of the TA indicates that this is currently an A layout + and Auxillary lane. AECOM consider that it is currently a Type C layout.

**DMRB analysis in Appendix C of Appendix Q indicates that only 1 lane is required without Lodge Hill development. This contradicts Table 2 of Appendix Q which suggests that 2 lanes are required without development.

- 6.13 Table 9 replicates table 2 of Appendix Q of the TA. It has been calculated by Hyder that the slip road requires 2 lanes without and with development.
- 6.14 The TA suggests that despite the need for upgrade, the current diverge set up, which is formed of a relatively tight radius, should be retained and that the Type D diverge is only implemented if required. It is unclear how this would be monitored and how the upgrade would be funded if required at a later date.
- 6.15 It should be noted that there may be potential to upgrade the existing diverge and slip road within the existing land and structural constraints.

Table 10: M2 Junction 1 Eastbound merge

Scenario	Time period	Merge type	Downstream lanes	Upstream lanes	Slip road lanes
Existing layout	Both	E	4	3	1
2026 no Lodge Hill	AM	G	4	2	2
	PM	F	4	2	2
2026 with Lodge Hill	AM	G	4	2	2
	PM	F	4	3	2

- 6.16 Table 10 demonstrates that the current merge layout is unlikely to be able to support 2026 traffic flows on the network, both without and with development. It is anticipated that the merge may need to be upgraded from an E (lane gain) layout to an F (lane gain with ghost island merge) or G (2 lane gain with ghost island) layout both of which provide an additional lane on the slip road.
- 6.17 Hyder predicts that the same layout will be required in 2026 (G in the AM peak and F in the PM peak) both without and with the Lodge Hill development traffic and that if this upgrade is not provided the slip road may be overloaded. The HA requires measures to be implemented to mitigate the effect of development traffic to ensure that the SRN is 'no worse off' following

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development than had development not taken place. While the southbound merge is likely to require an upgrade by 2026 to cater for future traffic levels, the addition of development traffic is unlikely to change the required layout upgrade. Furthermore, the capacity problems that could occur if the current layout is retained are likely to impact, in terms of operation, the A289 diverge upstream away from the SRN rather than the M2.

- 6.18 Hyder suggests that rather than providing an upgrade to the layout through physical infrastructure, ramp metering will be introduced to preserve the flow of traffic on the M2 mainline by managing the flow of traffic approaching from the A289. It is unknown if such a layout is feasible. Further evidence of the impact of the ramp metering measures has not been provided within the TA or appendices. It is unclear whether it has been tested using the MTM and whether the introduction of the ramp metering has queuing or re-routing impacts which could affect the SRN elsewhere.

Table 11: A2 (M2 Junction 1) Westbound merge (using motorway criteria)

Scenario	Time period	Merge type	Downstream lanes	Upstream lanes	Slip road lanes
Existing layout	Both	F (Option 2)	4	3	2
2026 no Lodge Hill	AM	F	4	3	2
	PM	G	4	2	2
2026 with Lodge Hill	AM	F	4	3	2
	PM	G	4	2	2

- 6.19 The assessment of the westbound merge has been based upon motorway criteria. The M2 motorway ends to the west of the merge and therefore should be based on all purposed criteria.
- 6.20 Table 11 is a copy of Table 4 in Appendix Q of the TA. This table indicates when measured against motorway criteria that the existing mainline provision is sufficient to support traffic levels in 2026, without and with the proposed development. However, in the 2026 PM peak the merge type is likely to require a G layout rather than the existing F layout. This layout is predicted to be required both without and with development and therefore the merge is not predicted to be 'worse off' following development.
- 6.21 A G layout involves a 2 lane gain rather than a 1 lane gain and 1 merge which represents an F layout. However, the inclusion of development traffic does not result in an upgrade from the with development scenario and therefore the conclusion in the TA that no mitigation measures should be implemented is considered reasonable.
- 6.22 It should be noted that the traffic flows predicted are approaching the design capacity for a 4 lane all purpose road. Revisions to calculations could result in this capacity being exceeded.
- 6.23 It should be noted that all the conclusions reached above are based on the Hyder analysis which uses PCUs rather than vehicles. It is recommended that the revised merge/ diverge assessments, based on vehicles per hour, are reviewed by the HA when they are available.

