
**Decision Session - Executive Member for
Transport**

25 July 2019

Report of the Corporate Director of Economy and Place

Junction Alterations – Bishopthorpe Road / Scarcroft Road

Summary

1. The traffic signalling equipment at this junction is life expired and has become difficult and costly to maintain, it needs to be replaced.
2. The TSAR (Traffic Signal Asset Renewal) programme is the means by which life expired traffic signal assets across the city are refurbished.
3. Although the programme is primarily about asset renewal, there is scope to take advantage of 'easy wins' whilst refurbishing the equipment. To that end, junction alterations have been proposed that offer an improvement.
4. A decision is required to approve the proposed junction alterations.

Recommendations

5. The Executive Member is asked to approve Option 3.

Reasons: This option achieves the core aim of replacing the life-expired traffic signal asset such that it can continue be operated and repaired economically.

This option also includes the introduction of an additional pedestrian crossing which provides further benefits for users. This addition is generally supported by the consultees and local user groups.

Background

6. A report was brought to the Executive Member for Transport and Planning on 12 November 2015 to seek approval to undertake the 5-year

'TSAR' (Traffic Signal Asset Renewal) programme.

7. This programme entails a replacement of life expired traffic signal assets around York. The focus is on replacing equipment that is liable to imminent failure, rather than seeking to improve congestion or achieve a similar transport improvement goal. However, where 'easy wins' can be achieved at the same time as replacing obsolete equipment, these will be taken advantage of.
8. To date, 20 sets of signals have been refurbished and a further 10 are programmed in for the 19/20 financial year.

Consultation

9. Although the purpose of the project is simply to replace life-expired equipment, which would require no consultation, a much wider consultation has been carried out to address the input and involvement from the Bishopthorpe Road Traders Association and other groups.
10. A summary of the consultation feedback can be found in Annex A.
11. Local Ward Councillors were consulted again following recent local elections.
12. The most favoured option was Option 3.

Options

13. The following options are available:
14. Option 1 – Approve the proposed junction layout shown in drawing Annex B
15. Option 2 – Approve the proposed junction layout shown in drawing Annex C
16. Option 3 – Approve the proposed junction layout shown in drawing Annex D
17. Option 4 – Do not approve any of the presented options

Analysis

Option 1

Description of changes

18. A full replacement of all traffic signalling technology, including signal heads, poles, cabling, cabinets, detectors, communications and ducting.
19. The removal of the left turn lane on the southern arm of Bishopthorpe Road, to be replaced with a widened footpath and introduction of a short length of cycle lane and ASL.

Reasoning

20. Option 1 involves the fewest changes from the existing layout and is the cheapest option to construct. The estimated cost of this option is £90,000.
21. Replacement of the traffic signal technology is the fundamental purpose of this project, as per Section 2.
22. All presented options include the removal of the left turn lane on the southern arm of Bishopthorpe Road, to be replaced with a widened footpath and short length of cycle lane and ASL.
23. This is one of the 'easy wins' that the design team have identified due to the fact that the capacity of the junction can remain unaffected by the removal of this lane.

Impact on vehicular traffic

24. This option has a negligible impact upon the capacity of the junction and the journey times of vehicles travelling through it.
25. The introduction of a short length of cycle lane and an ASL is a minor improvement for cyclists.

Impact on pedestrians

26. The widening of the footpath is a minor improvement for pedestrians.

Safety Considerations

27. The new traffic signalling technology that will be introduced will improve pedestrian safety.
28. An independent Safety Assessment has been carried out on the preliminary design attached. It highlighted some minor points that will be adequately resolved during the detailed design stage.
29. A further Road Safety Audit will be carried out after detailed design and before construction. This is the means by which the design safety will be controlled.

Option 2

Description of changes

30. A full replacement of all traffic signalling technology, including signal heads, poles, cabling, cabinets, detectors, communications and ducting.
31. The removal of the left turn lane on the southern arm of Bishopthorpe Road, to be replaced with a widened footpath and introduction of a short length of cycle lane and ASL.
32. The removal of the left turn lane, and associated left turn filter arrow, on the Scarcroft Road approach, to be replaced by a widened footpath and a short length of cycle lane.
33. The removal of the existing traffic island on Bishopthorpe Road.
34. The remarking of the 2 lane approach on the northern arm of Bishopthorpe Road, including moving the existing cycle lane from the centre of the 2 lanes to adjacent to the footpath.
35. Changing of the junction staging, replacing the existing fully signal controlled right turn with an indicative arrow. This would allow vehicles to turn right within gaps, or during the arrow stage, from Bishopthorpe Road to Scarcroft Road.

