Dartford Local Plan

Strategic transport modelling

Stage 3b – Local Plan option testing output

On behalf of

DARTFORD BOROUGH COUNCIL

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1 Introduction

1.1.1 Stantec have been appointed by Dartford Borough Council (DBC) to provide strategic modelling evidence in support of their emerging Local Plan. The current Dartford Local Plan comprises the Core Strategy 2011 and the Development Policies Plan 2017.

1.1.2 The Council is carrying out a review of its Local Plan, with a time horizon for the Local Plan of 2037. On current information, DBC considers that the existing permissions and identified sites will be capable of delivering the new homes and employment required to meet local housing and employment need. On this basis, considerations for the new Local Plan predominantly relate to the intensity of development at these locations, rather than identifying alternative spatial locations.

1.2 Dartford Cordon of the Lower Thames Area Model (DCLTAM)

1.2.1 DBC have been provided with the Dartford Cordon of the Lower Thames Area Model (DCLTAM) by National Highways (NH) (formerly Highways England). This model is the supplementary consultation version, which was provided to DBC during April 2020, and forms a key component of the Local Plan strategic transport modelling appointment.

1.2.2 Due to the new Local Plan identifying at an early stage that the current development strategy would provide for future need, with intensification at these locations, Stantec's remit is to review and update the DCLTAM to create a base year model (see Stage 1 report) and forecast year model (see Stage 2a / 2b reports) and use this for Local Plan option testing.

1.2.3 The Stage 2a report details the forecast year model built, based upon the Uncertainty Log contained within DCLTAM. The Stage 2b report details the Reference Case model agreed with DBC which accounts for more recent land use information, evolving from permitted development masterplans, compared to the Uncertainty Log data. The Reference Case has also been agreed with KCC and NH. Hence, the Stage 2b model is the Reference Case against which the Stage 3 (with Local Plan development) model is compared.

1.2.4 This report relates to the output derived for the Stage 3 model, the Preferred Local Plan scenario. Although a single Local Plan scenario has been tested, the model allows for further scenario testing if required. For example, this may be considered appropriate to assess the impacts of additional development that has been identified in the Local Plan as currently unavailable, but with future development potential.

1.2.5 A "Stage 3a – Local Plan option testing methodology" report has previously been shared with the Highway Authorities and sets out the proposed methodology and parameters for assessing (against a Reference Case model) a Preferred Local Plan option with respect to traffic generation, distribution and mode share. This is referred to as the Stage 3a methodology report within this document.

1.2.6 The following report has been prepared to detail the output from the Stage 3 modelling. Whilst it does not reproduce all of the Stage 3a methodology details covered by the Stage 3a methodology report, it nevertheless provides a summary.

1.3 Preferred Local Plan option

1.3.1 A Preferred Local Plan option has been developed by DBC and this is set out in further detail, with respect to land use and quanta, within this report.

1.3.2 The traffic impacts of the proposed London Resort at Swanscombe, currently proceeding through the Development Consent Order determination process, have not been included

within the modelling of the Preferred Local Plan option. Instead, the traffic impacts of the proposed London Resort at Swanscombe will be identified through a transport assessment provided as supporting evidence to that application. The draft Local Plan makes clear that if the London Resort is to come forward, the need for a Local Plan update would be reviewed.

1.4 This document

1.4.1 The purpose of this report is to present the assessment of the Preferred Local Plan option compared to the Reference Case and the subsequent findings with respect to the effect on the highway network. This document is structured in the following way.

- Section 2 provides an overview of the assessment methodology applied to assessing the Preferred Local Plan.
- Section 3 provides an overview of the model inputs including the land use and traffic generation.
- Section 4 describes the scenarios assessed and output data extracted.
- Sections 5 and 6 review the strategic road network (A282 and A2) flows and performance.
- Section 7 summarises the assessment criteria used for the local road network.
- Section 8 provides an assessment of the A road corridors.
- Section 9 provides an assessment of the B road corridors.
- Section 10 provides a summary of the findings from the report.

2 Overview of assessment methodology

2.1.1 The following section provides a summary of the Stage 3a methodology. The finer details of the methodology can be reviewed through reference to the Stage 3a methodology report.

2.2 Traffic generation

2.2.1 Stantec have reviewed data from the TRICS database as a standard starting point. The following general approach was adopted to extract TRICS data for each land use.

- Sites in south England (excluding London) are selected only. If the sample size does not allow this, then the area is expanded to cover the midlands, and then the north, and finally the rest of the UK.
- Weekday data only is used.
- Multi modal data is extracted only. If sample size does not allow this then vehicle trip rates are used. This will ensure that a priority of achieving appropriate vehicle trip generation rates are extracted for input to the DCLTAM.
- Default date range used. Where sample size needs to be expanded then older data may be used. This will tend to be a robust assumption as trip generation rates have typically reduced over time.
- Sites with no Travel Plan implemented are selected.
- Town Centre and Edge of Town Centre sites used as a proxy for DBC urban locations.
- Suburban and Edge of Town sites used as a proxy for DBC suburban locations.

2.2.2 The criteria above was followed to try and achieve a sample size of at least 5 sites. The trip generation rates used within this Stage 3 modelling assessment are agreed with the highway authorities.

2.3 Mode share data

2.3.1 The Stage 3a methodology report reviews the existing mode share data available from the 2011 census data and the TRICS data mode share. Reference should be made to that report for further details with respect to this.

2.4 Mode shift scenarios

2.4.1 DBC are seeking to be ambitious in their mode share targets for sustainable travel modes. This is consistent with national policy, local aspirations within North Kent, particularly at Ebbsfleet Garden City, and emerging trends. KCC, as the local highway authority, are supportive of an approach to achieving travel by more sustainable modes. It is also consistent with growing evidence that travel habits and patterns are changing towards reduced use of private vehicle for journeys, increased use of public transport and increased flexible working hours and arrangements. For further details, reference should be made to the Stage 3a methodology report.

2.4.2 It is understood that EDC are considering low mode share targets for vehicle trips for new development within the Ebbsfleet Garden City. This is included within the 2017 Implementation Framework document produced by EDC which considers transport oriented

design and masterplanning to achieve ambitious mode share targets. The Implementation Framework document produced by EDC states the following (p56) :

"The Implementation Framework will use transport oriented design to seek to achieve the following ambitions for short and longer distance workplace commuting patterns;

- *Short distance local trips (under 4 miles):*
  - *55% by active modes (including internalised movement for working from home)*
  - *30% by public transport*
  - *15% private car*
- *Longer distance commuting (over 4 miles)*
  - *40% by public transport*
  - *25% by active modes*
  - *35% private car share"*

2.4.3 It is expected that this high mode share for non vehicular modes will be carried forward to future masterplan assessment and planning applications by EDC. In addition, significant vehicle monitoring and sustainable travel obligations are already embedded to existing planning consents that have commenced, particularly within Ebbsfleet Garden City for example.

2.4.4 The approach being proposed by EDC is set within the context of building out a new Garden City at Ebbsfleet including significant investment in sustainable transport infrastructure. The ability to develop a new transport system within the established urban fabric of Dartford Borough would be more challenging and on this basis it is unlikely that setting the same targets as EDC would be realistic.

2.4.5 Nevertheless, it is understood that DBC would like to consider ambitious (but achievable) mode share targets for non vehicular modes whilst developing the assessment of their Local Plan. The mode share scenarios assessed for the Local Plan within this assessment are as follows :

- Scenario 1 – Standard TRICS mode share
- Scenario 2 - Core mode shift assessment
- Scenario 3 - High mode shift assessment.

Mode shift scenario 1 – Standard TRICS

2.4.6 Mode shift scenario 1 is a standard TRICS trip generation rate assessment based upon selective filtering for urban and suburban areas. This results in TRICS trip generation rates that would be akin to a standard Transport Assessment approach. Hence, this approach could be argued to represent a worst case "business as usual" scenario with no significant additional support for sustainable travel modes.

2.4.7 The Scenario 1 trip generation rates are set out within the Stage 3a methodology report and supplemented with the commentary at 2.2 above. The trip generation rates are applied on the basis of the quantum of development proposed and the defined location of the site (either urban or suburban). Therefore, proposed urban sites would have urban TRICS trip rates applied, and suburban sites would have suburban trip rates applied where this data distinction is available.

Mode shift scenario 2 – Core mode shift assessment

2.4.8 Mode shift scenario 2 considers a mode shift of movement away from the vehicular traffic mode share inherent in the Scenario 1 assessment, to greater use of active and public transport modes.

2.4.9 This scenario assumes a 15% mode shift (reduction) in the number of vehicular trips to more sustainable travel modes when compared to Scenario 1 above for all land uses. This mode shift assumption is being referred to as the core mode shift assessment. The application of this mode shift is applied to Local Plan sites only.

2.4.10 The application of this mode shift is also dependent upon the distribution of journeys to and from those sites. Local Plan sites journeys that have an origin and destination within the built up urban and suburban areas of Dartford will be assumed to be able to achieve the core mode shift. Similarly, journeys that have an origin or destination within the built up urban and suburban areas of Dartford and the other end of their journey within the neighbouring urban area of Gravesham will be assumed to be able to achieve the core mode shift.

2.4.11 This assumption is made on the basis that the built up areas of the Borough are those areas most likely to be able to encourage greater use of walking and cycling and public transport. Similarly, journeys within and between the built up areas of the Borough and the neighbouring urban area of Gravesham are those areas most likely to be able to encourage greater use of public transport (particularly bus and Fastrack) and to some extent rail or multi modal journeys.

Mode shift scenario 3 – High mode shift assessment

2.4.12 Scenario 3 considers a higher mode shift away from the vehicular traffic mode share, to a greater use of active and public transport modes, when compared to Scenario 2, for certain journeys.

2.4.13 Scenario 3 assumes a 30% mode shift away from vehicle trips when compared to Scenario 1, double the mode shift assumed for Scenario 2. This mode shift assumption is referred to as the high mode shift assessment.

2.4.14 The application of this mode shift has been applied to Local Plan sites only and will be based upon the distribution of journeys to and from those sites. Local Plan site journeys that have an origin and destination within the built up urban and suburban areas of Dartford (ie excluding urban Gravesham) will be assumed to be able to achieve the high mode shift. All other Local Plan development journeys (including those to urban Gravesham) will retain the Scenario 1 or 2 assumptions above.

2.4.15 This assumption is made on the basis that the built up areas of the Borough are those areas most likely to be able to encourage greater use of walking and cycling and public transport.

2.4.16 The Stage 3a methodology report contains evidence to support the mode shift assumptions made and described above.

2.5 Distribution

2.5.1 During the consultation process with the highway authorities, the merits of using census data or the DCLTAM model to determine Local Plan development trip distribution was discussed.

2.5.2 The overview of the consultation was that whilst the 2011 Journey to Work census data has its merits, it is increasingly old and only includes journeys to work. The DCLTAM distribution is based upon more recent data, based upon mobile phone movements. It was suggested that a blend or combination of the two data sources would be a reasonable approach for distributing the Local Plan traffic generation.

2.5.3 An approach that uses both the census data and the DCLTAM distribution data has been derived. The following principles have been adopted :

- The 2011 census journey to work data has been used as the basis for distributing employment related vehicle trips. This census data demonstrates that 25% of employees in Dartford Borough driving to work in Dartford Borough also live in Dartford Borough, and that 33% of Dartford Borough residents who drive to work, work in Dartford Borough. These distribution parameters have been adopted for assessment purposes. Remaining employment trips are split between Gravesham and External areas based upon census data splits. This allows the derivation of an employment vehicle trip matrix.

- With respect to residential trips, those linked to employment trips (above) are removed and the remaining residential trips split between Gravesham and External areas based upon census data splits.

- Retail uses identified within the Local Plan are intended to serve the communities local to their surroundings (apart from Bluewater). Therefore, local retail trips have been distributed to the Dartford Borough zone they sit within and immediate surrounding Dartford Borough zones. Bluewater expansion trips have been distributed according to the existing LTAM distribution for Bluewater and hence a proportion of these are external to Dartford Borough.

- Leisure uses are intended as a relatively local offer. On this basis, Local Plan leisure trips have been distributed within Dartford and Gravesham and using the LTAM distribution for this area.

- Any hotel trips will comprise both staff and guests. It has been assumed that hotel trips will distribute in accordance with the DCLTAM distribution and hence comprise a mix of local and longer distance trips that would represent both guests and staff.

