



United Welsh Housing Association

**Land at Caerleon Road,
Dinas Powys**

TRANSPORT STATEMENT

July 2013

Applicant: United Welsh Housing Association

Project no: T13.123

Document ref no: T13.123.D1

Document issue date: **July 2013**

Project name: Land at Caerleon Road,
Dinas Powys

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1 INTRODUCTION

1.1 Background

1.1.1 Asbri Transport has been appointed by United Welsh Housing Association to produce a Transport Statement (TS) in support of an outline planning application to develop a 2.73 hectare area land within Dinas Powys to provide approximately 70 residential dwellings.

1.1.2 The indicative masterplan for the site shows:

- 40 no. open market houses;
- 20 no. affordable dwellings (houses);
- Six no. affordable dwellings (Flats); together with,
- 152 car parking spaces.

1.1.3 During the recent public consultation, a number of issues were raised with regard to the proposed development, including:

- Speed of vehicles along Caerleon Road; and,
- Local traffic impact.

1.1.4 These issues are discussed in more detail within the report.

1.2 Purpose of the report

1.2.1 The main purpose of the report is to assess the likely increase in travel demand generated by the proposed development, identify the likely impact of the proposals on the surrounding transport network, and identify any measures required to mitigate the impact of the proposals.

1.3 Structure of the report

1.3.1 Following this introductory section, the report is structured as follows:

- Section 2 details the existing transport network surrounding the development site and a review of collision data within the study area;

- Section 3 outlines the development proposals;
- Section 4 considers the likely travel demand generated by the proposed development, and the impact on the surrounding transport network; and,
- Section 5 provides the conclusions of the report.

2 EXISTING SITUATION

2.1 Site location

2.1.1 As outlined above, the proposed development is a 2.73 hectare greenfield site situated within Dinas Powys, vale of Glamorgan.

2.1.2 The site is bounded to the north and east by greenfield field land, to the south by properties fronting Caerleon Road and to the west by the Vale of Glamorgan railway line.

2.1.3 The location of the development is identified in **Figure 2.1**.

2.2 Highway network

2.2.1 The highway network in the vicinity of the site is shown in **Figure 2.2**.

A4055 Cardiff Road

2.2.2 The A4055 is situated to the west of the proposed development and is the nearest district distributor road to the site providing a continuous link between Cardiff (to the east) and Barry (to the west), via the village of Dinas Powys.

2.2.3 Within the village of Dinas Powys, Cardiff Road varies in width between approximately 6m and 7m, and is predominantly fronted by residential dwellings. The carriageway has footways on both sides, is lit and is subject to a 30mph speed limit.

Murch Road

- 2.2.4 Murch Road is situated to the south of the proposed development and runs east-west through the village. The road links to the A4055 Cardiff Road to the west and terminates at the eastern fringe of the settlement, and there is an existing highway sign (adjacent to Windyridge) that informs road users that it is a no-through route.
- 2.2.5 The road is a local distributor providing access to a number of residential roads along its length.
- 2.2.6 The road is approximately 7m wide in proximity of the junction with Castle Drive with footways (approximately 2m wide) along both sides of the carriageway. The road is lit and is subject to a 30mph speed limit.

Castle Drive/Conway Close/Caerleon Road

- 2.2.7 Castle Drive/Conway Close/Caerleon Road form the link between the proposed site access and the wider highway – feeding into Murch Road.
- 2.2.8 Within proximity of the Castle Drive/Murch Road priority junction, Castle Drive serves a number of commercial premises/convenience stores and their associated parking facilities.
- 2.2.9 Castle drive is a predominantly residential road, which varies in width between approximately 6.6m and 6.8m, and includes footways (approximate width of 1.8m) on both sides of the carriageway. The road is lit, and is subject to a speed limit of 30mph.
- 2.2.10 Approximately 500m from the start of Castle Drive, the road forms a junction with Conway close. This is a residential road with direct frontage access, and provides access to a number of residential cul-de-sacs. The road is approximately 5.8m wide, has footways (approximate width of 1.8m) on both sides of the carriageway, is lit, and is subject to a 30mph speed limit.
- 2.2.11 Caerleon Road is a continuation of Conway Close, running from the Criccieth Court for approximately to the north-west.

2.2.12 The road provides access to a number of residential cul-de-sacs, varies in width between 5.6m and 6.8m, and has pedestrian footways (approximate width of 1.8m) on both sides of the carriageway for the 'majority' of its length. The road is lit, and is subject to a 30mph speed limit.

