

APPENDIX C - SUMMARY OF TRANSPORT ASSESSMENT UPDATE

BASINGSTOKE AND DEANE BOROUGH COUNCIL

BASINGSTOKE LOCAL PLAN

201 – 2029

TRANSPORT ASSESSMENT – SUMMARY

**UPDATE FOLLOWING INSPECTOR'S EXPLORATORY
MEETING ON SUBMISSION DOCUMENTS FEB 2015**

February 2015

Report Number: **3512774A-PTG / 05**

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1 INTRODUCTION

1.1 Background

Basingstoke and Deane Borough Council (BDBC) is currently in the process of producing an updated Local Plan for the borough. This will cover the period 2011 to 2029 and will set out a spatial distribution for development, including the allocation of sites to accommodate the necessary growth. Following an Exploratory Meeting with the appointed Inspector in December 2014, it is necessary to update the Transport Assessments previously undertaken to consider the implications of an increased housing number to reflect Objectively Assessed Needs. The updated draft Local Plan for further consideration through the examination process is therefore based on an annual housing requirement of 850 dwellings per year.

1.2 Objectives

A Transport Assessment has been undertaken to support the emerging Local Plan, based on the following objectives:

- To consider the potential development sites in the borough;
- To highlight the vehicular trips resulting from these sites;
- To assess the traffic impact and junction performance of the road network;
- To propose measures to mitigate the impact of the local plan developments; and
- To report the findings and results of the assessment.

The aim of the Assessment is to inform decisions on which sites should be allocated and to demonstrate the impact of the Local Plan developments can be successfully mitigated. The outcomes of this have been used to inform the Infrastructure Delivery Plan and funding bids to the Local Enterprise Partnership.

It should be noted that the Transport Assessment has been updated on several occasions and at different stages of plan preparation, to:

- Respond to comments from the Highways Authority;
- Take into account views expressed during previous periods of public consultation; and
- To consider updated development that has been granted permission since first undertaken, including proposed major development being brought forward outside of the draft Local Plan.

1.3 This summary report

This summary has been created to provide an overview of the latest of the Transport Assessments, highlighting the processes undertaken and the infrastructure required to adequately mitigate the Local Plan developments. It should be noted that although the quantum of development has increased following the Exploratory Meeting, the same infrastructure improvements are required to sufficiently mitigate the Local Plan developments.

2 DEVELOPMENTS & TRIP RATES

2.1 Introduction

The reference case represents traffic levels expected in 2029, so the impact of the additional traffic as a result of the Local Plan Developments can be assessed. Figure 1 shows how the reference case was constructed and how the Local Plan Scenario simply adds the Local Plan Developments to this reference case.

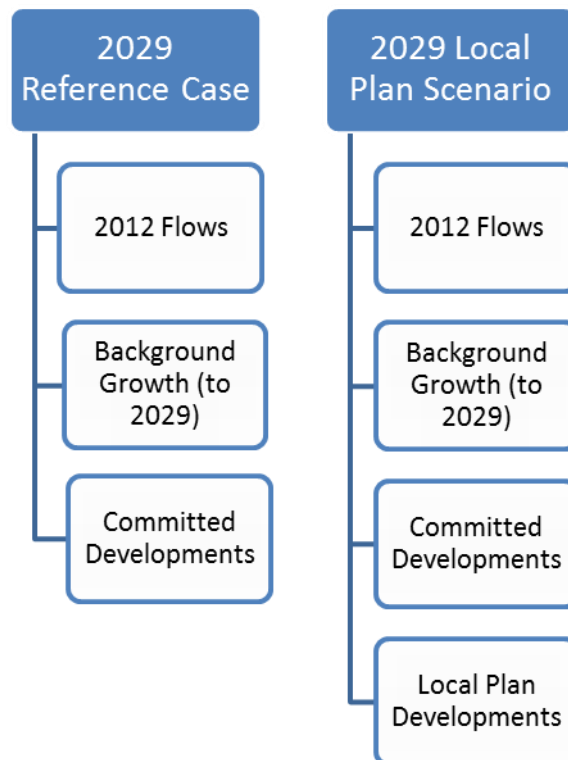


Figure 1: Scenarios Modelled

2.2 Background Growth

The background growth applied was determined from TEMPRO and the NTEM dataset 6.2 following relevant guidance in WebTAG 3.15.2.

