

Transport for Norwich Advisory Committee

Date: Wednesday 31st May 2023

Time: 2pm

Venue: Council Chamber

Membership :

Cllr Lana Hempsall (Chair)

Cllr John Ward (VC)

Vacancy

Peter Joyner

Vacancy

Cllr Emma Corlett

Vacancy

Cllr Ian Stutely

Cllr Brian Watkins

Norfolk County Council

Norfolk County Council

Broadland District Council

New Anglia Local Enterprise Partnership (LEP)

South Norfolk District Council

Norfolk County Council

Norwich City Council

Norwich City Council

Norfolk County Council

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**For further details and general enquiries about this Agenda
please contact the Committee Officer:**

Jonathan Hall on 01603 679437
or email committees@norfolk.gov.uk

A g e n d a

1 To receive apologies and details of any substitute members attending

2 Minutes

(Page 4)

To confirm the minutes of the meetings held on 26 January 2023.

3 Members to Declare any Interests

If you have a **Disclosable Pecuniary Interest** in a matter to be considered at the meeting and that interest is on your Register of Interests you must not speak or vote on the matter.

If you have a **Disclosable Pecuniary Interest** in a matter to be considered at the meeting and that interest is not on your Register of Interests you must declare that interest at the meeting and not speak or vote on the matter

In either case you may remain in the room where the meeting is taking place. If you consider that it would be inappropriate in the circumstances to remain in the room, you may leave the room while the matter is dealt with.

If you do not have a Disclosable Pecuniary Interest you may nevertheless have an **Other Interest** in a matter to be discussed if it affects, to a greater extent than others in your division

- Your wellbeing or financial position, or
- that of your family or close friends
- Any body -
 - Exercising functions of a public nature.
 - Directed to charitable purposes; or
 - One of whose principal purposes includes the influence of public opinion or policy (including any political party or trade union);

Of which you are in a position of general control or management.

If that is the case then you must declare such an interest but can speak and vote on the matter.

District Council representatives will be bound by their own District Council Code of Conduct.

4 To receive any items of business which the Chairman decides should be considered as a matter of urgency

- 5 Heartsease Fiveways Junction** (Page 9)
Report by the Director of Highways, Transport & Waste
- 6 Norwich Airport Industrial Estate Link** (Page 56)
Report by the Director of Highways, Transport and Waste

Tom McCabe
Head of Paid Services
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Date Agenda Published: 22 May 2023



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**Transport for Norwich Advisory Committee
Minutes of the Meeting Held on 26 January 2023 at
2pm in the Council Chamber**

Present:

Cllr Graham Plant (Chair)
Cllr Barry Stone (Vice-Chair)
Cllr Brenda Jones
Cllr Brian Watkins
Cllr Fran Whymark
Cllr Mike Stonard
Cllr Ian Stutley

Representing:

Norfolk County Council
Norfolk County Council
Norfolk County Council
Norfolk County Council
Broadland District Council
Norwich City Council
Norwich City Council

Officers Present:

Alex Cliff
Jonathan Hall
Jeremy Wiggin

Title:

Committee Support Manager, NCC
Transport for Norwich Manager, NCC

1. Apologies for Absence

1.1 Apologies were received from: Peter Joyner (New Anglia Local Enterprise Partnership), and Cllr Emma Corlett (Cllr Brenda Jones substituted).

2. Minutes

2.1 The Committee agreed the minutes of the meeting held on 29 September 2022 as an accurate record.

3. Declarations of Interest

3.1 No interests were declared.

4. Items received as urgent business

4.1 There were no items of urgent business. The Chair acknowledged Cllr Stutley's request but advised that the issue he wished to be discussed will be dealt with at a later date and would not form part of discussions for the meeting.

The Chair on behalf of all committee members thanked the previous Chair Cllr Martin Wilby who had stood down from his role as Cabinet Member due to ill health. Cllr Wilby had led the committee for a number of years and under his Chairmanship, the committee had seen many schemes implemented with numerous improvements for sustainable travel, walking and cycling routes around the city. The Chair advised that he hoped to build on Cllr Wilby's good work and looked forward to working with

the committee.

5. MayFly Way

5.1 The Committee received the report, which outlined proposals to deliver improvements to the shared footway and cycleway along Mayfly Way.

5.2 The Transport for Norwich Manager Jeremy Wiggins introduced the report and advised:

- The paper outlined improvements to the shared footway and cycleway along Mayfly Way to benefit those who walk and cycle locally as well as improving connectivity for people using the Green Pedalway which links Bowthorpe employment area to the city centre and the east of the city
- This route is well used by those walking and cycling but is only 3m wide and is shared between users which have to give way to vehicles at Chapel Break Road and Barnard Road.
- The proposals will segregate pedestrians and cyclists and provide a safer crossing of Chapel Break Road and Barnard Road. However, it should be noted that the delivery of these proposals is dependent on the successful acquisition of some privately owned land, which is progressing well.
- Public consultation was carried out in September and October last year and 40 responses were received. 82% of respondents agreed with the overall aims of the proposals and there was a good level of support for all elements. The proposals also had support from the Police and Norwich Cycle Campaign. No changes had been proposed based on the consultation.
- The proposal represented High Value for Money and it was **recommended** that the Cabinet Member approves the proposals subject to the acquisition of land.

5.3 The members were all in agreement that the proposals brought about many improvements for walkers and cyclists alike and on an indicative vote all **agreed** to the scheme and the recommendations.

5.4 Recommendations:

1. To recommend to the Cabinet Member to approve the proposals for Mayfly Way as shown in Appendix E of the report, noting that these are subject to the successful acquisition of land;
2. To recommend to the Cabinet Member to decide to commence the statutory procedures associated with the necessary Traffic Regulation Orders (TROs) and Noticing required to implement the scheme as shown in Appendix E of the report.

6. Newmarket Road

6.1 The Committee received the report, which outlined proposals to improve the route along the Blue Pedalway for people cycling and walking by widening footways; providing dedicated cycling infrastructure; providing new and improved crossing facilities; and making minor changes to kerb lines to enable the expeditious movement of buses along the busy A11 corridor.

- 6.2 The Transport for Norwich Manager Jeremy Wiggins introduced the report and advised the proposals included:
- A widening of an existing crossing on Newmarket Road at the junction with Leopold Road.
 - A new pedestrian and cycle crossing of Eaton Road and a new pedestrian and cycle crossing of Lime Tree Road – the latter junction will work in tandem with revisions to the existing crossing of Newmarket Road to give cyclists a convenient way of accessing the segregated inbound cycle path.
 - Provision of a new Beryl bike bay
 - Pavement widening
 - Removal of an inbound and outbound bus stop to the west of the Lime Tree Road junction. I am aware this has caused some concern so this can be discussed further.
 - Amendment to the approach to Outer Ring Road roundabout to provide additional space for buses and larger vehicles to avoid straddling lanes

In addition, members were advised that public consultation had been carried out in November to December last year and there were 113 responses. Over 71% agreed with the aims. All of the proposals other than the removal of existing bus stops on Newmarket Road had a higher percentage of respondents who liked the proposals as opposed to disliking them (but the bus stop feedback was balanced). The proposals were supported by the Norwich Cycle Campaign and represented Very High Value for Money and it is **recommended** that the Cabinet Member approves the proposals.

- 6.3 The Chair advised that the removal of bus stops included within the scheme had been reconsidered and all bus stops included will continue to remain in place. Officers acknowledged that the positioning of the beryl bike bay at the junction of Eaton Rd could be reconsidered within the scheme. The general location for the bay in that area was considered to be sound but an exact location had yet to be agreed and was subject to negotiation.
- 6.4 Officers advised that during the scheme design there was not sufficient room within the highway to retain the crossing islands. However, this should increase the experience of pedestrians crossing Newmarket Road, as the phasing of the lights will mean that crossing can be undertaken in one phase, avoiding the need to wait in the middle of the road to complete the crossing. The rephasing of the traffic lights would not have any material impact on the side roads adjacent with respect to any traffic delays.
- 6.5 As an indicative vote all members **agreed** to the scheme and the recommendations.

Recommendations:

1. To recommend the Cabinet Member approves the proposals as shown in Appendix A of the report;
2. To recommend the Cabinet Member approves the undertaking of the statutory procedures for the Traffic Regulation Orders (TROs) and noticing required to implement the proposals.

7. **Dereham Road Corridor including Bowthorpe Travel Hub and Longwater Lane.**

- 7.1 The Committee received the report, which outlined amended proposals following the public consultation that had taken place last year. The consultation letter was sent to 3,675 properties and in addition there were also three face-to-face events arranged that were well attended. The main elements were Transport hub on Dereham Road

and improvements near Longwater Lane. The Chair thanked officers for engaging with the responses from the consultation and for finding solutions to the many issues raised.

7.2 The Transport for Norwich Manager Jeremy Wiggins introduced the report and advised the main features of the proposals included:

- A summary of the main features of the proposals is as follows:
 - Provision of a new travel hub.
 - A reduction in the speed limit from 40mph to 30mph on Dereham Road.
 - Removal of the Butterfly Way pedestrian underpass and installation of a new signalised street level crossing.
 - New sections of 24-hour inbound and outbound bus lanes.
 - Improved crossing facilities at the Dereham Road/Richmond Road junction.
 - Dedicated facilities for those walking or cycling with raised-table side road crossings.
 - Additional bus stops/shelters and real time passenger information.
 - Extensive pavement widening and landscaping.

7.3 In addition, members were advised

- There were 192 responses to the Longwater Lane survey and 211 responses to the Travel Hub survey. In addition, there were 20 emails received
- With regard to the Travel Hub, it was **recommended** that the underpass remains but is upgraded in terms of drainage and lighting and made more welcoming, as requested by residents, local member and the Town Council. However, it is poor for access and will be too expensive to make accessible. It was **recommended** the street level crossing is provided to enable an accessible crossing for those walking and cycling. This inclusion means there will be a smaller area for the travel hub but the bus stops can be improved and could also include bike parking and Beryl bikes.
- Speed limit reduction was supported and was **recommended** to proceed.
- Bus lanes were disliked. A review of the traffic flows in this area has concluded that impacts on general traffic flow will be minor as a result of bus lanes being introduced. For example, traffic surveys show that in the area where the inbound bus lane approaching Gurney Road would be placed, over 75% of vehicles are in the offside lane, which increases to 85% at the Gurney Road junction itself. Existing bus lanes are already operating 24 hours a day. There were concerns about the enforcement of bus lanes and these concerns will be addressed. It was **recommended** that bus lanes proceed.
- Improved crossing facilities at the Dereham Road / Richmond Road junction including a right turn ban out of Richmond Road were supported. It was recommended to proceed with this element of the scheme.
- There was overall support for segregated walking and cycling. Concerns were raised about crossings at junctions but it was recommended to continue as this enforces recent changes to the Highway Code.
- The scheme included chicanes on Richmond Road, however it was **recommended** not to proceed with them. Officers will look at other options for managing speed on Richmond Road.
- Removal of the bus stop laybys was generally disliked on the basis that this will cause queuing traffic and an obstruction. The proposals have been amended to

retain the bus laybys.

- There had been lots of suggestions made during the consultation. Officers will consider them and look to progress separately if a strong case can be made and funding is available
- The scheme represented High Value for Money.

7.4 Officers responded to concerns raised by members that if the scheme produced any unforeseen issues then a review would take place to see if these could be overcome. A similar review had been carried out with the scheme introducing bus lanes on Cromer Road.

As an indicative vote all members **agreed** to the scheme and the recommendations.

Recommendations:

1. To recommend the Cabinet Member approves the proposals as set out in Section 4 of the report;
2. To recommend the Cabinet Member approves the undertaking of the statutory procedures for the Traffic Regulation Orders (TROs) and Noticing required to implement the proposals.

7.5 Officers confirmed that there were working with government consultants concerning the level of funding to be carried forward in to 2023 to undertake schemes. Norfolk County Council has an excellent track record for delivering schemes and a strong case was being put forward to Department for Transport (DfT) to secure funding. Officers expected to hear back from DfT by March.

The Meeting ended at 2.29pm

Next meeting: Thursday 23 March 2023 at 2pm

**Cllr Graham Plant, Chair,
Transport for Norwich Advisory
Committee**

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Transport for Norwich Advisory Committee

Item No: 5

Report Title: Heartsease Fiveways Junction

Date of Meeting: 31 May 2023

Responsible Cabinet Member: Cllr Graham Plant (Cabinet Member for Highways, Infrastructure & Transport)

Responsible Director: Grahame Bygrave - Director of Highways, Transport & Waste

Is this a Key Decision? No

If this is a Key Decision, date added to the Forward Plan of Key Decisions: n/a

Executive Summary / Introduction from Cabinet Member

The Department for Transport (DfT) awarded Norwich £32m capital funding through the Transforming Cities Fund (TCF). Norfolk County Council's successful application was based on a vision to "Invest in clean and shared transport creating a healthy environment, increasing social mobility and boosting productivity through enhanced access to employment and learning".

It is proposed to deliver a highway improvement scheme that will improve the accessibility and safety of pedestrians and cyclists using the Heartsease Fiveways junction. The scheme will include new pedestrian and cycle crossings and footway improvements as well as a realignment of the central roundabout island. Signage for current cycling routes in the surrounding area will also be improved.

This report outlines the options that have been investigated to address the issues at the current roundabout, shares the feedback received during public consultation and recommends a preferred option for implementation.

Recommendations:

1. **To consider the feedback from the consultation and recommend the Cabinet Member agrees to implement the proposals as shown in Appendix H;**
2. **To recommend the Cabinet Member approves the commencement of the necessary statutory procedures associated with Traffic Regulation Orders (TROs) and Noticing required to implement the proposals.**

1.0 Background and Purpose

- 1.1 Norfolk County Council (NCC), in partnership with Norwich City Council, Broadland District Council and South Norfolk Council, secured £32m of funding from the Transforming Cities Fund (TCF) to deliver a range of schemes along identified corridors with the aim of making it easier to access jobs, education and retail areas by making improvements to support sustainable modes of transport.
- 1.2 It is proposed to deliver a highway improvement scheme that will improve the accessibility and safety of pedestrians and cyclists using the Heartsease Fiveways junction. The scheme will include new pedestrian and cycle crossings and footway improvements. Signage for current cycling routes in the surrounding area will also be improved.
- 1.3 Located on the eastern side of the Norwich outer ring road, the Heartsease Fiveways junction is a small five-arm roundabout and regularly suffers from congestion, especially at peak times. Drivers have commented that they cannot easily see gaps in circulating traffic due to the speed at which traffic enters and circulates the roundabout. This also makes the roundabout difficult to negotiate for those choosing to walk and cycle.
- 1.4 The roundabout has a poor safety record and has experienced several accidents involving pedestrians and cyclists. Between July 2011 and November 2022 there were 33 recorded accidents at the Heartsease roundabout; 15 have involved cycling casualties and 8 have involved pedestrian casualties. The current arrangement has a signalised crossing on only two of the five approaches to the roundabout. There are no designated crossing facilities, including any dropped kerbs, on the other three arms, making it particularly difficult for pedestrians with restricted mobility, as well as those using pushchairs and wheelchairs, to cross. There have been numerous requests over the years for additional pedestrian crossings and improvements for cycling.
- 1.5 The roundabout is used by a significant number of buses, which provide services to the city centre and Norwich train station. First Bus currently operate their Red and Green line routes (services 23, 23A, 23B, 24, 24A and 14A) through the junction. The most significant delays to bus services are found on the outbound approach to the roundabout on Plumstead Road West, where buses queue in traffic that can often extend to Valley Side Road.
- 1.6 Plumstead Road West has a large supermarket on one side of the road and a number of smaller shops on the other. The surrounding neighbourhood

includes several schools, a library and a doctor's surgery. The provision of improved crossing facilities on the roundabout would provide safer and more convenient access to these local amenities.

2.0 Consultation Proposals

- 2.1 A number of proposals were put forward during public consultation and are outlined in this report and in **Appendix A**.
- 2.2 The scheme aims to improve the safety of the roundabout for all users by adjusting the alignment of the roundabout so there is only one circulatory lane around the roundabout. In addition, each arm of the roundabout will have a single lane entry and exit. This will reduce circulatory speeds and improve the current arrangement that often leads to driver confusion, hesitation, and safety conflicts with other highway users.
- 2.3 To improve crossing facilities across the junction for those walking and cycling, new parallel crossings are proposed on all arms of the roundabout. Parallel crossings include a zebra crossing for pedestrians, with an adjacent parallel crossing for cycles to use. The crossings are located close to the roundabout on the desire lines of existing and future users.
- 2.4 Improvements to signage for existing cycle routes in the surrounding area are proposed to encourage the use of quiet residential streets for cycling through the area as shown in **Appendix B**.
- 2.5 Footways around the roundabout would be widened where possible and converted to shared cycle and pedestrian use. This will provide space for pedestrians and an off-carriageway cycle facility as an alternative option, which may be preferred by less confident cyclists, such as younger riders cycling to the nearby schools.
- 2.6 National cycle infrastructure design guidelines (LTN 1/20) have been considered as part of these proposals. There is limited highway space available and it is not possible to provide segregated facilities around the entire roundabout without impacting on land outside the current highway boundary. The design proposed has been worked to fit within the constraints of highway land where possible but does require the acquisition of land on the south side of the roundabout to adequately widen paths. The majority of the land required on the south side is unregistered and the process to acquire the land needed is currently underway.
- 2.7 The segregated cycleway on St Williams Way, recently constructed using Active Travel Funding, has been designed to complement the proposed arrangement at the roundabout and enable those cycling along this route to choose to continue along the segregated path or use the roundabout (with improved geometry), if preferred.

