



Rame Peninsula Traffic Management

Feasibility Study

EDG0205/F1

Communities

County Hall, Truro, Cornwall, TR1 3AY

Issue & Revision Record

Revision	Date	Originator	Purpose of Issue / Nature of Change
0	25/06/2014	Robin Jamieson	Original



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CONTENTS

1. Summary of Findings

- 1.1. Rame Peninsular
- 1.2. Antony
- 1.3. St John
- 1.4. Millbrook
- 1.5. Crafhole

2. Introduction

3. Study Area

4. Overview of Existing Highway Conditions

5. Prior Public Consultation

6. Rame Peninsular

- 6.1. HGV / Busses Circulation System
- 6.2. Transhipping Option
- 6.3. Quite Lanes
- 6.4. Rame Peninsula Events
- 6.5. Highway Diversion
- 6.6. Passing Places
- 6.7. Tourist Facilities Signs

7. Village of Antony

- 7.1. Overview
- 7.2. General Transport Assessment
- 7.3. Summary of Accident Data
- 7.4. New Junction Connecting A374 & B3247
- 7.5. Improvements to Existing Junction
- 7.6. Junction Improvement Recommendations

8. Village of St John

- 8.1. Overview
- 8.2. Existing Consultation
- 8.3. Satellite Navigation Issues
- 8.4. Speeding
- 8.5. Antony Junction to St John Road

9. Millbrook

- 9.1. Overview
- 9.2. Shuttle Lights
- 9.3. Costs
- 9.4. Recommendations

10. Crafhole

- 10.1. Overview
- 10.2. Congestion Causes
- 10.3. Traffic Signal Control

-
- 10.4. Traffic Regulation Order
 - 10.5. Mini Roundabout Pinch Point
 - 10.6. Two Priority Build outs
 - 10.7. Recommendations

APPENDIX A Drawings

EDG0205_F_01	Annual Average Daily Traffic
EDG0205_F_02	Antony Bypass Junction Plan Option 1 and 2
EDG0205_F_03	Antony Bypass Junction Profile Option 1 and 2
EDG0205_F_04	Rame Peninsula Proposed Circulation System
EDG0205_F_05	Crafthole TRO
EDG0205_F_06	5 Year Accident Plan Traffic Accidents
EDG0205_F_07	Millbrook Three Way Signals
EDG0205_F_08	Millbrook Two Way Signals
EDG0205_F_09	Crafthole Traffic Lights
EDG0205_F_11	St. John Junction
EDG0205_F_12	Antony Junction Plan New Junction Option 3
EDG0205_F_13	Antony Junction Profile New Junction Option 3
EDG0205_F_14	Antony Junction Improvement Widening of Existing Primary Junction Option 4
EDG0205_F_15	Antony Junction Plan Option 5
EDG0205_F_16	Antony Junction Plan Option 6
EDG0205_F_17	Proposed Sign Location
EDG0205_F_18	Antony Junction Roundabout Option 7
EDG0205_F_19	Antony Junction Ghost Island Junction Option 8
EDG0205_F_20	St John Existing Width Restrictions
EDG0205_F_23	Millbrook AutoTRACK Runs

APPENDIX B Supporting Documentation

G0205/F2 Millbrook Traffic Sign Assessment

Reply to questions raised by Rame Cluster Group

1. Summary of Findings

The recommendations below are based primarily on observable engineering features and not environmental impacts or economic factors. They are preliminary findings of potential solutions at feasibility stage and as such further investigation may change the nature of the solutions presented.

1.1. Rame Peninsula

Consideration has been given to a circulatory HGV route throughout the Rame Peninsular. This is seen as a means of managing the movement of large vehicles but comes with its own challenges of self-compliance and enforcement. Without this, the implementation of localised interventions will be much more difficult to achieve.

If a circulatory system is to be implemented, detail design will be required.

1.2. Antony

Three options are shortlisted for further review:

Option 3 – New Junction and connecting road.

Option 5 – Reversal and widening of one way system on secondary junction and implementation of advisory route signs for HGV's.

Option 8 – Ghost Island Junction

1.3. St John

Continue with the implementation of signage at the St. John and Trevole Road junction to discourage movement of HGV's through St. John.

1.4. Millbrook

The study has identified that Hounster Hill down into Millbrook is too narrow to allow north bound HGV's to pass stationary HGV's queuing if a traffic light system were to be implemented. The implementation of a HGV circulatory system on the peninsula would therefore be required to alleviate the traffic jams in Millbrook. Post implementation monitoring of traffic congestion within the village to be undertaken and if required, further consideration of the two traffic light options to produce a preferred scheme.

1.5. Crafthole

Daytime waiting restrictions in the first instance with possible priority working build out alterations as a follow up option.

2. Introduction

Cormac Solutions Ltd, Engineering Design Group was initially commissioned by Cornwall Council (CC) to prepare a feasibility report on the following aspects associated with traffic management on the Rame Peninsula. The report was to include:

- The potential to reduce the volume of traffic; both general and large vehicles, passing through the village of St John.
- Review the possibility of a new junction at the village of Antony
- Consider a solution to ease the congestion at Hounster Hill in the village of Millbrook.

This brief has subsequently been widened to encompass a more general review of the traffic conditions on the Rame Peninsula. This included investigating the potential of a circulatory traffic system around the peninsular and managing restrictions through the village of Crafhole.

There are several significant issues related to traffic flow throughout the Rame Peninsula, particularly with heavy goods vehicles (HGV). The Parish Councils have been working collaboratively for some time to seek a holistic solution to the Rame Peninsula transport issues.

The feasibility report is programmed to be undertaken within the financial year 2013/14, however, discussions regarding potential schemes are ongoing with the Rame Peninsula Neighbourhood Plan Transport Infrastructure Subcommittee. The committee are seeking viable schemes, which are to be consulted upon within the Rame Peninsula Neighbourhood Plan.

The following report details the current findings of this traffic management investigation.

3. Study Area

The map extract shown in Figure 2.1 identifies key locations within the study area, which are further discussed within the following report.

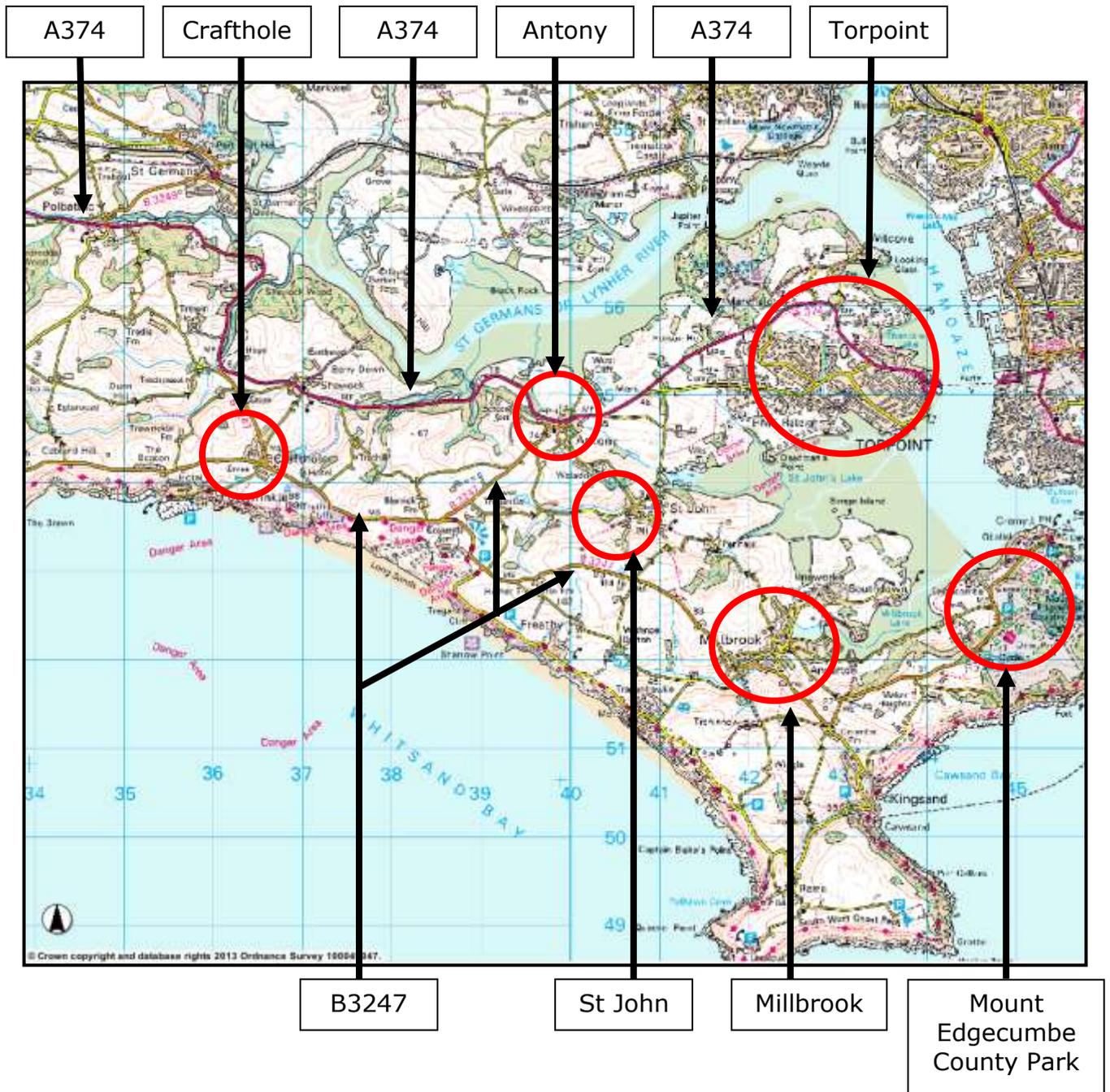


Figure 3.1 Critical traffic management locations on the Rame Peninsular

4. Overview of Existing Highway Conditions

The Rame Peninsula is served by the A374 which runs roughly along an east / west alignment. A car ferry terminal at Torpoint allows traffic to be transported across the River Tamar to/from Plymouth. The ferry service runs at 10 minute intervals and has capacity for 73 cars. The A374 also connects to the A38 which is the main Plymouth to Bodmin trunk road.

The Torpoint Ferry has a weight restriction of 18 tonnes which forces all large HGVs, when travelling from Plymouth wishing to access the Peninsula, to use the Tamar Bridge via the A38/A374 at Trerulefoot. This results in the majority of articulated vehicles using the B3247 through Crafhole, as it is the first junction accessing the Peninsula, rather than using the B3247 through Antony which generally is a higher quality road.

Much of the HGV traffic in rural areas has legitimate right of access to a point of collection / delivery location. A proportion of the HGV traffic in the study area is related to local businesses operating in the rural areas of the peninsular. This type of traffic is obviously a necessary function of an economically viable countryside and is necessary for local employment.

Various villages within the study area have been traffic calmed over the years, the most notable being Crafhole and St John. The road safety scheme in Antony village, undertaken in 2000, effectively restricts all right turn movements, by HGV's, off the A374 into the village except for light vehicles. This, combined with the weight restriction on the Torpoint ferry, results in the majority of HGV traffic having to travel through Crafhole.

The B3247 is used as a diversion route when the A374 has to be closed. As this diversion route is narrow and winding, particularly between Crafhole and Donderry, closures increase the frequency and duration of the traffic congestion on the B road.

The separate spurs of the B3247 pass through Antony and Crafhole and join up allow access to the southern part of the Peninsula. This serves as a route for visitor coaches for access to the very popular Mount Edgecumbe County Park and for HGV's to businesses such as SCA Foam Products and for local deliveries.

Once leaving Crafhole the road improves with a small number of short sections being restricted below 5.5m until it reaches its junction with the B3247 from Antony.

The second junction with the A374 at Antony is a simple junction with the minor road being skewed at an acute angle in a south westerly direction. It is immediately past a left hand bend and within the 30mph speed limit of the village. It is likely that this acute angle and the position of the bollards makes it virtually impossible for Heavy Goods Vehicles (HGV's) to make this the manoeuvre into the minor road smoothly.

Drawing EDG0205_F_01 shows the A374's Annual Average Daily Traffic (AADT) for 2012 is approximately 6200. The access to the Peninsula is split nearly 50/50 between the Crafhole and Antony spurs of the B3247. However the Crafhole section spur of the B3247 takes more HGV's. There is an alternative route through St John which has an AADT of 860

The majority of the B3247 between Antony and Hounster Hill is over 5.5m wide but when travelling down Hounster Hill into Millbrook the road becomes windy with typically high Cornish Hedges on both sides and a carriageway width of less than 5.5m.