To avoid double counting within the modelling, the Local Plan Developments and the Committed Developments have been removed from the background TEMPRO growth. Using TEMPRO’s alternative assumptions section, the number of dwellings and jobs forecast for Basingstoke was reduced by the numbers expected within the Local Plan. The factors affecting traffic growth in TEMPRO are shown in Table 2-1 below.

Table 2-1: Background Traffic Growth for Basingstoke between 2012 and 2029

Sources of impacts \ time period	2012-2029		2012-2024		2012-2019	
	AM	PM	AM	PM	AM	PM
Car ownership changes ¹	0.996	1.003	0.998	1.003	0.997	0.999
Income Adjustment	1.053	1.053	1.036	1.036	1.020	1.020
Fuel Adjustment	1.015	1.015	1.015	1.015	1.011	1.011
Combined Income & Fuel Adjustment	1.125	1.125	1.089	1.089	1.048	1.048
Combined background growth factor	1.120	1.128	1.087	1.092	1.045	1.047

The developments in neighbouring districts have also been explicitly modelled and the associated trips removed from the TEMPRO, using the alternative assumptions section once again. This provides greater accuracy about route choices from the neighbouring district development sites.

The resulting growth accounts for all expected growth outside of Basingstoke and all growth except for the Local Plan and Committed developments within Basingstoke.

2.3 Committed Developments

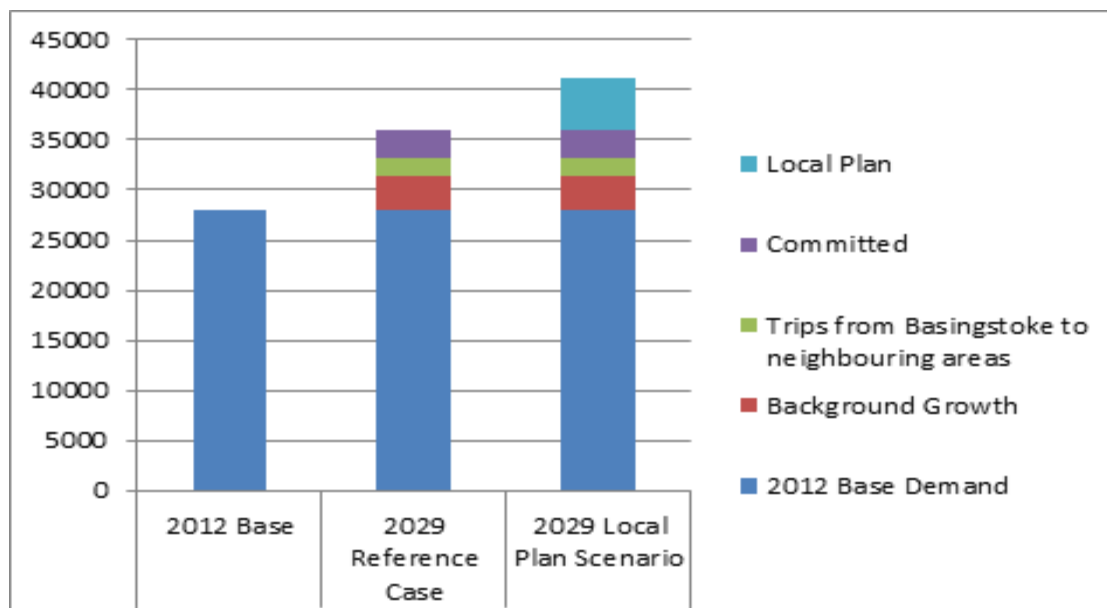
Developments with over 40 dwellings or 30 jobs were modelled taking into account the origin and destination of journeys.

2.4 Local Plan Developments

Again, developments within the Local Plan with over 40 dwellings or 30 jobs were modelled taking into account the origin and destination of journeys.

The chart below shows the traffic make up of each of the scenarios in the AM peak.

¹ derived by zeroing all development growth between 2012 and 2029 using the 'alternative planning data' function in TEMPRO



Following the outcomes of an exploratory meeting held in December 2014, the number of dwellings within the model has been increased to reflect all the potential allocations being considered for allocation within the Local Plan, in addition to recently consented schemes which may impact on traffic levels. All of the additional sites identified have been modelled explicitly, even though some of them are smaller than the criteria previously set out .

For the purposes of modelling different years in the Local Plan scenario, it has been assumed that a third of the dwellings at each development are added during each of the forecasting periods (2012-2019, 2019-2024 and 2024-2029), although in practice, phasing assumptions may be different from this.

