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ST. MICHAEL'S CONVENT
WATERLOOVILLE

TRANSPORT ASSESSMENT

On behalf of



4140-ITR-JJF-TA.5

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EXECUTIVE SUMMARY

Bellamy Roberts LLP, Highways and Transportation Consultants, has prepared a Transport Assessment and Travel Plan to consider the impact of the development of 82 dwellings at the St. Michael's Convent site, Waterloo.

The site is "brownfield" and allocated for residential development within the Local Plan. The site is well located in terms of its proximity to the town centre and A3 Bus Corridor. The Local Planning Authority have confirmed that the site is within a sustainable location.

The Developer (Linden Homes) held a Public Exhibition on 19th March 2012 for local residents to view the scheme and express their comments. The Developer and Team also attended the Developer Forum at the Council offices on 26th April 2012, where residents and Councillors raised concerns and questions of the Development Team.

This Assessment has addressed all of the queries and concerns raised relating to traffic and access matters.

Traffic surveys have been undertaken on the immediate highway network, including Villa Gardens/London Road access and Hulbert Road access.

The traffic generation has then been dissipated onto the network utilising the AM and PM peak hour periods.

The nearby roundabout junctions have been analysed for the Base Year 2012 and Design Year 2017, with and without development traffic to establish the impact.

The results of these analyses indicate that the proposal has an insignificant effect on the operations of the key junctions, with very little impact, if any.

Some of the residents of Villa Gardens expressed concern with regard to the activities which are held at the church.

In view of their concerns, traffic and parking survey was undertaken during a "typical" Sunday service. The survey recorded that the church car park was full to over-capacity and some vehicles parked along the access road and Villa Gardens.

The survey also recorded that no excessive queuing occurred when the parishioners were leaving the site, and whilst the mass exodus involved queuing vehicles the queue was not stationary.

The site was "cleared" in 11 minutes (11:20 to 11:31 am) and during this time the proposal would be likely to generate 2 vehicles. Such an increase in flows would be imperceptible.

An independent Safety Audit has been undertaken for the proposed site layout and access arrangements, which confirmed that the layout is acceptable.

The current National Planning Policy Framework (NPPF) published in March of this year, advises that sustainable development which does not have a severe impact on the highway, should not be delayed or refused planning permission. This proposal, as agreed by the Local Planning Authority, is sustainable and the Transport Assessment demonstrates that the traffic impact is insignificant, as such, and in accordance with NPPF the scheme should be permitted.

1.0 INTRODUCTION

- 1.1 Bellamy Roberts LLP has been instructed by Linden Homes to prepare a Transport Assessment (TA) to review the proposals to provide 82 residential units at the former St. Michael's Convent at Waterloooville.
- 1.2 The application site is currently vacant and is a brownfield site located adjacent to Waterloooville town centre.
- 1.3 When considering the highway and transportation issues arising from the development proposals, guidance has been sought from the Department for Transport (DfT) document entitled 'Guidelines on Transport Assessments' published in 2007.
- 1.4 It is proposed that the site is developed with strong sustainability principles embodied within the redevelopment concept. This includes accessibility to public transport, education, local facilities, public open space, energy efficiency, and bio-diversity.
- 1.5 The purpose of the Transport Assessment is to set the access strategy for development of the site, assess the acceptability of such a proposal in terms of transport impact, highway safety and sustainability. This report is prepared in support of the outline application for the proposed residential development.
- 1.6 It is proposed to access the site via the two current access points, off London Road (serving the majority of the site), and off Hulbert Road which would serve approximately one fifth of the units. Precise details of the accesses are set out later within this report.

- 1.7 The development impact will be assessed through Person Trip analysis, with vehicular trip rates and the traffic distribution. The study area includes the following:
- Site access junctions
 - Hulbert Road roundabout
 - Tempest Avenue roundabout
- 1.8 The base year for this Transport Assessment will be 2012, with the proposed future year scenario set at 2017, five years past application, in line with Highway Authority standards.
- 1.9 The overall transport and access strategy for the site aims to achieve a sustainable development, including transport sustainability. Modes of transport other than the private car will be encouraged, including walking, cycling and public transport. The design of the scheme is aimed at achieving low traffic speeds in the interest of pedestrian and cyclists' safety and overall environmental quality.
- 1.10 A Public Exhibition was held on 19th March 2012 and the scheme was further presented to the Local Planning Authority's Development Forum on 26th April 2012. The concerns and issues raised at both events have been considered and are addressed within this Assessment.
- 1.11 Traffic surveys and traffic flow information for the key junctions within the area have been obtained in order to consider further the traffic impact of these proposals.

