

Malton & Norton Strategic Transport Assessment

Alternative Town Centre Complementary Measure Addendum to Main Report

October 2010





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1

Introduction**1.1 Overview**

- 1.1.1 The results and conclusions of the main Strategic Transport Assessment (STA) report are based on the assumption that the additional slip at Brambling Fields is in place. This improvement enables vehicles travelling from York to turn off the A64 onto Scarborough Road, Norton, reducing the need for traffic to travel through Malton and Norton town centres (see paragraph 2.2.5 of the main report). To ensure that this improvement is fully utilised and delivers the traffic benefits to the town centre, a range of town centre complementary measures are necessary which are described in Section 2.2 of the main report. These measures include an all-vehicle ban measure on Norton Road i.e. traffic will be unable to travel from Norton to Malton, or Malton to Norton, via Railway Street. The purpose of the ban is to encourage traffic to use the newly improved Brambling Fields A64, taking through traffic away from the town centre as traffic will have to either use Butcher Corner or the A64.
- 1.1.2 Since the original STA was completed, North Yorkshire County Council (NYCC) has investigated a number of alternative proposals to an all-vehicle ban measure on Norton Road. Following this work an alternative proposal has been prepared, in readiness for consultation with the public. As the STA is based on the original town centre complementary measures, this addendum has been produced to test the effects of the alternative measure.

1.2 Description of Alternative Measure

- 1.2.1 The alternative measure consists of a one-way section on Norton Road, which will be open to westbound traffic only. The eastbound direction will be open for buses only, with access potentially controlled by a bus-activated rising bollard. This will persuade long distance traffic travelling from the York direction to Norton to use the A64 junction at Brambling Fields instead of 'rat-running' southbound on Railway Street and eastbound on Norton Road. Similarly there will also be traffic calming on Railway Street to also encourage long distance drivers travelling from Norton via Malton to York to use the A64 instead of using Norton Road/Railway Street as a through town rat run.

1.2.2 Figure 1.1 below shows the proposed location for a one way section while Figure 1.2 shows an illustration of how the one way section and the bus contra-flow could look.

