

## Note / Memo

**HaskoningDHV UK Ltd.  
Transport & Planning**

To: Badgers Mount Parish Council  
From: Sandra Holmes / Sarah Simpson  
Date: 11 October 2019  
Copy: O'Neill Homer  
Our reference: PB9290-RHD-ZZ-XX-NT-Z-0001  
Classification: Project related

**Subject: Transport Advice for Badgers Mount, Kent**

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## 1 Introduction

1.1.1 Royal HaskoningDHV has been appointed by Badgers Mount Parish Council to provide transport advice in support of the development of the Badgers Mount Neighbourhood Plan.

1.1.2 Consideration has been given to four Local Plan proposed submission sites, two of which are within the Badgers Mount Parish boundary, and the potential impact of the trips generated at these sites on the local highway network.

1.1.3 This report seeks to provide high level advice on:

- defining the dominant characteristics of the local transport network;
- calculating current loading and maximum theoretical capacities of road;
- defining and evaluating the levels of airborne noise and pollution;
- evaluating how noise and pollution relate to traffic densities; and
- identifying the impact that these proposed sites would foreseeably have on the local highway network.

1.1.4 To this end, this report comprises of the following:

- Section 2 provides the background and location of Badgers Mount and proposed sites for submission into the local plan within the local highway network, the location of proposed sites for submission into the historical transportation concerns in Badgers Mount and identifies the key characteristics of the surrounding highway and rail network, identifies major junctions;
- Section 3 reviews national, regional and local policy regarding baseline traffic data, as well as future growth and development in Kent (2016–2031) and highlights the implications of this development on infrastructure and transport;
- Section 4 reviews the potential traffic impact of the proposed sites for submission in the Local Plan;
- Section 5 reviews the environmental concerns of noise and pollution, and evaluates how these relate to traffic densities; and
- Section 6 sets out the recommendations and concludes this report.

## 2 Background and Location within the Highway Network

- 2.1.1 Badgers Mount is a hamlet of circa 260 properties in West Kent, to the south of London. It is located to the north-west of Sevenoaks, between Sevenoaks, Bromley and Orpington. Situated on the upper slopes of the North Downs within the Kent Downs Area of Outstanding Natural Beauty (AONB) and largely within the London (Metropolitan) Green Belt, this area forms a gateway to the renowned and historic Darent Valley.
- 2.1.2 Previously part of the Shoreham Parish Council, Badgers Mount formed its own Parish Council in 2015, and on 10<sup>th</sup> June 2019 the parish area was designated as a Neighbourhood Area by Sevenoaks District Council.
- 2.1.3 The Badgers Mount Parish Council has subsequently established a Neighbourhood Plan Steering Group, and Sevenoaks District Council is a member on that group. The group consists of a wide variety of stakeholders including local district councils, councillors, the Highways Agency, the Environmental Agency, local wildlife trusts, major transport providers such as Transport for London and Network Rail, major service providers including BT and British Gas, local businesses and charities, local service providers, residents and land owners.
- 2.1.4 The Badgers Mount Parish Council Neighbourhood Plan Update (July 2019) states that their Neighbourhood Plan should be '*underpinned by solid groundwork and a strong audit trail*'. Stakeholder engagement is fundamental to identifying issues and constraints.
- 2.1.5 The Badgers Mount Neighbourhood Plan (BMNP) provides the local community with a legal 'voice' in planning matters, setting out policies on the development and use of land in the parish or neighbourhood. Once formulated, the BMNP becomes part of the Local Authority Development Order which grants permission for specific development proposals, parking provision, housing mix, development densities, issues of heritage and character of a place, environmental and traffic issues. This BMNP will be a material consideration in the determination of planning applications. To this end the BMNP Steering Group aims to forge close links with Sevenoaks District Council to reduce conflict relating to development strategies, and to ensure that the BMNP is underpinned by the aims and outcomes of the Sevenoaks District Council Local Plan which is currently under review.
- 2.1.6 The hamlet of Badgers Mount is located approximately 2,3 kilometres (kms) from Junction 4 on the M25 and is bounded to the north (in part), to the east and south by the M25 which follows a north-south alignment.
- 2.1.7 The northern boundary follows the alignment of Chelsfield Lane in a north-westerly direction, passing under the M25 to the junction with Hewitts Road, Maypole Road and Hollybush Lane.
- 2.1.8 Badgers Mount Parish area is bounded to the west by Old London Road, which has a north-west to south-east alignment, and extends from the Shoreham Lane/Hewitts Road/Maypole Road/Hollybush Lane junction to the M25/A21 roundabout, largely following the alignment of the Old London Road from the M25/A21 roundabout to the A224/Old London Road/Shoreham Lane roundabout before bearing south for a further 1.75kms.

