

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

## **TSAR Traffic Signal Refurbishment – Junction of Barbican Road/Paragon Street**

### **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, a design option which looks to include new signal controlled pedestrian and cyclist crossing facilities across the junction providing links with existing off carriage way pedestrian and cycling provision to the West of the junction has been put forward.

A decision is required to approve the proposed alterations.

### **Recommendations**

4. The Executive Member is asked to:

Approve the proposed design option presented in Annexe A of this document

*Reason:*

*This option achieves the core aim of replacing the life-expired traffic signal asset to established TSAR programme standards such that it can*

*continue operate and be repaired economically before it becomes unmaintainable.*

*Additionally, the formalisation of the existing uncontrolled crossing facility over Barbican Road and the introduction of a new crossing of Paragon Street provides a significant improvement to pedestrian and cyclist safety at the junction and will assist in reducing existing levels of pedestrian/cyclist conflict at the south western corner of the junction which have previously been highlighted as an issue.*

## **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, 42 sets of signals have been refurbished and a further 7 are proposed for completion in the 22/23 financial year.
8. Recent maintenance checks of the site indicate that some of the infrastructure is now classed as failing with the traffic signal controller and the majority of the signal poles being in excess of 20 years old. The junction also has no functioning vehicle detection capabilities as the loops previously installed in the carriageway have deteriorated significantly.
9. The junction lies on the York inner ring road and currently offers no controlled pedestrian crossing facilities at the site. An uncontrolled pedestrian refuge exists on the southern arm of Barbican Road however its size makes it problematic for users with pushchairs/cycles/wheelchairs etc.
10. Cycle provision at the junction is disjointed and this is particularly notable on the south-west corner of the site between Barbican Road south and Paragon Street where conflict between pedestrians and cyclists entering and exiting defined off road facilities has been highlighted as an issue.

11. A ward funded study was established in January 2020 to investigate potential pedestrian and cyclist improvements running along the extent of Paragon Street. This followed a request for removal of the drop cycle kerb at the south west corner of the junction to prevent cycle/pedestrian conflicts as cyclists transitioned from the carriageway at speed onto a defined section of off carriageway cycle path. The immediate removal of the drop kerb was not supported as an alternative access point for the off carriageway cycle facility could not be established however this is now possible under the design proposals put forward under this TSAR scheme.
12. The ward study has identified that parts of the existing off carriageway cycling infrastructure running along Paragon Street are situated on property outside of the adopted highway boundary thus removing the potential for large scale revision of this existing infrastructure, primarily the swapping of the current position of the footway and cycle track.
13. It is understood that the cycle track in this area of Paragon Street has been established for more than 20 years therefore potential for the current land owner to significantly alter or entirely remove the public use of this section of land would be unlikely to receive permission through the relevant planning process.
14. The ward study has identified a number of signage and lining revisions to the west of the junction site which it is believed could aid in the reduction of conflict between pedestrians and cyclists moving through these areas. It is proposed that such works could be undertaken in coordination with any TSAR scheme to be delivered at the location, subject to the relevant approvals for these changes being granted through the required channels.

## **Options**

15. The following options are available:
16. Option A – Approve the proposed design option presented in Annexe A of this document
17. Option B – Reject the proposed design and stipulate further preliminary design is undertaken before submission for decision. It is not considered an option to do nothing and leave the signal equipment in its current operational state.

## **Analysis**

### **Option A**

#### *Description of Changes*

18. A full replacement of all traffic signalling technology, including signal heads, poles, cabling, cabinets, detectors and communication links across all arms of the junction.
19. Provision of a new signal controlled pedestrian crossing over Paragon Street including near side red/green man crossing displays
20. Provision of separate new signal controlled pedestrian and cyclist crossings over Barbican Road which link with existing off carriageway cycling infrastructure to the West of the junction. Both crossing points to use near side crossing displays.
21. Alterations to the operation of the junction to allow for the inclusion of these new signal controlled pedestrian / cyclist crossings.
22. Realignment of the kerb lines to provide more space for pedestrians and cyclists and resulting in a more compact junction.
23. Construction of a separated, off carriageway cycle link from Barbican Road North to Barbican Road South.
24. Changes to the alignment of the junction to bring the entrance/exit point of the car park to the rear of 16 Barbican Road (currently the Regency Chinese Restaurant) into the controlled area of the junction
25. A yellow box road marking to be installed in the centre of the junction
26. Installation of north and southbound advisory cycle lanes on Barbican Road South.
27. An early start signal for cyclists on Barbican Road travelling northbound
28. Full resurfacing of the carriageway in the area of the junction

