

**LAND OFF PUMP LANE
RAINHAM
KENT
ME8 7TJ**

**TOWN AND COUNTRY PLANNING ACT 1990
APPEAL REFERENCE: APP/A2280/W/20/3259868**

APPEAL BY A C GOATHAM & SON

INQUIRY DOCUMENT: East Hill Development MC/19/0765

PREPARED BY: Simon Tucker

15/04/2021

INQUIRY DOCUMENTS REF: ID 37

1. Following the adjournment of the public inquiry, Medway Council has determined a planning application on Land at East Hill (ref. MC/19/0765). Mr Jarvis refers to this application in his (first) proof of evidence (at para 4.3) .
2. The officer's report to Committee (dated 3rd March 2021) and Transport Assessment (text) for the application is appended (since these were not provided by Mr Jarvis, but he is presumed to know of the application).
3. The Appellant draws attention in particular, to:
 - a) The application was not refused on highways grounds;
 - b) Pages 32 – 33 of the Officers Report confirms that the then applicant undertook an approach of considering MAM derived flows, providing a consideration of net changes in traffic flows from the model, and then providing individual junction models (Arcady and Linsig) of each junction;
 - c) The approach is confirmed in the application Transport Assessment (appended) at paras 6.3.1 – 6.3.4.
4. The Appellant accordingly invites the Inspector to note that the approach advocated in the TA is aligned with the Appellant's in this appeal.

15 April 2021

**Simon Tucker
DTA Associates**

(On behalf of the Appellant)

MC/19/0765

Date Received: 22 March 2019
Location: Land At East Hill Chatham
Kent
Proposal: Outline planning application with some matters reserved
(appearance, layout, scale and landscaping) for construction of
up to 800 dwellings, primary school, supporting retail space of up
to 150sqm and GP surgery with associated road link between
North Dane Way and Pear Tree Lane and other road
infrastructure, open space and landscaping.
Applicant F D Attwood & Partners
Agent Hume Planning Consultancy Ltd
Innovation House
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Ward: Lordswood And Capstone Ward
Case Officer: Karen Cronin
Contact Number: 01634 331700

Recommendation of Officers to the Planning Committee, to be considered and determined by the Planning Committee at a meeting to be held on 3rd March 2021.

Recommendation - Refusal

- 1 The proposal constitutes a large scale urban development within the countryside and located on greenfield land, which is not allocated for the proposed use. The application site is located within the rural area but does not essentially require a rural location. The proposal would result in an inappropriate form of development within a locally valued landscape that would harm the character, function and appearance of the countryside, Area of Local Landscape Importance, setting of Capstone Farm Country Park and the rural footpath network. The proposal would result in irreversible loss of important and valued open and green space within this part of Medway. The proposal is contrary to Policies S1, S2, BNE1, BNE2, BNE25, BNE34, L9 and L10 of the Medway Local Plan 2003 and paragraph 127 and 170 of the NPPF
- 2 The proposed quantum of development is considered to be inappropriate for this rural location. The overall scale and layout is an overdevelopment of the site that

would result in an intrusive and dominant form of development and visual erosion of this important landscape character setting and countryside location, giving rise to substantial harm to the much valued landscape character of the countryside, Area of Local Landscape Importance, setting of Capstone Farm Country Park and public rights of way. The density and building heights of over 2 storeys set out in the parameter plans would be considered incongruous and out of keeping with the countryside setting. The proposal is contrary to Policies S1, S2, BNE1, BNE2, BNE25, BNE34, L9 and L10 of the Medway Local Plan 2003 and paragraph 127 and 170 of the NPPF

- 3 The proposal would result in a significant impact on residential amenity of properties adjacent to the site, particularly to the occupants of Carlton Crescent. Due to the topography of the land rising sharply from Carlton Crescent to the site any development in this part of the site has the potential to have a significant impact on these residents. The proposal is contrary to Policies S1, S2, BNE1 and BNE2 of the Medway Local Plan 2003 and paragraph 127 and 170 of the NPPF

For the reasons for this recommendation for [approval/refusal] please see Planning Appraisal Section and Conclusions at the end of this report.

For the reasons for this recommendation for refusal please see Planning Appraisal Section and Conclusions at the end of this report.

Proposal

The proposal is an outline application with some reserved matters for construction of up to 800 dwellings, a primary school, supporting retail space of up to 150sqm and community facility with associated road link between North Dane Way and Pear Tree Lane and other road infrastructure, open space and landscaping.