- 2.1.9 The southern boundary of Badgers Mount Parish follows the Old Polhill Public Right of Way (PRoW Reference SR714), crossing under the M25 to the railway line east of the M25 just north of the junction of Twitton Lane and Fliston Lane.
- 2.1.10 The eastern boundary follows this railway northwards to the tunnel at Polhill Bank, then bears north-west across the M25 before bearing immediately north-east to cross back over the M25, following a south-west to north-east alignment to Timberden Farm on Shacklands Road.

#### **The Orpington Bypass (A224)**

- 2.1.11 The A224, also known as the Orpington Bypass, follows a north-west to south-east alignment from the M25/A21 roundabout in the north-west, through Badgers Mount for a total of 1.68kms to the Shoreham Lane/Shacklands Road roundabout in the south.
- 2.1.12 Through Badgers Mount the A224 is a two-way single carriageway link road with road markings and street lights.

#### **Old London Road**

- 2.1.13 Old London Road follows a north-west to south-east alignment from the Cadlocks/Wheatsheaf Hill junction in the north-west to the southern edge of the Parish in the vicinity of Polhill.
- 2.1.14 The Old London Road extends for approximately 2.8kms, forming the western boundary of the Badgers Mount Parish Council area.
- 2.1.15 The Old London Road is a two-way single carriageway, with a cycle lane, road markings, central hatching, bus stops, street lights and paved footway on the east side of the road. The posted speed limit through Badgers Mount is 40mph.
- 2.1.16 To the south of Badgers Mount, the Old London Road joins the A224 and is a two-way, single carriageway with road markings, street lights and a footway on the eastern side of the road.

#### **Location of the Proposed Sites for Submission into the Local Plan**

- 2.1.17 The National Planning Policy Framework (NPPF)<sup>1</sup> promotes sustainable and public transport-oriented development as a core planning principle and states that '*Plans and decisions should ensure developments that generate significant movement are located where the need to travel will be minimised and the use of sustainable transport modes can be maximised...[D]evelopments should be located and designed where practical to have access to high quality public transport facilities*'.
- 2.1.18 The Chelsfield Depot site (SHELAA Ref H0150) is located within the Parish, on Shacklands Road to the south east of Badgers Mount. The site entrance is located approximately 67m to the east of the A224/Old London Road/Shoreham Road roundabout. This site is surrounded by woodland and is currently utilised for aggregate storage and distribution. This site could potentially yield 196 units within one to five years.

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<sup>1</sup> National Planning Policy Framework (2018) Section 4