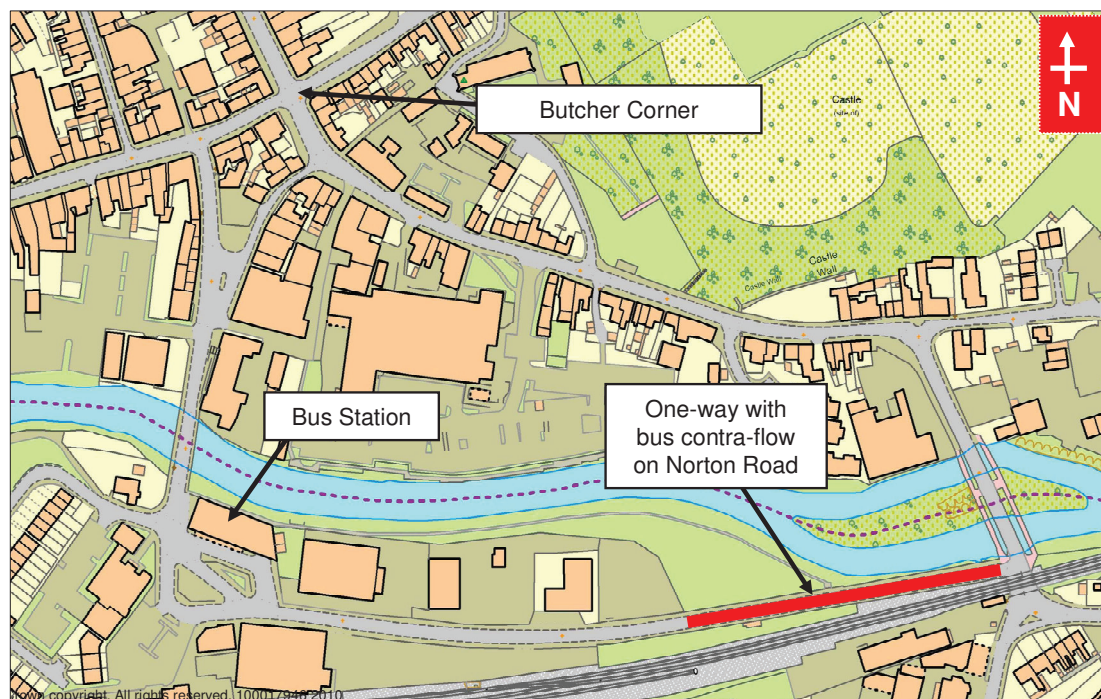


Figure 1.1 Location of One Way Section

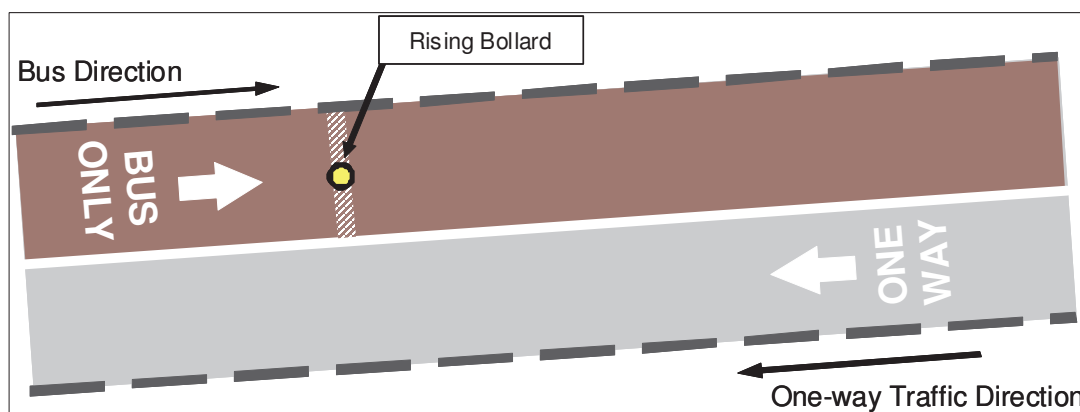


Figure 1.2 Illustration of How the One Way and Contra Flow Could Look.

1.2.3 The other traffic management measures in the town centre are still applicable and are common to each of the development scenarios which have been tested, these are:

- A change in the signal timings at Butcher Corner to include an additional pedestrian phase.
- The removal of one traffic lane on the Castlegate approach to the Butcher Corner junction which will restrict capacity.
- An HGV ban across the level crossing, except for those requiring access to local businesses.

1.2.4 This alternative measure incorporating the all-vehicle ban on Railway Street and Norton Road with a westbound one way section on Norton Road achieves the balance of allowing traffic from Norton to Malton to use the Railway Street route across the river, and encouraging traffic from Malton to Norton (particularly longer distance traffic) to utilise the A64 rather than using Railway Street.

1.3 Assessing the Effect of the Alternative Measure

1.3.1 Development scenarios 1 to 9 have been assessed in chapters 4 to 13 in the main report, all with the assumption that the alternative measures will include an all-vehicle ban on Norton Road. Chapters 17 and 18 of the main report recommend Scenarios 2, 3, 6 and 4A are selected as the pre-eminent four scenarios in terms of minimal congestion and development size and distribution.

1.3.2 These scenarios have been reassessed based on the alternative town centre measure. Scenario 1 has also been reassessed as it forms the baseline level of development against which the other scenarios are compared.

1.3.3 Each scenario test compares results with and without mitigation measures as described in Section 14 of the main report. The commentary considers these deliverable mitigation measures in assessing what the impact of the scenarios is on the local highway network.

1.3.4 To illustrate the magnitude in the level of congestion the same traffic light system has been adopted as used in the main report, see Table 1.1 below.




Colour	Meaning	RFC Value Range
	No Congestion	Less or equal to 85% (under capacity)
	Minimal Congestion	Between 85% and 100% (approaching capacity)
	Significant Congestion	Greater than 100% (over capacity)

Table 1.1 Traffic Light System

1.3.5 In each of the results tables in Section 2 to 5 the level of congestion associated with the all-vehicle ban measure on Norton Road / Railway Street has been included for comparison. The traffic light colours have been faded for clarity.

1.3.6 To recap, in order to realistically test the effects of proposed development sites on the local highway network, the sites have been divided into 5 groups based on location, size and or phasing as follows

- Group 1 – Stage 1 and Stage 2 Brownfield Development Sites
- Group 2 – Malton Based Sites
- Group 3 – Norton Based Sites
- Group 4 – Woolgrowers Development Site
- Group 5 – Norton East Development Site

- 1.3.7 From the 5 development groups, nine scenarios have been created to test the impacts of the development both individually and cumulatively. Of the nine Scenarios 2, 3, 4A, and 6 have been selected as the pre-eminent four scenarios.
- 1.3.8 The groups included within Scenario 1 and each of the four selected scenarios are shown in Table 1.2 below.

