

PROPOSED RESIDENTIAL DEVELOPMENT, BROADOAK FARM, ROSSETT

1 BACKGROUND

- 1.1 Vectos has been commissioned to provide additional transport information to support a planning application (Ref: P/2017/0623) for a residential development at Broadoak Farm in Rossett. The proposals involve the change of use, and conversion, of existing barns previously used for agriculture, to create 13 residential units with associated parking.
- 1.2 This note provides additional information in response to a formal consultation from Wrexham County Borough Council's (WCBC) Highways Officers on the 15th of August 2017 and subsequent meeting on the 13th September 2017. It provides information on:
- Site access improvements;
 - Daily operation of Llyndir Lane/Cobblers Lane;
 - Local facilities in the vicinity of the site;
 - Predicted development trip generation; and
 - Requirement for any off-site highway improvements.
- 1.3 It should be read in conjunction with the '*Supplemental Note – Highways*' prepared by Cassidy + Ashton and submitted as part of the planning application.

2 SITE ACCESS IMPROVEMENTS

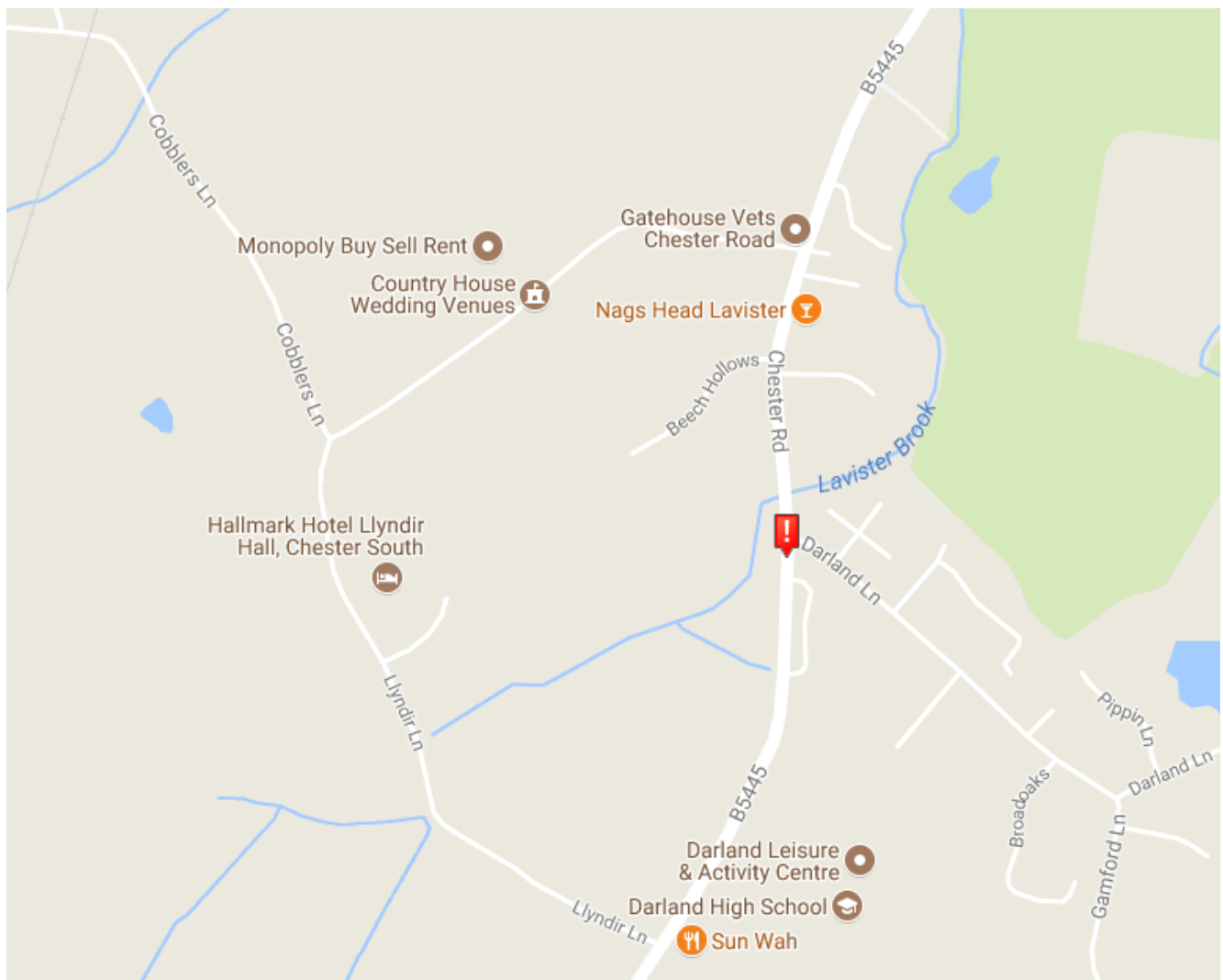
- 2.1 The proposed improvements to the site access are presented in **Plan 1**. This builds on the principle outlined in the original planning submission that there will be two vehicular access points into the site, making use of two existing site access junctions. A third existing access to the north is to be closed to vehicles but will remain available as a pedestrian only link.
- 2.2 The layout provides additional detail relating to the realigned carriageway which was noted in the original Cassidy + Ashton planning submission. A consistent width of 5 metres in the vicinity of the farm is provided reflecting the existing width of Llyndir Lane/Cobblers Lane to the south of the site and assists with overall route continuity. It should be noted that a width of 5 metres typically caters for a range of residential developments and is noted in the '*Manual for Streets*' (2007) as being suitable for a car and a large vehicle to pass. It is considered that the proposals to increase the carriageway width to provide a consistent 5 metres width would be of benefit to the network whilst facilitating access to and from the site.