- 2.1.19 The Calcutta Club and Polhill Business Centre site (SHELAA Ref H0368) is located to the south of Badgers Mount on the east side of the A224 (London Road), within the Parish boundary. It is approximately 1.09km south of the A224/Old London Road/Shoreham Road roundabout. The site is surrounded by woodlands and is currently utilised for mixed commercial use, with a restaurant, offices, residential dwelling, hotel, storage, workshop buildings and associated parking on the site. This site could potentially yield 66 residential units within one to five years.
- 2.1.20 It is noted that the Site Availability Assessment for both these sites located within the Badgers Mount Parish boundary state that '*The site is not connected to a settlement but is within walking distance of the services and facilities in Badgers Mount.*' However, even a cursory review of the services and facilities in Badgers Mount demonstrate that there is not the diversity of services that would typically be required to support a residential development: for example, schools, medical practices, village shop or Post Office. Therefore, the proximity of the site Badgers Mount is irrelevant in establishing the use of sustainable transport.
- 2.1.21 A further site (SHELAA Ref H0328) located to the west of the A224/Old London Road/Shoreham Road roundabout, lies outside the Badgers Mount Parish boundary and has the potential to yield 21 units within one to five years. The Site Availability Assessment for this site states that whilst the site is adjacent to Badgers Mount settlement, the site is '*not within walking distance of public transport and existing services and facilities.* However, a review of this site indicates the location to be adjacent to existing bus stops on Old London Road.

#### **Rail infrastructure**

- 2.1.22 The closest rail station to Badgers Mount is Knockholt, located 1.5kms to the north west on Old London Road.
- 2.1.23 The rail service at Knockholt is part of the South Eastern Main Line, providing a regular daily link to London Charing Cross and Sevenoaks stations.

### **3 Transport Policy Context**

- 3.1.1 A review of national policy indicates that Neighbourhood Plans, whilst supporting strategic policies, can directly influence local developments, especially those which compromise safety or severely negatively impact the highway network.
- 3.1.2 The **National Planning Policy Framework (NPPF)**<sup>2</sup> states that '*Neighbourhood plans should support the delivery of strategic policies contained in local plans or spatial development strategies; and should shape and direct development that is outside of these strategic policies*' and that '*development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe*'.

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<sup>2</sup> National Planning Policy Framework (2018) Section 2 Paragraphs 13 and 109

- 3.1.3 At a regional level, the **Kent and Medway Growth and Infrastructure Framework (2015)** has been developed in conjunction with 13 district councils to identify major infrastructure requirements up to 2031. It identifies where growth will occur and sets out the transport schemes required to address the current and future capacity issues in order to provide sustainable growth in Kent. A review of this policy indicates that Kent has been identified as a region of increased growth and development in the future, and that significant resources will be required to fund the infrastructure required to sustain this level of growth and development.
- 3.1.4 The GIF states that Kent's future population growth will be driven by internal migration and identifies the following headlines for Kent and Medway (2011 to 2031):
- 158,500 new homes (21% Growth);
  - 293,300 new people (17% growth); and
  - 135,800 new jobs (19% growth).
- 3.1.5 This future population growth is estimated to result in a total infrastructure cost of £6.7 billion of which transport will constitute:
- |                         |                |
|-------------------------|----------------|
| ■ Motorways             | £ 611,600,000  |
| ■ Highways              | £ 812,390,000  |
| ■ Public Transport      | £ 93,010,000   |
| ■ Rail                  | £ 584,720,000  |
| ■ Other Transport       | £ 77,090,000   |
| ■ Total Transport costs | £2,178,810,000 |
- 3.1.6 The **Kent County Council Local Transport Plan 4: Delivering Growth Without Gridlock (2016-2031)** identifies major transport issues, priorities and improvements in the county. This report highlights rail and bus improvements considering the countrywide priorities of road safety, active travel, PROWs, and sustainable transport. It identifies the key strategies of bus and rail improvements in the West Kent area (including Sevenoaks and Badgers Mount), and as a council they wish to achieve economic growth, minimise congestion, provide affordable and accessible door-to-door journeys, safer travel and enhance the environment.
- 3.1.7 Furthermore, this document identifies the following transportation issues and local priorities in the Sevenoaks District, all of which could possibly impact Badgers Mount:
- Congestion in the Sevenoaks district is concentrated around the towns of Swanley and Sevenoaks;
  - Congestion on the M25 and/or M26 results in inappropriate use of local roads resulting in the villages along these routes experiencing congestion, air and noise pollution;
  - An increased demand for improved rail commuting to London and the use of 'park and rail' stations resulting in possible parking concerns;
  - An affluent community with low social benefit dependency and high private car dependency, resulting in the challenge to provide frequent and commercially viable public transport; and
  - Where public transport cannot be provided, improved walking and cycle routes could provide important connectivity links in the future.