M2 Junctions 2 & 3

- 6.24 As stated in section 6.1 of this technical note the HA has previously requested that the impact of the Lodge Hill development on M2 Junctions 2 and 3 is assessed. Section 15.4 of the TA indicates that Medway Council are exploring measures to increase the capacity or reduce traffic flows on the roads in Medway which should reduce traffic flows on Junctions 2 and 3. Hyder anticipate that these measures will address the HA's requirements.

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- 6.25 AECOM recommends that the HA undertakes a review of the proposed measures and their predicted effects on Junctions 2 and 3 when they are forthcoming to ensure that Junctions 2 and 3 are predicted to be 'no worse off' following the Lodge Hill development than had the development not taken place.
- 6.26 The level of impact at Junction 2 and 3 has not been determined within the TA. In accordance with HA protocol junction capacity and merge/ diverge assessments should be undertaken ten years after registration of a planning application if there are more than 30 two-way development trips at the junction or associated slip road.

7. Interim Travel Plan

- 7.1 An Interim TP has been developed at prior to submission of a planning application. Page 2 of the ITP provides a definition of an ITP, although the source is not quoted, which states that the ITP '*may specify some measures/targets and clarify a timetable and basis for completion of the travel plan once the occupiers are identified and involved*'.
- 7.2 The ITP has been developed by Hyder on behalf of the developers with the aim of reducing the number of vehicle trips generated by the proposed development. This technical note will undertake a review of the travel plan, including the travel plan governance, targets, measures and monitoring procedures to determine whether they are appropriate tools to achieve a reduction in single occupancy car use and comply with HA protocol for the preparation of travel plans. As this is a review of an Interim Travel Plan it may be necessary for AECOM to make recommendations regarding the contents of future Travel Plans.

Objectives and Targets

- 7.3 The overall objectives of the ITP have been set in line with DfT travel planning guidance and include, but are not limited to, the following:
- Achieve the minimum number of additional single occupancy car traffic movements to and from the development.
 - Reduce the need to travel to and from the site.
 - Address the mode of travel access of site users by supporting walking, cycling and public transport.
 - Promote healthy lifestyles and sustainable, vibrant communities.
 - Address specific problems identified in the site's TA – for example, a local road safety problem that affects walking or cycling links to a bus or rail station.
- 7.4 AECOM considers that these are reasonable objectives for a Travel Plan; however it is important that the correct targets are set to ensure that these objectives can be achieved.
- 7.5 Further details are provided regarding the targets associated with the travel plan, although it is acknowledged within the ITP that there are a number of limitations associated with these proposals. As this ITP has been submitted prior to the submission of a planning application the development quantum is speculative at this stage and the density and end users of the employment site are unknown. The targets have therefore been based on the current information available which is considered by AECOM to be an appropriate approach at this stage.

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7.6 The following overarching targets have been proposed:

- The total external peak hour vehicle trips to not exceed the level set out by the trip generation report in the TA; and
- Bus patronage to reach required levels to provide a self sustaining service.

7.7 The ITP then goes on to propose some suggested targets for different travel plans. These include:

- Workplace trips reduced by 20%;
- School trips reduced by 11%;
- Residential trips reduced by 4%; and
- A 15% increase in bus patronage over and above the mode share numbers as predicted using Census Data.

7.8 AECOM understands, following a review of the associated TA, that these percentage reduction targets for individual land uses have been applied to the initial trip generation, along with other reductions for linked trips and internalisation etc. These reductions have been used to calculate the final trip generation associated with the site, external to the site, as detailed in Table 13.4 of the TA. The travel plan should specify the trip generation (as detailed in the TA) which will act as the target (when the land use quantum is confirmed).

7.9 It is important that the trip generation targets for the site are consistent with the more specific targets for the individual land uses and all aim to achieve the same outcome. If the targets are not consistent it will not be possible to meet both simultaneously.

7.10 The targets within the ITP do not have any time scale associated with them. The overarching target of the total external peak hour vehicle trips not exceeding that stated within the TA suggests that the timescale of this target will be post full build out of the development. The timescale associated with this target (and any other targets that are identified) should be clarified within the ITP.

