

Executive Member Decision Session

1 December 2020

Report of the Corporate Director of Economy and Place
Portfolio of the Executive Member for Transport

TSAR Traffic Signal Refurbishment – Clifton Moor Gate/Hurricane Way

Summary

1. The traffic signalling equipment at this site is life expired, has become difficult and costly to maintain and 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, an option which looks to include new pedestrian crossing facilities has been proposed as one of the two options put forward.

A decision is required to approve the proposed alterations.

Recommendations

4. The Executive Member is asked to:

Approve Option 1

Reason:

This option achieves the core aim of replacing the life-expired traffic signal asset such that it can continue be operated and repaired economically whilst also providing slight improvements to cycling and walking infrastructure.

Option 1 also takes into account, and supports, the major transport project scheme which is responsible for the dualling of York’s Outer Ring

Road (ORR) and associated junction improvements as part of that scheme.

Although the introduction of a signal controlled right turn egress option from Hurricane Way put forward in Option 2 would reduce traffic volumes approaching the ORR, the low number of vehicles wanting to make this manoeuvre does not represent value for money given the estimated expenses associated with its introduction.

Background

5. The TSAR (Traffic Signal Asset Renewal) programme has been in place since 2015 and is responsible for the replacement of life expired traffic signal assets around York.
6. 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.
7. To date, 35 sets of signals have been refurbished and a further 3 are programmed in for the 20/21 financial year.

Consultation

8. An electronic consultation has been carried out with local ward councillors, internal and external stakeholders to offer an opportunity to comment on the proposed TSAR scheme designs put forward for consideration in this report.
9. A summary of the consultation feedback can be found in Annex A.
10. The design options put forward are also informed by public consultation work undertaken as part of the Major Transport Projects team's work on proposed revisions to the ORR roundabouts in close proximity to the Clifton Moor section of the A1237.
11. The consultation at point 10 was undertaken during February/March 2019 and encompassed a range of methods including manned/unmanned information displays at the local supermarket and West Offices, leaflet and questionnaire drops to local business and

residential properties, social media campaigns and a dedicated email inbox for respondent's views.

12. An additional piece of feedback from this consultation exercise indicated a desire to explore the possibility of introducing a signal controlled right turn from Hurricane Way to Clifton Moor Gate Southbound. This proposal has been explored and is represented in this report by Option 2.

Options

13. The following options are available:
14. Option 1 – Approve the proposed like for like signal refurbishment shown in the drawing at Annex B
15. Option 2 – Approve the proposed signal refurbishment with additional introduction of a signal controlled right hand turn option from Hurricane Way onto Clifton Moor Gate Southbound shown in the drawing at Annex C

Analysis

Option 1

Description of Changes

16. Refurbishment of all on site Traffic Signal Equipment
17. Realignment of the pedestrian / cyclist crossing over Hurricane Way so that it meets current guidance.
18. The estimated cost of the work to the Traffic Signal at the junction of Clifton Moor Gate and Hurricane Way detailed in Annex B is £250,000.00

Reasoning

19. Replacement of the traffic signal technology is the fundamental purpose of this project, as per item 6.

Impact on vehicular traffic

20. This option has little direct impact on vehicular capacity at the junction however the update of the site will establish a link to the communications network to ensure reliable fault monitoring and better junction monitoring as well as improving vehicle detection at the site. This will allow traffic management plans to be operated effectively during congested times at the junction and reduces the likelihood of gridlock of the industrial estate.

Impact on Pedestrians

21. The option will have slight improvements for pedestrians. Improved traffic signal operation will increase overall efficiency and allow for reduced cycle times thus lower pedestrian wait times. The crossing points will be realigned so they will meet current guidance.

Impact on Cyclists

22. The general improvements indicated at point 21 will also apply to cyclists at this Toucan crossing. The existing off road cycle route infrastructure which runs along the southern extent of Hurricane Way will be retained as well as providing future possibilities for connection to the anticipated cycling infrastructure introduced as part of the ORR dualling project.
23. The crossing of Clifton Moor Gate's North and South bound carriageways will become more cohesive as the two separate signal streams can be co-ordinated using the new signal equipment. This will mean that the push button command on either side of the carriageway will trigger the corresponding crossing of the second arm, reducing wait times for cyclists wishing to cross from East to West and vice versa.

Safety Considerations

24. Input on this preliminary design was sought from City of York Council's Road Safety Audit team who indicated that the junction has operated safely for many years in this layout and had no further comment.