3.0 Summary of Consultation Responses

- 3.1 A public consultation was carried out between 24th November 2022 and 3rd January 2023. The original closing date of 18th December was extended to allow adequate time during a period of disruption to mail distribution due to

industrial action by Royal Mail. Please refer to the **Appendices A** and **D** for the consultation plan and letter detailing the proposals outlined in Section 2 above.

- 3.2 As part of the consultation, an online survey was presented, which had 478 responses and 85% of respondents identified as local residents. The summary report with details of feedback from this survey can be found in **Appendix C**. In addition to the online survey, 21 people made contact via email or letter.
- 3.3 The demographics showed that most respondents (63%) primarily identified as motorists with 19% of total respondents identifying as pedestrians, 11% as cyclists, 4% as motorcyclists, 2% as bus passengers and 1% as wheelchair users. There were 65 respondents (14%) who identified as having a long-term illness, a disability or health problem that limited their daily activities or the work they can do.
- 3.4 78% of respondents lived in the locality of Heartsease roundabout and can be broken down into 17.2% as pedestrians, 6.3% as cyclists, 3.1% as motorcyclists, 49.6% as motorists, 1.3% as bus passengers, 0.4% as wheelchair users and 0.1% not answered. 13% of the respondents were from neighbouring areas and 9% were from other areas (see **Appendix E** for more details).
- 3.5 The survey showed that 46% of people either agreed or strongly agreed with the overall aims of the proposals and 47% stated they either disagreed or strongly disagreed with the aims.
- 3.6 In summary, the online survey showed that:
 - 57% of people disliked or strongly disliked the proposal for single lane entries to the roundabout with a safe overrun area for heavy goods vehicles (34% liked/liked very much).
 - 64% of people disliked or strongly disliked the proposal for parallel zebra crossings (29% liked/liked very much).
 - 49% of people disliked or strongly disliked the proposed 3m wide shared-use paths (31% liked/liked very much).
 - 57% of people disliked the proposal to remove the signalised crossing on Harvey Lane and provide a parallel crossing in its place (25% disliked/strongly disliked).
- 3.7 The online survey also gave respondents an opportunity to provide more detail of their views in a free text field. A list of the main objecting and supporting themes with an officer response can be found in **Appendix E**. In summary, the main objections and comments raised were:
 - People thought the proposed parallel crossings were situated too close to the roundabout.
 - Signalised crossings were preferred over parallel crossings.
 - Requests were made for the area to be subject to a 20mph speed limit.
 - Parallel crossings were requested to be on raised tables.

- Shared use was not favoured as it is not in line with current design guidance and is more difficult for some users than segregated facilities, e.g., those with a visual impairment.
 - Single lane entries to the roundabout will cause congestion.
 - The layout will create “rat runs” on nearby roads.
- 3.8 Norfolk Constabulary’s Traffic Management Officer noted that they are “generally supportive of this scheme to upgrade the Heartsease roundabout, Plumstead Road, Norwich, in the interest of all road users”. Detailed comments were provided in relation to each proposal asking that studies be carried out to ensure that congestion on Plumstead Road in both directions does not increase resulting from the changes. They support parallel crossings, improved footways, segregated paths and waiting restrictions necessary to ensure that adequate safety and visibility are achieved. They supported the removal of the signalised crossing on Harvey Lane which they thought would improve the general safety of the area including vehicles leaving Aldi car park. They requested the ‘no right turn’ from Aldi car park be retained.
- 3.9 Thorpe St Andrew Town Council welcomed the principle of changes to the roundabout. The improvements to crossings were seen as positive but there were some concerns that the position of the proposed crossings would lead to queueing on the roundabout. The Council thought that the changes would lead to increased traffic on the surrounding roads such as Aerodrome Road, Margetson Avenue, Pilling Road and Gordon Avenue and requested traffic calming in these, and other roads. The Council thought the layout could create conflict between cyclists and motorists and that the height of the roundabout should be reduced to improve visibility of vehicles entering from Harvey Lane and for those entering from the ring road.
- 3.10 Norwich Cycling Campaign welcomed some elements of the scheme but were unable to provide their support as they felt that the scheme “falls short of what is required”. The Cycling Campaign supports a Dutch-style roundabout and raised a number of points on specific aspects of the scheme, which included comments on shared-use paths (which they felt should not be proposed), kerbs, a request for crossings on raised tables with coloured surfacing for cyclists and a request for anti-skid carriageway surfacing. Other comments included concerns over access to private car parks, pinch points, vegetation and the need to segregate pedestrians and cyclists throughout the whole junction area.
- 3.11 The Norwich Society responded that they “cannot support the proposals because they do not significantly encourage active travel and provide little genuine improvement in crossing facilities for those walking and cycling in the area”. The Society thought that the proposals encourage local driving rather than favour walking and cycling and reinforced motor vehicle domination in the urban area. They thought the area should be a 20mph zone; there should be vehicular deflections at entry and exit points; noted unsatisfactory shared-use paths; and the lack of provision of modelling results. They felt the proposals were a missed opportunity.
- 3.12 There were no responses received from nearby businesses or schools.

- 3.13 The design proposed has been reached following liaison with Active Travel England who approve the design of schemes on behalf of the DfT. Their representative described the layout as '[..] excellent. A nice clean, legible design with the same crossing on every arm'.

4.0 Revised Proposals

- 4.1 The public consultation showed that shared use paths are not favourable to many people, particularly those who have sight impairments. Pedestrians and cycles were proposed to be segregated where space was available and where there is a lack of highway space some areas of shared use were proposed. Following the consultation, further assessment has been undertaken to determine if it may be possible to acquire land adjacent to the old Lloyds bank and Heartsease Public House, in order, to be able to provide segregated facilities in this area. A large part of this land is currently unregistered and the process of acquiring this land is underway. An engineering layout showing the revised proposals in detail can be found in **Appendix H**.
- 4.2 Officers will endeavour to explore the possibility of additional land acquisition on the corner of St William's Way and Plumstead Road East currently proposed as shared use, in order, to provide segregated facilities and will be included within the scheme if practicable and deliverable within the project timeline.
- 4.3 During consultation calls were made for the roundabout to be subject to a 20mph speed limit. While the roundabout has been designed to naturally reduce vehicle speeds the addition of 20mph signage would positively enhance the scheme and further emphasise to motorists that they should be alert to pedestrians and cyclists.

5.0 Impact of the Proposal

- 5.1 The proposals will provide parallel crossings where there are no crossing facilities, making it easier and safer for those choosing to walk or cycle to the nearby schools, shops and amenities and will help to encourage modal shift for shorter journeys that are currently made by car.
- 5.2 The roundabout and carriageway geometry has been designed to encourage slower entry and exit vehicle speeds and will also slow vehicle speeds around the roundabout and this will be supported by the introduction of a 20mph speed limit. The proposed layout will help to remove driver hesitancy through a simpler and more intuitive road layout.
- 5.3 Improved signage of cycling routes in the surrounding area will help to increase the awareness of them, giving cyclists alternative options when navigating through the area.
- 5.4 Concern has been raised about the possibility of 'rat running' through nearby streets. To assess the impact of the proposal, there is an intent to monitor the use of roads over a wide area around the junction before and after the

scheme implementation. Traffic calming measures may be considered if the results suggest there is a need, but this will be subject to consultation.

6.0 Evidence and Reasons for Decision

- 6.1 A traffic model has been produced using computer software to test the design proposals and understand potential impacts on traffic. This has been produced to recognised industry standards. These traffic models aim to replicate the existing arrangements in a virtual environment as closely as possible in order that the impact of different designs and scenarios on traffic performance can then be tested. Models do not guarantee a definitive answer but rather provide an indication of likely outcomes; previous modelling work carried out elsewhere for other schemes in Norwich has been shown to have predicted reasonably accurate outcomes post-scheme delivery.
- 6.2 Due to the current irregular shape of the roundabout resulting in a higher level of unpredictable driver behaviour, when negotiating the roundabout, including lane discipline and driver hesitancy, replicating the current traffic patterns observed on site with the base model has been very difficult to achieve. Based on traffic volume data collected in surveys carried out on site, the base model results indicate that there would be a higher level of queueing with the current roundabout layout than has actually been observed. The modelling predictions in this case therefore need to be considered with this in mind.
- 6.3 For the morning peak, the modelling suggests that the new proposals will result in additional delays on the St Williams Way approach to the roundabout, largely due to the reduction from two lanes to one. However, as discussed in 6.2 above, this needs to be considered with caution as it is likely that the modelling software is over-estimating queue lengths.
- 6.4 For the evening peak, a significant improvement to journey times is predicted on the Plumstead Road West approach to the roundabout (traffic heading out of the city centre) with no significant change anticipated on the other four roundabout approaches. Again, this is based on comparative outputs from the modelling, but there needs to be caution in the interpretation of these results.
- 6.5 Usage data from the Beryl bike hire scheme has provided useful cycle journey insights of the area, including alternative routes away from the roundabout used by cyclists. Improvements to signage on these routes have been included in the proposals.
- 6.6 The proposed design has been reached following detailed engagement with Active Travel England who are happy with the proposed design. In particular, Active Travel England recommended the use of parallel zebra crossings over signalised crossings, with the main benefit being that crossing points can be sited closer to the roundabout to avoid the need for pedestrians and cyclists to deviate further away from a desire line path in order to use crossing facilities. Similar designs have been used in other areas of the country, such as in Bournemouth (Tuckton), which also had parallel

crossings on each arm and the numbers of collisions significantly reduced after the scheme was implemented.

7.0 Alternative Options

- 7.1 Several options were investigated during initial optioneering, and the DfT's Early Assessment and Sifting Tool (EAST) was utilised to prioritise the options for further development. Options were ranked based on a series of strategic, economic, policy and financial criteria.
- 7.2 In addition to the preferred option outlined above, some feasibility work was undertaken on two alternative options. These options were to create a 'Dutch style' roundabout or a 'Cyclops' signalised junction. These options are outlined below, along with the reasons why they have been discounted.

Dutch Style Roundabout

- 7.3 A "Dutch style" roundabout option was investigated, which is a new innovative type of roundabout first constructed in the UK in Cambridge, and is shown on the plan in **Appendix F**.
- 7.4 This type of junction prioritises those walking and cycling across the roundabout and would provide a significant benefit to these modes. This facility would be fully compliant with the latest government guidance in Local Transport Note (LTN) 1/20 Cycle Infrastructure Design.
- 7.5 This option would require significant third-party land acquisition from outside of the highway boundary in order to provide the required space.
- 7.6 Traffic modelling carried out on this proposal predicted a much more significant increase in general traffic and bus journey times compared to the option being proposed above.
- 7.7 The level of congestion that this scheme would generate on the outer ring road was considered unacceptable and, for this reason, this option was not recommended.

Cyclops Signalised Junction

- 7.8 A cyclops signalised junction option was investigated, which is a new type of junction that has been used to good effect in Manchester. This option is shown on the plan in **Appendix G**.
- 7.9 This type of junction prioritises those walking and cycling across the roundabout and would provide the most direct crossing routes for these modes. This facility would be fully compliant with the latest Government guidance in LTN 1/20.
- 7.10 Due to the existing site constraints and geometry, this option would require the permanent closure of Harvey Lane to general traffic. However, this would not be complementary to the existing supermarket entrance and exit arrangements; would potentially result in some of the residential roads off Harvey Lane being used as 'rat runs'; and would also impact local highway network resilience.

- 7.11 As the impacts highlighted in 7.10 would need to be resolved first, it was not considered appropriate to invest resources in undertaking detailed traffic modelling of this option. Also, initial assessment indicated that this proposal would have a significant impact on general traffic without providing quantifiable benefits for cycle journey times or waiting times for pedestrians to cross.
- 7.12 The closure of Harvey Lane and the impact of likely congestion meant this option was not recommended.

Bus lane provision

- 7.13 A bus lane on the approach to the roundabout on Plumstead Road West has also been considered at this location. This would require land purchase from a significant number of landowners as well as removal of some parking spaces and the existing footway. Due to the level differences in the area, a retaining feature would be required. A bus lane is therefore not included in these proposals but may be considered at a later date, subject to funding opportunities.

8.0 Financial Implications

- 8.1 The available budget for this scheme is £4,437,176 which represents High Value for Money in government appraisal terms. Funding is primarily from the TCF Fund, with a contribution from local funds. Any variation in final cost will be met, in the first instance, through TCF funds.
- 8.2 Despite the original TCF funding ending in March 2023, it has now been confirmed that the Department for Transport will continue to fund schemes during 23/24.

9.0 Resource Implications

9.1 Staff:

The scheme will be designed and delivered utilising existing resources and 3rd party resources.

9.2 Property:

The proposals require the acquisition of 310.9m² of land which would become public highway maintainable at the public expense.

9.3 IT:

None

10.0 Other Implications

10.1 Legal Implications:

- 10.1.1 NPLaw will advise on the Traffic Regulation Order noticing requirements and will confirm that actions taken to date have been compliant with the legislative requirements.

10.1.2 The acquisition of land, the majority of which is unregistered, is required to obtain space necessary to widen the existing paths on the south side of the roundabout. Land will be acquired by negotiation wherever possible and will run parallel to a Compulsory Purchase Order (CPO) process. Authorisation for land acquisition shall be sought from the relevant Cabinet Member. In addition, land maybe acquired on the corner of St William's Way and Plumstead Road East, that will be attempted through negotiation with the land owner and will not be subject to CPO

10.2 **Human Right Implications:**

N/A

10.3 **Equality Impact Assessment (EqIA):**

An Equality Impact Assessment has been carried out for this scheme.

Norfolk County Council has a duty to pay due regard to equality when exercising its public functions. In promoting this scheme, we have considered the potential impact on local people, particularly disabled and older people and parents and carers of children, and others who may have needs when using the highways.

This scheme is likely to have a positive impact on most users with protected characteristics although there is the potential of negative impacts relating to the proposal for a shared cycle and pedestrian path. As noted earlier in the report we will seek to obtain adequate land to provide segregated facilities where practicable.

During the consultation event, 65 people (14% of respondents) identified themselves as disabled in the online survey. In relation to the overall aims of the proposal, 27 people agreed and 33 disagreed (the remainder neither agreed nor disagreed). In relation to the proposals for a shared-use path, 15 people agreed and 45 disagreed (5 neither agreed nor disagreed).

From the consultation, several respondents who have identified themselves as disabled commented on their concern over shared-use paths. To mitigate this impact, the shared-use paths will be a minimum of 3 metres wide wherever possible to allow space for pedestrians and cyclists to safely pass each other. Also, there will be signs erected to inform cyclists that the paths are shared with pedestrians.

Another concern was the use of zebra parallel crossings. The main benefit of parallel crossings is that they give priority to pedestrians and cyclists wanting to cross the road which reduces the time vulnerable road users would have to wait. Parallel crossings can also be situated closer to the roundabout than toucan crossings. This reduces the distance travelled for users that need to cross multiple arms of the roundabout. All the crossings will have the required coloured tactile paving to allow blind or partially sighted users to locate where to cross the road.

10.4 **Data Protection Impact Assessments (DPIA):**

As part of the consultation and implementation process, all personal data has been removed from reports being put into the public domain. Personal

data has been stored as per NCC standards to allow further correspondence as part of the scheme development.

10.5 Health and Safety implication (where appropriate)

The proposed scheme has been designed to improve the safety of highway users. A road safety audit has been carried out and the details have been incorporated into the proposals.

10.6 Sustainability Implications (where appropriate):

The objectives of this scheme have been targeted at improving the impact transport has on carbon emissions, air quality and public health. It is felt these proposals will encourage more use of sustainable modes of transport and encourage more walking and cycling.

10.7 Any Other Implications:

Officers have considered all the implications which members should be aware of, and these are included in the report.

11.0 Risk Implications / Assessment

11.1 A risk register is maintained for the TCF programme as part of the technical design and construction delivery processes.

12.0 Select Committee Comments

12.1 Not applicable.

13.0 Recommendations

1. To consider the feedback from the consultation and recommend the Cabinet Member agrees to implement the proposals as shown in Appendix H;
2. To recommend the Cabinet Member approves the commencement of the necessary statutory procedures associated with Traffic Regulation Orders (TROs) and Noticing required to implement the proposals.