2.3 Base traffic flows

2.3.1 In order to determine traffic flows within the vicinity of the site, a fully classified turning count was undertaken at the Castle Drive/Conway Close junction.

2.3.2 The surveys were undertaken on Thursday 27 June 2013 (between 0730-0930 and 1630-1830 hours), and the peak hour traffic flows are summarised in **Figure 2.3**.

2.4 Public Transport

2.4.1 Dinas Powys is a relatively large village, with a population of approximately 8800. Typically, the village is reasonably well served by public transport services. There are a number of bus routes connecting the village with Cardiff, Barry and Penarth. The site is also accessible by rail, with the nearest rail station at Eastbrook, which is located approximately 270m to the west of the site, as shown in **Figure 2.4**.

Bus services

2.4.2 There are existing bus stops on Castle Drive and Murch Road – to the south of the proposed development, which are within easy walking distance (i.e. less than 400m) of the proposed development.

2.4.3 **Table 2.1** below outlines the services that call at bus stops within the vicinity of the site.

Route No.	Origin destination	Frequency
89A	Cardiff – Cardiff Bay – Llandough – Dinas Powys	09:48-17:48, Service every 2 hours (Monday-Saturday)
89A	Dinas Powys – Llandough – Cardiff Bay – Cardiff	07:57-16:05, Service every 2 hours between 10:05-16:05 (Monday-Saturday)
93	Cardiff – Penarth – Dinas Powys – Barry	07:59-18:51, Service every hour between 09:37-16:37 (Monday-Saturday)
93	Barry – Dinas Powys – Penarth – Cardiff	07:55-18:52, Service every hour between 10:52-18:52 (Monday-Saturday)

Table 2.1 Existing scheduled bus services

2.4.4 Local bus routes/stops are shown in **Figure 2.4**.

Rail services

- 2.4.5 As outlined above, the nearest rail station to the site is Eastbrook, which is located approximately 270m to the west of the site. This is well within the preferred maximum walk distance of 2km for commuting purposes (Chartered Institute of Highways and Transportation, Guidelines for providing journeys on foot, Table 3.2, p49).
- 2.4.6 The station is situated on the Vale of Glamorgan line, which runs from Cardiff Central to Bridgend (via Rhoose and Llantwit Major), with a short branch line to Barry Island.

2.5 Pedestrians and cyclists

- 2.5.1 As outlined above, the majority of roads within the vicinity of the site have footways on one or both sides of the carriageway, providing links between the site and the surrounding facilities. However, in terms of pedestrian crossings, there are no formal crossing facilities within the vicinity of the site.
- 2.5.2 In addition to the above, pedestrians are also provided with a footway link between the end of Caerleon Road and Eastbrook station. The footway also extends into the end of Chamberlain Road providing access to a footbridge crossing the railway line.
- 2.5.3 The CIHT guidelines indicate that the desirable walking distance for commuting/school journeys is 500 metres, the acceptable walking distance is 1.0km and 2.0km is the preferred maximum.
- 2.5.4 **Figure 2.5** indicates the 500m, 1.0km and 2.0km isochrones from the centre of the proposed site, together with local amenities within walking distance of the site.

Cycle routes

2.5.5 There are no formal cycle facilities within the immediate vicinity of the site. However, the Cardiff Bay Trail is within easy cycling distance of the site, providing a circular route running around Cardiff Bay and into Penarth, providing access to a range of facilities including the International Sports Village. This route is shown in **Figure 2.6**

2.6 Highway safety

2.6.1 This section of the report reviews collision data within the study area, which consists of Castle Drive/Conway Close/Caerleon Road, refer to **Figure 2.7**.

2.6.2 Collision data for the five year period 2007 to 2011 were obtained for the study area, and these are outlined in **Table 2.2** below.

	Personal injuries			Casualties
	Fatal	serious	slight	
2007	0	1	0	2
2008	0	0	0	0
2009	0	0	0	0
2010	0	0	0	0
2011	0	0	0	0
Total	0	1	0	2

Table 2.2 Summary of personal injury accident data

2.6.3 It can be deduced from the table above that there has only been 1 collision within the study area, resulting in 2 casualties, with:

- There were no accidents that resulted in slight injuries being sustained,
- One accident resulted in serious injuries being sustained; and,
- There were no accidents that resulted in fatalities.