Option 2

Description of Changes

25. Refurbishment of all on site Traffic Signal Equipment

26. Provision of a new signal controlled right turn directly from Hurricane Way onto Clifton Moor Gate Southbound. This signal phase will be activated via above ground vehicle detection and so will only activate when required.
27. Traffic Islands altered to allow the new manoeuvre included at point 26 to be made.
28. Extensive carriageway resurfacing of the area due to the alteration of traffic islands and inclusion of new kerb lines.
29. Pedestrian crossing of Clifton Moor Gate Southbound repositioned to bring it into the junction as a whole.
30. The estimated cost of the work to the Traffic Signal junction of Clifton Moor Gate and Hurricane Way detailed in Annex C is £450,000.00.

Reasoning

31. Replacement of the traffic signal technology is the fundamental purpose of this project, as per item 6.
32. The introduction of a right turn from Hurricane Way onto Clifton Moor Gate Southbound removes the need for vehicles wishing to make this manoeuvre from having to travel north bound to the ORR roundabout and performing a U turn around the existing roundabout.
33. This new vehicle movement requires the junction and the pedestrian crossing of Clifton Moor Gate south bound to be grouped as a single stream as opposed to the current layout so that there is no conflict between pedestrian and motor vehicle movements.

Impact on Vehicular Traffic

34. Traffic modelling undertaken as part of both the TSAR design process and the ORR dualling scheme indicate that the introduction of the right turn from Hurricane Way will increase overall delay across the junction but will not bring the junction above statistical capacity.
35. At present 1/3 of vehicles exiting Hurricane Way (90 vehicles per hour) have to make the U turn around the ORR roundabout. It is estimated that the introduction of the right turn will save vehicles making this movement

400m of travelling distance and around 60 seconds of journey time at peak periods (decreasing to 40 seconds during quieter periods of operation.)

36. During both the AM and PM peaks, modelling figures for Option 2, when compared against the existing case, show capacity and queue sizes are larger but within operational limits. It should be noted that there is an increase in the number of vehicles queueing to proceed southbound along Clifton Moor Gate from the ORR which doubles from 3 to 6 vehicles.
37. There is a possibility that this increase in vehicles queueing along this stretch of road could reach back to the ORR roundabout but this is seen as unlikely by both the TSAR and Major Transport Projects teams based on the demand for the right turn from Hurricane Way being relatively low in comparison to movements across the rest of the junction.

Impact on Pedestrians

38. Again, the option will have slight improvements for pedestrians due to the realignment of crossing points and improved above ground detection being utilised to improve traffic signal operation and decrease phase cycle times.
39. The repositioning of the pedestrian crossing of Clifton Moor Gate southbound will create a more direct route across the two carriageways of Clifton Moor Gate however it will also reduce the capacity of the pedestrian island and also create a new offset between the crossing and the connecting path through to the Clifton Moor retail park.

Impact on Cyclists

40. The inclusion of the right turn signal from Hurricane Way will provide an on carriageway option for cyclists wishing to make this manoeuvre.
41. As at point 39, the repositioning of the Clifton Moor Gate southbound crossing will allow for a more direct crossing than the current staggered approach for cyclists using the established cycle route between Hurricane Way and the Clifton Moor retail park/existing cycle network through the site.

Safety Considerations

42. Input on this preliminary design was sought from City of York Council's Road Safety Audit team who indicated the possibility of queuing back to the ORR along Clifton Moor Gate Southbound would create a safety concern. Additionally the island arrangement doesn't stop vehicles in the new right turn lane turning left and the new gap in the central reservation may encourage U turns for vehicles coming off the Stirling Road roundabout.

Other options already discounted

43. During consultation for this scheme it was suggested that a U turn provision could be considered on Clifton Moor Gate North Bound as a cheaper alternative to the introduction of a signalised right turn from Hurricane Way.
44. This possibility had been suggested previously as part of the preliminary design work for the ORR dualling scheme which would see the roundabout being repositioned much further North than its existing location.
45. The suggestion was considered by the TSAR Design team in conjunction with both the Road Safety Assessment and Major Transport Project team's but not considered for further development due to:
 - a. The physical constraints of the southbound carriageway mean that a large U turning vehicle could not physically complete the manoeuvre. Any vehicle larger than 7.5 tonnes would therefore still be required to use the current route around the ORR roundabout.
 - b. Vehicles joining Clifton Moor Gate southbound from the ORR can be travelling at significant speeds (current speed limit 40mph) and therefore vehicles performing a turn across the carriageway would represent a potential hazard. This is seen as more unsafe than vehicles using the existing roundabout by the road safety team due to the constrained site lines and tight U turn movement required.
 - c. The new movement would not represent a significant time saving for users in comparison to having to go around the ORR roundabout due to those using the U turn having to wait for a gap in

the oncoming traffic before they can enter the southbound carriageway. The distance saved for U turning vehicles compared to the layout proposed as Option 1 of this paper is approximately 180m. The estimated time saving will be less than 20 seconds per vehicle on average.