Reasoning

36. Option 2 is the second most costly option and the estimated cost is £120,500.
37. Replacement of the traffic signal technology is the fundamental purpose of this project, as per Section 2
38. All presented options include the removal of the left turn lane on the southern arm of Bishopthorpe Road, to be replaced with a widened footpath and short length of cycle lane and ASL.
39. This is one of the 'easy wins' that the design team have identified due to the fact that the capacity of the junction can remain unaffected by the removal of this lane.
40. Removing the left turn lane, and left turn filter arrow, on Scarcroft Road allows the footpath to be widened and for the introduction of a short length of cycle lane. It also allows the junction staging to be changed, such that traffic approaching from Scarcroft Road can be better managed along the parade of shops.
41. Removing the traffic island and remarking the northern arm approach allows for an all-round pedestrian stage. It also makes the junction into a more traditional T-junction layout which assists with capacity.
42. Remarking the northern arm requires that the cycle lane be moved to the near side. This is because standards require that a cycle lane between two vehicle lanes must be of a width that cannot be accommodated in the space that is available. Cycle lanes by the kerb edge are permitted to be narrower and so can fit into the available road space.

Impact on vehicular traffic

43. This option will result in a small reduction in overall delay and queuing for traffic in the PM peak. It is not anticipated that any change in overall delay would occur during the other periods.
44. Queuing and delay are likely to increase on the Scarcroft Road approach to the junction during all periods given the removal of the left turn filter lane.

45. The introduction of short lengths of cycle lane and an ASL is a minor improvement for cyclists.
46. The narrowing of the carriageway will result in a worsening of the instances in which the Sainsbury's delivery lorry obstructs the carriageway and prevents the passage of traffic.
47. The altered staging allows traffic to be gated away from Bishopthorpe Road parade of shops. This will reduce the number of idling vehicles in the high street area and reduce emissions in the most highly used pedestrian area.

Impact on pedestrians

48. This option will result in a reduction in PM peak pedestrian delay.
49. The widening of the footpath is a minor improvement for pedestrians.
50. This layout permits the use of audible beepers to assist visually impaired users. The current layout does not and cannot have audible beepers.

Safety Considerations

51. The new traffic signalling technology that will be introduced will improve pedestrian safety.
52. An independent Safety Assessment has been carried out on the preliminary design attached. It highlighted an issue relating to the Sainsbury's lorry that loads on the Scarcroft arm of the junction. In this option the carriageway is narrowed, exacerbating the problem and potentially increasing the risk of vehicle collisions
53. The Project Team believe that this is an issue to be aware of, but is not of itself a reason to discount this option.
54. Consultation feedback raised concern regarding the staging change that means vehicles turning right into Scarcroft Road do so without a dedicated phase, instead moving in gaps and then on a right turns indicative.
55. The designers do not deem this to be a safety issue with the layout because this is the standard layout for T-junctions. However additional

work may be required to ensure users are aware of the change in staging.

56. A further Road Safety Audit will be carried out after detailed design and before construction. This is the means by which the design safety will be controlled.

Option 3

Description of changes

57. A full replacement of all traffic signalling technology, including signal heads, poles, cabling, cabinets, detectors, communications and ducting.
58. The removal of the left turn lane on the southern arm of Bishopthorpe Road, to be replaced with a widened footpath and introduction of a short length of cycle lane and ASL.
59. The removal of the left turn lane, and associated left turn filter arrow, on the Scarcroft Road approach, to be replaced by a widened footpath and a short length of cycle lane.
60. The removal of the existing traffic island.
61. The remarking of the 2 lane approach on the northern arm of Bishopthorpe Road, including moving the existing cycle lane from the centre of the 2 lanes to adjacent to the footpath.
62. The installation of a new pedestrian crossing on the northern arm of the junction.
63. The installation of the pedestrian crossing necessitates the relocation of the existing cycle stands as illustrated.
64. Changing of the junction staging, replacing the existing fully signal controlled right turn with an indicative arrow. This would allow vehicles to turn right within gaps, or during the arrow stage, from Bishopthorpe Road to Scarcroft Road.

