

DUNTON HILLS

BRENTWOOD

Representations to Brentwood Borough Council
Draft Local Plan, January 2016

Highways and Transportation

March 2016



ceg:

Dunton Hills, Brentwood

Technical Note : Highway Update Note

29th February 2016

1 Introduction

Brookbanks Consulting Limited (BCL) is commissioned by CEG Land Promotions Ltd (CEG) Ltd to provide technical advice to support the promotion of a development at Dunton Hills, Brentwood.

BCL have provided support over the last few years and have reviewed the opportunities across a number of engineering disciplines. This support has resulted in several technical notes that demonstrate the deliverability of the site.

The purpose of this note is to highlight the highways and transport opportunities.

2 Highway Opportunities

Access Strategy

The development will deliver 2,500 dwellings together with supporting land uses. The access strategy is fundamentally based on the quantum of development.

Typically, developments of less than 300 to 400 dwellings can be served from a single point. A development of this order will require two points, which will be delivered in conjunction with the phased delivery of the development. The site is bound to the west by the A128, this provides clear opportunities to access the site. The characteristics of the A128 have been reviewed; this had indicated that the two necessary access points can be delivered.

At the time of writing, the access points are likely to be signal controlled junctions, as indicated below.

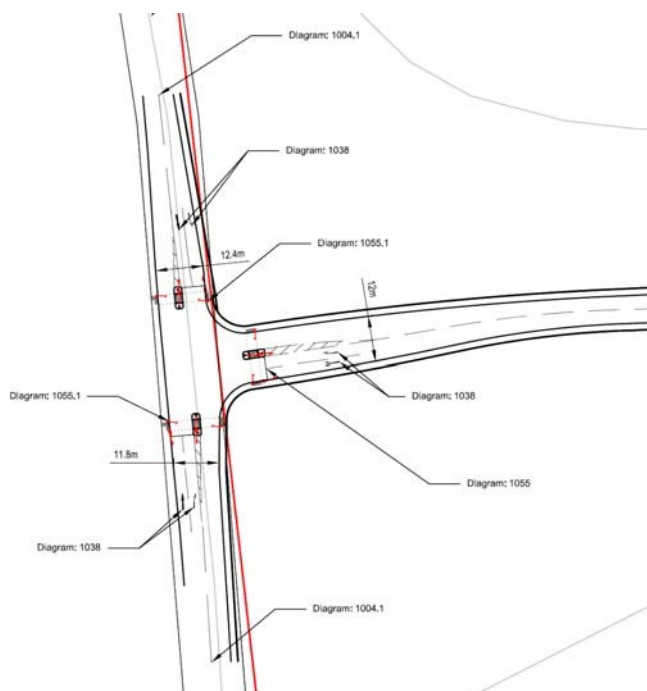


Figure 2a: Southern A128 access option

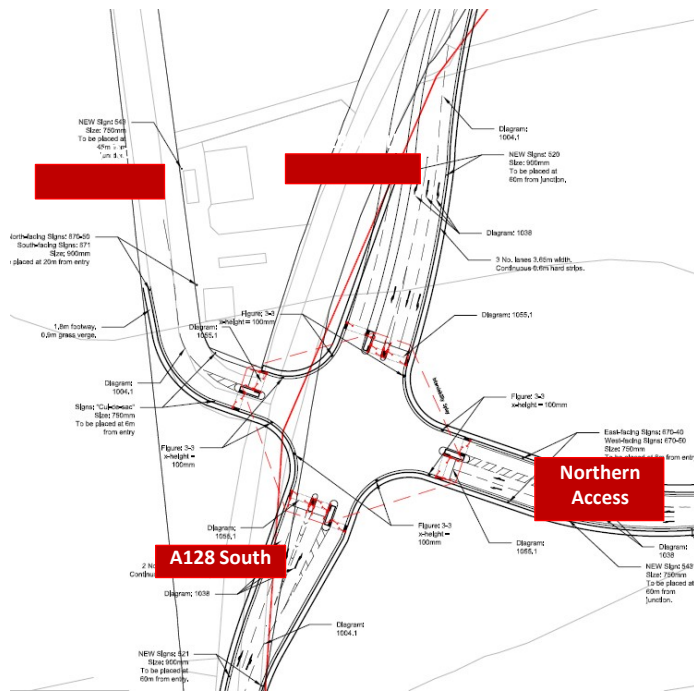


Figure 2b: Northern A128 access point

The access points have been designed to comply with Design Manual for road Bridges (DMRB). This demonstrates that the design of the access points follows sound design principles, ensuring the delivery of safe means of access.

