

Norfolk ZEBRA Scheme Equality Impact Assessment Version 2 August 2023

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Version 2 August 2023



First Eastern Counties



**Transport
for Norwich**



Norfolk County Council



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| 1 | Jan 2022 | Jeremy Wiggin | N/A |
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EQUALITY IMPACT ASSESSMENT

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|---|----|
| Norfolk ZEBRA Scheme Equality Impact Assessment Version 2 August 2023..... | 1 |
| 1 Executive Summary..... | 4 |
| 2 Legal Context..... | 5 |
| 3 Stakeholder Engagement | 6 |
| 4 Relevant Research/ Data..... | 8 |
| Table 1: Information on those with protected characteristics | 9 |
| Figure 1: Areas of Deprivation and Bus Routes that will be operated by new electric buses | 11 |
| 5 Potential Impact | 12 |
| Table 2: Impacts of the scheme on those with protected characteristics..... | 14 |
| Table 3: Impacts of scheme on those with protected characteristics (continued) | 19 |
| Table 4: Possible negative impacts of scheme on those with protected characteristics | 25 |
| 6 Monitoring and evaluation | 27 |
| 7 Conclusion | 28 |
| 8 Recommended Actions | 29 |
| Table 5: Recommended actions to address negative impacts. | 29 |
| 9 Glossary of Abbreviations and Defined Terms | 29 |



1 Executive Summary

1.1.1 This Zero Emission Bus Regional Area (ZEBRA) proposal will deliver 70 new, zero emission single-decker buses in Norwich. This will convert the current diesel bus fleet at the Roundtree Way First Bus depot in Norwich to full electric operation. Enhancements being made to the electrical supply in this area will provide the opportunity for additional electric-powered buses to operate from the depot in the future.

1.1.2 All buses funded by Government are now required to provide a level of accessibility that supports the enhanced Public Service Vehicles Accessibility Regulations (PSVAR) standards. This includes the following:

- A second priority wheelchair space (flexible),
- Hearing loops,
- Space for assistance dogs,
- Audible and visible information for next-stop information.

1.1.3 The new buses set out in this proposal represent a significant improvement in terms of passenger comfort, journey quality and accessibility compared to current buses that will be replaced.

1.1.4 The benefits the new buses will provide are particularly relevant to a higher proportion of protected groups who use public transport as a means of:

- Improving access to work,
- Decreasing social isolation,
- Increasing community cohesion,
- Increasing mobility,
- Sustaining the community.

1.1.5 Specific design features of the new buses that are additional to those set out above:

- Low floor access, supplemented by a manual ramp that can be



deployed,

- Level floor throughout, except the rearmost 13 seats of the lower saloon. As per conventional double-deckers, the upper deck is accessed via a staircase,
- Efficient heating for passenger comfort,
- On-board CCTV for passenger safety,
- High-quality lighting for passenger safety and convenience,
- Automatic gearbox,
- Low noise levels,
- Improved air quality inside the vehicle as there are no emissions from the engine.

1.1.6 The buses have been designed in conjunction with a wide range of different passenger groups representing a thorough cross-section of bus passengers.

2 Legal Context

2.1.1 Public authorities are required by the Equality Act 2010 to give due regard to equality when exercising public functions.

2.1.2 Public bodies have a due regard to the 'Public Sector Equality Duty':

- Eliminating discrimination, harassment, victimisation,
- Advancing equality of opportunity between people who share a protected characteristic and people who do not share it,
- Fostering good relations between people who share a protected characteristic and people who do not share it, taking due regard to tackle prejudice and promote understanding.

2.1.3 The purpose of an equality impact assessment (EqIA) is to consider the potential impact of a proposed change or issue on people with protected characteristics. If the assessment identifies any detrimental impact, this enables mitigating actions to be developed.



- 2.1.4 It is not always possible to adopt the course of action that will best promote the interests of people with protected characteristics. However, equality assessments enable informed decisions to be made that take every opportunity to minimise disadvantage.

3 Stakeholder Engagement

- 3.1.1 Pre-COVID-19 pandemic, Norfolk County Council (NCC) representatives regularly attended Bus User Forums in Norfolk that were chaired by a representative from Bus Users UK. The Forums included representatives from a wide range of bus users and interested parties, as well as the general public. This activity was postponed during the pandemic, but the County Council is keen to restart this engagement and will be making arrangements for this. The meetings may take the form of face-to-face meetings, virtual discussions or a hybrid approach. Representatives at the Bus User Forums included:

- Bus Users UK,
- Norfolk Older People's Forum,
- Norwich Access Group,
- Women's Institute,
- Norfolk & Norwich Association for the Blind,
- Bus operators,
- Norfolk County Council Officers (representing the Access & Inclusion / Passenger Transport / Communications teams).