- With respect to the Ebbsfleet and Eastern Quarry zones (Ebbsfleet Valley) these have been handled differently. For those zones, the 2019 matrices (see Stage 1 report) contents have been adopted for the base year. The absolute number of Ebbsfleet Valley trips calculated for these zones, for the various scenarios, has been added explicitly to the 2019 base year.

2.5.4 The above calculations allow matrices of vehicle movements to be created for residential, employment, retail, leisure and hotel journeys. These are then combined to create a total vehicle matrix of Preferred Local Plan development vehicle trips.

2.5.5 A similar exercise is completed for both the DCLTAM land use schedule (based upon the Uncertainty Log) and the Reference Case land use schedule to derive vehicle matrices for these scenarios.

2.5.6 This process results in the derivation of a set of vehicle matrices, produced on the same basis, for the DCLTAM, Reference Case and Preferred Local Plan option land use scenarios.

2.6 Compiling vehicle trip matrices

2.6.1 The difference between each vehicle matrix scenario will calculate the expected difference in vehicle movements between each scenario, solely based upon the differences in the land use schedules for each scenario. On this basis :

- The difference between the Reference Case and DCLTAM (Uncertainty Log) vehicle matrices is added to the 2036 baseline matrix to derive a 2036 Reference Case matrix.

- The difference between the Preferred Local Plan option and DCLTAM (Uncertainty Log) vehicle matrices is added to the 2036 baseline matrix to derive a 2036 Local Plan preferred option matrix.

- The process is completed for the AM and PM peak hours, and for the “with” and “without” Lower Thames Crossing scenarios and the core and high mode shift sensitivity assessments.

2.6.2 Hence, a Reference Case and Preferred Local Plan scenario set of matrices has been derived that reflects the first principles analysis of trips for Ebsbfleet / EQ zones, and a matrix of differences for all other zones.

2.6.3 When compiling the matrices, any matrix OD pair that shows a negative trip value (resulting from taking the differences between matrices) is set to zero.

3 Summary of model inputs

3.1 Land use schedules

3.1.1 The table below summarises the land use schedule summaries adopted for assessment purposes. It is advised that the DCLTAM land use schedule reflects the land use expectations at 2015, whereas the Reference Case scenario now provides an opportunity to update this to reflect current expectations.

Land use	DCLTAM	Reference case scenario	Preferred Local Plan scenario
Flats	638	6,504	8,444
Houses	11,244	5,237	5,552
Residential	**11,882**	**11,741**	**13,996**
B1a and B1c (Office-Industrial)	445,231	97,837	128,210
Industrial	131,682	62,990	25,791
Warehousing	64,720	122,768	162,381
Parcel Distribution	97,080	184,153	243,572
Employment	**738,713**	**467,748**	**559,954**
Local shops	27,100	13,400	14,900
Retail Park-incl food	26,233	24,233	24,233
Retail	**53,333**	**37,633**	**39,133**
Hotel	20,032	4,107	14,668
Pub Restaurant	15,500	8,700	10,200
Hospitality	**35,532**	**12,807**	**24,868**
Leisure - centre	109,386	5,000	5,000
Leisure - park	6,258	13,400	14,072
Leisure - cinema	0	13,400	14,400
Leisure	**115,644**	**31,800**	**33,472**

3.1.2 It is noted that the Reference Case and Preferred Local Plan scenarios are lower than the DCLTAM with respect to all land uses (with the exception of residential use in the Preferred Local Plan scenario). The principal reasons for this being:

a) The split between flats and houses in the residential development in DCLTAM at 5.4% and 94.6% respectively did not represent what, in reality, is being delivered within Dartford. This is particularly the case within the urban centres of Dartford where there is a higher predominance of flats compared with housing.

b) In relation to non-residential development the DCLTAM was based on a number of outline consents for large development sites which allowed development for different land uses up to a maximum level within an overall maximum for the site itself. As these sites have come forward it is understood that some of the non-residential uses are a less viable proposition, particularly with respect to B1 office use and Leisure provision.

3.2 Potential traffic generation

3.2.1 Where available, trip generation rates have been extracted for urban and suburban locations for each land use to be assessed. The DCLTAM zones within Dartford have been considered as either urban in nature, or suburban in nature. The categorisation assumed is illustrated in the Stage 3a methodology report.

3.2.2 The potential traffic generation from each scenario has been calculated by multiplying the land use quanta by the appropriate land use urban / suburban trip generation rate. A summary of the calculated traffic generation is shown in the tables below.

AM peak hour vehicle generation (2-way)			
Land use	**DCLTAM**	**Reference case scenario**	**Preferred Local Plan scenario**
Flats	150	1,596	2,066
Houses	5,558	2,650	2,796
Residential	**5,708**	**4,246**	**4,862**
B1a and B1c (Office-Industrial)	7,665	1,681	2,211
Industrial	1,123	533	219
Warehousing	221	420	555
Parcel Distribution	1,228	2,330	3,081
Employment	**10,238**	**4,963**	**6,067**
Local shops	1,737	859	955
Retail Park-incl food	524	484	484
Retail	**2,260**	**1,343**	**1,439**
Hotel	73	11	68
Pub Restaurant	0	0	0
Hospitality	**73**	**11**	**68**
Leisure - centre	918	37	37
Leisure - park	58	124	130
Leisure - cinema	0	0	0
Leisure	**976**	**161**	**167**
TOTAL	**19,255**	**10,724**	**12,602**

PM peak hour vehicle generation (2-way)			
Land use	**DCLTAM**	**Reference case scenario**	**Preferred Local Plan scenario**
Flats	189	1,801	2,350
Houses	5,523	2,660	2,800
Residential	**5,711**	**4,461**	**5,150**

B1a and B1c (Office-Industrial)	6,816	1,479	1,982
Industrial	1,032	479	197
Warehousing	167	317	419
Parcel Distribution	1,512	2,867	3,792
Employment	**9,526**	**5,142**	**6,391**
Local shops	2,332	1,153	1,282
Retail Park-incl food	1,149	1,061	1,061
Retail	**3,480**	**2,214**	**2,343**
Hotel	52	7	49
Pub Restaurant	331	252	284
Hospitality	**383**	**259**	**333**
Leisure - centre	2,592	105	105
Leisure - park	226	484	508
Leisure - cinema	0	234	251
Leisure	**2,818**	**822**	**864**
TOTAL	**21,919**	**12,898**	**15,082**

3.2.3 It is noted from the table above that the Preferred Local Plan option is predicted to generate more vehicle trips than the Reference Case scenario, but fewer than the DCLTAM scenario.

3.3 Vehicle trip matrix totals – without Lower Thames Crossing

3.3.1 The tables below summarise the vehicle trip matrix totals (in PCUs) adopted for assessment purposes without the Lower Thames Crossing included.

	Reference case	Preferred Local Plan	Preferred Local Plan (15%)	Preferred Local Plan (30%)
AM peak hour	80,093	81,844	81,222	80,779
PM peak hour	81,402	83,287	82,461	81,886

3.3.2 It is noted that :

- The Preferred Local Plan matrix is higher than the Reference Case for both peak hours (around 2.2% in the morning peak and 2.3% in the evening peak).
- The 15% mode shift assumption reduces the Local Plan matrix by 622 PCUs (around 0.8% compared to the Preferred Local Plan matrix) in the morning peak hour and by 826 PCUs (around 1.0% compared to the Preferred Local Plan matrix) in the evening peak hour.
- The 30% mode shift assumption reduces the Local Plan matrix by 1,065 PCUs (around 1.3% compared to the Preferred Local Plan matrix) in the morning peak hour and by

1,401 PCUs (around 1.7% compared to the Preferred Local Plan matrix) in the evening peak hour.

3.4 Vehicle trip matrix totals – with Lower Thames Crossing

3.4.1 The tables below summarise the vehicle trip matrix totals (in PCUs) adopted for assessment purposes with the Lower Thames Crossing included.

	Reference case	Preferred Local Plan	Preferred Local Plan (15%)	Preferred Local Plan (30%)
AM peak hour	83,141	84,890	84,269	83,827
PM peak hour	84,869	86,756	85,927	85,353

3.4.2 It is noted that :

- The Preferred Local Plan matrix is higher than the Reference Case for both peak hours (around 2.1% in the morning peak and 2.2% in the evening peak).
- The 15% mode shift assumption reduces the Local Plan matrix by 621 PCUs (around 0.7% compared to the Preferred Local Plan matrix) in the morning peak hour and by 829 PCUs (around 1.0% compared to the Preferred Local Plan matrix) in the evening peak hour.
- The 30% mode shift assumption reduces the Local Plan matrix by 1,063 PCUs (around 1.3% compared to the Preferred Local Plan matrix) in the morning peak hour and by 1,403 PCUs (around 1.6% compared to the Preferred Local Plan matrix) in the evening peak hour.
- The trip matrices are higher in the “with LTC” scenario than the “without LTC” scenario. This is inherent in the LTAM model provided by National Highways and is assumed to relate to the different distribution of traffic between the scenarios, particularly within the cordoned area, and the additional capacity provided by the LTC to serve a greater number of vehicle movements during the modelled peak hours.

4 Stage 3b output and assessment

4.1.1 The following section gives an overview of the output that has been extracted from the SATURN model runs generated from the adapted DCLTAM model. The model runs are assignments using the SATURN software.

4.2 Scenarios assigned

4.2.1 Model runs have been generated for the following scenarios :

- 2036 Reference Case scenarios
  - AM and PM peak hours without Lower Thames Crossing
  - AM and PM peak hours with Lower Thames Crossing
- 2036 Preferred Local Plan scenarios
  - AM and PM peak hours without Lower Thames Crossing – Mode shift 1 – TRICS
  - AM and PM peak hours without Lower Thames Crossing – Mode shift 2 – Core (15%)
  - AM and PM peak hours without Lower Thames Crossing – Mode shift 3 – High (30%)
  - AM and PM peak hours with Lower Thames Crossing – Mode shift 1 – TRICS
  - AM and PM peak hours with Lower Thames Crossing – Mode shift 2 – Core (15%)
  - AM and PM peak hours with Lower Thames Crossing – Mode shift 3 – High (30%)

4.2.2 Hence, a total of 4 Reference case models have been assigned and 12 Preferred Local Plan models have been assigned.

4.3 Output data

4.3.1 Once each of the model assignments has been completed, data is extracted and input to a spreadsheet for analysis. The following data has been analysed :

- Demand flow in PCUs
- V / C statistic in %

4.3.2 The V/C statistic is the ratio of volume (of vehicles) compared to capacity. For example, if a particular link or turning movement has a capacity of 1000 vehicles per hour and a demand of 500 vehicles per hour, its V/C statistic will be 50%.

4.3.3 The analysis for the Strategic Road Network (SRN) and the Local Road Network (LRN) is different, reflecting the more complex (exploded) nature of the junctions on the SRN. For most of the LRN a ‘single-node’ arrangement is used in the DCLTAM, whilst for the SRN junctions multiple nodes are used to reflect the large grade-separated junctions with internal links and movements.

4.3.4 For the LRN the node data has been extracted for demand throughput and V/C %, whilst for the SRN junctions demand data for the inbound links has been extracted and summed to calculate junction throughput.

4.4 Highway corridors

4.4.1 The junction analysis has been grouped together in corridors and are presented in the following individual chapters. Key points and findings are highlighted in each chapter.

4.4.2 In the summary tables provided in the following sections and appendices, a graduated colour scale is used to indicate the magnitude of the change of the Local Plan data compared to the Reference Case data. Green colours indicate a reduction / betterment when the Local Plan is implemented whilst the orange and red colours indicate an increase / impact. The shading scale used is summarised below.

Increased by 0% - 5% compared to reference case >	888
Increased by 5% - 10% compared to reference case >	888
Increased by more than 10% compared to reference case >	888
Reduced by 0% - 5% compared to reference case >	888
Reduced by 5% - 10% compared to reference case >	888
Reduced by more than 10% compared to reference case >	888

4.4.3 Within the tables in the following sections the following abbreviations are used:

- Ref – Reference Case
- Pref – Local Plan Scenario (preferred case) but with no additional mode shift assumptions (Standard)
- Pref 15% - as Pref but with the 15% mode shift assumptions (Core)
- Pref 30% – as Pref but with the 30% mode shift assumptions (High)

4.4.4 These scenarios are assessed for both AM and PM time peaks, and without / with LTC. The Reference Case is compared against 6 Local Plan scenarios for each peak hour (3 mode shift scenarios for both without and with LTC).