The proposed access is for consideration. This details 2 primary access points, the first from the existing roundabout on Capstone Road and the second from North Dane Way to form a new link road. The additional arm to the Capstone road roundabout will include additional land take and will close the existing Capstone road arm onto the roundabout. There will also be a secondary access on Capstone Road. This will then enable Capstone Road to be re routed at this point, into the application site and then down to the enlarged roundabout. There will also be a further access onto North Dane Way to the south of the site to serve a divorced section of the proposed development.

Details relating to appearance, landscape, layout and scale have all been reserved for future consideration. Although all matters other than means of access have been reserved for future consideration, the application is accompanied by an illustrative masterplan which shows the intended general distribution of development across the site.

The proposed development would include:

- The provision of a new link road with primary access points and road infrastructure throughout the site via Capstone Road and North Dane Way
- The provision of up to 800 homes
- Land for a new two form entry primary school
- New local shops within the development
- Land for a community facility
- Three new play areas
- Pedestrian and cycle networks throughout the site
- Existing public right of way network integrated into the site
- Enhanced links with Capstone Country Park
- Improvements to the woodland areas

Although this is an outline application, the Design and Access Statement states that there will be a range of tenures and housing typologies with a range of different characters to reflect the surrounding area. The proposal will provide 25% affordable homes. The submitted Design Development Guide sets out different character areas within the development with potential house types and materials. The Design Guide and Design and Access Statement accompanying the application indicates that the proposed houses would predominantly be two storeys in height, with some 3 storey town houses and apartment blocks up to 4 storeys high in the urban part of the site. The density is between 25 - 50 dwellings per hectare in the developable parts of the site.

Site Area/Density

Site Area: 49.75 hectares (122.93 acres)

Site Density: 16.1 dph (6.51 dpa)

Relevant Planning History

MC/18/2827	Town and Country Planning Act (Environmental Impact Assessment) Regulations 2017 - request for a screening opinion for a residential/mixed use scheme Decision: EIA required 18 October 2018
MC/18/3478	Town and Country Planning Act (Environmental Impact Assessment) Regulations 2017 - request for a screening opinion for a residential/mixed use scheme Decision: EIA required 18 December 2018

Representations

The application has been advertised on site and in the press and by individual neighbour notification to the owners and occupiers of neighbouring properties.

Amenity

There are a number of residential dwellings adjacent to the application site, most notably on Carlton Crescent and Capstone Road. At outline stage it is difficult to assess the full potential impact of the proposals on these properties. However, it does appear that the indicative layout could have a significant impact on the residential amenity of the properties adjacent to the site. It is considered that due to the topography of the land that the impact on the residential dwellings along North Dane Way is likely to be minimal.

The closest residential properties are located on the south side of Carlton Crescent and Capstone Road adjoining the site. These would be most impacted by the Hale character area as set out in the DAS. Due to the topography of the land rising steeply behind Carlton Crescent, as can be seen clearly to the rear of the houses, there is potential for a significant impact on these existing dwellings from the site. The illustrative layout shows this area closest to these properties with SuDs, landscaping and housing in this location, which would appear to be very imposing and their daylight, outlook and privacy are likely to be negatively affected. It is considered that the illustrative layout would need to be amended significantly to reduce the impact on these dwellings.

The amenity of prospective residents of the development is less of a consideration within this outline application as the plans are not detailed to an extent where this could be fairly assessed. Proximity to neighbouring residents, rear garden amenity, housing sizes and privacy and layout of plots is in no way specified so would be a matter that would be assessed in detail if this application were to progress to a detailed stage. The applicant has stated that the dwellings would meet the standards set out in the Government's Technical Housing Standards 2015.

Paragraph 127(f) of the NPPF states that decisions should ensure that developments:

“create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users; and where crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion and resilience.”

The proposed development could potentially have an unacceptable impact on the amenity of existing properties adjacent to the site in terms of daylight, sunlight, outlook and privacy based on the indicative masterplan and as such the application is contrary to Policy BNE2 of the Medway Local Plan 2003 and paragraph 127 of the NPPF.

Highways

The application is in outline form with the matter of site accesses to be considered as part of the current application. The site is proposed to be accessed from three locations, two of which are served by a new link road which is proposed through the site connecting North Dane Way to the west and Capstone Road to the east. A further access is proposed onto North Dane Way to a separate parcel of development to the south.