- 3.1.2 In putting this EqIA together, information has been collated from engagement with stakeholders through the Bus User Forums outlined above, as well as specific engagement with bus operators and wider stakeholders who have contributed to the development of local strategies and projects, such as the Bus Service Improvement Plan, Transport for Norwich Strategy, Local Transport Plan and Transforming Cities Fund project. Whilst this was not specifically targeted at this particular proposal for 70 zero emission buses, this feedback has provided a good basis for understanding the impacts this scheme will have on different users, particularly those with protected



characteristics. It is recognised that specific engagement is needed on zero emission buses and their impacts, so NCC will engage with the following groups and organisations in addition to those that are engaged with through the Bus User Forum:

- Passenger Focus,
- Active Norfolk
- Public Health,
- Vision Norfolk,
- Norwich Deaf Centre,
- Norwich Business Improvement District,
- Emergency Services
- Community of Practice discussions with other successful cities to share feedback and approach to monitoring and evaluation.

3.1.3 A detailed communications and stakeholder engagement strategy is outlined in the Management Case. A summary of the key elements is the following:

- Communication of the ZEBRA scheme will sit within the Transport for Norwich (TfN) programme, which is a partnership led by NCC with partner local authorities Norwich City, Broadland District and South Norfolk Councils,
- Communications around the ZEBRA scheme will highlight the strategic benefits brought by this investment and how this complements the delivery of other infrastructure schemes that are providing priority to public transport on the highway network, as well as behaviour-change programmes that are aimed at reducing single-car occupancy and encouraging greater use of public transport and active modes,
- Established ways of communicating and engaging already used by TfN will continue and be adapted to suit any new demands for the ZEBRA scheme. This will include the use of email, phone, text, letter, social media, web, online (virtual) and face-to-face,
- We will conduct highly personalised and direct early engagement with any businesses, groups or individuals directly impacted by the required infrastructure changes as part of our standard consultation process,



- The marketing strategy will be focused on a substantial pre-launch event arranged between NCC, bus operators and the bus manufacturer. This will be organised to raise public awareness and build support and excitement about the zero emission buses prior to deployment on the streets of Norwich. This will allow stakeholders and the wider public to not only view, but also experience the vehicles prior to operation.

4 Relevant Research/ Data

4.1.1 This proposal will impact on everyone who lives, works, learns and visits Greater Norwich, particularly those who currently use the bus, or are likely to use the bus in the future. This includes residents, service users and/or staff with a range of protected characteristics.

4.1.2 The following evidence was used to inform this assessment:

- Norfolk County Council's Equality, Diversity & Inclusion Policy,
- Norfolk County Council's Equality, Diversity & Inclusion Objectives,
- Norfolk County Council Area Reports on Norfolk's Joint Strategic Needs Assessment (JSNA) relating to protected characteristics,
- Business intelligence and management data, as quoted in this report,
- Equality Act 2010 and Public Sector Equality Duty codes of practice.

4.1.3 In terms of considering impacts on those with protected characteristics, information is available on how many people fit into the different categories of age, disability, sex, race, religion and marital status in terms of general population in Norwich and more widely across Norfolk. However, information relating to the protected characteristics of sexual orientation, pregnancy and gender reassignment is less readily available and harder to determine. In terms of breakdown across different types of transport user, such as those using buses, information is generally available for age, disability and sex, although many data collection exercises may not collect this information as a standard data set. Information on how many transport users would align with the remaining protected characteristics would be harder to establish.



4.1.4 **Table 1** below summarises the data we know relating to those with protected characteristics in terms of the general population and bus users.

Table 1: Information on those with protected characteristics

| Protected Characteristic | Data we know for general population | Data we know for bus users |
|--------------------------------|--|--|
| Age | 0-17 (18%) 18-64 (67%) 65+ (15%) | Over 60% of those aged 16-34 who were surveyed travelled on the bus at least 5 days per week – (Source: TF) 33% of those aged over 60 travel who were surveyed travelled on the bus at least once or twice a week – (Source TF) For both men and women most trips per year were made by the 17-20 age group – (Source: ABS). |
| Disability | Day-to-day activities limited a lot: 9% Day-to-day activities limited a little: 10% Day-to-day activities not limited: 81% | 15% of disabled people experienced difficulties with using public transport – (Source: NDS) 68% of those with a disability travel who were surveyed on a bus travelled on the bus at least 3 or 4 days a week – (Source: TF) |
| Gender reassignment | Not known | Not known |
| Marriage and Civil Partnership | 47% single 33% married 10% divorced 6% widowed 3% separated 1% same-sex civil partnership | Not known |
| Pregnancy and maternity | No data | Not known |



| Protected Characteristic | Data we know for general population | Data we know for bus users |
|--------------------------|---|---|
| Race | 91% white 4% Asian / Asian British 2% Mixed / multiple ethnic groups 2% Black / African / Caribbean / Black British 1% Other ethnic group | Not known |
| Religion or Belief | 44% Christian 43% no religion 2% Muslim 1% Hindu Remainder Buddhist, Jewish, Sikh and other | Not known |
| Sex | 50% Male / 50% Female | In 2020, on average, women and men made the same number of local bus trips (22 trips per person per year) – (Source: ABS) |
| Sexual Orientation | No data | Not known |

