HGV ROUTING - 2017/18 ASSESSMENT OF TOP 5 HOT SPOTS

This technical report describes and documents the investigation and analysis of the top 5 locations from the HGV Hot Spot List. These are,

- 1. Twentywell Lane
- 2. The Wheel
- 3. Psalter Lane
- 4. Beighton Road, Woodhouse
- 5. Archer Road

The assessment will look at the impact HGV's (7.5t or over) have on Safety, Environment and the Road Network (likely displacement) and include some possible options with budget costs to address them, with a view to prioritising and programming which if any of the Hot Spots need to be addressed. Nb. an Environmental Weight Restriction (EWR) applies to HGV's 7.5t or over and must still allow them access for servicing.

Safety – data on reported injury accidents has been obtained on all the routes through each of the locations from 2012 to the end of 2017* (* nb. the data for 2017 has yet to be validated).

Environment – Where diffusion tube sites for measuring air quality exist this data has been included. There are only two locations, i.e. Archer Rd and Psalter Lane. However, since Psalter La has the highest number of HGV's and other traffic it can be assumed that air quality is no worse at those locations which don't have any monitoring and have less total traffic and numbers of HGVs.

Impact on the Network - Traffic Counts have been undertaken at all sites using video footage on the same date/day of the week over a full 24hr period; they were fully classified and HGV's over 7.5t were counted separately. The characteristics of the roads and junction layouts, i.e. geometry and condition, have been assessed along with the likely displacement on the rest of the network should a EWR be introduced. The video footage is potentially useful to identify the type/operator of the HGV's counted, however, it would be an onerous task and so for now has not been undertaken.

Nb. These are all routes that are not part of the approved HGV Route Network for through trips and access into and out of areas in Sheffield.

Options/Costs – some draft options to tackle the problems at each location have been drawn up and included to understand the likely displacement of HGVs and also for budgeting and programming purposes.

Evaluation of Hot Spots

	Other Co	Hot Spot Evaluation					
Hot Spot Location	Displacement Cost		HGVs	Geometry	Accidents	Environment	Score
Twentywell	L	£53.5k	М	Н	L	L	7
The Wheel	L	£42.55k	М	Н	L	L	7
Psalter Lane, Nether Edge	М	£48.25k to £80.65k	М	L	L	L	5
Beighton Road, Woodhouse	L	£50.2k	М	L	L	L	5
Archer Road	L	£30.85k	L	L	L	L	4

Other Considerations:	
Displacement	Looks at the possible effects on the wider network of imposing an HGV restriction
Cost	Looks at whether a scheme can be delivered in 1 year or 2 and/or with another scheme

Hot Spot Evaluation:	High, Medium & Low reflect how severe or great a problem the factor is.
HGVs	Looks at the number of HGVs using the route and contributing to the alleged problems
Geometry	Looks at physical restraints imposed by the road layout and construction on the safe and easy movement of HGVs
Accidents	Looks at the accident record to determine whether there are any involving HGVs
Environment	Looks at the effect on air quality of emissions from HGVs where diffusion monitoring data is available. Nb where it is not, probable emission levels can be determined from the total number of vehicles and percentage of HGVs.

The evaluation above shows that the "HGV problems" at Twentywell Lane and The Wheel achieved the highest score in comparison with the other three locations. Whilst HGV's should not be using any of the roads under investigation for through traffic, access would still need to be maintained. Even with a EWR, enforcement would be problematic for the police, so cost (BCR) is important as well as the effects of displacing the HGV's onto other roads.

Recommendation

To submit the evaluation for consideration by the Cabinet Member for Transport & Sustainability with a view to seeking approval to secure funding and develop a prioritised programme for introducing the most cost effective solution at each location whilst at the same time maintaining the ability to investigate, develop and respond to other HGV issues going forward.

1. Twentywell Lane

Background:

A petition has been received from residents stating that,

"HGVs are using Twentywell Lane, Prospect Road and Queen Victoria Road to travel between Abbeydale Road South (A621) and Bradway Road (B6054); these roads are not suitable for large HGVs being "narrow and twisty" and predominantly residential in nature; and that HGVs are breaking the 30 mph speed limit."

Since the introduction of the 7.5t EWR on Bocking Lane the effect of displacing the HGV traffic onto other roads in the area have been increasingly felt; when the restriction was converted into a night time 7pm to 7am restriction not all day-time HGV's went back onto Bocking Lane.

Traffic Counts – carried out at the junctions of Bradway Rd/Twentywell La and Bradway Rd/Prospect Rd on Wednesday the 18th October 2017 over 24hrs and 12 hours (7am-7pm) periods.

These showed that,

- the number of HGVs that would be affected by a 7.5t EWR is quite low, around 87 and 120 at Prospect Rd and Twentywell La respectively in 24 hrs;
- in both cases there were only a couple of movements between 7pm & 7am indicating there wasn't a night time problem;
- as a percentage of total traffic HGVs were about 1.7% and 2% respectively with numbers in and out of each road being roughly the same;
- both have morning peaks between 8 and 9am but there is a noticeable peak between 3 and 4pm at Twentywell;
- at most times of the day the number of HGVs on both roads is low and fairly constant.

Accidents – in the past 5 years on the main access roads through the area, i.e. on Prospect Road and Twentywell Lane, there have been 21 reported injury accidents with 24 casualties (4 serious & 20 slight), none of these accidents involved HGVs. The figures for 2017 (awaiting validation) are 2 reported injury accidents, (3 casualties - slight) again none involving HGVs. However, Clr Martin Smith has reported a recent damage only accident on Woodland Place where an HGV demolished a section of fencing.

Nb. The number of accidents per year does vary up & down and so no trend can be inferred.

Geometry:

The roads in the petition are not part of the approved HGV route network for access into and out of the city or for through trips. These roads should allow access only to premises situated along or on side roads reached from them. The classification of roads in the area can be seen in the diagram below.



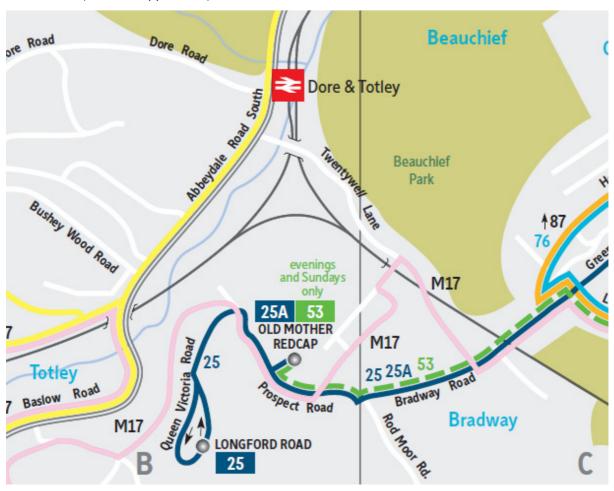
Mickley Lane to Bradway Road

- Queen Victoria Road Mickley Lane to Woodland Place narrows to 4.8 m wide in places but does widen to 5.7m+, predominantly residential but with no bends. Priority takes you up Woodland Place, has to give way at Mickley La.
- Woodland Place 5.5m wide at its narrowest but 5.7m for the most part. Pedestrian footways either side, predominantly residential in character, has priority when it joins Prospect Road.
- <u>Prospect Road</u> Woodland Place to Bradway Rd narrowest point, 4.6m on a bend just up from Woodland Place, widening to 5.3m before reaching 7.5m near Wollaton Road. Then narrows again to 6.6m at Bradway Drive on the bend before Bradway Road. The character of the road is predominantly residential.

There are three bus routes that use these roads, i.e. 25, 53 & M17, only the latter runs over the narrowest parts of Queen Victoria Road and Woodland Place.

Twentywell Lane

There is one bus route on Twentywell Lane that runs between Twentywell Road and Bradway Road, i.e. the M17 (a small "nipper" bus).



The narrowest part of Twentywell Lane is near its junction with Twentywell Road where the width narrows to 5.7m on a bend. Elsewhere it is at least 6m wide. Whilst the northern section has some bends it does straighten out along its southern section. Its junction with Bradway Road has been narrowed and has tight radii which mean that larger vehicles have problems turning in and out of the junction and can often ride over the footways.

There are existing signs on Abbeydale Road advising drivers that Twentywell Lane is unsuitable for HGV's.

HGVs turning left out of Twentywell Lane onto Abbeydale Rd have to cross over the centre line to do so.

Possible Measures:

Option 1 – 7.5t EWR

This would include all the roads mentioned in the petition together with the roads leading off them, see Appendix A. Whilst there are only 4 entry/exits to this area, signing would also be needed in advance of them so that HGV's could remain on more suitable roads/routes rather than turning off them.

The approximate total cost of this scheme would be £53.5k.