4.5 Further, detailed assessment

4.5.1 This study has adopted the National Highways LTAM model for strategic assessment of the Preferred Local Plan on the highway network within Dartford Borough. This approach has been developed and agreed in consultation with the highway authorities.

4.5.2 The assessment completed provides an overview of the traffic movements within the Borough as a result of the various scenarios tested. The outputs allow identification of locations where the operation of particular junctions is expected to deteriorate as a result of the scenario being considered.

4.5.3 This modelling exercise is valuable in determining locations where mitigation measures may be required. However, it is recognised that the use of the strategic LTAM model to determine the location and magnitude of a scenario's effect, would need to be supplemented with more detailed modelling to confirm whether mitigation is indeed required at a specific location, and the extent of that mitigation. This may be through the use of stand alone junction modelling software or microsimualtion software for example.

5 Strategic roads - M25 (A282) corridor

5.1.1 The following section considers the demand flow through the M25 (A282) junctions 1a, 1b and 2 and the V/C statistic for the links and nodes within these.

5.2 J1a assessment

Demand flow data

5.2.1 Junction 1a is a grade separated dumbbell arrangement with a roundabout either side of the M25 mainline.

5.2.2 The demand flow data for J1a is summarised in the tables below. The top table shows the demand flow for the junction as a whole for both the with and without LTC models. The two tables below this disaggregate the demand flows into west roundabout and east roundabout. Detailed demand flow totals are included at Appendix A disaggregated by entry link.

Junction 1a – total – demand flow throughput (PCUs)								
Scenario	AM				PM			
	Ref	Pref	Pref 15%	Pref 30%	Ref	Pref	Pref 15%	Pref 30%
Without LTC	22784	23342	23226	23136	21800	22381	22253	22156
With LTC	20269	20823	20711	20631	19525	20049	19923	19824

5.2.3 From the table above it is noted that :

- The Preferred Local Plan scenarios result in a slight increase (less than 5%) in movements passing through Junction 1a compared to the Reference Case for both the with / without LTC scenarios and for both time periods.
- The mode shift assumptions result in fewer movements passing through Junction 1a than the Preferred Local Plan scenario with no mode shift for both time periods.
- The implementation of the LTC results in fewer movements passing through Junction 1a for all scenarios and both time periods compared to without LTC.

5.2.4 The M25 mainline has been included in the tables above, but is removed in the two tables below which disaggregate the data into the two dumbbell roundabouts.

Junction 1a – west roundabout – demand flow throughput (PCUs)								
Scenario	AM				PM			
	Ref	Pref	Pref 15%	Pref 30%	Ref	Pref	Pref 15%	Pref 30%
Without LTC	6054	6411	6298	6212	6517	7009	6897	6804
With LTC	6264	6624	6519	6450	6819	7209	7108	7023

5.2.5 From the table above it is noted that :

- The Preferred Local Plan scenario with no mode shift results in a moderateincrease (band 5%-10%) in movements passing through the Junction 1a west roundabout compared to the Reference Case for both the with / without LTC scenarios and for both time periods.

- The mode shift assumptions result in fewer movements passing through the Junction 1a west roundabout than the Preferred Local Plan scenario with no mode shift for both time periods.

- The implementation of the LTC results in a greater number of movements passing through the Junction 1a west roundabout for all scenarios and both time periods.

Junction 1a – east roundabout – demand flow throughput (PCUs)								
Scenario	AM				PM			
	Ref	Pref	Pref 15%	Pref 30%	Ref	Pref	Pref 15%	Pref 30%
Without LTC	6242	6659	6570	6499	6156	6349	6338	6281
With LTC	6544	6964	6883	6828	6285	6537	6482	6422

5.2.6 From the table above it is noted that :

- The Preferred Local Plan scenarios result in a moderate increase (5-10%) movements passing through the Junction 1a east roundabout compared to the Reference Case in the AM peak hour, and a slight increase (0-5%) in the PM peak hour.

- The mode shift assumptions result in fewer movements passing through the Junction 1a east roundabout than the Preferred Local Plan scenario with no mode shift for all scenarios.

- The implementation of the LTC results in a greater number of movements passing through the Junction 1a east roundabout for all scenarios and both time periods.

5.2.7 A review has also been undertaken of the demand flow data for individual links within the junction. The data for the individual links are included as Appendix A.

5.2.8 In general, link demand flows increase at both the east roundabout and west roundabout with the Preferred Local Plan scenario implemented (compared to the Reference Case). This is evident for both with and without LTC scenarios.

V/C statistics

5.2.9 A review has been undertaken of the V/C statistic data for individual links within the junction. The data for the individual links are included as Appendix B.

5.2.10 A review has also been undertaken of the V/C statistic for the roundabout entry nodes for both the west roundabout and east roundabout. The review provides a count of the total number of turning movements at the roundabout entry points where V/C > 100%. The data for the individual nodes are included as Appendix C.

V/C statistics - findings

5.2.11 With respect to the Reference Case, the findings from the data described above suggest that the following links and / or turns will exceed capacity under Reference Case traffic conditions :

- Links where V/C > 100%
  - None

- Entry turning movements where V/C > 100%

- A282 southbound entry during the evening peak hour without LTC.
- A282 northbound entry during the morning peak hour with LTC.
- A206 north entry during the morning peak hour with LTC.

5.2.12 With respect to the Preferred Local Plan scenario, the findings from the data described above suggest that the following links and / or turns will exceed capacity under Preferred Local Plan traffic conditions :

- Links where V/C > 100%
  - None

- Entry turning movements where V/C > 100%
  - Rennie Drive entry during the morning peak hour with and without LTC.
  - A282 northbound entry during the morning and evening peak hour with LTC.
  - A206 north entry during the morning peak hour with LTC.
  - A282 southbound entry during the evening peak hour with and without LTC.

5.2.13 On this basis, further detailed studies of this junction may be necessary to demonstrate its ability to serve Reference Case and Preferred Local Plan development. This may require a detailed modelling exercise of this junction to be completed using stand alone junction modelling software or microsimulation modelling software.

5.2.14 With respect to serving the Preferred Local Plan development, a detailed modelling review of the Cotton Lane arm may be required as development at Rennie Drive comes forward. This would need to demonstrate the impact of the development and mitigation as appropriate.

5.3 J1b assessment

Demand flow data

5.3.1 Junction 1b is a grade separated gyratory arrangement. The demand flow data for J1b is summarised in the table below. The table shows the demand flow for the junction as a whole for both the with and without LTC models. Detailed demand flow totals are included at Appendix A disaggregated by entry link.

Junction 1b – total – demand flow throughput (PCUs)								
Scenario	AM				PM			
	Ref	Pref	Pref 15%	Pref 30%	Ref	Pref	Pref 15%	Pref 30%
Without LTC	21109	21564	21474	21432	19925	20503	20385	20312
With LTC	18862	19104	19043	19002	17965	18479	18391	18326

5.3.2 From the table above it is noted that :

- The Preferred Local Plan scenarios result in a slight increase (less than 5%) in movements passing through Junction 1b compared to the Reference Case for both the with / without LTC scenarios and for both time periods.

- The mode shift assumptions result in fewer movements passing through Junction 1b than the Preferred Local Plan scenario with no mode shift for both time periods.

- The implementation of the LTC results in fewer movements passing through Junction 1b for all scenarios and both time periods compared to without LTC.

5.3.3 A review has also been undertaken of the demand flow data for individual links within the junction. The data for the individual links are included as Appendix A.

5.3.4 In general, link demand flows increase within the junction with the Preferred Local Plan scenario implemented (compared to the Reference Case). This is evident for both with and without LTC scenarios.

V/C statistics

5.3.5 A review has been undertaken of the V/C statistic data for individual links within the junction. The data for the individual links are included as Appendix B.

5.3.6 A review has also been undertaken of the V/C statistic for the roundabout entry nodes. The review provides a count of the total number of turning movements at the roundabout entry points where V/C > 100%. The data for the individual nodes are included as Appendix C.

V/C statistics - findings

5.3.7 With respect to the Reference Case, the findings from the data described above suggest that the following links and / or turns will exceed capacity under Reference Case traffic conditions :

- Links where V/C > 100%
  - None

- Entry turning movements where V/C > 100%
  - None

5.3.8 With respect to the Preferred Local Plan scenario, the findings from the data described above suggest that the following links and / or turns will exceed capacity under Preferred Local Plan traffic conditions :

- Links where V/C > 100%
  - None

- Entry turning movements where V/C > 100%
  - None

5.3.9 On this basis, it is concluded that the junction is predicted to operate within capacity under Reference Case conditions and that the addition of the Preferred Local Plan traffic, whilst increasing traffic flows, does not increase junction links or entry nodes to a V/C value greater than 100%.

5.3.10 Hence, based upon the modelling review above, it is not anticipated that the implementation of the Local Plan would have a significantly detrimental effect on the operation of Junction 1b compared to the Reference Case.

5.4 J2 assessment

Demand flow data

5.4.1 Junction 2 is a grade separated gyratory arrangement. The demand flow data for J2 is summarised in the table below. The table shows the demand flow for the junction as a whole for both the with and without LTC models. Detailed demand flow totals are included at Appendix A disaggregated by entry link.

Junction 2 – total – demand flow throughput (PCUs)								
Scenario	AM				PM			
	Ref	Pref	Pref 15%	Pref 30%	Ref	Pref	Pref 15%	Pref 30%
Without LTC	33211	33944	33872	33836	30716	31646	31512	31444
With LTC	30312	30851	30791	30764	28594	29496	29373	29315

5.4.2 From the table above it is noted that :

- The Preferred Local Plan scenarios result in a slight increase (less than 5%) in movements passing through Junction 2 compared to the Reference Case for both the with / without LTC scenarios and for both time periods.
- The mode shift assumptions result in fewer movements passing through Junction 2 than the Preferred Local Plan scenario with no mode shift for both time periods.
- The implementation of the LTC results in fewer movements passing through Junction 2 for all scenarios and both time periods compared to without LTC.

5.4.3 A review has also been undertaken of the demand flow data for individual links within the junction. The data for the individual links are included as Appendix A.

5.4.4 In general, link demand flows increase within the junction with the Preferred Local Plan scenario implemented (compared to the Reference Case). This is evident for both with and without LTC scenarios.

V/C statistics

5.4.5 A review has been undertaken of the V/C statistic data for individual links within the junction. The data for the individual links are included as Appendix B.

5.4.6 A review has also been undertaken of the V/C statistic for the roundabout entry nodes. The review provides a count of the total number of turning movements at the roundabout entry points where V/C > 100%. The data for the individual nodes are included as Appendix C.

V/C statistics - findings

5.4.7 With respect to the Reference Case, the findings from the data described above suggest that the following links and / or turns will exceed capacity under Reference Case traffic conditions :

- Links where V/C > 100%
  - None
- Entry turning movements where V/C > 100%
  - M25 southbound on slip entry during the morning peak hour with LTC.

5.4.8 With respect to the Preferred Local Plan scenario, the findings from the data described above suggest that the following links and / or turns will exceed capacity under Preferred Local Plan traffic conditions :

- Links where V/C > 100%
  - None

- Entry turning movements where V/C > 100%
  - M25 southbound on slip entry during the morning peak hour with LTC.

5.4.9 On this basis, it is concluded that the junction is predicted to generally operate within capacity under Reference Case conditions and that the addition of the Preferred Local Plan traffic, whilst increasing traffic flows, does not increase junction links or entry nodes to a V/C value greater than 100%.

5.4.10 The exception to this is the indication that the M25 southbound on slip entry may exceed capacity during the morning peak hour under Reference Case and Local Plan scenarios (with LTC). This may require a detailed modelling review as Local Plan development comes forward.

5.4.11 Nevertheless, based upon the modelling review above, it is not anticipated that the implementation of the Local Plan would have a significantly detrimental effect on the operation of Junction 1b compared to the Reference Case.

6 Strategic roads - A2 corridor

6.1.1 The following section considers the demand flow through the A2 corridor junctions, those being the A2 / A2018 junction, Bean junction, Ebbsfleet junction and Pepper Hill junction. The A2 junction with the M25 (J2) was covered in the previous chapter.

6.2 A2 / A2018 assessment

Demand flow data

6.2.1 The A2 / A2018 junction is a grade separated gyratory arrangement. The demand flow data for the A2 / A2018 junction is summarised in the table below. The table shows the demand flow for the junction as a whole for both the with and without LTC models. Detailed demand flow totals are included at Appendix D disaggregated by entry link.