Note: General population data is from Norfolk Insight, which uses a variety of data sources and statistical models. Bus user data is from bus user surveys conducted in Norwich and across Norfolk by Transport Focus in 2017/18 (shown as 'TF'), the Annual Bus Statistics England 2020/21 (shown as 'ABS') or the National Disability Strategy (shown as 'NDS').

4.1.5 The following conclusions can be drawn from the data in Table 1:

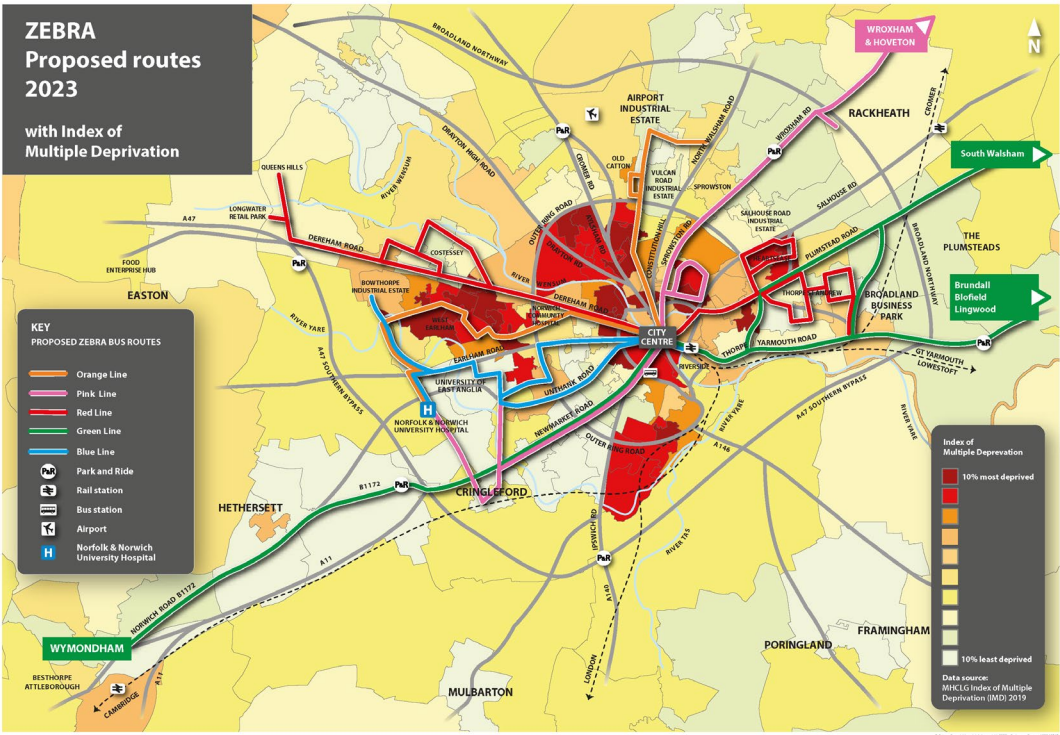
- A similar proportion of men and women are likely to use the bus in Norwich,
- A large number of young people using buses in Norwich rely heavily on bus and travel by bus every weekday,
- A substantial number of older people who use the bus in Norwich travel on the bus several times a week, particularly men, whose travel patterns and behaviour have been more resilient to Covid impacts.
- There are a significant number of people with a disability, who are likely to experience difficulties using public transport.

- 4.1.6

The proportion of households without access to a cars or van is distinctly higher in Norwich compared to both the regional and national levels (33.4% against 18.5% and 25.8%). The 2017/18 Transport Focus survey in Norwich and Norfolk suggests that 84% of those have no access to a car and use the bus at least 3-4 times per week - highlighting the reliance on bus for these individuals.
- 4.1.7

The Social Mobility Commission's "State of the Nation 2017: Social Mobility in Great Britain" report¹ outlined that Norfolk's people are the least socially mobile within the Eastern region, with 29% of children living in income deprived households in Norwich. In fact, 50% of areas in Norwich are considered to be in the 10% most deprived in the country. Norwich is therefore identified as a social mobility 'cold spot'. The bus routes that will benefit from the new electric buses serve areas of high deprivation, as shown in Figure 1.