Displacement - If this was implemented most of the HGV movements would probably return to using Bocking La/Abbey La during the day-time (7am to 7pm). This would add about 100 HGV trips in both directions to those already using this route.

Evaluation Score:

Displacement	Cost	HGV's	Geometry	Accidents	Environment	Score
Low	£53.5k	Medium	High	Low	Low	7

2. The Wheel

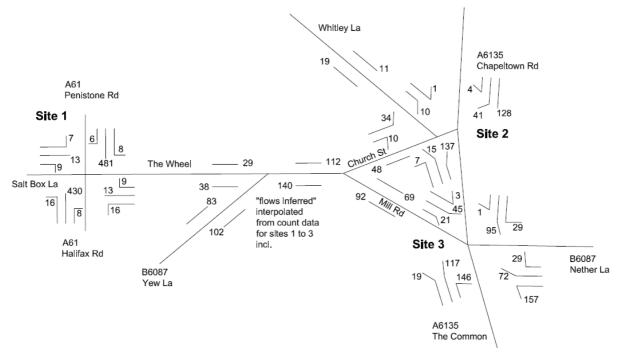
Background:

Residents have raised road safety concerns over the narrow sections of The Wheel/Town End Road and Elliot La/Whitley La where they allege the width of the road is not sufficient to allow an HGV and another vehicle to pass each other without over-running the footway on the north side. They suggest it is used by haulage contractors to travel between the Chapeltown/Ecclesfield areas to Oughtibridge/Stocksbridge and beyond to join the A616 and the Woodhead route across the Pennines, thereby avoiding the much longer route using A and B roads. The EWR on B6546 Burncross Road may also contribute to this usage.

Similar concerns have also been expressed about the usage of Whitley Lane by HGVs to move between the A61 and A6135.

Traffic Counts – were carried out at three junctions, A61 Penistone Rd/Saltbox La, A6135 The Common/Church St/Whitley La and A6135 The Common/Nether La, on Wednesday the 18th October 2017 over 24hrs and 12 hours (7am-7pm) periods.

Diagram 1: HGV Flows over 24 hours



These showed that,

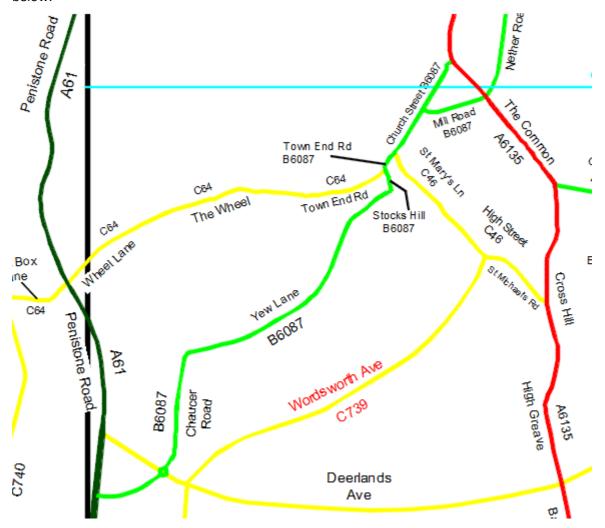
- the number of HGVs in 24 hrs, that would be affected by a 7.5t EWR, on The Wheel and Whitley Lane is quite low, around 67 and 30 respectively;
- there were 2 HGVs between 7pm & 7am on The Wheel and 1 on Whitley La indicating there
 wasn't a night time problem;
- at most times of the day the number of HGVs on both these roads is low and fairly constant.

Accidents – Between 2012 and 2016 there have been 47 reported injury accidents (61 casualties – 8 serious & 53 slight) on The Wheel and, none of which involved HGVs 7.5t or over. The figures for 2017 (awaiting validation) are 9 reported injury accidents, (casualties all slight) again none involving HGVs. The number of accidents per year varies between 8 and 12 and is consistent showing no signs of an increasing trend.

The wheel has one accident involving a goods vehicle between 3.5 and 7.5 tonnes. This accident (slight) happened on The Wheel 100 metres from Cinder Hill Lane on 1st December 2012. The goods vehicle was straddling the centre line and hit a vehicle on the opposing carriageway which was waiting behind a parked vehicle for the vehicle to pass before continuing up the Wheel towards Grenoside. It is unclear whether this vehicle would have been covered by an EWR.

Geometry:

The roads in the petition are not part of the approved HGV route network for access into and out of the city or for through trips. These roads should allow access only to premises situated along or on side roads reached from them. The classification of roads in the area can be seen in the diagram below.



The Wheel, Wheel La & Town End Rd

For the most part the width of the road is at least 5.4m but there are sections, i.e.

 between 120 Wheel Lane and 227 The Wheel (about 320m in length) where it narrows down to between 4.5 and 5.0m and the passage of an HGV and any other vehicle becomes problematic; and between 1 and 138 Town End Rd (about 435m in length) where it narrows down to 4.7m in places. Parking takes place outside nos 53-79 blocking the footways on both sides and further reduces the available road width so that the passage of an HGV and any other vehicle becomes problematic. At its narrowest point, outside nos 33-35 vehicles would have to mount the footway if an HGV faced any oncoming traffic.

Whitley La & Elliot La

There are no bus services that use this route.

This is a signed route from the A61 to Whitley Hall Hotel, there are no footways with an indistinct carriageway edge throughout (Nb the road surface has been improved recently particularly on Whitley La).

There are several sections where the road width is below 4m and at its narrowest point is only 3.4m wide. The road has numerous bends with high walls and trees on either side restricting forward visibility through them.

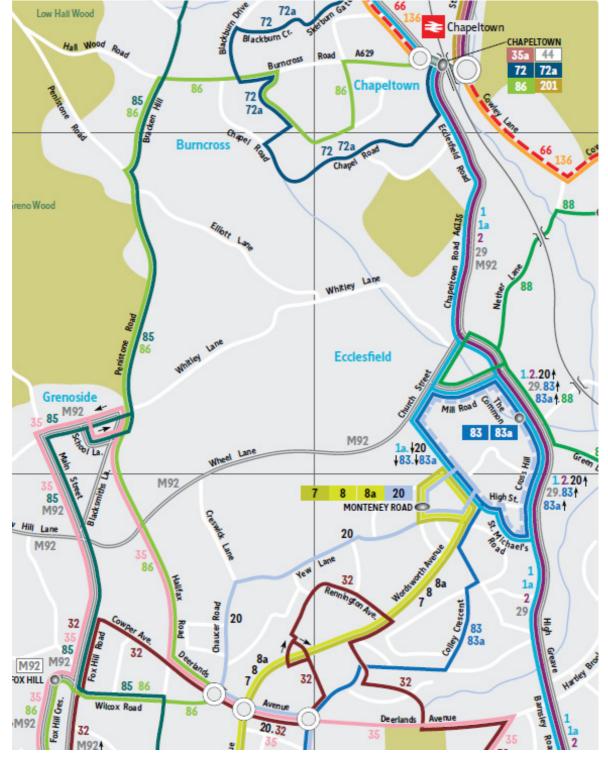
The national speed limit applies for the most part with a 30mph speed limit on Whitley La from a point 450m back from its junction with Church St.

There are sporadic properties (e.g. Hoyle House), access to farms (e.g. Hoyle House Farm) and fields and Whitley Hall along the entire length with only a residential feel within the 30mph section.

The use of Whitley La and Elliot La by horses and riders leads to conflicts with vehicles in general because of the narrow carriageway.

Bus routes

These run on Church St and Mill Rd, i.e. 1a, 20, 83 & 83A.



Possible Measures:

Option 1 - 7.5t EWR

This would apply to The Wheel, Wheel Lane, Elliot La, Town End Rd (part) and Whitley La only, see Appendix B.

The approximate cost of this scheme would be £42.55k.

Displacement - If this was implemented most of the HGV movements would probably use the B6087 Yew Lane and would add about 100 HGV trips in both directions to the 185 trips using this route already, i.e. a doubling of HGV trips.

Evaluation Score:

Displacement	Cost	HGV's	Geometry	Accidents	Environment	Score
Low	£42.55k	Medium	High	Low	Low	7

3. Psalter Lane

Background:

Individual residents and more recently the Psalter Lane Action Group have regularly raised concerns over the number and speed of lorries using this road and other roads in the Nether Edge area when it is predominantly residential with a hospital, hotel, pub/club, school and church which generate pedestrian movements along and across it. They also point to the poor state of the road surfaces caused by the lorries which adds to the noise and has caused some personal injuries to some pedestrians who have tripped in the pot holes.

The Freight Transport Association (FTA) and Road Haulage Association (RHA) have been contacted previously about their members using this road and have said they use it to avoid delays on Ecclesall Road and without any form of legal prohibition they will continue to do so.