A2 / A2018 junction – total – demand flow throughput (PCUs)								
Scenario	AM				PM			
	Ref	Pref	Pref 15%	Pref 30%	Ref	Pref	Pref 15%	Pref 30%
Without LTC	16396	16851	16845	16841	15253	15676	15674	15677
With LTC	16211	16693	16688	16683	15423	15849	15846	15850

6.2.2 From the table above it is noted that :

- The Preferred Local Plan scenarios result in a slight increase (less than 5%) in movements passing through the junction compared to the Reference Case for both the with / without LTC scenarios and for both time periods.
- The mode shift assumptions result in fewer movements passing through the junction than the Preferred Local Plan scenario with no mode shift for both time periods.
- The implementation of the LTC results in fewer movements passing through the junction for all scenarios and both time periods compared to without LTC.

6.2.3 A review has also been undertaken of the demand flow data for individual links within the junction. The data for the individual links are included as Appendix D.

6.2.4 In general, link demand flows increase within the junction with the Preferred Local Plan scenario implemented (compared to the Reference Case). This is evident for both with and without LTC scenarios.

V/C statistics

6.2.5 A review has been undertaken of the V/C statistic data for individual links within the junction. The data for the individual links are included as Appendix E.

6.2.6 A review has also been undertaken of the V/C statistic for the roundabout entry nodes. The review provides a count of the total number of turning movements at the roundabout entry points where V/C > 100%. The data for the individual nodes are included as Appendix C.

V/C statistics - findings

6.2.7 With respect to the Reference Case, the findings from the data described above suggest that the following links and / or turns will exceed capacity under Reference Case traffic conditions :

- Links where V/C > 100%
  - A2 eastbound off slip during the evening peak hour (with and without LTC).
  - A2 westbound off slip during the morning peak hour (with LTC).

- Entry turning movements where V/C > 100%
  - A2 eastbound off slip during the evening peak hour (with and without LTC).
  - Old Bexley Lane (north) for both peak hours (with and without LTC).
  - A2 westbound off slip during the morning peak hour (with and without LTC).

6.2.8 With respect to the Preferred Local Plan scenario, the findings from the data described above suggest that the following links and / or turns will exceed capacity under Preferred Local Plan traffic conditions :

- Links where V/C > 100%
  - A2 eastbound off slip during the evening peak hour (with and without LTC).

- Entry turning movements where V/C > 100%
  - A2 eastbound off slip during the evening peak hour (with and without LTC).
  - Old Bexley Lane (north) for both peak hours (with and without LTC).

6.2.9 On this basis, further detailed studies of this junction may be necessary to demonstrate its ability to serve Reference Case and Preferred Local Plan development. This may require a detailed modelling exercise of this junction to be completed using stand alone junction modelling software or microsimulation modelling software.

6.3 A2 Bean interchange assessment

Demand flow data

6.3.1 The A2 Bean interchange is a dumbbell arrangement with a roundabout on either side of the A2 mainline. This junction is currently undergoing upgrade works and this is reflected in the future year LTAM models.

6.3.2 The demand flow data for the A2 Bean interchange is summarised in the tables below. The top table shows the demand flow for the junction as a whole for both the with and without LTC models. The two tables below this disaggregate the demand flows into north roundabout and south roundabout. Detailed demand flow totals are included at Appendix D disaggregated by entry link.

A2 Bean interchange – total – demand flow throughput (PCUs)								
Scenario	AM				PM			
	Ref	Pref	Pref 15%	Pref 30%	Ref	Pref	Pref 15%	Pref 30%
Without LTC	19490	19856	19771	19749	19296	19937	19725	19641
With LTC	17335	17695	17579	17570	17659	18273	18041	17928

6.3.3 From the table above it is noted that :

- The Preferred Local Plan scenarios result in a slight increase (less than 5%) in movements passing through the junction compared to the Reference Case for both the with / without LTC scenarios and for both time periods.
- The mode shift assumptions result in fewer movements passing through the junction than the Preferred Local Plan scenario with no mode shift for both time periods.
- The implementation of the LTC results in fewer movements passing through the junction for all scenarios and both time periods compared to without LTC.

6.3.4 The A2 mainline has been included in the table above, but is removed in the two tables below which disaggregate the data into the two dumbbell roundabouts.

A2 Bean interchange – north roundabout – demand flow throughput (PCUs)								
Scenario	AM				PM			
	Ref	Pref	Pref 15%	Pref 30%	Ref	Pref	Pref 15%	Pref 30%
Without LTC	3338	3397	3380	3392	3507	3689	3622	3594
With LTC	3440	3562	3524	3550	3560	3769	3649	3588

6.3.5 From the table above it is noted that :

- The Preferred Local Plan scenarios result in a slight increase (0-5%) of movements passing through the junction compared to the Reference Case for both the with / without LTC scenarios during the morning peak hour, with a moderate increase (5-10%) during the evening peak hour.
- The mode shift assumptions result in fewer movements passing through the junction than the Preferred Local Plan scenario with no mode shift for both time periods.
- The implementation of the LTC results in a greater number of movements passing through the junction for all scenarios and both time periods compared to without LTC.

A2 Bean interchange – south roundabout – demand flow throughput (PCUs)								
Scenario	AM				PM			
	Ref	Pref	Pref 15%	Pref 30%	Ref	Pref	Pref 15%	Pref 30%
Without LTC	3934	3973	3948	3948	3565	3857	3802	3783
With LTC	3889	3917	3882	3881	3514	3801	3745	3701

6.3.6 From the table above it is noted that :

- The Preferred Local Plan scenarios result in a slight increase (0-5%) of movements passing through the junction compared to the Reference Case for both the with / without LTC scenarios during the morning peak hour, with a moderate increase (5-10%) during the evening peak hour.
- The mode shift assumptions result in fewer movements passing through the junction than the Preferred Local Plan scenario with no mode shift for the AM time period with the PM remaining a moderate increase.
- The implementation of the LTC results in fewer movements passing through the junction for all scenarios and both time periods.

6.3.7 A review has also been undertaken of the demand flow data for individual links within the junction. The data for the individual links are included as Appendix D.

6.3.8 In general, link demand flows increase within the junction with the Preferred Local Plan scenario implemented (compared to the Reference Case). This is evident for both with and without LTC scenarios.

V/C statistics

6.3.9 A review has been undertaken of the V/C statistic data for individual links within the junction. The data for the individual links are included as Appendix E.

6.3.10 A review has also been undertaken of the V/C statistic for the roundabout entry nodes. The review provides a count of the total number of turning movements at the roundabout entry points where V/C > 100%. The data for the individual nodes are included as Appendix C.

V/C statistics - findings

6.3.11 With respect to the Reference Case, the findings from the data described above suggest that the following links and / or turns will exceed capacity under Reference Case traffic conditions :

- Links where V/C > 100%
  - South roundabout – Bean lane bridge (with and without LTC).

- Entry turning movements where V/C > 100%
  - South roundabout entry from bridge (with and without LTC)
  - South roundabout A2 westbound on slip (with and without LTC)

6.3.12 With respect to the Preferred Local Plan scenario, the findings from the data described above suggest that the following links and / or turns will exceed capacity under Preferred Local Plan traffic conditions :

- Links where V/C > 100%
  - South roundabout – Bean lane bridge (with and without LTC).

- Entry turning movements where V/C > 100%
  - South roundabout entry from bridge (with and without LTC)
  - South roundabout A2 westbound on slip (with and without LTC)

6.3.13 On this basis, further detailed studies of this junction may be necessary to demonstrate its ability to serve Reference Case and Preferred Local Plan development. This may require a detailed modelling exercise of this junction to be completed using stand alone junction modelling software or microsimulation modelling software.

6.4 A2 Ebbsfleet interchange assessment

Demand flow data

6.4.1 The A2 Ebbsfleet interchange is a dumbbell arrangement with two roundabouts on the north side of the A2 mainline. This junction is currently undergoing upgrade works and this is reflected n the future year LTAM models.

6.4.2 The demand flow data the A2 Ebbsfleet interchange is summarised in the tables below. The top table shows the demand flow for the junction as a whole for both the with and without LTC models. The two tables below this disaggregate the demand flows into west roundabout and east roundabout. Detailed demand flow totals are included at Appendix D disaggregated by entry link.

A2 Ebbsfleet interchange – total – demand flow throughput (PCUs)								
Scenario	AM				PM			
	Ref	Pref	Pref 15%	Pref 30%	Ref	Pref	Pref 15%	Pref 30%
Without LTC	17564	18000	17880	17842	18464	18852	18681	18615
With LTC	15467	15905	15776	15739	16765	17235	17052	16953

6.4.3 From the table above it is noted that :

- The Preferred Local Plan scenarios result in a slight increase (less than 5%) in movements passing through the junction compared to the Reference Case for both the with / without LTC scenarios and for both time periods.
- The mode shift assumptions result in fewer movements passing through the junction than the Preferred Local Plan scenario with no mode shift for both time periods.
- The implementation of the LTC results in fewer movements passing through the junction for all scenarios and both time periods compared to without LTC.

6.4.4 The A2 mainline has been included in the table above, but is removed in the two tables below which disaggregate the data into the two dumbbell roundabouts.

A2 Ebbsfleet interchange – west roundabout – demand flow throughput (PCUs)								
Scenario	AM				PM			
	Ref	Pref	Pref 15%	Pref 30%	Ref	Pref	Pref 15%	Pref 30%
Without LTC	2826	2904	2872	2901	2919	3081	3024	3021
With LTC	2752	2778	2741	2747	2844	3031	2971	2925

6.4.5 From the table above it is noted that :

- The Preferred Local Plan scenarios result in a slight increase of movements passing through the junction compared to the Reference Case for both the with / without LTC scenarios for the AM time periods, and a moderate increase in the PM time period
- The mode shift assumptions result in fewer movements passing through the junction than the Preferred Local Plan scenario with no mode shift for both time periods.
- The implementation of the LTC results in fewer movements passing through the junction for all scenarios and both time periods.

A2 Ebbsfleet interchange – east roundabout – demand flow throughput (PCUs)								
Scenario	AM				PM			
	Ref	Pref	Pref 15%	Pref 30%	Ref	Pref	Pref 15%	Pref 30%
Without LTC	3089	3148	3116	3106	3445	3586	3518	3467

With LTC	2970	3054	3020	3008	3434	3549	3517	3487

6.4.6 From the table above it is noted that :

- The Preferred Local Plan scenarios result in a slight increase (less than 5%) in movements passing through the junction compared to the Reference Case for both the with / without LTC scenarios and for both time periods.
- The mode shift assumptions result in fewer movements passing through the junction than the Preferred Local Plan scenario with no mode shift for both time periods.
- The implementation of the LTC results in fewer movements passing through the junction for all scenarios and both time periods compared to without LTC.

6.4.7 A review has also been undertaken of the demand flow data for individual links within the junction. The data for the individual links are included as Appendix D.

6.4.8 In general, link demand flows increase within the junction with the Preferred Local Plan scenario implemented (compared to the Reference Case). This is evident for both with and without LTC scenarios.

V/C statistics

6.4.9 A review has been undertaken of the V/C statistic data for individual links within the junction. The data for the individual links are included as Appendix E.

6.4.10 A review has also been undertaken of the V/C statistic for the roundabout entry nodes. The review provides a count of the total number of turning movements at the roundabout entry points where V/C > 100%. The data for the individual nodes are included as Appendix C.

V/C statistics - findings

6.4.11 With respect to the Reference Case, the findings from the data described above suggest that the following links and / or turns will exceed capacity under Reference Case traffic conditions :

- Links where V/C > 100%
  - East roundabout – access road serving Ebbsfleet during the evening peak hour (with and without LTC).
- Entry turning movements where V/C > 100%
  - East roundabout – access road serving Ebbsfleet during the evening peak hour (with and without LTC).

6.4.12 With respect to the Preferred Local Plan scenario, the findings from the data described above suggest that the following links and / or turns will exceed capacity under Preferred Local Plan traffic conditions :

- Links where V/C > 100%
  - East roundabout – access road serving Ebbsfleet during the evening peak hour (with and without LTC).
- Entry turning movements where V/C > 100%

- East roundabout – access road serving Ebbsfleet during the evening peak hour (with and without LTC).

