Briefing Note

Walking, Cycling and Other Issues at the Junction of Dragon Street / The Causeway / Hylton Road and Sussex Road

(including cycle links to Tesco and on to Alderfield / Meadow Lands etc)

Foreword

This is the third version of the document which includes comments received on the previous issue. The basic analysis and conclusions have not changed materially, but the text has been clarified in several places. A map has been added on Page 9 to show the location of the junction of Dragon Street, Hylton Road and Sussex Road. In addition this map illustrates some of the issues which are discussed.

1. Introduction

The Petersfield Strategy Group (PSG) has prepared a list of potential schemes which are to be given priority in the context of the Petersfield Place-making Action Plan. This note has been written to support and inform the Action Plan with the emphasis on cycling and walking issues. It describes some of the problems encountered by pedestrians and cycle riders when moving around Petersfield and identifies some potential solutions. The intended readership are the councillors and officers who are contributing to the Petersfield Operational Group (POG) and the PSG, together with transport professionals who will be responsible for the detailed design of the schemes.

This note has been prepared by Keith Hopper (Chartered Highway Engineer (retired)) and Gethin Morgan-Owen (cyclist and active travel campaigner), both of whom are residents of Petersfield and take an active interest in transport issues in the Town. They have extensive experience in the design and every-day use of urban streets and have been observing the local problems and difficulties for some years. The comments below are intended to assist the planning and design process by outlining current problems and making suggestions for improvements which will be given detailed consideration by the designers. They in turn will use their skills to refine the suggestions and find alternative solutions. It is hoped that innovative solutions can be considered for the low speed areas of the town core and that approaches will be made to the Department for Transport (Traffic Signs and Street Design Policy) for discussion on new features / signing and authorization for their use in Petersfield. One aspect that is in need of an innovative solution is an attractive, safe and practical type of crossing for pedestrians which could be installed at a large number of sites in the low speed town centre areas. This seems especially relevant as the current town centre layout was designed in the early 1990's as part of the By-Pass Demonstration Project, which had the full backing and support of the DfT.

There is much that needs to be done to improve facilities for cyclists and for pedestrians throughout Petersfield. The POG's Place-making Project spreadsheet identified 45 locations in need of improvement, while the LCWIP[1] identified 68 locations for cycling alone. The topics covered in this note have been limited to items placed on the priority list prepared by the PSG[2], whilst bearing in mind any impact on the adjacent environment.

The focus of this note is the junction of Dragon Street - Causeway - Hylton Rd and Sussex Rd and the possibility for cycling links to Tesco and on to Alderfield and Meadow Lands etc.

2. Background

The town of Petersfield is located at the junction of the historic London - Portsmouth road (north-south) and the Midhurst to Winchester road (east - west). In the early part of the 20th century these were designated as the A3 Trunk Road and the A272, with the A3 dominating life in the Town due to the narrowness of College Street and Dragon Street as well as their many junctions. The Town is now much quieter as the A3 has been re-located immediately to the west of the Town in the form of the dual two-lane by-pass that was opened to traffic in 1993. Drivers using the east-west route are now directed onto the by-pass via a link road to the north and therefore by-pass most of the Town.

[1] East Hampshire Local Cycling and Walking Infrastructure Plan (LCWIP) Technical Report V1.2, August 2020.

[2] See the meeting notes for the PSG meeting on 18th December 2020.

Shortly after the opening of the new road, major works were carried out on College Street and Dragon Street as part of the By-pass Demonstration Project (along with 5 other towns in England), with the aim of reclaiming the streets long term for the residents. The carriageway was reduced in width with more space set aside for pedestrians and landscape enhancement works. The mini roundabout at the junction of Dragon Street and Sussex road was removed as traffic movements had become much easier. Large areas of carriageway were enhanced with blocks and granite setts, some of which are now showing signs of movement and are in need of major maintenance works. It should be noted that areas of granite setts are seen as a major problem for cyclists as they have a serious effect on the stability of the cycle and rider, especially when wet and when turning across them. It is recommended that their use should be limited to non-cycling areas and existing ones should be removed.

The majority of the traffic from Chichester and internal traffic heading for Winchester uses one of the two east-west routes within the Town. Station Road is central and direct but straddles a level crossing adjacent to the railway station, whilst the southern route via Hylton Road, Swan Street and Frenchman's Road passes under a low railway bridge, ruling out use by larger vehicles.