2.0 THE REPORT

2.1 This report is structured as follows.

- **Section 3.0** reviews the location of the site in context of the local and regional centres and the local/strategic highway networks. This section also considers the existing operation of the junctions in proximity to the application site and reviews the personal injury accidents that have occurred close by over the latest available three-year period.
- **Section 4.0** outlines the local and national policies, parking standards and layout that are pertinent to the proposals.
- **Section 5.0** considers the existing conditions and considers the modes of transport.
- **Section 6.0** considers the associated traffic generation and parking provision.
- **Section 7.0** looks at the Travel Plan measures.
- **Section 8.0** considers the impact of the development traffic and analyses the key junctions.
- **Section 9.0** draws together a summary of the document and sets out the conclusions.

3.0 SITE LOCATION

Site Location

3.1 St. Michael's Convent is located to the east of London Road, as indicated on the location plan at **Appendix 1**. The site is bounded to the rear by the Hermitage Stream and properties at Hermitage Gardens, London Road to the west, Avondale Road to the north and Hulbert Road to the south.

- 3.2 Waterloo town centre is just 150 metres to the south of the site.

Local Highway Network

- 3.3 The application site has a vehicular access onto London Road, and a further access onto Hulbert Road.
- 3.4 Traffic counts have been undertaken in order to assess the existing operation of the junctions and assess the impact of the proposal, onto the local highway network. The impact of the proposal is dealt with in Section 8 of this Assessment
- 3.5 The local highway network is subject to a 30 mph speed limit and provides a bus route and cycle route to enhance sustainable transport. There are footpaths on both sides of the road, with signalised crossing facilities. There is also a pedestrian subway to gain access under Maurepas Way to the town centre.

Traffic conditions of the highway in the vicinity

- 3.6 As stated previously in order allow an assessment of the existing conditions of the local highway network, observations have been made of both the London Road access junction and Hulbert Road junction, as well as the London Road Roundabout and Hulbert Road Roundabout. These observations have allowed traffic flows to be recorded. The following table summarises the two-way traffic flows at each junction whilst the full data and associated traffic flow diagrams are attached at **Appendix 2**.

Table 1
Summary of Traffic Survey (8th May 2012)
Villa Gardens Traffic Flow (Vehicles)

Time Begin	Villa Gardens			London Road		
	In	Out	Two-Way	Southbound	Northbound	Two-Way
08:00 – 09:00	7	9	16	993	421	1,414
17:00 – 18:00	10	4	14	532	1,013	1,543

Table 2
Summary of Traffic Survey (8th May 2012)
Hulbert Road Traffic Flow (Vehicles)

Time Begin	Hulbert Road (cul-de-sac)			Hulbert Road (dual carriageway)		
	In	Out	Two-Way	Eastbound	Westbound	Two-Way
08:00 – 09:00	10	16	26	1,576	1,133	2,709
17:00 – 18:00	9	10	19	1,086	1,211	2,297

- 3.7 As expected, the local highway network peak hour during the morning is between the hours of 08:00 and 09:00 and then again during the afternoon between the hours of 17:00 and 18:00. The surveys have noted that there is no queueing at the accesses during these times. The flows into and out of the two access points are very low during the peak hours (between 14 and 26 vehicles per hour two-way).
- 3.8 As discussed at the Developer's Forum, the issue of extraneous on-street parking within Hulbert Road was raised and as such, the survey noted the number of parked vehicles.
- 3.9 At 07:30 hours, six cars were noted to have parked along the western section of Hulbert Road. By 09:30 hours this had increased to eleven cars. Similarly, during the afternoon survey period, there were nine cars parked on-street at 16:30 hours and this reduced to four cars parked at 18:30 hours.
- 3.10 Also, occasionally vehicles came into Hulbert Road to park for a few minutes, whilst the drivers made/received phone calls on their mobiles. This occurred three times during the survey period.

- 3.11 It is therefore evident that whilst the amount of on-street parking is not excessive (5 to 7 cars), it does occur and is limited to the western end of the cul-de-sac where there are no double yellow lines. It is most likely that these cars are parked by people working in the town centre, or visiting nearby. All of the cars are parked along Hulbert Road beyond the location of the existing (proposed) access to the site. As such, they would not be affected by the development.
- 3.12 In addition to the typical weekday flows, and as a consequence of residents of Villa Gardens raising concerns to the amount of traffic and congestion caused by the St Michael's Church served off Villa Gardens, a further traffic, parking and queuing survey was undertaken on Sunday, 17th May 2012 before, during and after a typical Sunday service.
- 3.13 The full turning count flow diagrams of the survey can be found at **Appendix 3**.
- 3.14 In summary, the results of the survey established the following information:
- **09:30 hrs.**
At this time there were nine (9) vehicles parked within the church car park, and one on-street along the access road and none in Villa Gardens.
 - **10:00 hrs.**
At this time there were ninety-five (95) vehicles parked within the church car park, seventeen (17) on the access road and two (2) along Villa Gardens. Of the ninety-five cars within the car park, twenty-four (24) were not within marked out bays.
 - **10:50 hrs.**
At this time there were ninety-five (95) vehicles parked within the church car park, nineteen (19) along the access road and three (3) within Villa Gardens.
 - **12:00**
At this time there were thirteen (13) cars parked within the car park, one (1) within the access road and two (2) along Villa Gardens.