14. Background Papers

14.1 None.

Officer Contact

If you have any questions about matters contained within this paper, please get in touch with:

Officer name: David Allfrey
Telephone no.: 01603 223292

Email: david.alfrey@norfolk.gov.uk



If you need this report in large print, audio, braille, alternative format or in a different language please contact 0344 800 8020 or 0344 800 8011 (textphone) and we will do our best to help.

Appendix A – Heartsease Roundabout – Proposed Junction Improvement Scheme.

Appendix A

Proposed changes

- ① Roundabout realigned to single lane entry/exit on all arms
- ② New parallel crossings
- ③ New shared use paths (subject to land availability)
- ④ Improved footway
- ⑤ New segregated path connecting to existing cycle lanes
- ⑥ New cycle facilities to connect with carriageway
- ⑦ Existing signalised crossing to be removed
- ⑧ New waiting restrictions (double yellow lines)

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www.norfolk.gov.uk/heartseaseroundabout

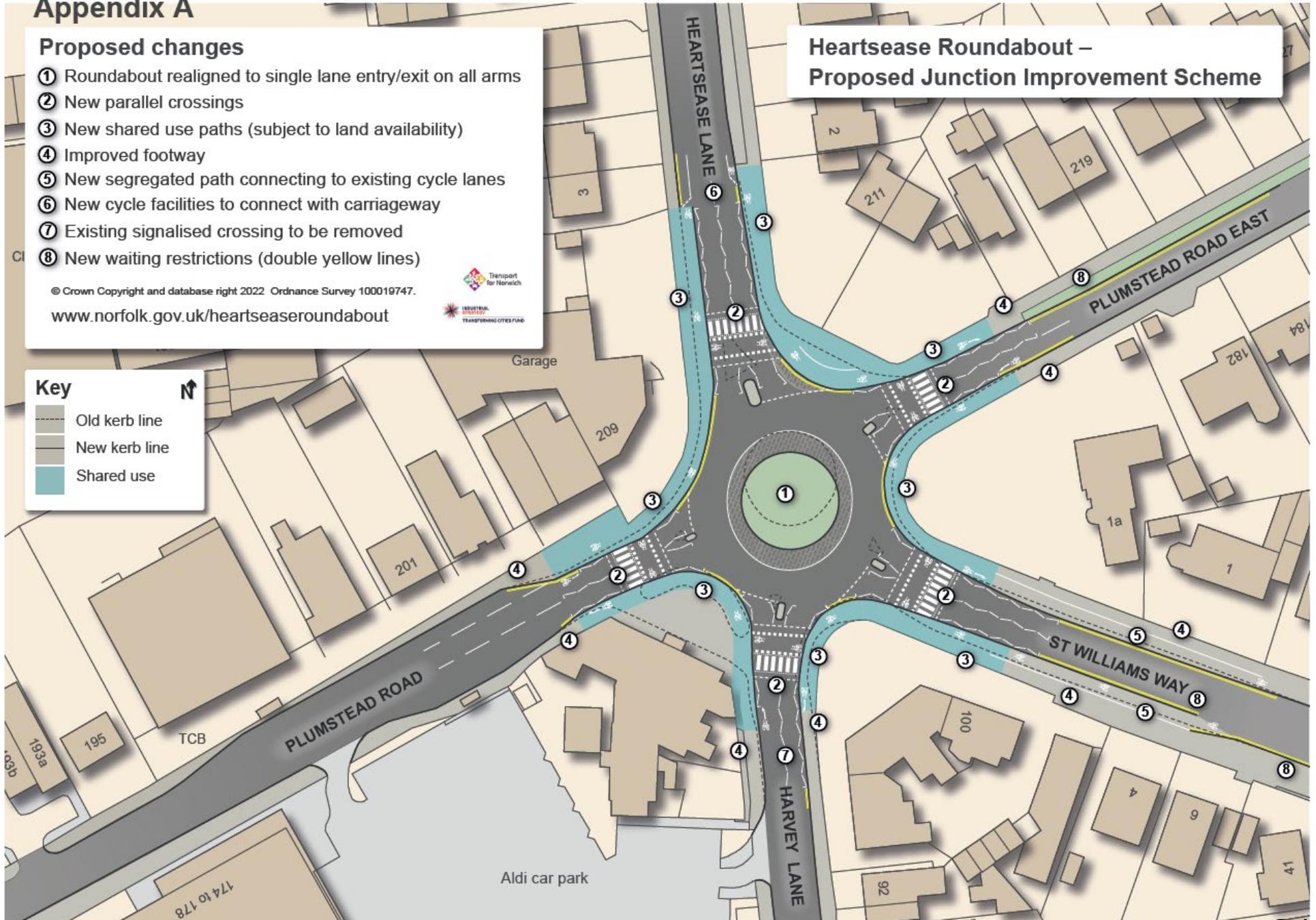


Key

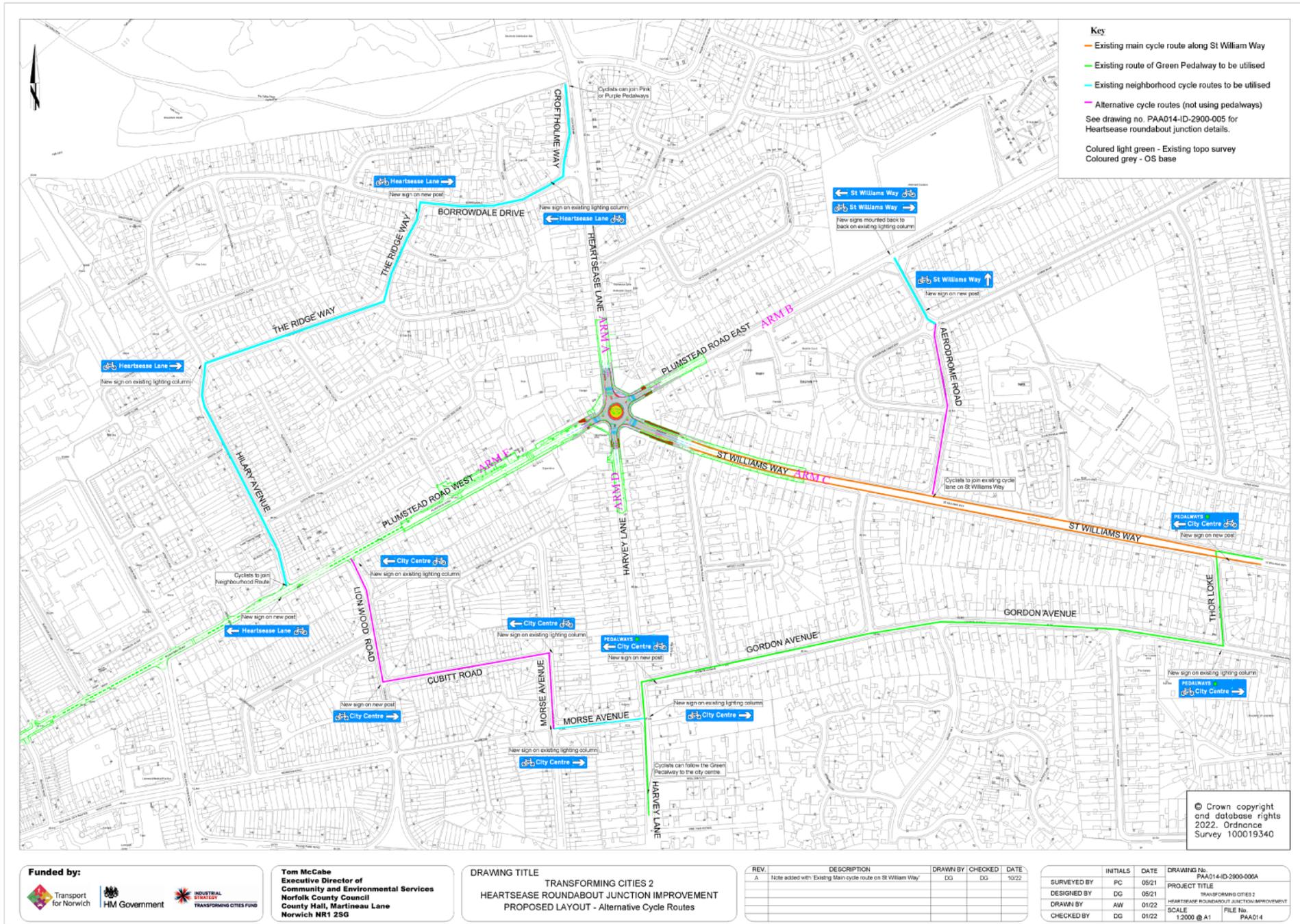
- Old kerb line
- New kerb line
- Shared use



Heartsease Roundabout – Proposed Junction Improvement Scheme



Appendix B - Alternative Cycle Routes



Funded by:

Tom McCabe
Executive Director of
Community and Environmental Services
Norfolk County Hall, Martineau Lane
Norwich NR1 2SQ

DRAWING TITLE
TRANSFORMING CITIES 2
HEARTSEASE ROUNDABOUT JUNCTION IMPROVEMENT
PROPOSED LAYOUT - Alternative Cycle Routes

Appendix C – Online Survey Summary Report

Consultation on proposals for Heartsease Roundabout, Norwich

<https://norfolk.citizenspace.com/environment-transport-and-development/heartseaseroundabout>

This report was created on Wednesday 04 January 2023 at 08:19

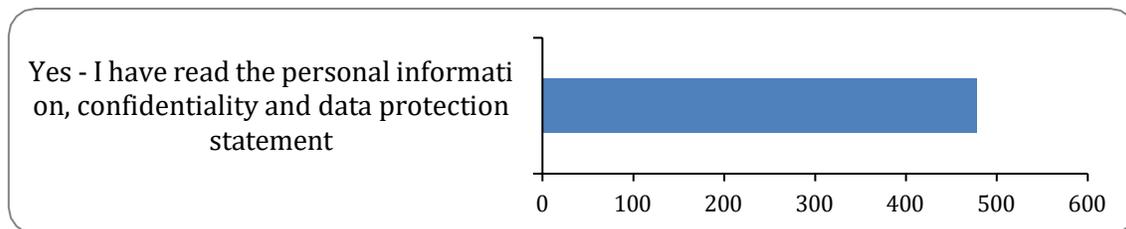
The activity ran from 24/11/2022 to 03/01/2023

Responses to this survey: **478**

1: Please tick to confirm that you have read the Personal information, confidentiality and data protection statement above.

Data protection agreement

There were 478 responses to this part of the question.

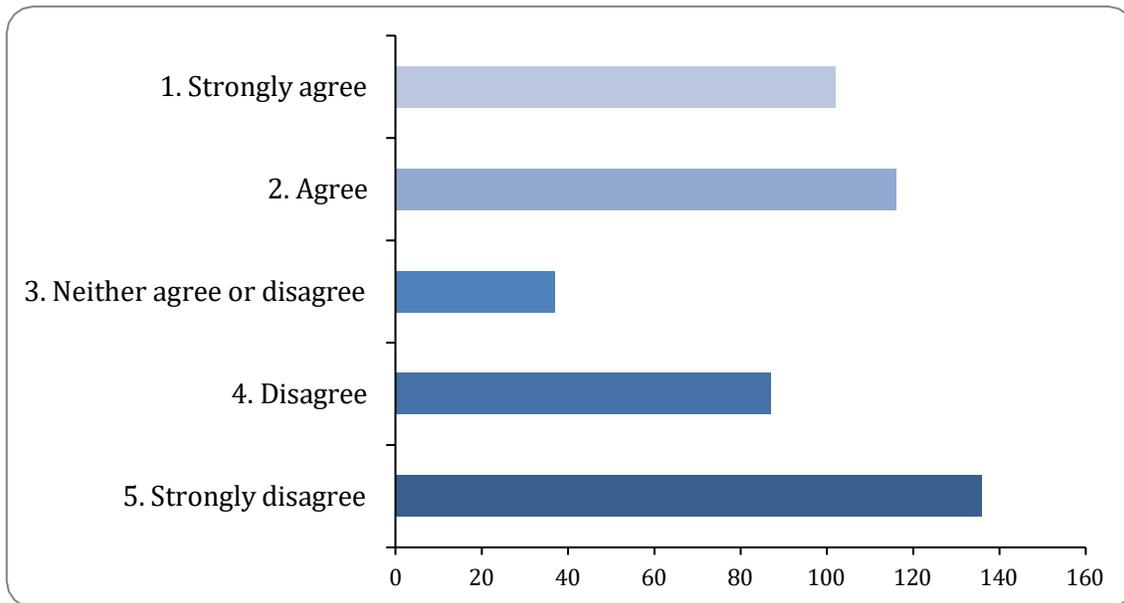


Option	Total	Percent
Yes - I have read the personal information, confidentiality and data protection statement	478	100.00%
Not Answered	0	0.00%

To what extent do you agree with the overall aims of this proposal? (please select one answer only)

Support for Aims

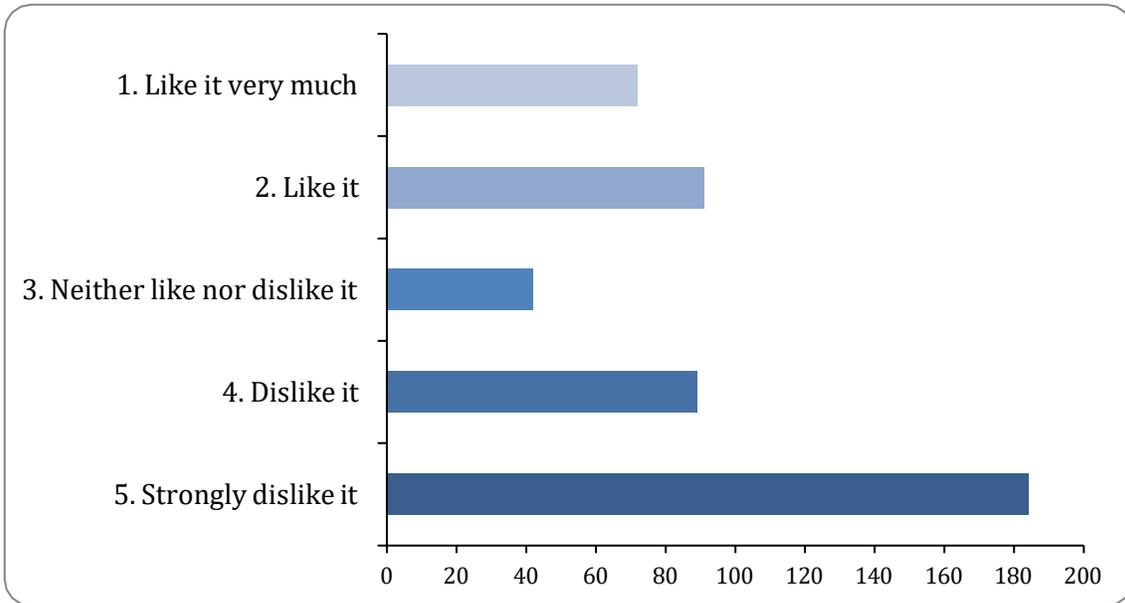
There were 478 responses to this part of the question.



Option	Total	Percent
1. Strongly agree	102	21.34%
2. Agree	116	24.27%
3. Neither agree or disagree	37	7.74%
4. Disagree	87	18.20%
5. Strongly disagree	136	28.45%
Not Answered	0	0.00%

1: Roundabout island and approaches to be realigned to single lane vehicle entry/exit on all arms with a safe overrun area for heavy goods vehicles. To what extent do you like or dislike this element?

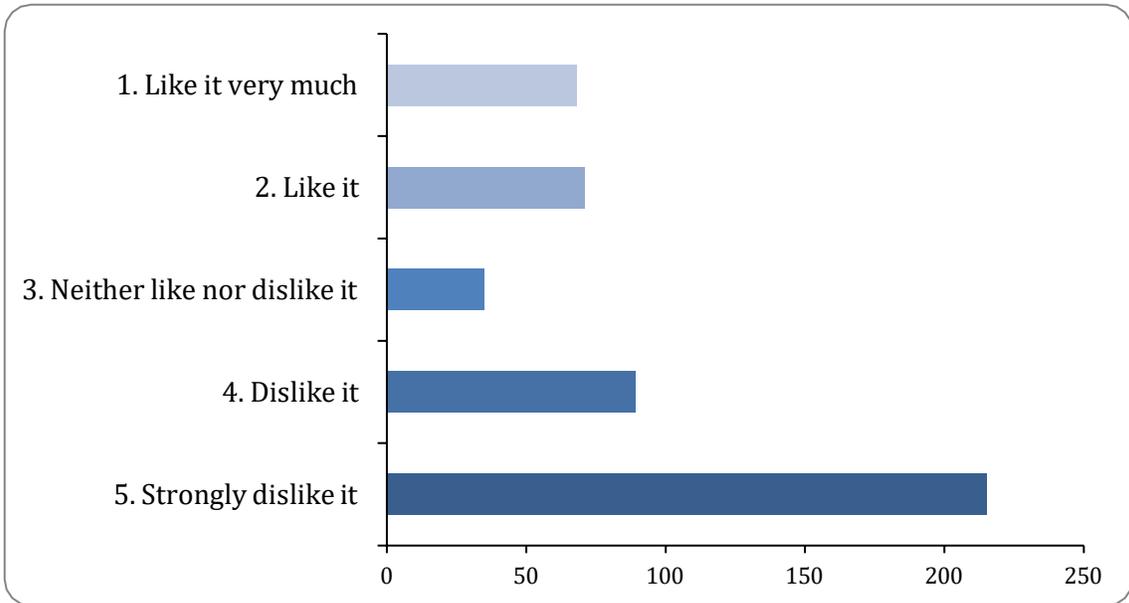
There were 478 responses to this part of the question.