Air Quality

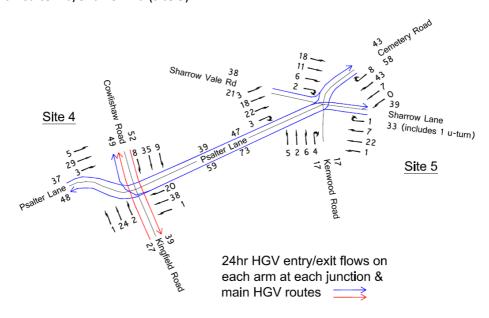
There are 5 diffusion tube sites in the area

The results for the years when readings were taken to calculate the Average annual Emissions ($\mu g/m^3$) were taken are given in the table below and show that emissions were always below the 40 $\mu g/m^3$ limit.

Year	Cowlishaw Road	Psalter Lane	Osborne Road	Nether Edge Road	Montgomery Road
2006	23	18	22	20	22
2007	31	27	32	26	29
2008	27	23	28	23	25
2009	24	23	28	23	23
2010	27	24	29	24	24
2011	25	21	29	21	23
2012	22	22	28	22	22
2013	26	24	30	23	26
2014	22	21	29	22	23
2015	n/a	20	28	19	21
2016	n/a	22	27	23	22

Traffic Counts – were carried out at two junctions, Psalter La/Kingfield Rd/Cowlishaw Rd and Psalter La/Cemetery Rd/Sharrow La on Wednesday the 18th October 2017 over 24hrs and 12 hours (7am-7pm) periods.

Diagram 1: HGV Flows over 24 hours entering and leaving the junctions of Psalter La/Cowlishaw Rd (site 4) and Psalter La/Sharrow La (site 5)



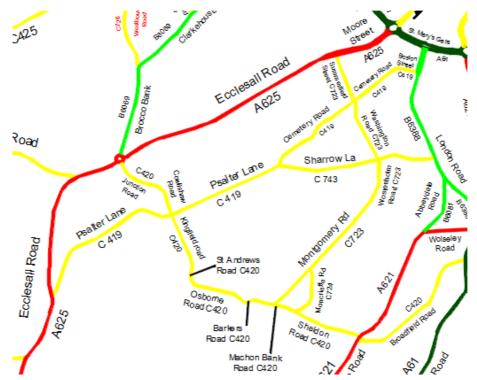
These showed that,

- the number of HGVs in 24 hrs are approximately equal on the roads surveyed apart from Kenwood Rd where they are about a 3rd of those elsewhere. Given that the area between the A621 and A625 is predominantly residential with retail and other commercial activities concentrated on the peripheries of the area, the HGV movements are for the most part probably related to through movement in avoidance of the longer and congested principal road network (i.e. the A roads), these are illustrated in red and blue above;
- there were 4 HGVs between 7pm & 7am going through the Psalter La/Kingfield Rd junction and 3 going through the Psalter La/Sharrow Vale Rd junction indicating there wasn't a night time problem;
- at most times of the day the number of HGVs on both these roads is low as a percentage of other traffic, there are recognizable morning and evening peaks as well as an increase during lunch time.

Accidents – Between 2012 and 2016 there have been 126 reported injury accidents (152 casualties – 17 serious & 135 slight) on the main access roads in the area, i.e. Psalter La, Cemetery Rd, Cowlishaw Rd, Kingfield Rd, Sharrow La, Sharrow Vale Rd, Kenwood Rd, Montgomery Rd, Osborne Rd, Summerfield St, Washington Rd and Sheldon Rd, none of which involved HGVs 7.5t or over. The figures for 2017 (awaiting validation) are 14 reported injury accidents, (1 fatal, 2 serious & 12 slight) again none involving HGVs. The number of accidents per year varies so no trend can be inferred.

Geometry:

The roads concerning residents are not part of the approved HGV route network for access into and out of the city or for through trips. These roads should allow access only to premises situated along or on side roads reached from them in the Nether Edge area. These roads have a C classification, see diagram below.



Psalter Lane

This is subject to waiting restrictions (either AAT or M-Sa 8am-6:30pm) for most of its length with some sections of limited waiting where road width allows and there is a demand.

There is an hourly daily bus service, 4 & 4A that use this route.

The road width throughout does not present any accessibility issues nor give rise to road safety concerns.

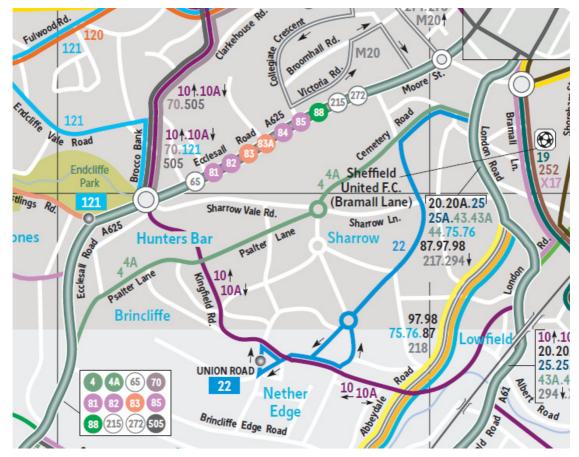
Cowlishaw Rd (part) & Junction Rd

Between Hunters Bar and Psalter Lane these are subject to waiting restrictions (either AAT or M-Sa 8am-6:30pm).

There is an hourly bus service, 10 & 10A that use this route.

The road width throughout does not present any accessibility issues nor give rise to road safety concerns.

Bus route map



Possible Measures:

Option 1A - 7.5t EWR - Area Wide addressing all through HGV traffic.

The approximate cost of this scheme would be £80.65k.

Displacement - If this was implemented most of the displaced HGV movements would have to use the A625, A621 & A61 to go around the area. However, the absolute numbers of HGVs involved is not high and not all would be affected. It would impact on the operators of the HGVs affected in increased journey time and fuel costs.

A large area scheme like this would also be problematic to enforce by the police with individual vehicles having to be followed through the area to confirm they did not stop to make a delivery/collection on route.

Option 1B - 7.5t EWR - restricting Psalter Lane HGV traffic only.

The approximate cost of this scheme would be £48.25k.

Displacement - If this was implemented most of the displaced HGV movements would have to use the A625, A621 & A61 to go around the area. However, the absolute numbers of HGVs involved is not high and not all would be affected. It would impact on the operators of the HGVs affected in increased journey time and fuel costs.

It would not address the Cowlishaw La/Kingfield Rd route and face similar enforcement challenges as option 1A.

Evaluation Score:

Displacement	Cost	HGV's	Geometry	Accidents	Environment	Score
Medium	£48.25k to £80.65k	Medium	Low	Low	Low	5

4. Beighton Road, Woodhouse

Background:

Councillor Mick Rooney has had a series of complaints about heavy vehicle traffic through Woodhouse (Coisley Hill / Sheffield Road / Market Street / Beighton Road). These relate to the speed of traffic along this route and the size and weight of the vehicles. His biggest concern is that of the safety of children outside Woodhouse West School given the width of both the road and pavement. Similar complaints have also been received by the council from residents. The school is located on Coisley Hill about 230m east of its junction with the A57 Mosborough Parkway.

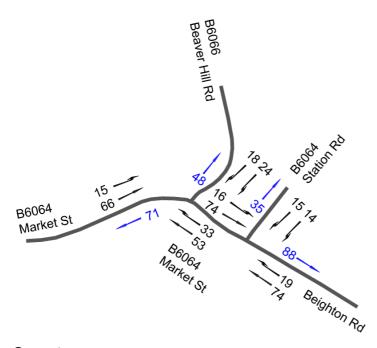
The area bounded by the A57, B6200, B6065 and B6064 is predominantly residential; there are no industrial or retail parks but there are schools, churches and some retail premises and pubs located in the centre of Woodhouse. To the north there is Orgreave business park and the newly developed Advanced Manufacturing Park at Waverley.

Traffic Counts

The route through Woodhouse (Market St & Beighton Rd) is longer in distance and time than using the A57 so it is unclear why drivers would choose to use it. It is more likely that the majority of HGV trips are related to servicing commercial activities within the area and that because of the 1-way system on Chapel Street where most of the retail activity takes place, servicing HGVs could have been counted twice.

There were 17 HGVs going through the Station Rd/Beighton Rd junction between 7pm and 7am and 8 HGV's at Market St/Beaver Hill Rd.

Over 24 hours the percentage of HGVs to total traffic is low, 1.37% and 1.33% respectively.

