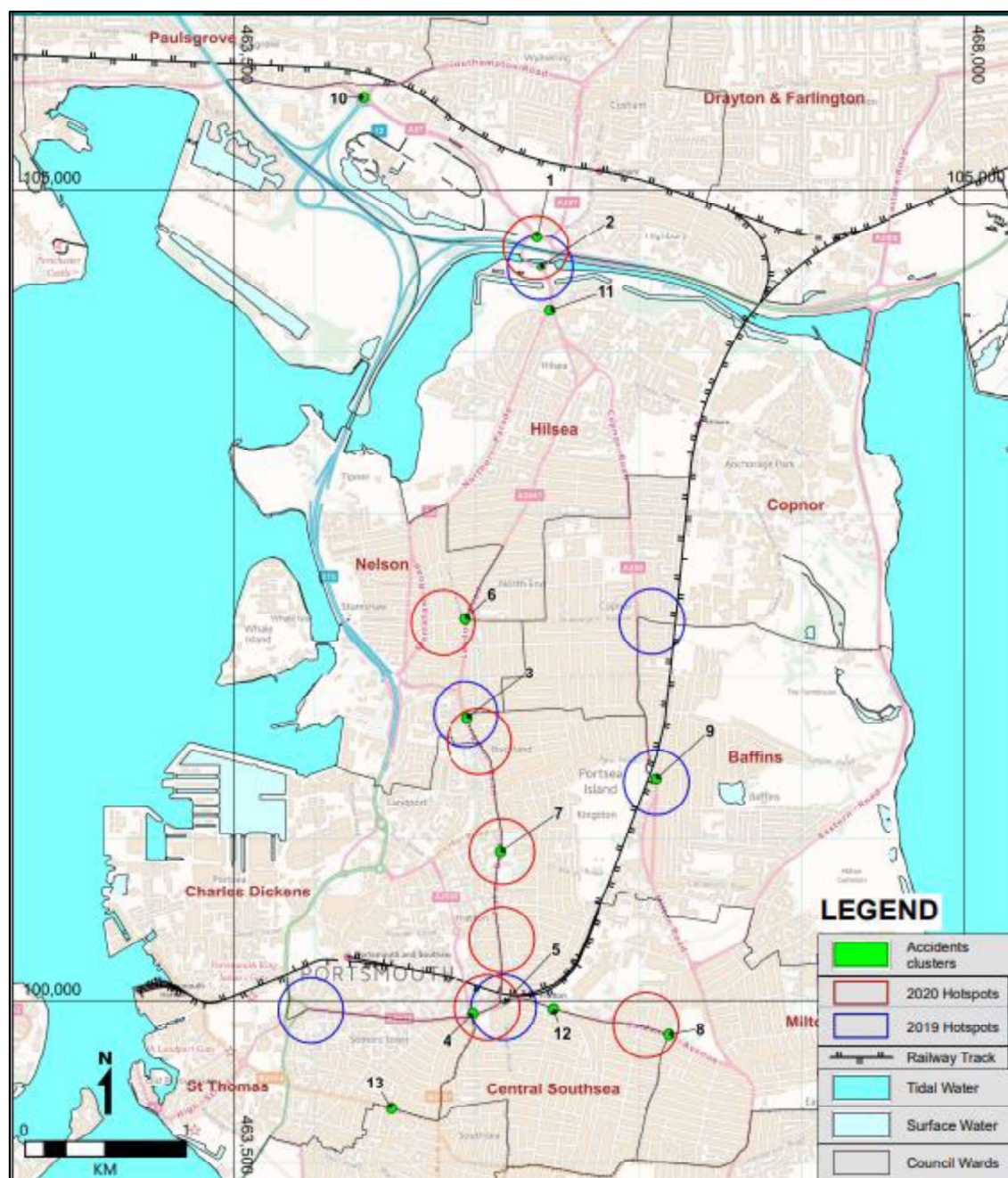


ACCIDENT AND CASUALTY REPORT

Deep dive analysis

1. Introduction

Following the accidents report for 2019 and 2020, we decided to undertake a deep dive into accident hotspots to pinpoint specific locations where there is a high risk for accidents reoccurring. As such, a clustering method that count accidents within a given range was adopted and inferencing was made using AccsMAP. A total of 10 clusters with greater than or equal to 6 accidents occurring within less than or equal to 30 metres were identified. We then undertook a furthering exercise which involved identifying any clusters of significance outside of the hotspots. Three clusters were identified which had 4 to 5 accidents within less than or equal to 15 metres finally we analysed the accidents in detail by reviewing the information submitted by the police.



Map 1.1: Accidents hotspots and accident clusters in Portsmouth for 2019 and 2020

Map 1.1 outlines the hotspot areas discussed in the Accident and Casualty report 2021 whilst showing the smaller clusters where a greater density of accidents occur.