7.11 Furthermore, in order to ensure that the ITP is achieving its objectives as the development build out progresses it is recommended that intermediate trip total targets are identified. These could be adjusted proportionally based on the amount of development that is built, for example if 50% of development is built out the target is 50% of total vehicle trips. However, in order to pro-rata the trip totals accurately they may need to be split by development type as the build out rates across the different land uses may not be consistent.

7.12 The ITP indicates that the modal shift targets for the individual land uses have been based on average findings issued within the Travel Planning DfT 'Smarter Choices' document and state that they should provide challenging yet realistic values.

7.13 AECOM has undertaken a review of the targets provided within the ITP and DfT 'Smarter Choices' document and has some concerns regarding the percentage reductions outlined in the ITP. These concerns are summarised below:

Employment

- The reduction of workplace trips by 20% may be overly ambitious. AECOM's review of the DfT 'Smarter Choices' document¹ suggests that a more likely target is a reduction of between 12 – 14%. It is important that targets are ambitious but achievable.
- Furthermore, the ITP does not state that this reduction of 20% is for single occupancy car trips only, although the reduction is applied to vehicle trips in the TA. It could therefore apply to all trips; however AECOM has assumed for the purpose of this review that the ITP is referring to single occupancy car trips however this should be clarified within the ITP.

Residential

- Page 120 of the DfT 'Smarter Choices' document states that in the UK so far, individualised marketing initiatives have reduced residential car driver trips between 5% and 16%. This suggests that the ITP may be underestimating the reduction in residential car driver trips that could be achieved at Lodge Hill through the provision of extensive travel plan measures.

7.14 AECOM acknowledges that the ITP outlines a clear intention to promote sustainable travel to and from Lodge Hill and achieve a decrease in single occupancy car use over and above the base share. In order to achieve this reduction a number of specific, ambitious, realistic, measurable and time based targets need to be identified. The ITP has provided an initial indication regarding these targets; however AECOM considers that they need to be refined within any future travel plans.

7.15 The trip generation targets outlined within the ITP should be initial targets set prior to occupation of the site, although additional mode split targets should be provided in line with the HA's Protocol. At a suitable time post first occupation travel surveys should be undertaken, including traffic counts and travel questionnaires, establishing a new base mode share and trip numbers from which revised, ongoing targets could be set if necessary. The questionnaires should be undertaken on one weekday, while traffic counts should take place simultaneously across 1 – 2 weeks within a neutral month. These will provide the TPC with a more informed impression of how the site is operating rather than using the vehicle trip generation estimates within the TA.

Management Strategy

7.16 Section 7.1 of the ITP states that the developer has agreed to support the role of an overarching travel plan coordinator (TPC) for Lodge Hill. The TPC would be responsible for management arrangements to steer the plan, both before and after occupation.

7.17 HA protocol states that there should be a *'firm commitment to appoint a travel plan co-ordinator. For commercial developments this should be for the lifetime of the development and for residential developments this should be for a minimum of five years post full build out'*. The ITP should indicate how long the TPC will be in place for and how the funding for this post will be generated.

7.18 The proposed site is made up of a number of large scale land uses, each of which could require its own TPC, with a site-wide TPC operating in an overarching capacity. The ITP does not indicate that this will be provided. If any forthcoming TP indicates that these subsidiary TPCs will be provided full details regarding the length of their appointment and funding should be provided. The same HA protocol guidance should apply to subsidiary TPCs.

¹ 'Smarter Choices – Changing the way we travel: main document (DfT, 2005)