Scenario	Group 1 (Stage 1 & 2)	Group 2 (Malton)	Group 3 (Norton)	Group 4 (Norton East)	Group 5 (Woolgrowers)
1	●				
2	●	●			
3	●		●		
4a	●	●	●		
6	●				●

Table 1.2 Development Scenarios

1.4 Butcher Corner

- 1.4.1 There are a number of differences in the way the Butcher Corner junction operates under the alternative measure as opposed to the original all vehicle ban measure. With the alternative measure in place, there is less traffic using the Castlegate arm of the Butcher Corner junction than under the all-vehicle ban measure option. This is because traffic travelling westbound from Norton to Malton across Norton Road and Railway Street is still able to utilise this route and hence avoid Butcher Corner.
- 1.4.2 Despite there being less traffic on Castlegate under the alternative measure, the traffic flow on this arm will be higher than the capacity of the junction and as such Castlegate will remain over capacity. However as a result of the reduction in traffic on Castlegate under this option, there will be less traffic to conflict with the Wheelgate traffic. As a consequence Wheelgate traffic will increase as the Butcher Corner junction will become more attractive than using alternative town centre routes to access for example Town Street and York Road. Under the alternative measure the congestion at Wheelgate will therefore be greater than the congestion associated with the all-vehicle ban measure.
- 1.4.3 The mitigation measures associated with Castle Howard Road, Pasture Lane and Welham Road help to keep the congestion at Butcher Corner to a minimum by controlling the attractiveness of the town centre route (east and west) and therefore controlling and restricting the amount of traffic so that it uses the A64 via Brambling Fields instead.
- 1.4.4 The resulting congestion at Butcher Corner in Scenario 2, 3, 6 and 4A is (although over 100%) less than the congestion at Butcher Corner in Scenario 1.

2 Scenario 1 - Alternative Measure Assessment

2.1 Congestion Analysis

2.1.1 For Scenario 1 the magnitude of the ratio of flow to capacity (RFC) at each of the junctions is shown in Table 2.1 below. The traffic light symbols represent the actual RFC values for each junction as described in Table 1.1.

Junction	Road Name	2026 AM Scenario 1 No Mitigation All Veh Ban No Mitigation	2026 AM Scenario 1 No Mitigation Alternative Measure
Butcher Corner	Wheelgate	●	●
	Old Maltongate	●	●
	Castlegate	●	●
	Yorkersgate	●	●
Welham Road Junction	Castlegate	●	●
	Welham Road	●	●
	Church Street	---	---
Castle Howard Road Junction	Castle Howard Road	●	●
	Yorkersgate	●	●
	York Road	---	---
Pasture Lane Junction	Broughton Road	●	●
	Pasture Lane	●	●
	Newbiggin	●	●
	Mount Crescent	●	●
Westfield Way Junction	Scarb. Rd West	●	●
	Scarb Rd. East	●	●
	Westfield Way	●	●
Town Street Junction	Highfield Road	●	●
	Old Malton Road	●	●
	Town Street	●	●
Railway Street Junction	Yorkersgate E	---	---
	Yorkersgate W	●	●
	Railway Street	●	●
Norton Road Junction	Castlegate	●	●
	Church Street	---	---
	Norton Road	●	●
Level Crossing	Castlegate	●	●
	Church Street	●	●
Wold Street Junction	Church Street	●	●
	Commercial Street	---	---
	Wold Street	●	●
Mill Street Junction	Commercial Street	●	●
	Scarborough Road	---	---
	Mill Street	●	●

Table 2.1 Scenario 1 RFC Magnitude

2.1.2 Similar to the all vehicle ban measure, the alternative measure will result in the Butcher Corner junction being over capacity. Wheelgate will operate at 128% capacity and Old Maltongate, Castlegate and Yorkersgate will operate at 116%,

148% and 156% respectively. For comparison, with the all-vehicle ban measure in place the capacities will be 84%, 130%, 100% and 107% respectively.