2. Analysis

Cluster Ref: 1

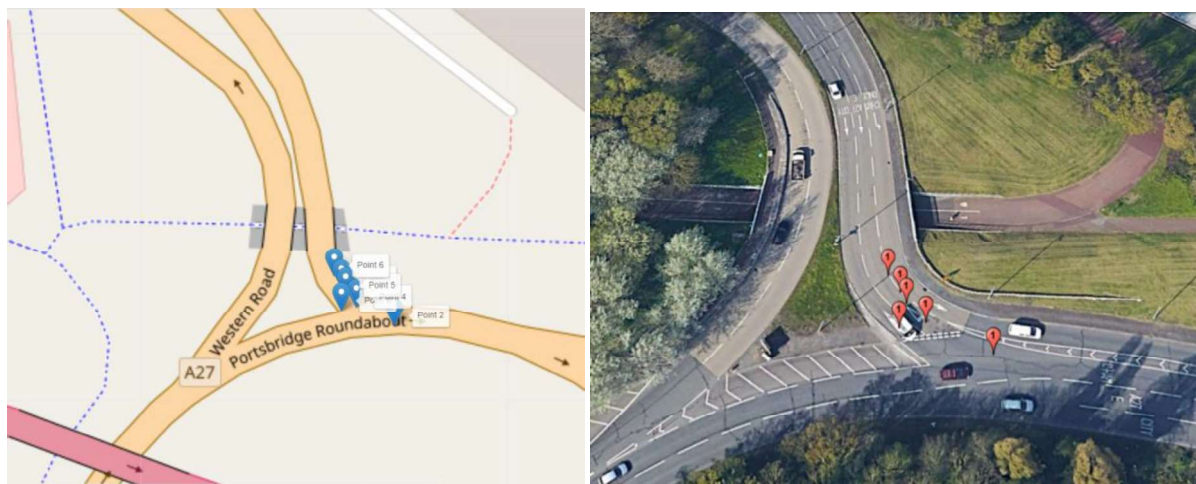


Image 2.1: Accident clusters located at A27 Western Rd junction with A397 Northern Rd.

Cluster type: Hotspot 2019 & 2020

Accidents in cluster: 2019 (2), 2020 (4)

Reason for accident defined by police:

- Failed to judge other persons path or speed (2)
- Failed to look properly (3)
- Sudden braking (1)

Severity of accidents (2019 & 2020):

- Slight (6)

Casualties: 7

Findings: The cluster is within overlapping accident hotspots. The number of accidents clusters has doubled since 2019. Although the speed limit here goes up to 50mph and failure to look properly is the main cause of accidents, injuries from these accidents are minor. This is likely to mean that speed isn't an issue. Further analysis shows that the roads were dry with no high winds, and these incidents occurred on normal Give-Way or Uncontrolled roundabouts. This could mean visibility of signage is the issue. Looking at the double digit rise in accidents, we recommend a solution being implemented. The solution could be improving the drivers' ability to look properly when approaching the junction

outlined in Image 2.1 or raising the drivers' awareness through signage before they approach the risk area.

Cluster Ref: 2

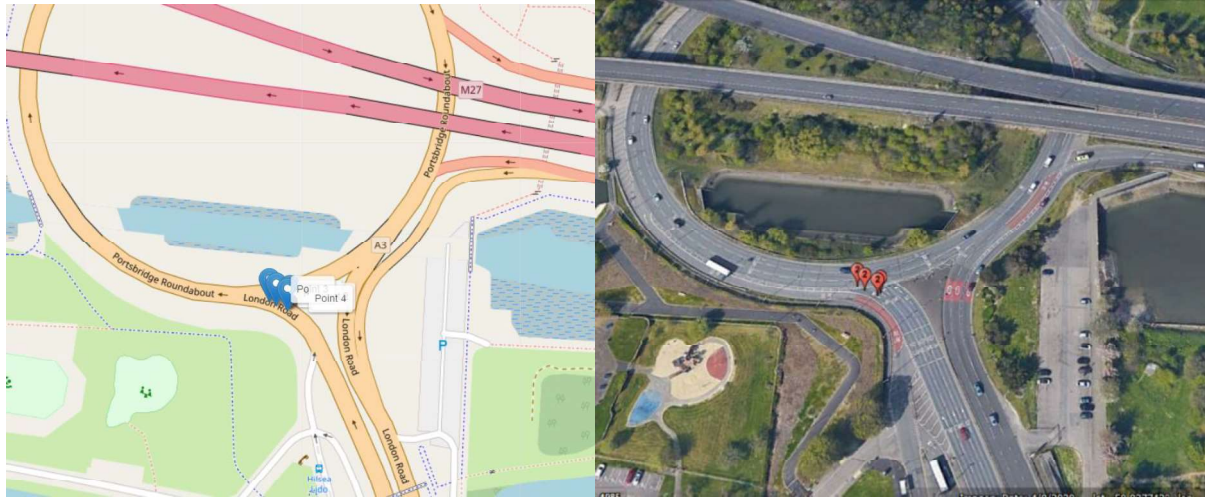


Image 2.2: Accident clusters located at A3 London Rd at junction with A27 Western Rd (Portsbridge Roundabout)