It is evident that the amount of cars associated with the services held at the church, far exceeds the capacity of the church car park (72 spaces).

- 3.15 From observations made during the exiting of the church goers, there was no excessive delay to vehicles gaining access to London Road recorded; the longest wait time being 1 minute 4 seconds. Generally vehicle flow exiting onto London Road was carried out with very little, if any, stationary queuing.
- 3.16 The first of the cars began to leave the church at 11:20 am and this continued until 11:31 am. Some cars were left within the car park, as some worshipers stayed for coffee. There were very few cars left at 11:50 am.
- 3.17 The vast majority of cars associated with the church service left the site within an eleven (11) minute period.
- 3.18 The on-street parking occurred predominantly beyond Villa Gardens, although some vehicles did park along the access road despite the area being "coned off".
- 3.19 Other traffic flow information relating to the London Road/Hulbert Road roundabout and the Tempest Avenue roundabout are attached at **Appendix 4**. These represent the existing flows and turning movements at both roundabouts for the AM and PM peak hours (08:00 – 09:00 and 17:00 – 18:00 hrs).

4.0 POLICY CONTEXT

- 4.1 Bellamy Roberts LLP appreciates that the transportation element of the work needs to be undertaken in a consistent manner in order to take account of development proposal and policy background. It is important that the development accords with all appropriate national, regional and local policy which is outlined within this chapter.

National Policy

- 4.2 The vast majority of the Government's Planning Policy Guidance Notes (PPG's) and the newer Planning Policy Statements (PPS) have recently been replaced by the National Planning Policy Framework (NPPF). This document specifically deals with sustainable development and advises that:

"Development that is sustainable should go ahead, without delay – a presumption in favour of sustainable development that is the basis for every plan and every decision.

Paragraph 32 states that:

"All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:

- *The opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure.*
- *Safe and suitable access to the site can be achieved for all people, and*
- *Improvements can be undertaken within the transport network that cost effectively limits the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe."*

- 4.3 The NPPF also advises on the setting of local parking standards for residential and non-residential development, and Local Planning Authorities should take into account:

- The accessibility of development.
- The type, mix and use of development.
- The availability of and opportunities for public transport.
- Local car ownership levels; and
- An overall need to reduce the use of high emission vehicles.

4.4 The St. Michael's Convent site is allocated for residential development within the Adopted Local Plan, (Saved Policy H3) and, whilst the Policy Team within the Local Planning Authority stated that the site could sustain a development of 70 dwellings, they advised that such numbers could be exceeded provided it does not have a detrimental effect on other matters. The Local Planning Authority has confirmed that the site is in a sustainable location.

4.5 It is evident that the St. Michael's Convent site meets these requirements and policies, in bringing forward a sustainable development within an urban area, adjacent to the town centre.

Local Policy

4.6 Hampshire County Council is the Highway Authority responsible for the majority of transport and highway proposals in the Plan area, although the Department for Transport, (DfT) is responsible for motorways and trunk roads. The Hampshire Local Transport Plan sets out the Highway Authority's detailed proposals for developing an integrated transport strategy. It also identifies, in principle, the measures that will need to be implemented during the period of the Local Plan and is fully consistent and integrated with the County Structure Plan (Review). The Hampshire Local Transport Plan has 7 key objectives:

- To increase accessibility to services;
- To promote safety;
- To reduce the impact and effect of congestion;
- To widen travel choice;
- To contribute towards improvements in air quality;
- To support wider quality of life objectives;
- To encourage value for money and efficient asset management.

4.7 Land use policies in the Core Strategy complement and are fully integrated with the Local Transport Plan's objectives. In particular, they promote sustainable development that minimises the demand for travel, particularly by car, and promote the use for walking, cycling and public transport.

Development Layout

- 4.8 Cycling and walking are important modes of travel for local journeys and it is therefore important that new developments provide safe and convenient pedestrian and cycle routes. This includes routes within the development site and links in and out of the development site to the surrounding area.
- 4.9 The site is well located in terms of its position relative to the town centre and schools nearby. It also has good bus facilities, with the A3 Bus Corridor adjacent. The scheme will also allow pedestrians and cyclists through the site linking Hulbert Road and London Road; thus avoiding the need to use the London Road roundabout. The layout has also been designed to reduce car speeds.
- 4.10 An independent Safety Audit and Designer's Response has been carried out on the proposed road layout of this scheme. The conclusion of the Audit confirmed that the layout was acceptable. A copy of the Safety Audit is attached at **Appendix 5**.