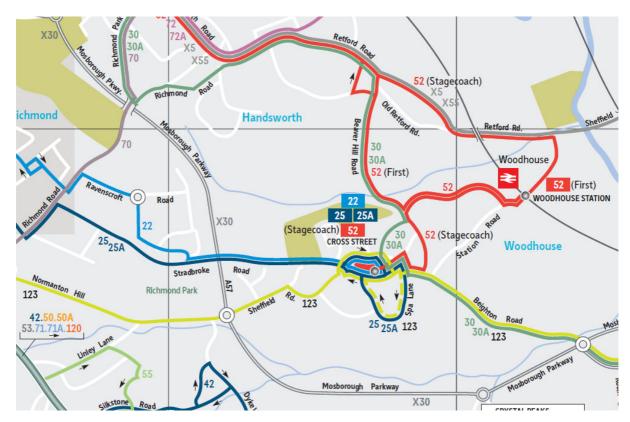


Geometry:

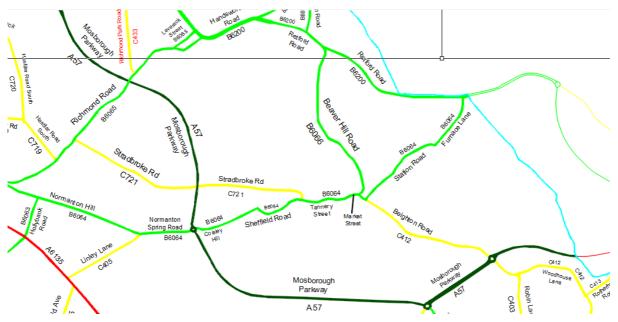
The main roads which through traffic could use are, the B6064 Market St/Station Rd, B6066 Beaver Hill Rd, Stradbroke Rd (20mph speed limit) and Beighton Rd. These all have a reasonable carriageway width (6.0m+) throughout only narrowing to below this to 5.7m in a couple of locations. On the B6064 there is a series of bends near Bishop Hill which can reduce speeds and lead to vehicles crossing the centre line but there are no recorded accidents to say that this has led to any problems.

The main shopping area is Chapel Street and is unlikely to be used as a through route because it would result in longer and slower journeys.

These roads all have bus routes for most of their length, see diagram below.



Accidents – Between 2012 and 2016 there have been 45 reported injury accidents (57 casualties – 9 serious & 48 slight) on the main access roads in the area, i.e. Market St, Station Rd, Beighton Rd and Beaver Hill Rd, none of which involved HGVs 7.5t or over. The figures for 2017 (awaiting validation) are 5 reported injury accidents, (7 casualties - all slight) again none involving HGVs. The number of accidents per year varies between 5 and 13; they are not consistent so no trend can be inferred.



Evaluation Score:

Displacement	Cost	HGV's	Geometry	Accidents	Environment	Score
Low	£50.2k	Medium	Low	Low	Low	5

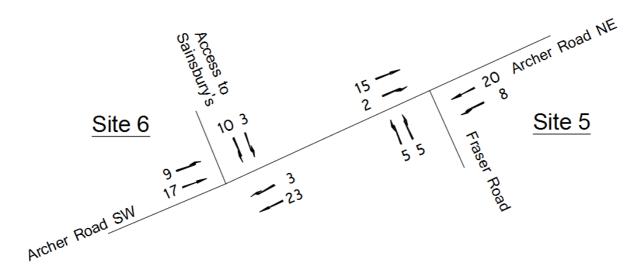
5. Archer Road, Millhouses

Background:

Residents have raised a problem with Sainsbury's delivery lorries. They refer to a planning condition on Sainsbury's that their deliveries must come from the park end rather than along the residential end. There seems to be a lot more going past their house with a regular one at around 3am. Additionally, as there's parking on both sides of the road, there have been near misses where the lorries have almost hit parked cars or ones coming the other way, and the traffic lights on the bend. There has been one instance where the lorry

went round the wrong side of the central bollard as it struggled to make the tight bend. There concern is that if this isn't addressed it will only get worse when the proposed expansion to Sainsbury's takes place.

Traffic Counts



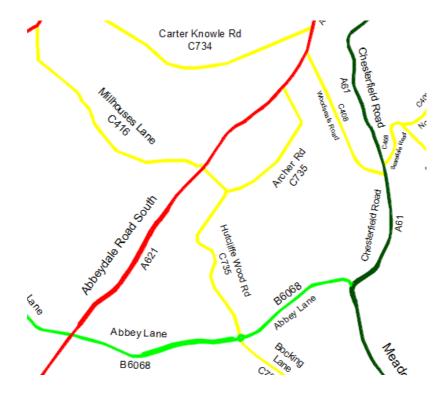
The numbers of HGVs is low and only 4 trips were observed at "unsocial times", i.e. 1am. They do seem to indicate that Archer Rd is being used from both directions but only a few are associated with Sainsbury's.

Accidents – Between 2012 and 2016 there have been 13 reported injury accidents (17 casualties – 3 serious & 14 slight) on Archer Road, none of which involved HGVs 7.5t or over. There have been no reported injury accidents in. The number of accidents per year varies between 1 and 5; they are not consistent so no trend can be inferred.

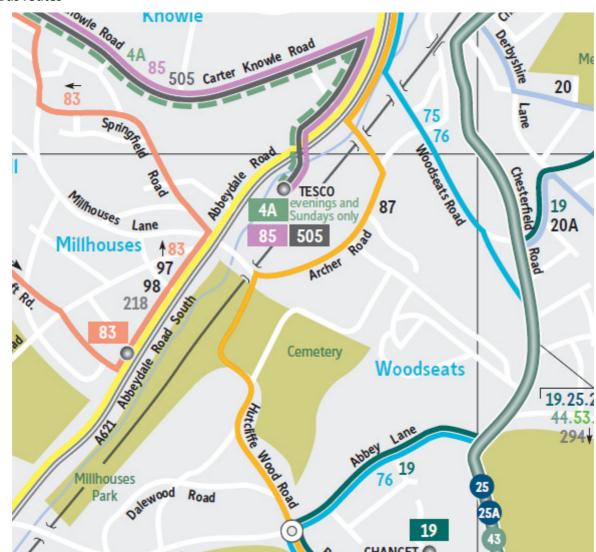
Air Quality

The results for the years when readings were taken show that emissions are below the $40\,\mu g/m^3$ limit. Diffusion tube site located near 102 Archer Road

Archer Road				
Year	Average annual Emissions µg/m³			
2010	32			
2011	32			
2012	33			
2013	35			
2014	32			
2015	34			
2016	32			