The operation of the site access junctions have been assessed through Linsig. This has been tested for a range of development scenarios. The results of the Linsig assessment are presented below.

Link				
A128 (Northbound) Approach	87.6%	32.4	72.0%	18.8
Northern Access Road	88.3%	16.4	87.4%	9.1
A128 (Southbound) Approach	82.7%	23.9	89.9%	30.8
Tilbury Road	0.0%	0	0.0%	0

Figure 2c: Linsig results – Proposed traffic signals for northern site access with A128

Link				
A128 (Southbound) Approach	81.5%	25.8	88.0%	31.4
Southern Site Access	84.8%	11.7	84.9%	7.2
A128 (Northbound) Approach	84.7%	30.7	86.2%	31.0

Figure 2d: Linsig results – Proposed traffic signals for northern site access with A128

The acceptable threshold for capacity is a degree of Saturation of 90%. The results above indicate that both of the site access junctions do not exceed this threshold level. Therefore, this demonstrates that the site access points will operate satisfactorily.

Off site Highway Impact

In addition to the site access points, it is also important to ensure the continual safe operation of the wider road network. Therefore, through discussions with Essex County Council (ECC) BCL identified and assessed the off site junctions most likely to be affected by the development. This included the following locations:

Location 1 – Junction 29 of the M25 Motorway

Location 2 – A127 / A128 grade separated junction

Location 3 – A127 / B148 grade separated junction

Location 4 – A128 / Station Road

Location 5 – A128 / A13 grade separated junction

Location 6 – Brentwood Road Mini roundabouts junctions with Running Waters and The Avenue

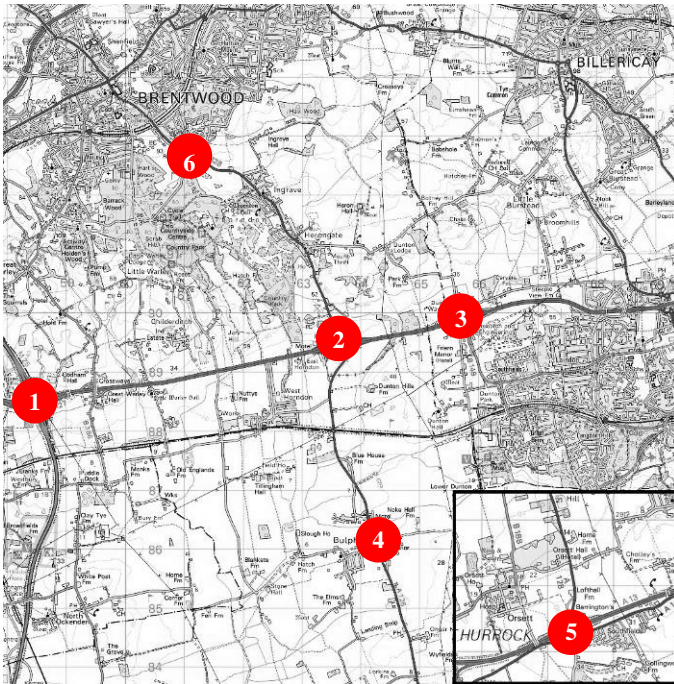


Figure 2e: Off site locations

The junctions identified above were all assessed in line with national guidelines. This indicated how the junctions would operate in the future with the development and identified those junctions that operate satisfactorily and those that require improving. A summary of the off site junction assessments are presented below for the following scenarios:

Scenario 1 – Future year with development, existing layout

Scenario 2 – Future year with development, improved layout

Junction	Scenario 1	Mitigation Required	Scenario 2	Acceptable operation
Junction 29 of the M25 Motorway	85.3%	No	n/a	9
A127 / A128 grade separated junction	208.2%	Yes	88.6%	9
A127 / B148 grade separated junction	67.6%	No	n/a	9
A128 / Station Road	205.2%	Yes	87.1%	9
A128 / A13 grade separated junction	113.9%	Yes	81.1%	9
Brentwood Road Mini roundabouts junctions with Running Waters and The Avenue	152.7%	Yes	89.0%	9

Figure 2f: Off site junction assessment summary

A number of junctions across the Local Road Network and Strategic Road Network have been assessed that could potentially be affected by the development proposals. Where appropriate, intervention works are promoted to support the development growth promoted in this Phase scenario.