Parking Standards

- 4.11 The proposal is to provide some 120 car parking spaces, which accords with the current adopted car parking standards. The scheme would also provide cycle parking in accordance with the standards.
- 4.12 The standards for car and cycle parking are set out within Havant Borough Council's SPD Adopted March 2010, "Residential Parking and Cycle Provision".
- 4.13 These standards set out the methodology for establishing the appropriate level of parking provision, based upon location, number of habitable rooms and the future projection of car ownership up to the end of the Plan period (2026).
- 4.14 The scheme is to comprise the following sizes of dwellings:

7 No. 1-bed houses

29 No. 2-bed houses

29 No. 3-bed houses

17 No. 4-bed houses

4.15 The car parking standards and method of calculation of the provision are set out within the Local Planning Authority's SPD.

4.16 The standards within the SPD recognise that, within the Borough, access to public transport and shops and services varies significantly. The town centres at Havant and Waterlooville provide the greatest range of alternative transport modes and also shops and services.

4.17 The SPD goes on to say:

"Waterlooville town centre provides a variety of bus routes across the Borough and beyond to Portsmouth. The town centre also provides a range of shops and services which will lessen the need for individual travel. This is considered to be the second most successful and sustainable part of the Borough.

Proposals within the Waterlooville town centre boundaries will be expected to have a reduced standard of vehicle parking provision, in order to maximise the use of land and discourage the use of private motor vehicles. A reduced standard can also apply in instances where a site is located less than 800 metres of the centre of the town (when measured as a walking distance)."

As stated previously, this site is well within 800m of the town centre.

4.18 Other reasonable options for highly accessible areas have been considered by the Council, but dismissed have included seeking a reduced standard in vehicle parking provision in areas close to the A3 Bus Corridor and other train and bus stops in the Borough. As such, it was decided by the Borough that although it may offer an alternative means of travel, it was strongly felt that it would not result in a reduction in car ownership and therefore appropriate parking provision should be provided.

- 4.19 As stated within paragraph. 5.7 of the SPD, a reduced standard can apply to sites within 800m of the town centre, and in this instance:

Table 4 states the following standards for Waterloooville town centre:

1-bed unit	-	1 parking space
2-bed unit	-	1 parking space
3-bed unit	-	1-2 parking spaces
4+bed unit	-	1-2 parking spaces

Hence when applying the current mix of units, the following can be calculated:

7 x 1 space	=	7 spaces
29 x 1 space	=	29 spaces
29 x 1 space or 29 x 2 spaces	=	29 - 58 spaces
17 x 1 space or 17 x 2 spaces	=	17 - 34 spaces

Hence, parking requirements could be between 82 spaces and 128 spaces. The scheme is allocating some 120 spaces, which is towards the higher end of that range.

- 4.20 If some of the communal space were to be unallocated, then this figure could be reduced even further. The scheme therefore conforms to the current adopted parking standards as set out within the SDP.

Layout

- 4.21 The layout proposed by Pope Priestley Architects has been tested utilising the AutoTRACK computer program, for a large refuse vehicle and service vehicle. The swept paths are illustrated at **Appendix 6** clearly shows that such vehicles can utilise the site with comfort.

4.22

Core Strategy

The Core Strategy Transport and Access Strategy Planning CS20 sets out the criteria for Development that will be permitted:-

Policy CS20

1. Is consistent with and contributes to the implementation of the 'Reduce, Manage and Invest' strategy.
2. Does not increase congestion and promotes better use of existing transport networks.
3. Improves accessibility to goods, services and employment and promotes equality in the transport system.
4. Provides transport management measures to ensure the safe and efficient operation of the strategic and local road network.
5. Ensures that highway design responds positively to the characteristics of the area and delivers a high quality public realm for all users.
6. Maintains or improves the range of transport modes accessible to the users of the development site with specific emphasis on public transport, especially high quality/frequency buses and includes walking and cycling where appropriate.
7. Improves highway cycling and pedestrian links between the western built up area of the borough (Waterlooville) and the eastern area of the borough (centred on Havant) to create a strong east/west communication axis that passes through Dunsbury Hill Farm/Leigh Park.

It can be seen that the current proposal at the St. Michael's Convent fully conforms with this policy.

5.0 EXISTING CONDITIONS

5.1 The strong emphasis on sustainable travel adopted in the Borough of Havant is in line with the wider policies of Hampshire County Council. This chapter follows the hierarchy of modes and transport assessment, as set out in the transport policies for the Local Planning Authority and County Council.

5.2 This chapter will look at the existing facilities using the sequential approach which considers the modes of travel in the following order:

- Walking;
- Cycling;
- Public Transport; and
- Private Vehicle.

Site Location

5.3 The site is located to the east of London Road in Waterlooville. The eastern boundary of the site is marked by the Hermitage Stream and residential properties along Hermitage Gardens, with Brookdale Close and Hulbert Road to the south and Avondale Road to the north.

5.4 A location plan of the site can be found at Appendix 1.

Local Facilities

5.5 There are many local facilities in the vicinity of the site, which are within easy walking distance. Waterlooville town centre provides a variety of bus routes across the borough and beyond to Portsmouth. The town centre also provides a range of shops and services which will lessen the need for individual travel.