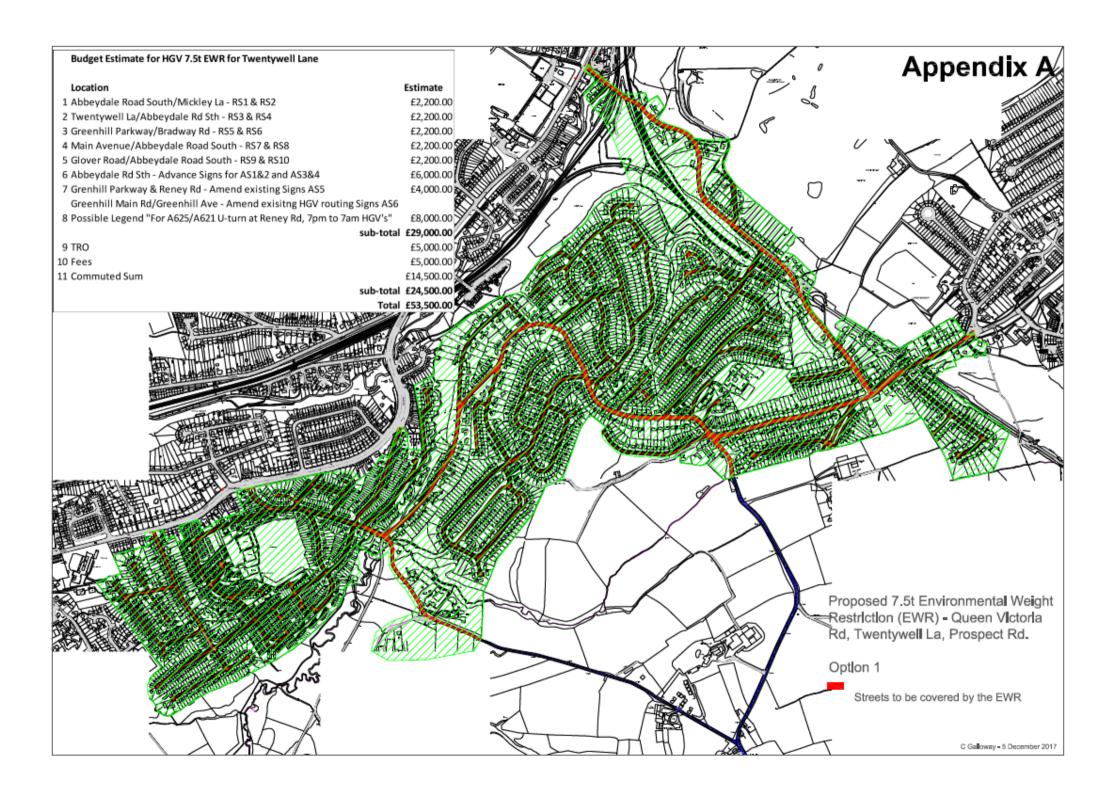


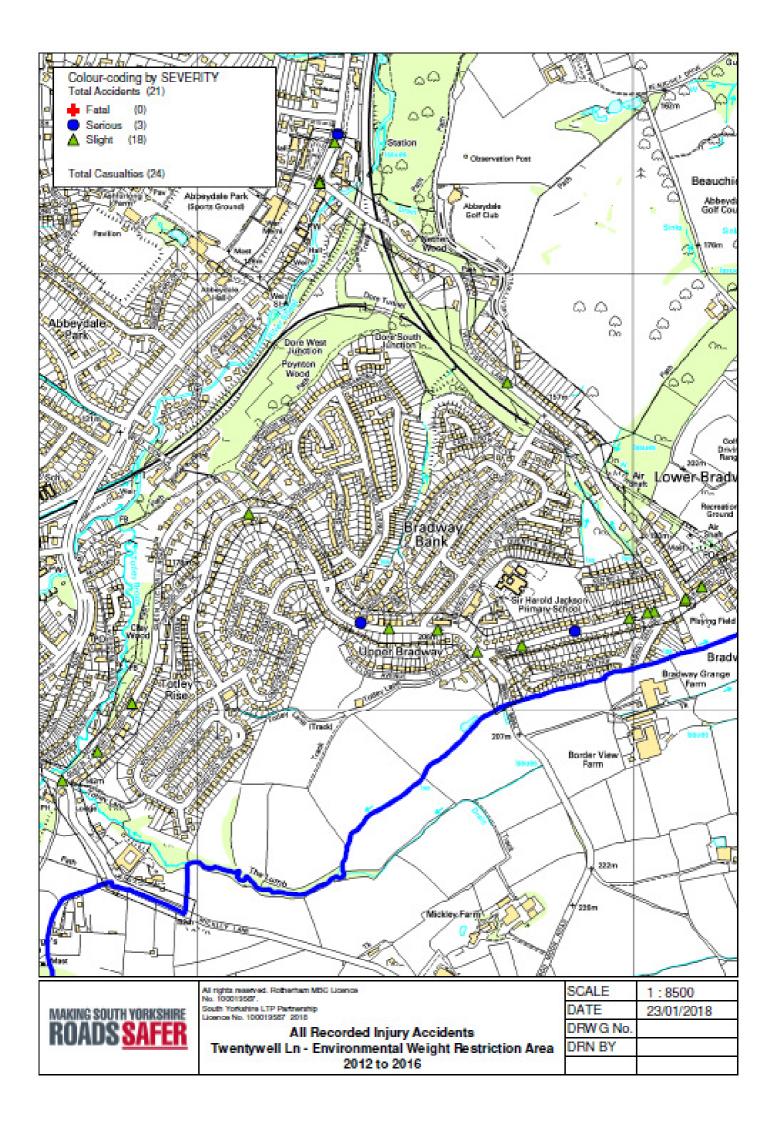
Bus routes

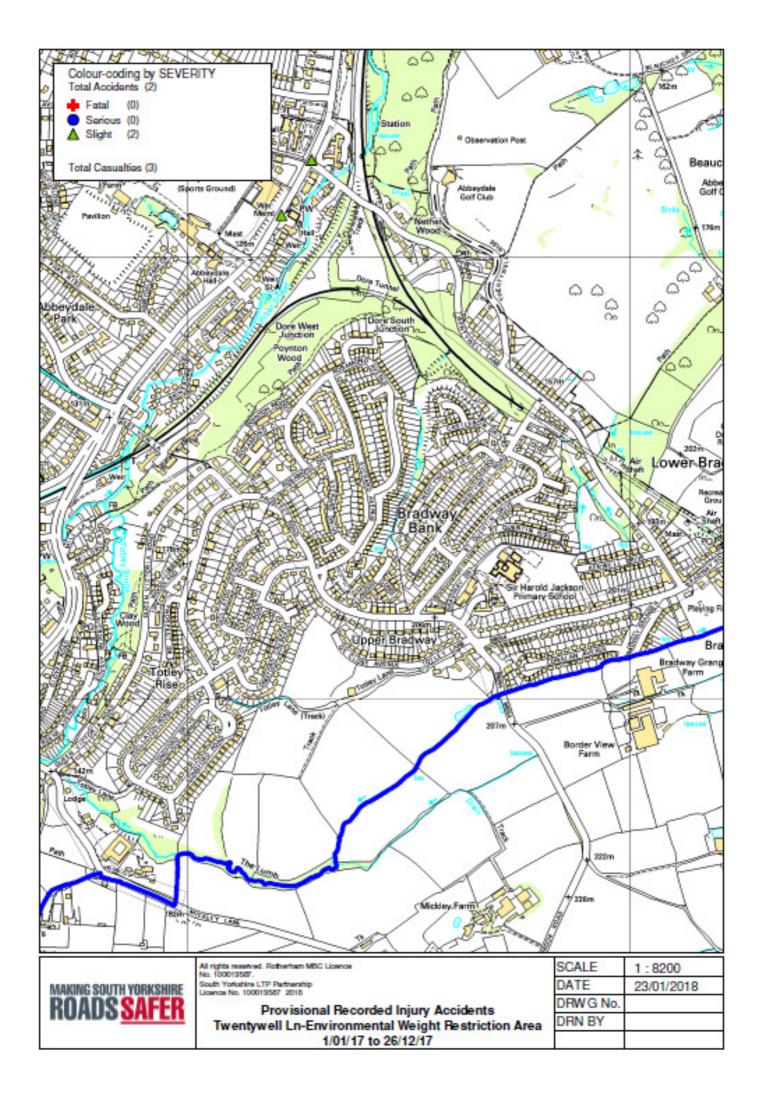


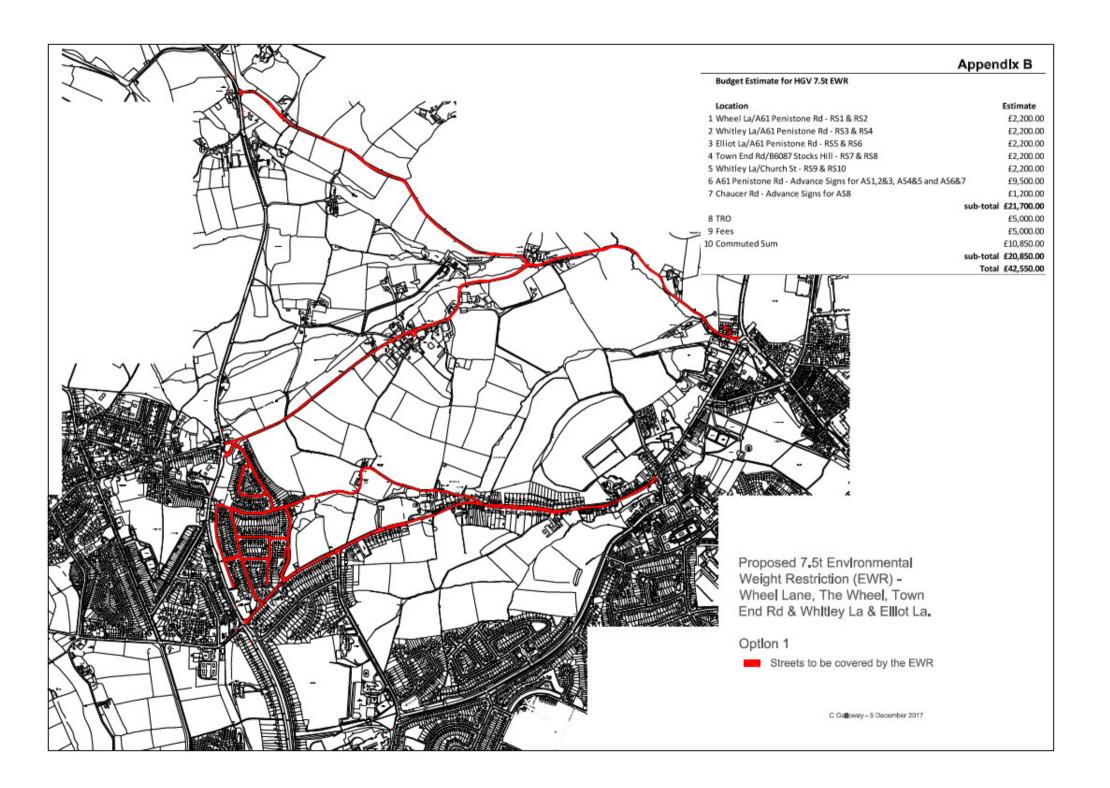
Evaluation Score:

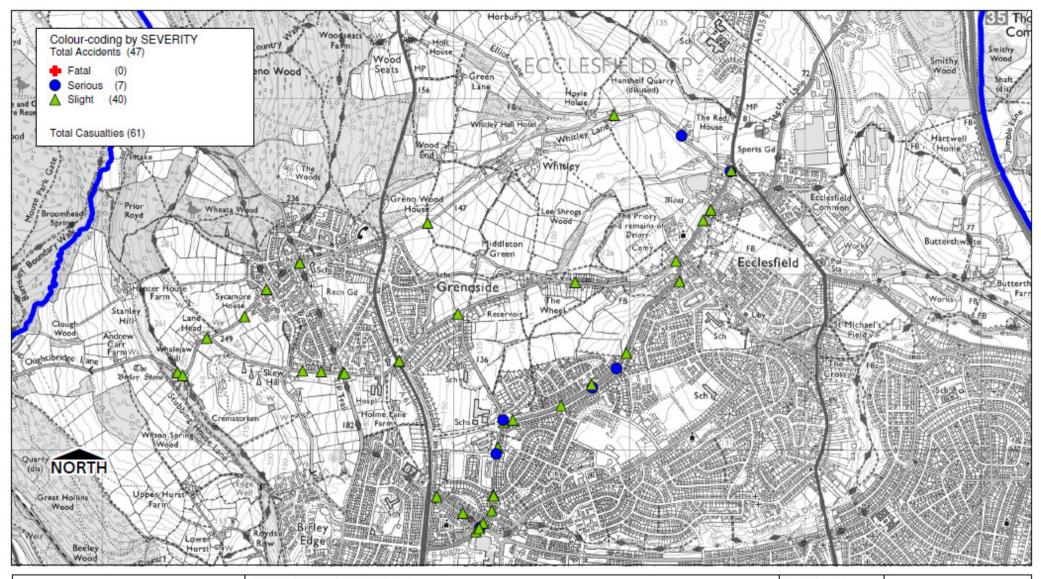
Displacement	Cost	HGV's	Geometry	Accidents	Environment	Score
Low	£30.85k	Low	Low	Low	Low	4











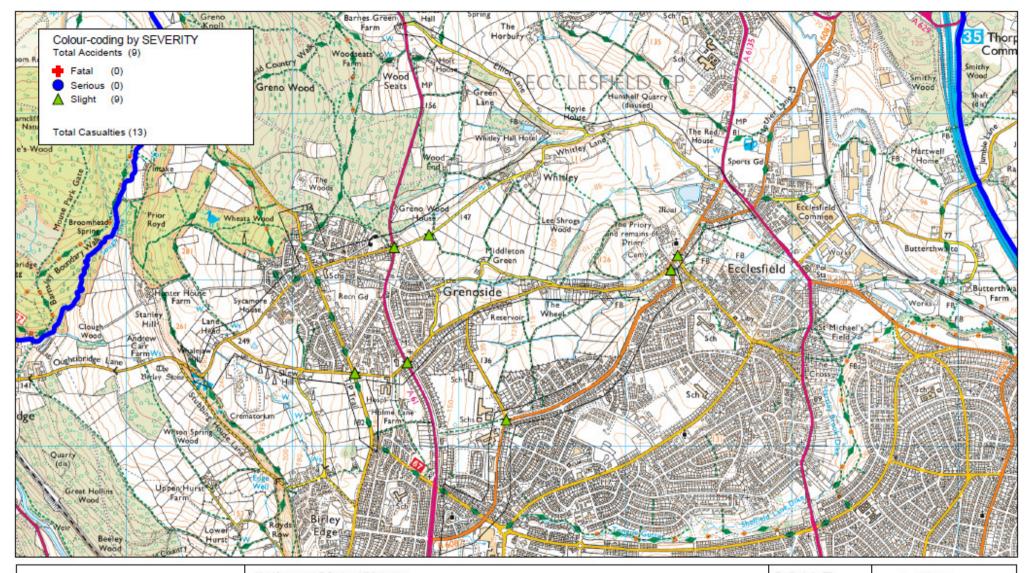


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All Recorded Injury Accidents
The Wheel - Environmental Weight Restriction Area
2012 to 2016