Travel Plan measures

Hard Measures

- 7.19 The ITP identifies a number of hard measures which are incorporated within the current emerging masterplan to maximise the sustainability of Lodge Hill. The measures include a number of proposals that could help to encourage sustainable travel, such as pedestrian and cyclist links and rural rights of way linkages. However, only a few measures have been proposed that could influence the travel behaviour of longer distance trips, i.e. those that would travel via the SRN.
- 7.20 Bus priority measures are outlined on the roads local to the site, including a signalised bus only right turn from Chattenden Lane onto the A228 southbound, a new bus lane on the A228 between Chattenden Lane and the Four Elms roundabout and bus priority at the proposed signalised Four Elms Roundabout.
- 7.21 AECOM considers that these measures could reduce journey times for buses in this area of the highway network, although they are unlikely to impact journey times elsewhere on the route. Nevertheless, the provision of bus priority measures near the site could result in shorter journey times overall and therefore encourage a shift in longer distance trips. Further shifts could be encouraged through the provision of bus priority measures between the site and Strood railway station. It is thought that a significant number of SRN trips which shift to public transport use could use rail links from Strood station and make use of the bus links from the station to the development site. If bus priority measures were extended to the station this may encourage a greater shift to public transport use.
- 7.22 A bus route through the site has been proposed within the TA and outlined within the ITP. The proposed route is via the town centre of the development and within 400m of the majority of residents of the site. The ITP also indicates that real time information could be provided at waiting facilities through the site, although it is not stated if this will include all stops. The Lodge Hill Development Brief stipulates that real time information will be provided at all bus stops.
- 7.23 AECOM considers that the provision of a fast, reliable and regular bus service(s) is key to the potential shift of longer distance trips away from single occupancy car use to more sustainable measures. A high frequency service which serves the key local areas (including rail stations) would be required to encourage a shift in long distance trips. If the proposed service provision is not an improvement over that which is typically provided at other locations the anticipated level of shift may not be achieved.
- 7.24 The ITP states that it intends to operate at a frequency of 10 minutes during two AM peak and two PM peak hours and 2 buses per hour outside of these times, including at the weekend. A definition of the peak hours is not provided within the ITP. The service is expected to run between 06:00 and 23:50 every day. AECOM considers that this level of frequency should help the encouragement of sustainable travel and provide a real alternative to the car for some origins and destinations.
- 7.25 Appendix F of the TA indicates that features to be incorporated into the services include real time information within the homes, at bus stops and within the rail station.
- 7.26 The ITP indicates that within Appendix A typical measures to bring about modal shift in favour of sustainable modes are identified. It is not stated which these could be brought forward in addition to those identified within the main text of the ITP.

- 7.27 Due to the relatively limited selection of measures included within the ITP it is recommended that some of those outlined in Appendix A are brought forward to further encourage a shift away from car use. In particular, AECOM recommends that those measures that offer opportunities of shifting longer distance trips to more sustainable measures are included.

Soft Measures

- 7.28 In addition to hard measures the ITP also outlines some soft measures that could be implemented at the site. This section will discuss those that are most likely to impact on SRN trips.
- 7.29 Section 8.2 of the ITP proposes to try and establish the travel patterns of new residents and employees at the earliest opportunity. It is recognised that new development offers the opportunity to promote the use of sustainable modes as travel patterns have not yet become established. To facilitate this it is proposed that the developer could pump prime the bus service from first occupation. AECOM supports this measure as a positive approach to encouraging sustainable travel.
- 7.30 The ITP states that the main bus operator within Medway has expressed interest in redirecting an existing service to Lodge Hill. AECOM considers that this could be a positive step towards a shift from car use but should be provided in addition to, rather than instead of the proposed bus service for the development. Whether this is the case is not stated in the ITP. The ITP should also provide details regarding the frequency and route of the potential service.
- 7.31 The provision of real time information is proposed to enhance the attractiveness of the facility. This provision is generally to be in line with that outlined within Appendix F of the TA.
- 7.32 Some other soft measures are proposed within the ITP although AECOM considers that they are unlikely to have a significant impact on longer distance trips. AECOM recommends that further measures are proposed if a planning application for the site is submitted. In addition to measures to encourage an increase in walking and cycling trips, further measures should be included to encourage a shift away from car trips using the SRN. These measures could include financial incentives for public transport use, the promotion of a car share scheme and possible financial incentives for that scheme. Section 8.3 of the ITP indicates that when a TP is submitted in support of a planning application further measures will be explored with Medway Council to determine those that are most likely to affect mode shift.
- 7.33 HA protocol states that a firm commitment should be made to the implementation of or provision of funding for Travel Plan measures. The funding of measures is not discussed within the ITP and further details should be provided within any subsequent travel plan.