Cluster type: Hotspot 2019 & 2020

Accidents in cluster: 2019 (3), 2020 (1)

Reason for accident defined by police:

- Failed to judge other persons path or speed (2)
- Disobeyed Give Way or Stop sign or markings (1)
- Sudden braking (1)

Severity of accidents (2019 & 2020):

- Slight (3)
- Serious (1)

Casualties: 5

Findings: The cluster is within overlapping accident hotspots. The number of accidents has dropped from 3 to 1 since 2019. The accidents occurred at a normal Give-Way or uncontrolled roundabout, under dry conditions, with speed limits between 30-40mph and the main cause being failure to judge other persons path or speed. This could mean the drivers became impatient, which led to the accidents. The data doesn't show any changes in the causes between 2019 and 2020. We recommend this area is monitored for accidents to evaluate if the volume of accidents in 2021 increase. If accidents increase with the same causal reason as 2019 & 2020 we recommend signage that would raise the drivers alertness as they approach the junction (Image 2.2).

Cluster Ref: 3



Image 2.3: Accident clusters located at Kingston Rd, Outside N° 192, North End.

Cluster type: Hotspot 2019 & 2020

Accidents in cluster: 2019 (3), 2020 (4)

Reason for accident defined by police:

- Poor turn or manoeuvre (1)
- Following too close (1)
- Failed to look properly (3)
- Failed to judge other persons path or speed (2)

Severity of accidents (2019 & 2020):

- Slight (6)
- Serious (1)

Casualties: 7

Findings: The cluster is within overlapping accident hotspots. The cluster has 7 accidents with 6 of them occurring within 10m radius at the midpoint of the crossroads T-Junction. The accidents occurred during daylight, under dry conditions, at speeds limits between 20-30mph and at a Give-Way junction. Consequently we believe impatience seems to have played a significant role. Failure to look properly and misjudgement of others persons path or speed supports this assertion. We recommend an infrastructure change where the Road Safety Officer and Engineer discuss the way in which increases visibility of vehicles or signage is placed to raise awareness that this is a high profile accident location (Image 2.3), hence look properly before turning.

Cluster Ref: 4



Image 2.4: Accident clusters located at A2030 Holbrook Rd junction with A2030 Victoria Rd North.

Cluster type: Hotspot 2019 & 2020

Accidents in cluster: 2019 (2), 2020 (4)

Reason for accident defined by police:

- Failed to judge other persons path or speed (1)
- Exceeding speed limit (1)
- Failed to look properly (3)
- Disobeyed Give Way or Stop sign or markings (1)

Severity of accidents (2019 & 2020):

- Slight (5)
- Serious (1)

Casualties: 6

Findings: The cluster is within overlapping accident hotspots. The cluster has 5 out of the 6 accidents occurring at an entrance point to the Give-Way roundabout. In this cluster accidents have doubled from 2 in 2019 to 4 in 2020. Failure to look properly was given as the main cause of accidents here (Image 2.4). When grouping the other reasons there is a clear indication that a lack of procedure was shown in how to effectively join on to the roundabout. The good weather conditions, dry roads, daylight and visibility help eliminate possible natural or infrastructure reasons. Accordingly we recommend raising driver awareness to this being a high risk area for accidents through communications and signage.

Cluster Ref: 5



Image 2.5: Accident clusters located at A2030 Goldsmith Ave at junction with A2047 Fratton and Fawcett Rd.

Cluster type: Hotspot 2019 & 2020

Accidents in cluster: 2019 (2), 2020 (2)

Reason for accident defined by police:

- Failed to look properly (3)
- Disobeyed Give Way or Stop sign or markings (1)

Severity of accidents (2019 & 2020):

- Slight (3)
- Serious (1)

Casualties: 4

Findings: The cluster is within overlapping accident hotspots. This particular cluster has only 4 accidents but was included in this report because of its nature. 3 of the accidents occurred on a horizontal line and less than 2 meters distance from each other. One of the accidents in this cluster occurred in the night under rainy conditions, however the presence of lighted street lights at this point (Image 2.5) dismisses possible visibility difficulties. The driver's inability to look properly was again cited as the main reason for these accidents. We recommend reviewing this cluster in 2021 to evaluate if the problem still exists. If the problem is still there we believe relevant signage could raise driver awareness and reduce the accident volume.