The two access points from North Dane Way are proposed to be standard roundabouts. The junction to the north will form a four arm arrangement with North Dane Way and Princes Avenue. The site access arm will connect with Sharsted Road via a new priority junction within the site and therefore the proposed roundabout will replace the existing adjacent roundabout.

The southern access junction on North Dane Way is formed of a three arm roundabout providing access to a separate parcel of development.

A new roundabout junction is proposed at the eastern end of the link road which will form a four arm arrangement with Capstone Road as the northern arm and Pear Tree Lane as the eastern arm. The western arm is proposed as an access spur to a separate parcel of development. The southern arm is formed of the proposed link road.

The proposal includes a Transport Assessment (TA) as part of the Environmental Statement and a number of Road Safety Audits (RSA) have been submitted as part of this application. The applicant used Medway Council's AINSUM transport model that has been used to inform the emerging Local Plan.

Since the submission of the application, the applicants have provided additional technical documents to cover concerns raised by the Highways Authority relating to localised highways issues and Highways England relating to the Strategic Road Network (SRN).

Strategic Road Network

The modelling assessment outlines additional traffic at A2045/B2097, however this falls outside the Medway Boundary. Highways England do not consider that this development in the vicinity of the M2, which forms part of the SRN, will result in a material impact on the safe and efficient operation of the SRN.

They are satisfied with the information provided, which is sufficient to conclude that the level of additional trips hitting the SRN in the peaks is not of a sufficient level in itself to warrant concern regarding the potential impact of the development on the SRN.

However, it should be noted that the site does contribute to the cumulative impacts on the network and it will therefore be for the consideration of the Highway Authority whether to seek a contribution towards any necessary highway improvements. This is addressed in detail below.

Local Highway Network

The site is proposed to be accessed from three locations, two of which are served from a new link road which is proposed through the site connecting North Dane Way to the west of the valley with Capstone Road to the east. A further access is proposed to a separate parcel of development to the south of the overall development site.

The TA provides a description of the baseline traffic conditions in the local area and summarises the existing traffic flows, vehicular speeds, observed queues and daily variations in traffic flows. The results of the traffic surveys undertaken identify AM and PM peak periods as 08:00 – 09:00 and 17:00 – 18:00 respectively.

In relation to the three site accesses, Drawings No. 17-035-013 and 17-035-016 Rev A set these out. Each of the accesses would be provided via a roundabout. In order to implement the arrangements it will be necessary for the applicant to enter into a Section 278 Agreement with the Council, which incurs a two stage design checking process.

Policy T1 of the Local Plan relates to assessing the highways impact of development. Proposals will be permitted provided that the network has adequate capacity to cater for traffic generated; it will not add to the risk of road traffic accidents; not generate significant HGV movements on residential streets; and result in traffic movements at unsociable hours in residential streets.

Policy T2 of the Local Plan relates to access to the highway. Proposals which involve the formation of a new access, will only be permitted where it is not detrimental to the safety of vehicle occupants, cyclists and pedestrians or can be improved to a standard acceptable to the Council. This is reinforced by paragraph 108 of the NPPF which states that:

In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

- a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
- b) safe and suitable access to the site can be achieved for all users; and*
- c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.*

It is intended to meet the car and cycle parking standards set out in the Residential Parking Standards in compliance with Policy T13 of the Local Plan.

In order to assess the impact of the proposal on the local highway network it is necessary to forecast the travel demand and the forecast vehicle trips were inserted into the AINSUM transport model.

Development Trip Generation, Trip Distribution and Assignment

The level of trips that will be generated by the proposed development has been estimated by reference to the TRICS database. The assessment has estimated the proposed development would generate a total of 563 vehicular trips in the AM peak and 429 vehicular trips in the PM peak.

For context, under planning permission MC/18/0556 for Gibraltar Farm, up to 284 vehicles in each peak hour period were permitted and therefore consideration is given to the level of trips above this level to determine whether this proposal would result in a severe impact on the highway network.

The difference between the two applications (from a residential view) during the morning peak would be an additional 25 vehicles every 10 minutes and in the evening peak would be an additional 15 vehicles every 10 minutes.

The significant variation between the number of vehicles in the morning peak and evening peak is due to the primary school opening hours.