2.6.4 The location of the collision is summarised in **Figure 2.8**.

3 DEVELOPMENT PROPOSALS

3.1 Development land use

3.1.1 As outlined in the section above, it is proposed to develop the site to provide approximately 70 residential dwellings comprising a mix of 1, 2, 3, 4 and 5 bedroom properties, together with approximately 152 car parking spaces. An outline masterplan for the proposed development is shown in **Figure 3.1**.

3.1.2 The indicative masterplan shows 40 dwellings as open market houses, and the remaining 26 dwellings as affordable dwellings.

3.1.3 The following section of the report outlines:

- The proposed access arrangements (for pedestrians, cyclists and vehicular traffic), addressing some of the issues raised by local residents during the recent consultation event; and,
- On-site car parking provision, with particular reference to the council's adopted parking standards.

3.2 Access - vehicles

3.2.1 As part of the development of the site, it is proposed to construct a new vehicular access from Caerleon Road fronting the site, refer to **Figure 3.2**.

3.2.2 The proposed access is a simple priority junction that has been designed in accordance with standards set out in Design Manual for Roads and Bridges (DMRB) Volume 6, section 2, part 6 – TD 42/95.

3.2.3 A swept-path analysis has been undertaken to demonstrate that the proposed access/layout is capable of accommodating the range and type of vehicles likely to access the site including; a refuse vehicle, a fire tender and a 10m rigid delivery vehicle. The swept-path analysis is presented in **Appendix A**.

3.2.4 As outlined above, local residents have raised a number of concerns regarding the proposed development, including:

- Speed of vehicles along Caerleon Road; and,

- Local traffic impact.

Speed reduction measures

- 3.2.5 It should be noted that Caerleon Road is a no-through route, terminating approximately 185m to the north of the proposed site access. The road is also characterised by a large amount of on-street parking, and the geometry of the road is such that excessive vehicle speeds are unlikely.
- 3.2.6 Notwithstanding the above as part of the development proposals, it is proposed to implement traffic calming measures at the access to the site, and at the Caerleon Road/Criccieth Court junction, refer to **Figure 4.3**.
- 3.2.7 Based on the residential nature of the roads, and the swept path/road geometry it is considered that the most suitable form of speed control (in close proximity of the site access) would be raised tables, which maintain low vehicle speeds (between 14-20mph can be achieved using 100mm humps) and provide pedestrians with useful crossing points.

Visibility splays at the proposed site access

- 3.2.8 As described above, Caerleon Road is subject to a speed limit of 30mph. Visibility splay requirements are based on vehicle sight stopping distance (SSD) for the speed of the road, and for a 30mph speed limit the SSD is 43m (adjusted for bonnet length).
- 3.2.9 **Figure 4.5** indicates the required visibility splays at the proposed site access – 2.4m by 43m (in accordance with Manual for Streets –MfS – Table 7.1), and it can be seen that the visibility splays can be achieved without the need for 3rd party land.

Localised congestion

- 3.2.10 The volume of traffic generated by the proposed development, and the impact on traffic flows throughout the study area is described in detail in the following sections.

3.3 Access – pedestrians and cyclists

3.3.1 As indicated in Figure 4.1, it is anticipated that the proposed vehicular access to the site will provide access for pedestrians and cyclists.

3.4 Car parking provision

3.4.1 The proposed on-site car parking provision has been derived from the Vale of Glamorgan's (VOG) adopted parking standards, which are based on the Standing Conference on Regional Policy in South Wales Parking Guidelines (Revised Edition 1993) in addition to consultation with VOG's Highways department.

3.4.2 Based on the adopted standards, the required number of car parking spaces for the indicative scheme would be 186, which is summarised below:

- Houses: 172 off-street parking bays for residents and 12 on-street parking bays for visitors.
- Apartments: 6 off-street parking bays for residents and 2 on-street parking bays for visitors.

3.4.3 However, based on discussions with the council, it is proposed to provide a maximum of 152 spaces on-site as follows. The parking provision will comprise a mix of on-plot parking spaces (including garages), parking courts, and (some) on street parking for visitors.

3.4.4 In order to facilitate the use of on-street parking for visitors to the site, on-site roads have been designed such that stationary vehicles will not unduly delay or impede the movement of traffic through the site.