- 2.3 Consideration has been given to a wider carriageway of 5.5 metres (as requested by WCBC Highways). However, the review has highlighted a number of constraints (i.e. statutory undertakers equipment and structures) that limit what can sensibly be achieved in this area. Specifically, there is overhead electricity apparatus within the verge on the western side of the carriageway and a bridge structure to the north over the watercourse. Care has been taken to avoid affecting this infrastructure unnecessarily.
- 2.4 The layout realigns the Llyndir Lane/Cobblers Lane carriageway utilising space within the verge on the western side which is existing adopted highway. There are no additional lengths of culvert proposed as part of the works, acknowledging local policy requirements.
- 2.5 The realignment allows visibility at the two main site access points to be improved with a splay of 2.4 metres by 49 metres achievable at both (see **Plan 1**), measured to the nearside track of an approaching vehicle. This is in line with guidance contained within the '*Manual for Streets*' (2007) and speed data recorded by WCBC Highways.
- 2.6 In addition, as part of the carriageway realignment, it is possible to provide an additional length of footway along the development frontage between the two access points. This further facilitates pedestrian access to the development.

3 LLYNDIR LANE/COBBLERS LANE

- 3.1 As previously noted by Cassidy + Ashton in their '*Supplemental Note – Highways*,' Llyndir Lane/Cobblers Lane is currently a quiet rural link with low flows and speeds controlled naturally by the available widths and carriageway alignment. Survey information previously presented highlights that the total daily two-way flow is 254 vehicles. In the typical peak hours of 0800-0900hrs and 1700-1800hrs, the total two-way flow is 16-17 vehicles, equivalent to 1 vehicle every 3-4 minutes. Throughout the day, the link accommodates a maximum of 23 vehicles in any single hour, equivalent to 1 vehicle every 2-3 minutes. Observations suggest that there are periods when there are no vehicles on the link and two-way conflict is minimal.
- 3.2 Cars have been observed to accommodate one another on Llyndir Lane/Cobblers Lane in the vicinity of the site within the available carriageway width. To facilitate the passage of cars and a large vehicle, there are existing informal passing places at regular intervals along Llyndir Lane/Cobblers Lane with drivers able to identify the presence of an oncoming vehicle and position themselves accordingly. The location of the existing informal passing places in the vicinity of the site are shown in **Plan 1**.