5.6 Waterlooville is considered to be the second-most accessible and sustainable part of the Borough. The site lies along the A3 Bus Corridor, and as stated, by the Local Authority, is located within a sustainable area.

Public Transport

Rail

- 5.7 The site is within 5 km of two station; Bedhampton (3.85 km) and Havant (4.46 km). Train services are provided by South West Trains (SWT) and Southern (ST). There are 2 trains an hour each way through Bedhampton one between London Waterloo and Portsmouth (SWT) and one between Littlehampton and Portsmouth (ST). At Havant Station, in addition to these services, there are a further 6 trains an hour each way made up of 2 trains between London Waterloo and Portsmouth (SWT), 2 trains between London Victoria and Southampton (ST), Brighton and Southampton (ST), and finally between Horsham and Southampton (ST).

Buses

- 5.8 There are existing bus stops within 150m from the site on London Road. Below are the details of the routes that call at these stops.

Routes	To	From	Frequency (day time)
37	Havant	Petersfield	Hourly
41	Gunwharf Quays	Danfield	4 buses an hour

The site is also within 800m of the bus stops for Waterlooville Precinct where additional services call, these are:

Routes	To	From	Frequency (day time)
39	Havant	Wecock Farm	4 buses an hour
40	Southsea	Wecock Farm	4 buses an hour
X42	Gunwharf Quays	Southdowns College	2 buses an hour
45 & 45A	Hambledon	Portsmouth	2 buses an hour
300	Chichester	Denmead	1 bus each way on a Wednesday

Cycle facilities

- 5.9 There are cycle routes along London Road, as well as other suggested cycle routes in the vicinity of the site. For details see the map at **Appendix 7**.

Local Highway Network

- 5.10 On the basis of the number of opportunities for sustainable travel in the vicinity of the development site, it is anticipated that the proposed development would achieve a high level of sustainable travel. Further to pedestrians, cyclists and public transport users, the provision of a site Travel Plan should ensure that the traffic generation is better managed and car journeys are reduced.
- 5.11 The site is well located for access to the town centre and beyond, and the road to the east provides good opportunities to reach the A3 (M).
- 5.12 London Road is subject to a 30 mph speed limit which is in keeping with its urban environment.

Review of Recent Traffic Collision Data

- 5.13 Further to the description of the local highway network provided above, an analysis of traffic collision resulting in personal injury was undertaken to determine whether there are any existing safety issues. Data was requested from Hampshire Constabulary for the latest 3-year period from January 2009 to February 2012 in order to assess existing collision conditions.
- 5.14 The data indicated that a total of 21 slight injury accidents occurred during this period, along the extent of London Road and Hulbert Road.
- 5.15 There were 4 serious accidents and 17 slight accidents. There were no fatal accidents recorded within this time. A copy of the accident data is attached at **Appendix 8**.
- 5.16 The data does not reveal that there is an accident or safety problem within the surrounding road network.

6.0 DEVELOPMENT TRIPS

- 6.1 This Section looks at the impact of the proposed development on the local highway and transport network. A multi-modal approach has been taken to determine the impact that the development will have on walking and cycling traffic, as well as vehicular traffic.
- 6.2 In order to estimate the trip generation accurately, the proposed development has been assessed using first principles of people trips. This has been calculated using the TRICS 2012(a) V.6.91 database.
- 6.3 This means that the movements of individuals have been calculated as well as movements of just vehicles. This approach provides a more detailed analysis of the generation rates of the development for each of the modes and gives an improved representation of walking and cycling rates than is possible with merely vehicle trip generation. However, by simultaneously using more established methods such as reference to the TRICS 2012(a) database, it is possible to calibrate the estimates of trip generation.
- 6.4 The use of first principle analysis to produce person trips for the development creates a base from which vehicle movements can be derived. By applying occupancy rates to the person trip, it is possible to produce vehicle trips to determine the impact on the surrounding network and inform the capacity analysis at key junction.

Person Trip Generation and Modal Splits

- 6.5 The data from TRICS 2012(a) Version 6.91 is included at **Appendix 9**.
- 6.6 The total person trip generation of the development is displayed in the following tables. The AM and PM peaks refer to the commuter peaks on the local network (08:00 to 09:00 hrs and 17:00 to 18:00 hrs), and the daily flows refer to a 12-hour period (07:00 – 19:00 hrs).

Table 6.1
Total Person Trips for Development (per unit)

Total Person Trips	AM		PM		Total	
	In	Out	In	Out	In	Out
Housing	0.223	0.735	0.537	0.288	3.630	3.836

6.7 Hence with a development of some 82 units, the total person movements can be shown at Table 6.2 below.

Table 6.2
Total Person Movements

Total Person Trips	AM			PM			DAILY		
	Arr.	Dept.	Two-way	Arr.	Dept.	Two-way	Arr.	Dept.	Two-way
Housing	18	60	78	44	24	68	298	315	613

6.8 The transport strategy for the site aims to reduce the need to travel and encourages the use of alternative, more sustainable modes of transport. The modal splits outlined in the following table show the percentages that were applied to the total person trip generation and represent the base modal splits at the development where no improvements are evident.