The route through Millbrook is difficult for HGV's. It requires the vehicles, entering from the east, to negotiate down the 16% Hounster Hill which is narrow and bounded by tall Cornish hedges which restrict passing places and has left hand bend limiting forward visibility.

The run down into the village has several pinch points, were it is impossible for vehicles to pass, and has properties accessing directly onto the road. At the bottom of the hill there is a section of single lane road, without a footway, which ends in an acute right bend which blocks forward visibility in both directions.

Driving out of the village there are further pinch points with sections of narrow road without footways. It is not until you leave the village passing Millpool Head road that the B3247 becomes wide enough for two lanes of vehicular traffic.

5. Prior Public Consultation

Public consultation was completed over a six month period during 2010, in conjunction with the Rame Peninsula Trust Community Interest Company, Cllr. George Trubody (Rame) and Cornwall Council.

The consultation area was wide and residents were given the opportunity to provide their thoughts and suggestions for inclusion in to the investigations results.

Questionnaires and/or information were available through the following mediums.

<u>Medium</u>	<u>Information</u>	<u>Questionnaire</u>
Advertiser Questionnaire insert distributed to: Millbrook St. John Sheviock Antony	Yes	Yes
Cornish Times	Yes	No
Crafthole Fayre	Yes	Yes
Door to Door Kingsand Cawsand	Yes	Yes
Freathy summer fayre	Yes	Yes
Mount Edgcumbe Vintage Rally	Yes	Yes
Parish Councils: Millbrook St. John Sheviock Antony Maker with Rame	Yes	Yes
Rame Peninsula Trust CIC	Yes	Yes
St. John monthly coffee morning	Yes	Yes
The Herald	Yes	No

A total of 1993 responses were received, with responses being based on 6 provided questions and a section for additional comments.

A summary report, along with the general comments was provided to the Engineering Design Group for consideration when developing potential traffic improvement options.

6. Rame Peninsula

The following chapter discusses options relating to improving traffic management holistically across the Rame Peninsula. The subsequent chapters discuss localised options for the previously highlighted villages located along principle transport routes within the peninsular.

6.1. HGV / Buses Circulation System

A voluntary one way or more appropriate circulation system through the Rame Peninsula for large vehicles and coaches has been suggested, as shown on drawing EDG0205_F_04 and the extract below. This could be carried out by the Parish Council in consultation with local business, neighbouring councils and the bus companies.

Any final design for the proposed route will need to take account of the fact that several sections of the route at Kingsand and along the Military Road are less than 5.3m wide through several sections. There is also on road parking were it passes through communities which limits the width of the road and may need to be controlled by parking restrictions.

The circulation system could be implemented on a voluntary basis with the Parish Council's approaching businesses with requests for large vehicles to use appropriate routes. This voluntary system could be augmented by the use of:

- Positive directional signs
- Cautionary signs

The signage could be strategically positioned at points throughout the Peninsula to ensure traffic, both inward and outbound, is safely directed along the most appropriate route. If the scheme is to be implemented consideration will need to be given to the proliferation of traffic signs which blight their environment. Councils have recently been criticised regarding this point. The rural location and the special area listings may leave Cornwall Council open to criticism if this option is chosen without due care and attention to detail, in order that any impact on the surrounding environment is suitably minimised.

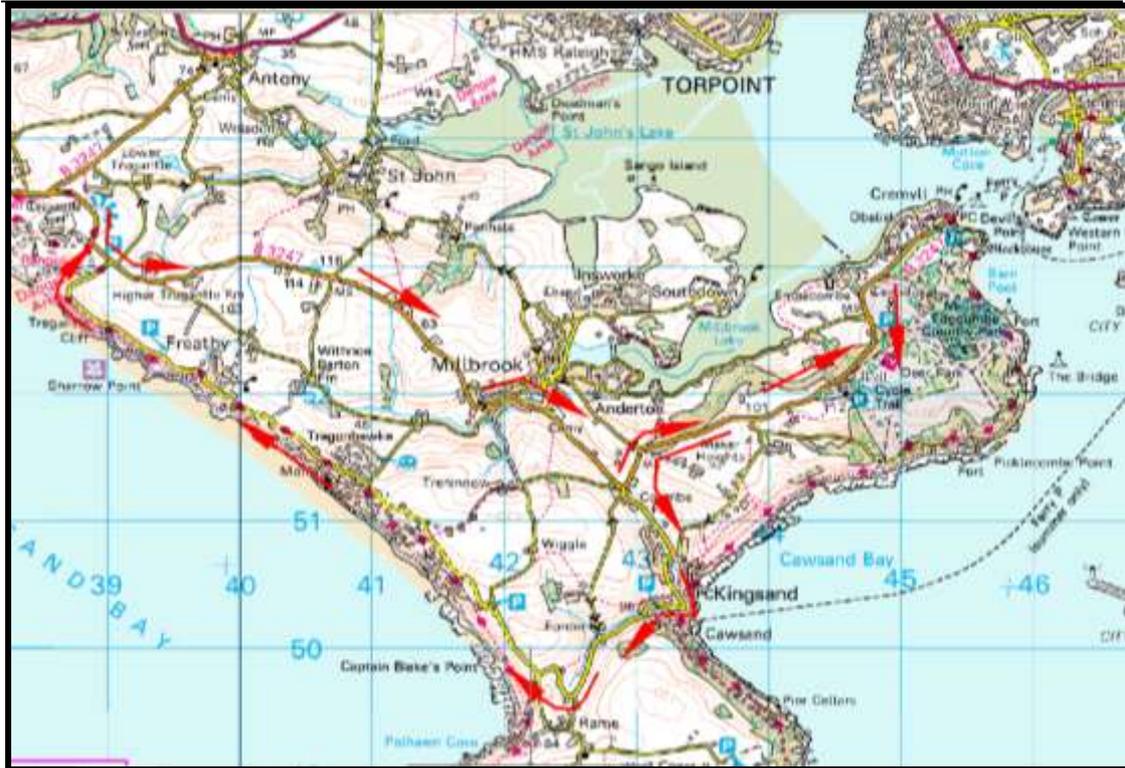


Figure 6.1: Suggested Voluntary One-Way System for HGV/Buses (Route indicated by Red Arrows)

As with any proposed scheme, before any one way system is implemented, consultation with the public on the Rame Peninsula would have to be undertaken. This would undoubtedly be a costly undertaking with an uncertain outcome as there would likely be an increase of large vehicles through some communities which would have a detrimental impact on the local environment.

The question of the effectiveness and cost of any new circulation system also has to be asked. As there may be no legally binding Traffic Regulation Order (TRO's) to help enforce the route. The use of these preferred routes, if not policed, may not be effective if the principles were voluntary. While traffic from outside of the area would be directed by any new signing, compliance to this voluntary one way system may be effected by the suggested increasing reliance on satellite navigation systems. Deliveries from local traffic could choose to ignore or revert to their usual routes as the signed route is longer and may be more arduous.

The voluntary system could be augmented with the use of prohibitory signs and Traffic Regulation Orders. Final details of specific signing any Legal Orders will be required as part of any detailed design process. It should be noted that due to the issues of Width Restriction signs at St John being ignored, the implementation of further restrictions on the peninsula should be carefully considered.

Before the implementation of this type of TRO there are procedural and practical reasons that will need to be overcome as follows;

- If a TRO is proposed it will require statutory and public consultation and there is no guarantee that the Order will be made. It may be difficult to get public support considering that the return route is longer and along a lower class of road; Road Haulage organisations will likely challenge where it affects running costs.
- Exemptions will be required to this type of TRO e.g. 'Except for Access'. These will dilute the effectiveness of the restriction depending on where it is located.
- Communication of the restriction to drivers – Signing has to be appropriate and legal.
- Cornwall Council cannot enforce this type of TRO. The support of Devon and Cornwall Police is integral to this type of order being implemented.
- The practical considerations of a large HGV being prevented access to Millbrook also need examination to ensure that there would be appropriate turning areas.
- It is considered that it will be difficult to persuade drivers to follow the longer alternative route without significant promotion of a voluntary one way route involving liaison and communication with Hauliers etc.

6.1.1. Conclusion

As the road through Millbrook is considered too narrow to accommodate passing HGV's the implementation of a circulatory system would ease congestion within the village.

6.2. Transhipping Option

A transfer depot to exchange goods between articulated vehicles and vans for local delivery would not be feasible in this location.

Due to high capital costs and continuing revenue commitments this solution would only be viable in real terms when managing extremely high volumes of large goods vehicles. There are insufficient lorry movements on the peninsular to justify a site of this nature. Further information can be found in Cornwall Councils Lorry Management Strategy document.

6.3. Quiet Lanes

A request was put forward by the Rame Cluster Group for 'Quiet Lanes' as shown on drawing no. EDG0205_F_04.

Minor rural road networks can be designated as Quiet Lanes. Such networks are roads with low flows of traffic at low speeds, which are also used by walkers, horse riders and cyclists. The purpose of the Quiet Lane concept is to improve awareness that there may be a variety of road users within minor rural lanes and to minimise the impact of motorised traffic. It is not intended that traffic calming measures should be used to a

significant extent, nor speed limits introduced, to support Quiet Lanes. Small signs are used at entry/exit points to the network to remind drivers they may come across people in the road who could be walking, cycling or riding.

To designate roads as Quiet Lanes requires a significant level of consultation and community involvement, both in determining the extent and nature of the scheme, as well as in promoting and maintaining awareness of it. The proposal must follow a statutory process and be formally advertised, with any resulting objections considered before a road is designated.

There has been limited use of Quiet Lanes across the country. Schemes implemented elsewhere appear to have had a high level of support when being designated, but the outcome has seen limited success with little change in vehicle speeds and traffic flows in some locations where they have been used. Public perception of the effectiveness of some Quiet Lane schemes also appears to be limited. Although "speed orders" can be made in Quiet Lanes, they are not formal speed limits nor are they signed and cannot be enforced.

In view of the low level of benefits from Quiet Lanes in previous trials run by Cornwall Council this is no longer a recognized option by the Highway Authority and recent trials/studies show that they are unsustainable without a continuous high level of publicity. High profile awareness is required, which Cornwall Council cannot provide, as such, local parishes would have to provide continuous funding to support scheme awareness and maintenance of the signage.

If the local community commits to the supporting level of publicity required, Cornwall Council, after investigation into the suitability of the selected lanes and producing an acceptable design, could endorse a scheme. If the schemes publicity was not sustained, the associated infrastructure/signage etc. would have to be removed and the scheme abandoned.

Further guidance on the consultation required and how to implement quiet lanes can be found in the Department for Transport (DfT) Traffic Advisory Leaflet 3/04, The Quiet Lanes and Home Zones (England) Regulations DfT Circular 02/2006 and Campaign to Protect Rural England's guide to Quiet Lanes.

Section 268 of the Transport Act 2000, as amended, enables local traffic authorities to designate roads as home zones or quiet lanes.

The Quiet Lanes and Home Zones (England) Regulations 2006 is the statutory instrument to allow local authorities to manage traffic for quiet lanes.

Further information can be found online at the following resources-

http://www.legislation.gov.uk/ukxi/2006/2082/pdfs/ukxi_20062082_en.pdf

www.cpre.org.uk/resources/transport/roads

6.4. Rame Peninsula Events

A traffic management plan was produced in 2011 for the Americas Cup competition. This implemented a one way system on the Peninsula, with the use of numerous temporary diversion signs and road closures. In the occurrence of future large scale events, this could be utilised, but would obviously require amending to cover the specific needs of the planned event.

6.5. Highway Diversion

A phase 1 document detailing diversion routes for vehicles if an incident occurs resulting in the closure of the 'A' Roads was initially produced for primary routes in 2009.

The A374 (Non Primary) is included in the ongoing phase 2 of this exercise which incorporates roads with an Annual Average Daily Traffic (ADDT) of 5000 or more. The suitability of the all possible diversion routes are assessed for all types of vehicles, taking into consideration factors such as height, weight and width restrictions. The study will also consider utilising the B3247.

This document is still being compiled but a copy can be supplied once the report has been completed – Contact Neil Grigg Ngrigg@cormac ltd.co.uk

6.6. Passing Places

The narrow section of the B3247 east of Tregantle Farm and the single lane road into Wilcove north of Torpoint would be improved by the inclusion of passing places to assist traffic flows. Prior to implementation, an assessment would need to be made in order to check the composition of traffic flows, type of road, buildability and availability of land.