29. The estimated cost of the work to the Traffic Signal at the junction of Paragon Street / Barbican Road detailed in Annex A is £350,000.00 which comprises of £200,000.00 of construction and signal equipment costs and £150,000.00 for carriageway resurfacing and lining.

30. Construction of this design is estimated to take 7 weeks.

### *Reasoning*

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

32. The upgrade of all traffic signalling equipment on site allows for communications to be established between this junction and the junction of Walmgate Bar/Lawrence Street/Foss Islands Road to the North East which will allow for more effective coordination of the two sites to aid with the control of traffic flow.

33. The build out of the kerb line at the south of the junction amends the geometry to a more compact "T" style layout in comparison with the "Y" arrangement which is currently at the site. This is introduced both as a measure to reduce vehicle speeds proceeding between the Northern and Southern sections of Barbican Road and also to generate additional space to allow for the creation of new separated pedestrian and off carriageway cycling provision to the east of the junction.

34. Signal controlled crossings for pedestrians and cyclists are introduced across the junction to enhance safety over carriageway crossing points and provide certainty for users. Separated provision for these active travel users has been adopted in preference to shared space to reduce previously identified instances of conflict between the two user groups and to clarify the use of the space for those users with sight related equalities considerations.

35. Vehicles exiting the car park to the rear of 16 Barbican Road and wishing to proceed west currently do so without signal control into the centre of the junction. This manoeuvre currently has the potential to put vehicles into direct conflict with all other users of the junction who may be unaware of this movement. The repositioning of the stop line to the west of the car park entry/exit point therefore offers potential road safety benefit for those exiting the car park and turning left as well as providing

additional vehicle stacking space along this length of Barbican Road leading back to its junction with Walmgate/Lawrence Street.

36. Yellow box markings are provided to prevent vehicles blocking the centre of the junction during busy periods. At present the blocking of these markings is considered a moving traffic offence and enforcement is only possible by North Yorkshire Police. The suitability of using these markings at the junction will be discussed with NYP as part of the Road Safety Audit process which any scheme will be subject to prior to delivery.
37. Preliminary assessment of the carriageway surface has been undertaken as part of these preliminary works, identifying that the junction is in a poor state of repair with significant degradation to the surfaces on each approach. This, combined with the proposal for realignment of kerb and drainage provision at the junction leads to a need for a large scale resurfacing programme following the intended signal works.

#### *Impact on vehicular traffic*

38. It is recognised that the provision of the controlled separated pedestrian and cycle crossings will have some detrimental impact on junction capacity to motor vehicles. This will see queues and delays to traffic increase generally.
39. The preliminary design has been subject to operational transport modelling (LINSIG) which indicates that vehicle capacity at the junction would decrease however, this decrease does not place the junction over its operational capacity and it will continue to operate acceptably. The network critical junction of Walmgate Bar, directly north of the Paragon Street / Barbican Road junction, restricts traffic in this section of the network. As such, reduction of capacity at Paragon Street / Barbican Road has little overall impact on network efficiency.
40. Renewal of the traffic signals equipment will allow traffic detection to be reinstated at the junction leading to significant improvements in delay during quieter trafficked times. The renewal will also allow for the coordination of the traffic signals at peak periods allowing for better management of traffic through this section of the inner ring road.
41. The introduction of signal controlled pedestrian/cyclist crossing phases across the junction has the potential to increase vehicle wait times at the

junction however, it should be noted that these signal phases will only be generated on demand and will therefore not appear in every cycle of the traffic signals if not required.