The original trunk road A3 (Dragon St and the Causeway) splits the Town in two and is still a major obstacle for pedestrians and cyclists. It is imperative that this is made more friendly from the point of view of the more vulnerable highway users and that a number of easy crossings are installed.

There has been an increase in traffic over the years as the Town has increased in size and formal crossing places for pedestrians have been installed on the north-south route at the College St / Tor Way junction (Toucan) and at the Dragon St / High Street junction (Puffin), but nothing has so far been installed at the junction under study at the south end of Dragon Street. The footways leading up to the Junction and around it have changed little over the years, except that the informal crossing point on the Causeway 30m to the south is showing signs of increasing success. Many drivers will now give way and stop for people to cross, as long as they are standing on the kerb and visually reacting with the drivers.

From a cycling point of view there have been a number of changes: some footways have been re-designated as shared routes for both pedestrians and cyclists, National Cycling Network Route No 22 (NCN22) /Shipwright's Way has been installed and narrow 1m wide advisory cycle lanes painted on the Causeway to the south of the Tesco Roundabout. The latter is highly contentious as the width is now deemed to be inadequate (further comments on cycling issues are shown in Sections A1.5 and A1.6). The whole issue of mixing pedestrians and cyclists on the original footways is seen as highly contentious. Sometimes illegal use of the footway by cyclists is seen, whilst on other designated shared use routes there is invariably less width available than stated in the guidance (LTN 1/20[3]). Insecurity and safety issues are felt by both pedestrians and cyclists.

The current levels of walking and cycling are low in East Hampshire. Just 2% of journeys are made by cycling and 9% by walking, with a high level of car dependency at 80%[4]. For cycling, this pattern is consistent with the "Bikeability" appraisal in the LCWIP which found low levels of bikeability. Data on the distance of journeys suggests there is potential for a large increase in walking and cycling. The recent periods of lockdown due to Covid have resulted in large increases in walking for exercise and enjoyment, at the Heath in particular. The low levels of traffic have enabled social distancing to take place through much "walking in the road" and there will be a strong need for current road space to be converted to pedestrian space in the long term. LTN 1/20 describes how London has seen growth following investments in cycling and walking, see Section 2.2. A core principal of LTN 1/20 is that cycling infrastructure should be designed for significant numbers of cyclists.

The emphasis on Active Travel puts the spotlight on walking and cycling and there are serious problems at this junction for pedestrians, cyclists and traffic emerging from the side roads. At peak hours there are delays on the side roads and stress and danger for pedestrians and cyclists. Details on the traffic flow, traffic speed, pedestrian movements and cycling flows are quantified in the Appendix.

The Petersfield Infant School is located on St Peter's Road with the major pedestrian access off Hylton Road just 80m away from the junction under discussion, see the map on Page 10. The adjacent Tesco Car Park is used extensively by parents taking children to school, but there are problems in the morning peak period when the roundabout entry from the car park is unable to deal with the volume of traffic and there are long delays in exiting the car park.

[3] DFT, Cycle Infrastructure Design, Local Transport Note 1/20, July 2020.

[4] EHDC LCWIP, Summary Report V1.2, August 2020.

Navigating the Junction is a daunting prospect for pedestrians and cyclists. There are no formal crossing places for pedestrians and the location of the Infant School in Hylton Road means that many parents and young children have to cross Dragon Street here, whilst cyclists feel dominated by vehicles, especially due to the heavy turning movements.

Other issues being considered in the area are:

- A new vehicle access into the Tesco Overflow Car Park for drivers coming from the south into the Town (as proposed in the Neighbourhood Plan Section 5.3.3).
- School Street closures as a possible trial for the Infant School, where parents close the road to traffic during the crucial times at the beginning and end of the school day (the School Streets Scheme is a new initiative from DfT).
- Both Hylton Road and Sussex Road have width problems resulting in shuttle working for vehicles due to legally parked cars. Hylton Road is within the Town Centre 20mph zone and has road humps and cushions to encourage reduced speeds, but that does make it a difficult road for cyclists and limits the capacity of the road during the important peak hours. It is known that there is a latent demand for additional traffic to use the road as some drivers are put off using the Junction at present due to the difficulties. Installation of a mini roundabout, or traffic signals at the Junction, would undoubtedly attract additional traffic.
- Sussex Road is an entry point to the Town from Chichester and Liphook / Midhurst via Pulens Lane, which is an unofficial northern by-pass to the Town. There are problems with vehicles coming into the residential area too fast and suddenly coming to a stop for the narrow section with its shuttle working. Consideration of reduced speed limits on Sussex Road would be welcomed by many.