- 3.3 Pedestrians have been observed to walk in the carriageway on Llyndir Lane/Cobblers Lane to access the village centre but also the existing public right of way (PRoW) network in the vicinity of the farm. The curves in the carriageway provide a natural control of vehicle speeds and pedestrians are able to share the carriageway with minimal conflict observed. In the instances where a vehicle is required to pass a pedestrian, the majority of the route allows a vehicle to pass a pedestrian within the available carriageway width. There is also space along either side of the carriageway where pedestrians can stand clear of oncoming traffic for a short period (if required) until a vehicle has passed. Observations suggest that this occurs infrequently throughout the day.
- 3.4 To investigate how Llyndir Lane/Cobblers Lane is used by both pedestrians and vehicles, a review of traffic collision data has been conducted using an online database. Data for the most recently available five-year period (2012-2016) is presented in **Figure 3.1** which highlights that there have been no accidents on Llyndir Lane/Cobblers Lane in the vicinity of the site or along the route towards the village centre.



Source: Crashmap [Accessed September 2017]

Figure 3.1: Accident Summary Data

- 3.5 In addition, there are no accidents recorded at the junctions with Chester Road. Overall, it is considered that the network in the vicinity of the site currently operates in a shared manner with pedestrians and vehicles able to accommodate one another throughout the day, and there are no design features that contribute to the occurrence of accidents.

4 LOCAL FACILITIES

- 4.1 Having identified that Llyndir Lane/Cobblers Lane is a quiet rural link that is currently used by pedestrians and cyclists with no recorded accidents, a simple review of local facilities has been conducted with reference to acceptable walking and cycling distances.
- 4.2 The Institution of Highways and Transportation (IHT) document '*Guidelines for Providing for Journeys on Foot*' (2000) contains suggested acceptable walking distances for pedestrians without mobility impairment for some common facilities. The guidelines suggest that an acceptable walking distance for commuting/school purposes is 1km, with the preferred maximum distance of 2km. Walking can also be promoted as part of a multi-modal journey, particularly with public transport.
- 4.3 Within a 2km walk from the site, a variety of facilities are available in the village of Rossett. This includes a primary school, high school, leisure centre, convenience store, post office, hair salon, food takeaway, a number of public houses and churches. Once Llyndir Lane/Cobblers Lane joins Chester Road, footways are provided along either side of the carriageway with both controlled and uncontrolled crossing infrastructure facilitating access to a variety of shops, services and local amenities.
- 4.4 In terms of cycling, the IHT and Department for Transport (DfT) document '*Cycle Friendly Infrastructure: Guidelines for Planning and Design*' (1996) provides a guide on suggested cycle speeds associated with cyclists of varying confidence and ability. With reference to the guidance, a catchment of 5km would be available within approximately 20 minutes cycle time, using a speed of 10mph (16kph).
- 4.5 Within a 5km cycle from the site, Rosset and the surrounding settlements of Pulford, Lavister, Burton, Marford and Gresford are available. The very low flows on Llyndir Lane/Cobblers Lane facilitate cycling on the carriageway in the vicinity of the site with connections available within Rossett along Chester Road which has a 30mph speed limit (and a short 20mph section) with traffic calming features and interactive speed signage.

5 DEVELOPMENT SCALE AND TRIP IMPACT

- 5.1 Following requests from WCBC Highways for additional trip generation data, the TRICS database has been interrogated.

Existing Farm Trips

- 5.2 Information was previously presented by Cassidy + Ashton quantifying the existing use of the farm which has accommodated 254 vehicular movements per week, equivalent to 38 movements per day. This is based on information recorded in a log/invoice schedule held by the farm in terms of deliveries (i.e. livestock, feed, fertiliser etc.) to and from the site. It has been noted that a large number of these movements are large vehicles, some of which are slow moving and are pulling trailers which would be removed from the network as a result of the development proposals.
- 5.3 Having interrogated the TRICS database, there are no suitably comparable sites that account for the use of the farm. In any event, it is considered that the use of local, site specific information is preferable when considering trip movements rather than having to derive a trip rate from a national database.