The TA outlines that 241 pupils will be external from the development, therefore using travel to school data (mode of transport), it outlines that 40% of pupils are driven and therefore 96 additional trips need to be added. It has been assumed that all pupils from the development would either walk or already be accounted for in the residential trip rates. In relation to staff vehicle trips, it is considered that 20 trips would occur in the peak hour taking into account travel modes and type of staff i.e support staff like teaching assistants. This gives an overall 116 trips (arrivals) and 96 (departures) in the morning peak. Due to the School opening hours, only 16 trips are seen within the PM peak.

Trip Impact

The TA considers the impact of the estimated additional traffic that would be generated by the proposed development on the local transport network. The applicant has used Medway's Aimsun Model.

The model covers the Medway road network enabling the simultaneous modelling of traffic impacts and possible mitigation strategies at the Macro and Micro scale. Committed developments and some highway schemes have been incorporated in order to undertake the strategic transport assessment with the future year reference case being 2035 (in line with the current Local Plan). Therefore the applicant's traffic impact assessment covers

- Do Minimum- incorporates growth as outlined within the Local Plan with no transport infrastructure
- With Development – as the above scenario but including the proposal and proposed mitigation

In relation to trip distribution, the model assigns vehicle trips to the network onto the most appropriate route between origin/destination points taking into consideration available routes and network delays.

Due to the location of the development, 21 off site junctions have been reviewed regarding impact resulting from the development, with the applicant proposing improvements at

- Luton High Street, Capstone Road, Street End Road
- Pear Tree Lane, Hempstead Road, Hempstead Valley Drive
- Walderslade Road, Princess Avenue
- Ham Lane/Shawstead Road
- Prince Charles Avenue/Princes Avenue

The applicant has provided a Flow Difference diagram which outlined the differences in flow between the two model runs. During the morning peak, the flow diagram demonstrates a significant increase in vehicles using Shawstead Road and Ham Lane. Concerns were raised with the applicant that these roads are single track with few passing places and therefore would be considered unsuitable for this level of vehicle movements. The applicants reviewed this link road under Technical Note (June 2020) and identified mitigation measures involving creating additional passing places for vehicles travelling along Ham Lane/Shawstead Road. Whilst this situation is not considered ideal, it is not expected to result in a severe highway safety impact.

The modelling assessment also highlighted concerns regarding Prince Charles Avenue and Princes Avenue. Within Technical Note (June 2020) the applicant has provided drawing 17-035-029 Rev 0 which outlines local widening to provide sufficient width for two cars at the give-way line.

The other additional highway improvements schemes are considered to be acceptable in principle and subject to final details being secured via condition. It is intended that these highway works should be completed before 25% of the development is occupied.

The new link road across the Capstone valley From the Pear Tree Lane to North Dane Way will relieve significant pressure off Capstone Road and the roundabout to the north of North Dane Way. This results in a material benefit to the highway network.

Therefore it is considered that with the mitigation measures proposed the application, on balance, does not result in a severe impact on the Medway's highway network.

Accessibility

The TA provides information on existing walking, cycling and bus routes in the vicinity of the site. It shows the key destinations and outlining local facilities within the vicinity. An isochrones graph showing facilities that could be reached by walking in 15 and 30 minutes, as well as a cycle isochrones covering the same time period, has been provided.

The applicant has provided information to shows bus routes, however this does not focus on the immediate vicinity of the application site. It is accepted that there are bus services that run in the vicinity of the site but they are irregular. The applicant has subsequently provided an additional drawing showing pedestrian isochrones for 1 mile (1.6km) and 2miles (3.2km).

The nearest railway station is at Gillingham, located approximately 3km from the site. The rail station provides services into Chatham, Rochester and London stations to the west, with Rainham, Sittingbourne and Canterbury to the east. There is also the high speed link to London St Pancras which runs hourly. It is noted that Chatham is approximately 3.5km away which has similar services and may be more attractive for those commuting to London.

Sustainable modes of transport

Pedestrian/Cycle Access

The TA indicates that suitable on-site facilities for pedestrians and cyclists would be provided as part of the development and integrated with the existing provision on the local highway network. Details for the necessary facilities could be secured by planning condition and submitted as part of any future 'reserved matters' application.

Since the submission of the application, a focus has been set out by central government to improve cycling infrastructure. Due to the site's location, it is considered that a significant opportunity arises to increase uptake in cycling as a primary mode of transport and therefore a contribution of £113,500 to improvements to the cycle network has been requested. The contribution could help create a new segregated cycleway along North Dane Way as well as providing improved leisure routes from Darland to Capstone.