- 3.1.8 The Kent Housing Group Community Led Plan Guidance Note provides guidance on the formulation of community led planning and indicates that audits and clear data recording is key to an effective outcome in supporting development in the area.
- 3.1.9 A review of the national, regional and local policy supports the formation of Neighbourhood Plans in order to devolve decision making and include local stakeholders in the growth and development of more sustainable communities. Considering this, the BMNP is in line with strategic policy and with the support of the Sevenoaks District Council could effectively provide influence for growth and development at a local level.
- 3.1.10 Historically, the Badgers Mount Residents Association (BMRA) has campaigned for issues relating to road safety by petitioning the Sevenoaks Joint Transportation Board to reduce the speed limit on the A224 Orpington Bypass through Orpington from the National Speed Limit to 40mph. The posted speed limit along the A224 through Badgers Mount is 50mph.
- 3.1.11 Further proposals or recommendations made through the BMNP should take account of the key issues within these policies, focussing on road safety, sustainable connectivity and reducing the negative impacts on the surrounding highway.
- 3.1.12 A review of baseline information and existing publicly available information relating to traffic volumes and speeds has been undertaken. The documents and websites interrogated are listed in the References section of this report.
- 3.1.13 As a result of this review, Department for Transport (DfT) traffic survey information has been identified in the wider Kent area. This data includes locations along the A224 at junctions between Lennard Road in Sevenoaks and the B2211, the link road to London Road, the A25 and the A225. Although there is data for the link between the M25 (J4) and A21 roundabout and other locations along the A224, this traffic data is generally outside the boundary of Badgers Mount Parish.
- 3.1.14 There is no recent traffic survey data available that is directly relevant to the A224 or London Road specifically, and therefore no means of immediately identifying levels of peak traffic, associated queueing and congestion on these routes in or through the Parish.

## 4 Potential Traffic Impact

- 4.1.1 Based on traffic data acquired for similar sites elsewhere in the UK, developments of a similar scale to that of the Calcutta Club (H0368) and the Chelsfield Depot (H0150) have been used to estimate the level of net trips generated by the developments. The vehicle trip rates extracted for the traditional AM (08:00-09:00) and PM (17:00-18:00) network peak hours along with the vehicle trip generation expected for each development is summarised in **Table 5.1** below.

**Table 5.1: Residential Vehicle Trip Rates and Trip Generation**

	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
	Arrival	Departure	Two-way	Arrival	Departure	Two-Way
Chelsfield Depot (H0150)						
C3 Trip Rate: Per dwelling	0.116	0.338	0.454	0.323	0.142	0.465
C3 Trip Generation: 196 dwellings	23	66	89	63	28	90
Calcutta Club/ Polhill Business Centre (H0368)						
C3 Trip Rate: Per dwelling	0.131	0.332	0.463	0.291	0.147	0.438
C3 Trip Generation: 66 dwellings	9	22	31	19	10	29
Land West of the Roundabout (outside of Parish)						
C3 Trip Rate: Per dwelling	0.171	0.399	0.570	0.341	0.173	0.514
C3 Trip Generation: 21 dwellings	4	8	12	7	4	11