6.7. Tourist Facilities Signs

Brown signing will need to be reviewed in accordance with our policy. We are mindful of upcoming potential changes following the ongoing Dft review of brown signing as part of an overall review of signing within the Traffic Signs Regulations and General Directions (TSRGD 2015). Options for this could be considered once the strategy for Rame Peninsular has been finalised and the impact of any changes within the DFT review of signing policy is complete and the TSRGD 2015 is issued.

7. Village of Antony

7.1. Overview

HGV's using the B3247 route through Crafhole are causing traffic congestion and damage to properties due to the narrow road and various pinch points. In looking at the junction at Antony the proposal is to reduce or ban HGV's from using the Crafhole route and instead use the higher standard road through Antony.

Antony has two main roads linking it with the rest of the peninsula, the A374 and the B3247. The junction of the two roads restricts movements for larger vehicles, particularly those arriving from the west as an island in the centre of the junction creates difficulties for articulated HGV's in turning into the junction.

The layout of the junction was established in 1999 as a Local Safety Scheme, in order to reduce vehicle entry speeds to the village from the east. There is a desire by the Rame Transport Cluster Group for an alternative junction to be created to the west of the village in order to allow easier access to the B3247. Three potential layouts have been examined to date, each progressively further west of the existing junction.

Amendments to the existing junctions (Ant.1 and Ant.2) have also been considered to improve HGV access between the A374 and the B3247 as indicated in figure 7.1 below:

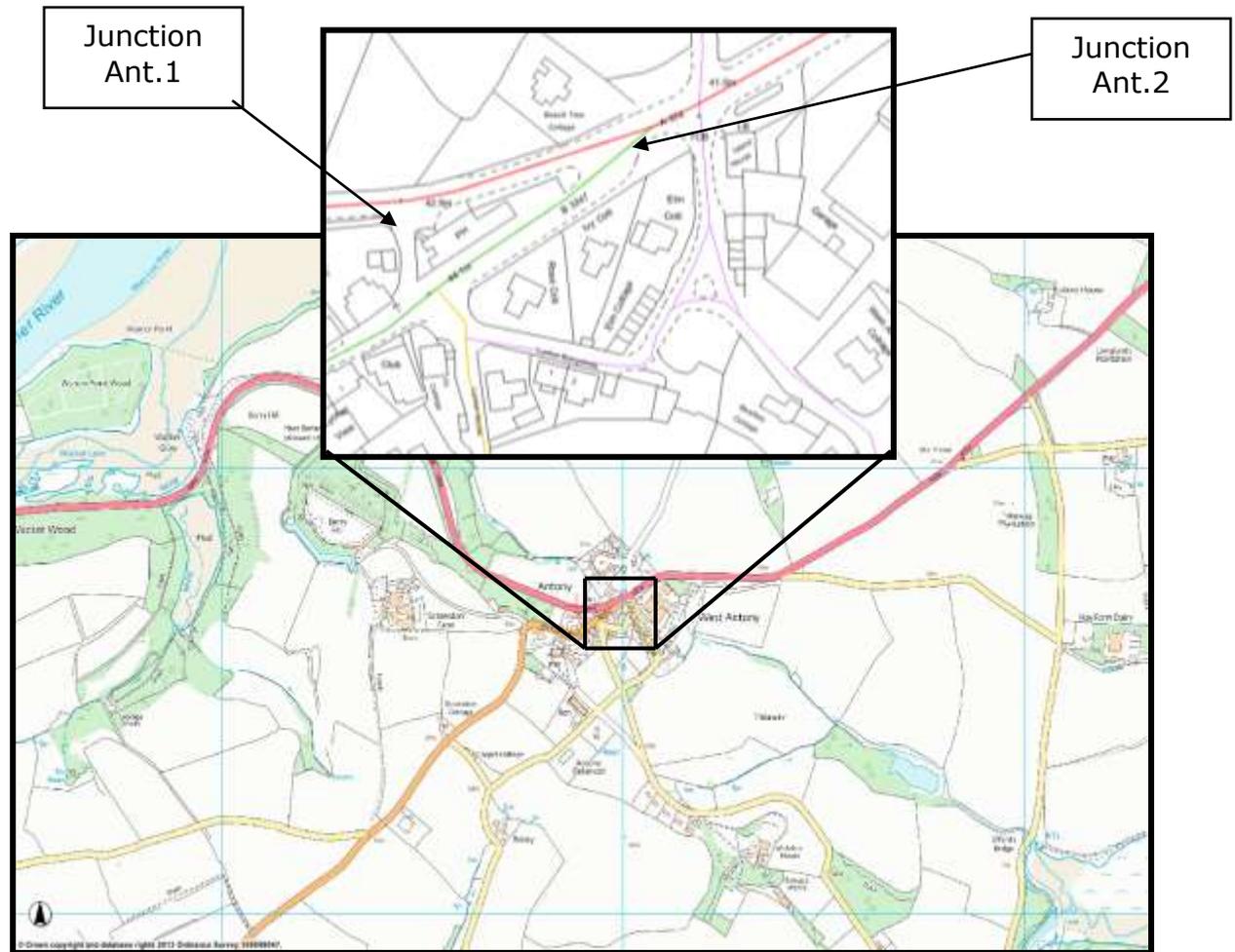


Figure 7.1: Transport Routes at the Village of Antony





Figure 7.2: Junctions off A374

7.2. General Transport Assessment

A road safety scheme was constructed in Antony in 1999 and was designed to reduce the speed of vehicles turning left off the main A374 into the village. The scheme allowed for HGV's to enter and exit Antony but the reduction in size of the overrun area would have reduced the number of HGV's committing to this manoeuvre.

During the construction of this scheme a decision was taken to leave the existing traffic islands in their original position. This has effectively stopped HGV's from turning right into and out of Antony.

Further investigation into the A374 junction layout has been undertaken and is discussed in section 7.6 of this report. Furthermore junction improvement options have also been investigated and are discussed in section 7.4.

For the traffic count data please refer to drawing EDG0205_F_01

7.3. Summary of Accident Data

Using data from the preceding 5 year period 01/04/2008 – 31/03/2013 there are a total of three recorded accidents on the A374 through Antony. All three resulted in personal injuries which were classified as slight. Two of the accidents were associated with the junction itself.

7.4. New Junctions Connecting A374 & B3247

From previous correspondence it was suggested that a section of road be installed joining the A374 and B3247 west of Antony utilising land owned by the Ministry of Defence which was stated at the time as possibly being available for such a scheme. This proposal was investigated using a 3D design model and an Ordinance Survey plan along with 5m contours as shown on Drawing EDG0205_F_02, 03 and 12.

The expected flows through the proposed junction would require a ghost island junction which means an extra lane would be needed on the major road. This is not shown in options 1 & 2, but has been shown in option 3.

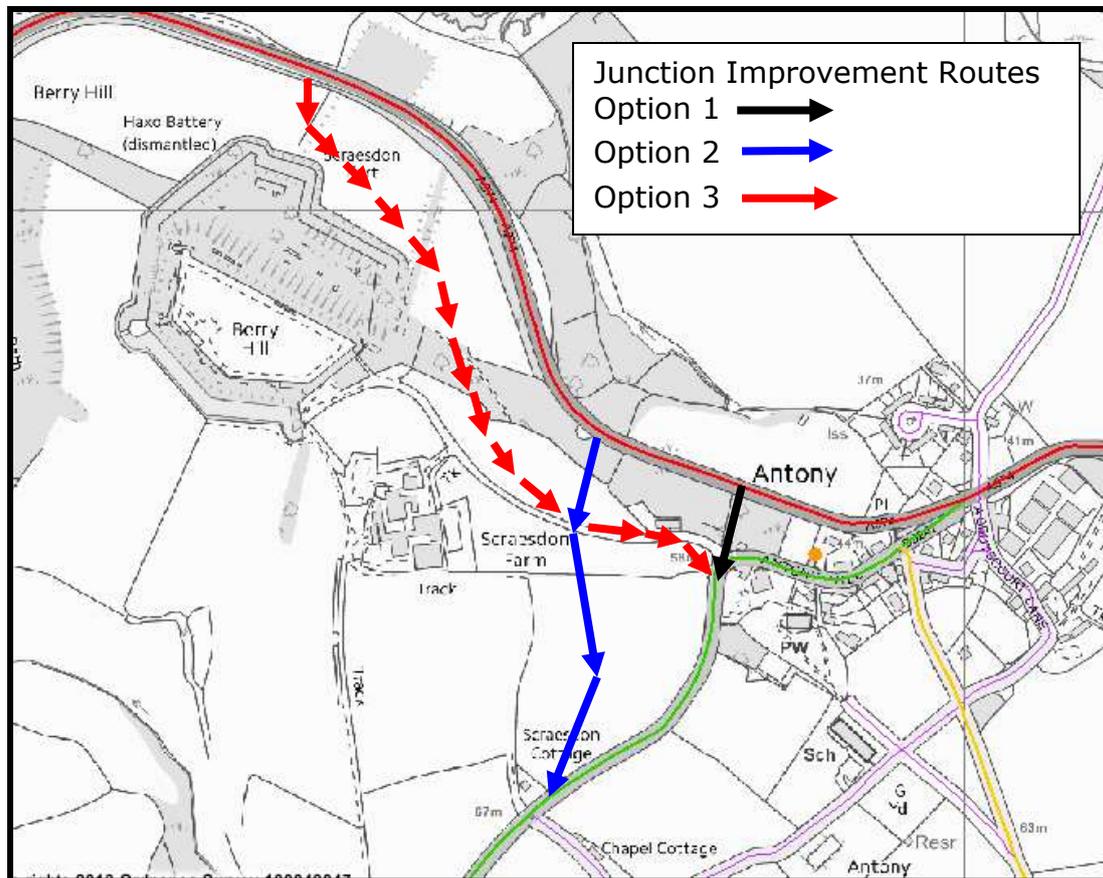


Figure 7.3: Route Options Considered For New Junction Layout

7.4.1. Junction Option 1

Option 1 follows the shortest route which would give minimum impact on the environment and would require the least financial outlay. This option would be impossible to build to current highway design standards as the gradient between the A374 and the B3247 at the point identified is approximately 35%.

The Design Manual for Road and Bridges (DMRB) gives a desirable maximum grade for single carriageways of 6%. This can however be increased in certain circumstances although there is a progressive decrease in safety. Increasingly steeper gradients and gradients steeper than 8% are considered as a departure from best practise standards and as such would need to be approved by the Highway Authority.

There would also be a requirement for departures in standards for both vertical and horizontal alignments. A combination of these issues so close to a junction would make the route unacceptable to the Highway Authority.

7.4.2. Junction Option 2

As a desktop exercise a further route was identified and assessed for its suitability to the Highway Authority from the point of current design standards. This option joined the A374 directly to the B3247 in line with the bend at the top of the village. At a design speed of 30mph both vertical and horizontal geometry is acceptable but the slope is still at 16% at its steepest point.

However the cut required for the earth works are extensive and from an environmental and financial perspective the scheme would not be viable. This is highlighted by the required earthworks footprint identified within drawing EDG_F_02.

7.4.3. Junction Option 3

Option 3 was a route suggested by stakeholders and tries to utilize the access road for Scraesdon Fort; which is a scheduled monument, and Scraesdon Farm.

To maintain highway gradients within approved standards the access has to be moved further to the west to benefit from the alignment of existing contours/levels, in order to keep the cut and fill to a minimum.

The southern embankments of the A347 at this point are high. To achieve the line of sight, design requirement distance, of 215m, the junction would require extensive cutting works and remodelling of the higher embankment. Alternatively, a substantial retaining structure could be considered but this would likely be a costly design solution. This option would sever Scraesdon farm from the community and also likely to raise further issues, relating to the proximity of the road to Scraesdon Fort which is a Scheduled Monument.

7.4.4. New Junction Conclusions

Although the most extensive and expensive of the options, with preliminary calculation indicating a cost of between 7 -10 million, the layout of option 3 above, is closest to being achievable within current standards. The overall assessment of viability for a scheme of this size is beyond the remit of the report currently being compiled.

If the scheme outlined is to be developed, it will require extensive technical reports covering such subjects as Topographical Survey, Carriageway Alignment, Environmental Assessment, Archaeological Assessment, Structures, Engineering, Traffic Studies, Road Safety Audit and Cost Benefit Analysis.

These technical reports should be summarised following the standards as set out in the Design Manual for Roads and Bridges (DMRB) volume 5 for stages 1, 2 and 3. This will allow various stakeholders to make judgment on the schemes based on the environmental, economic and traffic

implications and form the bases of future bids for funding from various sources if the schemes are viable.