Table 2: Residential Developments - Local Plan Scenario (Committed + Local Plan developments)

Development	Households		
	2029	2024	2019
37-41 Wote Street	33	33	33
Area N, Beggarwood	120	120	120
Aurum Site	150	150	0
Basingstoke Golf Club	1000	300	0
Bramley	250	250	0
Chineham House	10	10	0
Clarendon House	14	14	14
Cranbourne House	10	10	0
Dextra Court	56	56	56
Edison House	7	7	7
Former Smiths Industries	110	110	0

Former Victoria and Eli Lilley Sites, Kingsclere Road	520	520	250
Hounsme Fields	750	750	150
Kennel Farm	310	310	170
Kingsclere	225	50	0
Land at Tavener Close and Freemantle Close	98	98	98
Land East of Basingstoke*	900	900	50
West of Cufaude Farm**	0	0	0
Land North of Churchill Way	45	45	0
Land South of Blosswood Lane & Manor Farm	150	150	90
Manydown North	3400	1500	100
Manydown South	300	0	0
Normandy House	100	100	0
North of Popley Fields	450	450	280
Oakley	250	150	0
Overton	200	0	0
Overton Hill, London Road	120	120	100
Peacock House	22	22	22
Playing Field, Pack Lane	100	100	0
Development	Households		
	2029	2024	2019
Razors Farm	420	420	210
Redlands (adjacent to BAS121)	150	150	0
Swing Swang Lane	100	100	100
Upper Cufaude Farm	390	150	0
Verum House	26	26	0
Wella UK	63	63	63
Whitchurch	100	100	0
Wolverton House	15	15	0
Basing view	300	300	150
Total	11264	7649	2063

* Land East of Basingstoke is currently allocated for 450 homes, but 900 homes represents the situation if the whole site were to be included within the allocated development in order to test the worst case scenario

** 450 homes could be provided here in place of 450 homes from Land East of Basingstoke.

The mixed use site at Basing View was explicitly modelled as both a residential and commercial site.

2.5 Additional Commercial Local Plan Developments

Two additional commercial sites were also identified for potential inclusion following the outcomes of an exploratory meeting held in December 2014, based on information provided by the applicant:

1) Increased operations at the Chineham Sewerage Treatment works
and

2) A new Critical Treatment Hospital to the South West of Basingstoke

Parsons Brinkerhoff have reviewed the trip generation and attraction from each of the sites to understand their likely impact in order to inform the approach.

1) Increased operations at the Chineham Sewerage Treatment works

The increased use of the Chineham Sewage Treatment works will result in a very small number of trips on the network. There is an expectation that this increase will see only 49 single HGV movements during the day. It is likely that this is equal to about 5 in the AM and PM peak periods. This would be distributed over a number of routes and would disperse onto the network. This very low figure would not have an impact on the modelling work undertaken and, given the over estimation within the model, these very small trips have not been explicitly modelled within the model

2) A new Critical Treatment Hospital to the South West of Basingstoke

The proposed new hospital is a proposal that is emerging outside of the plan-making process, and there will be an expectation that a detailed TA will be prepared to consider the impact of the development and the means of mitigation any impact.

Based on the premise that:

- The proposed hospital will need to consider and mitigate traffic arising as a result of the development (including the provision of alternative modes), and
- The redistribution of traffic from existing facilities, together with the direction of trips being generally opposite to those resulting from residential development

it is considered that the new hospital will have minimal implications on the emerging Local Plan and the mitigation measures proposed. However, it should be noted that the proposed development may have positive impacts on the network, by redistributing traffic away from junctions where capacity is limited (together with the scope to undertake mitigation).

3 DEVELOPMENT TRIP RATES

3.1 Residential Trip Rates

The industry standard TRICS database was used to determine residential trip rates within Basingstoke. Similar sites from around the country were used to estimate the trip rates from the Local Plan developments.

BDBC's Local Plan contains a policy of requiring 40% affordable housing in all residential developments. Of the 40% affordable housing units 70% should be rented and 30% intermediate products including shared ownership.

Combined trip rates using this ratio were derived for all sites other than the "Edge of Town Centre" sites and are shown in Table 3-1.