Further TP recommendations and requirements

- 7.34 AECOM has reviewed the contents of the ITP provided by Hyder. In addition to the concerns and recommendations highlighted above, AECOM would also like to outline some further recommendations for best practice and requirements based on HA protocol, which should be addressed when subsequent versions of the TP are developed:
- Details should be provided regarding a comprehensive monitoring regime to ensure that targets are being met and an agreed fallback position should they fail to do so.

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- Monitoring should include mode share counts and travel questionnaires similar to those used to set initial targets for the site. The same procedure should be undertaken as was highlighted within section 2.13 of this technical note. Furthermore, open ended questions should be included within the survey which seek to understand the impact and perception of measures and whether any additional measures could encourage further sustainable travel.
- A timescale for the monitoring procedure should be outlined. Travel questionnaires and mode share counts should be undertaken at least every 2 years, preferably every year. The surveys and resulting analysis should be undertaken by the TPC. Funding for the surveys and for the TPC input should be outlined within the TP.
- A threshold of targeted trip generation should be set based on the proportion of development that has been built out. If the monitoring procedure indicates that the targets proposed are being met then a procedure should be in place to set additional targets to encourage a greater reduction in car trips.
- If the monitoring procedure indicates that the targets proposed are not being met then additional measures may need to be implemented to further encourage sustainable travel. Details of these potential remedial measures should be included within the TP.

8. Parking strategy

- 8.1 Medway Council Parking Standards have been used as a basis to derive the total number of parking spaces proposed for the site. However, in a number of cases fewer spaces have been provided than is indicated within the standards. This under provision generally occurs with the land uses proposed for the town centre, to encourage sustainable development and reduce car use.
- 8.2 The TA states that in order to minimise the level of parking required on site the potential for sharing car parks between land uses will be fully explored.

9. Conclusion

- 9.1 This technical note has been prepared by AECOM, on behalf of the HA, to detail the findings from a review of a TA associated with potential large scale, mixed use development in Lodge Hill, Chattenden in Medway. The TA does not accompany a planning application at this stage. It has been prepared in advance of an application and as part of the Medway Core Strategy evidence base.
- 9.2 This technical note considers the discussions which have already occurred between the HA, AECOM and Medway regarding the proposed development and the use of the MTM as an evidence base for the TA. The HA has previously reviewed and accepted the MTM base model and has generally accepted the use of the forecast model. The exception to this is the inputs included for Lodge Hill, particularly trip generation and distribution. The TA provides more information regarding how the Lodge Hill development has been incorporated in the model. This technical note considered this information to determine whether the model was an appropriate tool at this stage for assessing the impact of the Lodge Hill development on the SRN.
- 9.3 Discussions have been ongoing between parties regarding trip rates used within the model to represent the Lodge Hill trip generation. The TA detailed the trip rates used within the MTM for the various land uses proposed for the site. AECOM undertook checks on these, making use of the

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TRICS database. AECOM does not consider it appropriate to apply PTAL trip rate reductions for the Lodge Hill site. For the majority of land uses the trip rates appear to be reasonable, however AECOM has some concerns that some Private Housing and B1 office trip rates were underestimating the number of trips that could be generated by these land uses, particularly in the PM peak. **The reason for these low trip rates should be included in the TA.**