As no funding has been sourced for these reports it is recommended that a desire to improve the junction via this corridor is recorded for the future subject to business case for the route being demonstrated as described above.

7.5. Improvements to Existing Junctions

The main consideration for HGV traffic at Antony is traversing the junctions between the A374 and the B3247. As such junction improvement proposals have been developed to improve the acute nature of the junction and the location of the pedestrian crossing island. The existing situation is depicted in figure 7.2 and the mapping in figure 7.4 below.

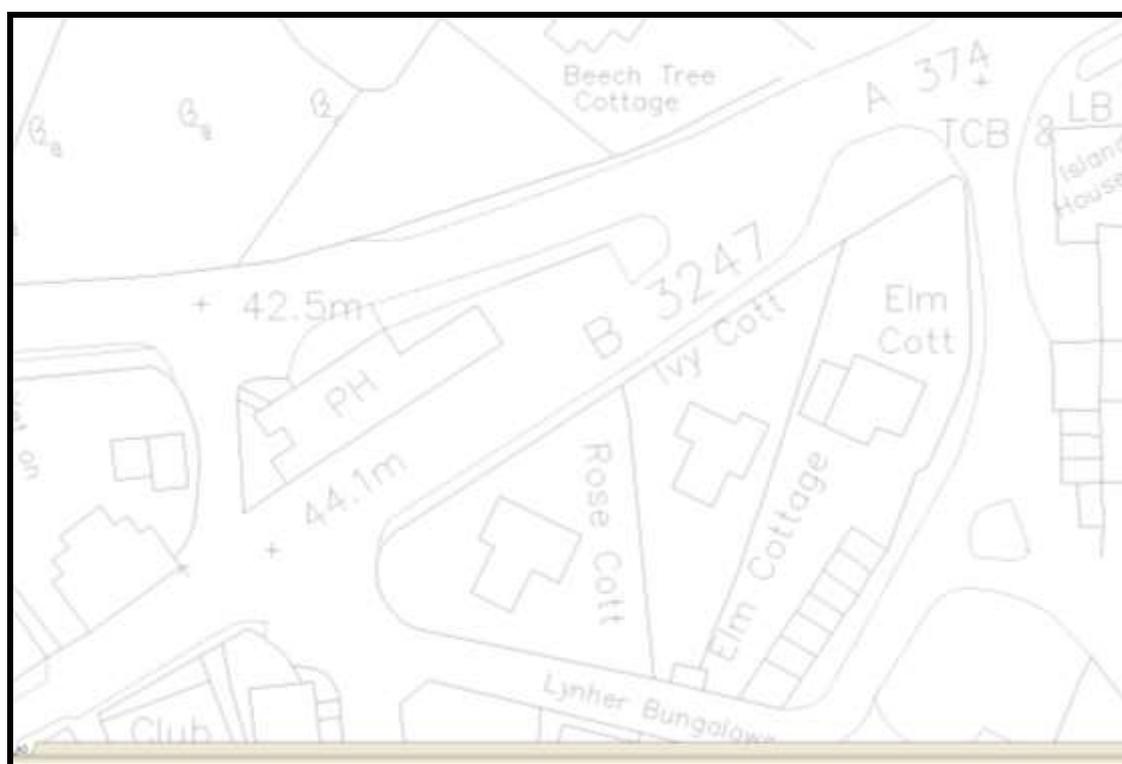


Figure 7.4: Map showing Junctions between A374 and B3247 at Antony.

Three options to improve junction layout and facilitate HGV movement between the two roads are considered below. Further investigation would have to be undertaken to understand how each of these options would change the flow characteristics through the priority system on the B3247 in Antony and consider any changes that will have to be made.

The associated drawings are located within appendix A.

7.5.1. Option 4- Widening of Existing Primary Simple Junction

A junction layout has been developed to allow HGV's to navigate the junction without interference from the pedestrian crossing and minimal crossover onto the opposing traffic lane.

The junction layout has been tested using traffic simulation software, AutoTrack 10.1, using a 16.5m length articulated vehicle. The red and green tracking lines shown in figure 7.5 indicate the maximum swing extent required by the vehicle to navigate the turn.

The option proposes to relocate the uncontrolled pedestrian crossing further away from the junction to minimise interference with a turning vehicle.

Due to the geometrical requirements this option would require land currently used as parking by the Ring of Bells Public House. However an alternative location for car parking spaces will need to be found. Consultation and negotiation would clearly be required to enable this option.

Traffic from the A374 moving onto the B3247 would require minimal lane crossover onto the opposing lane when traversing the junction.

The junction is more acute for Traffic moving from B3247 onto the A374 and as such increased crossover onto the opposing lane would be required.

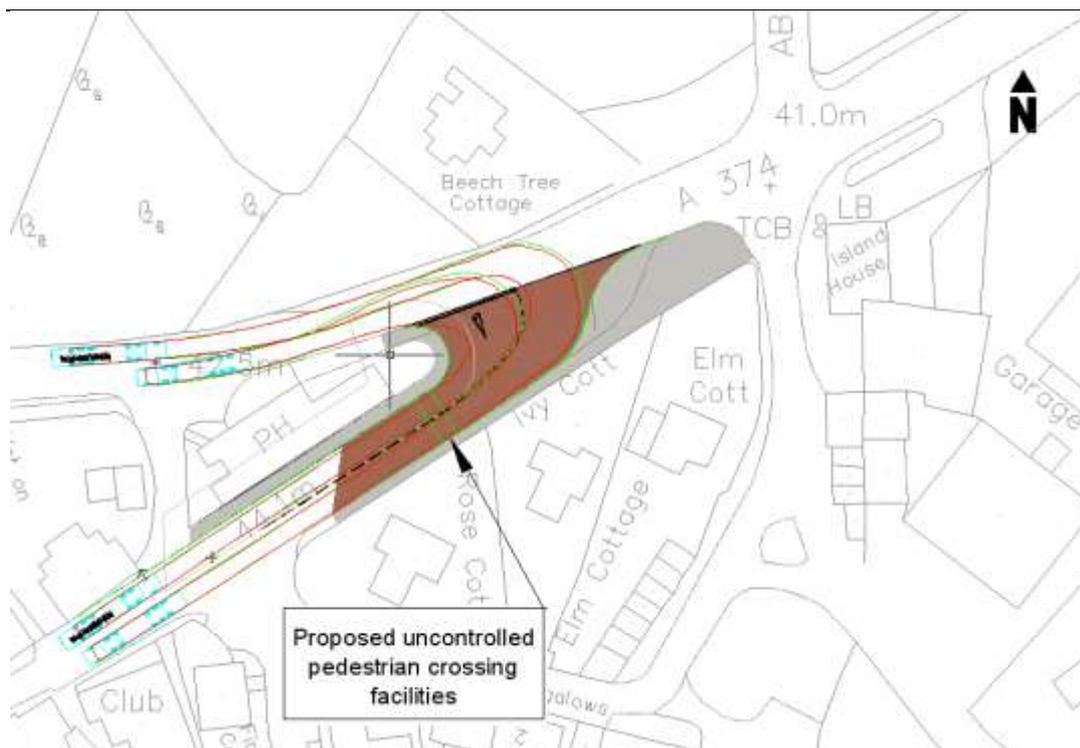


Figure 7.5: Option 4-Widening of Existing Primary Junction
Extract from drawing ref: EDG_0205_F_014
7.5.2. Option 5 – Reversal Of One Way System With Road Widening

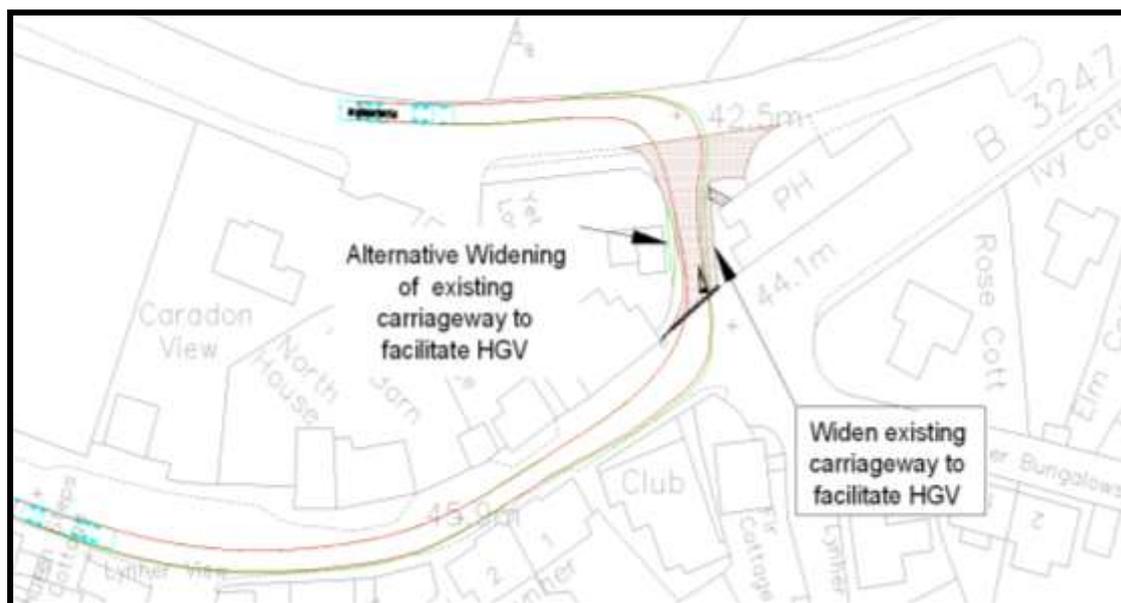
This option considers widening the road adjacent to the western boundary of the Ring of Bells Public House. As with option 4, the junction layout has been tested using traffic simulation software, AutoTrack 10.1, using a 16.5m length articulated vehicle. The red and green tracking lines shown in figure 7.6 indicate the maximum swing extent required by the vehicle to navigate the turn.

Currently the road is designated as a one-way system, allowing traffic to access the A374 from the B3247, as indicated by the signage shown in figure 7.1. This concept of this option is to reverse the one-way system to allow traffic to access the B3247 from the A374. This option will remove the need to traverse the more acute turn located 50m to the east.

It is worth noting that the existing one-way route onto the A374 was assessed using AutoTrack 10.1. The route is not sufficient to allow 16.5 articulated vehicle to access the A374.

Reversing the one-way system will not solve the issue of HGV's turning out from the B3247 onto the A374 and it is likely that HGV traffic would still use a route via the village of Crafhole. This option would require that HGV's are directed via advisory signing in through Antony and out via Crafhole. This could potentially reduce a significant portion of the HGV traffic heading for the south east of the Peninsular from passing through the village of Crafhole. This may provide a significant improvement with limited land purchase.

More detailed information (detailed topographic survey) is required to estimate the widening works, however this initial assessment indicates approximately 1m-2m may be required from adjacent properties.



**Figure 7.6: Option 5-Widening of Road and Junction adjacent to western boundary of Ring of Bells Public House
Extract from EDG_0205_F_015**

7.5.3. Option 6 – Segregated Right Turn Facility

This option provides a turning facility just east of the main junction onto the B3247. The facility would allow HGV's to turn and enter the junction from an easterly direction (heading west). It is understood that some local hauliers already use a similar system, whereby lay-bys and junctions found east of the main junction are used to facilitate turning to allow manageable access onto the B3247.

Figure 7.7 shows the potential for a right turn facility at the crossroads located east of the B3247 junction. This could formalise the approach already taken by some HGV drivers. However this option raises a number of issues relating to road safety and may not be practicable upon a full safety evaluation.

The junction layout has been tested using traffic simulation software, AutoTrack 10.1, using a 16.5m length articulated vehicle. The red and green tracking lines shown in figure 7.5 indicate the maximum swing extent required by the vehicle to navigate the turn.

This would allow similar benefits as option 5 with regards to providing alternative options to Crafhole, however, the one-way system adjacent to the Ring of Bells Public House would remain unchanged, allowing smaller traffic to access the A374 from the B3247.

As previously stated, the existing one-way route onto the A374 was assessed using AutoTrack 10.1. The route is not sufficient to allow a 16.5m articulated vehicle to access the A374.

Due to extensive swept path and slow speed manoeuvring within an area of limited forward visibility along the A374 this option is not currently considered viable on safety grounds.