6.4.13 The findings show that the principal issue with this junction relates to the east roundabout access road serving the Ebbsfleet development. Further detailed studies of this junction will be carried out as the Ebbsfleet development comes forward to ensure that there is sufficient capacity at this junction to serve the planned development without causing significant adverse effect on the strategic road network.

6.5 A2 Pepper Hill interchange assessment

Demand flow data

6.5.1 The A2 pepper Hill interchange is a dumbbell type arrangement with a roundabout on the south side of the A2 mainline and a signal controlled junction on the north side of the A2 mainline. The demand flow data for the A2 Pepper Hill interchange is summarised in the tables below.

6.5.2 The top table shows the demand flow for the junction as a whole for both the with and without LTC models. The two tables below this disaggregate the demand flows into north junction and south roundabout. Detailed demand flow totals are included at Appendix D disaggregated by entry link.

A2 Pepper Hill interchange – total – demand flow throughput (PCUs)								
Scenario	AM				PM			
	Ref	Pref	Pref 15%	Pref 30%	Ref	Pref	Pref 15%	Pref 30%
Without LTC	17491	17934	17859	17848	19147	19538	19427	19405
With LTC	15620	16078	15984	15970	17365	17753	17627	17617

6.5.3 From the table above it is noted that :

- The Preferred Local Plan scenarios result in a slight increase (less than 5%) in movements passing through the junction compared to the Reference Case for both the with / without LTC scenarios and for both time periods.
- The mode shift assumptions result in fewer movements passing through the junction than the Preferred Local Plan scenario with no mode shift for both time periods.
- The implementation of the LTC results in fewer movements passing through the junction for all scenarios and both time periods compared to without LTC.

6.5.4 The A2 mainline has been included in the table above, but is removed in the two tables below which disaggregate the data into the two dumbbell roundabouts.

A2 Pepper Hill interchange – north junction – demand flow throughput (PCUs)								
Scenario	AM				PM			
	Ref	Pref	Pref 15%	Pref 30%	Ref	Pref	Pref 15%	Pref 30%
Without LTC	3986	4092	4092	4093	4695	4793	4765	4732
With LTC	3968	4108	4087	4089	4733	4819	4775	4766

6.5.5 From the table above it is noted that :

- The Preferred Local Plan scenarios result in a slight increase in movements passing through the junction compared to the Reference Case during both peak hours for both the with / without LTC scenarios.

A2 Pepper Hill interchange – south roundabout – demand flow throughput (PCUs)								
Scenario	AM				PM			
	Ref	Pref	Pref 15%	Pref 30%	Ref	Pref	Pref 15%	Pref 30%
Without LTC	3147	3197	3169	3157	3342	3389	3353	3328
With LTC	3282	3329	3292	3280	3321	3348	3313	3295

6.5.6 From the table above it is noted that :

- The Preferred Local Plan scenarios result in a slight increase in movements passing through the junction compared to the Reference Case for both the with / without LTC scenarios and for both time periods.
- The mode shift assumptions result in fewer movements passing through the junction than the Preferred Local Plan scenario with no mode shift for both time periods.
- The implementation of the LTC results in more movements passing through the junction for all scenarios during the morning peak hour and a reduction during the evening peak hour.

6.5.7 A review has also been undertaken of the demand flow data for individual links within the junction. The data for the individual links are included as Appendix D.

6.5.8 In general, link demand flows increase within the junction with the Preferred Local Plan scenario implemented (compared to the Reference Case). This is evident for both with and without LTC scenarios.

V/C statistics

6.5.9 A review has been undertaken of the V/C statistic data for individual links within the junction. The data for the individual links are included as Appendix E.

6.5.10 A review has also been undertaken of the V/C statistic for the roundabout entry nodes. The review provides a count of the total number of turning movements at the roundabout entry points where V/C > 100%. The data for the individual nodes are included as Appendix C.

V/C statistics - findings

6.5.11 With respect to the Reference Case, the findings from the data described above suggest that the following links and / or turns will exceed capacity under Reference Case traffic conditions :

- Links where V/C > 100%
  - None
- Entry turning movements where V/C > 100%
  - none

6.5.12 With respect to the Preferred Local Plan scenario, the findings from the data described above suggest that the following links and / or turns will exceed capacity under Preferred Local Plan traffic conditions :

- Links where V/C > 100%
  - None.

- Entry turning movements where V/C > 100%
  - None

6.5.13 On this basis, it is concluded that the junction is predicted to operate within capacity under Reference Case conditions and that the addition of the Preferred Local Plan traffic, whilst increasing traffic flows, does not increase junction links or entry nodes to a V/C value greater than 100%.

6.5.14 Hence, based upon the modelling review above, it is not anticipated that the implementation of the Local Plan would have a significantly detrimental effect on the operation of the junction compared to the Reference Case.

7 Local roads assessment criteria

7.1.1 The following sections consider the assessment of the local road network, for A roads and B roads within Dartford Borough.

7.1.2 Node based data has been extracted from the models and presented for demand flow in PCUs. The node based demand flow is the cumulative demand flow of each arm entering the junction. This data is included as Appendix F.

7.1.3 Turn based data has also been extracted, for each junction, with respect to the number of turns at each junction where V/C exceeds 100% (over capacity). This data is included as Appendix G which provides a record of the number of turns that exceed V/C of 100% for each junction.

7.2 Performance categories

7.2.1 The following assessment criteria has been adopted to categorise junctions based upon the overall modelled performance of the junction (turn based) with respect to V/C.

- Category 1 - Junction / Node experiences a V/C statistic of less than 100% on all turning movements. At this level of V/C all turning movements are predicted to be operating within capacity and hence the junction is expected to operate without significant capacity issues.
- Category 2 - Junction / Node experiences a V/C statistic in excess of 100% on up to 2 turning movements. At this level of V/C the junction is expected to be operating within capacity on the majority of arms, but may experience capacity issues on individual movements.
- Category 3 - Junction / Node experiences a V/C statistic in excess of 100% on up to 4 turning movements. At this level of V/C the junction is likely to exceed desirable capacity parameters on at least one arm, and potentially more, and hence experience notable capacity issues.
- Category 4 - Junction / Node experiences a V/C statistic in excess of 100% on more than 4 turning movements. At this level of V/C the junction is likely to exceed desirable capacity parameters on multiple arms and experience significant capacity issues.

7.2.2 Appendix H contains the full list of junction performance categories determined for all junctions and all scenarios.

7.3 Need for detailed modelling

7.3.1 Each junction has been given a category number based upon the criteria above and for all scenarios. A set of high level principles has been assumed as listed below.

- Category 1 – Based upon the DCLTAM output, no further detailed modelling is anticipated as necessary.
- Category 2 – Based upon the DCLTAM output, detailed modelling is likely to be necessary to determine junction performance.
- Category 3 – Based upon the DCLTAM output, detailed modelling is necessary to determine junction performance.

- Category 4 – Based upon the DCLTAM output, detailed modelling is necessary to determine junction performance.

7.3.2 Hence, the above principles can provide guidance as to whether more detailed modelling is anticipated in order to assess individual junctions in detail for the scenarios assessed. Appendix I contains a high level summary of whether additional modelling work is likely to be required for each junction (for each scenario) based upon the performance categories.

7.4 Comparison of junction performance

7.4.1 The performance criteria above have been derived to allow a transparent and consistent way of assessing the performance of junctions on the local highway network for all modelled scenarios. This has been completed for each junction on a turn basis as described above.

7.4.2 Figures 1.1 to 8.2 illustrate the category bandings for the local junctions based upon a GIS plot. These figures allow a visual / graphical comparison to be made between the various scenarios.

7.4.3 The categories assigned to each junction have been compared between scenarios. The objective of the comparison is to determine whether implementation of the Local Plan moves specific junctions from their Reference Case category, and whether this move means an operational benefit or disbenefit to that junction.

7.4.4 The matrix below provides a summary of the potential moving between categories and the implications or actions associated with this.

		Local Plan category			
		1	2	3	4
Reference Case category	1	No significant impact predicted from Local Plan. No further modelling assessment required.	Local Plan predicted to have an impact, but generally the junction still operates within desirable capacity parameters. Modelling assessment of Local Plan scenario is likely to be required to confirm whether junction operation is acceptable.	Local Plan predicted to have an impact. Modelling assessment of Local Plan scenario is required to confirm junction operation and whether Local Plan mitigation required.	Local Plan predicted to have an impact. Modelling assessment of Local Plan scenario is required to confirm junction operation and whether Local Plan mitigation required.
	2	Local Plan predicted to benefit junction operation. Modelling assessment of Reference Case scenario is likely to be required to confirm whether junction operation is acceptable.	No significant impact predicted from Local Plan. Modelling assessment of Reference Case and Local Plan scenario is likely to be required to confirm whether junction operation is acceptable.	Local Plan predicted to have an impact. Modelling assessment of Reference Case scenario is likely to be required to confirm whether junction operation is acceptable. Modelling assessment of Local Plan scenario is required to confirm junction operation and whether Local Plan mitigation required.	Local Plan predicted to have an impact. Modelling assessment of Reference Case scenario is likely to be required to confirm whether junction operation is acceptable. Modelling assessment of Local Plan scenario is required to confirm junction operation and whether Local Plan mitigation required.

	3	Local Plan predicted to benefit junction operation. Modelling assessment of Reference Case scenario is required to confirm whether junction operation is acceptable or requires upgrade works.	Local Plan predicted to benefit junction operation. Modelling assessment of Reference Case scenario is required to confirm whether junction operation is acceptable or requires upgrade works. Modelling assessment of Local Plan scenario is likely to be required to confirm whether junction operation is acceptable or requires upgrade works.	No significant impact predicted from Local Plan. Modelling assessment of Reference Case scenario is required to confirm whether junction operation is acceptable or requires upgrade works. Modelling assessment of Local Plan scenario is required to confirm junction operation and whether Local Plan mitigation required.	Local Plan predicted to have an impact. Modelling assessment of Reference Case scenario is required to confirm whether junction operation is acceptable or requires upgrade works. Modelling assessment of Local Plan scenario is required to confirm junction operation and whether Local Plan mitigation required.
	4	Local Plan predicted to benefit junction operation. Modelling assessment of Reference Case scenario is required to confirm whether junction operation is acceptable or requires upgrade works.	Local Plan predicted to benefit junction operation. Modelling assessment of Reference Case scenario is required to confirm whether junction operation is acceptable or requires upgrade works. Modelling assessment of Local Plan scenario is likely to be required to confirm whether junction operation is acceptable or requires upgrade works.	Local Plan predicted to benefit junction operation. Modelling assessment of Reference Case scenario is required to confirm whether junction operation is acceptable or requires upgrade works. Modelling assessment of Local Plan scenario is required to confirm whether junction operation is acceptable or requires upgrade works.	May be little, or significant, impact predicted from Local Plan. Modelling assessment of Reference Case scenario is required to confirm whether junction operation is acceptable or requires upgrade works. Modelling assessment of Local Plan scenario is required to confirm junction operation and whether Local Plan mitigation required.

7.4.5 Hence, based upon the matrix above, if a particular junction is a Category 2 junction in the Reference Case and moves to a Category 3 junction in the Local Plan scenario we can look this up on the matrix.

7.4.6 Reference Case category 2 (row) moving to Local Plan category 3 (column) would mean that the Local Plan is predicted to have an impact. The action would be to undertake additional modelling of the junction to determine whether mitigation would be required as a result of the Local Plan development.

7.5 Potential need for Local Plan mitigation

7.5.1 Based upon the above matrix it is possible to provide a high level summary of whether a junction is expected to require mitigation works as a result of the Local Plan being implemented (on the basis that this will change its category score).

7.5.2 The matrix below provides such a summary of whether mitigation works would be expected.

		Local Plan category			
		1	2	3	4
Reference Case category	1	No	Possible	**Likely**	**Likely**
	2	No	Unlikely	Possible	**Likely**
	3	No	No	Unlikely	Possible
	4	No	No	No	Possible

7.5.3 The above matrix has been used to compare the Reference Case performance of each junction with the Local Plan scenarios to determine whether mitigation may be required at particular junctions. Appendix J contains a high level summary of whether Local Plan mitigation is reasonably expected for each junction based upon the change in performance category.