Reasoning

65. Option 3 is the most costly option and the estimated cost is £165,000.

66. Replacement of the traffic signal technology is the fundamental purpose of this project, as per Section 2.
67. All presented options include the removal of the left turn lane on the southern arm of Bishopthorpe Road, to be replaced with a widened footpath and short length of cycle lane and ASL.
68. This is one of the 'easy wins' that the design team have identified due to the fact that the capacity of the junction can remain unaffected by the removal of this lane.
69. Removing the left turn lane on Scarcroft Road allows the footpath to be widened and for the introduction of a short length of cycle lane, but it also allows the junction staging to be changed such that traffic approaching from Scarcroft Road can be better managed along the parade of shops.
70. Removing the traffic island and remarking the northern arm approach allows for an all-round stage for pedestrians with crossings over all arms. It also makes the junction into a more traditional T-junction layout which assists with capacity.
71. Remarking the northern arm requires that the cycle lane be moved to the near side. This is because standards require that a cycle lane between two vehicle lanes must be of a width that cannot be accommodated in the space that is available. Cycle lanes by the kerbside are permitted to be narrower and so can fit into the available road space.
72. The addition of a new pedestrian crossing on the northern arm of the junction has been proposed at the request of the Bishopthorpe Traders Association.
73. It was requested as a means to further improve the public realm of Bishopthorpe Road and reinforce to motorists that the street is an area of high pedestrian footfall.
74. Introduction of this facility is not required to achieve the core aim of the project, that being to refurbish the existing assets. It can however be seen as an 'easy win' to improve the facility, though the cost is significant.

Impact on vehicular traffic

75. This option will result in a small reduction in overall delay and queuing for traffic in the PM peak. It is not anticipated that any change in overall delay would occur during the other periods.
76. Queuing and delay are likely to increase on the Scarcroft Road approach to the junction during all periods given the removal of the left turn filter lane.
77. The introduction of short lengths of cycle lane and an ASL is a minor improvement for cyclists.
78. The narrowing of the footpath will result in a worsening of the instances in which the Sainsbury's delivery lorry obstructs the carriageway and prevents the passage of traffic.
79. The altered staging allows traffic to be gated away from Bishopthorpe Road parade of shops.

Impact on pedestrians

80. This option will result in a reduction in PM peak pedestrian delay.
81. The widening of the footpath is a minor improvement for pedestrians.
82. This layout permits the use of audible beepers to assist visually impaired users. The current layout does not and cannot have audible beepers.
83. The additional crossing over the northern arm of Bishopthorpe Road provides an additional crossing point that would improve pedestrian facilities and reduce overall pedestrian delay.

Safety Considerations

84. The new traffic signalling technology that will be introduced will improve pedestrian safety.
85. An independent Safety Assessment has been carried out on the preliminary design attached. It highlighted an issue relating to the Sainsbury's lorry that loads on the Scarcroft arm of the junction. In this option the carriageway is narrowed, exacerbating the problem and

potentially increasing the risk of vehicle collisions.

86. The Principal Designer believes that this is an issue to be aware of, but is not of itself a reason to discount this option. They are looking at several options in the detailed design which would move the centre line further to the North, providing more space for vehicles to pass an unloading lorry.
87. A further Road Safety Audit will be carried out after detailed design and before construction. This is the means by which the design safety will be controlled.
88. Consultation feedback raised concern regarding the staging change that means vehicles turning right into Scarcroft Road do so without a dedicated phase, instead moving in gaps and then on a right turns indicative.
89. The designers do not deem this to be a safety issue with the layout because this is the standard layout for T-junctions. However additional work may be required to ensure users are aware of the change in staging.

Other options already discounted

90. Minor variations of the presented options have been considered that include different signal staging, equipment layouts and kerb alignments. The options presented are the most efficient variants and will be further optimised during detailed design.
91. Consultation feedback requested that an option be considered that included an 'all movements' pedestrian facility, similar to that present at Oxford Circus. An initial desktop assessment was carried out to evaluate this possibility.
92. It was determined that this location is not suitable for such a facility due to the available footpath space to mount the required equipment and because of the required kerb alignments to facilitate the crossings.
93. Consultation feedback requested that an option be considered that introduced a 'Danish style' cycle facility at the junction. This suggestion requires segregation of the cycle lane by installing a kerb or island for which there is insufficient carriageway space. Light segregation methods were considered, but there are currently no national design standards to

ensure that any scheme implemented would have a safety benefit for vulnerable road users.