SCALE	1:20740
DATE	12/12/2017
DRWG No.	
DRN BY	

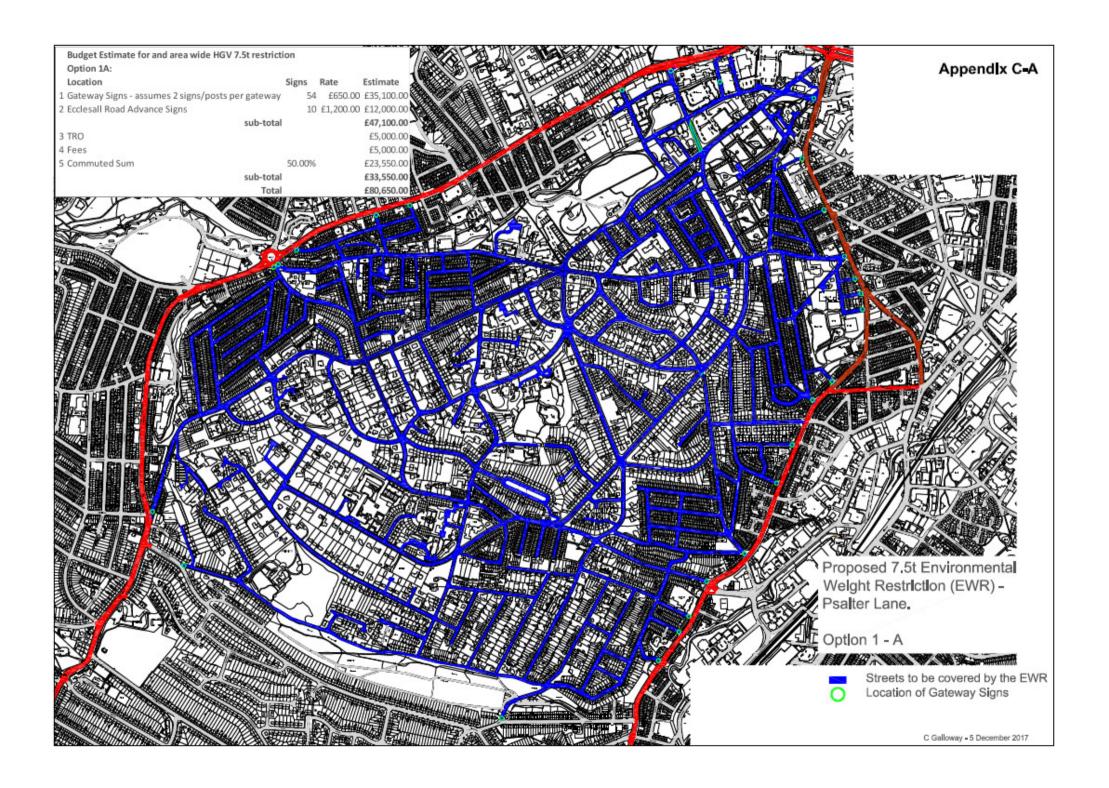


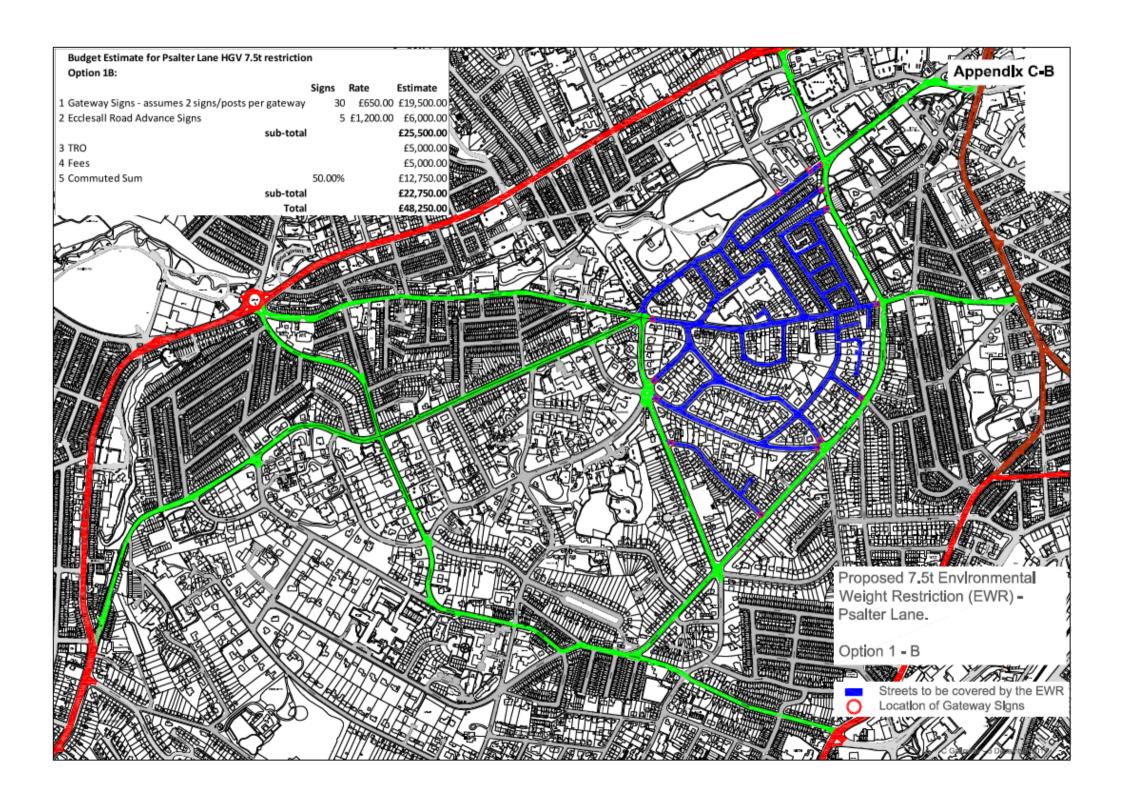


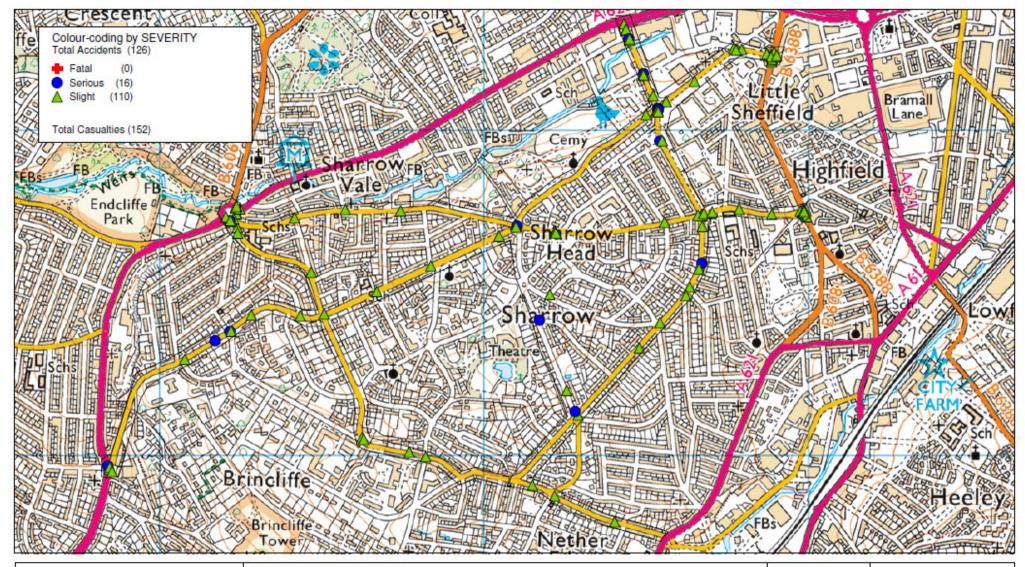
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Provisional Recorded Injury Accidents
The Wheel - Environmental Weight Restriction Area
1/1/17 to 26/12/17

SCALE	1:21500
DATE	25/01/2018
DRWG No.	
DRN BY	





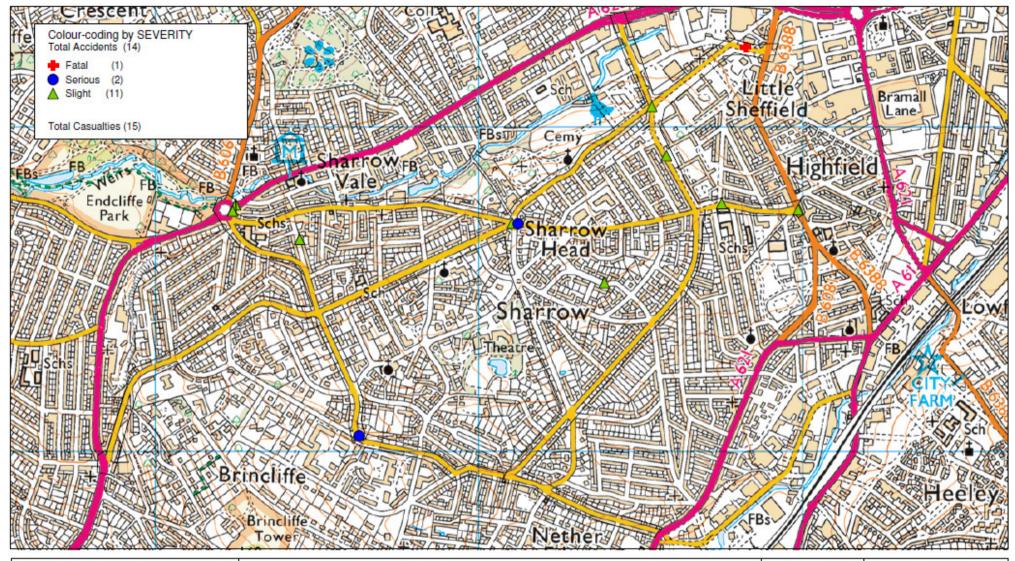




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All Recorded Injury Accidents
Psalter Lane-Environmental Weight Restriction Area
2012 to 2016

SCALE	1:11000
DATE	23/01/2018
DRWG No.	
DRN BY	



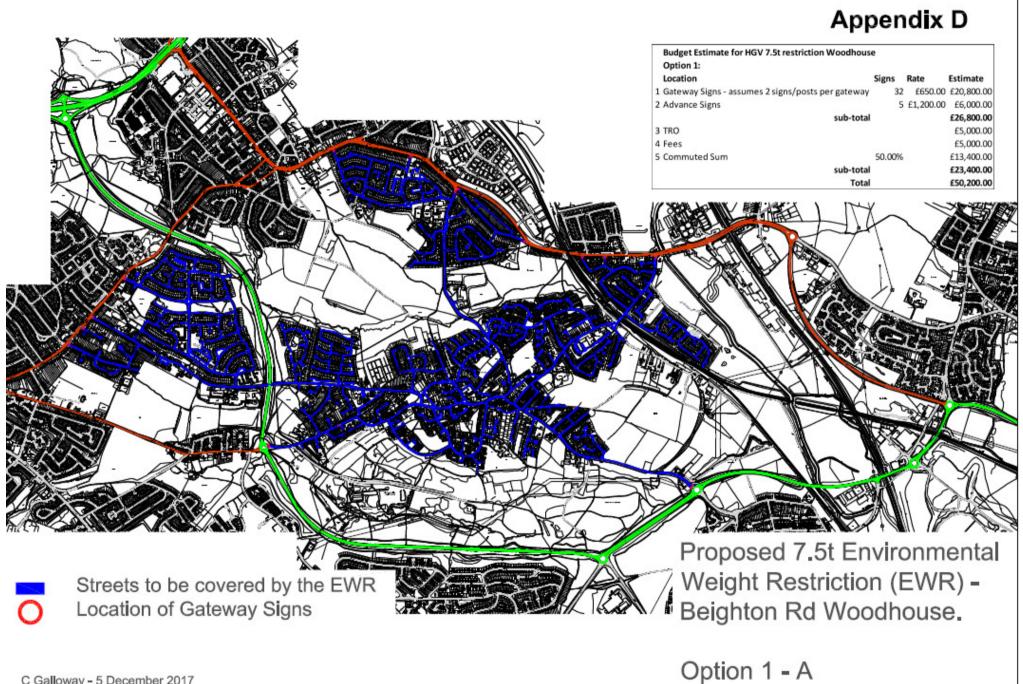


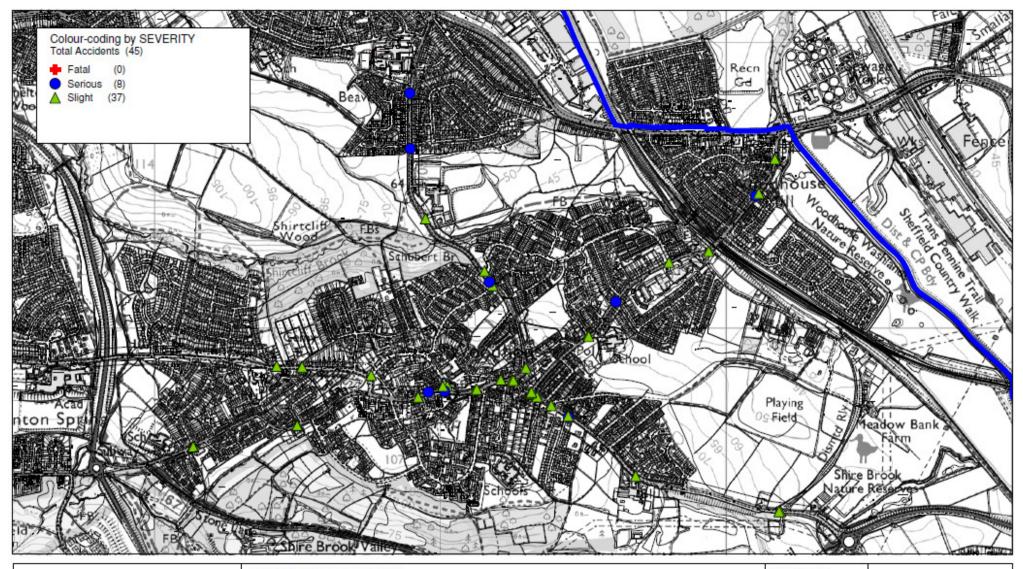
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Provisional Recorded Injury Accidents
Psalter Ln-Environmental Weight Restriction Area
01/01/17 to 26/12/17