42. The build out of kerb lines at the south east and south west extents of the junction produces a more compact junction for vehicles entering Barbican Road south, potentially reducing the speed of vehicles moving through this area.
43. The repositioning of the stop line on Barbican Road west bound provides additional vehicle stacking capacity between this junction and the junction of Walmgate/Lawrence Street to the North East.
44. The changes to kerb lines and stop line position have been subject to swept path analysis to ensure that HGV's moving through this important arterial section of the IRR are not restricted from using this junction.
45. Vehicles exiting the car park to the rear of 16 Barbican Road and turning left will now be entering an area of signal control.

### *Impact on Pedestrians*

46. The introduction of signal controlled crossings at two separate locations across the junction are seen as significant improvements at a site where no provision currently exists. The new crossing point for Paragon Street establishes an additional option for pedestrians moving through this location from either Walmgate or Fishergate bars.
47. The positioning of the pedestrian crossing of Barbican Road is closely aligned with the desire line for movements between the Northern section of Barbican Road and Paragon Street pedestrian facilities which are currently located in an area of shared space. Pedestrian movements from Barbican Mews to Paragon Street are slightly off the desire line for this movement, however the movement is supported.
48. The proposed design option widens the eastern footway and provides an improved environment for pedestrians in an area of separated space which is further set back from the carriageway edge. As informed by the previous ward scheme, pedestrian movements at the west of the junction are supported by an area of separated space which aims to reduce

conflict between pedestrians and cyclists at the site by clearly defining where each user group should be positioned.

49. All areas of separated space around the junction are to be identified using level differentiation and kerbing to provide tactile indication of the differentiation between the two uses of space. Other provision for the differentiation of these spaces (such as the use of contrasting material colours) could be considered as part of the detailed design process for any scheme taken forward for delivery.
50. Near Side pedestrian crossing signals will be installed at the site in line with previous TSAR works with an intention to provide uniformity to how pedestrians utilise pedestrian crossing infrastructure across the city. Red and Green Man indicator units will be installed at two different heights to increase the visibility of the displays from a range of positions within the area of the crossing. On crossing detection will be used to monitor pedestrians in the carriageway and provide flexible clearance periods which are extended automatically based on the speed at which pedestrians are crossing the carriageway. Slower pedestrians or larger groups will therefore benefit from vehicular traffic being held at a red signal until their crossing is completed.

### *Impact on Cyclists*

51. The cycle crossing point on Barbican Road south will provide a connection from Barbican Mews to the existing off carriageway cycle facilities adjacent to Paragon Street. Though this is not directly on the desire line to connect Paragon Street to Barbican Mews the facility is positioned to maximise the space available for pedestrians and cyclists to safely move through this area using defined separated space.
52. Repositioning of the crossing to provide a more direct desire line between it and Barbican Mews could be achieved however, this would require the area around the eastern extent of the crossing to be an area of shared rather than separated space which may cause increased pedestrian / cyclist conflict.
53. Provision for the desire line for movements from Barbican Road North to Barbican Road South/Barbican Mews are improved in this design by providing separated, off carriageway facilities which allow cyclists to bypass the junction and also limit interaction with pedestrian movements prior to the crossing point.