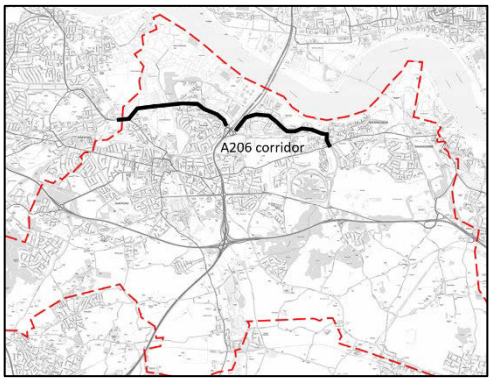
7.5.4 The following sections consider the operation of the local road corridors, with particular attention paid to the category of each junction on the corridor and how this alters between scenarios.

8 Local "A" roads

8.1.1 The following section considers the local highway network "A" class roads. A comparison is made between the Reference Case performance category for each junction and the Local Plan scenarios on the basis of the categories and matrix described in the previous section.

8.2 A206 corridor

8.2.1 The majority of junctions fall within category 1 on this corridor and would require no further assessment for either the Reference Case or Local Plan scenario based upon the assessment criteria.



8.2.2 The tables below summarise the junctions on this corridor that may require detailed modelling to determine their operation under different scenarios. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

8.2.3 It is noted that Station Road is referenced in the "No LTC" top table (as it registers "likely" during the PM peak) but not in the "with LTC" bottom table (as it registers "No" for all scenarios). This occurs for several other tables within this report.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
A2026 Burnham Road	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely
Galleon Boulevard	No	Yes	Yes	Yes	No	No	No	No
Station Road	No	No	No	No	Likely	Likely	No	No
A226 London Road	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
A2026 Burnham Road	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely
Galleon Boulevard	No	Yes	No	No	No	No	No	No
A226 London Road	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

8.2.4 The tables below summarise the junctions on this corridor that may (even if unlikely) require mitigation to be implemented (subject to detailed modelling) as a result of the proposed Local Plan development. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

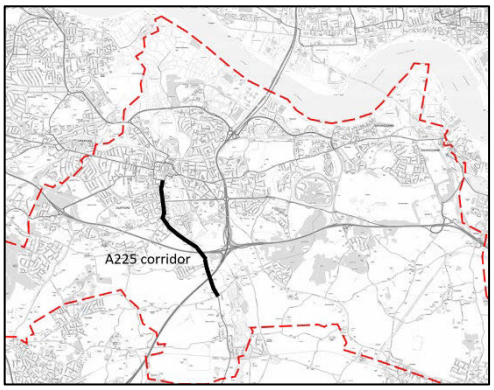
	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
A2026 Burnham Road		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Galleon Boulevard		**Likely**	**Likely**	**Likely**		No	No	No
Station Road		No	No	No		Unlikely	No	No

A226 London Road		Unlikely	Unlikely	Unlikely		No	No	No

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
A2026 Burnham Road		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Galleon Boulevard		**Likely**	No	No		No	No	No
A226 London Road		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely

8.3 A225 corridor (Lowfield Street and Hawley Road)

8.3.1 The majority of junctions fall within category 1 on this corridor and would require no further assessment for either the Reference Case or Local Plan scenario based upon the assessment criteria.



8.3.2 The tables below summarise the junctions on this corridor that may require detailed modelling to determine their operation under different scenarios. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Princes Road	Likely	Likely	Likely	Likely	Yes	Yes	Yes	Yes
Parsonage Lane	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

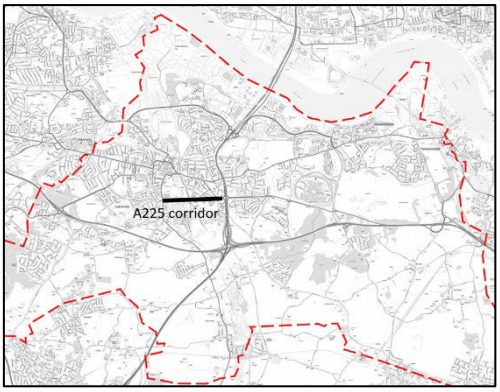
	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Princes Road	Likely	Likely	Likely	Likely	Yes	Yes	Yes	Yes
Parsonage Lane	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

8.3.3 The tables below summarise the junctions on this corridor that may (even if unlikely) require mitigation to be implemented (subject to detailed modelling) as a result of the proposed Local Plan development. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Princes Road		Unlikely	Unlikely	Unlikely		Possible	Possible	Possible
Parsonage Lane		Unlikely	Unlikely	Unlikely		Unlikely	Possible	Unlikely

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Princes Road		Unlikely	Unlikely	Unlikely		Possible	Possible	Possible
Parsonage Lane		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely

8.4 A225 corridor (Princes Road)



8.4.1 The majority of junctions fall within category 1 on this corridor and would require no further assessment for either the Reference Case or Local Plan scenario based upon the assessment criteria.

8.4.2 The tables below summarise the junctions on this corridor that may require detailed modelling to determine their operation under different scenarios. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Lowfield Street	Likely	Likely	Likely	Likely	Yes	Yes	Yes	Yes
Park Road	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Lowfield Street	Likely	Likely	Likely	Likely	Yes	Yes	Yes	Yes
Park Road	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

8.4.3 The tables below summarise the junctions on this corridor that may (even if unlikely) require mitigation to be implemented (subject to detailed modelling) as a result of the proposed Local Plan development. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

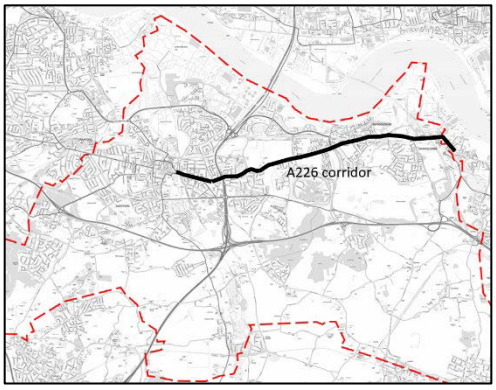
	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Lowfield Street		Unlikely	Unlikely	Unlikely		Possible	Possible	Possible
Park Road		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Lowfield Street		Unlikely	Unlikely	Unlikely		Possible	Possible	Possible

Park Road		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely

8.5 A226 corridor

8.5.1 The majority of junctions fall within category 1 on this corridor and would require no further assessment for either the Reference Case or Local Plan scenario based upon the assessment criteria.



8.5.2 The tables below summarise the junctions on this corridor that may require detailed modelling to determine their operation under different scenarios. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
King Edward Avenue	No	No	No	No	Likely	Likely	Likely	Likely
Dartford Town Centre Loop	Likely	Likely	Likely	Likely	Yes	Yes	Yes	Yes
Dartford Town Centre Loop	No	No	No	No	Likely	Likely	Likely	No
Dartford Town Centre Loop	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely
Great Queen Street	No	No	No	No	No	Likely	Likely	Likely
Park Road	No	No	No	No	No	Likely	Likely	Likely
St Vincent's Road	No	No	No	No	Yes	Yes	Yes	Yes
St Clements Road	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lower Road	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely
Ebbsfleet Gateway	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely
Springhead Road	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
King Edward Avenue	No	No	No	No	Likely	Likely	Likely	Likely
Dartford Town Centre Loop	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dartford Town Centre Loop	No	No	No	No	Likely	No	No	No
Dartford Town Centre Loop	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely
Great Queen Street	No	No	No	No	No	Likely	Likely	No
Park Road	No	No	No	No	No	Yes	Likely	Likely
St Vincent's Road	No	No	No	No	Yes	Yes	Yes	Yes
Cotton Lane	No	Likely	Likely	Likely	No	No	No	No
Hillhouse Road	No	Likely	Likely	Likely	No	No	No	No
St Clements Road	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lower Road	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely
Ebbsfleet Gateway	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely
Springhead Road	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

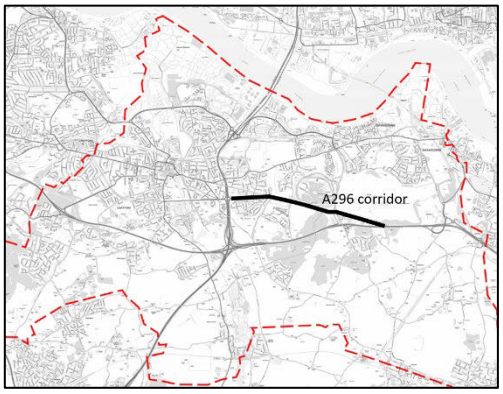
8.5.3 The tables below summarise the junctions on this corridor that may (even if unlikely) require mitigation to be implemented (subject to detailed modelling) as a result of the proposed Local Plan development. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
King Edward Avenue		No	No	No		Unlikely	Unlikely	Unlikely
Dartford Town Centre Loop		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Dartford Town Centre Loop		No	No	No		Unlikely	Unlikely	No
Dartford Town Centre Loop		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Great Queen Street		No	No	No		Possible	Possible	Possible
Park Road		No	No	No		Possible	Possible	Possible
St Vincent's Road		No	No	No		Unlikely	Unlikely	Unlikely
St Clements Road		Unlikely	Unlikely	Unlikely		No	No	No
Lower Road		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Ebbsfleet Gateway		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Springhead Road		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
King Edward Avenue		No	No	No		Unlikely	Unlikely	Unlikely
Dartford Town Centre Loop		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Dartford Town Centre Loop		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Great Queen Street		No	No	No		Possible	Possible	No
Park Road		No	No	No		**Likely**	Possible	Possible
St Vincent's Road		No	No	No		Unlikely	Unlikely	Unlikely
Cotton Lane		Possible	Possible	Possible		No	No	No
Hillhouse Road		Possible	Possible	Possible		No	No	No
St Clements Road		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Lower Road		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Ebbsfleet Gateway		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Springhead Road		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely

8.6 A296 corridor

8.6.1 The majority of junctions fall within category 1 on this corridor and would require no further assessment for either the Reference Case or Local Plan scenario based upon the assessment criteria.



8.6.2 The tables below summarise the junctions on this corridor that may require detailed modelling to determine their operation under different scenarios. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
The Brent	No	No	No	No	No	Likely	Likely	Likely
Princes Road	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ebbsfleet Quarry Access	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely

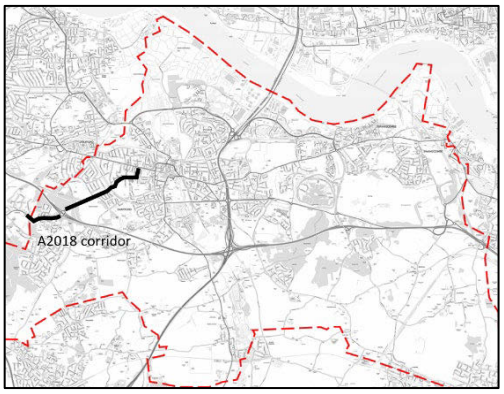
	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
The Brent	No	No	No	No	No	Yes	Likely	Likely
Princes Road	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ebbsfleet Quarry Access	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely

8.6.3 The tables below summarise the junctions on this corridor that may (even if unlikely) require mitigation to be implemented (subject to detailed modelling) as a result of the proposed Local Plan development. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
The Brent		No	No	No		Possible	Possible	Possible
Princes Road		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Ebbsfleet Quarry Access		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
The Brent		No	No	No		**Likely**	Possible	Possible
Princes Road		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Ebbsfleet Quarry Access		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely

8.7 A2018 corridor



8.7.1 The majority of junctions fall within category 1 on this corridor and would require no further assessment for either the Reference Case or Local Plan scenario based upon the assessment criteria.

8.7.2 The tables below summarise the junctions on this corridor that may require detailed modelling to determine their operation under different scenarios. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Pinewood Place	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely
Oakfield Lane	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely
Princes Road	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Pinewood Place	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely
Oakfield Lane	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely
Princes Road	Likely	Yes	Yes	Yes	Yes	Yes	Yes	Yes

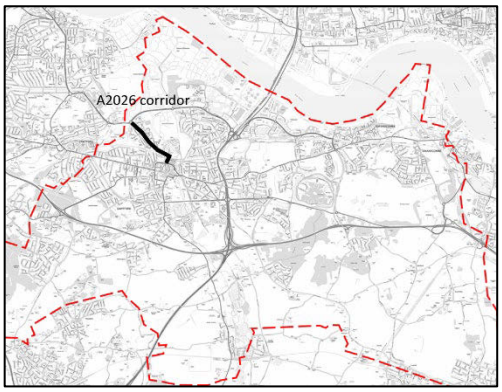
8.7.3 The tables below summarise the junctions on this corridor that may (even if unlikely) require mitigation to be implemented (subject to detailed modelling) as a result of the proposed Local Plan development. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Pinewood Place		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Oakfield Lane		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Princes Road		Possible	Possible	Possible		Possible	Possible	Possible

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Pinewood Place		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Oakfield Lane		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Princes Road		**Likely**	Possible	**Likely**		Unlikely	Unlikely	Unlikely

8.8 A2026 corridor

8.8.1 All of the junctions on this corridor, except the A2026 / A206 roundabout, fall within category 1 on this corridor and would require no further assessment for either the Reference Case or Local Plan scenario based upon the assessment criteria.