4 TRANSPORT CHARACTERISTICS

4.1 Introduction

4.1.1 This section of the report outlines the likely volumes of traffic generated by the proposed development, based on a review of the TRICS trip generation database, together with the potential impact of the proposals on the surrounding highway network.

4.2 Trip generation

Houses – privately owned

4.2.1 The vehicle trip generation rates for the proposed residential dwellings have been obtained from the TRICS 2013(b) trip generation database. Sites were selected on the basis of the following selection criteria:

- Land use: residential – houses privately owned;
- Survey days: Monday – Friday;
- Number of units: 17 to 59 dwellings; and,
- Location of the development: UK, excluding Greater London, Northern Ireland and Republic of Ireland.

4.2.2 The TRICS outputs are set out in **Appendix B** and the peak periods are summarised in **Table 4.1** below. It should be noted that 85th percentile trip rates have been used to provide a robust assessment of the scheme.

Peak Period	Arrivals Trip Rate	Departures Trip Rate	Total Trip Rate	Vehicle Arrivals	Vehicle Departures	Total Vehicles
Am peak	0.231	0.569	0.8	9	23	32
Pm peak	0.483	0.317	0.8	19	13	32

Table 4.1 Summary of trip rates/vehicular generation – housing privately owned

4.2.3 It can be seen from the table above that the open market housing element of the proposed development is likely to generate 32 vehicles two-way in the am peak period and 32 vehicles two-way in the pm peak period.

Houses – for rent

4.2.4 The vehicle trip generation rates for the proposed residential dwellings have been obtained from the TRICS 2013(b) trip generation database. Sites were selected on the basis of the following selection criteria:

- Land use: residential – houses for rent;
- Survey days: Monday – Friday;
- Number of units: 11 to 46 dwellings; and,
- Location of the development: UK, excluding Greater London, Northern Ireland and Republic of Ireland.

4.2.5 The TRICS outputs are set out in **Appendix C** and the peak periods are summarised in **Table 4.2** below. It should be noted that average percentile trip rates have been used to provide the assessment of the scheme.

Peak Period	Arrivals Trip Rate	Departures Trip Rate	Total Trip Rate	Vehicle Arrivals	Vehicle Departures	Total Vehicles
Am peak	0.128	0.239	0.367	3	5	8
Pm peak	0.318	0.196	0.514	6	4	10

Table 4.2 Summary of trip rates/vehicular generation – houses for rent

4.2.6 It can be seen from the table above that the housing for rent element of the proposed development is likely to generated 8 vehicles two-way in the am peak period and 10 vehicles two-way in the pm peak period.

Flats – for rent

4.2.7 The vehicle trip generation rates for the proposed residential dwellings have been obtained from the TRICS 2013(b) trip generation database. Sites were selected on the basis of the following selection criteria:

- Land use: residential – flats for rent;
- Survey days: Monday – Friday;
- Number of units: 6 to 28 dwellings; and,

- Location of the development: UK, excluding Greater London, Northern Ireland and Republic of Ireland.

4.2.8 The TRICS outputs are set out in **Appendix D** and the peak periods are summarised in **Table 4.3** below. It should be noted that average percentile trip rates have been used to provide the assessment of the scheme.

Peak Period	Arrivals Trip Rate	Departures Trip Rate	Total Trip Rate	Vehicle Arrivals	Vehicle Departures	Total Vehicles
Am peak	0.140	0.126	0.266	1	1	2
Pm peak	0.142	0.082	0.224	1	0	1

Table 4.3 Summary of trip rates/vehicular generation – flats for rent

4.2.9 It can be seen from the table above that the Flats for rent element of the proposed development is likely to generated 2 vehicles two-way in the am peak period and 1 vehicle two-way in the pm peak period.

Total trip generation

4.2.10 Total trips generated by the private and affordable housing are detailed in **Table 4.4** below.

Peak period	Vehicle Arrivals	Vehicle Departures	Total Vehicles
Am peak	13	29	42
Pm peak	26	17	43

Table 4.4 Total trips generated

4.2.11 From Table 4.4, it is anticipated that the proposed development could generate up to 42 vehicle movements (two-way) in the am peak and 43 vehicle movements (two-way) in the pm peak period.

4.3 Assignment and distribution of development traffic

4.3.1 Development traffic has been assigned to the local highway network on the basis of existing traffic movements throughout the study area. The distribution of development traffic is summarised in **Figure 4.1**.