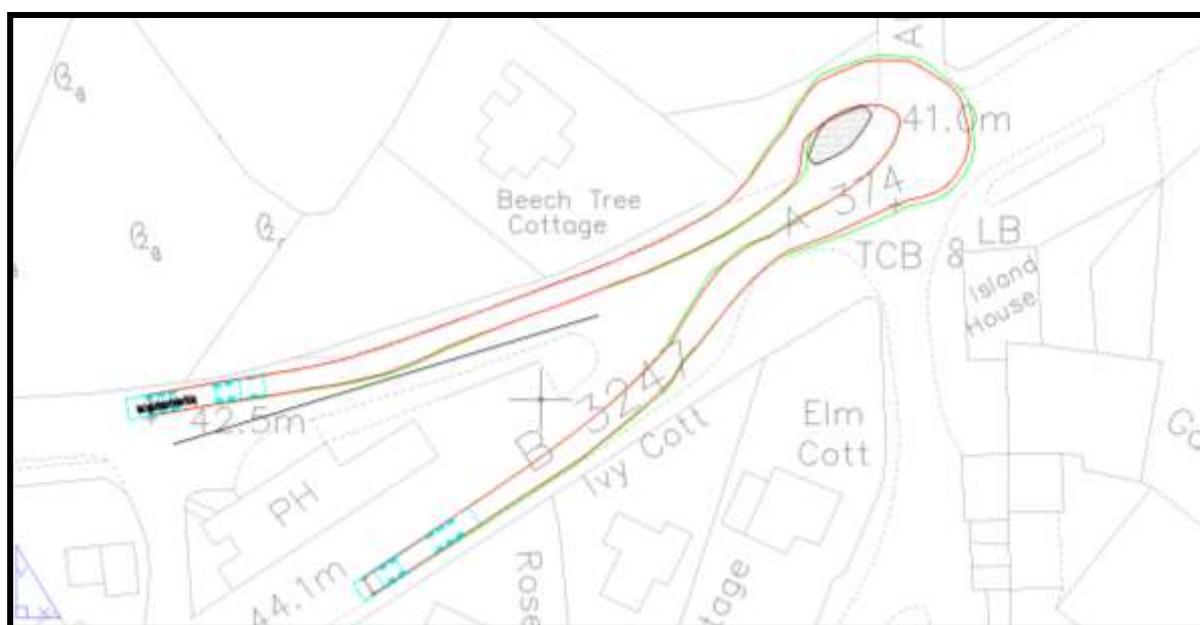


Figure 7.7: Option 6- Segregated Right Turn Facility
Extract from EDG_0205_F_016

7.5.4. Option 7– Roundabout

The possibility of replacing the existing simple junction with a roundabout to The Highway Agencies – Design Manual for Road and Bridges (DMRB) standards was briefly investigated but it soon became apparent that the impact on a number of properties surrounding the junction, including the loss of the Ring of Bells Public House, and the environment would be too great to take this option further. Preliminary layout is shown in drawing EDG0205_F_18 appended to the report.

7.5.5. Option 8– Ghost Island Junction

To bring the junction up to current Highway Agency standards as set out in the DMRB a ghost island junction was modelled in two dimensions as shown in drawing EDG0205_F_19.

This would entail taking a strip of land to the north of the A374 comprising of a strip of agriculture land, wooded area and a part of the front garden of Beech Tree Cottage. As in option one, to the south, the parking area of Ring of Bells public house would have to be used.

This online option would have a greater impact on its local surroundings than just widening the junction to allow the HGV turning manoeuvre as in option 4 however it brings the junction up to current standards and will be more cost effective with less impact on the environment than the online roundabout option and the offline new junction.

7.5.6. Junction Improvement Conclusions

Five options to improve the junction at Antony have been considered, to allow HGV traffic to easily pass between the A374 and the B3247. From initial evaluation, the junction improvements would seem preferable to a new junction solution as it would likely to be of significantly lower cost.

Option 4 - Widening of Existing Primary Simple Junction

This allows the left turning vehicle onto the A374 to track into the path of the opposing vehicles. This would not be acceptable and so this option is discounted.

Option 5 - Reversal of One Way System with Road Widening

This is likely to provide the most improvement for the least cost or impact on local residents. Improving the right turn capability in combination with advisory signing off the A374 will encourage eastbound HGV traffic to avoid routes through Crafhole. This option is unlikely to provide improvement to westbound routes and as such westbound traffic in Crafhole is likely to remain unaffected. More detailed survey would be required to establish the extent of any road widening required.

Option 6– Segregated Right Turn Facility

This provides similar benefits to option 5 without reversing the one-way system adjacent to the public house. The right turn facility is likely to create a poor junction that may suffer from safety issues if not thoughtfully considered. This option will struggle to satisfy safety auditing necessary for all highway junction improvements. The benefits of this option over option 5 are limited as large HGV traffic cannot use the current one way system onto the A374, as such reversing it will not be significantly detrimental. The majority of smaller traffic that used the one-way system could navigate the main acute junction. This option is therefore not considered to be suitable for further consideration.

Option 7– Roundabout

This would require the purchase and demolition of the Ring of Bells Public house so has been discounted.

Option 8– Ghost Island Junction

This is likely to provide the most effective online improvement for both

eastbound and westbound traffic. It is therefore likely to best alleviate HGV traffic flows in Crafhole. Amendments to landownership and parking arrangements for the local properties are likely to cause controversy and therefore a sensitive considered approach would need to be undertaken with any proposal. Due to the complexities of land purchase this option would require further detailed design including surveys etc. prior to final costings being produced.

7.6. Junction Improvement Recommendation

It is recommended to take the following options are shortlisted for future consideration.

Option 3 – New Junction to the west of the village.

Option 5 – Reversal and widening of one way system on secondary junction and implementation of advisory route circulatory signing.

Option 8 – Ghost Island Junction.

8. Village of St John

8.1. Overview

The village of St John has Torpoint to its north east and is situated on the C123 between Antony and Millbrook. There is a 20mph speed limit with traffic calming throughout the village. Residents report that large vehicles continue to use the village as a shortcut despite access restrictions to the lanes around the village in the form of a 6'6" width restriction as shown on drawing EDG0205_F20. It is also thought that this may occur when HGV drivers use Satellite Navigation (sat nav) systems set to 'shortest route' or car navigation systems thus leading them through the back roads.

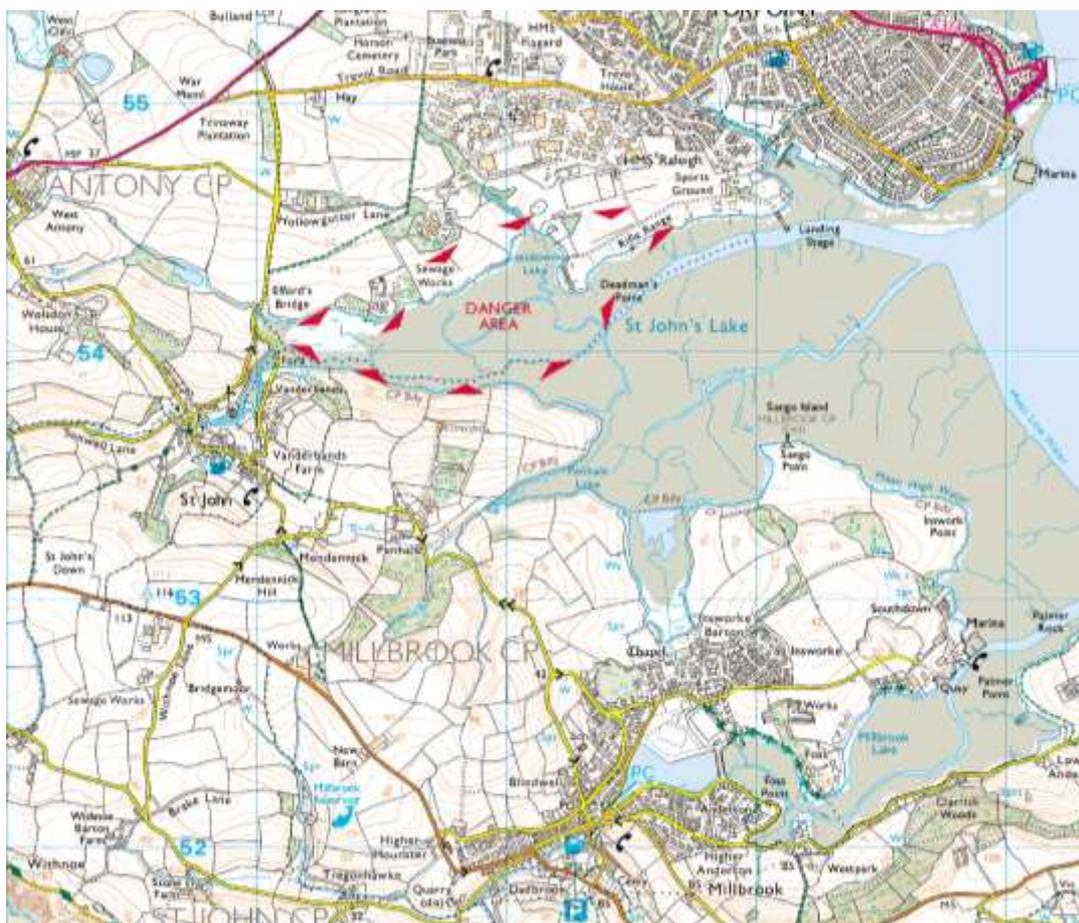


Figure 8.1: Transport Routes at the Village of St John Summary of Accident Data

All the roads leading to St John have width restriction signs with some having the supplementary plate, 'Except for Access', added. Apart from the northern approach the only other access having extra signage is the southern approach along St John's road, at its junction with Newport Street, which has an 'unsuitable for long vehicles' sign. This sign is not in an appropriate position but the restrictions in the locality may prohibit relocating it, and it is thought that this sign would not influence HGV driver who have use this approach.

The junction to the south of St John with the BB3247 and with Withnoe Lane has an open aspect and a relatively large radius which might give HGV driver false confidence in the standard of road beyond. However the road is visible from the B3247 and with no centre marking is therefore narrower than 5.3m. The existing width restriction signs can be seen from the B road and the addition of an 'unsuitable for long vehicle' sign would not significantly add extra deterrent for vehicles who want to utilise this route.

For the above reasons and the reluctance to add to the clutter of signs on the Rame Peninsular it is not recommended to place extra signs at this junction

The recorded accident data over the 5 year period, between 01/04/2008 to 31/03/2013, shows that the northern access has had 6 accidents; 4 slight and 2 damage only. The southern access has recorded 2 accidents; 1 slight and 1 damage only. The village itself has had 8 accidents over the 5 year period; 6 being damage only and 2 were slight. The majority of the accidents were between cars and the caused by the narrowness of the road.

8.2. Existing Consultation

The St John Questionnaire for the Rame Neighbourhood Plan asked three relevant questions that can be covered by this report.

- Have existing traffic speed measures (signs, road bumps) reduced the problem of through traffic.
 - Yes 63%. No 20%.
- Will we need more extensive measures to cope with increase through traffic?
 - Yes 61%. No 18%.
- What sort of measures would help e.g., chicanes, and improved alternative routes?

A brief synopsis of the respondents returns are shown below

- Improve alternative routes.
- Restrict traffic to residents and deliveries only.
- Unsuitable for through traffic – signs.
- Satellite navigation sends vehicles down unsuitable lanes.
- More road humps needed.
- Chicanes and width restrictions.
- Cars go too fast.
- Road humps unsafe, need alternative more effective solution.
- Road humps increase noise with no reduction of speed or volume.
- Speed bumps only a slight improvement.

- Need flashing speed limit sign.
- Delivery drivers ignore width signs.
- Volumes reduced but speed still a problem

The main concerns at St John fall into three categories.

1. Volume of traffic.
2. Speed of traffic.
3. Satellite Navigation enigma.

As no baseline data was collected before the traffic calming scheme was installed the success of the scheme, based on the number and speed of vehicles, cannot be quantified.

8.3. St John Satellite Navigation Issue.

The consultation indicates a problem with sat nav systems directing HGV's, who want to access the southern part of the peninsular from the Torpoint ferry, through St. John which has a 6'6" width restriction, rather than use the B3247 through Antony

St Johns junction with the HMS Raleigh road and in association with the A374 has existing width restriction and unsuitable for through traffic signs. The 'unsuitable for through traffic' sign is not a permitted sign under Traffic Signs Regulation and General Directions 2002.

The satellite navigation problem is a relatively new phenomenon for which the Department for Transport is investigating long term solutions. Cornwall Council is increasingly aware of the number of incidences where the sat nav is cited as directing HGV's along inappropriate routes, both within the county and elsewhere in the UK.