Option	Total	Percent
1. Like it very much	72	15.06%
2. Like it	91	19.04%
3. Neither like nor dislike it	42	8.79%
4. Dislike it	89	18.62%
5. Strongly dislike it	184	38.49%
Not Answered	0	0.00%

2: New parallel zebra crossings (which give priority to those on foot or cycle) to be installed on all arms of the roundabout. To what extent do you like or dislike this element?

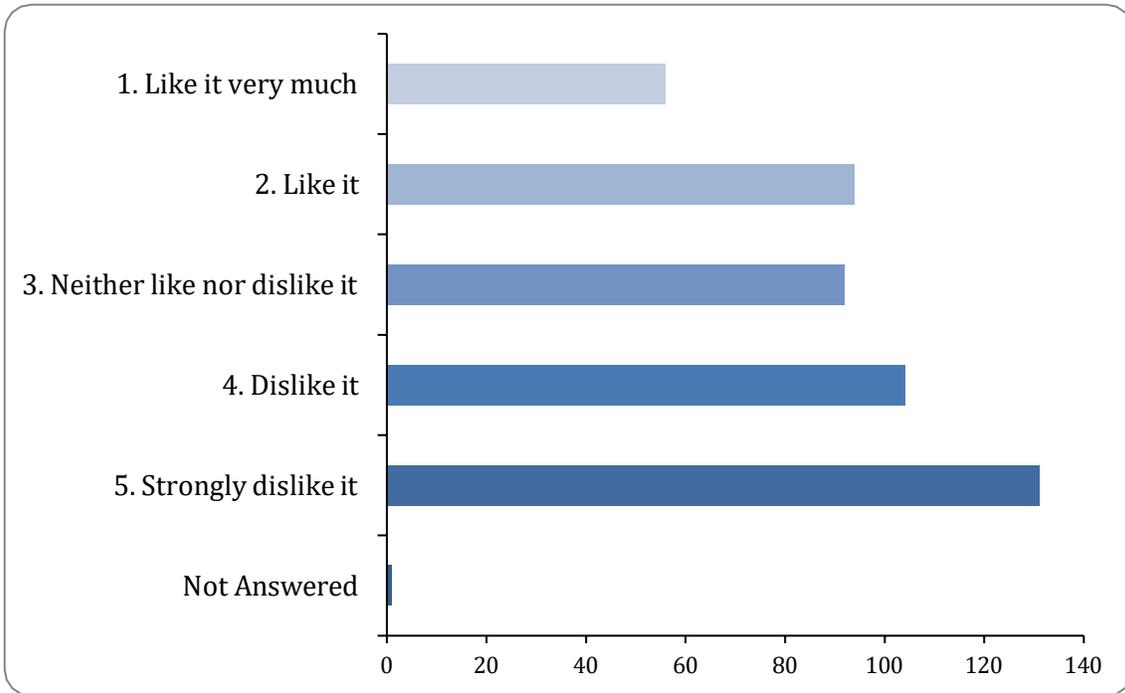
There were 478 responses to this part of the question.



Option	Total	Percent
1. Like it very much	68	14.23%
2. Like it	71	14.85%
3. Neither like nor dislike it	35	7.32%
4. Dislike it	89	18.62%
5. Strongly dislike it	215	44.98%
Not Answered	0	0.00%

3: New 3m wide shared use paths created around all arms of the roundabout (subject to land availability where applicable). To what extent do you like or dislike this element?

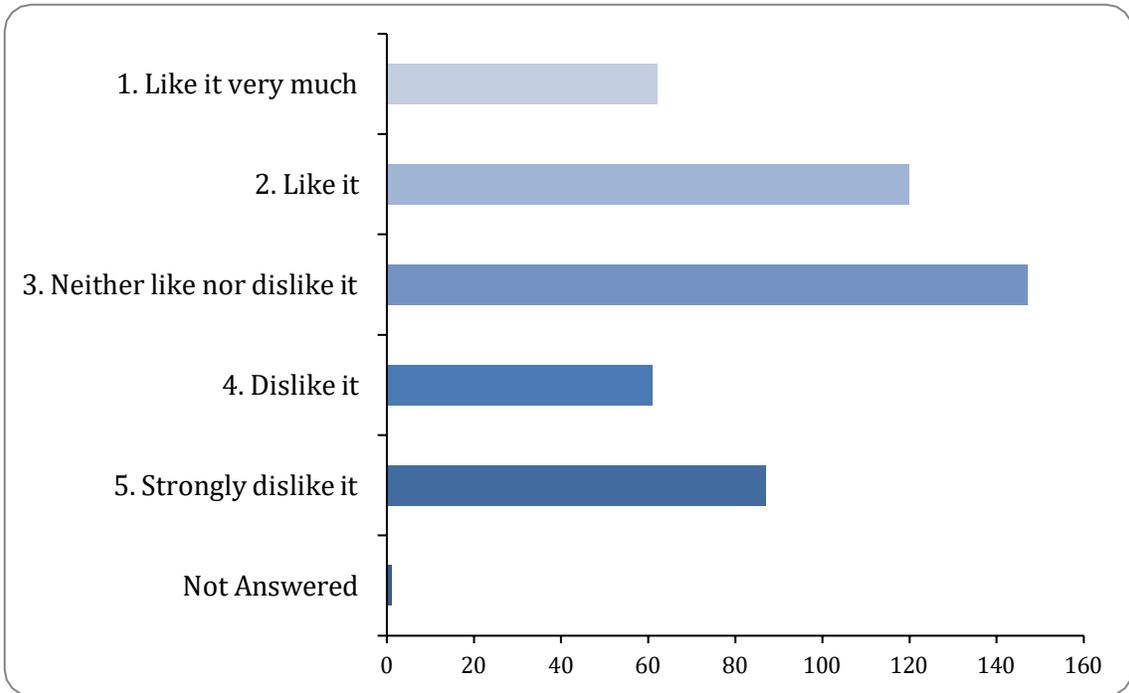
There were 477 responses to this part of the question.



Option	Total	Percent
1. Like it very much	56	11.72%
2. Like it	94	19.67%
3. Neither like nor dislike it	92	19.25%
4. Dislike it	104	21.76%
5. Strongly dislike it	131	27.41%
Not Answered	1	0.21%

4: Improved footway on St Williams Way and where the shared use paths join onto the existing footway. To what extent do you like or dislike this element?

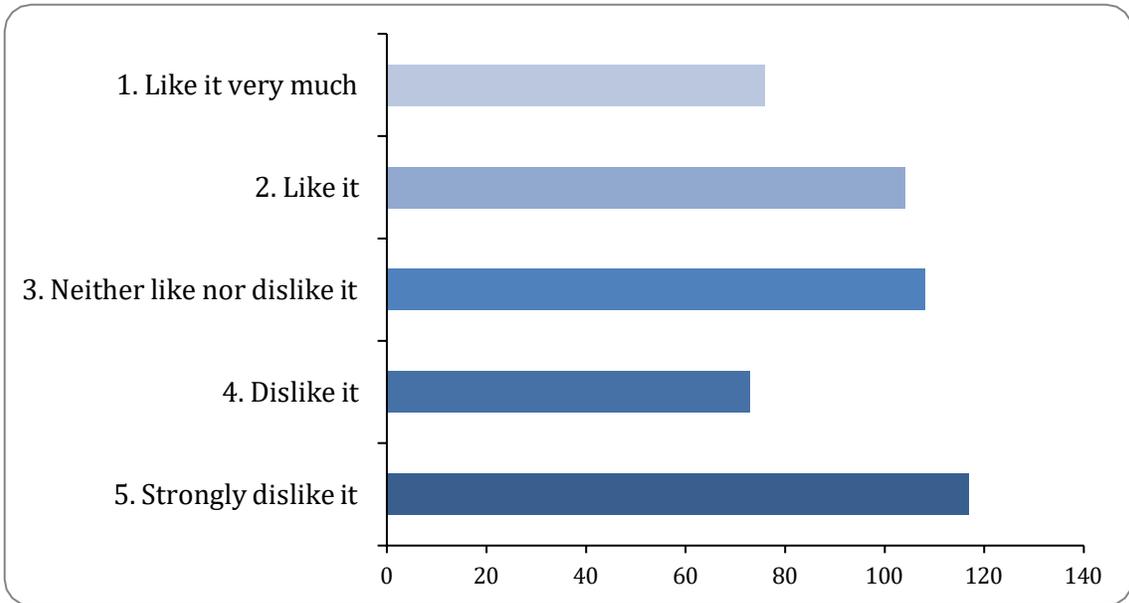
There were 477 responses to this part of the question.



Option	Total	Percent
1. Like it very much	62	12.97%
2. Like it	120	25.10%
3. Neither like nor dislike it	147	30.75%
4. Dislike it	61	12.76%
5. Strongly dislike it	87	18.20%
Not Answered	1	0.21%

5: New segregated cycle path connecting to existing cycle lanes on St Williams Way. To what extent do you like or dislike this element?

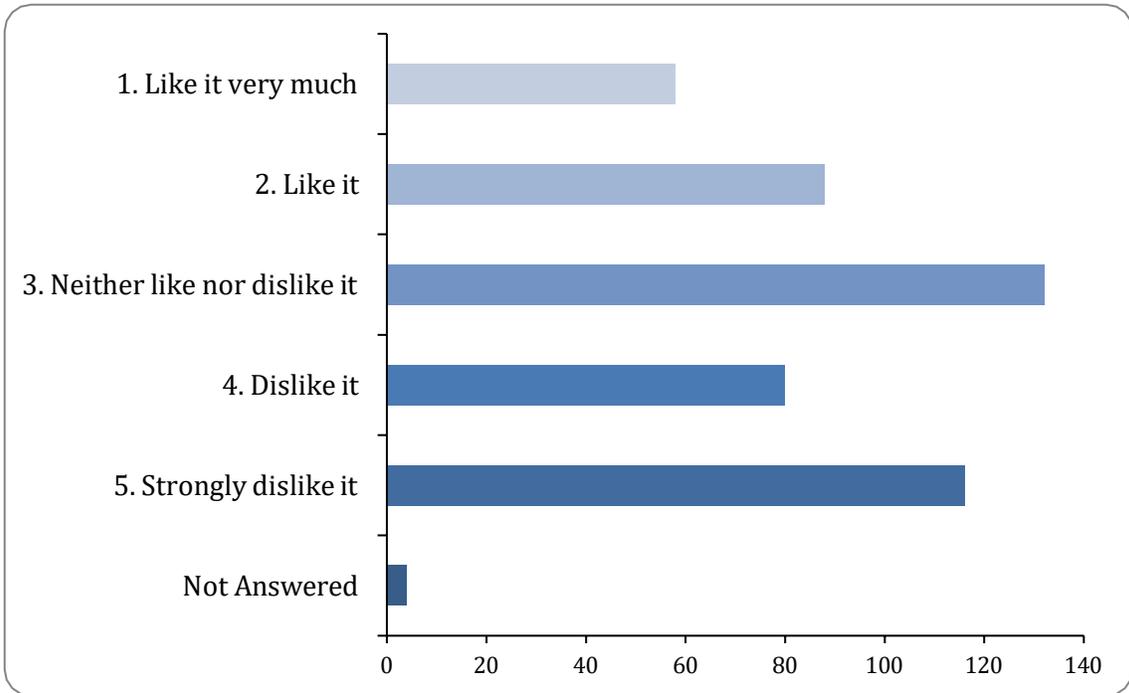
There were 478 responses to this part of the question.



Option	Total	Percent
1. Like it very much	76	15.90%
2. Like it	104	21.76%
3. Neither like nor dislike it	108	22.59%
4. Dislike it	73	15.27%
5. Strongly dislike it	117	24.48%
Not Answered	0	0.00%

6: New cycle facilities to connect with carriageway on Heartsease Lane. To what extent do you like or dislike this element?

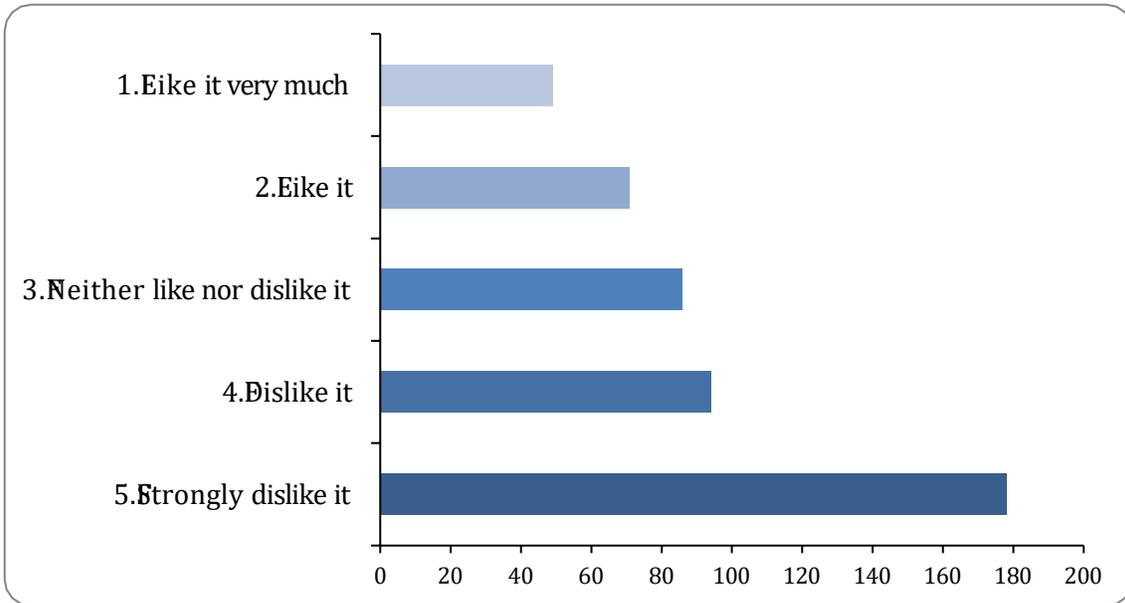
There were 474 responses to this part of the question.



Option	Total	Percent
1. Like it very much	58	12.13%
2. Like it	88	18.41%
3. Neither like nor dislike it	132	27.62%
4. Dislike it	80	16.74%
5. Strongly dislike it	116	24.27%
Not Answered	4	0.84%

7: Existing signalised crossing on the northern end of Harvey Lane to be removed and new parallel zebra crossing provided in its place (see proposal 2 above). To what extent do you like or dislike this element?

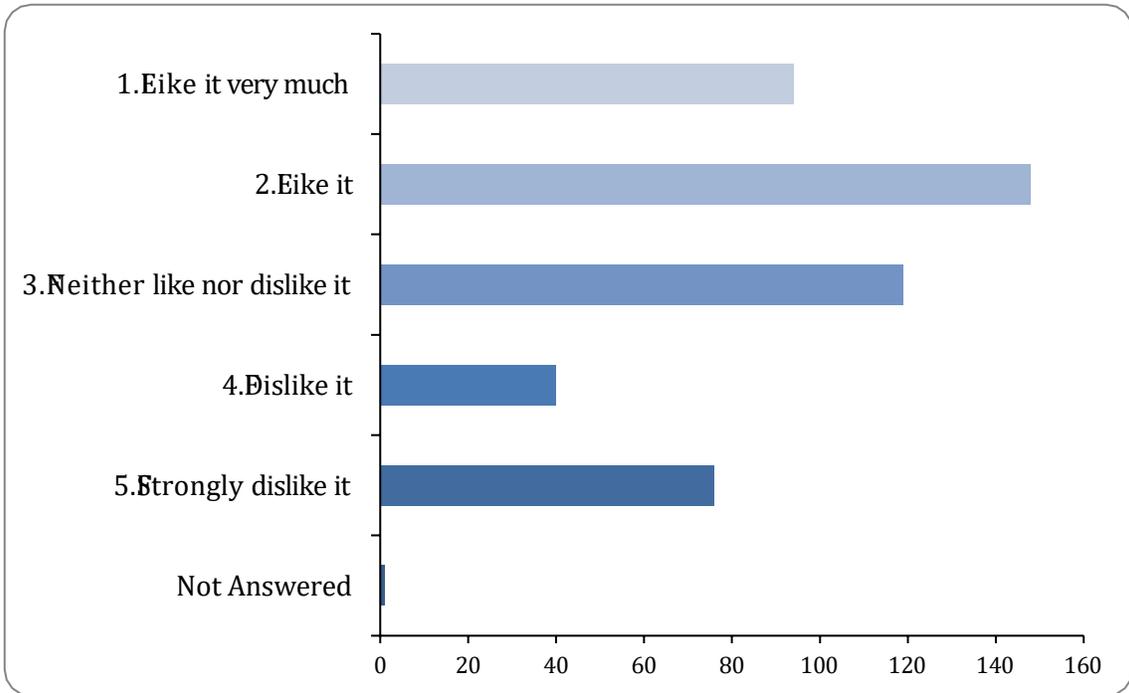
There were 478 responses to this part of the question.