8.8.2 The tables below summarise the junctions on this corridor that may require detailed modelling to determine their operation under different scenarios. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
A206 Bob Dunn Way	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
A206 Bob Dunn Way	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely

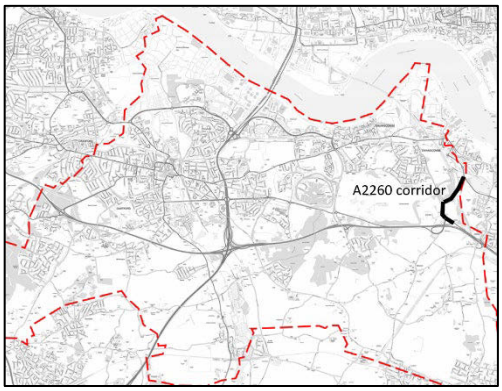
8.8.3 The tables below summarise the junctions on this corridor that may (even if unlikely) require mitigation to be implemented (subject to detailed modelling) as a result of the proposed Local Plan development. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
A206 Bob Dunn Way		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
A206 Bob Dunn Way		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely

8.9 A2260 corridor

8.9.1 The majority of junctions fall within category 1 on this corridor and would require no further assessment for either the Reference Case or Local Plan scenario based upon the assessment criteria.



8.9.2 The tables below summarise the junctions on this corridor that may require detailed modelling to determine their operation under different scenarios. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Thames Way	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely
Southfleet Road	No	No	No	No	Likely	Likely	Likely	Likely

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Thames Way	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely
Southfleet Road	No	No	No	No	Likely	Likely	Likely	Likely

8.9.3 The tables below summarise the junctions on this corridor that may (even if unlikely) require mitigation to be implemented (subject to detailed modelling) as a result of the proposed Local Plan development. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Thames Way		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Southfleet Road		No	No	No		Unlikely	Unlikely	Unlikely

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Thames Way		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Southfleet Road		No	No	No		Unlikely	Unlikely	Unlikely

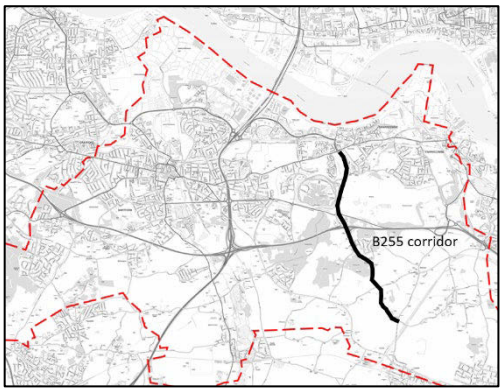
9 Local "B" roads

9.1.1 The following section considers the local highway network "B" class roads. A comparison is made between the Reference Case performance category for each junction and the Local Plan scenarios on the basis of the categories and matrix described in the previous section.

9.1.2 Appendix H contains the full list of junction performance categories assigned for all scenarios.

9.2 B255 corridor

9.2.1 The majority of junctions fall within category 1 on this corridor and would require no further assessment for either the Reference Case or Local Plan scenario based upon the assessment criteria.



9.2.2 The tables below summarise the junctions on this corridor that may require detailed modelling to determine their operation under different scenarios. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
A226 London Road	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Castleridge Drive	No	Likely	No	No	No	No	No	No
Mounts Road	Likely	Likely	Likely	Likely	No	No	No	No
Bluewater Parkway	No	No	No	No	Yes	Yes	Yes	Yes
SB to Bean Lane	No	Likely	Likely	Likely	No	Likely	Likely	Likely

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
A226 London Road	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Castleridge Drive	Likely	Likely	Likely	Likely	No	No	No	No
Mounts Road	No	Likely	Likely	Likely	No	No	No	No
Bluewater Parkway	No	No	No	No	No	Yes	Yes	No
SB to Bean Lane	No	Likely	No	No	No	No	No	No

9.2.3 The tables below summarise the junctions on this corridor that may (even if unlikely) require mitigation to be implemented (subject to detailed modelling) as a result of the proposed Local Plan development. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

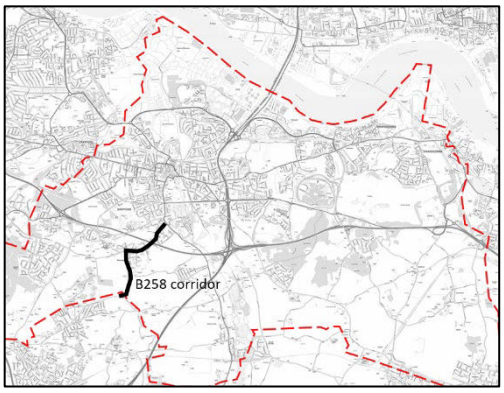
	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
A226 London Road		Unlikely	Unlikely	Unlikely		No	No	No
Castleridge Drive		Possible	No	No		No	No	No
Mounts Road		Unlikely	Unlikely	Unlikely		No	No	No
Bluewater Parkway		No	No	No		Unlikely	Unlikely	Unlikely
SB to Bean Lane		Possible	Possible	Possible		Possible	Possible	Possible
		Unlikely	Unlikely	Unlikely		No	No	No

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
A226 London Road		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Castleridge Drive		Unlikely	Unlikely	Unlikely		No	No	No
Mounts Road		Possible	Possible	Possible		No	No	No
Bluewater Parkway		No	No	No		**Likely**	**Likely**	No
SB to Bean Lane		Possible	No	No		No	No	No
		Unlikely	Unlikely	Unlikely		No	No	No

9.3 B258 corridor

9.3.1 The majority of junctions fall within category 1 on this corridor and would require no further assessment for either the Reference Case or Local Plan scenario based upon the assessment criteria.

9.3.2 The tables below summarise the junctions on this corridor that may require detailed modelling to determine their operation under different scenarios. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.



	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Lower Road	No	No	No	No	Likely	Likely	Likely	Likely

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Lower Road	No	No	No	No	Likely	Likely	Likely	Likely
College Road	Likely	Likely	Likely	Likely	No	No	No	No

9.3.3 The tables below summarise the junctions on this corridor that may (even if unlikely) require mitigation to be implemented (subject to detailed modelling) as a result of the proposed Local Plan development. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

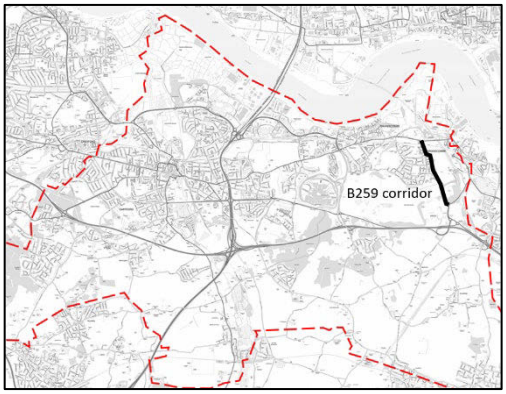
	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Lower Road		No	No	No		Unlikely	Unlikely	Unlikely

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Lower Road		No	No	No		Unlikely	Unlikely	Unlikely
College Road		Unlikely	Unlikely	Unlikely		No	No	No

9.4 B259 corridor

9.4.1 The majority of junctions fall within category 1 on this corridor and would require no further assessment for either the Reference Case or Local Plan scenario based upon the assessment criteria.

9.4.2 The tables below summarise the junctions on this corridor that may require detailed modelling to determine their operation under different scenarios. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.



	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Castle Hill Drive	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ebbsfleet Gateway	No	No	No	No	Likely	Likely	Likely	Likely

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Castle Hill Drive	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ebbsfleet Gateway	No	No	No	No	Likely	Likely	Likely	Likely

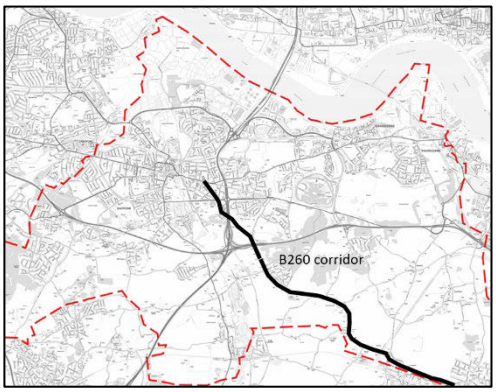
9.4.3 The tables below summarise the junctions on this corridor that may (even if unlikely) require mitigation to be implemented (subject to detailed modelling) as a result of the proposed Local Plan development. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Castle Hill Drive		Possible	Possible	Possible		Possible	Possible	Possible
Ebbsfleet Gateway		No	No	No		Unlikely	Unlikely	Unlikely

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Castle Hill Drive		Unlikely	Possible	Unlikely		Possible	Possible	Possible
Ebbsfleet Gateway		No	No	No		Unlikely	Unlikely	Unlikely

9.5 B260 corridor

9.5.1 The majority of junctions fall within category 1 on this corridor and would require no further assessment for either the Reference Case or Local Plan scenario based upon the assessment criteria.



9.5.2 The tables below summarise the junctions on this corridor that may require detailed modelling to determine their operation under different scenarios. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Princes Road	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Darenth Hill	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Princes Road	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Darenth Hill	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

9.5.3 The tables below summarise the junctions on this corridor that may (even if unlikely) require mitigation to be implemented (subject to detailed modelling) as a result of the proposed Local Plan development. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

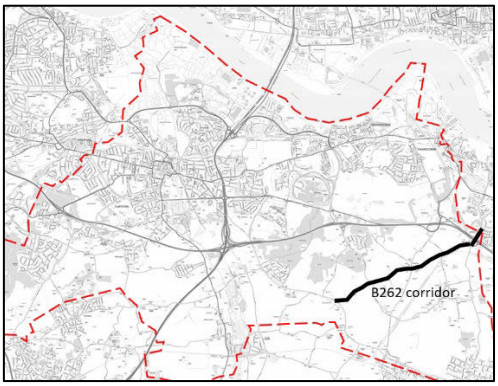
	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Princes Road		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely

Darenth Hill		Unlikely	Unlikely	Unlikely		Possible	Possible	Possible

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Princes Road		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely
Darenth Hill		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely

9.6 B262 corridor

9.6.1 The majority of junctions fall within category 1 on this corridor and would require no further assessment for either the Reference Case or Local Plan scenario based upon the assessment criteria.



9.6.2 The tables below summarise the junctions on this corridor that may require detailed modelling to determine their operation under different scenarios. The top table relates to the “No LTC” scenario and the bottom table the “with LTC” scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Springhead Road	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Springhead Road	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

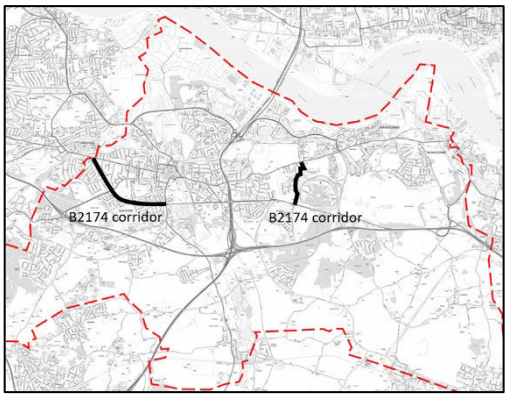
9.6.3 The tables below summarise the junctions on this corridor that may (even if unlikely) require mitigation to be implemented (subject to detailed modelling) as a result of the proposed Local Plan development. The top table relates to the “No LTC” scenario and the bottom table the “with LTC” scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Springhead Road		Unlikely	Unlikely	Unlikely		Possible	Possible	Possible

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Springhead Road		Unlikely	Unlikely	Unlikely		Possible	Possible	Possible

9.7 B2174 corridor

9.7.1 The majority of junctions fall within category 1 on this corridor and would require no further assessment for either the Reference Case or Local Plan scenario based upon the assessment criteria.