- d. The introduction of the on link U turn would require that the 3rd lane of Clifton Moor Gate northbound be removed to provide access to the U turn. Under the ORR scheme this would lead to a reduction in the network capacity compared to the currently proposed option 1.
46. During consultation for this scheme it was suggested that as well as the introduction of the signal controlled right turn exiting Hurricane Way as part of Option 2, the existing signal controlled right turn in to Hurricane Way from Clifton Moor Gate Southbound could be removed and vehicles would instead be expected to use the roundabout at Stirling Road to perform a U turn and double back to make a left turn in to Hurricane Way. This could be accompanied by a single stage crossing for pedestrians and cyclists across the northern arms of the junction.
47. The suggestion was considered by the TSAR Design team but not considered for further development because:
- a. The banning of this vehicle movement would lead to additional delays for vehicles exiting the ORR intending to access the retail park and would not be well received by users and business' operating from the premises.
 - b. These vehicles would encounter an additional delay of 30 seconds and additional travel distance of 250 metres if having to use the Stirling Road roundabout to loop back to the retail park.
 - c. This delay may also be higher than this at peak periods as vehicles may be caught in traffic queueing around the Stirling Road roundabout caused by blocking back from the ORR as it heads northbound on Clifton Moor Gate. This will lead to additional delay and inefficiencies in the highway network.
 - d. As the right turn is a dedicated route to access the business park, it is used by a large number of HGV's delivering to the various business units on site. The requirement for these vehicles to make the U turn around the Stirling Road roundabout could create further

delay issues at the location and across the local network due to their size.

- e. The inclusion of a gap in the central reservation (to allow the new right turn out of Hurricane Way) would also represent a safety issue for vehicles who may be unaware of the banning of the right turn in to Hurricane Way and are following their previously established pattern of movement.
- f. Providing a pedestrian/cyclist crossing facility north of the junction will require an all red phase to traffic which will delay vehicles further and lead to increased queuing and emissions. It will also increase the likelihood of queuing back onto the ORR, although this is not anticipated to be a daily occurrence.
- g. The crossing of both carriageways of Clifton Moor Gate spans over 25m from east to west and, for safety reasons, requires pedestrian / cyclist movements be completed in multiple stages. Currently pedestrian / cyclist demand for a crossing of this arm is low and footways are not present in the eastern footway or to the north of the junction.
- h. The ORR project team has been consulted regarding their intentions for Cyclist/Pedestrian movements along the ORR in this area and at present this intention is for these groups to be served using either a newly established footway to the North of the new ORR carriageway or for users to come south from the ORR to use the crossing facilities provided here at Clifton Moor Gate/Hurricane Way.

Council Plan

- 48. 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 'Getting around sustainably' key outcome of the Council Plan.

Implications

49. Financial

The TSAR programme is funded by the council's capital programme, which was approved at Budget Council on 27 February 2020 and

sufficient funds are available in the 2020/21 transport capital programme for the construction of this scheme.

50. Human Resources (HR)

There are no HR implications

51. 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.

52. Legal

There are no legal implications

53. Crime and Disorder

There are no Crime and Disorder implications

54. Information Technology (IT)

The Information Technology implications of constructing the proposed designs has been considered and are included in the Project Plan. No issues are envisaged.

55. Property

There are no property implications

56. 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

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

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** 20/11/2020
Approved tick

Wards Affected: Rawcliffe and Clifton Without

All

For further information please contact the author of the report

Background Papers:

All relevant background papers must be listed here. A 'background paper' is any document which, in the Chief Officer's opinion, discloses any facts on which the report is based and which has been relied on to a material extent in preparing the report (see page 5:3:2 of the Constitution).

Annexes

All annexes to the report must be listed here.

Annex A1 – Consultation Details and CYC Engineer Response

Annex A2 – Consultation Drawing Swept Paths

Annex A3 – Consultation Drawing ORR Proposed Pedestrian and Cyclist Facilities

Annex B – Preliminary Design Option 1

Annex C – Preliminary Design Option 2

List of Abbreviations Used in this Report

TSAR - Traffic Signal Asset Renewal

ORR – Outer Ring Road