Cluster Ref: 6



Image 2.6: Accident clusters located at A2047 London Rd at roundabout junction with Stubbington Ave

Cluster type: Hotspot 2020

Accidents in cluster: 2019 (2), 2020 (5)

Reason for accident defined by police:

- Failed to look properly (4)
- Failed to judge other persons path or speed (1)
- Disobeyed Give Way or Stop sign or markings (1)
- Poor turn or manoeuvre (1)

Severity of accidents (2019 & 2020):

- Slight (5)
- Serious (2)

Casualties: 7

Findings: This cluster is within a 2020 accident hotspot. The accidents here are sparsely distributed on the north-west section of the roundabouts. There is a spike in accidents here from 2 in 2019 to 5 in 2020. Although the speed limit (30mph), visibility, road conditions and junction type remains the same, the 2 serious accidents occurred in 2020. 2 pedestrians and 4 cycles were also involved. Proper observation problems were once again named as the main cause of these incidents. Looking at sparseness of the accidents across the roundabout, we recommend a review of the infrastructure of this roundabout (Image 2.6). There are a significant number of cycle accidents in this cluster, thus we recommend a collaborative approach between the Active Travel Officers, Road Safety Officer and technical Engineer when evaluating the infrastructure. The placement of relevant signage may raise awareness to reduce accident volumes.

Cluster Ref: 7



Image 2.7: Accident clusters located at A2047 Fratton Rd Junction with St Marys Rd.

Cluster type: Hotspot 2020

Accidents in cluster: 2019 (1), 2020 (4)

Reason for accident defined by police:

- Sudden braking (1)
- Impaired by alcohol (2)
- Poor turn or manoeuvre (1)
- Failed to look properly (1)

Severity of accidents (2019 & 2020):

- Slight (3)
- Serious (2)

Casualties: 5

Findings: This cluster is within a 2020 accident hotspot. 3 accidents were located at the T-Junction and two on the north and south entrance to the junction. This cluster has been included in the analysis because of the sharp increase in accidents from 1 in 2019 to 4 in 2020 as well as its severity. The accidents occurred under dry conditions, distributed around the T-Junction and with a speed limit of 30mph. Drunkenness is identified as the main cause and this indicates the presence of bars in the neighbourhood. We advise this area is monitored to evaluate if accidents continue to occur in this cluster during 2021. If accidents continue with the same causes we advise signage that raises awareness on the impact of drinking placed at this junction (Image 2.7) and a stop sign board that oblige drivers to halt their cars completely before making the crossing.

Cluster Ref: 8

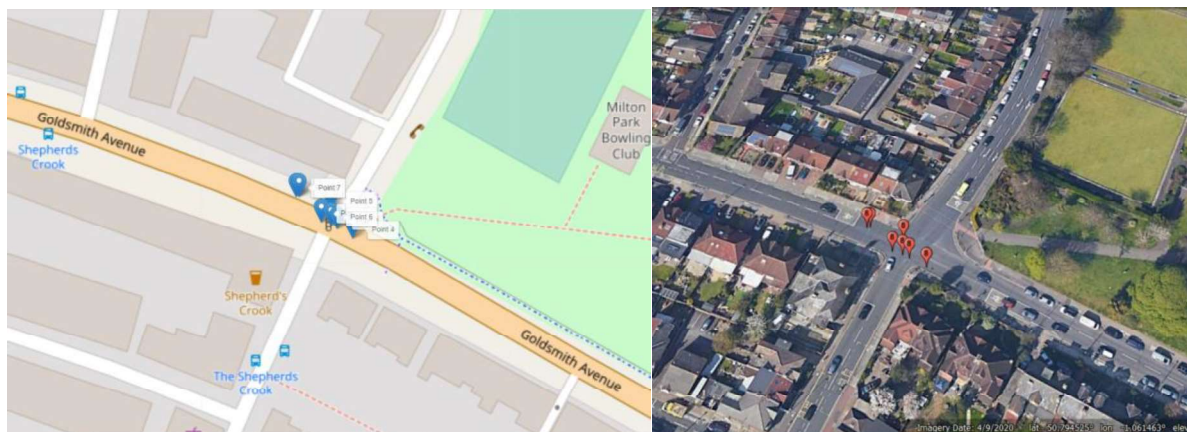


Image 2.8: Accident clusters located at A2030 Goldsmith Ave at Crossroads junction with Priory Crescent, Southsea.