- 2.1.3 The effects of the alternative measure on the congestion associated with Scenario 1 traffic are minimal.
- 2.1.4 The Welham Road junction will operate under capacity as less traffic will travel through the junction preferring to avoid Butcher Corner by using the A64. This is also the case for the Church Street side of the level crossing.
- 2.1.5 All the other junctions across the highway network will operate within the same capacity range as with the all-vehicle ban measure.

3 Scenario 2 - Alternative Measure Assessment

3.1 Congestion Analysis

3.1.1 For Scenario 2 the magnitude of the ratio of flow to capacity (RFC) at each of the junctions is shown in Table 3.1 below. The traffic light symbols represent the actual RFC values for each junction as described in Table 1.1.

Junction	Road Name	2026 AM Scenario 1 No Mitigation Alternative Measure	2026 AM Scenario 2 No Mitigation Alternative Measure	2026 AM Scenario 2 With Mitigation Alternative Measure	2026 AM Scenario 2 With Mitigation All Veh Ban
Butcher Corner	Wheelgate	●	●	●	●
	Old Maltongate	●	●	●	●
	Castlegate	●	●	●	●
	Yorkersgate	●	●	●	●
Welham Road Junction	Castlegate	●	●	---	---
	Welham Road	●	●	●	●
	Church Street	---	---	●	●
Castle Howard Road Junction	Castle Howard Road	●	●	●	●
	Yorkersgate	●	●	●	●
	York Road	---	---	●	●
Pasture Lane Junction	Broughton Road	●	●	●	●
	Pasture Lane	●	●	●	●
	Newbiggin	●	●	●	●
	Mount Crescent	●	●	●	●
Westfield Way Junction	Scarb. Rd West	●	●	●	●
	Scarb Rd. East	●	●	●	●
	Westfield Way	●	●	●	●
Town Street Junction	Highfield Road	●	●	●	●
	Old Malton Road	●	●	●	●
	Town Street	●	●	●	●
Railway Street Junction	Yorkersgate E	---	---	---	---
	Yorkersgate W	●	●	●	●
	Railway Street	●	●	●	●
Norton Road Junction	Castlegate	●	●	●	●
	Church Street	---	---	---	---
	Norton Road	●	●	●	●
Level Crossing	Castlegate	●	●	●	●
	Church Street	●	●	●	●
Wold Street Junction	Church Street	●	●	●	●
	Commercial Street	---	---	---	---
	Wold Street	●	●	●	●
Mill Street Junction	Commercial Street	●	●	●	●
	Scarborough Road	---	---	---	---
	Mill Street	●	●	●	●

Table 3.1 Scenario 2 RFC Magnitude

3.1.2 For Scenario 2, Butcher Corner will be over capacity but with mitigation measures in place the congestion at Butcher Corner will be less than in Scenario 1 (although still

over capacity). Yorkersgate will operate at 147% capacity, Wheelgate and Castlegate at 117% and Old Maltongate will operate at 105% capacity. For comparison, with the all-vehicle ban measure in place the junction will operate at 78%, 125%, 100% and 105% respectively.

3.1.3 The corresponding queue lengths for the Scenario 2 traffic at Butcher Corner are as follows:

- Wheelgate – 62 vehicles
- Old Maltongate – 9 vehicles
- Castlegate – 15 vehicles
- Yorkersgate – 93 vehicles

3.1.4 The priority change at the Welham Road junction will cause congestion on Church Street which will be 20% over capacity. As a consequence of the priority change Welham Road will be under capacity resulting in no queues around the level crossing.

3.1.5 The existing layout of the Castle Howard Road junction will operate with less congestion than if it were to be signalised. However it is still recommended that the junction be signalised as this will act to control the flow of traffic and therefore the congestion at Butcher Corner.

3.1.6 With mitigation (double mini roundabout) the Pasture Lane junction will operate over capacity on Broughton Road and Pasture Lane. These two arms will however be less congested than if the junction remains signalised. Newbiggin and Mount Crescent will operate under capacity. However the congestion at the Pasture Lane junction will be no different to the congestion with the all-vehicle ban measure on Norton Road.

3.1.7 With mitigation there will be no congestion at the Westfield Way junction.

3.1.8 The other six junctions in the town centre will operate without any significant congestion.

3.2 Advantages of Scenario 2

3.2.1 In comparison to Scenario 1 and akin to the all-vehicle ban measure there will be no significant additional congestion at the majority of the junctions on the highway network within Malton and Norton.