4.4 Future traffic flows

Background traffic growth

4.4.1 In order to obtain the base traffic flows (i.e. with no development traffic) in 2015 and 2025, the surveyed traffic flows (2013) have been factored using NTM growth factors.

4.4.2 The factors to be applied to the base (surveyed) flows are identified in **Table 4.5** below.

Period	NTM growth factors	
	Weekday am	Weekday pm
2013 – 2015	1.0102	1.0107
2013 – 2025	1.1640	1.1606

Table 4.5 NTM growth factors

4.4.3 It should be noted that, NTM growth factors are based on recent planning data (which will include committed developments).

Future base traffic flows

4.4.4 The future base traffic flows (i.e. with no development) for all assessment periods have been obtained by factoring the surveyed flows (see Figure 2.3) using the factors set out in Table 4.5 above.

4.4.5 The 2015 and 2025 base flows are set out in **Figure 4.2** and **Figure 4.3** respectively.

Final future traffic flows

4.4.6 The final future traffic flows have been obtained by combining residential development generated traffic flows (identified in Figure 4.1) with the 2015 and 2025 future base traffic flows (identified in Figures 4.2 and 4.3).

4.4.7 The final future flows in 2015 and 2025 are set out in the **Figures 4.4** and **4.5** respectively.

4.5 Potential impact

4.5.1 In relation to thresholds for Transport Assessments (TA), TAN18 suggests that a TA would normally be required for residential developments greater than 100 dwellings.

4.5.2 Notwithstanding the above, the operation of the junction of Caerleon Road/Site access (see Figure 3.2) has been assessed for each of the assessment periods, using the TRL program PICADY/5.0. The results of the analysis are presented in full in **Appendix E** and summarised in **Table 4.6** below.

Peak Period	Base + committed development			
	0800-0900		1600-1700	
	RFC	Max q	RFC	Max q
2015 – Opening year				
Caerleon Road	0.024	0.02	0.047	0.05
Site access	0.074	0.08	0.075	0.08
2025 – Future year				
Caerleon Road	0.024	0.02	0.047	0.05
Site access	0.074	0.08	0.075	0.08

Table 4.6 PICADY analysis – Caerleon Road/Site priority junction

4.5.3 It can be seen from the results of the analysis that the junction has sufficient capacity to accommodate the proposed development, with a maximum RFC of 0.079 and a mean maximum queue of less than 1 pcu in the am peak period in 2025.

5 SUMMARY AND CONCLUSIONS

5.1 Background

- 5.1.1 Asbri Transport has been appointed by United Welsh Housing Association to produce a Transport Statement (TS) in support of a planning application to develop approximately 2.7 hectares of land adjacent to Caerleon Road, Dinas Powys.
- 5.1.2 The indicative masterplan shows:
- 40 no. open market houses;
 - 20 no. affordable dwellings (houses);
 - Six no. affordable dwellings (Flats); together with,
 - 152 car parking spaces.
- 5.1.3 The proposed development site is well served by public transport located and is within 400m of bus stops and Eastbrook train station.
- 5.1.4 The majority of road within vicinity of the site have footways on one or both sides of the carriageway, providing links between the site and local facilities.
- 5.1.5 Collision data for the study area demonstrates that during the five year period ending in 2011, there has only been 1 accident.
- 5.1.6 In order to access the development, it is proposed to construct a new vehicular access from Caerleon Road fronting the site, which will also be used by pedestrians and cyclists accessing/egressing the site.
- 5.1.7 As part of the development proposals, it is proposed to implement traffic calming measures at the proposed Caerleon Road/site access junction and at the Caerleon Road/Criccieth Court junction in the form of junction plateaus.
- 5.1.8 In relation to thresholds for Transport Assessments (TA), TAN18 suggests that a TA would normally be required for residential developments greater than 100 dwellings.

5.1.9 Notwithstanding the above Capacity analysis of the proposed Site access/Caerleon Road Junction, demonstrates that the proposed junction has sufficient capacity to accommodate the proposed development, with minimal impact on the local highway network.

5.2 Conclusions

5.2.1 Overall, it is considered that traffic generated by the proposed development can be accommodated within the existing highway network without increasing delays to existing road users.

5.2.2 It is also considered that the development proposals – which incorporate traffic calming measures along Caerleon Road – go some way to address the concerns raised by local residents at the recent public consultation event.

Figures

Appendices