3. Assessment of Problems and Some Solutions

The principal problems with the Junction are as follows:

a) Vehicle flows on Dragon Street and the Causeway dominate the Junction and all other users suffer accordingly, especially the most vulnerable, ie pedestrians and cyclists.

b) Southbound traffic on Dragon Street travelling towards the Junction is on a downhill gradient travelling round a right hand curve with limited forward visibility, at an inappropriately high speed.

c) The main pedestrian desire line across Dragon Street is to the north of the Junction and there is very poor visibility for pedestrians crossing towards Sussex Road.

d) Cyclists and drivers emerging from the side roads are under considerable stress, especially in the peak hours, due to the complexity of different manoeuvers taking place in a very small area. Great care and concentration is required from all involved.

e) The junction is viewed by many as "a free for all" at peak times, with no sense of order or discipline and is a major disincentive to travel. Active Travel is the loser and the more vulnerable users have limited options.

A small percentage of drivers give way to pedestrians on the informal crossing of the Causeway 30m to the south whilst a larger number wave people across the side roads when they are queuing or edging forward. Cyclists are if anything in an even worse situation, being exposed amongst the vehicles. The provision of a mini roundabout / traffic signals and even a Toucan Crossing would do little to change the attitude of drivers and would perpetuate their dominance of the street scene. Drivers on the side roads are under a lot of pressure to move away as soon as a suitable gap in the traffic appears and it is no surprise that they become selfish in their attitudes. To encourage Active Travel, the needs of pedestrians and cyclists are to be prioritised and this automatically means that traffic speeds need to be reduced and attitudes changed.

The provision of traffic calming features on their own would improve the situation but would not change the way that drivers interact with pedestrians and cyclists, or change driver attitudes. Some form of control over Dragon St – The Causeway traffic would appear to be essential for stress levels to be reduced for traffic on the side roads, including cycles. A single narrow lane on each approach would enable cyclists to stay in lane and move at the speed of the vehicles and a compact / mini roundabout again with narrow lanes and clear deviation would give some security to cyclists in their turning movements. Any vertical traffic calming features would need to be bus friendly, ie 6m long tables plus 1:20 ramps as is commonly used elsewhere. Carriageway widths can be reduced so as to widen the footways but a safe crossing point on Dragon Street is essential (could be a zebra on a table) as well as on all other arms. Some could be informal, or the use of four zebras could be a real step change to help pedestrians.

It is suggested that extension of the existing 20mph zone across Dragon Street and down Sussex Road would be suitable and not upset the street hierarchy, as the length on the Primary Route could be relatively short, ideally stretching from the Tesco roundabout through to Tor Way, taking in the junctions with St Peter's Road and the High Street. Regular traffic calming features would be required to support the zone, and their use including a number of pedestrian crossings could really change driver attitudes.

The provision of traffic signals with a pedestrian only phase could be considered, but delays caused by the phasing could be considerable due to the amount of right turning and pedestrian movements. There could be a possible ban on right turns into Hylton Road (U-turn at the Tesco Roundabout) but this may have little benefit. The effect on the overall ambience of the street scene needs to be considered.

3.1 Key Outcomes of the Design:

1. Removal of the priority for Dragon Street traffic in order to assist traffic movement out of the side roads (roundabout or signals).
2. A step change in improvement to the quality of life for pedestrians and cyclists, thereby encouraging these modes of transport.
3. A safe formal / informal crossing point for pedestrians on Dragon Street to the north of Sussex Road.
4. Improved informal crossing points (or zebra crossings) on all three other roads
5. Improved safety and ease of movement for cyclists in emerging from Sussex Road and Hylton Road and in making right turns.
6. A reduction in traffic speeds on Dragon Street to less than 20mph to reduce the divisive effect of Dragon Street on pedestrian and cycle movement.