Option	Total	Percent
1. Like it very much	49	10.25%
2. Like it	71	14.85%
3. Neither like nor dislike it	86	17.99%
4. Dislike it	94	19.67%
5. Strongly dislike it	178	37.24%
Not Answered	0	0.00%

8: New waiting restrictions (double yellow lines) to be installed south side of St Williams Way (15m in length) and for 36m along the north side of Plumstead Road East. To what extent do you like or dislike this element?

There were 477 responses to this part of the question.



Option	Total	Percent
1. Like it very much	94	19.67%
2. Like it	148	30.96%
3. Neither like nor dislike it	119	24.90%
4. Dislike it	40	8.37%
5. Strongly dislike it	76	15.90%
Not Answered	1	0.21%

Thank you for your responses. Please use this space to tell us in more detail why you like or dislike any aspect of these proposals.

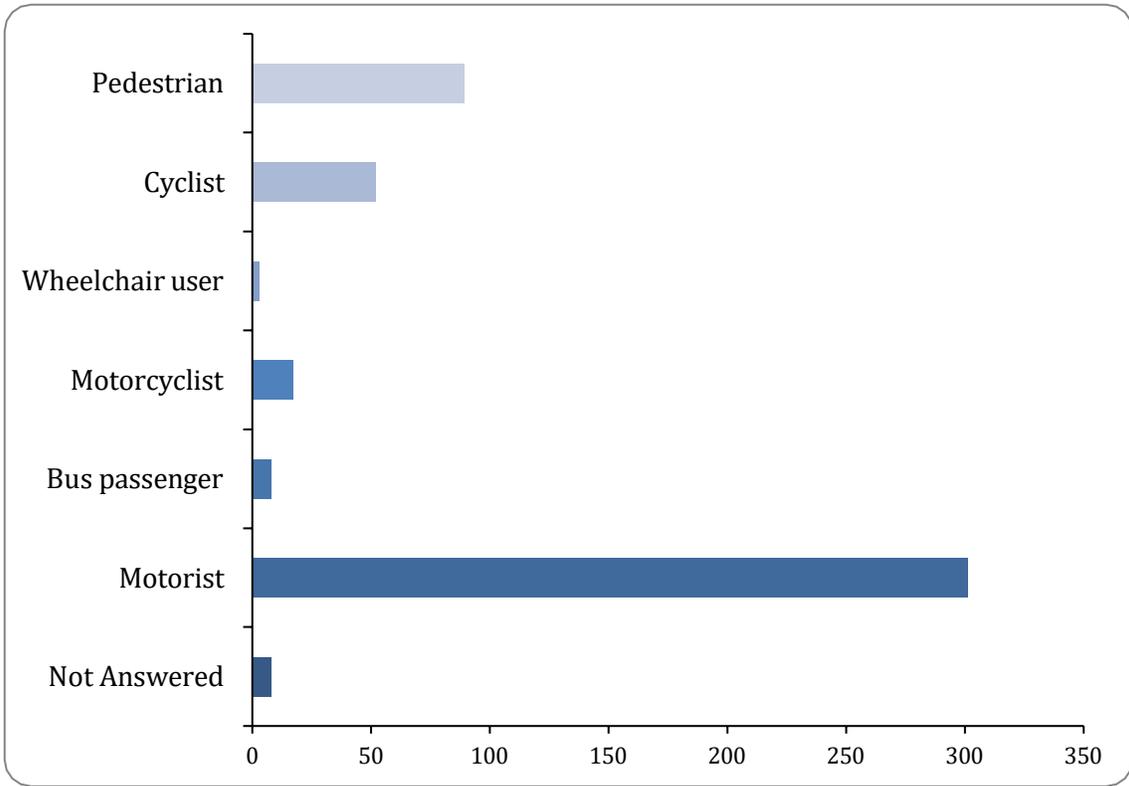
Any other comments

There were 409 responses to this part of the question.

1: How do you primarily use the area? (Please select only one item)

How do you primarily use the area?

There were 470 responses to this part of the question.



Option	Total	Percent
Pedestrian	89	18.62%
Cyclist	52	10.88%
Wheelchair user	3	0.63%
Motorcyclist	17	3.56%
Bus passenger	8	1.67%
Motorist	301	62.97%
Not Answered	8	1.67%

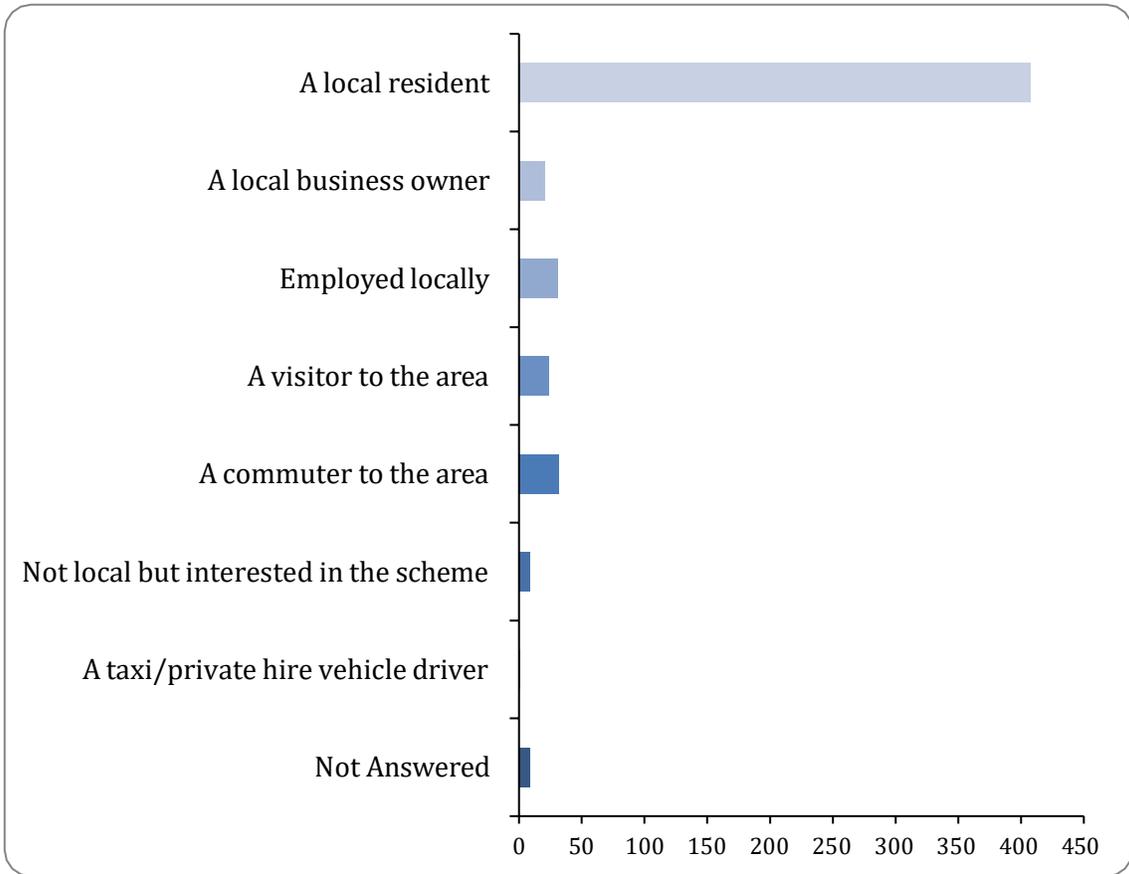
Other - please specify

There were 56 responses to this part of the question.

2: Are you...? (please select all that apply)

User groups

There were 469 responses to this part of the question.



Option	Total	Percent
A local resident	408	85.36%
A local business owner	21	4.39%
Employed locally	31	6.49%
A visitor to the area	24	5.02%
A commuter to the area	32	6.69%
Not local but interested in the scheme	9	1.88%
A taxi/private hire vehicle driver	1	0.21%
Not Answered	9	1.88%

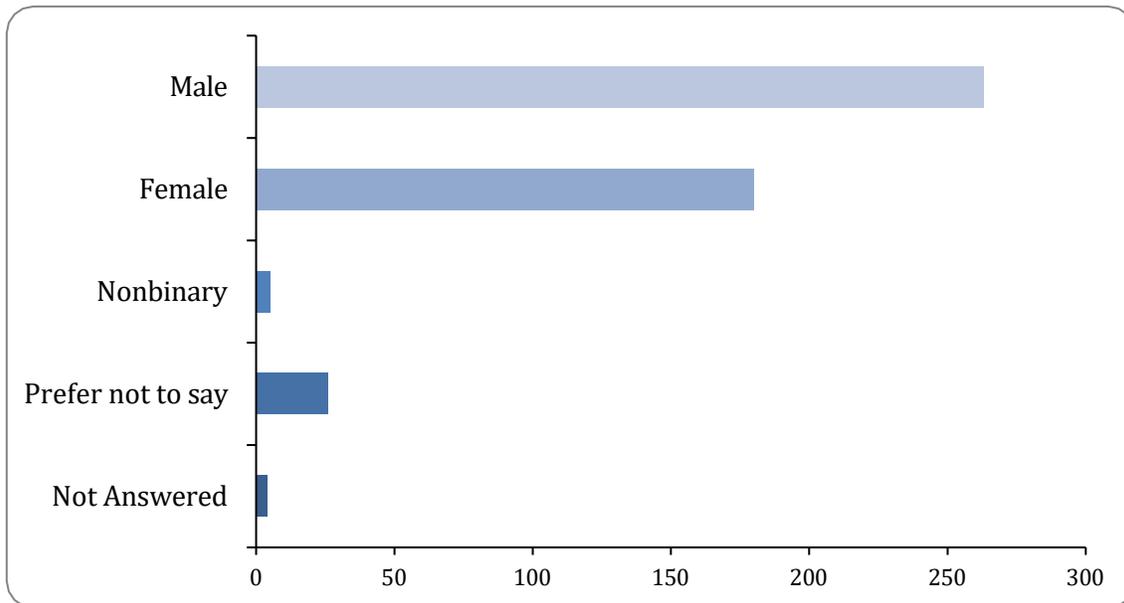
Other - please specify

There were 13 responses to this part of the question.

3: Are you...? (Please select only one item)

Gender

There were 474 responses to this part of the question.



Option	Total	Percent
Male	263	55.02%
Female	180	37.66%
Nonbinary	5	1.05%
Prefer not to say	26	5.44%
Not Answered	4	0.84%

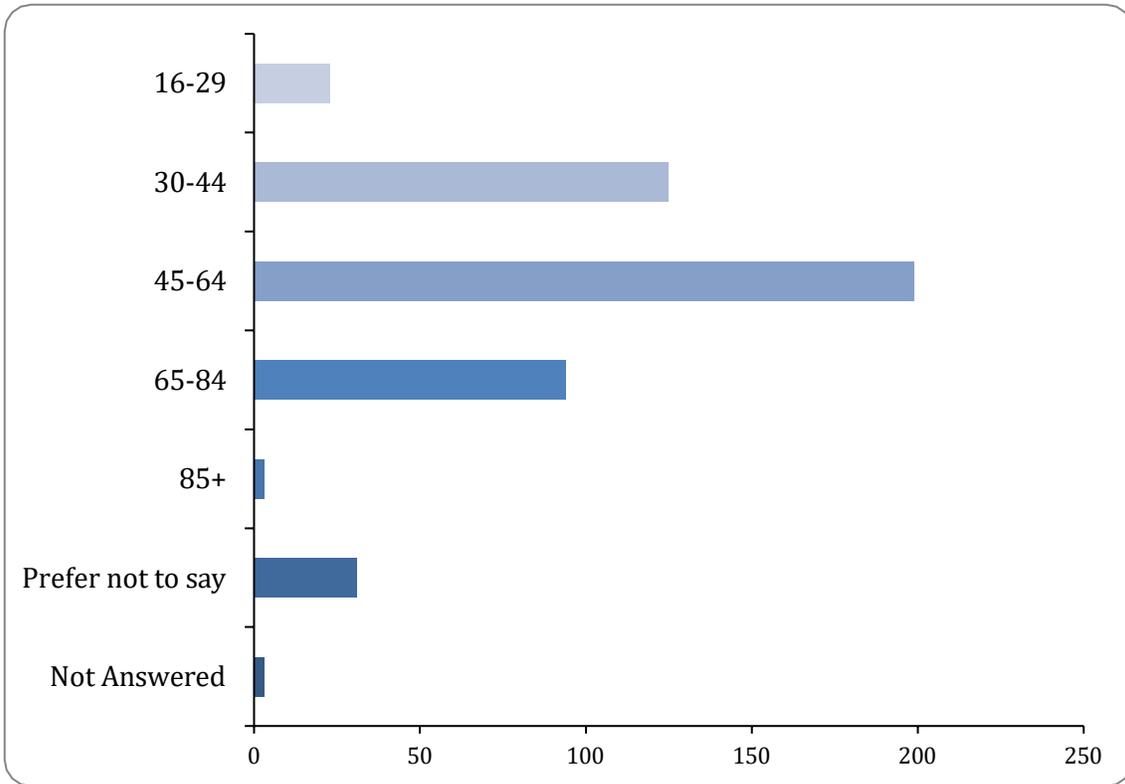
Other - please specify

There were 0 responses to this part of the question.

4: How old are you? (Please select only one item)

Age

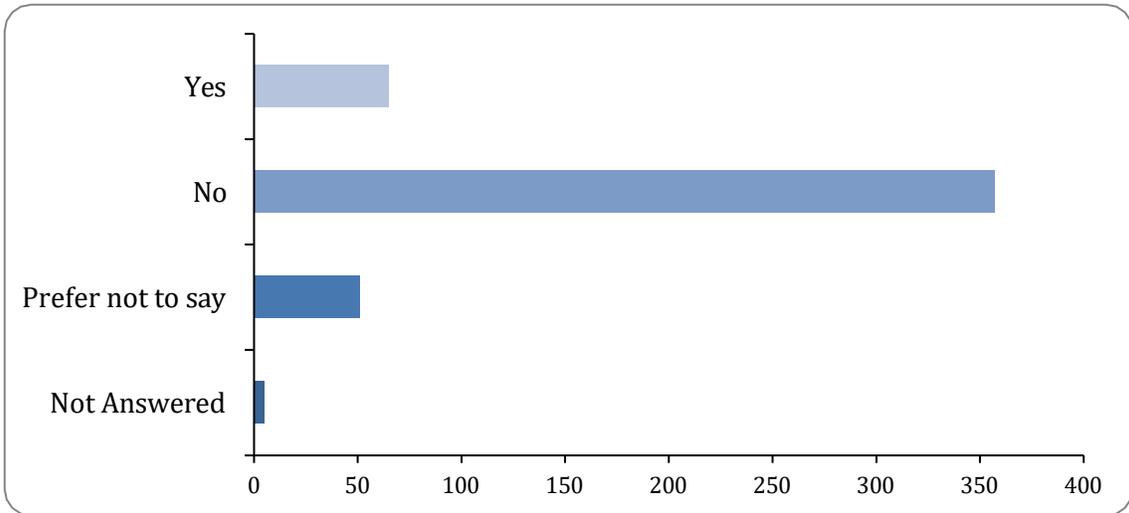
There were 475 responses to this part of the question.



Option	Total	Percent
Under 15	0	0.00%
16-29	23	4.81%
30-44	125	26.15%
45-64	199	41.63%
65-84	94	19.67%
85+	3	0.63%
Prefer not to say	31	6.49%
Not Answered	3	0.63%

5: Do you have any long-term illness, disability or health problem that limits your daily activities or the work you can do? (Please select only one item)
Disability

There were 473 responses to this part of the question.