Subject to the above, it is considered that the proposed development provides a suitable means of pedestrian, cycle and vehicular access in accordance with Policies T2, T3 and T4 of the Medway Local Plan.

Public Transport

The site is reasonably well served by public transport, albeit irregular. The TA indicates that the completed development would allow bus services to travel through the site. The provision of on-site public transport infrastructure, comprising bus stops and shelters, could be secured at the reserved matters stage. It is therefore considered appropriate for the existing bus services to be improved to accommodate the additional demand generated by the development and promote sustainable transport in accordance with the NPPF. A contribution of £404,768 has been requested. A bus voucher scheme has also been recommended.

Travel Plan

The Framework Travel Plan (FTP) has been assessed. Whilst the quality of the FTP is generally good, it still requires some amendments before it can be approved, including targets, schemes to encourage sustainable transport methods, action plan, Site-Wide Travel Plan Manager (SWTPM) and monitoring. It should also include a commitment for the School Travel Plan Champion to liaise with Medway's school travel plan team and

occupier Travel Plans should commit to outlining delivery movements and operational hours..

Road Safety

The applicant has included 4 years of recorded Personal Injury Accident data from 2013 to 2017 . The applicant has provided additional information providing a map of the overall area considered. It does not appear that there are any patterns in relation to the accidents other than driver error.

The proposal has been considered in relation to the proposed access arrangements and highway and pedestrian safety generally. No objection to the principle of this development have been raised in the light of this highway consideration. Paragraph 109 of the NPPF states that development should only be refused on highways grounds if there is an unacceptable impact on highway safety. Whilst it is considered that the development would result in an impact on the network, it is not considered to result in a severe impact that would be sufficient to warrant refusal of the application.

The proposal will not result in any detrimental increase in risk to highways or pedestrian safety. It can also provide a suitable means of pedestrian, cycle and vehicular access. The proposal is considered to be acceptable in terms of Policies T1, T2, T3, T4, T6 and T13 of the Medway Local Plan 2003 and paragraphs 102, 103, 104, 109 and 110 of the NPPF subject to conditions relating to access details, highway improvements, electric vehicle charging points and travel plan and developer contributions towards public transport infrastructure, cycle infrastructure and bus vouchers.

Other Planning Considerations:

Loss of agricultural land

The site comprises approximately 48 hectares of open agricultural land and woodland that is classified as 3a (good quality) and 3b (moderate quality) on Natural England's Agricultural Land Classification map. Grade 3a falls into the best and most versatile category but its usefulness is below grade 1 (excellent) and grade 2 (very good), which can be found in other parts of Medway. The proposal will result in the loss of this agricultural land.

Natural England states that 'High quality agricultural land is valued because of its important contribution to food production, and it also offers much greater potential than poorer land for growing alternative fuel/energy crops'. Natural England observes that land protection policy 'is relevant to all planning applications, including those on smaller areas but it is for the planning authority to decide how significant are agricultural land issues ...'

Paragraph 170 of the NPPF requires a balancing of the value of 'the economic and other benefits of the best and most versatile agricultural land' in decision making. Paragraph



Transport Assessment

East Hill, Hempstead Valley

17-035-005 Rev C

April 2019

Document Control Sheet

Project Name:	East Hill, Hempstead Valley
Project Number:	17-035
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Rev	Issue Purpose	Author	Checked	Reviewed	Approved	Date
-	Draft for Comment	MN/CS	SW	SW	JW	13/03/19
A	Interim Version	MN/CS	SW	SW	JW	15/03/19
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6 Traffic Impact Assessment