- 9.4 Reductions have been applied to retail and school trips to take into account the possibility of linked trips. Retail trips have been reduced by 30% and school trips by 20%. The reductions are considered to be reasonable.
- 9.5 Reductions have been applied to retail, employment, school, community use and residential trips to take into account the internalisation of trips. Following a review by AECOM these internalisations are considered reasonable.
- 9.6 Reductions have also been applied to employment, school and residential trips to take into account travel plan measures. **AECOM considers that the 20% reduction in employment trips due to travel plan measures could be unrealistic. AECOM does not consider it appropriate to apply this reduction to longer distance SRN trips.** The majority of measures in the travel plan are unlikely to impact on SRN trips. The provision of the bus service may encourage some SRN trips to transfer to rail use as the bus services will serve Strood rail station. However, the convenience of a single car trip over a trip using possibly three modes (walk/ bus, train, bus) is likely to restrict the number of longer distance trips that shift from car use.
- 9.7 Furthermore, the sites used within TRICS by AECOM to check the proposed trip rates and generation associated with the site usually had an onsite or nearby bus provision to ensure consistency with the proposed site. By applying a 20% reduction to employment trips the TA may be double counting the impact of the proposed bus service.
- 9.8 Discounts are also applied to trip totals to take into account the increase in bus patronage resulting from the proposed development bus service. It is likely that some of the reduction in workplace trips may be due to the introduction of the bus service and therefore these reductions may have been double counted.
- 9.9 **AECOM therefore recommends that Hyder undertakes a sensitivity test on the impact of the development on the SRN, which does not include any travel plan trip reductions applied to trips that would use the SRN.**
- 9.10 There is some concern that the MTM may be underestimating the number of development trips on the SRN. A comparison is made between the external trip generation included within the model and the number of trips external to the peninsula as calculated within the TA. As the trip generation included in the model is higher than the number of trips predicted to be external to the peninsula the TA considers the model to be robust.
- 9.11 However, the comparison should be made between all external trips in the model and TA, not just those external to the peninsula in the TA. If this comparison is made the MTM may be underestimating the total external trip generation (and therefore by association the SRN trip generation) in the 2026 AM peak.
- 9.12 The TA does not provide any details regarding Lodge Hill trip distribution. However, AECOM and the HA have previously discussed trip distribution with Hyder and in an AECOM letter dated 22nd July 2011 the Lodge Hill distribution was considered reasonable. **However, it is unclear whether**

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the same distribution has been applied to all land uses. AECOM recommends that the TA should provide clarity on this.

- 9.13 The MTM has been used to assess the impact of the proposed development traffic on the M2 Junction 1 merges/ diverges. The MTM forecast year is 2026. **AECOM recommends that the TA explains how growth has been applied within the model to generate this forecast year.** HA requirements are for an assessment year 10 years after registration of a planning application. **A planning application has not yet been submitted for the Lodge Hill development, however any forthcoming TA submitted with a planning application should consider the HA's forecast year requirements.**
- 9.14 **Based on the development trip generation and distribution detailed within the TA AECOM has estimated the total trips that could make use of each slip road at M2 Junction 1. These totals differ (sometimes considerably) from those detailed within Appendix Q of the TA. The totals presented within the TA should be justified or explained.**
- 9.15 The TA concludes that the eastbound diverge and westbound merge will not require an upgrade in 2026 as a result of the Lodge Hill development.
- 9.16 The westbound diverge is predicted to require an additional lane on the off-slip following development. The TA indicates that 2 lanes are also required in the 2026 without development scenario; however, this is not supported by the TD 22/06 analysis in the TA appendices, which indicates that without development only 1 lane is required on the off-slip and that the additional development traffic results in an upgrade requirement to two lanes. It should be noted that there may be potential to upgrade the existing diverge and slip road within the existing land and structural constraints.
- 9.17 The TA proposes that the upgrade to a type D layout will not be implemented at this stage. The diverge will be monitored and the upgrade implemented at a later stage if deemed necessary. This could be an appropriate approach as the slip road is predicted to be only marginally over capacity following development. **However, further details should be provided regarding who will monitor and fund the potential upgrade.**
- 9.18 The eastbound merge is predicted to require an upgrade from the existing layout in both the without and with development scenarios. HA protocol indicates that following proposed development the SRN should be 'no worse off' than had development not taken place. Although the merge is predicted to be overcapacity in 2026 it is not predicted to be 'worse off' following development. The TA does not propose to provide an upgrade. Ramp metering is proposed to protect the operation of the mainline through the restriction of the slip road flow. It is unknown if such a layout is feasible. It is unclear whether the impact of this has been tested, using the MTM or another method.
- 9.19 It should be noted that the assessments undertaken for the westbound merge and eastbound diverge have been undertaken in the TA using motorway layout criteria. **The M2 motorway begins/ ends to the east of these merge/ diverge points and therefore the westbound merge and eastbound diverge should have been assessed using all purpose road criteria.** The HA however may wish to give consideration to accepting the motorway assessment given the road layout present for the eastbound diverge. **The traffic flows on the westbound merge are approaching the design capacity for a 4 lane all purpose road. Revisions to calculations could result in this capacity being exceeded.**