Those junctions most likely to be effected by the proposed development have been assessed. The result of the assessment indicates that the junctions will operate satisfactorily with the additional traffic generated by the development as the maximum RFC values all fall below the 0.85 threshold or the 90% threshold for traffic signals. However the following junctions require mitigation:

- Location 2 – A127 / A128 grade separated junction – traffic signals and minor widening on the approach arms.
- Location 4 – A128 / Station Road – traffic signals and minor widening on the approach arms.
- Location 5 – A128 / A13 grade separated junction – minor widening on the approach arms.
- Location 6 – Brentwood Road Mini roundabouts junctions with Running Waters and The Avenue – traffic signals.

When assessed with the mitigation, all the identified junctions operate within capacity.

Peter Brett Associates Assessment Work

Peter Brett Associates (PBA) have been commissioned by Brentwood Borough Council (BBC) to assess the impact of options for strategic development within Brentwood Borough. This included an assessment of the following strategic expansion areas:

Option 1 – Dunton Hills

Option 2 – West Horndon extension

Option 3 – North of Brentwood

Option 4 - Land East of Running Waters, Brentwood

A spreadsheet-based approach was used to assess the potential impact of vehicle trips generated by each of four development options that were formulated by BBC as part of Brentwood's LDP (Local Development Plan). PBA assessed a number of junctions within the highway network for the four expansion areas. The PBA assessment identified those junctions that would require enhancing following the delivery of the strategic expansion areas.

The PBA assessment concluded that:

“Overall it appears that Option 1 and 4 have resulted in lower RFC/Degree of Saturation values in general when compared to the other two options.”

This demonstrates that the development at Dunton Hills should be supported from a highways perspective.

Junction Assessment Summary

The PBA assessment identified the junctions that needed improving, concluding overall that it appears that the Dunton Hills expansion area resulted in lower RFC/Degree of Saturation values in general.

The assessment carried out by BCL assessed the junctions closest to the development, identifying that appropriate mitigation can be delivered.

3 Sustainable Travel Patterns

For developments to be successful, it is essential the proposals maximise opportunities to use local amenities, access local employment opportunities and to use sustainable transport. To deliver the site from a sustainable standpoint, a comprehensive strategy can be delivered which will minimise the need to travel and will consider how future residents will travel from the site by all modes of travel.

The following paragraphs respond to the site environs identified above, to then identify opportunities in order to provide a sustainable development.

Accessibility

The masterplan for the proposed Garden Village aims to deliver a mixed used sustainable development that will deliver a comprehensive range of local facilities and amenities. The masterplan considers establishing new local employment based land uses to broaden the range of careers available. This will reduce the need to travel outside the local area for employment based trips reduce demand on the road infrastructure.

Multi-purpose or linked trips will promote more sustainable patterns of travel. As well as employment based trips, there are a range of non-employment trips that need to be considered and will be contained in a new village centre. The masterplan will carefully consider the land use mix proposed and provide a mixed range which will potentially include:

- Leisure facilities
- Convenience food retail
- Non-food retail
- Educational facilities
- Health care provision
- Hotel
- Employment opportunities
- Open space
- Restaurants / public houses

By delivering a comprehensive mix of local facilities and amenities this will reduce the need to travel outside the site boundary, increasing trip internalisation which will reduce the impact on the wider road network.

The development should aim to deliver a self-sufficient community supported by a range of housing type and tenure to attract the established family units together with the future next generation.

Walking and Cycling

The site is currently not supported by a significant walking and cycling network. The development will deliver both on-site and off-site enhancements.

Published good practice identifies five main requirements for pedestrian routes, and wherever possible these should be adhered to when planning for pedestrians within the proposed development:

- Convenience – follow desire lines without any undue deviation from route,
- Connectivity – link multiple origin and destinations,
- Conviviality – be pleasant to use,
- Coherence – be made legible through paving and/or signage,
- Conspicuousness – promote security and safety allowing pedestrians to see and be seen by others

The Garden Village will deliver a range of land uses to minimise the need to travel outside the development. Therefore, the masterplan for the site will include a comprehensive network of walking and cycling routes that will connect the housing blocks with the local facilities proposed within the development. The network should be inclusive to all potential users on site and cater for employment, retail, education and leisure based trips.