6.9 The modal split information for the development has been extracted from the source of base data which have been used for this Assessment, the TEMPRO from the DfT.

6.10 The data contained within TEMPRO is based on travel diaries for many trip purposes and is able to produce modal shares for all trip types. In theory, TEMPRO should provide the most reliable mode share predictions.

- 6.11 The table below shows a summary of the TEMPRO base modal splits for the Waterloo Central Area. (See **Appendix 10.**)

Table 6.3
Base Modal Split

Mode	Residential Modal Splits	
	Peak Hours	
	AM	PM
Walk	21.6	20.7
Bicycle	2.15	2.12
Bus	8.5	4.92
Train	1.3	0.93
Car Driver	45.16	49.14
Car Passenger	21.3	22.2

- 6.12 The modal splits for the various peak periods are very similar, and for the purpose of this exercise the average figures have been used.

Table 6.4
Predicted Base Vehicle Trip Generation

Total Vehicle Trips	AM			PM			Total		
	In	Out	2-way	In	Out	2-way	In	Out	2-way
Housing	9	29	38	21	117	32	140	149	289

- 6.13 Table 6.4 provides the total traffic movements associated with the whole site. However, and as stated previously, the site will be served by two vehicular accesses. The London Road access would serve 67 units and the Hulbert Road access would serve 15 units. As such, the vehicular movements for each access can also be calculated. (See Tables 6.5 and 6.6.)

Table 6.5**London Road Access - Traffic Flows**

AM Peak			PM Peak		
In	Out	2-way	In	Out	2-way
7	24	31	17	9	26

Table 6.6**Hulbert Road Access - Traffic Flows**

AM Peak			PM Peak		
In	Out	2-way	In	Out	2-way
2	5	7	4	2	6

6.14 In reality, it is likely that the access strategy of the development will result in increased use of sustainable travel modes. The rates of sustainable travel mode usage would be expected to increase as the access strategy and Travel Plan for the development become more established.

6.15 The measures set out in the Travel Plan (TP) need to be considered in terms of their effect on the base modal splits. This includes adjustments for:

- Personalised Travel Planning
- General locations of Primary and Secondary Education facilities; and town centre

6.16 The target modal splits that result from the Travel Plan measures include an adjustment for cycling and bus travel, to account for wider improvements to cycle routes within Waterloo and the age of primary education pupils.

Trip Distribution and Adjustments

6.17 The trips given in Tables 6.5 and 6.6 above were then distributed onto the road network, based on the TEMPRO data.

- 6.18 The major employment areas would appear to be Havant, Portsmouth, Southampton and Petersfield.
- 6.19 Once the proposed trip generation for the site has been distributed on the local highway network, it is possible to undertake further trip adjustments to ensure that the predicted trip generation is robust. It is not possible to determine the origins and destinations of background traffic flows and so public transport adjustments can only be applied to the development traffic and therefore this represents a "worst case scenario".
- 6.20 Adjustments can be applied for development traffic to account for the provision of key facilities in very close proximity to the development site, although the capacity analysis of the key junctions has been undertaken using the unaltered vehicle trip rates established using TRICS data.
- 6.21 The base flows for 2012 used in the capacity assessment can be seen at Appendix 2.
- 6.22 In summary, for Hulbert Road the additional traffic using the access junction would be 7 vehicles and 6 vehicles in the AM and PM peak hours. This can be compared to 26 vehicles and 19 vehicles that currently use the junction. From the survey information recorded, it was noted that during the AM peak, 2 vehicles were associated with the extraneous parking and during the PM peak, this occurred to 4 vehicles. As such, it can be shown from the survey data recorded on Hulbert Road, the cul-de-sac which accommodates 38 dwellings, generated 24 vehicle movements in the AM peak and 15 vehicle movements in the PM peak.
- 6.23 Thus the vehicular trip rate per dwelling for Hulbert Road is found to be:
- | | |
|-----------------------------|---------|
| 0.632 vehicles per dwelling | AM peak |
| 0.395 vehicles per dwelling | PM peak |

(Hulbert Road dwellings are generally large detached family houses).

6.24 This can be compared with the flows calculated for the development, which comprises a mix of 1, 2, 3 and 4-bed flats and houses.