9.7.2 The tables below summarise the junctions on this corridor that may require detailed modelling to determine their operation under different scenarios. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Shepherds Lane	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mead Road	No	No	No	No	Yes	Yes	Yes	Yes
Lowfield Street	Likely	Likely	Likely	Likely	Yes	Yes	Yes	Yes

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Shepherds Lane	Likely	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mead Road	No	No	No	No	Yes	Yes	Yes	Yes
Lowfield Street	Likely	Likely	Likely	Likely	Yes	Yes	Yes	Yes

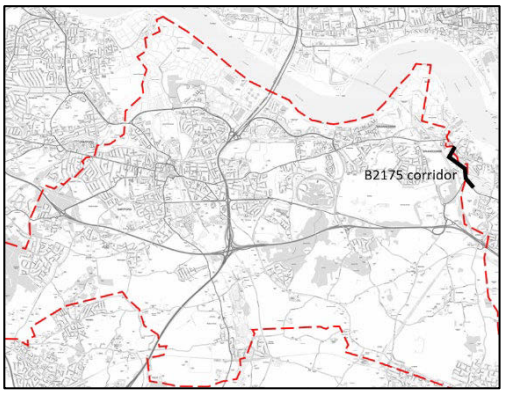
9.7.3 The tables below summarise the junctions on this corridor that may (even if unlikely) require mitigation to be implemented (subject to detailed modelling) as a result of the proposed Local Plan development. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Shepherds Lane		Possible	Possible	Possible		Possible	Possible	Possible
Mead Road		No	No	No		Unlikely	Unlikely	Unlikely
Lowfield Street		Unlikely	Unlikely	Unlikely		Possible	Possible	Possible

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
Shepherds Lane		**Likely**	Possible	**Likely**		Unlikely	Unlikely	Unlikely
Mead Road		No	No	No		Unlikely	Unlikely	Unlikely
Lowfield Street		Unlikely	Unlikely	Unlikely		Possible	Possible	Possible

9.8 B2175 corridor

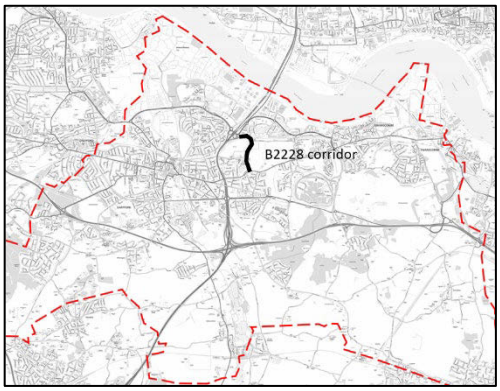
9.8.1 All junctions fall within category 1 on this corridor and would require no further assessment for either the Reference Case or Local Plan scenario based upon the assessment criteria.



9.9 B2228 corridor

9.9.1 All junctions (except one) fall within category 1 on this corridor, and would require no further assessment for either the Reference Case or Local Plan scenario based upon the assessment criteria.

9.9.2 The table below summarises the junctions on this corridor that may require detailed modelling to determine their operation under different scenarios. The table below relates to the "with LTC" scenario. The "no LTC" scenario does not register any junctions that may need detailed modelling.



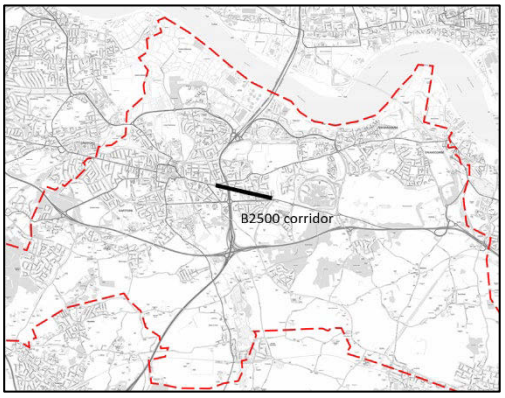
	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
London Road	No	Likely	Likely	Likely	No	No	No	No

9.9.3 The analysis completed demonstrates that no junctions on this corridor are likely to require mitigation to be implemented as a result of the proposed Local Plan development.

9.10 B2500 corridor

9.10.1 The majority of junctions fall within category 1 on this corridor and would require no further assessment for either the Reference Case or Local Plan scenario based upon the assessment criteria.

9.10.2 The tables below summarise the junctions on this corridor that may require detailed modelling to determine their operation under different scenarios. The top table relates to the "No LTC" scenario and the bottom table the "with LTC" scenario.



	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
St Vincent's Road	No	No	No	No	Yes	Yes	Yes	Yes
Hillhouse Road	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
St Vincent's Road	No	No	No	No	Yes	Yes	Yes	Yes
Hillhouse Road	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely

9.10.3 The tables below summarise the junctions on this corridor that may (even if unlikely) require mitigation to be implemented (subject to detailed modelling) as a result of the proposed Local Plan development. The top table relates to the “No LTC” scenario and the bottom table the “with LTC” scenario.

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
St Vincent's Road		No	No	No		Unlikely	Unlikely	Unlikely
Hillhouse Road		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely

	AM peak				PM peak			
Junction	**REF**	**PREF**	**15%**	**30%**	**REF**	**PREF**	**15%**	**30%**
St Vincent's Road		No	No	No		Unlikely	Unlikely	Unlikely
Hillhouse Road		Unlikely	Unlikely	Unlikely		Unlikely	Unlikely	Unlikely

10 Summary

10.1.1 Stantec have been appointed by DBC to provide strategic modelling evidence in support of their emerging Local Plan. On current information, DBC considers that the existing permissions and identified sites will be capable of delivering the new homes and employment required to meet local housing and employment need.

10.1.2 DBC have been provided with the DCLTAM by National Highways. Stantec's remit is to review and update the DCLTAM to create a base year model and forecast year model and use this for Local Plan option testing.

10.1.3 This report relates to the output derived for the Preferred Local Plan scenario. Although a single Local Plan scenario has been tested, the model allows for further scenario testing if required. The Preferred Local Plan option has been developed by DBC.

10.1.4 The Stage 3a methodology report sets out the details of the assessment methodology adopted within this Stage 3b report. The purpose of this Stage 3b report is to present the assessment of the Preferred Local Plan option compared to the Reference Case and the subsequent findings with respect to the effect on the highway network.

10.1.5 This report summarises the land use schedules assessed for the Reference Case and Preferred Local Plan scenario. It is noted that the Preferred Local Plan scenario has an increased number of residential units and non residential floorspace when compared to the Reference Case scenario. Both the Reference Case and Preferred Local Plan scenarios have a lower level of non-residential land uses compared with DCLTAM for the reasons for which have been explained.

10.1.6 The potential traffic generation from each scenario has been calculated by multiplying the land use quanta associated with each modelled zone by the appropriate land use urban / suburban trip generation rate. This has been undertaken for morning and evening peak hours and with and without the LTC implemented. It is noted that the Preferred Local Plan option is predicted to generate more vehicle trips than the Reference Case scenario for both peak hours. A 15% and 30% mode shift scenario have also been developed.

10.1.7 Output has been extracted from the SATURN model runs for a total of 4 Reference Case models assignments and 12 Preferred Local Plan model assignments. Demand flow data, in PCUs, and V / C statistic data, in %, has been extracted.

10.1.8 The analysis for the SRN and the LRN is different, reflecting the more complex (exploded) nature of the junctions on the SRN. For most of the LRN a 'single-node' arrangement is used in the DCLTAM, whilst for the SRN junctions multiple nodes are used to reflect the large grade-separated junctions with internal links and movements.

10.1.9 The assessment completed provides an overview of the traffic movements within the Borough as a result of the various scenarios tested. The outputs allow identification of locations where the operation of particular junctions is expected to deteriorate as a result of the scenario being considered and is hence valuable in determining locations where mitigation measures may be required.

10.1.10 However, it is recognised that the use of the strategic LTAM model to determine the location and magnitude of a scenario's effect, would need to be supplemented with more detailed modelling to confirm whether mitigation is indeed required at a specific location, and the extent of that mitigation.

10.1.11 With respect to the SRN, the key findings are as follows :

- M25 (A282) J1a – Further detailed studies of this junction may be necessary to demonstrate its ability to serve Reference Case and Preferred Local Plan development. This may require a detailed modelling exercise of this junction to be completed using stand alone junction modelling software or microsimulation modelling software. With respect to serving the Preferred Local Plan development, a detailed modelling review of the Cotton Lane arm may be required.

- M25 (A282) J1b – It is concluded that the junction is predicted to operate within capacity under Reference Case conditions and that the addition of the Preferred Local Plan traffic, whilst increasing traffic flows, does not increase junction links or entry nodes to a V/C value greater than 100%. On this basis it is not anticipated that the implementation of the Local Plan would have a significantly detrimental effect on the operation of Junction 1b compared to the Reference Case.

- M25 (A282) J2 – It is concluded that the junction is predicted to generally operate within capacity under Reference Case conditions and that the addition of the Preferred Local Plan traffic, whilst increasing traffic flows, does not increase junction links or entry nodes to a V/C value greater than 100%. The exception to this is the indication that the M25 southbound on slip entry may exceed capacity during the morning peak hour under Reference Case and Local Plan scenarios. This may require a detailed modelling review as Local Plan development comes forward. Nevertheless, based upon the modelling review above, it is not anticipated that the implementation of the Local Plan would have a significantly detrimental effect on the operation of Junction 1b compared to the Reference Case.

- A2 / A2018 assessment - Further detailed studies of this junction may be necessary to demonstrate its ability to serve Reference Case and Preferred Local Plan development. This may require a detailed modelling exercise of this junction to be completed using stand alone junction modelling software or microsimulation modelling software.

- A2 Bean interchange - Further detailed studies of this junction may be necessary to demonstrate its ability to serve Reference Case and Preferred Local Plan development. This may require a detailed modelling exercise of this junction to be completed specifically in relation to the south roundabout using stand alone junction modelling software or microsimulation modelling software.

- A2 Ebbsfleet interchange – The findings show that the principal issue with this junction relates to the east roundabout access road serving the Ebbsfleet development. Further detailed studies of this junction will be carried out as the Ebbsfleet development comes forward to ensure that there is sufficient capacity at this junction to serve the planned development without causing significant adverse effect on the strategic road network.

- A2 Pepper Hill interchange - The junction is predicted to operate within capacity under Reference Case conditions and the addition of the Preferred Local Plan traffic, whilst increasing traffic flows, does not increase junction links or entry nodes to a V/C value greater than 100%. On this basis, it is not anticipated that the implementation of the Local Plan would have a significantly detrimental effect on the operation of the junction compared to the Reference Case.

10.1.12 With respect to the LRN (A roads and B roads) node based data has been extracted from the models and presented for demand flow in PCUs, and turn based data has also been extracted, for each junction, with respect to the number of turns at each junction where V/C exceeds 100%.

10.1.13 Assessment criteria has been adopted to categorise junctions based upon the overall modelled performance of the junction (turn based) with respect to the number of turns where V/C > 100%.

10.1.14 Each junction has been given a category number between 1 and 4 based upon the criteria. The categories assigned to each junction have been compared between scenarios. The objective of the comparison is to determine whether implementation of the Local Plan moves specific junctions from their Reference Case category, and whether this move means an operational benefit or disbenefit to that junction.

10.1.15 The tables presented indicate whether detailed modelling is likely to be required to assess local junctions, either for Reference Case performance or Local Plan performance.

10.1.16 The tables presented also indicate whether mitigation measures are potentially required (subject to detailed modelling) as a result of Local Plan implementation. The LRN junctions where this applies are listed below for reference.

- A206 / Galleon Boulevard
- A225 Lowfield Street / B2174 Princes Road
- A225 / Parsonage Lane
- A226 / Park Road
- A226 / Great Queen Street
- A226 / Cotton Lane
- A226 / Hillhouse Road
- A296 / The Brent
- A2018 Shepherds Lane / B2174 Princes Road
- B255 / Castlebridge Drive
- B255 / Mounts Road
- B255 Southbound to Bean
- B260 / Darenth Hill
- B262 / Springhead Road

Figures

Appendix A

A282 demand flows

Appendix B

A282 V/C statistic

Appendix C

SRN V/C turning statistics

Appendix D

A2 demand flows

Appendix E

A2 V/C statistic

Appendix F

Local highway demand flows

Appendix G

LRN V/C turning statistics

Appendix H

Local road performance categories

Appendix I

Need for additional modelling

Appendix J

Potential need for mitigation