It should be borne in mind that, at present, suitable empirical evidence does not exist to support such claims. Other more balanced evidence suggests that incidents that have been disproportionally recorded and that on the whole, the misuse of sat nav is relatively rare in HGV's, particularly when considered against the overall volume of freight traffic.

However some HGV's and van drivers that are using sat nav have purchased units designed specifically for the car market. As a result, these systems take no account of the weight, height or environmental restrictions that HGV's have to adhere. It is noted that some car sat nav systems indicate a route from Torpoint Ferry to the south of the Peninsula through St. John.

The use of Satellite Navigation and the size and quantity of vehicles need to be substantiated as the evidence is currently anecdotal. Quantification of the issue could be carried out at the point of access at the Trevol Road junction by a police controlled census point or, more informally, at the point of delivery by the Parish Council's however noting the limited number of large vehicles using the routes it may be of limited benefit in

relation to the cost of such surveys. Local businesses could help with their own surveys by questioning their delivery drivers and recording the responses.

The current position of the width restriction signs when travelling from the north does not make them immediately visible to an approaching vehicle until they are already committed to travelling along the road to St John. Revisions to make the restriction more apparent would be viable as discussed in 8.3.2 below.

8.3.1. Traffic Count Data

The traffic count data shows the flow of traffic into and out of the HMS Raleigh road St John road junction.

Date of Count		Lorries									Total Vehicles
	Junction Flow Direction	Med. Goods	Rigid 2 AX	Rigid 3 AX	Rigid 4 AX	Artic 3 AX	Artic 4 AX	Artic 5 AX	Artic 6+ AX	Total HGVs	
18/06/ 1996	Into	7	0	2	0	1	0	0	0	10	313
	Out	6	0	2	0	0	0	0	0	8	277
26/06/ 2003	Into	6	5	0	0	1	0	1	0	7	368
	Out	12	3	0	0	3	0	0	1	7	338

8.3.2. Recommendation

From the north - An advanced sign along the HMS Raleigh road directing HGV's to use the A374 and move the existing width restriction signs on the St. John road forward to a more prominent position (the existing TRO restriction starts at the junction itself). Remove the existing "unsuitable for through traffic" sign and replace it with a larger "unsuitable for heavy vehicles" sign placed on the central island under the keep left sign.

The new advisory signage may provide betterment to the existing situation.



Figure 8.2: Extract from EDG0205_F_11

8.4. St John - Speeding

St John has already had a traffic calming scheme installed, but the results from the survey suggest the speed of traffic through the village is still a problem.

Before any scheme is identified the extent of the speeding problem through St John needs to be quantified. To initiate this process the Parish Council should perhaps contact the CORMAC Network Manager to outline the problem and request the deployment of a RADAR Class for a one week period. It should be noted that Cornwall Council no longer has a budget for its deployment and therefore funds would almost certainly need to be sought from elsewhere.

8.4.1. Recommendation

Further investigation could be undertaken to quantify the issues, this could initially be carried out, subject to available funds being found, with speed surveys and perhaps traffic counts, in the village of St. John. This could confirm the transport issues and in turn provide a baseline to evaluate the effect of any future scheme which may address the issues.

8.5. Antony Village Junction to St John

There is concern from residents about large vehicles from the A374 using the C123 Antony - St. John road rather than the B3247.

The Annual Average Daily Traffic (AADT) for this road is 400, with heavy commercial vehicles greater than 3.5 tonnes and buses and coaches (HCV) noted at 10, with medium goods vehicles and buses and coaches (MGV) also noted at 10.

As there are no signs for St. John on the main A374 at Antony Village and the sat nav does not direct vehicles along this road from either the Torpoint ferry or from the A38 it is assumed that it is local deliveries that are using this route.

Traffic counts indicate that only around 20 vehicles a day in excess of 3.5t use the route (including buses). The junction itself is wide and open and gives a false impression of the standard of the rest of its length. There is a 6'6" width restriction sign on display in a prominent position at the junction.

The junction to this road, at Antony, is open and spacious and does not indicate the quality of the road further on. Alterations to the junction to better emphasise the state of the road could include a narrowing of the entrance by widening the verges and tightening up the radii.

8.5.1. Traffic Count Data

The traffic count data shows the flow of traffic into and out of the St John road at Antony.

Date of Count		Lorries									Total HGVs	Total Vehicles
	Junction Flow Direction	Med. Goods	Rigid 2 AX	Rigid 3 AX	Rigid 4 AX	Artic 3 AX	Artic 4 AX	Artic 5 AX	Artic 6+ AX			
20/06/2001	Into	2	3	0	0	0	0	0	0	5	201	
	Out	1	1	0	0	0	0	0	0	2	123	

8.5.2. Recommendation

Narrowing the entry width at the Antony junction would be a low cost option which may provide some benefit to the village of St. John, however revising the junction layout to narrow it and restrict the entry width may not result in decrease in the type or quantity of traffic. The majority of vehicles travelling along this route are likely to be local deliveries and aware of its existing standards.

9. Millbrook

9.1. Overview

Millbrook suffers from traffic congestion on its main through route, the B3247. The most significant problem is caused by a 50m long, narrow section of carriageway between terraced houses. Vehicles are unable to pass each other along this length and the problem is further exacerbated by a sharp bend limiting visibility in both directions at the end of the narrow section.

In addition, the approaches have localised pinch points which lead to further difficulties with vehicles passing each other. Due to the presence of properties on the sides of the road, there is no scope to widen the carriageway to ease the congestion. White lining and coloured surfacing have been provided through the narrow section to improve pedestrian safety as shown in figure 9.2

A priority working system was also previously trialled but was removed following a Road Safety Audit.

Previous assessment in May 2007 suggested that traffic signals would be appropriate to control the single lane narrow section at the bottom of Hounster Hill. Following the assessment, the scheme was discussed between Mr Ault CC and Cornwall Council's Officer Peter Moore. A give and take priority working system was subsequently installed.

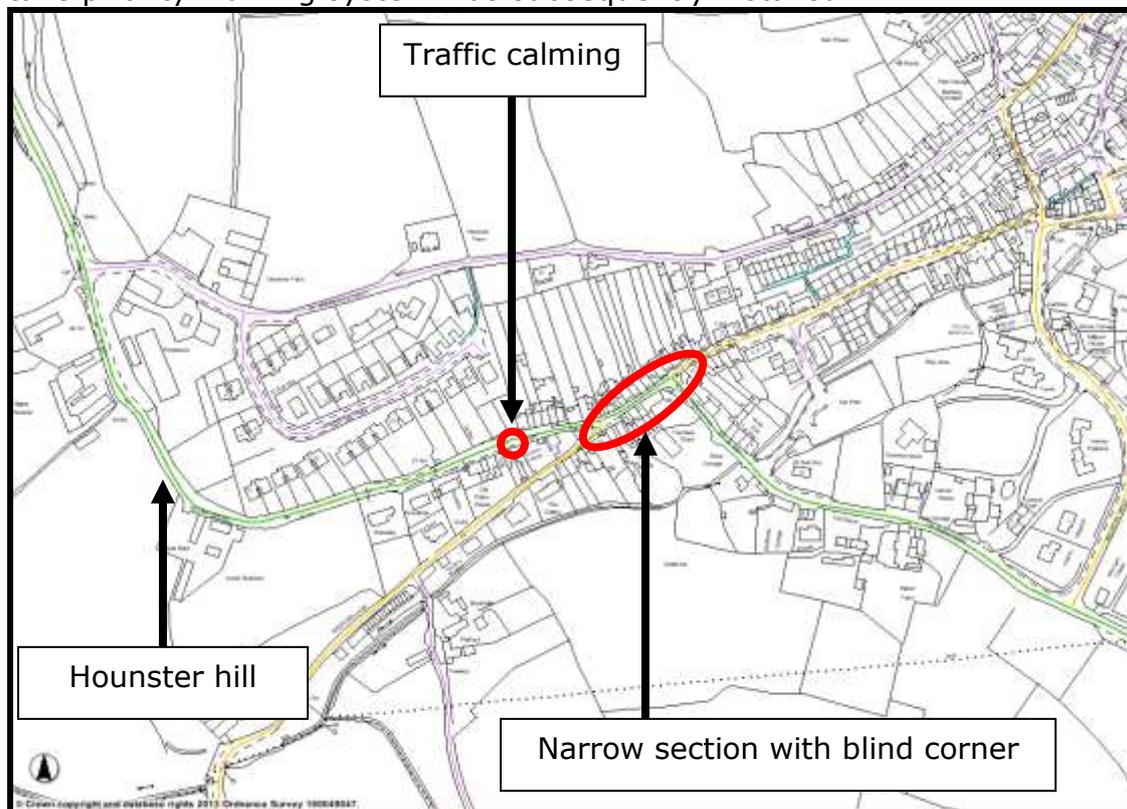


Figure 9.1: Transport Routes at the Village of Millbrook



Figure 9.2: Narrow Section of B3247

The section of the road at the bottom of Hounster Hill is very narrow and has been the subject of recent changes to create pedestrian walkways and priority working.

Approach speeds into the village from the North West are currently moderated by the sharp bend at the top of the hill along with the priority signing opposite the old Police Station. At times of low traffic flow this feature may not have sufficient opposing traffic to slow inbound vehicles

A survey was commissioned to pick up the road channels from the southern bend by Lower Hounster, down through the village to the cemetery where the road widens out. AutoTrack software was used to drive various lorries along this survey. The results showed that road through the village is too narrow to allow two vehicles 2.5m wide to pass each other along its whole length. This would include most coaches and rigid and articulated lorries. Drawing EDG0205_F_23 shows the conflict points of a large (2.5m wide) and a small (2.36m wide) articulated lorry. We can see that Hounster Hill is too narrow along the majority of its length to let these vehicles pass.

9.2. Shuttle lights

Drawing EDG0205_F_07 shows the proposal of a 3 way traffic light system to enable vehicles to pass through the narrowest section of the B3247 through Millbrook. Drawing EDG0205_F_08 shows the proposal for

a 2 way traffic light system with a reversal of the one way system on West Street.

Drawing EDG0205_F_8 shows a 2 way traffic light system with West Street either blocked off or the existing one way system reversed, a build out is proposed at the corner of Wells Court & West Street. This is to ensure that all oncoming traffic drive over the "in" loop. The south side of the carriageway is mainly used for parking. Therefore most traffic tends to drive on the right hand side (it is a one-way street at this point).

A yellow box marking is proposed opposite Millmoor House as the road is not wide enough for two vehicles. This proposal will be to prevent cars queuing at a red traffic signal along this section of road and blocking it when the lights are red.

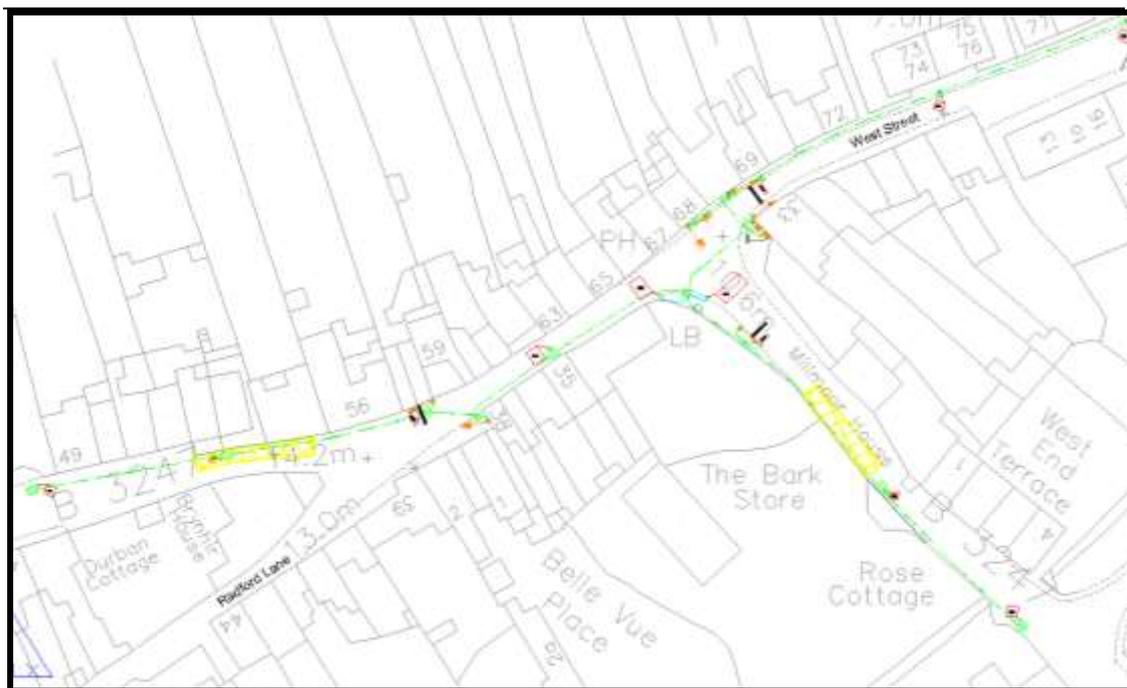
A further yellow box marking is proposed outside of numbers 53-55 because the road is not wide enough for two vehicles to pass. This will also prevent cars queuing at the red traffic signal and blocking the road.