Proposed Residential Trips

- 5.4 A review of the TRICS database has been conducted for residential sites with similar characteristics to the proposed development. **Table 5.1** provides a summary of the trips generated using the 'Houses Privately Owned' sub-land-use category within the TRICS database. Given the limited number of rural sites within the TRICS database, reference has been made to appropriate 'Edge of Town' and 'Neighbourhood Centre' locations with low populations within 1 mile to reflect the site's location with respect to other built up areas. The trip rates can be used as a guide to the possible multi-modal trips generated by the development.

Vehicles	Trip Rates (per dwelling)			Trips (13 dwellings)		
	Arrive	Depart	Total	Arrive	Depart	Total
Morning Peak Hour (0800-0900hrs)	0.143	0.407	0.550	2	5	7
Evening Peak Hour (1700-1800hrs)	0.334	0.146	0.480	4	2	6
Daily (0700-1900hrs)	2.250	2.298	4.548	29	30	59
Pedestrians	Trip Rates (per dwelling)			Trips (13 dwellings)		
	Arrive	Depart	Total	Arrive	Depart	Total
Morning Peak Hour (0800-0900hrs)	0.022	0.136	0.158	0	2	2
Evening Peak Hour (1700-1800hrs)	0.067	0.046	0.113	1	1	2
Daily (0700-1900hrs)	0.574	0.546	1.120	7	7	15

Table 5.1: Peak Hour Multi-Modal Trip Generation

- 5.5 **Table 5.1** highlights that during the morning and evening peak hours, there may be a total of 6-7 two way vehicular trips generated by the proposed development. This is equivalent to 1 extra vehicle every 8-10 minutes. It should be noted that the trips associated with residential development are often tidal in nature. This is reflected in the data in **Table 5.1** with the majority of departures in the morning and arrivals in the evening. This pattern of trip activity minimises the chance of additional two-way conflict on the route.

- 5.6 Throughout the day, vehicular trip movements generated by the development are predicted to be low with 4-5 two way movements in any single hour, equivalent to an extra vehicle every 12-15 minutes.
- 5.7 In addition to the vehicular trip movements, there may be 2 pedestrian trips generated by the proposed development in each of the peak hours. Throughout the day, there may be 1 additional pedestrian travelling either to or from the site in a single hour. As such, it is considered that there would be minimal additional conflict on the route.

Route Choice

- 5.8 From the development site, it is envisaged that the majority of vehicular trips would travel to and from Chester Road which forms the main link to surrounding residential areas and employment centres (i.e. Chester and Wrexham). Within 300 metres of the site is a decision point on the network providing two routes to Chester Road.
- 5.9 Based on a review of 2011 Census Journey to Work data, the population within Rossett have an equal split between trips to the north (i.e. Chester) and trips to the south (i.e. Wrexham). Assuming that trips to the north use the northernmost link, and trips to the south use the southernmost link, it is evident that the already limited trip impact on any one link is diluted within a short distance from the site. A summary is presented in **Figure 4.1** and **Figure 4.2**.