6.1 Overview

- 6.1.1 New development will inevitably lead to a level of additional vehicular traffic on the local and wider road networks. It is therefore necessary to examine the impact of the development traffic on the local highway network.
- 6.1.2 An assessment of the traffic impact of the development proposals on the surrounding highway network has been undertaken, by MC's consultant Sweco UK Ltd on behalf of the applicant, using comparative outputs from MC's AIMSUN traffic model. Sweco UK Ltd were instructed by the applicant to undertake the modelling work to ensure independence in the process and in order to take advantage of their experience in the modelling work being undertaken on behalf of MC. The forecast scenarios for the horizon year 2035 which have been used for this assessment are set out below:
- Do Minimum – incorporates growth associated with a potential LP strategy and no transport infrastructure;
 - With Development – as per the Do Minimum scenario above + the East Hill development proposals and associated link road and access junction improvements;
- 6.1.3 The relative impact of the development proposals has been determined based upon a holistic, network-wide comparison of the performance of the network between the above scenarios.
- 6.1.4 Forecast junction capacity assessments have been undertaken at the main site accesses for the 2035 With Development scenario. In addition, the relative traffic impact of the development proposals has also been assessed through forecast junction assessments at key junctions on the surrounding highway network using turning movement outputs from the 2035 Do Minimum and With Development AIMSUN model scenarios as the demand inputs to the individual junction models. This approach allows for individual junctions to be analysed, assessed in the context of the relative impact test appropriate for this assessment and considered for mitigation where appropriate. Whilst the Medway model provides a means for assessing the network as a whole, which is presented here, it is more conventional and understandable to review junctions on an individual basis. It also provides a more easily understood summary of the performance than the more abstract, network wide performance outputs.

- 6.1.5 The geographic scope of the assessment of junction has been derived through consideration of all probable routes to and from the site by development generated traffic. Routes to the north, north east and north west as far as the A2 have been considered, along with all junctions in between. To the south, all junctions on the apparent routes up to and including J3 and J4 of the M2 have been included.
- 6.1.6 This gives rise to a total of 21 off-site junctions being subject to individual analysis. Junctions have been included for assessment, irrespective of the net overall traffic increases in order to provide the fullest possible picture of the conditions and in order to allow assessment of the changes in traffic patterns which could derive impact despite overall reductions. The geographic scope of assessment covers the following junction locations:
1. A2/Magpie Hall Rd;
 2. A2/Luton Rd;
 3. A2/Ash Tree Ln;
 4. A2/Courteney Rd/Hoath Way/Twydall Ln;
 5. Luton High St/Capstone Rd/Street End Rd;
 6. Capstone Rd/North Dane Way;
 7. Ash Tree Ln/Beacon Rd;
 8. Ash Tree Ln/Capstone Rd;
 9. Pear Tree Ln/Hempstead Rd/Hempstead Valley Dr (double mini-rdbt);
 10. Hoath Way/Ambley Rd/Hempstead Rd/Courteney Rd/Hoath Ln;
 11. North Dane Way/Lords Wood Ln;
 12. Albemarle Rd/Clandon Rd;
 13. Lords Wood Lane/Albemarle Rd/Dargets Rd;
 14. Walderslade Rd/Princess Ave;
 15. Walderslade Rd/Robin Hood Ln;
 16. A2045 Walderslade Woods/Boxley Rd/Lords Wood Ln/Westfield Sole Rd;
 17. A2045 Walderslade Woods/Fostington Way;
 18. A229 Maidstone Rd/A2045 Walderslade Woods/Rochester Rd;
 19. M2 J3;
 20. Hoath Way/Sharsted Way/Wigmore Rd;
 21. M2 J4;

6.2 Forecast Overall Network Performance

- 6.2.1 Key network performance indicators have been extracted from both of the forecast model scenarios in order to provide a comparison and derive the overall impact of the development proposals. The model covers the whole of the Medway unitary authority area and the overall network performance indicators represent the whole of the modelled area.
- 6.2.2 The network performance indicators used in this assessment are the travel demand, total travel time and total travel distance. The travel demand indicates the level of traffic within the modelled area and responds to the additional development and associated traffic generation in the With Development scenario. The total travel time and total travel distance metrics provide an indication of the level of congestion and delay on the network. As the network becomes congested delays to vehicles result in increased travel times or alternatively vehicles may seek alternative routes to avoid delays which result in increased travel distance.
- 6.2.3 A summary of network performance indicators is provided in Table 6.1 and Table 6.2 below for the AM and PM peaks respectively.

Table 6.1: Network Performance Indicators – AM Peak

Scenario	Traffic Demand (veh)	Total travel Time (hrs)	Total Travel Distance (km)
Do Minimum	41,590	7,626	240,736
With Development	42,206	7,544	239,529

Table 6.2: Network Performance Indicators – PM Peak

Scenario	Traffic Demand (veh)	Total travel Time (hrs)	Total Travel Distance (km)
Do Minimum	46,844	8,460	275,753
With Development	47,260	8,431	272,543

- 6.2.1 The above outputs indicate that, when compared with the Do Minimum scenario, the With Development scenarios, both in the AM and PM peak period, observe a relative increase in traffic demand. This is to be expected as the with development scenario includes additional traffic generating development. The scale of increase is in proportion to the additional development and is relatively small when considering the overall volumes.