3.3 Disadvantages of Scenario 2

3.3.1 There will be some congestion on Church Street due to the change in priority at the Welham Road junction. All four arms of the Butcher Corner junction will be over capacity but no more so than Scenario 1. Broughton Road at the Pasture Lane junction will also experience queuing with the Scenario 2 traffic.



3.4 Recommendation Summary

- 3.4.1 When compared to Scenario 1 the majority of the highway network will not be detrimentally affected by the development proposed in Scenario 2. With the alternative measure in place Scenario 2 is relatively unchanged from the original complementary measures in being a potential option for accommodating additional development in Malton and Norton.

4 Scenario 3 - Alternative Measure Assessment

4.1 Congestion Analysis

4.1.1 For Scenario 3 the magnitude of the ratio of flow to capacity (RFC) at each of the junctions is shown in Table 4.1 below. The traffic light symbols represent the actual RFC values for each junction as described in Table 1.1.

Junction	Road Name	2026 AM Scenario 1 No Mitigation Alternative Measure	2026 AM Scenario 3 No Mitigation Alternative Measure	2026 AM Scenario 3 With Mitigation Alternative Measure	2026 AM Scenario 3 With Mitigation All Veh Ban
Butcher Corner	Wheelgate	●	●	●	●
	Old Maltongate	●	●	●	●
	Castlegate	●	●	●	●
	Yorkersgate	●	●	●	●
Welham Road Junction	Castlegate	●	●	---	---
	Welham Road	●	●	●	●
	Church Street	---	---	●	●
Castle Howard Road Junction	Castle Howard Road	●	●	●	●
	Yorkersgate	●	●	●	●
	York Road	---	---	●	●
Pasture Lane Junction	Broughton Road	●	●	●	●
	Pasture Lane	●	●	●	●
	Newbiggin	●	●	●	●
	Mount Crescent	●	●	●	●
Westfield Way Junction	Scarb. Rd West	●	●	●	●
	Scarb Rd. East	●	●	●	●
	Westfield Way	●	●	●	●
Town Street Junction	Highfield Road	●	●	●	●
	Old Malton Road	●	●	●	●
	Town Street	●	●	●	●
Railway Street Junction	Yorkersgate E	---	---	---	---
	Yorkersgate W	●	●	●	●
	Railway Street	●	●	●	●
Norton Road Junction	Castlegate	●	●	●	●
	Church Street	---	---	---	---
	Norton Road	●	●	●	●
Level Crossing	Castlegate	●	●	●	●
	Church Street	●	●	●	●
Wold Street Junction	Church Street	●	●	●	●
	Commercial Street	---	---	---	---
	Wold Street	●	●	●	●
Mill Street Junction	Commercial Street	●	●	●	●
	Scarborough Road	---	---	---	---
	Mill Street	●	●	●	●

Table 4.1 Scenario 3 RFC Magnitude

4.1.2 For Scenario 3, Butcher Corner will be over capacity but with mitigation measures in place the congestion at Butcher Corner will be less than in Scenario 1 (although still

over capacity). Castlegate will operate at 100% capacity, Wheelgate at 108%, Old Maltongate at 127% and Yorkersgate at 141%. With the all-vehicle ban measure in place the capacities will be 86%, 130%, 100% and 107% respectively.

4.1.3 The corresponding queue lengths for the Scenario 3 traffic at Butcher Corner are as follows:

- Wheelgate – 32 vehicles
- Old Maltongate – 23 vehicles
- Castlegate – 10 vehicles
- Yorkersgate – 78 vehicles

4.1.4 The priority change at the Welham Road junction will not cause congestion on Church Street and as a consequence of the priority change Welham Road will operate under capacity resulting in no queues at the junction or around the level crossing.

4.1.5 The existing layout of the Castle Howard Road junction will operate with a little less congestion than if it were to be signalised. The signalised junction will however operate under capacity. For Scenario 3 it is still recommended that the junction be signalised as this will act to control the flow of traffic and therefore the congestion at Butcher Corner.

4.1.6 With mitigation (double mini roundabout) the Pasture Lane junction will operate over capacity on Broughton Road and Pasture Lane. These two arms will however be less congested than if the junction remains signalised. Newbiggin and Mount Crescent will operate under capacity. The congestion at the Pasture Lane junction will be no different to the congestion with the all-vehicle ban measure on Norton Road.