**Source: TRICS Version 7.6.2**

- 4.1.2 The historical use of the Chelsfield Depot site (H0150) as a distribution centre for aggregates would generate substantial HGV movements. The highways authority is therefore more likely to consider a net change in the level of trips as a result in the change in land use, rather than a total number of trips generated by the development. This would therefore result in a significant reduction in the total set out in the table above.
- 4.1.3 The historical use of the Calcutta Club and Polhill Business Centre site (H0368) would require similar consideration. As a restaurant, hotel, office and residence would all generate trips during both the AM and PM peak hours, a change in land use would result in the net trip rate being considered rather than the total number of trips generated by the development.
- 4.1.4 The Guidance on Transport Assessment Appendix B provides indicative thresholds for levels of assessment for residential developments of between 50 and 80, or more than 80 units. Although this guidance is withdrawn, it remains a useful source of reference by the highway authorities to identify sites which are likely to have a significant impact on the transport network. The Chelsfield Depot site (H0150) exceeds the threshold identified in this guidance and any application for the site would therefore need to be supported by a full Transport Assessment.
- 4.1.5 Furthermore, it is possible that a challenge to the Calcutta Club and Polhill Business Centre site (H0368) could be upheld on the basis of cumulative impact although this would depend on the order in which the development sites were brought forward for planning.
- 4.1.6 However, the quality of the local roads in the vicinity of the sites appears to be adequate to support this scale of residential development, given the historical land use at both sites. Such a level of impact is implied by the Kent County Council's comments on the SHELAA which states that '*No significant capacity issues are expected however a Transport Assessment would be required*'.



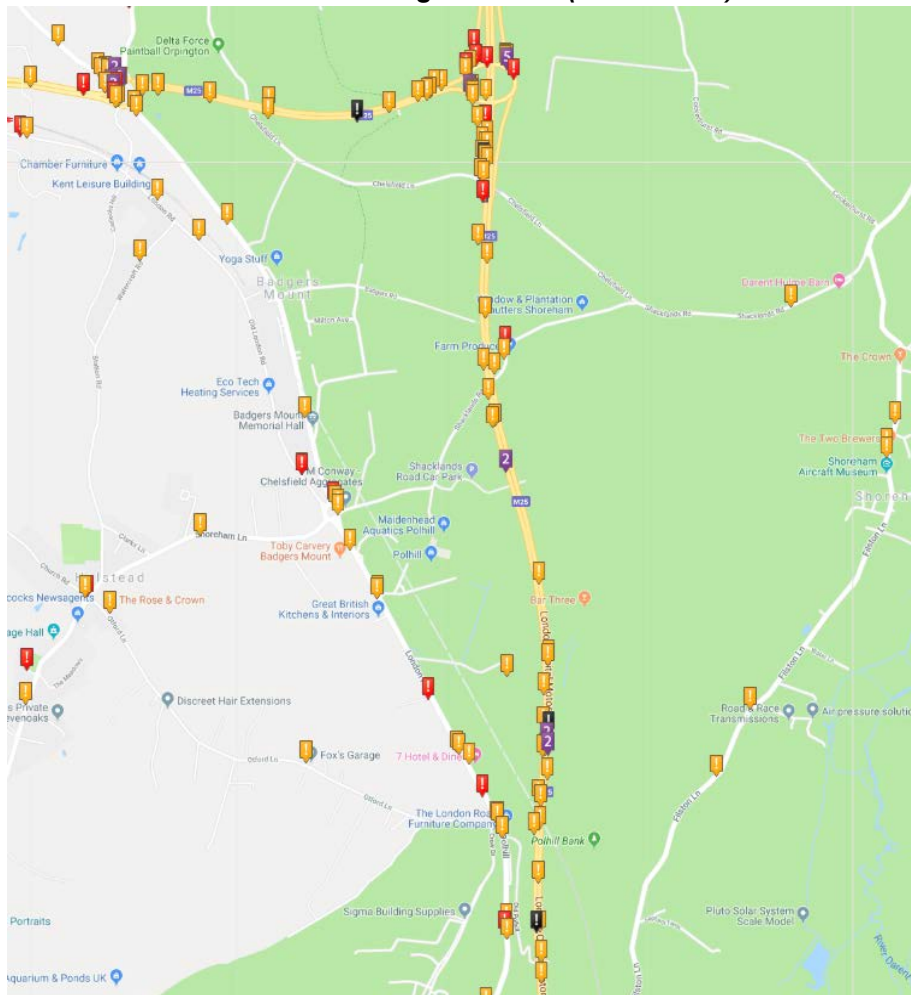
- 4.1.7 In addition to the sites in the Parish, it is understood that the Fort Halstead site is proposing an additional extension of circa 300 units. Given the capacity of the local road network and the location of the site, it is unlikely that such the development will result in a substantial change in traffic flows in or through Badgers Mount Parish.
- 4.1.8 Considering the low volume of net trips generated from the developments at these sites and the subsequent negligible impact on the local highway network, other material objections to these developments need to be considered, especially as they relate to road safety.