- 9.20 It should also be noted that PCUs have been used within the merge/ diverge calculations provided by Hyder, rather than vehicles which are used in TD 22/06. Therefore the merge/ diverge layouts outlined by Hyder may not be accurate. **Revised assessments based on vehicles per hour should be presented within the TA.**
- 9.21 The HA has previously requested that the impact of development traffic on the operation of M2 Junctions 2 and 3 be assessed by Hyder. The TA indicates that Medway Council are exploring measures to increase capacity or reduce traffic flows at the junctions and that these measures should address the HA's requirements. **The level of impact at Junction 2 and 3 has not been determined within the TA. In accordance with HA protocol junction capacity and merge/diverge assessments should be undertaken ten years after registration of a planning application if there are more than 30 two-way development trips at the junction or associated slip road. AECOM also recommends that the HA undertakes a review of any proposed measures when they have been identified to ensure they sufficiently mitigate the impact of the development traffic at the junctions.**
- 9.22 The Interim Travel Plan (ITP) associated with the TA was also reviewed by AECOM. The following comments summarise AECOM's concerns and recommendations regarding the document:
- **The travel plan should specify the trip generation (as detailed in the TA) which will act as the target number of trips to be met (when the land use quantum is confirmed).**
 - **The timescale associated with this target (and any other targets that are identified) should be clarified within the ITP. Furthermore, in order to ensure that the ITP is achieving its objectives as the development build out progresses it is recommended that intermediate trip total targets are identified. In order to pro-rata the trip totals accurately they may need to be split by development type as the build out rates across the different land uses may not be consistent.**
 - **AECOM considers that the percentage reduction targets proposed for the individual land uses may in some cases be too ambitious (employment targets) or too cautious (residential targets).**
 - **The trip generation targets outlined within the ITP should be initial targets set prior to occupation of the site, although additional mode split targets should be provided in line with the HA's protocol. At a suitable time post first occupation travel surveys should be undertaken, including traffic counts and travel questionnaires, establishing a new base mode share and trip numbers from which revised, ongoing targets could be set if necessary. The questionnaires should be undertaken on one weekday, while traffic counts should take place simultaneously across 1 – 2 weeks within a neutral month. These will provide the TPC with a more informed impression of how the site is operating rather than using the vehicle trip generation estimates within the TA.**
 - **HA protocol states that there should be a 'firm commitment to appoint a travel plan coordinator. For commercial developments this should be for the lifetime of the development and for residential developments this should be for a minimum of five years post full build out'. The ITP should indicate how long the TPC will be in place for and how the funding for this post will be generated. If any forthcoming TP indicates that subsidiary TPCs will be provided for individual land use TPs full details regarding the length of their appointment and funding should also be provided. The same HA protocol guidance should apply to subsidiary TPCs.**

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- Bus priority measures between the development site and Four Elms roundabout have been proposed to encourage an increase in bus use. AECOM consider that further shifts could be encouraged through the provision of bus priority measures between the site and Strood railway station, therefore encouraging a shift for longer distance trips that could otherwise make use of the SRN.
- AECOM considers that the provision of a fast, reliable and regular bus service(s) is key to the potential shift of longer distance trips away from single occupancy car use to more sustainable measures. A high frequency service which serves the key local areas (including rail stations) would be required to encourage a shift in long distance trips. If the proposed service provision is not an improvement over that which is currently provided the anticipated level of shift may not be achieved.
- The ITP states that the main bus operator within Medway has expressed interest in redirecting an existing service to Lodge Hill. AECOM consider that this could be a positive step towards a shift from car use but should be provided in addition to, rather than instead of the proposed bus service for the development. Whether this is the case is not stated in the ITP. The ITP should also provide details regarding the frequency and route of the potential service.
- Due to the relatively limited selection of measures included within the ITP it is recommended that some of those outlined in Appendix A are brought forward to further encourage a shift away from car use. In particular, AECOM recommend that those measures that offer opportunities of shifting longer distance trips to more sustainable measures are included. These measures could include financial incentives for public transport use, the promotion of a car share scheme and possible financial incentives for that scheme.
- HA protocol states that a firm commitment should be made to the implementation of or provision of funding for Travel Plan measures. The funding of measures is not discussed within the ITP and further details should be provided within any subsequent travel plan.
- Details should be provided regarding a comprehensive monitoring regime to ensure that targets are being met and an agreed fallback position should they fail to do so.
- Monitoring should include mode share traffic counts and travel questionnaires similar to those used to set initial targets for the site. The same procedure should be undertaken as was highlighted within section 8.15 of this technical note. Furthermore, open ended questions should be included within the survey which seek to understand the impact and perception of measures and whether any additional measures could encourage further sustainable travel.
- A timescale for the monitoring procedure should be outlined. Travel questionnaires and mode share counts should be undertaken at least every 2 years, preferably every year. The surveys and resulting analysis should be undertaken by the TPC. Proposed measures for funding for the surveys and should be outlined within a TP.