Cluster type: Hotspot 2020

Accidents in cluster: 2019 (3), 2020 (4)

Reason for accident defined by police:

- Failed to look properly (4)
- Careless/Reckless/In a hurry (2)
- Failed to judge other persons path or speed (1)

Severity of accidents (2019 & 2020):

- Slight (7)

Casualties: 7

Findings: This cluster is within a 2020 accident hotspot. This cluster involves 2 accidents occurring under darkness in 2019 with a cyclist involved. All 7 accidents took place under fine weather, with no high winds and dry roads at a crossroad with an automatic traffic signal. The slight severity of the accidents may be related to the 30mph speed limit. The slight increase in accidents from 3 to 4 from 2019 to 2020 shows that improvement at this junction (Image 2.8) is required to reduce the volume of accidents in this area. We recommend the installation of signage that obliges drivers to stop, hence giving the time needed to look properly before making the crossing.

Cluster Ref: 9



Image 2.9: Accident clusters located at A288 Milton Rd junction with Tangier Rd.

Cluster type: Hotspot 2019

Accidents in cluster: 2019 (4), 2020 (3)

Reason for accident defined by police:

- Illness or disability, mental or physical (1)
- Careless/Reckless/In a hurry (2)
- Failed to look properly (3)
- Deposit on road (oil, mud, chippings) (1)

Severity of accidents (2019 & 2020):

- Slight (5)
- Serious (2)

Casualties: 7

Findings: This cluster is within a 2019 accident hotspot. Most of the accidents occurred at the central part of the staggered Give-Way junction. The severity of most of these accidents was slight maybe because they took place under daylight, with fine weather (no high winds), dry roads and where speed limits was 30mph. These accidents were mainly categorised as careless, reckless and in a hurry drivers and failure to look properly. Based on these findings, we propose a measure that raises awareness of an impending danger when drivers are approaching this junction (Image 2.9). A stop sign that obliges drivers to halt completely will provide the time needed to look properly before making the crossing.

Cluster Ref: 10

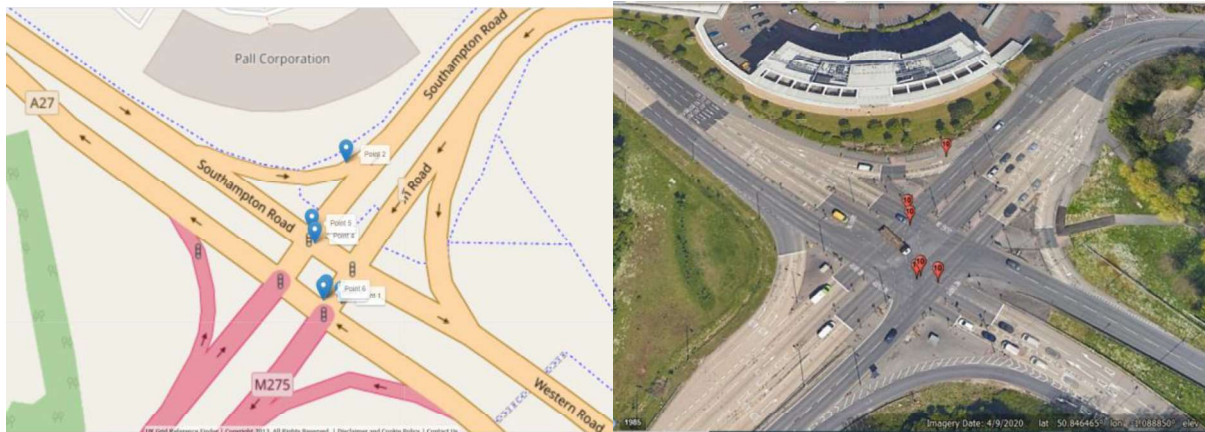


Image 2.10: Accident clusters located at A27 Southampton Rd junction with M27 Junction 12 Off slip.

Cluster type: None hotspot area

Accidents in cluster: 2019 (3), 2020 (3)

Reason for accident defined by police:

- Careless/Reckless/In a hurry (1)
- Poor turn or manoeuvre (1)
- Exceeding speed limit (1)
- Defective brakes (1)
- Failed to look properly (1)
- Impaired by alcohol (1)

Severity of accidents (2019 & 2020):

- Slight (4)
- Serious (2)

Casualties: 10

Findings: This cluster is not within a hotspot but it has a density of 6 accidents within 30m².

It should be noted that the 2019 hotspots are areas with greater than or equal to 8 accidents per 100m² and 2020 hotspots are areas with greater than or equal to 9 accidents per 100m².

The number of casualties in this cluster (Image 2.10) is the highest in Portsmouth and it lays along a major road. The reasons for these accidents are diverse and all took place at crossroads with automatic traffic signals. A deeper look into the conditions prevailing at the time shows that, 50% occurred under darkness between 13h00 - 22h00, in 40mph speed limit zone and the roads were largely dry. While 5 of the accidents occurred at the centre of the junction, one related to excess speed went off the track before crashing. Considering that the number of accidents haven't changed from 2019 to 2020, the diverse reasons for the accident and the excellent infrastructure, we think signage that raises awareness of an impending danger close to the junction on all sides may reduce accidents.