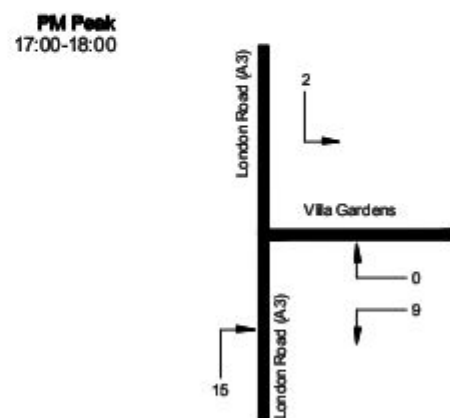
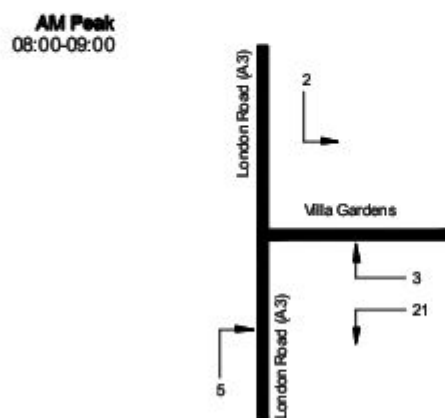
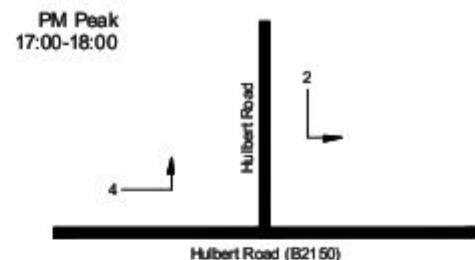
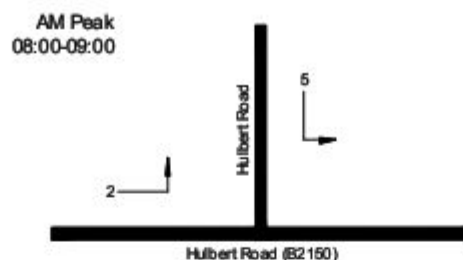
6.25 As indicated in Table 6.4 the trip rate used in the assessment for the mixed development is:

0.46 vehicles per dwelling AM peak

0.39 vehicles per dwelling PM peak

6.26 The above trip rates per dwelling, bearing in mind that they are of varying sizes and some are that flats, is comparable with the trip rates found to be generated by the larger detached dwellings in Hulbert Road.

6.27 The distribution of the traffic generated, has been dissipated onto the road network using the same distribution as the existing flows using the same junctions for the AM and PM peak hours:



- 6.28 The traffic associated with the development has been distributed onto the network and turning movements apportioned as existing at the key junctions. (See **Appendix 10.**)
- 6.29 The result of this is an additional 20 vehicles onto Hulbert Road and 26 onto London Road as a worst case scenario.
- 6.30 The existing flows on London Road are 1358 vehicles and for Hulbert Road are 2769. This development, as a worst case scenario, would therefore represent a 1.8% increase along London Road and 0.7% along Hulbert Road.
- 6.31 These changes in flows are very low indeed, and would be imperceptible.
- 6.32 The adjoining roundabout junctions have been analysed with and without the development, which demonstrates the negligible impact on the surrounding roads. The capacity analyses are set out within Section 8.0 of this report.
- 6.33 Concern has been expressed by some residents of Villa Gardens, to the extent of the usage/popularity of the church, and as stated previously, a traffic survey was undertaken during a typical Sunday Service to specifically consider their concerns (see Section 3, paragraph 3.12 to 3.18).
- 6.34 The survey recorded that the vast majority of vehicles leave the site between 11:20 am and 11:31 am, an eleven (11) minute duration. The proposed development that would be served from the same access point along London Road is 57 dwellings and again from the TRICS database (see **Appendix 12**), such a development is likely to generate in the region of two (2) vehicles during that 11-minute period on a Sunday morning. The proposal would, therefore, clearly have no material impact on the current situation.

7.0 TRAVEL PLAN MEASURES

- 7.1 A full Travel Plan Framework has been produced by Bellamy Roberts LLP for the site and (standalone document, ref: 4140/ITR/RTPF.3) includes details of a large number of incentives designed to encourage the use of sustainable travel by residents of the development.
- 7.2 Travel Plans seek to achieve changes to travel choice with a combination of "hard" and "soft" measures. The "hard" measures may involve changes to existing infrastructure or may be included within the physical design of the site. These include the provision of cycle storage facilities at each dwelling and pedestrian and cycle paths throughout the development to ensure the site is permeable to users of sustainable modes, and improved pedestrian facilities.
- 7.3 In contrast "soft" measures include the provision of information and incentives to encourage users to think about the way they travel. This may include providing users with details of bus timetables, car-sharing websites and green vouchers.
- 7.4 The first of these measures is to liaise with broadband service providers for super-fast broadband to the site. The provision of high quality broadband links with the development allows residents a realistic opportunity for home working.

8.0 TRAFFIC ANALYSIS

- 8.1 This Section assesses the impact of the additional vehicle trip generated by the proposed development and considers how they would affect the flow of traffic on the existing local highway network.
- 8.2 The base year traffic flows are based upon flows obtained from traffic surveys undertaken at the two key junctions:
- London Road/Hulbert Road roundabout
 - Hulbert Road/Tempest Road roundabout

Details of the traffic flows are attached at **Appendix 13**.