- 6.2.2 However, the with development scenario also includes the proposed highway infrastructure in the form of a link road between North Dane Way and Capstone Road/Pear Tree Lane. This was anticipated and proposed to provide improvements to the operation of the local network, and this is reflected in the overall model performance outputs. In both the AM and PM peaks, a small decrease in total travel time and travel distance is noted, despite the net increase in travel demand. This demonstrates that the infrastructure is providing betterment to the operation of the network that, in overall terms, compensates or mitigates the impact of the development with residual benefits.
- 6.2.3 The improvements can be assumed to be achieved by vehicles being able to negotiate the network overall more efficiently, travelling less distance and with less time (and therefore less delay).

6.3 Junction Capacity Assessments

- 6.3.1 As noted above and despite the above outputs, it remains appropriate to assess the performance on the more immediately local network on a junction by junction basis. This is particularly important where the new infrastructure (with the development) may give rise to more apparent local impacts, which while deriving network wide benefits, may be appropriate for mitigation to support these objectives and to operate with no relative severe detriment. Junction capacity assessments have therefore been undertaken using industry standard modelling software PICADY for priority junctions, ARCADY for roundabouts, and LinSig for signalised junctions. Appropriate geometry measurements for each of the junctions have been taken from ordnance survey mapping and traffic signal data has been obtained from MC.
- 6.3.2 The key output from PICADY and ARCADY assessments is the 'ratio of flow to capacity' (RFC). A junction is operating at full capacity when the RFC on one or more arms is 1.0 or greater. A RFC value of 0.85 or less is a general preferred level and indicates that the approach in question is operating within theoretical capacity and has some practical reserve to account for normal fluctuations in traffic conditions and any margins within the assessment method. LinSig provides a similar output for each approach known as the 'Degree of Saturation' and expressed as a percentage.

- 6.3.3 All of the software packages also provide outputs of delay and queuing on each approach to a junction. When reviewing these results, care needs to be taken in comparing this to anecdotal observations. Queues at junction are particularly difficult to compare as there is not one clear definition of what constitutes a queue. The models take hourly demand data and, based on the parameters used in this TA, apply an element of peaking within the peak hour by assuming a 'statistical normal distribution profile' to the hourly demand. For junctions where there is a very flat profile over the hour, this can slightly overstate queueing. However, similarly, this statistical assumption will not represent very acute periods of high demand – or surging. This can lead to a situation where anecdotal evidence of 'queuing' does not fully correlate with the modelling. Considering these factors, queuing and delay are results best applied to the comparison of scenarios within the model, where these variables are the same, rather than seeking to fully compare to anecdotal observations.
- 6.3.4 As noted earlier in this report, the analysis of the network is based on the Medway-wide AIMSUM model framework. This has allowed a comprehensive geographic study area that is not limited to the practicality and viability of an associated data collection exercise. The focus of this assessment is on the relative impact of the development scenario to the forecast Do Minimum and as such current year base modelling is not relevant. More significantly, it should be reiterated that both the Do Minimum and development scenario models include the full Local Plan growth but exclude any assumptions of transport strategy and mitigation for that growth. In this respect, the forecast traffic scenario is very much a worst case and care should be taken in reviewing the 'absolute' performance of these junctions and in general only the relative assessment of the two scenarios is invited.
- 6.3.5 In reviewing the results, it should also be noted that the development includes mitigating infrastructure in the form of the proposed link road. In many cases, this leads to net improvements in the performance of junctions, which is to be expected.
- 6.3.6 The peak hour flows used within the 2035 Do Minimum scenario are shown in **Figure 6.1** and **Figure 6.2**, while the 2035 With Development scenario flows are presented in **Figure 6.3** and **Figure 6.4**.
- 6.3.7 The summary results of the capacity assessments for each junction are detailed below. Full output results of both of the scenarios are provided in **Appendix E**.
- 6.3.8 Based on these results, improvement measures are proposed at a number of junctions. These are discussed in detail in **Section 7** together with capacity assessment results of the proposed junction arrangements.