Cluster Ref: 11

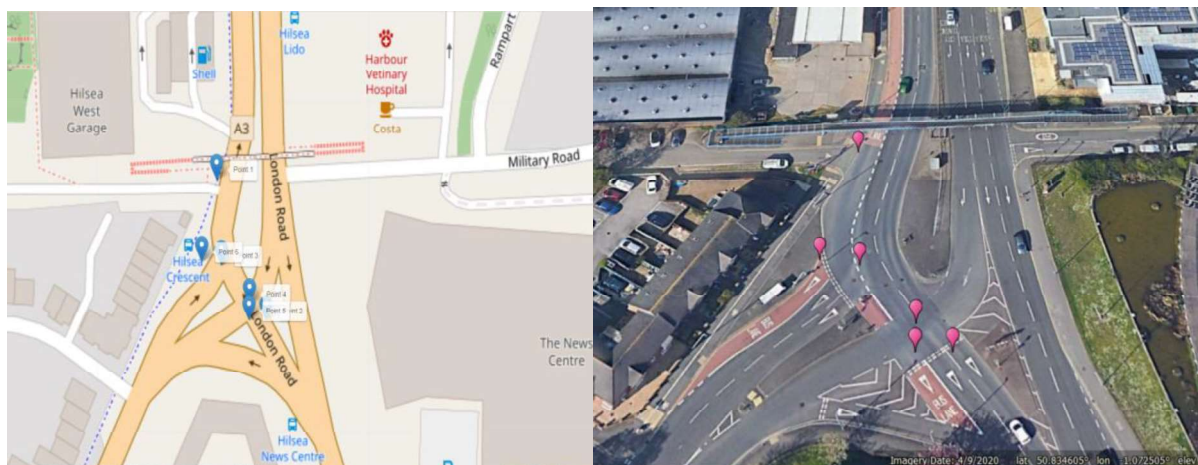


Image 2.11: Accident clusters located at A3 London Rd junction with A3 Northern Parade

Cluster type: None hotspot area

Accidents in cluster: 2019 (3), 2020 (3)

Reason for accident defined by police:

- Disobeyed Give Way or Stop sign or markings (1)
- Poor turn or manoeuvre (1)
- Slippery road (due to weather) 1
- Failed to judge other persons path or speed (1)
- Careless/Reckless/In a hurry (1)
- Following too close (1)

Severity of accidents (2019 & 2020):

- Slight (6)

Casualties: 9

Findings: This cluster is not within a hotspot but it has a density of 6 accidents within 30m². The casualties here are second highest in Portsmouth for accidents clusters of 30m². Most of these accidents occurred on a wet road, at a Give-Way T-Junction, under the cover of darkness and where the speed limit is 30mph. They caused only slight injuries (6) with 1 cyclist involved. The accidents are sparsely distributed, with no main reason for their occurrences and no change over two years. Consequently we advise this area is monitored via 2021 data and we propose a review of the road infrastructure and road signs at this location (Image 2.11).

Cluster Ref: 12



Image 2.12: Accident clusters located at A2030 Goldsmith Ave, junction with Talbot Rd, Southsea.

Cluster type: None hotspot area

Accidents in cluster: 2019 (2), 2020 (5)

Reason for accident defined by police:

Failed to look properly (4)
Careless/Reckless/In a hurry (1)
Poor turn or manoeuvre (1)
Slippery road (due to weather) (1)

Severity of accidents (2019 & 2020):

- Slight (5)
- Serious (2)

Casualties: 7

Findings: Like the previous two cases (cluster 10 and 11), cluster 12 is not within a hotspot but has 7 accidents within 30m² with 6 below 10m² to each other. These highly clustered accidents occurred at a staggered Give-Way or uncontrolled roundabout, when the road was sometimes wet and where the speed limit is 30mph. Accidents at this location (image 2.12) have more than doubled from 2019 to 2020 with one pedestrian and 3 cyclists involved. Failure to look properly accounts for most of the occurrences. With this sharp rise in accidents, we recommend the slippery element of the road is investigated in line with typical cyclist tyres. Moreover relevant signage is placed to raise awareness of taking care at this junction. Although the volumes are small when compared with total accidents across the city the high proportion of accidents in this cluster radius factored with over 100% growth requires this site to be prioritised.