3.2 Possible Features to Achieve the Above:

1. A compact / mini-roundabout or signal controlled junction.
2. Extend the existing 20mph zone in Hylton Road across into Sussex Road and along The Causeway and Dragon Street.
3. Install traffic calming to support the 20mph zone.
4. Removal of the granite setts in cycling areas.
5. Improve the landscaping around the Junction to create a better environment for people.

3.3 Further Opportunities:

1. A 20mph zone extending across the Primary Road (Dragon Street) towards the Heath and Pond would give great benefits to pedestrians and cyclists, encourage their greater use of the highway network and start to form a clear link between the town centre and the Pond.
2. The crossing places within a 20mph zone are normally very informal due to the “slow” appearance of the street. The exact nature of these crossings is open to discussion and the views of DfT should be sought for agreement of the optimum solution.
3. New vehicle access into the Tesco Car Park from The Causeway or Hylton Road.
4. Extend the existing cycle route from Meadow Lands to TPS so that it links to the Tesco Overflow Car Park and through to Hylton Road and eventually the town centre.
5. Improve the walking link from the Tesco Overflow Car Park to the Town Centre.
6. Consider extending the 20mph zone along Sussex Road to Heath Road West and converting the 40mph length to 30mph alongside the Heath.

4. Conclusions

The traffic on Dragon Street and The Causeway dominates all others at the Sussex Road junction, with the result that there are delays for everyone attempting to cross the road (including drivers). The mere prospect of doing so in the peak hours is quite daunting, if not dangerous, especially for the more vulnerable, ie pedestrians and cyclists.

In order to improve the Junction and ease the problems, traffic speeds need to be reduced, the priority removed and pedestrians given safe and easy crossing places with a right to cross. It is suggested that the optimum solution would be a compact roundabout at the Junction with narrowed lanes and deflection of

traffic line, combined with traffic calming in a 20mph zone. The latter being required in order to give the road a special status and change driver attitude with respect to pedestrians and cyclists. Cyclists would be able to take the traffic line and not use an advisory cycle lane and pedestrians would cross using a number of informal crossings. Other solutions are possible but they are unlikely to achieve a much improved status for pedestrians and cyclists.

Appendix
Traffic Statistics, Pedestrian Movements, and Cycling Issues

A1.1 Introduction to Appendix

This appendix provides detailed traffic statistics for the roads that converge at this junction. The pedestrian movements at the Junction are described. The cycling issues are described in greater detail.

Various statistics about traffic flows and the like are quoted within the text below. It is likely that Hampshire County Council (HCC) hold more topical and comprehensive statistics that will assist any further investigations.

A1.2 Traffic Speed and Volume

Table 1 shows traffic volume on the roads which meet at this crossroads. The speed limit at the Junction is 30 mph, but traffic approach on Hylton Road is restricted to 20 mph (the map on Page 10 shows the location of speed limit signs). The volume of traffic along Dragon Street and the Causeway is heavy in cycling terms. Anecdotal evidence suggests that the proportion of HGVs is low.

Street/road	Vehicles per hour during the AM peak	Vehicles per day (weekdays)
Dragon Street - between St Peter's Rd and Hylton Rd	955 Source: 2018 Transport Study	10,500 Source: 2018 Transport Study
The Causeway - between Tesco Roundabout & Sussex Rd	1,400 Source: Richard Parker Consultancy Ltd, Transport Assessment, 2015.	14,000 Estimated
Hylton Road	460 Source: 2020 Junction Feasibility Report	4,600 Estimated
Sussex Road	590 Source: 2020 Junction Feasibility Report	5,900 Estimated
Notes The figures indicate bi-directional flows. Where figures are labelled as estimates, the number of vehicles per day was assumed to be 10 times the AM peak figure.		

Table 1: Traffic volumes on the roads which meet at this crossroads

The proximity of two schools has an impact on traffic conditions during term time. The presence of these schools increases the traffic volume at the beginning and end of the school day and causes parking problems. School travel data collected by HCC suggested that about 240 TPS pupils normally travel by car, as do about 100 pupils from Petersfield Infants.

In 2018, the speed of northbound traffic in Dragon Street, between St Peter's Rd and Hylton Rd, was measured to be 26.2 mph (85th percentile)[5].