Table 3-1: Residential Trip Rates

Rates	AM arrivals	AM departures	PM arrivals	PM departures
TRICS sites - Flats and houses to rent	0.135	0.198	0.225	0.154
TRICS sites - Flats and houses privately owned	0.158	0.389	0.366	0.203
Combined rate (72% privately owned, 28% rented)	0.152	0.335	0.327	0.189

Development sites within the Basingstoke ring road were classified as Edge of Town Centre sites and a different trip rate was applied. The options to use other modes is greater and therefore trip rates are generally lower in Edge of Town Centre sites

Table 3-2: Trip Rates for Edge of Town Centre Sites

	AM arrivals	AM departures	PM arrivals	PM departures
Trip Rate	0.086	0.204	0.204	0.151

3.2 Commercial Trip Rates

TRICS was again used to estimate the trip rate for the commercial developments. The types of land use covered by the sites extracted from TRICS include shopping centre, retail park, individual non-food superstores, business park, office, industrial unit, industrial estate, warehousing (commercial) and hotels. The trip rates established are shown in Table 3-3.

Table 3-3: Commercial trip rates

Land use	AM arrivals	AM departures	PM arrivals	PM departures
Office (B1)	1.12	0.11	0.06	0.9
Mixed Commercial (B1, B2, B8)	0.6	0.21	0.07	0.57
Hotel	0.68	0.47	0.78	0.7
Retail	3.25	2.98	3.66	4.02
Warehousing (storage & distribution)	0.253	0.204	0.052	0.299

3.3 Smarter Choices Measures

A reduction was made to the trips generated by the Local Plan developments and the majority of committed developments. Developments will be expected to provide improvements to non-car modes to encourage residents and employees to travel sustainably. Reductions were carried out based on trip lengths, as recommended in WebTAG (Unit 3.10.6), which quotes the Sustainable Travel Towns study² which found the following reductions in car use;

- Less than 1km = 22% reduction
- 1km-3km = 14% reduction
- 3km-5km = 10% reduction
- 5km-10km = 6% reduction
- 10km-50km = 3% reduction
- Over 50km = No reduction

This results in approximately a 3.5-4% reduction in the number of trips on the network as a whole due to smarter choices.

3.4 Distribution of Trips

Trips were distributed across the network using a bespoke spreadsheet model. The distribution of trips was determined from the Census Journey to Work data and assumptions of routing through the network were made for base and forecast trips using AA route planner as suggested in the Highways Agency's ETI guidance for spreadsheet modelling.

This model adopts a worst-case approach and is based on unconstrained traffic growth on the highway network as a whole and at individual junctions. This approach ensures robustness of the assessments on the basis that, if unconstrained demand can be accommodated (along with reasonable mitigation), the Local Plan will be deliverable on transport grounds subject to sustainability requirements across all transport modes and developments.

² Sloman L, Cairns S, Newson C, Anable J, Pridmore A & Goodwin P (2010), The Effects of Smarter Choices Programmes in Sustainable Travel Towns; Research Report, Part III Chapter 13

4 IMPACT ON ROAD NETWORK

4.1 Mitigation

A comparison was made between the 2012 Base Case, the 2029 Reference Case and the 2029 with Local Plan developments case.

Where a road or junction is considered to be over capacity, mitigation measures have been proposed. In these cases, the mitigation scheme is considered successful where the new RFC is below 1, or below the level of the unmitigated junction without the Local Plan developments.

The Spreadsheet model adopted a worst-case approach to the level of trips generated in Basingstoke. However, to provide a suitable level of mitigation at individual junctions, the total traffic growth has been constrained to that expected within TEMPRO. That is to say that the overall amount of traffic across the borough has been reduced to that expected from TEMPRO.

TEMPRO has consistently forecast more growth than generally appears in practice and it is therefore expected that the mitigation proposed will be suitable.

This approach uses the accurate route choice and trip distribution from the spreadsheet model, but the more realistic total level of traffic on the network.

Full analysis of the most critical junctions within the model was undertaken.

The average delay per Passenger Car Unit (a way of considering vehicles of different sizes – from cars to HGVs) for each of the mitigated junctions is shown in Table 4-1 below. In most cases the mitigation proposal shows a reduction in average delay to a level lower than the Reference Case. Where the average delay does increase it remains within reasonable limits.