Cluster Ref: 13

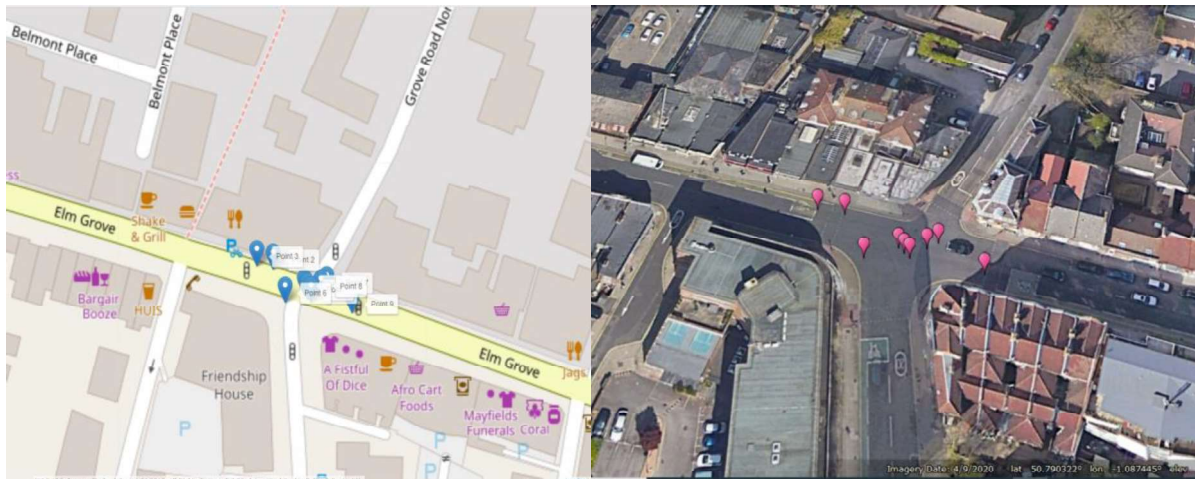


Image 2.13: Accident clusters located at Elm Grove at Crossroads junction with Grove Rd South & Grove Rd North, Southsea.

Cluster type: None hotspot

Accidents in cluster: 2019 (4), 2020 (5)

Reason for accident defined by police:

Poor turn or manoeuvre (3)
Failed to look properly (4)
Disobeyed Give Way or Stop sign or markings (1)
Disobeyed automatic traffic signal (1)

Severity of accidents (2019 & 2020):

- Slight (7)
- Serious (2)

Casualties: 9

Findings: This cluster of accidents is not in a hotspot but is the second location in Portsmouth to have 9 accidents and 9 casualties within 30m2. This cluster is different from the others as its accidents involve 2 pedestrians and up to 5 cyclists. Poor turn or manoeuvre and failure to look properly have been identified as the two main causes of accidents here. We advise the Active Travel Officers, Road Safety Officer and a technical Engineer discuss the infrastructure of this road to evaluate the way in which to reduce accidents. When looking at the factors that caused these accidents and the infrastructure, we concluded visibility and driver error will continue to be prevalent in this area, consequently this is a high priority site where we need to prioritise safety.

Table 1: Matrix table of accidents clusters

| Cluster no | Accidents count (2019) | Accidents count (2020) | Total accidents | Severity (slight) | Severity (serious) | Casualties (total) | Prioritisation ranking |
|------------|------------------------|------------------------|-----------------|-------------------|--------------------|--------------------|------------------------|
| 1 | 2 | 4 | 6 | 6 | 0 | 7 | 10 |
| 2 | 3 | 1 | 4 | 3 | 1 | 5 | 13 |
| 3 | 3 | 4 | 7 | 6 | 1 | 7 | 3 |
| 4 | 2 | 4 | 6 | 5 | 1 | 6 | 9 |
| 5 | 2 | 2 | 4 | 3 | 1 | 4 | 12 |
| 6 | 2 | 5 | 7 | 5 | 2 | 7 | 4 |
| 7 | 1 | 4 | 5 | 3 | 2 | 5 | 11 |
| 8 | 3 | 4 | 7 | 7 | 0 | 7 | 6 |
| 9 | 4 | 3 | 7 | 6 | 1 | 7 | 5 |
| 10 | 3 | 3 | 6 | 4 | 2 | 10 | 7 |
| 11 | 3 | 3 | 6 | 6 | 0 | 9 | 8 |
| 12 | 2 | 5 | 7 | 5 | 2 | 7 | 2 |
| 13 | 4 | 5 | 9 | 7 | 2 | 9 | 1 |

This matrix table show key information pertaining to the analysed clusters. A prioritisation ranking has been included to help guide the way in which budgets are prioritised to deliver road safety changes for our residents. The prioritisation rank has been created by reviewing the Accident Count for both years, the severity of those accidents, casualty totals and the infrastructure surrounding the clusters. Priority ranking: 1 = Highest priority, 13 = Lowest priority.