54. The Existing drop kerb located at the western extent of the junction, which provides a transition point for on carriageway cyclists proceeding westbound and intending to join the off carriageway provision which extends along Paragon Street, is removed under this design option for two reasons. Firstly to remove pedestrian/cyclist conflict which has been previously identified in the area and secondly to promote adoption of the separated, off carriageway facility which is to be introduced.
55. An off carriageway solution for this westbound movement from Barbican Road to Paragon Street is considered to provide a safer alternative as it removes the requirement for cyclists to be positioned in the central lane of the carriageway and also removes the potential for cyclists to be in the left turn lane but proceed straight ahead which could result in vehicle strike from the cyclists right as motor vehicles proceed from Barbican Road North into Barbican Road South.
56. ASLs are provided on Paragon Street and the Northern section of Barbican Road but there is no cycle lane provision leading into these ASLs due to insufficient carriageway width and therefore cyclists would be required to travel with traffic approaching the junction. The potential reallocation of carriageway space for the creation of cycle lanes on this section of the Inner Ring Road is outside of the scope for this project.
57. Advisory, on carriageway cycle lanes running in both directions of Barbican Road South are proposed with transition points to and from off carriageway cycle provision provided at both sides of the carriageway. Although it is acknowledged that LTN 1/20 indicates that cycle lanes less than 1.5 metres wide should not normally be used, the available carriageway space at this location does not allow for the inclusion of lanes of this size and standard size two way traffic lanes therefore the proposal is for 1.2 metre wide lanes to be included. If this is deemed unsuitable then the cycle lane provision would need to be provided in only one direction. Alternative options such as removing the centre line of the carriageway in this location is not deemed suitable due to the traffic flow on the section being greater than the maximum two way vehicle flow volume of 500 vehicles per hour at peak times indicated at para 6.4.16 of LTN1/20.
58. The JAT score for this option, presented in Appendix B and based upon the LTN 1/20 criteria, is 38%. This provides a substantial improvement to the existing provision. Further significant improvements to the JAT score

would require major changes to provision for cyclists on the inner ring road which is excluded from the scope of this project.

### *Impact on Air Quality*

59. This option has a negligible impact on Air Quality in the immediate area of the junction given that traffic levels are estimated to remain largely the same as no major changes to operation of the junction are included.

### *Safety Considerations*

60. Accident data for a 10-year period between 1st September 2011 and 31st August 2021 has been assessed as part of the preliminary works for this project. Over this period, a total of seven incidents occurred: two involved a serious casualty and the remaining five involved slight injuries.

61. Both serious incidents involved cars turning right from Paragon Street onto Barbican Road into the path of a motorcyclist travelling ahead towards Paragon Street. Of the slight incidents:

- two involved vehicles passing through a red signal
- one involved cars colliding by misjudging the alignment of the ahead movements on the mainline
- one involved a pedestrian crossing away from the junction who fell avoiding a car
- one involved a cyclist being clipped by a wing mirror again away from the junction.

62. Over the 10-year period, this is not considered statistically significant, and therefore safety improvements targeting the reduction of incidents similar to these in the future are not considered to be key to the delivery of this project

63. 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.

## **Consultation**

64. Compilation of the preliminary design was informed by a series of meetings held between officers representing the TSAR project team, the Sustainable Transport Service and the authority's Travel Planners.
65. An electronic consultation has been carried out with local ward councillors for Fishergate and Guildhall, CoYC officers from a range of service areas and external stakeholders representing a range of transport and equalities groups to offer an opportunity to comment on the proposed TSAR scheme design put forward for consideration in this report.
66. A summary of the consultation feedback and associated CoYC Engineer response can be found in Annex C.

### **Other options not presented for consideration**

67. A number of alternative preliminary drawings were produced as part of the feasibility works for this project. These included:
68. Refurbishment of the existing traffic signals with new segregated pedestrian and cycle crossings over Barbican Road south (in line with the through route to Barbican Mews), including a new southbound exit stop line on approach to the new crossing. The design did not support the desire line for pedestrian movements from Barbican Road North to Paragon Street. The requirement for an additional stop line to prevent vehicles turning left out of the car park to the rear of 16 Barbican Road proceeding through a red light would be confusing for all road users. The proposal had no impact on the existing conflict between pedestrians and cyclists at the west of the junction where on carriageway cyclists join the Paragon Street off carriageway cycle path.
69. Refurbishment of the existing traffic signals with new segregated pedestrian and cycle crossings over Barbican Road south (north of the through route to Barbican Mews), including a new southbound exit stop line on approach to the new crossing. This revision looked to reduce the potential speed at which cyclists would approach the crossing of Barbican Road from the link with Barbican Mews. Issues around the need for a stop line and continued pedestrian/cyclist conflict to the west of the junction is still present.