4.1.7 With mitigation there will be no congestion on Scarborough Road East and Westfield Way at the Westfield Way junction. Scarborough Road West will operate above the 85% threshold but will still be under capacity.

4.1.8 The other six junctions in the town centre will operate without any significant congestion.

4.2 Advantages of Scenario 3

4.2.1 As with the all-vehicle ban measure option, with the alternative measure and with the congestion mitigation measures in place there will be no significant increase in congestion when compared to Scenario 1.

4.3 Disadvantages of Scenario 3

4.3.1 There will be significant queue lengths on Broughton Road. These will however be less than the queue lengths estimated for Scenario 1. All four arms of the Butcher Corner junction will be over capacity but no more so than Scenario 1. In comparison to the all-vehicle ban measure the congestion at Broughton Road is no different but there will be an increase in congestion at Butcher Corner.

4.4 Recommendation Summary

- 4.4.1 With mitigation measures in place, Scenario 3 still represents a potential option for accommodating additional development in Malton and Norton as there will be limited congestion across the highway network.

5 Scenario 6 - Alternative Measure Assessment

5.1 Congestion Analysis

5.1.1 For Scenario 6 the magnitude of the ratio of flow to capacity (RFC) at each of the junctions is shown in Table 5.1 below. The traffic light symbols represent the actual RFC values for each junction as described in Table 1.1.

Junction	Road Name	2026 AM Scenario 1 No Mitigation Alternative Measure	2026 AM Scenario 6 No Mitigation Alternative Measure	2026 AM Scenario 6 With Mitigation Alternative Measure	2026 AM Scenario 6 With Mitigation All Veh Ban
Butcher Corner	Wheelgate	●	●	●	●
	Old Maltongate	●	●	●	●
	Castlegate	●	●	●	●
	Yorkersgate	●	●	●	●
Welham Road Junction	Castlegate	●	●	---	---
	Welham Road	●	●	●	●
	Church Street	---	---	●	●
Castle Howard Road Junction	Castle Howard Road	●	●	●	●
	Yorkersgate	●	●	●	●
	York Road	---	---	●	●
Pasture Lane Junction	Broughton Road	●	●	●	●
	Pasture Lane	●	●	●	●
	Newbiggin	●	●	●	●
	Mount Crescent	●	●	●	●
Westfield Way Junction	Scarb. Rd West	●	●	●	●
	Scarb Rd. East	●	●	●	●
	Westfield Way	●	●	●	●
Town Street Junction	Highfield Road	●	●	●	●
	Old Malton Road	●	●	●	●
	Town Street	●	●	●	●
Railway Street Junction	Yorkersgate E	---	---	---	---
	Yorkersgate W	●	●	●	●
	Railway Street	●	●	●	●
Norton Road Junction	Castlegate	●	●	●	●
	Church Street	---	---	---	---
	Norton Road	●	●	●	●
Level Crossing	Castlegate	●	●	●	●
	Church Street	●	●	●	●
Wold Street Junction	Church Street	●	●	●	●
	Commercial Street	---	---	---	---
	Wold Street	●	●	●	●
Mill Street Junction	Commercial Street	●	●	●	●
	Scarborough Road	---	---	---	---
	Mill Street	●	●	●	●

Table 5.1 Scenario 6 RFC Magnitude

5.1.2 For the alternative measure under Scenario 6, Butcher Corner will be over capacity on Old Maltongate (105%) and Yorkersgate (112%) but with mitigation measures in

place the congestion at Butcher Corner will be less than in Scenario 1. Wheelgate and Castlegate will operate under capacity. This compares to the all-vehicle ban measure where congestion at Butcher Corner under Scenario 6 would be 74% on Wheelgate, 126% on Old Maltongate, 100% on Castlegate and 106% on Yorkersgate.

5.1.3 The corresponding queue lengths for the Scenario 6 traffic at Butcher Corner are as follows:

- Wheelgate – 17 vehicles
- Old Maltongate – 9 vehicles
- Castlegate – 3 vehicles
- Yorkersgate – 30 vehicles

5.1.4 The priority change at the Welham Road junction will not cause congestion on Church Street and as a consequence of the priority change Welham Road will be under capacity resulting in no queues at the junction or around the level crossing.