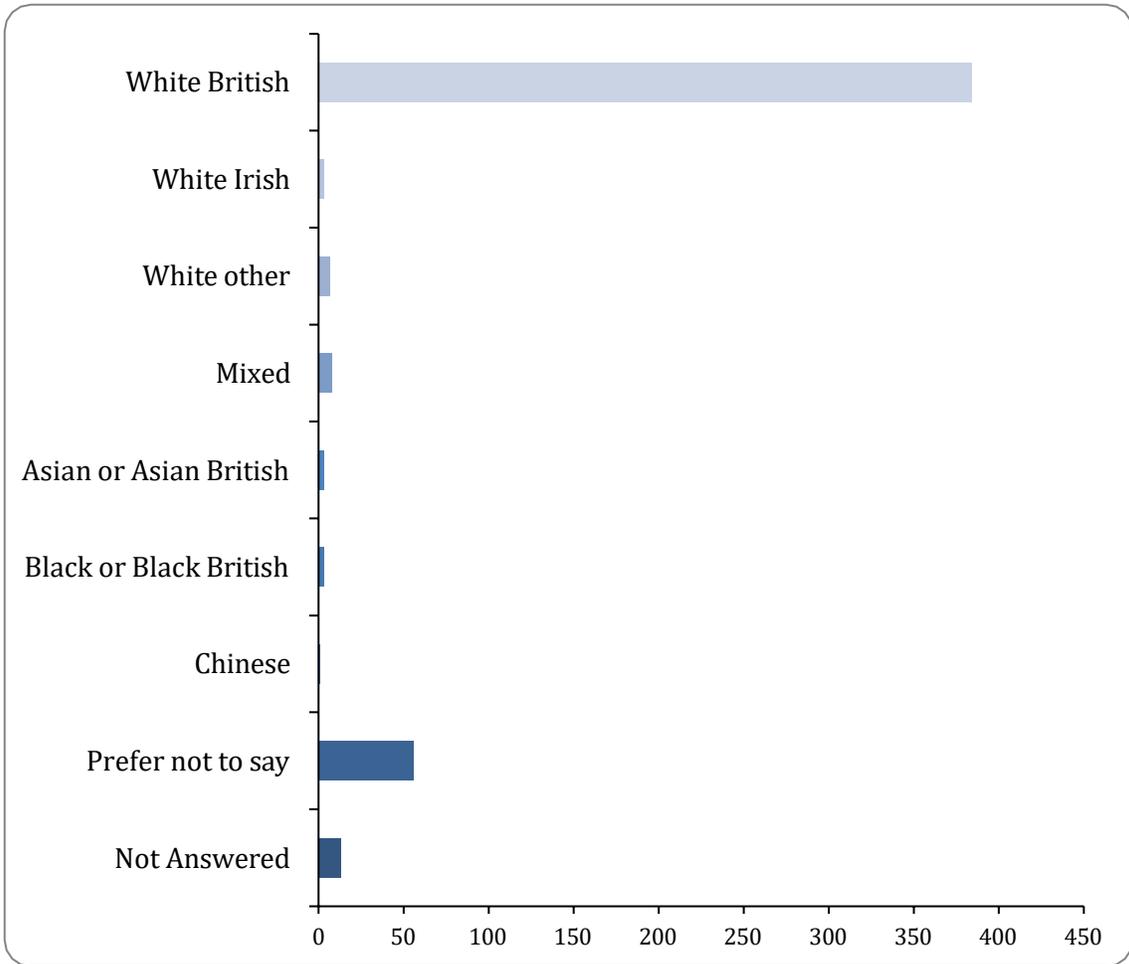


Option	Total	Percent
Yes	65	13.60%
No	357	74.69%
Prefer not to say	51	10.67%
Not Answered	5	1.05%

6: How would you describe your ethnic background? (Please select only one item)

Ethnicity

There were 465 responses to this part of the question.



Option	Total	Percent
White British	384	80.33%
White Irish	3	0.63%
White other	7	1.46%
Mixed	8	1.67%
Asian or Asian British	3	0.63%
Black or Black British	3	0.63%
Chinese	1	0.21%
Prefer not to say	56	11.72%
Not Answered	13	2.72%

Other ethnic background - please describe:

There were 13 responses to this part of the question.

7: What is the first part of your postcode? (e.g. NR4)

Postcode

There were 468 responses to this part of the question.



NCC contact number: 0344 800 8020
 Text relay no.: 18001 0344 800 8020

Your Ref:
 Date: 24 November 2022

My Ref: PAA014/ID/AW/02
 Tel No.: 0344 800 8020
 Email: transportfornorwich@norfolk.gov.uk

Dear Sir/Madam,

Transport for Norwich: Consultation on proposals for Heartsease Roundabout, Norwich

Norfolk County Council and the Transport for Norwich (TfN) partnership are asking for feedback on a series of proposed improvements to the Heartsease roundabout in Norwich.

The aim of this scheme is to improve crossing facilities for those walking and cycling in the area, whilst improving safety for all road users by reducing vehicle speeds and removing confusion, hesitation and conflict on this key junction of the outer ring road.

These improvements would be funded by the Department for Transport's Transforming Cities Fund which can only be spent on the highway network.

We're writing to let you know how to find out more about the project and how to take part in our consultation.

What's being proposed and why

This table explains what changes we're proposing and the reasons behind them. The accompanying plans available on our website show what the project could look like on the ground.

Proposal	Reason for proposal
1. Roundabout island and approaches to be realigned to single lane vehicle entry/exit on all arms with a safe overrun area for heavy goods vehicles.	To enable the introduction of new crossing facilities to aid those on foot or cycle (see point 2 below). Slow vehicle speeds and improve safety for all road users.
2. New parallel zebra crossings (which give priority to those on foot or cycle) to be installed on all arms of the roundabout.	To allow a safe way for those on foot or cycle to cross on all arms of the roundabout.

Continued...

3. New 3m wide shared use paths created around all arms of the roundabout (subject to land availability where applicable).	Improve safety/comfort and enable those on foot or cycle to navigate the roundabout. Shared use areas either side of Harvey Lane are subject to land availability.
4. Improved footway on St Williams Way and where the shared use paths join onto the existing footway.	Improve safety/accessibility for those walking or cycling.
5. New segregated cycle path connecting to existing cycle lanes on St Williams Way.	Improve safety and comfort for cycling. To provide a safe transition from the cycle lanes on St Williams Way onto the shared use paths around the roundabout.
6. New cycle facilities to connect with carriageway on Heartsease Lane.	Improve safety and comfort for cycling. To provide a safe transition from the shared use paths to/from the road.
7. Existing signalised crossing on the northern end of Harvey Lane to be removed and new parallel zebra crossing provided in its place (see proposal 2 above).	Provide a safe and consistent way for those on foot or cycle to cross the road on all arms of the roundabout.
8. New waiting restrictions (double yellow lines) to be installed south side of St Williams Way (15m in length) and the 36m along the north side of Plumstead Road East	As St Williams Way will be narrowed any parked cars in this location would block the road. Plumstead Road East restriction will improve visibility/safety for residents exiting driveways.

Existing cycle routes in the surrounding area would also be improved to encourage the use of quiet residential streets as alternative cycle routes which avoid the junction entirely (please see alternative cycle route map for further details).

How to comment

There are two ways to comment on the consultation:

- Visit www.norfolk.gov.uk/heartseaseroundabout where you can view plans in more detail and complete our online survey to share your thoughts on the proposals.
- Ask for a hard copies by calling or emailing us using the details at the top of this letter. Large font and other formats are available on request.
- All comments must be received by **Sunday 18 December**.

Next Steps

We will then carefully consider all responses and report back to the Transport for Norwich Advisory Committee early next year. The webpage above will be kept up to date with the latest progress and information.

Yours faithfully,

Transport for Norwich

Appendix E – Common Themes

Analysis of Free Text Responses from November 2022 – January 2023 consultation for Heartsease Fiveways Roundabout

Main Common Themes and Officer Responses

This appendix summarises the free text responses from the consultation. The end of this report shows the respondents' demographics.

Supporting themes

Main Supporting Theme	Total responses
Supports improvements	28
Like pedestrian crossings on all arms	17
Will help slow down traffic	6
Safer for pedestrians and cyclists	6
It will be an improvement for learner drivers/instructors	2
Reduce hesitation	2

Objecting themes

Objection	Total Responses	Officer Response
Single lane entries at the roundabout will cause hold ups / congestion	57	Single lane entries are required at the roundabout as the circulatory carriageway is designed to accommodate the width of one vehicle. This layout will help to slow traffic speeds, make the road layout clearer to understand and reduce road traffic collisions. Drivers cannot easily see gaps in circulating traffic on the existing roundabout due to the speed at which traffic enters and circulates the roundabout. The improved roundabout geometry will help to remove driver hesitation and delays.
Zebra crossings considered too close to exits at roundabouts / are dangerous / will cause hold ups	128	The proposed design is in line with highway design guidance, has been agreed with Active Travel England and has been subject to safety audit. The crossings are located on the pedestrian and cycle desire lines across the junction, ensuring journeys are as convenient and attractive as possible.
Dislike shared use footpaths	33	Segregated facilities for pedestrians and cyclists are provided where practicable but there are instances where there is insufficient space to do so within the highway boundary. Where possible, we will seek to acquire land outside of the highway boundary to provide the additional space needed for the provision of segregated facilities.

Objection	Total Responses	Officer Response
Roundabout is fine as is	32	<p>The roundabout currently has a poor safety record and has experienced a number of accidents involving vulnerable road users who were walking and cycling. Between July 2011 and November 2022, there were 33 recorded accidents at the Heartsease Fiveways roundabout, 15 have involved cycling casualties and 8 involved pedestrian casualties. Three of the arms of the junction have no pedestrian crossing facilities. Improvements are required to enable those cycling and walking to move around the area and to improve safety.</p> <p>Drivers cannot easily see gaps in circulating traffic on the existing roundabout due to the speed at which traffic enters and circulates the roundabout. The improved roundabout geometry will help to remove driver hesitation and delays.</p>
Waste of money	35	The funding is allocated by the DfT specifically for this scheme and may not be spent on other County Council activities, such as highway maintenance.
Will create rat runs	22	We will monitor traffic flows on nearby roads before and after the scheme implementation. Interventions will be considered if a need is identified but this will be subject to consultation.
Proposal is anti-motorist	13	<p>The proposal allows motorists to continue to use the area whilst improving provision for other modes of transport.</p> <p>Drivers cannot easily see gaps in circulating traffic on the existing roundabout due to the speed at which traffic enters and circulates the roundabout. The improved roundabout geometry will help to remove driver hesitation and delays</p>
Will create more pollution	33	The proposal will help to encourage modal shift to walking and cycling. The Broadland Northway is available as an alternative route around the east and north of the city.
Preventing car access to the city centre	16	The proposal doesn't restrict vehicle access to the city centre.

Examples of common reasons for the objecting themes

Single lane exits at the roundabout will cause hold ups/ congestion
The roundabout is busy and single lane cause long delays or traffic jams
Could evidence or metrics be provided to show that reduction to single lane will not substantially impact on the vehicle movements through the space.
Fiveways [Earlham] roundabout now has single lane roads on the approaches and look at the significant delays on the approach to the university.

Zebra crossings too close to exits are dangerous/ will cause hold ups
Stopping for the zebra crossings will create congestion over the roundabout.
Zebra crossings are dangerous and absolutely useless for the elderly and those who have sight problems
Zebra crossings on entrance/exits to roundabouts is EXTREMELY dangerous. I speak as an ex driving instructor, road safety advocate, and dog walker
Catton Grove is a similar designed roundabout where vehicles often block all the exits. That road has a fraction of the traffic flow at Heartsease
This type of crossing near to the exit of a roundabout is dangerous. Having experienced roundabouts in Catton Grove and other places, I have seen so many near misses. These sort of crossings, with no traffic lights, are dangerous particularly for children who do not know how to use them and think it's safe to run out, expecting the driver to stop.
Impatient/ frustrated drivers less likely to stop after queuing on the roundabout.
Car drivers don't notice or ignore zebra crossings, e.g. Using the crossings near the Jet garage further down Plumstead Rd East and I have had many close incidents of cars driving over them while I am halfway across the road. Cars are too busy accelerating off the roundabout to notice pedestrians.
Suggested crossing locations at same distance as Harvey Lane crossing, Aldi crossing, 40 – 50 metres from roundabout exits, St Williams Way crossing and 150m away.

Dislike shared paths
There is conflict between pedestrians and cyclists and this will increase.
Concerned about the shared use of the footways especially for the elderly, disabled and people walking with small children or pushchairs as using similar shared spaces in Norwich, the cyclists tend to travel too fast or too close to the pedestrians.
Shared use cycle paths is very negative. Pedestrians don't see or consider cyclists and incidents occur easily. If a shared use path is the only option, it should be clear it's not an ordinary footpath, with lots of signs and the path being a very obvious, different colour to differentiate itself from a normal path.
Unsafe for older people unused to the changes and the blind who won't see cyclists

Roundabout is fine as is
No or low accidents
Never had any problems with the roundabout from any approach
Completely unnecessary
There is nothing wrong with the existing roundabout
Only needs better signage/ road markings

Waste of money
As far as I am aware, no fatalities of pedestrians or major car crashes. What a waste of money!!

Crossings should be signalled

The zebra crossings should be light controlled pelican crossings (as per Harvey lane) as they are safer for all users. The issue with zebra crossings in a very busy area is that when lots of pedestrians wish to cross it could hold up a lot of traffic for a period of time and cause problems backing up on the roundabout at busy times.

Non-signalised cycle and pedestrian crossings on all of the roads approaching the roundabout would not be very safe as vehicles exiting the roundabout would not have a clear line of sight to determine whether a cyclist or pedestrian is waiting to cross at the designated crossing point and could potentially have to stop suddenly, increasing the chance of an accident occurring

I am a partially sighted senior citizen who regularly crosses the roundabout to access shops as I can no longer drive. Without the signalled crossing on Harvey Lane, I would not be confident that traffic would stop here or on the other roads.

The lights can act as a speed moderator when drivers are approaching, tending to reduce speed a few metres back on seeing a red or amber light

Will create rat runs

Drivers will use side roads to avoid congestion

Cars will move to the quieter cycle routes that highlighted as alternatives

Rat running and speeding already exist on Borrowdale Drive

Proposal will cause hold-ups/ bottleneck/congestion

These proposals would only cause further congestion around this roundabout, which is already very busy, increased queuing, and an increase of smaller roads by drivers trying to bypass said traffic

Should be looking at ways to get the traffic moving quicker out of city not holding them up.

It is a main route and will cause considerable delays for commuters and school runs throughout Thorpe St Andrew

Primary function is a ring road, need to retain its traffic flow

The ring road is to circulate traffic and reduce traffic on other roads

These changes will impact on traffic passing through a major link road in and out of the city, causing traffic jams, increased pollution and impacting on local residents and businesses

Comments provided in addition to supporting and objection themes

Comments	Total responses	Officer response
Borrowdale Drive is currently a rat run with cars regularly driving over the 20mph restriction.	2	Moving traffic offences including driving in excess of the speed limit are enforced by the police. This feedback will be considered when formulating a traffic monitoring proposal.
Replace roundabout with traffic lights	2	This option has been investigated and has been discounted due to the modelled congestion impacts.
There are too many entrances into a roundabout of its size	5	The current layout is historical. The proposed scheme will be designed to correct geometry, widths etc. as set out in design guidance.
Crossings should be on raised tables	9	This has been considered. Raised tables do have some benefits but they can also result in complaints from those nearby relating to noise and vibration and they tend to also require regular maintenance. Raised tables can also be problematic on routes frequently used by HGVs as is the case at this site.
Markings on the road would solve this problem and be a lot cheaper	2	Markings on the road would not provide adequate walking and cycle facilities or resolve the safety issues that have resulted in a high accident record.
Need double yellow lines approaching all arms	6	There will either be double yellow lines or a crossing point or zig zag markings on each arm – it is not permitted to park on any of these.
Access restrictions into and out of the Aldi store are routinely ignored causing road safety issues and congestion.	5	Road markings and signage are in place to indicate the restriction here. As part of detailed design, we will review whether any improvements to signage can be made.
Council doesn't listen to comments	9	This report has set out the feedback received and the reasoning behind the recommendations put forward.
The cost is too expensive for the work	12	The DfT have provided funding for the proposed scheme which includes not only construction work, but costs associated with land, legal fees, design fees and site surveys/investigation.
Needs to be a Dutch style roundabout	17	Traffic modelling carried out on this proposal predicted a significant increase in general traffic and bus journey times so this option has not been progressed.
Reduce the speed of the approaches to the roundabout	7	The design of the junction and approaches will promote slow speeds.

Comments	Total responses	Officer response
Spend the money elsewhere	8	The DfT have allocated funding for this specific scheme, and it is not permitted to spend it elsewhere.
The proposal doesn't go far enough to benefit pedestrians and cyclists	11	We will endeavour to acquire land where possible to provide segregated cycle and pedestrian facilities. The proposed scheme is a balance of improvements for pedestrians and cyclists whilst still allowing motorised traffic to use the area.
Concerned about the disruption caused and length of the works	3	Disruption will be kept to a minimum but some disruption will occur during the works. We will liaise with people in the local area to ensure they are well informed.
This proposal is not well thought out/ dangerous	12	The proposal is the result of extensive optioneering, it is agreed with Active Travel England and has been subject to safety audit.
An underpass or bridge would be the solution for cyclists and pedestrians.	3	An underpass or bridge would require a large amount of land and funding which is not available and such a scheme would not provide value for money.