SCALE	1:11000
DATE	23/01/2018
DRWG No.	
DRN BY	



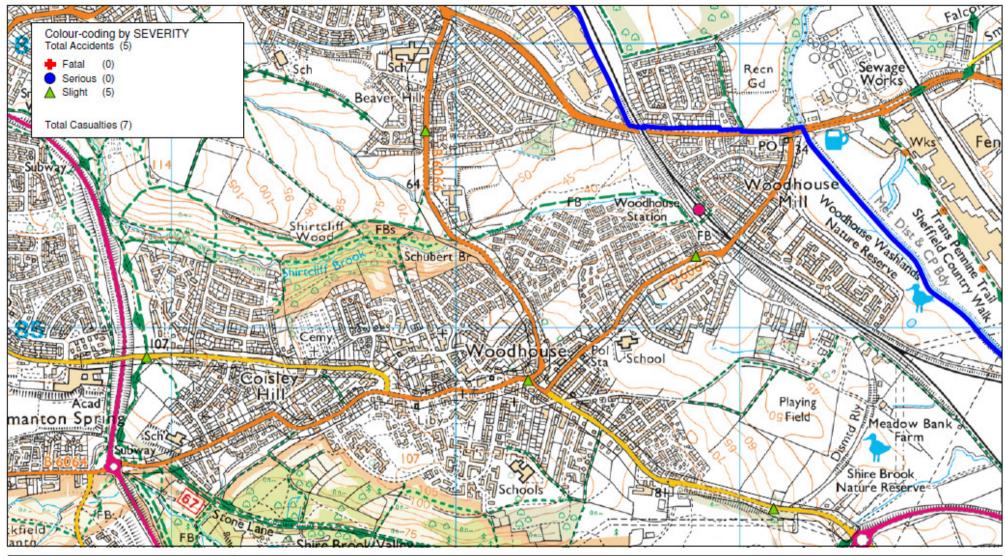




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All Recorded Injury Accidents
Beighton Road - Environmental Weight Restrication Area
2012 to 2016

SCALE	1:12500
DATE	09/01/2018
ORWG No.	
ORN BY	



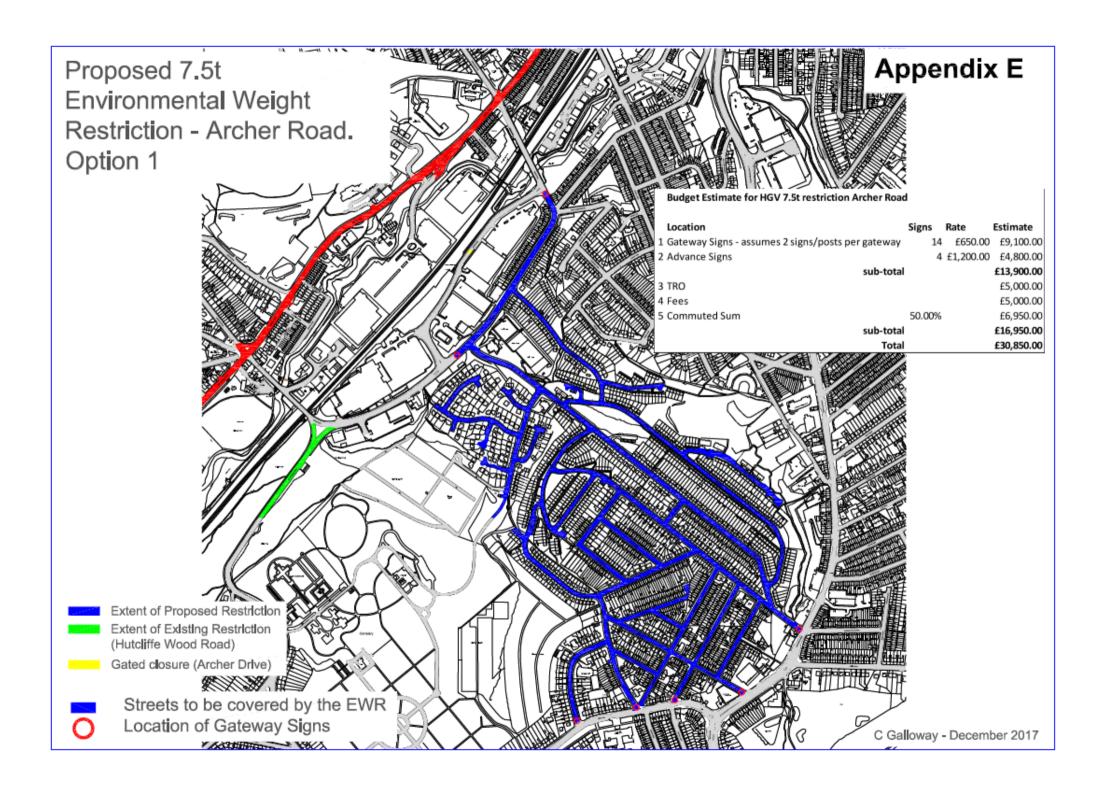


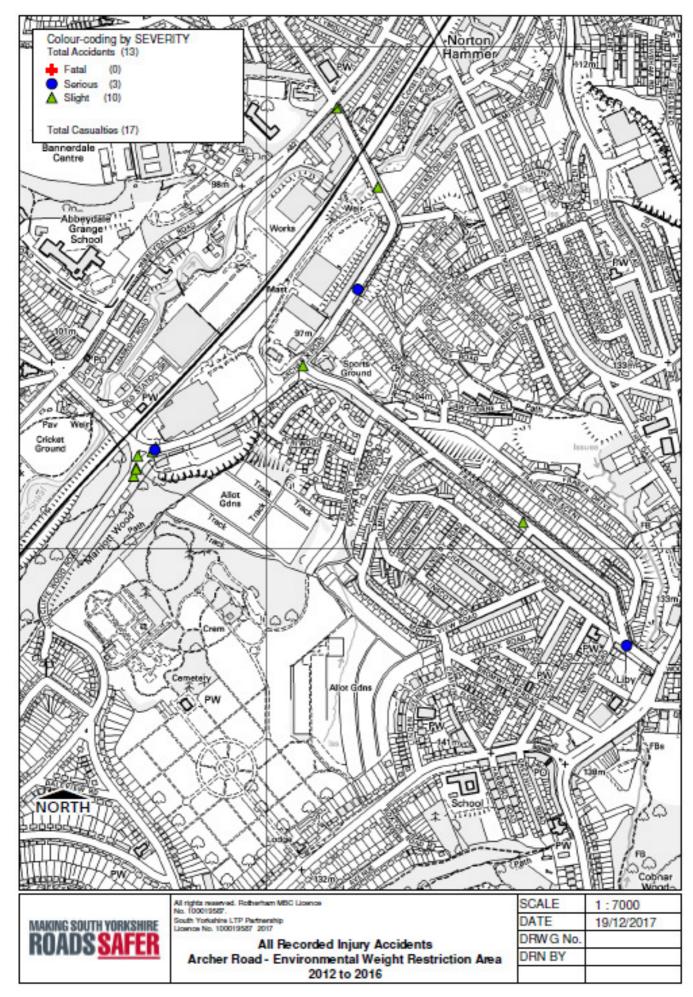
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Provisional Recorded Injury Accidents
Beighton Road - Environmental Weight Restriction Area
01/01/17 to 26/12/17

SCALE	1:12500
DATE	23/01/2018
DRWG No.	
DRN BY	





Nb. There has been no injury accidents reported for Archer Road in 2017.