5.1.5 The existing layout of the Castle Howard Road junction will operate with a little less congestion than if it were to be signalised. Signals will cause York Road to operate at 88%. For Scenario 6 it is still recommended that the junction be signalised as this will act to control the flow of traffic and therefore the congestion at Butcher Corner.

5.1.6 With mitigation (double mini roundabout) the Pasture Lane junction will operate over capacity on Broughton Road and Pasture Lane. These two arms will however be less congested than if the junction remains signalised. Newbiggin and Mount Crescent will operate under capacity. The congestion at the Pasture Lane junction will be no different to the congestion if the all-vehicle ban measure was in place.

5.1.7 With mitigation there will be no congestion at the Westfield Way junction.

5.1.8 The other six junctions in the town centre will operate without any significant congestion.

5.2 Advantages of Scenario 6

5.2.1 The Castle Howard Road junction (with and without mitigation), Pasture Lane and the Westfield Way junctions will generally operate under capacity and will not have any significant increases in congestion when compared to Scenario 1. This is the same as the all-vehicle ban measure. Another advantage of Scenario 6 with the alternative measure is that Wheelgate and Castlegate will both operate under capacity at Butcher Corner. With the all-vehicle ban measure only Wheelgate will operate under 100% capacity.

5.3 Disadvantages of Scenario 6

5.3.1 There will be significant queue lengths on Broughton Road similar to that under the all-vehicle ban measure. This will however be less than the queue lengths estimated for Scenario 1. Old Maltongate and Yorkersgate at the Butcher Corner junction will be over capacity but no more so than Scenario 1.



5.4 Recommendation Summary

- 5.4.1 Scenario 6 will not cause any extensive capacity and queuing problems on the town centre junctions. The Welham Road junction, with the deliverable mitigation, will not be affected by additional traffic from the Woolgrowers development. In general Scenario 6 with the alternative measures will produce similar levels of congestion as the all-vehicle ban measure.

6 Scenario 4A - Alternative Measure Assessment

6.1 Congestion Analysis

6.1.1 For Scenario 4A the magnitude of the ratio of flow to capacity (RFC) at each of the junctions is shown in Table 6.1 below. The traffic light symbols represent the actual RFC values for each junction as described in Table 1.1.

Junction	Road Name	2026 AM Scenario 1 No Mitigation Alternative Measure	2026 AM Scenario 4A No Mitigation Alternative Measure	2026 AM Scenario 4A With Mitigation Alternative Measure	2026 AM Scenario 4A With Mitigation All Veh Ban
Butcher Corner	Wheelgate	●	●	●	●
	Old Maltongate	●	●	●	●
	Castlegate	●	●	●	●
	Yorkersgate	●	●	●	●
Welham Road Junction	Castlegate	●	●	---	---
	Welham Road	●	●	●	●
	Church Street	---	---	●	●
Castle Howard Road Junction	Castle Howard Road	●	●	●	●
	Yorkersgate	●	●	●	●
	York Road	---	---	●	●
Pasture Lane Junction	Broughton Road	●	●	●	●
	Pasture Lane	●	●	●	●
	Newbiggin	●	●	●	●
	Mount Crescent	●	●	●	●
Westfield Way Junction	Scarb. Rd West	●	●	●	●
	Scarb Rd. East	●	●	●	●
	Westfield Way	●	●	●	●
Town Street Junction	Highfield Road	●	●	●	●
	Old Malton Road	●	●	●	●
	Town Street	●	●	●	●
Railway Street Junction	Yorkersgate E	---	---	---	---
	Yorkersgate W	●	●	●	●
	Railway Street	●	●	●	●
Norton Road Junction	Castlegate	●	●	●	●
	Church Street	---	---	---	---
	Norton Road	●	●	●	●
Level Crossing	Castlegate	●	●	●	●
	Church Street	●	●	●	●
Wold Street Junction	Church Street	●	●	●	●
	Commercial Street	---	---	---	---
	Wold Street	●	●	●	●
Mill Street Junction	Commercial Street	●	●	●	●
	Scarborough Road	---	---	---	---
	Mill Street	●	●	●	●