#### **Historical Road Safety Concerns**

- 4.1.9 Historically, the A224 is a cause for concern for the Badgers Mount Parish in terms of road safety. Following the death of a local resident on the A224 in 2012, the Badgers Mount Residents Association (BMRA) campaigned to reduce the speed limit on the A224 and road safety concerns were expressed in respect of the close proximity of residential and business properties to the A224, together with the absence of footways on the east side of the A224, designated pedestrian crossings and no provision for cyclists along the A224. Furthermore, footways accessing the A224 appeared to encourage pedestrians to cross the A224 at inappropriate locations and accessing a school bus stop located on the A224 in the vicinity of Badgers Road was problematic.
- 4.1.10 In order to establish whether there are any inherent safety issues on the highway network in Badgers Mount, Personal Injury Collision (PIC) data from CrashMap for the most recent five-year period available (March 2014 – December 2018) has been reviewed. The results are shown in **Insert 2.1** below.



**Insert 2.1: Collision data for Badgers Mount (2014 – 2018)**



**Source :** <https://crashmap.co.uk> (accessed 29/08/19)

- 4.1.11 The review of PIC data includes incidents on the Badgers Mount links of the A224/M25/A21 roundabout, the entire length of the A224 and London Road through Badgers Mount. Collisions on the M25 have been excluded from this review.
- 4.1.12 This data identifies 29 incidents in the Badgers Mount Parish in the last five years (2014-2018) with 25 being graded 'slight' and four graded 'serious'.
- 4.1.13 The high number of collisions in the Parish despite the 2012 review suggest that there is scope for improvements to be made on road safety in the area. It would be reasonable to expect any major development in the Parish to directly address this concern.

## 5 Environmental issues

- 5.1.1 Noise pollution and air quality are primarily related to environmental health. However, there are requirements within transport assessment guidance to consider the wider aspects of traffic and the related impacts on the environment.
- 5.1.2 Noise pollution in new residential developments is primarily considered in terms how future residents of proposed developments can have acceptable levels of exposure to noise given existing and forecast traffic levels. For larger residential developments, consideration of the impact on existing receptors (i.e. existing residential properties) of potentially increased traffic levels due to the development is undertaken. Based on the number of trips associated with the two proposed sites in the Parish, and the historic uses of the sites which would be associated with HGV movements (and therefore higher levels of noise than residential development) it is unlikely that any measurable impact will be imposed on existing residents in the Parish. It is therefore suggested that no further assessment on noise will be likely to affect the consideration of the two development sites within Badgers Mount, or the Neighbourhood Plan.
- 5.1.3 Impact on air quality from development traffic can be assessed using Volume 11, Section 3 of the Design Manual for Roads and Bridges (DMRB) and the Local Air Quality Management Technical Guidance (LAQM.TG09) and this should be evidenced on local reports relating to any proposed developments.
- 5.1.4 The M25 is designated as an Air Quality Management Area (AQMA) and would therefore be subject to a more sensitive level of assessment in relation to air quality than would the local roads within Badgers Mount itself.
- 5.1.5 It is possible that the total number of trips associated with the two sites may not exceed the threshold for detailed assessment of the air quality in the AQMA, and the threshold of assessment of local roads outside the AQMA (500 total vehicles or 100 HGVs per day) is unlikely to be exceeded by the developments.
- 5.1.6 Given the absence of AQMA in Badgers Mount itself, as well as the low levels of trips likely to be associated with the two proposed allocated sites, it is unlikely that a material challenge can be made on the basis of air quality or noise impact on the existing community.