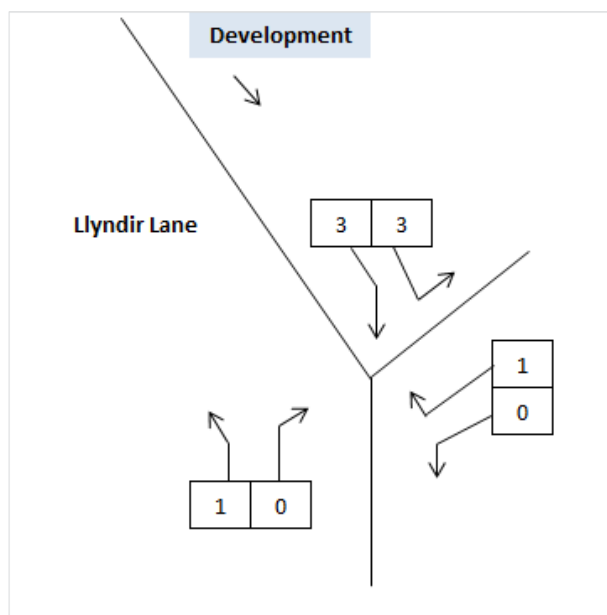


Figure 4.1: Morning Peak Hour Development Vehicular Trip Movements

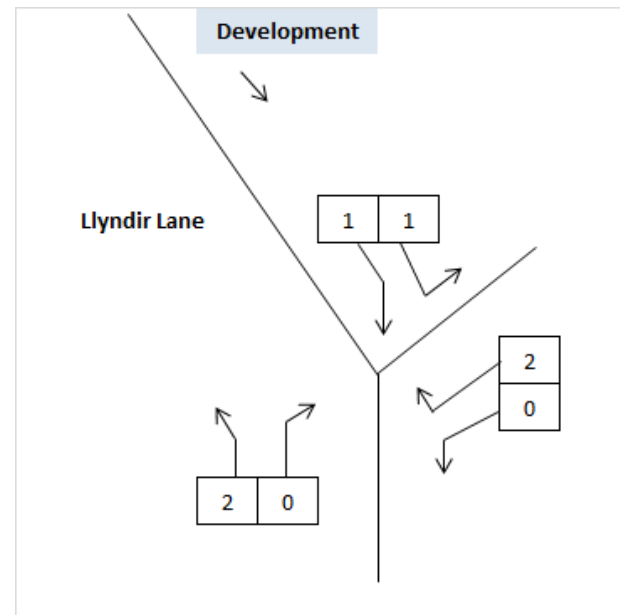


Figure 4.2: Evening Peak Hour Development Vehicular Trip Movements

- 5.10 It is considered that the route choice available within the immediate vicinity of the site will assist in managing trip movements on the network associated with the proposed development.

Net Trip Impact

- 5.11 The daily net trip impact has previously been considered by Cassidy + Ashton in their '*Supplemental Note – Highways.*' When compared with TRICS data presented in this report, it is predicted that there may be an additional 20 daily vehicular movements, equivalent to an average of 1-2 extra vehicles per hour over a 12hrs period.
- 5.12 Further interrogation of the data previously presented by Cassidy + Ashton shows that there were 56 staff movements to and from the site each week, equivalent to 10 car movements each day. Based on the assumption that these would be split with arrivals in the morning peak hour (5 trips) and departures in the evening peak hour (5 trips), the net trip impact during these times would be an additional 1-2 vehicles. It is considered that a change in flow of 1-2 vehicles in the peak hours would not be discernible from typical fluctuations in daily traffic flow and therefore cannot be considered to be a severe impact.
- 5.13 Other trip movements associated with the farm are understood to be larger vehicles and equates to 150 movements per week, or 27 movements per day. As previously noted by Cassidy + Ashton, this includes the delivery of livestock, feed, whey and manure. Assuming that these deliveries are coordinated outside of the typical morning and evening peak periods during the interpeak period (i.e. an 8 hrs period between 0900-1700hrs), it is considered that there may be 3-4 movements per hour associated with the farm that need to be offset against the proposed residential trip generation. This equates to a net trip impact of 1-2 additional vehicles per hour during the interpeak period which again, in terms of volume, is unlikely to be discernible from typical fluctuations in daily traffic flow.
- 5.14 The most perceptible difference in the use of Llyndir Lane/Cobblers Lane is likely to be associated with the removal of large, slow moving farm vehicles (some with trailers) from the network as a result of the development proposals. It is considered that road users (including pedestrians) would be more likely to acknowledge the removal of 3-4 large goods vehicles per hour from the route rather than the small increase in the number of cars using the route. As such, it is considered that the potential conflict on the route between a large vehicle and light vehicle would be reduced, and pedestrian comfort would be improved.

6 OFF-SITE HIGHWAY IMPROVEMENTS

- 6.1 It is noted that WCBC have requested the provision of additional passing places on Lyndir Lane/Cobblers Lane and a separate pedestrian footpath between the site and the business park, within land owned by the applicant.