Table 6.1 Scenario 4A RFC Magnitude

- 6.1.2 For Scenario 4A, the alternative measure means that Butcher Corner will be over capacity on Wheelgate (115%), Old Maltongate (110%) and Yorkersgate (153%). With mitigation measures in place the congestion at Butcher Corner will be less than in Scenario 1. There will be no congestion on Castlegate which will operate at 83% capacity. This compares to the all-vehicle ban where congestion at Butcher Corner in Scenario 4A would be 76% on Wheelgate, 127% on Old Maltongate, 100% on Castlegate and 106% on Yorkersgate.
- 6.1.3 The corresponding queue lengths for the Scenario 4A traffic at Butcher Corner are as follows:
- Wheelgate – 54 vehicles
 - Old Maltongate – 12 vehicles
 - Castlegate – 6 vehicles
 - Yorkersgate – 103 vehicles
- 6.1.4 The priority change at the Welham Road junction will cause congestion on Church Street with queue lengths up to 170m long. This also occurs with the all-vehicle ban measure in place. The queue will however not extend back to the next junction (the mini roundabout on Wold Street) and will therefore have no detrimental effect on the rest of the highway network. As a consequence of the priority change Welham Road will be under capacity resulting in limited queues at the junction or around the level crossing.
- 6.1.5 The proposed signalisation of Castle Howard Road will result in no congestion on any of the three arms. The signalisation will also act to control the amount and pattern of traffic approaching Butcher Corner on Yorkersgate.
- 6.1.6 As with the all-vehicle ban measure, with mitigation (double mini roundabout) the Pasture Lane junction will operate over capacity on Broughton Road and Pasture Lane. These two arms will however be less congested than if the junction remains signalised. Newbiggin and Mount Crescent will operate under capacity.
- 6.1.7 With mitigation there will be no congestion at the Westfield Way junction.
- 6.1.8 The other six junctions in the town centre will operate without any significant congestion.

6.2 Advantages of Scenario 4A

- 6.2.1 This scenario involves development distributed across both Malton & Norton and with the proposed deliverable junction improvements Scenario 4A will have no detrimental increase in congestion levels when compared to Scenario 1.

6.3 Disadvantages of Scenario 4A

- 6.3.1 The model results show there will be some additional congestion at the Pasture Lane junction. This congestion will however be less than that under Scenario 1. Church Street will operate over capacity at the Welham Road junction but the resulting queue will not be significant.



- 6.3.2 The congestion associated with Scenario 4A with the alternative measure will be similar to the congestion associated with Scenario 4A with the all-vehicle ban measure in place.

6.4 Recommendation Summary

- 6.4.1 At this level of development, Scenario 4A results in an acceptable impact on the local highway network particularly with mitigation and as this Scenario contains sites distributed across both Malton & Norton, it allows an assessment of the complex traffic impacts and interrelationships across the towns in a single scenario.
- 6.4.2 With the alternative measure in place the congestion results are similar to the all-vehicle ban measure and as such the conclusion for Scenario 4A is the same in the Main Report.

7.1 Summary

- 7.1.1 The alternative measure will have a minimal effect on the congestion associated with Scenarios 1, 2, 3, 4A and 6.
- 7.1.2 The junction which is most affected by the alternative measure is the Butcher Corner junction, though this is related to the complementary measures necessary to persuade drivers to utilise the improved Brambling Fields junction. All four arms of the junction will be over capacity but the level of congestion will still be less than in Scenario 1.
- 7.1.3 The level of congestion at Butcher Corner with the alternative measure in place will be greater than with the all-vehicle ban in place but not significantly.

7.2 Conclusion

- 7.2.1 The conclusions of the Main Report are still valid with the assumption that the alternative town centre measure will be in place. Therefore, the four best performing scenarios remain 2, 3, 4A and 6. Whilst there are some minor differences in traffic impact, ultimately the conclusions reached below are the same as under the all-vehicle ban measure set out in the main report.
- 7.2.2 In Scenario 2, there may be some additional queues at Castle Howard Road but will not be substantial enough to cause any serious problems. Scenario 2 therefore represents a potential option for accommodating additional development in Malton and Norton.
- 7.2.3 With mitigation measures in place, Scenario 3 represents a potential option for accommodating additional development in Malton and Norton as there will be limited congestion across the highway network.
- 7.2.4 The increase in congestion levels associated with Scenario 4A are small with only limited congestion occurring at the Pasture Lane junction with the double mini roundabout layout proposal.
- 7.2.5 Scenario 6 will not cause any extensive capacity and queuing problems on the Castle Howard Road, Westfield Way or Pasture Lane junctions.