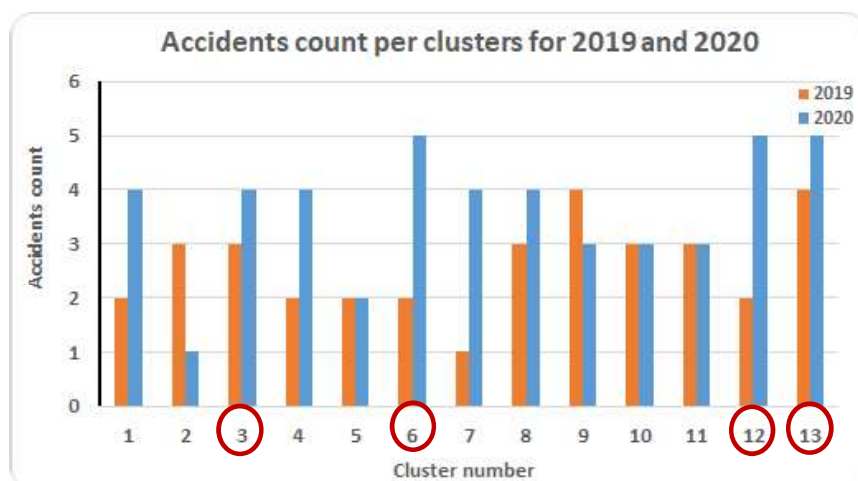


Chart 1: Accidents clusters for 2019 and 2020

This graph highlights the growth of accidents in certain clusters year on year and the distribution of volume of accidents by cluster by year.

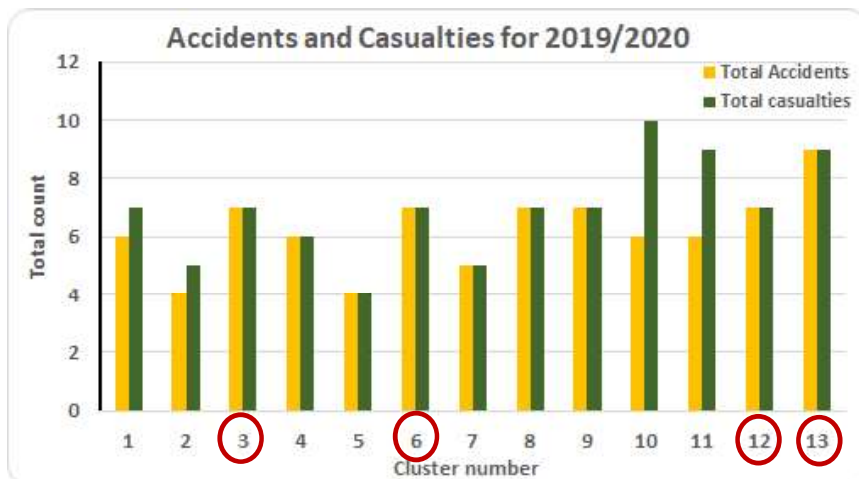


Chart 2: Relationship between accidents and casualties clusters.

3. Conclusion

From the analysis, four locations have significant road safety concerns that needs to be addressed to ensure that the safety of resident's remains at the forefront of the Transport Department's priorities. As seen in Table 1, Graph 1 and 2, and Image 2.13, Cluster Ref 13 located at Elm Grove at Crossroads junction with Grove Rd South & Grove Rd North, Southsea is the first location of concern with the highest risk for accidents. It is classified as such because of the following factors: it has the highest volume of accidents, the second widest growth difference in accidents from 2019 to 2020; high casualty numbers, a high number of serious accidents and poor infrastructure of the roundabout. Thus, Cluster Ref 13 has been given a priority rating of 1 in terms of anti-accident measures implementation.

The characteristics of Cluster Ref 12 are similar to that of cluster 13 and has been ranked 2nd in terms of high risks locations and the 2nd priority location for anti-accident measures implementation. Again, information contained in table 1, graph 1 and 2 and image 2.12 shows that cluster 12 located at A2030 Goldsmith Ave, junction with Talbot Rd, Southsea, has the second highest volume of accidents, the widest growth difference in accidents from 2019 to 2020; a high number of serious accidents, above average number of casualties and infrastructure issues illustrated by poor visibility when entering the junction.

In the same trend, cluster Ref 3 is the 3rd highest risk location and cluster Ref 6 is the 4th highest risk zone for accidents in Portsmouth. This classification was also based on the accidents volume, growth different from 2019 - 2020, severity, casualty and the infrastructure characteristics seen from the satellite imagery.

We recommend that any foreseen anti-accident measures follow the ranking we have provided and that a visual inspection is carried out by a subject matter expert to ascertain the condition of the infrastructure shown in images.