- 6.2 As previously noted, cars are generally able to accommodate each other along the route, within the available carriageway width. To assist the passage of cars and larger vehicles, there are existing informal passing places on Llyndir Lane/Cobblers Lane which are located at regular intervals along the route with drivers able to identify if there are any oncoming vehicles and manoeuvre accordingly. Given the existing provision, it is considered that additional passing places would not be required as part of the development proposals.
- 6.3 In addition to passing places, WCBC have requested that an additional length of footway be provided as part of the development proposals, within land owned by the applicant. Specifically, this relates to a footway extending for a length of approximately 350 metres from the existing provision on Llyndir Lane/Cobblers Lane near the site, behind the hedge, and terminating in the vicinity of the business park where additional footway is then provided adjacent to the carriageway. This was previously presented in an application (Ref: P/2010/0510) associated with a larger development scale of up to 24 residential dwellings and 600sqm of B1 office space.
- 6.4 As previously noted, the additional pedestrian movement equates to 2 trips in both the morning and evening peak hours, with a maximum of 1 trip in any single hour throughout the day. Given that pedestrians have already been observed to walk in the carriageway due to the low traffic flows and minimal conflict with no recorded accidents, it is considered that the existing use of the road would not prevent pedestrians from choosing to walk in the carriageway.
- 6.5 However, the '*Supplemental Note – Highways*' prepared by Cassidy + Ashton noted that the applicant is willing to work with WCBC to improve the wider network. As such, rather than provide a new footway link behind the hedge within the applicant's land towards the business park, it is considered that the footway could extend to the junction to the south thereby providing a segregated route for pedestrians.
- 6.6 At the junction, given the low flows and location of facilities and amenities in the village centre, it is considered that an improvement could be delivered on the route passed the hotel/country club. Whilst there is no space to provide a formal, segregated footway, it is considered that additional route and warning signage and/or carriageway markings on Llyndir Lane/Cobblers Lane could be promoted in a 'quiet lanes' style approach to further manage the flow of vehicles and pedestrians along the whole of the route, thereby providing additional benefits. This would be subject to further discussion with WCBC but would seek to maintain the character of the rural road network whilst still facilitating pedestrian movements to and from Rossett village centre and the public right of way network.

7 SUMMARY

- 7.1 Based on the information provided in this note, and the information previously submitted by Cassidy + Ashton, it is considered that access improvements can be provided within the existing public highway with a consistent width of 5 metres and additional section of pedestrian footway between the main access points. This not only facilitates access to the development site but would be of benefit to other road users in the vicinity. In addition, visibility at both of the existing site access points can be improved to be in line with recorded vehicle speeds.
- 7.2 It is considered that the proposed development of 13 dwellings would have a negligible impact on the operation of the local highway network, in terms of highway capacity. The trip generation exercise completed using TRICS data indicates that the site may generate 6-7 two-way vehicular movements in the peak hours with a choice of routes available to access the wider network. When accounting for the trips associated with the farm use, the net trip impact is 1-2 additional vehicles in the peak hour and throughout the day which is unlikely to be discernible to existing road users. However, what is likely to be more noticeable is that fact that regular large vehicle movements associated with the farm will be removed, which will enhance pedestrian comfort and improve the experience for all road users.
- 7.3 In terms of how Llyndir Lane/Cobblers Lane is currently utilised, the existing shared use with low flows, speeds managed by the available width, informal passing places, and no recorded accidents suggest that the route already accommodates a variety of user needs with links to a number of services and amenities in the village centre. There is no reason to suggest pedestrians would choose not to walk into the village centre simply because there is not a continuous footway link from the site.
- 7.4 Despite observations as to how the route is currently used, the applicant is willing to assist further with off-site improvements. A new footway is proposed within the applicant's land behind the hedge from the existing footway in the vicinity of the site, to the junction immediately south. From this point, it is considered that a package of measures could be promoted referencing a 'quiet lanes' style approach that would retain the rural character of the area whilst still facilitating the movement of pedestrians along the carriageway (i.e. additional route and warning signage and/or carriageway markings).
- 7.5 Overall, it is considered that the development proposals would result in a very small increase in the level of traffic to and from the site each day which in terms of volume is unlikely to be noticeable from daily fluctuations in daily traffic. However, the removal of large vehicles accessing the farm will be more noticeable to existing road users, thereby enhancing comfort levels for all road users, including pedestrians. The commitment to assist with a package of off-site highway improvements will be of benefit to both development trips and existing trips to and from the village centre and public right of way network.