## 6 Recommendations

- 6.1.1 Based on a review of the sites for allocation in the Parish, it is concluded that work to demonstrate that Badgers Mount does not have road capacity for more development is unlikely to be successful. This is due to the scale of the proposed allocated sites, as well as the existing capacity in the area. However, the matter of road safety is likely to carry more weight in both political and technical terms, as is the potential for the BMNP to secure more and better sustainable transport infrastructure.

- 6.1.2 It is recommended that the Neighbourhood Plan include a chapter which outlines existing active and sustainable transport infrastructure, identifying gaps in infrastructure provision in relation to bus stops, frequency of bus services, footway widths and pedestrian crossings (including dropped kerb crossings at junctions) and cycle routes.
- 6.1.3 Given the high number of road collisions in the past five years, it is recommended that a specific exercise be undertaken to review the road safety implications of further developments within the Parish. This review should be conducted by an independent, fully qualified road safety auditors, and should examine in detail the historic collision record in the Parish, considering causal factors relating to highways which may be exacerbated by further development in the wider area. This audit would also need to review road safety as it relates specifically to sustainable travel like pedestrians and cyclists travelling in the Parish and beyond to local services and facilities.
- 6.1.4 This review is recommended to include consideration of walking and cycling routes to Halstead Primary School, located approximately 1.2 miles to the south-west of Badgers Mount, and Chelsfield Primary School located approximately 1.6 miles to the north-west. Both schools are within the prescribed maximum 3 miles walking distance for children to access school and therefore the Badgers Mount Neighbourhood Plan could include a Walked Routes to School Assessment, in accordance with guidance established by the Royal Society of Prevention of Accidents.
- 6.1.5 Royal HaskoningDHV has fully qualified road safety auditors and transport planners, and can therefore provide expertise, advice and support to the Badgers Mount Parish Council if appropriate.
- 6.1.6 Traffic survey data can be obtained through Automatic Traffic Counts (ATCs) being undertaken by a specialist traffic survey company and include manual classified counts with queue lengths at specified junctions and pedestrian counts if required. The location and duration of any traffic surveys should be discussed with transport planning specialists prior to commission in order to ascertain that they accord with the relevant standards.
- 6.1.7 Rail capacity can only be realistically confirmed by a specific feasibility study undertaken by Network Rail. These studies cost in the region of £15,000 and Network Rail experience long lead-in periods for completion of these reports (recent experience indicates that this lead-in period can be in the region of nine months).

## 7 References

<https://roadtraffic.dft.gov.uk/>

<https://www.badgers-mountpc.co.uk/>

[https://www.kent.gov.uk/\\_data/assets/pdf\\_file/0012/50124/Growth-and-Infrastructure-Framework-GIF.pdf](https://www.kent.gov.uk/_data/assets/pdf_file/0012/50124/Growth-and-Infrastructure-Framework-GIF.pdf)

[https://www.sevenoaks.gov.uk/info/20069129/current\\_local\\_plan/269/neighbourhood\\_planning](https://www.sevenoaks.gov.uk/info/20069129/current_local_plan/269/neighbourhood_planning)

[https://www.sevenoaks.gov.uk/downloads/file/811/guide\\_to\\_preparing\\_neighbourhood\\_plans](https://www.sevenoaks.gov.uk/downloads/file/811/guide_to_preparing_neighbourhood_plans)

<https://www.gov.uk/government/statistical-data-sets/road-traffic-statistics-tra#traffic-by-local-authority-tra89>

<https://pa.sevenoaks.gov.uk/online-applications/>

CIHT: Buses in Urban Developments (Jan 2018)

Design Manual for Roads and Bridges (Vol 11 & 12)

Institute of Environmental Assessment: Guidelines for the Environmental Assessment of Road Traffic

Kent County Council: Local Transport Plan 4: Delivering Growth without Gridlock (2016-2031)

Sevenoaks District Council Neighbourhood Plans: A guide to preparing a Neighbourhood Plan (Feb 2017)