[5] HCC/Hampshire Services, Technical Transport Study for Petersfield Town, August 2018.

A1.3 Pedestrian Movements

The following geographic factors influence both the pedestrian and the cycle flows at and near this junction:

- This crossroads is about 80 m from the gate for Petersfield Infant School (about 340 pupils) on Hylton Road and about 250 m, as the crow flies, from the southerly gate for The Petersfield School (TPS) (about 14OO pupils). 521 TPS pupils and 247 pupils from Petersfield Infants walked to school in 2019 and 32 TPS pupils cycled, according to figures collected by HCC in 2019.
- This crossroads is close to the Tesco Store, which is the largest supermarket in the Town, and the Grange Surgery. It is about 300 m from some attractive destinations, most notably the Town Centre and the Heath.
- The Tesco Roundabout is approximately 100 m south from this crossroads. There are cycle lanes on both sides of The Causeway heading south from the Tesco Roundabout.
- There is a lack of off-road routes for cycling to the east and north of this crossroads and it lies on the obvious route for residents on the Causeway who wish to cycle to access the Heath or the High Street. The same is true for residents of Sussex Road who will need to use this crossroads to reach Tesco or TPS.

The busiest and most difficult pedestrian crossing points near the Junction are on the main through road:

- From the footway adjacent to the tyre retailer on the west side to the filling station on the east side of Dragon Street.
- At the informal crossing of The Causeway between the Junction and Tesco Roundabout.

The side roads both have crossing points used by pedestrians which require great care by users especially during the peak hours.

A1.4 Cycle Traffic Flows

The road between Dragon Street and the Causeway is the primary north-south route for traffic through Petersfield. As a result, these streets are heavily trafficked in cycling terms (whilst still being below capacity in traffic terms). Borough Road and the off-road route through Alderfield and Meadow Lands provide a more comfortable north-south cycling route. They are identified as part of the Town's cycle route network in the LCWIP, which is not the case for the roads which meet at the junction of Dragon St - Sussex Rd - The Causeway - Hylton Rd.

Only limited statistical evidence about the volume of cyclists using the Dragon St - Sussex Rd etc junction has been found. 64 cyclists /day were counted in Hylton Rd in May 2018[6], but we have not seen any cycle count data for Dragon Street, The Causeway, or Sussex Road.

See Section A1.3 for a description of the geographic factors which influence the flow of bicycle traffic near this junction.

In view of this evidence shown above, it is concluded that this crossroads is not part of a primary cycle route. However a significant number of cyclists, including some TPS pupils, have no choice but to use this crossroads for local access.

A1.5 Issues With Dragon St-Hylton Rd-Sussex Rd Crossroads from the Cycling Perspective

Cycle riders encounter the following conditions when crossing this junction from east-west or vice versa:

- **Heavy traffic**: crossing 2 lanes on a cycle against a traffic flow >10,000 vehicles/day which is moving at 25-30 mph will be regarded as uncomfortable by most user users, according to Table 10-2 of LTN 1/20. Hence measures to improve safety should be considered. Either additional traffic calming to reduce traffic speed, or the introduction of signal control, or the introduction of a mini-roundabout.
- **Wait times.** So far, it has not been possible to observe the operation of this junction during the AM peak times. However it would seem likely that east/west bound cyclists encounter significant waits (up to a minute). At a crossroads such as this, it is sometimes necessary for cyclists to wait until all 3 arms in front of them are clear because drivers exiting the opposite arm fail to communicate their intentions. There may not be an easy solution to this problem, other than the limited solution of introducing a cycle bypass from Sussex road for southbound cycle traffic.

[6] HCC/Hampshire Services, Technical Transport Study for Petersfield Town, August 2018.

- **Problems with granite setts**: these have been installed as edge strips in several locations in Dragon Street, including at this crossroads. The vibration caused by the granite setts can cause a cyclist, who has an arm raised to indicate a right or left turn at a junction, to lose control and to fall. They are a serious hazard to cyclists and so their removal is recommended.