- **A threshold of targeted trip generation should be set based on the proportion of development that has been built out. If the monitoring procedure indicates that the targets proposed are being met then a procedure should be in place to set additional targets to encourage a greater reduction in single occupancy car trips.**
- **If the monitoring procedure indicates that the targets proposed are not being met then additional remedial measures may need to be implemented to further encourage sustainable travel. Details of these potential remedial measures should be included within the TP.**

This document has been prepared by AECOM for sole use of the client company detailed above (the "Company") in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between AECOM and the Company.

Any information provided by third parties and referred to herein has not been checked or verified by AECOM, unless otherwise expressly stated in the Report.

No third party may rely upon this document without the prior and express written agreement of AECOM.

TR110 (October 2010)

An Executive Agency of
The Department for Transport

Developments Affecting Trunk Roads and Special Roads Highways Agency Response to an Application for Planning Permission

From: Divisional Director, Network Delivery and Development, South East, Highways Agency.

To: Medway Council (FAO Case Officer: Carly Stoddart)

Council's Reference: Application MC/11/2516

Lodge Hill Chattenden, Rochester, Kent

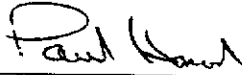
Outline planning application with all matters reserved for the demolition of existing buildings and development of a mixed use settlement comprising up to 5000 residential units, up to 36,750 sqm GEA of B1 business floorspace, up to 7,350 sqm GEA B2 business floorspace, up to 3251 sqm GEA convenience retail floorspace (A1), up to 2070 sqm GEA comparison retail floorspace (A1, A2, A3, A4, A5), secondary school, 3 primary schools, community facility, healthcare facility, assisted living facility, nursing home, garden centre, two hotels, water bodies and associated infrastructure works including roads, landscaping, informal and formal open space, pedestrian, cyclist and public transport infrastructure, utilities, car and cycle parking

Referring to the notification of a planning application dated 8 November 2011, your reference MC/11/2516, in connection with the above proposed development in the vicinity of the A2/M2, notice is hereby given under the Town and Country Planning (Development Management Procedure) (England) Order 2010 that the Secretary of State for Transport:-

- ~~a) offers no objection;~~
- ~~b) advises that planning permission should either be refused, or granted only subject to conditions~~
- ~~c) directs conditions to be attached to any planning permission which may be granted;~~
- ~~d) directs that planning permission is not granted for an indefinite period of time;~~
- e) directs that planning permission not be granted for a specified period (see Annex A).

(delete as appropriate)

Signed by authority of the Secretary of State for Transport

Date: 29 November 2011	Signature: 
Name: Paul Harwood	Position: Kent and Sussex Asset Development Team Leader)
The Highways Agency: Federated House, London Road, Dorking, Surrey, RH4 1SZ	

Annex A

Reason(s) for the direction given at b), c) or d) overleaf and the period of time for a direction at e) when directing that the application is not granted for a specified period:

There is insufficient information presently available to the Secretary of State to ensure that the neighbouring trunk roads continue to serve their purpose as part of the national system of routes for through traffic in accordance with Section 10 of the Highways Act 1980 and to satisfy the reasonable requirements of road safety on those roads.

The direction shall remain valid until 24 January 2012.