A stop line is proposed between numbers 57 & 58. If it was positioned any further back from property number 55 it would necessitate the signalisation at the Radford Lane junction. This is impractical as Radford Lane is only wide enough for one vehicle. Vehicles turning out of Radford Lane would have a good visibility of the primary & secondary signals.

An all-red loop is proposed to ensure that the blind area should be clear of all traffic before a signal change.

The signals at the end of West Street have been located between property numbers 38 & 59. If these signals were to be moved forward, drivers might be tempted to go through a red traffic signal due to a partially better visibility of traffic outside Millmoor House.

The traffic signal assessment report (Appendix B) states that queuing lengths are acceptable but concludes that variety of caveats are identified in relation to the proposed signals that would influence the workability of the signals in reality. These include careful consideration of the ability of proposed signals to cope with larger vehicles, impact on driver behaviour and pollution generation.



**Figure 9.3: Extract from Drawing EDG_0205_07
Diagrammatic plan for three-way traffic signals**

9.3. Costs

A preliminary estimate for the present day design and construction of traffic lights in Millbrook is £160,000. This is current costs, not actual costs at time of construction.

This cost does not include works necessary in changing the one way system through West Street, for the two way traffic system, if the route through the existing car park is to be used a further investigation of the bridge and road needs to be carried out to see if they can take the proposed extra loading without the need for strengthening or replacing. Also kerbing of the through road and footway with the alterations to the existing layout and have not been costed. Further investigations on the final carriageway layout as part of the final signal options will be required as part of the detailed design process.

9.4. Recommendation

The nature of the narrow road and limited footpath makes it difficult to produce a complete viable solution using traffic lights only. The width of the road allows the passing of 3 axle lorries but if a luxury coach or 4 axle lorry meets a 3 axle lorry, the passing places are severely restricted.

Further design will require detailed traffic surveys to confirm the amount and size distribution of the vehicles using this section of road. Particular consideration should be given to the size and type of the buses, as being the most numerous of the larger vehicles they could have the greatest

impact on the design solution and could show that there is no valid solution possible.

If signal design options are to progress further, it is recommended that detailed traffic flows are obtained by install an automatic traffic counter for two full weeks in June, followed by a further two full weeks in August along with two weekday 12 hour manual counts (one June, one August) at the B3247 / West Street junction. Approx. total cost £1500.

This will most likely confirm that allowing two way flows of lorries and buses through the village will keep causing traffic congestion which could be compounded by the introduction of traffic lights. A solution of introducing a HGV circulation system as set out in section 6.1 and monitoring the traffic through Millbrook to see if traffic lights would still be required is the recommendation.

10.2. Congestion Causes

The traffic congestion in Craffhole is generally caused by five major factors.

1. The narrow road and the direction of the camber outside the Post Office has caused the top of lorries to hit the roof of Cosy Cottage.
2. The various pinch points between the Post Office and the priority build out at the top of the hill is exacerbated by the narrowness of the road and the on street parking. The narrowing of the road at the Post Office causes drivers to concentrate on this physical obstruction and they become caught out as further up the hill there are other sections of road that are not so obvious but prevent a large vehicle and a car from passing. This is made worse by parked vehicles elongating the pinch points and/or not allowing vehicles to free themselves by manoeuvring into space that would otherwise be available.
3. The exit west of the mini roundabout can cause congestion as the road here is very narrow, particularly along the garden wall of Lynher House which becomes even narrower as it approaches the junction. If a car is approaching from the west it will generally be committed to the junction before a westbound HGV sees it coming. A HGV cannot then leave the roundabout via the west arm and the traffic quickly queues back to the Post Office pinch point which then blocks east bound traffic and prevents the original vehicle pulling onto the roundabout to let the HGV pass.
4. Acute Junction angle off the A374 at Antony which leads to HGV traffic choosing to use route through Craffhole.
5. Weight restrictions on the Torpoint ferry of 18 tonnes forces larger vehicles to access the Rame Peninsular from the west via the A38. This makes the first junction and signage encountered for Millbrook and Mount Edgcumbe County Park on the A374 the B3247 through Craffhole. So causing all large vehicles accessing the peninsular to travel through the Craffhole

Various changes to the priority system at Craffhole have been tried in the past but with variable success. The option of having a priority for traffic leaving village centre to go west (and northwest) from the roundabout end and changing the mini roundabout to a junction with a priority build out was investigated but this layout, partially tried in the past, may not overcome the problems stated above.

10.3. Traffic Signal Control

To be read in conjunction with Drawing EDG0205_F_09

Note:

- Pinch point at A between Cosy Cottage and the Post Office
- Pinch Point at B from Forge Cottage to Rock Cottage

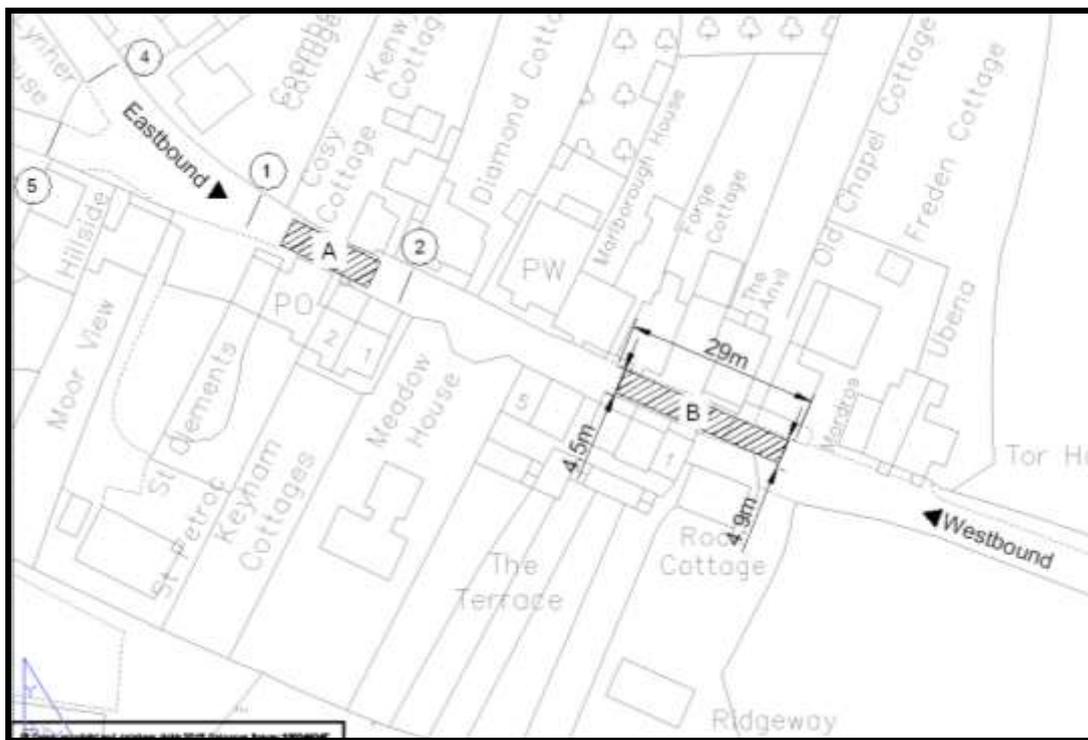


Figure 10.2: Extract from Drawing - EDG 0205_F_09

10.3.1. Option 1

Shuttle type signals spanning pinch point A only. (Stop lines @ 1 and 2)
It is preferable to keep the distance between the stop lines as short as possible so that the cycle time of the signals can be kept to a minimum and not allow time for long queues to build at each stop line.

However, a red light will always require a queuing area and particularly on the westbound approach, this will be a problem. There is adequate carriageway width for vehicles to pass each other between A & B only, and then, only if parking were to be fully prohibited. Just a short queue of waiting westbound vehicles is likely to restrict access into pinch point B for an eastbound platoon which could then fail to clear the shuttle signals.

Consideration has been given to the provision of a 29m long yellow hatched box spanning the pinch point at B to break up a long column of westbound vehicles approaching the signals, but there is still very restricted passing space for larger vehicles beyond B up to the limits of the village at 3.

10.3.2. Option 2

Shuttle type signals spanning pinch points A & B. (Stop lines @ 1 and 3)
To increase the length of the signalised section so that it incorporates pinch point B would probably result in the westbound stop line being located at point 3. Careful consideration would be needed in determining its precise location due to the amount of forward visibility that would be available from the brow of the hill. A very robust system of warning signs would be required.

The likelihood of longer queues at each stop line, plus the increased waiting time would be problematic on the eastbound approach. Traffic exiting the side road would not be able to join the main road and would effectively block the side road to westbound traffic. There is no carriageway width available for vehicles to pass on the side road and a consequence to providing signal control is likely to be that this road is made one-way only.

10.3.3. Option 3

3-Way signals spanning pinch points A & B plus junction. (Stop lines at 3, 4 and 5). Extending the signal control to include the junction on the eastbound approach (therefore providing a 3-way signal control system) would address the stacking issues and is likely to reduce the potential for vehicles to be unable to clear the signalised section. However, the distance between the stop lines with this arrangement is excessive. Each phase would be demand dependent and a green to vehicles on any approach would be followed a long all red clearance time. Motorists are often frustrated by this and the potential for red light jumping is increased.

10.3.4. Option 4

On prompting from the Rame Cluster Group the feasibility of using a sensor system that picks up HGV's and linked to signals stopping the flow of traffic one way to let the large vehicle clear the pinch point was investigated.

As there is no holistic proprietary solution to cover the conditions found at Crafhole, any system installed would have to be a real life test and the cost of this research and development would have to be found.

There are no signs or lighting diagrams in The Traffic Regulations and General Directions 2002 to cover the signing and lighting requirements that would be needed. Any system would require DfT approval and it is thought at this time that it would be extremely unlikely.

10.3.5. General

For all of the above considerations, the positioning of signal equipment, and in particular, the poles, will not be easy. Kerbed build outs may be required and the signals heads are likely to be very close to residential windows. Induction type detector loops on each approach will extend up to 40m (further if MOVA is required) beyond the stop lines. Trenching in the carriageway for this and the equipment within the signalised area will be considerable.

There is also the serious issue of residential accesses in-between the stop lines which is not feasible to address and the problems associated with vehicles entering the signalised area from private accesses without any indication of which stage is running. This will be particularly problematic with vehicles using the allocated parking spaces for the Post Office / shop – west side of pinch point A. This small parking area was in constant use at the time of the site visit. When the parking area was full, motorists would park on the road to use the shop, affectively elongating pinch point A. These parking actions often blocked in vehicles already using the car park, which caused more traffic congestion, when a number of vehicles tried to exit this small area, all at the same time.

The issue of residential properties within the controlled area of the traffic lights has been investigated fully by the lighting engineer. It is not feasible to install lights to control these individually; additional lights at the end of the section would be confusing to through traffic for the following reasons;

Issues relating to emerging vehicles from private accesses opposing vehicles travelling through on a green signal.

Vehicles from private driveways or parking areas will require some indication of the stage currently in operation to avoid directly opposing a vehicle travelling through on a green signal.

The positioning of distant secondary heads at the opposite end of the signalised area may afford some limited indication of the phases running to local residents emerging from private drives. However, this will create problems for the through traffic. For example, when a vehicle enters on a green signal towards the end of a stage, it would approach the secondary signal as it changes to red. This will invariably cause it to stop and not actually clear the signalised area before the opposing green signal begins. A delay to the red signal appearing on the secondary head after it has appeared on the primary head and thus creating a 'clearance period' cannot be configured within a phase. It can only be achieved by creating a separate phase within the overall configuration and therefore requiring an additional advanced stop line with additional primary and secondary signal heads. Although inductive loop detectors should assist with the clearance of the advanced stop line, vehicles are still likely to be caught between the two and the problems caused by blocking vehicles will remain.