94. Modelling demonstrates that the proposed changes to the junction caused a dramatic increase in the number of queuing vehicles, which would be detrimental to air quality in an area heavily travelled by pedestrians. A summary of the modelling results is displayed below with results for Option 3 provided for comparison. MMQ refers to the mean maximum queue length along each arm of the junction.

“Danish Style Scheme”

	AM Peak	PM Peak
	MMQ (pcu)	MMQ (pcu)
Bishopthorpe Road NB	18.7	18.2
Bishopthorpe Road SB	23	28.4
Scarcroft Road	12.8	12.5
Cycle Time (secs)	120	120
PRC	-4.1	-10.3
Total Traffic Delay (secs)	29.5	37.4
Avg Route Delay per Ped (secs)	72.9	67.4

Option 3 - (3 pedestrian crossings)

	AM Peak	PM Peak
	MMQ (pcu)	MMQ (pcu)
Bishopthorpe Road NB	10.2	5.8
Bishopthorpe Road SB	8.8	10.0
Scarcroft Road	7.1	5.2
Cycle Time (secs)	72	68
PRC	1.7	6.6
Total Traffic Delay (secs)	15.9	11.4
Avg Route Delay per Ped (secs)	30.7	28.8

95. A Danish Style Scheme would:
- Increase pedestrian delay time crossing the road at the junction
 - Increase bus journey times on the approaches
 - Increase general traffic stops and delay

- Make air quality worse in the area; specifically in the Bishopthorpe Road shops area.

96. Consultation feedback requested additional public realm improvements on the corner of Bishopthorpe Road and Scarcroft Road, alongside the car park. These improvements consisted replanting of the shrubberies and improvements to the footpath at this location.
97. This addition was deemed to be too far out of scope of the project and was not pursued.

Council Plan

98. Replacing life-expired traffic signalling assets allows the Authority to continue to manage the traffic on its highway network, minimising congestion and ensuring user safety. Therefore carrying out these works fulfils the 'A focus on frontline services' priority of the Council Plan.

Implications

99. Financial

The TSAR programme is funded from the council's capital resources, and was approved in the 19/20 Capital Budget report to 14 February 2019 Executive. Sufficient funds are available to construct any of the presented options.

100. Human Resources

There are no HR implications

101. One Planet Council / Equalities

All junctions are designed with equalities in mind. The recommended designs follow the most up to date guidance with respect to disability access. The technology included in all designs includes aids to persons with visual and mobility impairment.

102. Legal

There are no legal implications.

103. Crime and Disorder

There are no Crime and Disorder implications.

104. Information Technology

The Information Technology implications of constructing the proposed

designs has been considered and are included in the Project Plan. No issues are envisaged.

105. Property

There are no property implications

106. Other

Disruption during construction – Constructing the TSAR schemes inevitably means a certain level of work on the Highway, with an associated level of delay and disruption to pedestrians and vehicular traffic. Such works will be scheduled and planned to minimise this disruption, and sufficient information and notice will be given to affected parties.

Risk Management

107. There are no known significant risks associated with any option presented in this report.

108. Project Risks are recorded in the Project Risk Register and are handled by the Project Team and monitored by the Transport Board.

Contact Details

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Report **Date** 16.07.19
Approved

Wards Affected: Micklegate Ward

For further information please contact the author of the report

Background Papers:

Cabinet Report - 'Traffic Systems Asset Renewals and Detection Equipment Plan' – 12 November 2015

<https://democracy.york.gov.uk/ieListDocuments.aspx?CId=738&MIId=9030>

Annexes

Annex A – Stakeholder Consultation Response

Annex B - YK2235-OP 1

Annex C - YK2235-OP 2

Annex D - YK2235-OP 3

List of Abbreviations used in this Report

ASL – Advanced Stop Line

MMQ - Mean Maximum Queue length.

PCU - Passenger Car Units. The unit of measure for single cars.

Ped – Pedestrian

PRC – Practical Reserve Capacity. A measure of available spare capacity.

TSAR – Traffic Signal Asset Renewal