Opportunities for improving this junction and other junctions are constrained by the compact nature of the Town. The HCC Junction Feasibility Report mentions the introduction of a roundabout as a potential improvement. There are serious concerns over the safety of cyclists on conventional roundabouts[7] but the design of a suitable compact mini roundabout with single lane entry, deviation of line and slow moving traffic should result in a layout that is to their advantage and safe. Hence the need for a 20mph zone with reduced speed of traffic and cyclists taking the same line as the vehicles, giving them greater freedom to make turning movements themselves (also see Section 3).

HCC Junction Feasibility Report suggests extending the painted cycle lanes from the Causeway along Dragon Street. However these cycle lanes are simply too narrow to be safe for cycle users. They are about 1.0 m wide whereas LTN 1/20 states that 2.5 m is preferred and the minimum acceptable width is 2.0 m where the peak vehicle flow exceeds 800 vehicles/hour. There is evidence that vehicles move closer to cyclists when there is a cycle lane according to Manual for Streets 2[8]. Cycle lanes are more beneficial in the uphill direction as the speed differential between cyclists and vehicles tends to be larger. A single uphill cycle lane of the recommended width is far preferable to sub-standard cycle lanes in both directions.

A1.6 Issues With the Off-road Routes Near Tesco and TPS from the Cycling Perspective

The presence of the Criddell Stream and the water meadow between Borough Road, Grange Road, TPS and the Tesco supermarket has discouraged development on the land behind Tesco, which has facilitated the construction of useful off-road routes which link Hylton Road, Borough Road (via Alderfield) and Cranford Road (via Meadow Lands), together with the Tesco Store and TPS. The following is pertinent:

- The "suggested route network" in the LCWIP identifies all the arms of this route as a key part of the Town's cycle network.
- The route between Alderfield and Meadow Lands is part of NCN22/Shipwright's Way.
- This route passes a gate of TPS which whilst not officially the main gate, probably sees the majority of pupils who walk and cycle since it is on a direct route to the centre of the Town.

Cycle riders encounter the following issues when using these off-road routes:

- The lack of a direct cycle route from TPS through the Tesco Overflow Car Park Hylton Road (an investigation of traffic flows within the car park during school pick-up/drop-off times is required before a solution can be recommended).
- The following signs are likely to baffle and discourage potential cyclists:
    - "Cyclists dismount" signs near Alderfield and near Meadow Lands.
    - An "End of route" sign near Tesco (most of these signs appear to have been erected in response to land ownership/rights of way issues).
- Inadequate width which may cause conflict between pedestrians and cyclists (when constructed the routes were 2.3 m wide but in 2019 it was found that the width had been reduced by vegetation to about 1.6m in some places[9]). In places there is space to construct separate paths for pedestrians and cyclists. Where there is not sufficient space, LTN 1/20 recommends a level difference, or different surface textures, to indicate pedestrian or cycle use.
- Allowance has not been made for the turning circle of bicycles at the junction to the south of Meadow Lands.

Addressing these issues would encourage pupils and parents to walk/cycle rather than use a car. It would make it easier for residents in outlying neighbourhoods to the south to reach the Town Centre. It would also improve NCN 22.

[7] For example see LTN 1/20 Section 10.7.1.

[8] CIHT, Manual for Streets 2, 2010.

[9] TDC Cycling and Walking Working Group, Review of Conditions on Shared Pavement, etc within Petersfield, October 2019.

A1.7 The Petersfield Neighbourhood Plan

The Petersfield Neighbourhood Plan identified that there was a congestion problem at this crossroads but did not identify a remedy. Section 5.3.3 of the Neighbourhood Plan identified the need for a new entrance to the Tesco Overflow Car Park from either The Causeway or from Hylton Road.

A1.8 Further Sources of Information

There may be additional source documents which could be useful in understanding the movements of pedestrians and cyclists. For example school travel plans, more recent school travel surveys, evidence from school governor and parents. The temporary installation of automatic counters on the off-road routes could produce useful information about cycle and pedestrians movements, as could manual counts.

Acknowledgement

The Place-making Team at East Hampshire District Council commissioned this briefing note in order to ensure that local knowledge and experience of active travel issues was made available to the transport professionals of Hampshire County Council. The authors of this briefing note would also like to record their appreciation for the support and encouragement received from the many councillors and officers involved from all three levels of Local Government, as well as from the South Downs National Park Authority.

Map of the Junction with additional labels added by the authors