Providing separate signalised phases for each private access is not practicable. Each private access will legally each require a stop line, a

primary and secondary signal head (or twin primary heads) and vehicle detection. Locating this equipment at each of the access points so that it is relevant to each phase and not contravening clearance requirements will be extremely difficult to achieve and it is likely to be very confusing for through traffic and it is crucial that a primary or secondary signal for an opposing phase is visible to traffic on the main road.

In addition to this, inductive loops cut into private driveways will be problematic in terms of the type and depth of the surfaces available as well as creating issues with future maintenance. Vehicles parked on an inductive loop will input a demand to the controller for that phase to run in every cycle. Above ground microwave type detectors will not be effective with stationary vehicles and again it will be difficult to locate and configure them so that they are not continually responding to traffic on the main road.

An increase in the number of stages required would result in an excessively long overall cycle time and consequently increase the likelihood of red-light jumping by frustrated motorists. Queuing traffic will increase noise and air pollution.

A No Waiting at any time restriction would also be required within the entire controlled area of the traffic lights to ensure continuous free traffic flows.

Due to the extensive reasons demonstrating that it would not be practicable to install the required infrastructure, further investigation/modelling has not been undertaken.

10.4. Traffic Regulation Order

The two permanent pinch points that exist outside the Post Office and the Forge are compounded by the on street parking. This is increasing the length of these pinch points and in some circumstances creating separate pinch points. The parked cars are also occupying spaces that vehicles can utilise to assist in freeing up the congestion.

The implementation of a Traffic Regulation Order (TRO) in the form of single yellow lines prohibiting parking between 9.00 A.M and 5:00 P.M, or alternative times agreed in consultation with various stakeholders, as shown on drawing EDG1205_F_05 will go some way to alleviating the congestion within Craffhole.

However this would not solve the congestion caused by the narrow road above the roundabout south west of Lynher House or fully alleviate the traffic jams through the Village. The implementation of yellow lines may result in a minor increase in vehicle speeds, however implementing a daytime only restriction results in parked vehicles slowing vehicles overnight. Higher daytime traffic flows slows speeds due to the interaction between opposing vehicles slowing to pass each other. This increase could be offset by the construction of strategically place build outs and the relocation of the existing traffic management features.

10.5. Mini Roundabout Pinch Point

To solve the problem of the congestion caused by the pinch point by the roundabout outside Lynher House a one way system was investigated running east down West Street. However the characteristics of West Street, being a narrow village street, and the restricted visibility to the right when exiting, would make this difficult to achieve.

Widening the carriageway has been considered however this was dismissed due to the significant detriment to Lynher House in procuring the land required.

10.6. Two Priority build outs

This has the potential to further reduce the congestion within the eastern end of the village. A new buildout would be required to control traffic through the narrow point. One to the east of the Post Office to complement the existing one at the eastern boundary of the village. These will supplement the waiting restrictions described in 10.4 in order to balance traffic speeds and flows if required. Waiting restrictions will be required, however consideration will need to be given to a daytime only restriction to minimise impact on residents whilst tackling the issue of parked vehicles preventing the free flow of traffic. Additionally, some localised widening may be required in order to allow westbound vehicles to wait at the edge of the village.

Vehicles arriving at the village will be required to slow and give way as at present. They will have a clear view into the second waiting area outside of Meadow House and would be able to assess if their way forward is clear, preventing a build-up of traffic in this area. Traffic leaving the village would have priority at both buildouts.

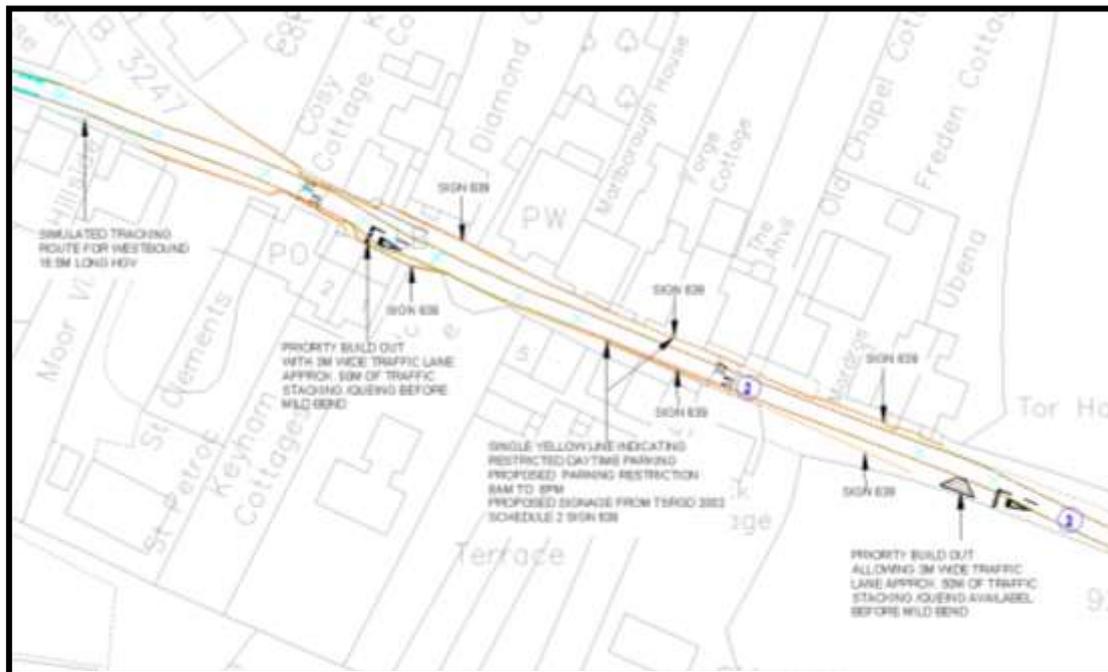


Figure 10.2: Extract From Drawing - EDG 0205_F_17 Showing Priority Build-Out Option

10.7. Recommendations

10.7.1. Traffic Lights

Traffic lights cannot be recommended for this location.

10.7.2. Waiting Restrictions

Introducing daytime waiting restrictions in the form of yellow lines to reduce congestion through the village.

Design and implement standard Traffic Regulation Order (TRO) in the first instance with;

- Baseline speed readings
- Consultation
- Monitoring

Following a detailed review of the performance of the TRO in operation consider whether it is necessary install priority buildouts.

10.7.3. Mini Roundabout Congestion

Monitor and assess as part of 10.7.2.

APPENDIX A
DRAWINGS

APPENDIX B

G0205/F2 Millbrook Traffic Sign Assessment

Reply to questions raised by Rame Cluster Group

Comments on the final draft for review version of the Rame Peninsula Traffic Management.

Report Ref EDG0205/F1 rev A

The following points should be addressed to finalise the report.

1. A comment on the inclusion of a lay-by on the B3247 east of Tregantle farm and on the road into Wilcove, even if this is simply to state that there should be no difficulty in achieving this subject to permission of the landowner. Comment was included in the previous version circulated to the Transport Infrastructure sub group of the Rame NDP.

Response: Where a road is only wide enough for one line of vehicles the consideration of passing place facilities may be considered as a solution subject to the composition of vehicle movement, type of road and availability of land and buildability.

2. On page 9 reference is made to the problem of proliferation of signs for the circulatory system. These comments are accepted but we consider that there should be some balancing comments on the benefits of introducing the circulatory system, particularly in relation to the need for a solution in Millbrook.

Response: All traffic schemes must adhere with the rural highways best practice guidelines which sets out the councils expectations on traffic signing proliferation; however a pragmatic approach to signing in some cases will be considered where the benefits of signing outweigh the environmental consequences e.g. road safety.

3. In the final paragraph on page 10 the paragraph opens with the statement that 'The voluntary system could be augmented with the use of prohibitory signs and traffic regulation orders'. We agree and believe reference could be given here to perhaps introducing it at Hounsters Hill.

Response: there are technical, procedural and practical reasons that need to be overcome before we could commit to this type of TRO.

- If a TRO is proposed it will require statutory and public consultation and there is no guarantee that the Order will be made. It may be difficult to get public support considering that the return route is longer and along a lower class of road; Road Haulage organisations will likely challenge where it affects running costs

- Exemptions will be required to this type of TRO e.g. 'Except for Access'. These will dilute the effectiveness of the restriction depending on where it is located.

- Communication of the restriction to drivers – Signing has to be appropriate and legal.

- Cornwall Council cannot enforce this type of TRO. The support of Devon and Cornwall Police is integral to this type of order being implemented.

- The practical considerations of a large HGV being prevented access to Millbrook also need examination to ensure that there would be appropriate turning areas.

- It is considered that it will be difficult to persuade drivers to follow the longer alternative route without significant promotion of a voluntary

one way route involving liaison and communication with Hauliers etc.

4. In section 6.5 reference is made to a document covering highway diversion including the B3247. The report says the Rame group could receive a copy on request. We wish to receive a copy.

Response: It is understood that this report is still in draft form – A copy will be provided when available. Neil Grigg at Cormac Bodmin is compiling – ngrigg@cormacltd.co.uk.

5. In Antony we support the recommendations for Junction option 3 and also junction option 8. However, we are not convinced that option 5 is viable, because it will involve HGV's moving from a standing stop up the hill out of the village while also negotiating a sharp bend. Response: It is considered that option 5 would be viable as modern vehicles will be capable of negotiating the hill even from a standing start, it is accepted that this option will result in HGV's travelling through the village, but they will travel at a lower speed than if they were directed to travel downhill through the village. This option is also more likely to be buildable than the significantly more costly scheme options presented. Modifying the road layout at this location to allow HGV access through the village has a significant impact on route availability throughout the Rame network

6. The last sentence of section 7.4.4 is considered very weak. It should be replaced with words to the effect. It is therefore recommended that s desire to improve the junction via option 3 because it is central to the long term economic viability of the whole of Rame by providing a safe route for HGV's onto the peninsula and to provide for additional commuter traffic capacity to allow development on the peninsula.

Response: We cannot agree to this statement without a business case being produced. We will revise the report to clarify this. ."

7. There is frequent comment throughout the report that in Millbrook the road is too narrow to allow two HGV's to pass but no solution other than further work to design and assess the viability of a traffic light system. We consider that a low cost solution would be to prohibit HGV's from proceeding up Hounsters Hill. This could be achieve by putting an advisory sign for HGV's to turn left at Four Lanes End School because of a restriction to HGVs half a mile ahead, and prohibitory signs at the main turning into Millbrook where any vehicle that had ignored the early sign or vehicles coming from Millbrook would be advised to turn left. It might also be necessary to place sign at the bottom of Hounsters Hill to stop a HGV travelling up the hill from West Lane up the hill rather than turning left onto the B3247. Response: This results in similar responses to question 3 above. There would need to be a thorough investigation of turning facilities at Millbrook at the prohibition point. There is the temptation for drivers to abuse a restriction further out of the village on the basis of being allowed 'Access'.

8. There is great disappointment that the only recommendation in Craffhole is for more traffic studies. That is what has been happening for the past 10 years. We would like to see the option of two build-outs included in the report. We believe with some changes in road daytime parking might be acceptable to residents along the road providing it is coupled with changes in road layout but not without this happening. Residents are convinced that removal of parked cars will increase speeds, speed watch has already recorded speed of over 35 mph through the village, and the report acknowledges this, making the road less safe and reducing further the quality of life along the road.

Response: The report proposes that measures are carried out to control speeds in the village via a phased approach. This ensures that the problems are dealt with without constructing features that could be seen as a detriment to the village (sign proliferation). It should be emphasised that the proposed waiting restrictions on the Eastern side of the Village are daytime only when it is considered that vehicle speeds will be constrained by volume of traffic. Although there may have been incidences of drivers exhibiting bad behaviour in relation to speeds (as there can be at any location), this will need to be quantified in relation to normal speeds overall through this section of carriageway. Cornwall Council will require speed surveys carried out with their own monitoring equipment. Further work such as the buildouts would be considered following the Traffic Regulation Order and subject to the results of the before and after speed surveys. It should be noted that a 24 hour restriction on parking is not thought to be appropriate given the light traffic flows outside the day time period.

9. There has been discussion over the provision of Heritage Signs for Mount Edgcumbe Country Park as the last sign is at Trerulefoot. We would like to see this added to the report with guidance on where the additional signs should be located.

Response: Brown signing will need to be reviewed in accordance with our policy. We are mindful of upcoming potential changes following the ongoing Dft review of brown signing as part of an overall review of signing within the Traffic Signs Regulations and General Directions (TSRGD 2015). We discussed splitting HGV and cars movements to different routes during our NCH meeting. Options for this could be considered once the impact of any changes within the DFT review of signing policy is complete and the TSRGD 2015 is issued.