Some examples of comments and suggestions from the consultation

Comments

- I can't see any mention of the expected effect on the many buses that use the roundabout and the existing bus stops both sides of Plumstead Road near the roundabout. It is ridiculous to compare the roundabout to the five ways. The demographic is completely different. There are hundreds of university students on foot or cycling in that area. Thorpe St Andrew has a high level of elderly residents who cannot cycle.
- I'm not convinced the zebra crossings are a good idea. Ordinarily I would agree that giving pedestrians priority is important, but I am concerned this could lead to a bottleneck in rush hour. Rush hour at this roundabout causes queues on roads frequented by emergency vehicles, so replacing the zebra crossings with pelican crossings to stagger the pedestrians and allow traffic to leave this crucial roundabout might be the safer option.
- The only problem at the roundabout is poor driving, changing the roundabout will only confuse and increase poor driving
- My largest concern regarding shared use pavements and zebra crossing in this location is that it will further encourage the large amount of cyclists who use the pavements on Heartsease Lane and Plumstead Road and will do nothing to improve the safety of school children, elderly, disabled and other pedestrians who already have many near misses with cyclists and e-scooter riders.
- The current roundabout/road configuration is dangerous. The roundabout is too small and the traffic flies round it with many junctions close to each other.
- Speed is a constant issue on Harvey Lane. If something could be done to remind drivers it's a 30mph zone that would help. Perhaps a speed warning light halfway down near to Morse Road junction.
- I cannot believe it's going to cost 4.4m!! By putting crossing points on all arms will only further confuse and cause delays, the Chapelfield roundabout is a case in point the crossing causes traffic to back up and interfere with the lights changing. If the Heartsease

roundabout had clearer signage and the foliage on the roundabout was kept cut down it would not be a problem.

- One lane exits on the roundabout will cause more congestion, and close zebra crossings will be a huge hazard for pedestrians and drivers, and cyclists if lanes are introduced. Too close to the roundabout so this will also cause congestions and risky for people crossing if cars can't get a chance to stop before leaving the roundabout.
- As a pedestrian who lives in Heartsease I am firmly in favour of making it easier to cross the road and zebra crossings would definitely help with that as I currently have to rely on generous drivers willing to stop when trying to cross the top of Mousehold Lane to the Plumstead Road shops. It would also make it easier to cross to the bus stop quickly at Aldi or cross to get to Harvey Lane via St Williams Way. An island in the middle of the road near the allotments/Aerodrome Road wouldn't go amiss either. Also single lane would mean you weren't relying on two lanes of cars to stop for you as often the case is that currently only one set of drivers are willing so you can't get across any way.
- I am a local childminder who often travels on foot to take the children to activities. My heart is in my mouth every time I have to cross the roundabout with a double buggy! Some drivers are considerate and will let me go, but as it is a busy roundabout, drivers often rush into a gap in the traffic and on to their exit. Plumstead Rd is a busy zone for pedestrians due to the shops and it would make us all feel safer for pedestrians to be recognised and prioritised at the roundabout.

Other Suggestions and questions

- Will proposals to improve cycling provision in the neighbourhood (mentioned somewhere) be consulted on? I live on a private road nearby that people do cycle on (not a problem) but would suggest that encouraging this further might not be appropriate as residents are responsible for its upkeep and we do not always have the resources to ensure it is well-surfaced.
- The corner bordering Plumstead Road East and St Williams Way is also hampered by the large hedge belonging to *REDACTED*. A common problem in the area (shrubbery/hedge/tree obstruction of pavements) that gets no attention from local government.
- Now that the NDR is in place, could you re-route the outer ring road back along Harvey Lane? Leaving St William's Way as a connecting lane to the NDR / Southern Bypass, allowing Yarmouth Rd to revert to being a quieter B road. Then the Heartsease roundabout could become a signalised crossroad (by blocking the exit to Plumstead Road) which would be safer and smoother for all. Simpler, safer. Fiveways on Earlham Road isn't really comparable as it's not part of the outer ring.
- it would be a missed opportunity not to add in an additional single zebra crossing on Plumstead Road East where the alternative cycle route will be sign posted coming out of the Heartsease estate and over to Aerodrome Road.
- Is the pelican crossing near Aldi being kept?
- I feel that the purpose of the proposal is not correctly stated? It appears to mirror the ONS Annual Killed Seriously Injured Interim report for 2019 & 2021 which reiterated the need to reduce deaths of Pedestrians, Cyclists and motorbike riders.
- The green "landscape" strip along Plumstead Road/Plumstead Road East is very poorly maintained, be better to turn this area into a cycle lane
- I would also like to ask what is going to be done to limit the amount of HGV's that constantly use Harvey Lane and the Heartsease Roundabout as rat run between the Inner Ring Road and the Southern Bypass (at all times of day & night) so as to avoid using the NDR. No

wonder the pedestrian barriers at the bottom of Harvey Lane are always being hit and requiring replacement.

- The roundabout is tricky to negotiate if you are either a pedestrian, cyclist or motorist. The cycle lanes on St Williams way from Pound Lane up to the roundabout are largely ignored by motorists who still park in them and speed past them. As a cyclist I still DO NOT feel safe using these. Especially from Pound Lane to Thunder Lane, where I feel the latest update to the path has been a waste of public money and dedicated cycle lanes similar to Mousehold Gurney Road (not just a painted white line between 750mm-1000mm off the existing kerb) are needed to both sides.
Cyclists need to be separated and perhaps slightly detour from the roundabout, as if single lane approaches are adopted, this will increase congestion and irritate motorists even further.

Demographics

These tables show how the respondents use the Heartsease Roundabout and what their demographics are.

	Total	NR1/ NR7	Neighbouring areas	Other Areas	Disability - Yes	F/M/ O (Other)
Pedestrian	91	82	7	2	9F 8M 3O	33F 46M 10O
Cyclist	52	30	16	6	4M 1O	4F 45M 3O
Motorcyclist	17	15	2		1M	5F 12M
Motorist	303	237	37	29	12F 21M 2O	134F 151M 17O
Bus Passenger	8	6	None	2	1O	1F 6M 1O
Wheelchair User	3	2	None	1	1F 1M 1O	1F 1M 1O
Not Answered	4	1	1	2	1F	2F 2M 3O
Sum Total	478	373	63	42	65	None

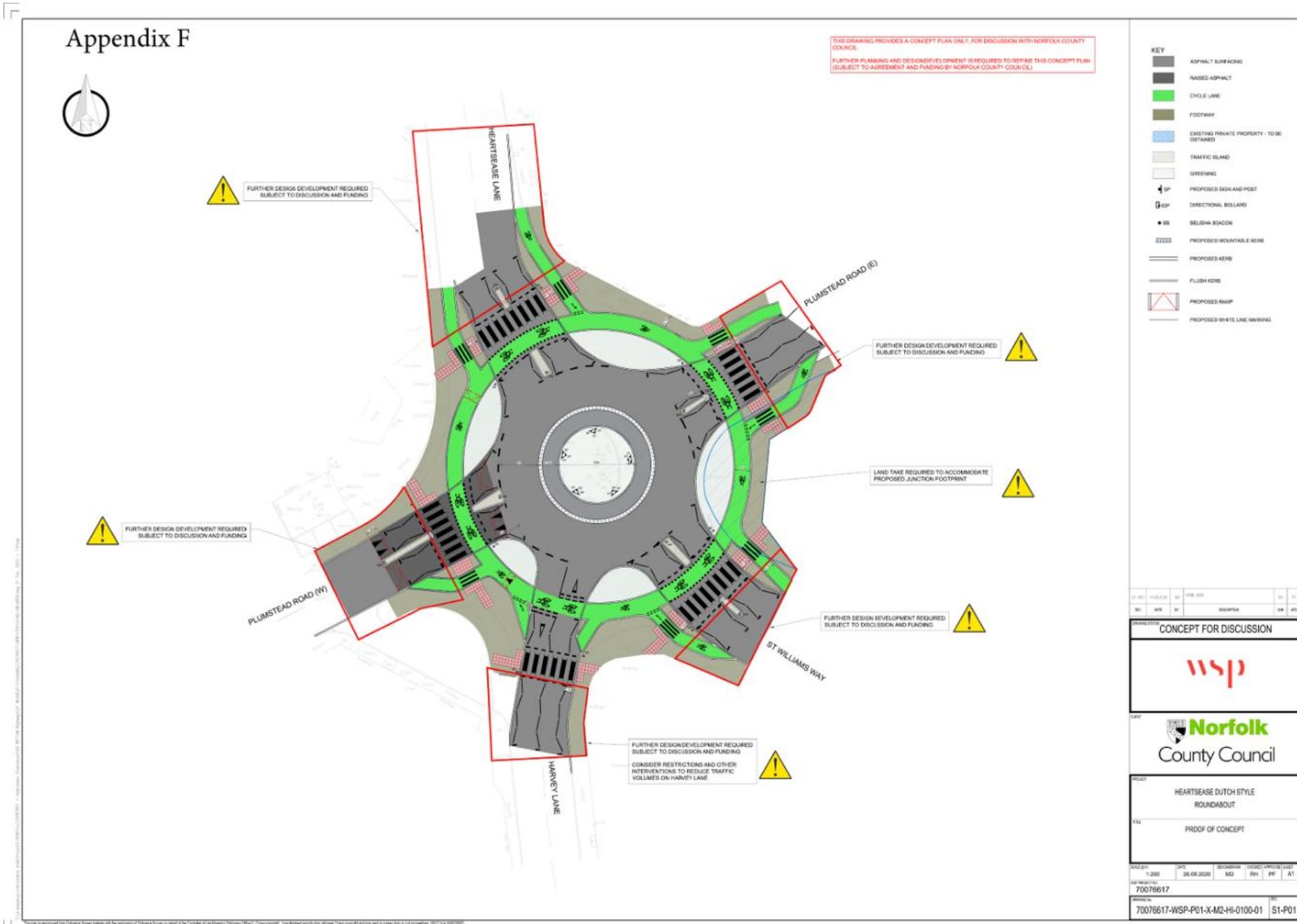
Other= Nonbinary, Not answered or preferred not to say

Two pedestrians stated they were blind and used a guide dog

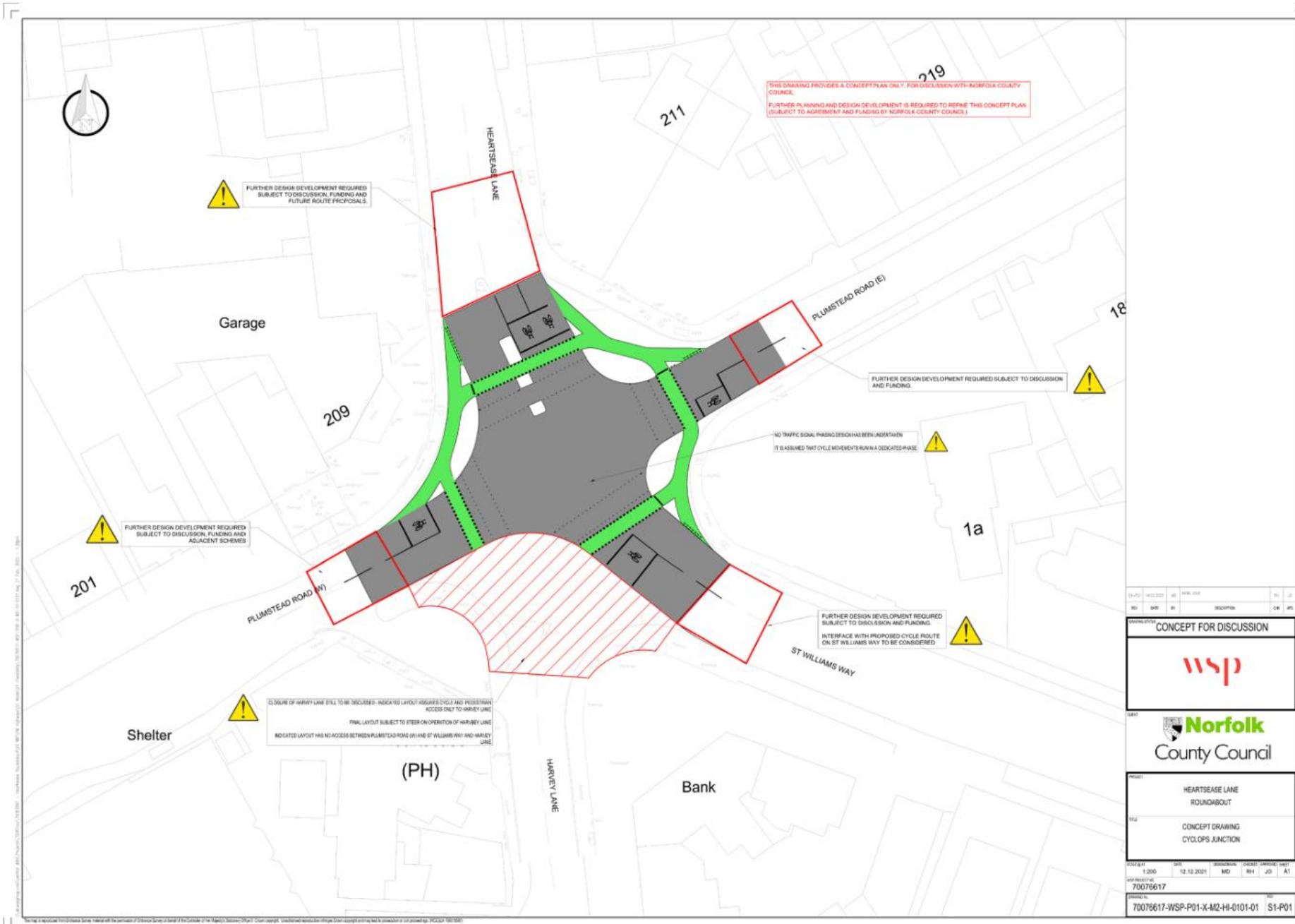
One motorist stated they were a driving instructor

Mode of use in areas	Total	NR1/ NR7	Neighbouring areas	Other Areas
Pedestrian only	79	70	7	2
Pedestrian and motorist	4	4	0	0
Pedestrian and other modes	6	6	0	0
Cyclist only	45	26	14	5
Cyclist and motorist	3	2	1	0
Cyclist and other modes	4	3	0	1
Motorcyclist only	15	13	2	0
Motorcyclist and cyclist	1	1	0	0
Motorcyclist and other modes	1	1	0	0
Motorist only	276	211	36	29
Motorist and pedestrian	15	14	1	0
Motorist and cyclist	3	3	0	0
Motorist and other modes	9	9	0	0
Bus Passenger only	6	4	2	0
Bus Passenger and motorist	1	1	0	0
Bus Passenger and other modes	1	1	0	0
Wheelchair User	3	2	0	1
Not Answered	4	1	1	2
Sum Total	478	373	63	42

Appendix F – Dutch Style Roundabout



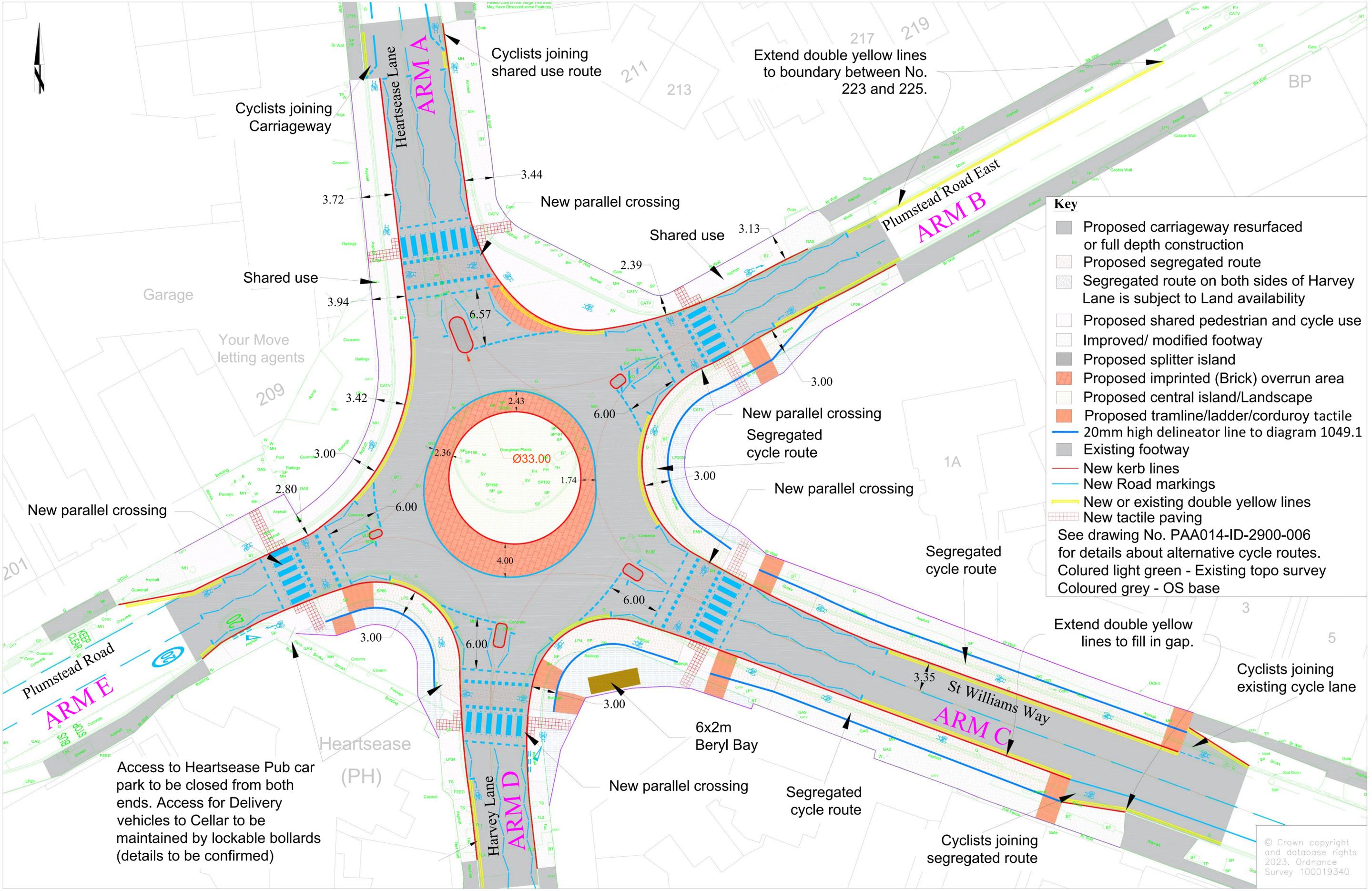
Appendix G – Cyclops Roundabout



Appendix H

Engineering

Plan



Key

- Proposed carriageway resurfaced or full depth construction
- ▨ Proposed segregated route
- ▨ Segregated route on both sides of Harvey Lane is subject to Land availability
- Proposed shared pedestrian and cycle use
- Improved/ modified footway
- Proposed splitter island
- Proposed imprinted (Brick) overrun area
- Proposed central island/Landscape
- Proposed tramline/ladder/corduroy tactile
- 20mm high delineator line to diagram 1049.1
- Existing footway
- New kerb lines
- New Road markings
- New or existing double yellow lines
- ▨ New tactile paving