Table 4-1: Average Delay per PCU at each Mitigated Junction

No.	Junction Name	Time Period	Reference Case (s/PCU)	Local Plan without mitigation (s/PCU)	Local Plan with mitigation (s/PCU)
1	A33 / Bramley Road Roundabout	AM	12	18	3
		PM	12	16	3
23	A30 / Wallop Drive Roundabout	AM	5	206	26
		PM	11	384	28
13	Kempshott Roundabout	AM	404	673	14
		PM	132	292	11
6	Brighton Hill Roundabout	AM	698	882	267
		PM	378	809	127
27	Worting Road / Roman Way Roundabout	AM	903	1099	310
		PM	1173	1323	642
25	B3400 Worting Road Roundabout	AM	12	18	5
		PM	8	10	6

No.	Junction Name	Time Period	Reference Case (s/PCU)	Local Plan without mitigation (s/PCU)	Local Plan with mitigation (s/PCU)
28	West Ham Roundabout	AM	42	11	7
		PM	75	180	7
19	A339 / Roman Road Roundabout	AM	143	310	6
		PM	52	116	6
29	A339 / Ringway West Roundabout	AM	184	331	14
		PM	5	7	12
2	Aldermaston Road roundabout	AM	23	48	26
		PM	23	32	26
11	Hackwood Road Roundabout	AM	796	1046	154
		PM	347	551	21
22	Victory Roundabout	AM	173	361	26
		PM	85	162	46
10	Fiveways Junction	AM	578	584	275
		PM	259	941	331

The impact from the Local Plan developments can therefore be successfully mitigated. It is noted that the mitigation required with the inclusion of the additional dwellings following the Exploratory Meeting in December is the same as previously reported. This is due to the relatively minimal impact of the additional traffic generated by the new sites and the proposed schemes providing greater capacity than required. Table 4-2 presents a summary of the junction mitigation proposed and an indicative cost.

Table 4-2: An Overview of Junction Mitigation Findings

No.	Junction Name	Form of Mitigations	Indicative costs
1	A33 / Bramley Road Roundabout	* Widening of circulatory * Flare both A33 entries * Provide exit funnels at both A33 exits	£373,000
23	A30 / Wallop Drive Roundabout	* Convert roundabout to a signalised * Add or lengthen flares on all entries	£2,484,000
		* Widen 750m of A30 southbound carriageway up to Kempshott roundabout	£5,490,000
13	Kempshott Roundabout	* Signalise the roundabout * Add or lengthen flares on all entries * Widen the circulatory	£3,696,000
6	Brighton Hill Roundabout	* Minor amendments based on a signalised 'Hamburger' design provided by BDBC	£6,360,000
27	Worting Road / Roman Way Roundabout	* Flare widening on 3 entries	£294,474
25	B3400 Worting Road Roundabout	* Flare widening 3 arms * Formalise 2 lane circulatory	£255,000

No.	Junction Name	Form of Mitigations	Indicative costs
28	West Ham Roundabout	* Flare widening 3 entries * Widen the southern half of the circulatory	£667,000
19	A339 / Roman Road Roundabout	* Widen circulatory * Flare widening on 3 entries	£515,260
29	A339 / Ringway West Roundabout	* Full signalisation of the roundabout * Flare widening all entries * Widen the northern half of the circulatory	£1,282,000
2	Aldermaston Road roundabout	* Widen circulatory	£1,917,000
11	Hackwood Road Roundabout	* Flare widening of all entries and the circulatory carriageway	£1,920,000
22	Victory Roundabout	* signalise 3 out of 4 entries * Widen 2/3 of the circulatory to 3 lanes	£955,000
10	Fiveways Junction	* Re-align flares on 2 arms * Alter method of signal control * Extend 1 flare	£252,000

4.2 Strategic Road Network

The M3 between junction 6 and junction 8 is located within Basingstoke and Deane Borough with junctions 6 and 7 linking directly into Basingstoke.

All analysis undertaken within this transport assessment has not identified any significant worsening of the performance of the M3 within Basingstoke and Deane Borough.

5 CONCLUSION

A strategic spreadsheet model has been created to test the impacts of the Local Plan developments on future traffic levels.

Junction assessments have been undertaken to help create a package of mitigating transport infrastructure schemes. Individual planning application will need to undertake a full Transport Assessment and this may result in a different level of mitigation and/or different scheme proposals.

This strategic assessment included an assessment of the potential costs of these schemes.

It should be noted that the model does not take account of people changing their route or time of journey as a result of congestion and is therefore considered a worst case.

Overall the Transport Assessment indicates that the local plan developments can be supported on the road network if supporting mitigation measures are introduced.

The mitigation required with the inclusion of the additional dwellings, following the Exploratory Meeting in December, is the same as previously reported.