- 8.3 Growth rates were applied to these flows to create the Design Year Flows for 2017 using growth rates from TEMPRO. The growthed figures are attached at **Appendix 14**.
- 8.4 In order to assess the impact of the proposed development on the local highway network, it is necessary to undertake junction capacity tests. These have been completed using the modelling package ARCADY for 2012 base and for the future test year 2017 with or without development traffic.
- 8.5 The full analyses of the ARCADY print-outs are attached at **Appendix 15** for the London Road roundabout and Hulbert Road roundabout, with and without development traffic.
- 8.6 In summary, the key findings relating to queue lengths and RFCs is illustrated in Tables 8.1 and 8.2 below.

Table 8.1

London Road/Hulbert Road Roundabout - (2012 without development)

Arm	AM		PM	
	Queue	RFC	Queue	RFC
Maurepas Way	0.7	0.408	1.6	0.610
London Road	0.7	0.404	0.4	0.299
Hulbert Road	2.3	0.698	6.4	0.871

Table 8.2

Hulbert Road/Tempest Avenue Roundabout - (2012 without development)

Arm	AM		PM	
	Queue	RFC	Queue	RFC
Hulbert Road (west)	3.2	0.766	2.2	0.693
Tempest Avenue	71.7	1.188	1.0	0.512
Hulbert Road (east)	1.5	0.593	88.1	1.063
Frendstaple Road	1.8	0.642	7.7	0.917

- 8.7 It can be seen that on certain arms during the peak hour periods the Hulbert Road/Tempest Avenue roundabout is reaching or is at capacity. The London Road/Hulbert Road roundabout is within capacity.
- 8.8 When considering other development in the area, for example, the Newlands development, it has been agreed with Hampshire County Council that mitigation through junction improvements or otherwise, will be considered where a junction is predicted to be operating over capacity and where traffic levels are predicted to increase by more than 5% on one or more junction arms, due to the development.
- 8.9 The same analyses have been undertaken for the Design Year 2017, with and without development traffic. The amount of additional traffic due to the development of 82 dwellings is illustrated in diagrammatic form at Appendix 10.
- 8.10 The results of the ARCADY analyses are attached at Appendix 14 (with and without development). In summary, the key findings relating to queuing and RFCs are illustrated below at Tables 8.3 and 8.4.

Table 8.3**London Road/Hulbert Road Roundabout - (2017 without development)**

Arm	AM		PM	
	Queue	RFC	Queue	RFC
Maurepas Way	0.7	0.425	1.8	0.641
London Road	0.7	0.427	0.5	0.314
Hulbert Road	1.5	0.601	9.3	0.913

Table 8.4**Hulbert Road/Tempest Avenue Roundabout - (2017 without development)**

Arm	AM		PM	
	Queue	RFC	Queue	RFC
Hulbert Road (west)	4.0	0.806	2.6	0.725
Tempest Avenue	105.4	1.314	1.2	0.549
Hulbert Road (east)	1.6	0.622	141.0	1.112
Frendstaple Road	2.1	0.685	10.7	0.955

- 8.11 The following summary tables 8.5 and 8.6 are set out to illustrate the queuing and RFC for Design Year 2017 with the Development Flows.

Table 8.5
London Road/Hulbert Road Roundabout - (2017 with development)

Arm	AM		PM	
	Queue	RFC	Queue	RFC
Maurepas Way	0.7	0.427	1.8	0.648
London Road	0.8	0.436	0.5	0.319
Hulbert Road	1.5	0.605	10.2	0.922

Table 8.6
Hulbert Road/Tempest Avenue Roundabout - (2017 with development)

Arm	AM		PM	
	Queue	RFC	Queue	RFC
Hulbert Road (west)	4.3	0.816	2.6	0.728
Tempest Avenue	110.3	1.334	1.2	0.551
Hulbert Road (east)	1.6	0.623	147.9	1.118
Frendstaple Road	2.1	0.685	10.8	0.956

- 8.12 The above tables clearly demonstrate that the differences in queues and RFCs, "with development", compared with "without development" are insignificant. The proposals would therefore not have a severe impact on the surrounding highway network.

9.0 SUMMARY AND CONCLUSIONS

- 9.1 The Transport Assessment (TA) has been prepared by Bellamy Roberts LLP on behalf of Linden Homes. The TA identified the access strategy and assessed the residential proposals in terms of transport impact, highway safety and sustainability.
- 9.2 The proposal would deliver and promote a sustainable residential development, in accordance with National and Local Transport Policies.

- 9.3 The proposal will provide a site Travel Plan to deliver sustainable travel. A Travel Plan Framework has been prepared and accompanies the planning application.
- 9.4 The anticipated traffic movements generated by the proposal would not have a severe impact on the operation of the local highway network and, as such, and in accordance with National Planning Policy Framework (NPPF) should be acceptable on highway and transport grounds.