70. Removal of signal control from the junction and introduction of a priority-controlled mini-roundabout with uncontrolled segregated pedestrian and cycle crossings over Barbican Road south (in line with Barbican Mews). The geometry of a roundabout would allow for the expansion of footways to the North and East of the junction however with no signal control of the crossing, inadequate pedestrian and cyclist refuges in the centre of the carriageway would be required due to available carriageway space. The removal of traffic signal control would eliminate some of the general traffic delays especially during the off peak, however the more dominant traffic movements could cause blocking back especially in conjunction with traffic movements from the Walmgate junction. The lack of cycle lane provision around the arms of the junction could also lead to conflict between cyclists and motorists when leaving the roundabout.
71. Refurbishment of existing traffic signals within a more compact junction mouth, with a new segregated one-way cycle track from Barbican Road North travelling southbound into shared space towards a new Toucan crossing over Barbican Road south (north of Barbican Mews). Introduction of new separated pedestrian and cycle crossings over Paragon Street. Largely similar to the final design put forward for consultation, this revision saw the utilisation of shared space in the areas around the crossing locations rather than separated space for pedestrians and cyclists. The authority's active travel planners indicated that the preference is for the adoption of separated space and this approach also provides the potential for pedestrian/cyclist conflict to be reduced by clearly defining where each user group should be. The cyclist crossing provision over Paragon Street would allow for cyclists to join the carriageway and proceed west bound along Barbican Road at this point but only using existing carriageway lanes.

## **Council Plan**

72. 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**

### **73. Financial**

This TSAR scheme will be delivered using additional funding awarded to CoYC by the Department for Transport as part of their 2021 Traffic Signals Maintenance (TSM) Funding Grant Award. The stipulations of this award mean that available funding must be spent before the end of financial year 2022/23.

**74. Human Resources (HR)**

There are no HR implications

**75. One Planet Council / Equalities**

All junctions are designed with equalities in mind. An equalities impact assessment can be found at Annex D. 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.

**76. Legal**

**Liability and Risk**

City of York Council has a general duty of care to maintain traffic signal infrastructure for which it is responsible and failure to do so could result in potential breach of Section 3 of the Health and Safety at work Act 1974. This section places general duties on employers and the self-employed to conduct their undertakings in such a way as to ensure, so far as is reasonably practicable, that persons other than themselves or their employees are not exposed to risks to their health and safety.

As the decision to take action at the junction is being made by Council members as a whole and not by an individual as such, this is likely to lead to corporate rather than individual liability in the event of a claim. Corporate liability can result in substantial fines based as a starting point on turnover, culpability and the injury sustained.

**Procurement**

CoYC Highways will be used as the principal contractor on this scheme. If this is not the case and an external contractor is to be used, any proposed works will need to be commissioned via compliant procurement route under the Council's Contract Procedure Rules and the Public Contract Regulations 2015.

**77. Crime and Disorder**

There are no Crime and Disorder implications

**78. 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.

**79. Property**

Existing off carriageway cycle infrastructure running along the south of Paragon Street is currently located in an area outside of the adopted highway boundary. There is no intention for the works proposed under this design option to extend into areas outside of the adopted highway boundary. The frontages of commercial and residential properties across all arms of the junction may be impacted dependent on the design taken forward. Impacted parties will be consulted as part of any future construction process.

**80. 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**

81. 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** 07/04/2022  
**Approved**

### **Specialist Implication** **Officers**

Finance - Patrick Looker  
Service Finance Manager

Legal - Cathryn Moore  
(Legal Manager, Projects)

**Wards Affected:** List wards or tick box to indicate all **All**

**Guildhall, Fishergate**

**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 A – Preliminary Design Option A  
Annex B – LTN1/20 Junction Assessment Tool  
Annex C – Consultation Details and CoYC Engineer Response  
Annex D – Equalities Impact Assessment

### **List of Abbreviations Used in this Report**

TSAR - Traffic Signal Asset Renewal  
CoYC – City of York Council

DfT – Department for Transport  
ASL – Advanced Stop Line  
NYP – North Yorkshire Police