See drawing No. PAA014-ID-2900-006 for details about alternative cycle routes.
Coloured light green - Existing topo survey
Coloured grey - OS base

Funded by:

Tom McCabe
Executive Director of
Community and Environmental Services
Norfolk County Council
County Hall, Martineau Lane
Norwich NR1 2SG

DRAWING TITLE
HEARTSEASE ROUNDABOUT JUNCTION IMPROVEMENT
PROPOSED LAYOUT

REV.	DESCRIPTION	DRAWN BY	CHECKED	DATE
A	Double yellow lines extended on Plumstead Road East	AW	DG	11/22
B	Updated following RSA1	AW	DG	12/22
C	New Ped/Cyclist segregated path added on both sides of Harvey lane	AW	DG	01/23
D	New Ped/Cyclist segregated path added on east side of Plumstead Rd east	AW	DG	02/23

	INITIALS	DATE	DRAWING No.
SURVEYED BY	PC	05/21	PAA014-HP-2900-011D
DESIGNED BY	AW	06/22	PROJECT TITLE
DRAWN BY	AW	12/22	TRANSFORMING CITIES 2
CHECKED BY	DG	12/22	HEARTSEASE ROUNDABOUT JUNCTION IMPROVEMENT
			SCALE
			1:200 @ A1
			FILE No.
			PAA014

Transport for Norwich Advisory Committee

Item No:6

Report Title: Norwich Airport Industrial Estate Link

Date of Meeting: 31 May 2023

Responsible Cabinet Member: Cllr Graham Plant (Cabinet Member for Highways, Infrastructure & Transport)

Responsible Director: Grahame Bygrave - Director of Highways, Transport & Waste

Is this a Key Decision? No

If this is a Key Decision, date added to the Forward Plan of Key Decisions: N/A

Executive Summary / Introduction from Cabinet Member

The Department for Transport awarded Norwich £32m capital funding through the Transforming Cities Fund (TCF). Norfolk County Council's successful application is based on a vision to "Invest in clean and shared transport creating a healthy environment, increasing social mobility and boosting productivity through enhanced access to employment and learning".

It is proposed to deliver a new bus and cycle link road with a footway from the Airport Industrial Estate to Norwich Airport. This scheme will significantly improve sustainable access to the airport, the International Aviation Academy Norwich (IAAN) and the wider industrial estate as well as providing a key missing link to the Yellow Pedalway walking and cycling route which links the city to Horsford.

This report outlines the options that have been investigated to achieve the scheme objectives and recommends a preferred option to submit the proposals to the local planning authority and progress to construction, subject to successfully securing planning permission.

Recommendations:

- 1. To recommend the Cabinet Member agrees to approve the proposals for The Norwich Airport Industrial Estate Link scheme as shown in Appendix A;**

- 2. To recommend the Cabinet Member agrees that the Planning Application is submitted, and subject to approval, construction of the proposals shown in Appendix A.**

1. Background and Purpose

- 1.1 Norfolk County Council (NCC), in partnership with Norwich City Council, Broadland District Council and South Norfolk Council secured £32m of funding from the Transforming Cities Fund (TCF) to deliver a range of schemes along identified corridors with the aim of making it easier to access jobs, training and retail areas by making improvements to support sustainable modes of transport.
- 1.2 It is proposed that a new bus and cycle link road is to be delivered with a separate footway from the Airport Industrial Estate to Norwich Airport. This scheme will significantly improve sustainable access to the airport, the International Aviation Academy Norwich (IAAN) and the wider industrial estate as well as providing a missing link to the Yellow Pedalway cycleway which links the city to Horsford.
- 1.3 The Airport Industrial Estate currently has no direct public transport link to Norwich Airport and sustainable access to the Airport is limited because of this.
- 1.4 Current bus services access the airport via Amsterdam Way. There are no bus services that directly serve the Airport Industrial Estate and the nearest stops are on Fifers Lane and St Faiths Road. Services approaching from the east or southeast of the city would benefit from a through link to the Airport Industrial Estate to provide a reliable service to meet this community's needs.
- 1.5 The Yellow Pedalway runs from Lakenham in the south of the city to the International Aviation Academy Norwich (IAAN) via the city centre. By enabling access through to the airport there is opportunity for the Yellow Pedalway to extend to the Northern Distributor Route and onwards to Horsford and Horsham St Faiths via Amsterdam Way.
- 1.6 Access to the Airport Industrial Estate from the north and west is limited with a large proportion of journeys to and from these areas being undertaken by car via St Faiths Lane. The proposed link would open access for sustainable travel to the industrial estate and the many local businesses contained within it. This would improve options provided to the local communities to make their journeys by sustainable means.
- 1.7 This proposal is expected to boost economic growth by enabling increased access to the area for those choosing to either use public transport, walk, or cycle.
- 1.8 Improvement to bike infrastructure will increase the cycling options generated by this route and it is anticipated to improve the usage of the existing Beryl bike share hub which is located at the International Aviation

Academy Norwich (IAAN), further enabling the option for students to safely cycle to and from the Academy.

2. Proposal

- 2.1 The following proposals are outlined in this report and are shown on the plan in **Appendix A**. Subject to the committee recommendations these proposals will form the basis of the public consultation and planning application which will be undertaken by Norfolk County Council.
- 2.2 The proposal is to improve public transport access between the Airport and the Airport Industrial Estate by upgrading and widening Liberator Road to enable two-way bus and cycle traffic to operate along the route.
- 2.3 Those cycling will also be able to use this route which will be closed off to general through traffic. The road will remain unadopted and will be subject to a speed limit of 20mph or lower which will be self-enforced by the alignment of the carriageway creating a quiet and safe environment for cycling and walking.
- 2.4 Access for those choosing to walk along the route will be improved through the provision of a 1.8m wide footway along the entire length of the southern side of the route.
- 2.5 Vehicle barriers will be installed within the link road to prevent unauthorised vehicular access between the airport terminal and the industrial estate and prevent illegal parking within the airport land. The barriers will be maintained by the Airport.
- 2.6 An area of grass verge with associated low-level planting will be installed approximately halfway along the new link road thus providing an area of green space.
- 2.7 The link road will remain in the ownership of the airport with a legal agreement in place to provide right of access for bus operators and public access on foot/cycle. Future maintenance liabilities will be met by the airport and/or its successors.

3. Impact of the Proposal

- 3.1 The proposals will provide much-needed access between the Airport and the Airport Industrial Estate. This will enable the provision of bus services directly to the Airport Industrial Estate. This will improve access and sustainable travel options for local businesses and the International Aviation Academy Norwich (IAAN).
- 3.2 Bus services will be able to be rerouted, or additional bus services provided, to use the new link road.
- 3.3 The proposal will improve the cycle network as it will unlock the potential of the Yellow Pedalway which is due to have a planned extension between Amsterdam Way and the Broadland Northway. The Yellow Pedalway scheme is planned to start in 2024.

- 3.4 A small triangular area of land will need to be purchased from the adjacent airport industrial estate. Also, a short length of boundary fence within the airport land will require relocating.

4. Evidence and Reasons for Decision

- 4.1 These proposals will help to deliver the vision set out in the Transforming Cities Fund application and will achieve the scheme objectives to:
- Improve access between the Airport and the Airport Industrial Estate, especially for sustainable transport modes
 - Provide a link to the Yellow Pedalway
 - Encourage a growth in walking and cycling

5. Alternative Options

- 5.1 Alternative routes for the link road were considered as part of feasibility studies and options were explored with affected landowners. This is the most direct, cost effective and buildable option.

6. Financial Implications

- 6.1 Funding of £1,152,931 has been secured through the Transforming Cities Fund. The project has been judged to be high value for money against an estimated overall budget in accordance with DfT infrastructure value for money guidance (including design fees, land and construction costs).

7. Resource Implications

7.1 Staff:

The scheme will be designed and delivered utilising existing resources.

7.2 Property:

NPS Property Services and nplaw will be required to facilitate the sale and transfer of land from the Airport Industrial Estate, and in drafting and agreeing the maintenance agreement with Norwich Airport.

7.3 IT:

None

8. Other Implications

8.1 Legal Implications:

nplaw are advising on the right of access and maintenance agreements and ensuring compliance with legislative requirements.

Norfolk County Council will be required to submit a planning application for the works.

8.2 **Human Right Implications:**

None.

8.3 **Equality Impact Assessment (EqIA):**

Norfolk County Council has a duty to pay due regard to equality when exercising its public functions. In promoting this scheme, we have considered the potential impact on people with protected characteristics.

8.4 **Data Protection Impact Assessments (DPIA):**

All personal data has been removed from reports being put into the public domain. Personal data has been stored as per NCC standards to allow further correspondence as part of the scheme development.

8.5 **Health and Safety implication (where appropriate)**

The proposed scheme has been designed to improve the safety of users. A road safety audit has been carried out and the details have been incorporated into the proposals. The new safer and convenient route will also move pedestrians, cyclists and bus users away from other, more congested routes such as Fifers Lane.

8.6 **Sustainability Implications (where appropriate):**

These proposals aim to have a positive effect on the environment by providing the infrastructure to encourage people to choose sustainable modes of travel to help reduce private vehicle mileage and carbon emissions.

8.7 **Any Other Implications:**

Officers have considered all the implications which members should be aware of, and these are included in the report.

9. Risk Implications / Assessment

9.1 A risk register is maintained for the Transforming Cities Fund programme as part of the technical design and construction delivery processes.

10. Select Committee Comments

10.1 Not applicable.

11. Recommendations

- 1. To recommend the Cabinet Member agrees to approve the proposals for The Norwich Airport Industrial Estate Link scheme as shown in Appendix A;**
- 2. To recommend the Cabinet Member agrees that the Planning Application is submitted, and subject to approval, construction of the proposals shown in Appendix A.**

12. Background Papers

12.1 None.

Officer Contact

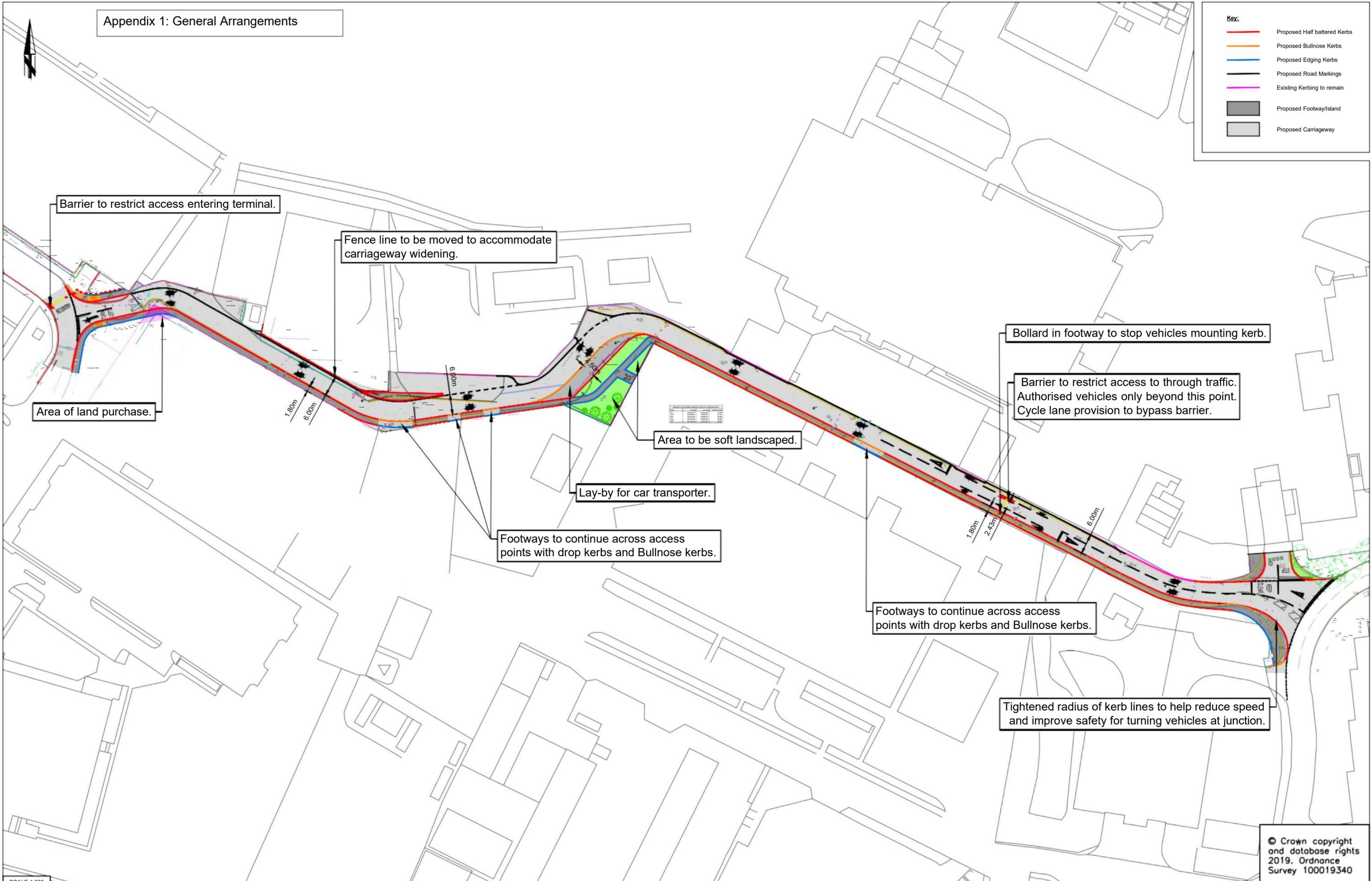
If you have any questions about matters contained within this paper, please get in touch with:

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Telephone no.: 01603 223292
Email: david.allfrey@norfolk.gov.uk



If you need this report in large print, audio, braille, alternative format or in a different language please contact 0344 800 8020 or 0344 800 8011 (textphone) and we will do our best to help.

- Key:**
- Proposed Half battered Kerbs
 - Proposed Bullnose Kerbs
 - Proposed Edging Kerbs
 - Proposed Road Markings
 - Existing Kerbing to remain
 - Proposed Footway/Island
 - Proposed Carriageway



SCALE 1:500

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Funded by:

Tom McCabe
 Executive Director of
 Community and Environmental Services
 Norfolk County Council
 County Hall, Martineau Lane
 Norwich NR1 2SG

DRAWING TITLE
 General arrangement

REV.	DESCRIPTION	DRAWN BY	CHECKED	DATE

SURVEYED BY	INITIALS	DATE	DRAWING No.
OS	OS	2019	PKA084-HP-9999-001
DESIGNED BY	MH	2022	PROJECT TITLE
DRAWN BY	MH	2022	PKA084 Norwich Airport link road
CHECKED BY	TO	2023	SCALE 1: 500 @ A1
			FILE No. PKA084-62

DRAFT