The on-site walking and cycling network will include strong links into the existing off-site networks such that walking and cycling is a viable alternative to the motorcar to access the off-site facilities.

Public Transport Networks

Together with walking and cycling, a fast reliable public transport system is able to provide a viable alternative to the motorcar and a shift toward this mode of travel is essential for the development to be considered sustainable. The proposed development, subject to phasing, has sufficient quantum to be able to deliver dedicated public transport coverage that will have the frequency and reliability to attract patronage to secure long term viability. Furthermore, viability for these services will be of good benefit to the local economy.

To establish a viable, strong public transport system, it is important to consider both rail and road based trips. It is likely that a combination of both should be fully utilised to ensure access is provided to the above identified destinations. It is therefore important to identify a strategy to maximise connectivity to the most strategically important areas.

Rail based travel will provide an alternative to the use of the private motorcar, especially for commuter travel into London. The rail services operating through West Horndon into Basildon / London provides adequate coverage. Rail clearly represents an attractive alternative to the motorcar. The rail station has the potential to create a mode shift from the private motorcar should the successful accessibility to the train station be in place.

Two options are evident in relation to rail travel, either deliver a new train station within the site or deliver a road based public transport route that links between the site and the West Horndon train station. Discussions will be required with the track operator to determine the feasibility of locating a train station within the site. The opportunity for this option cannot be discounted at this stage as the delivery of a rail based solution would enhance the sustainable credentials of the site.

In relation to the road based public transport trips, the key routes would be to Basildon and Brentwood. An initial distribution indicates a stronger desire line towards Brentwood. The timings of the buses should be tailored to coincide with traditional working hours to maximise the attractiveness of the public transport routes.

To maximise the attractiveness of the identified public transport route it is envisaged that any route will be a direct service between Brentwood, Basildon and the potential development site to minimise stoppages and delay. As indicated above, the stronger desire line appears to be towards Brentwood; therefore a greater emphasis could be applied towards the north.

The journey time between Brentwood and the site is circa 11 minutes, which would not create a barrier to public transport trips.

Sustainable Travel Options

To promote the use of modes other than the private motor car, a comprehensive travel plan will be implemented.

The purpose of a Travel Plan for a new settlement is to minimise the adverse environmental effects of development related travel from the outset. A holistic approach to the development proposals will result in a successful travel plan, where the need to travel is reduced inherently by design.

Any targets set within a Travel Plan should encourage the use of alternative and sustainable modes of travel, and in so doing, reduce the number of vehicle journeys to, from and within the development.

This can be achieved by:

- Reducing the need to travel
- Providing realistic alternatives to the car
- Making alternatives to driving alone more attractive
- Managing car parking provision

Benefits of Travel Plans include:

- Improving health, fitness and wellbeing
- Improving access
- Reducing congestion in the local area
- Travel plans can be prepared to inform the master plan process and to assist with the development of a new settlement that makes the best use of sustainable modes.

The Travel Plan endeavours to promote environmentally sustainable travel choices for residents and visitors to the area. This will seek to encourage visitors and employees to use alternative modes to the single occupancy car and to emphasise the health benefits of more sustainable modes of travel.

The travel plan will include specific measures to maximise sustainable forms of travel, including:

- Bespoke car share database
- Car clubs
- Discounted vouchers for public transport trips
- Bespoke Travel Plan website
- Welcome packs

4 Summary

This report has considered the availability of sustainable travel facilities from the proposed development. It has demonstrated that the implementation of pedestrian and cycling facilities is feasible.

It has also demonstrated that railway travel is readily available in the immediate environs of the proposed development site.

The junction interventions suggested on the local road network identify that the development is acceptable and feasible.

A comprehensive travel plan will be produced to accompany the planning application. This will identify a package of measures to encourage sustainable modes of transport. This will include measures that will support public transport, walking and cycling trips. The objective is to deliver a material shift away from the private motor car.

This note has been produced to assess the potential new garden village at Dunton Hills near Brentwood. The study has found that a sustainable development can be delivered, that will encourage the use of sustainable modes of travel and will not materially affect the long term operation of the highway network. Therefore, BCL concludes that this development should be supported from a transportation point of view.

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