Figure 1: Areas of Deprivation and Bus Routes that will be operated by new electric buses



¹ State of the Nation 2017: Social Mobility in Great Britain



4.1.8 Transport Focus has recently published research (Bus passengers' priorities for improvement, September 2020) that demonstrates the things people want from their bus services. Whilst this research has been conducted across England and is not specific to Norfolk, we know from our own engagement that this list reflects the things that bus passengers in Norfolk are asking us for. Regarding accessibility, this has advanced significantly in recent decades and step-free access is now a feature of practically all public buses in Norfolk. However, knowing a bus is accessible is not the same as knowing the availability of dedicated wheelchair space. Having step-free access at bus stops is of much less value if there aren't step-free routes to that bus stop from surrounding streets. Additionally, passengers with hearing and sight problems may not be able of people with mobility difficulties to use the bus as regularly as they might like. aware of when it is time to get off their bus. These factors all affect the

5 Potential Impact

5.1.1 The protected characteristics that are considered in this EqlA are the following:

- Age,
- Disability
- Gender reassignment,
- Marriage and Civil Partnership,
- Pregnancy and Maternity,
- Race,
- Religion or Beliefs,
- Sex,
- Sexual orientation.

5.1.2 Based on the evidence available, this proposal is likely to have a positive impact on people with protected characteristics, particularly those that are current or future bus users. Wrightbus, the chosen manufacturer of the buses,



has based their EV buses on the successful Streetdeck Electroliner BEV models which they describe as the best in its class range.

- 5.1.3 Positive impacts are likely to be experienced by all those with protected characteristics, but some users are likely to experience more benefit than others. This is summarised in Table 2 and Table 3 below.

Table 2: Impacts of the scheme on those with protected characteristics

| Proposal Element / Protected Characteristic | Efficient heating in the bus | New buses will have electronic screens | Automatic transmission to drive the bus | Clean air within the bus | CCTV systems installed |
|---|--|--|--|--|---|
| Age | Strongly beneficial for those older or younger passengers who have difficulty regulating body temperature. | Beneficial – all users can access information during their journey, which is particularly helpful to elderly or very young passengers less familiar with the route. | Strongly beneficial – a smoother ride with fewer jerky movements will provide a greater benefit to those with restricted movement. | Strongly beneficial – cleaner air along roads and bus lanes themselves will have a positive impact on the health of older passengers. | Strongly beneficial – older or younger passengers are likely to feel safer if the bus has cameras that monitor inside the bus. |
| Disability | Strongly beneficial for passengers whose conditions mean that they may have difficulty regulating body temperature. | Strongly beneficial – information on board could assist those with specific needs, such as those who are deaf, blind and/or who have learning difficulties. | Strongly beneficial – a smoother ride with fewer jolts will provide a greater benefit to those with restricted movement or with aids, such as a walking frame / wheelchair. | Strongly beneficial – cleaner air will have a positive impact on those who may have respiratory conditions such as COPD, emphysema and other related issues | Strongly beneficial – those with a disability of any kind are likely to feel safer if the bus has cameras that monitor inside the bus. |



| Proposal Element / Protected Characteristic | Efficient heating in the bus | New buses will have electronic screens | Automatic transmission to drive the bus | Clean air within the bus | CCTV systems installed |
|---|--|---|---|--|--|
| Gender Reassignment | Neutral – many users would benefit from heating but who benefits is not determined by characteristic itself | Neutral – many users would benefit from screened information but who benefits is not determined by characteristic itself | Neutral – a smoother ride for all passengers, reducing vibration and jolting. Characteristic itself has no bearing on this benefit | Beneficial – cleaner air will aid health and wellbeing, but characteristic itself is independent of specific benefit | Beneficial – a safer journey for bus occupants and other road users. Useful re hate crime risk |
| Marriage and Civil Partnership | Neutral – many users would benefit from heating but who benefits is not determined by characteristic itself | Neutral – many users would benefit from screened information but who benefits is not determined by characteristic itself | Neutral – a smoother ride for all passengers, reducing vibration and jolting. Characteristic itself has no bearing on this benefit | Neutral – cleaner air will aid everyone's health and wellbeing but characteristic itself is independent of specific benefit | Beneficial – a safer journey for bus occupants and other road users, but characteristic itself is independent of specific benefit |



| Proposal Element / Protected Characteristic | Efficient heating in the bus | New buses will have electronic screens | Automatic transmission to drive the bus | Clean air within the bus | CCTV systems installed |
|---|---|---|---|--|---|
| Pregnancy and Maternity | Neutral – Users with gynecologically derived body temperature regulation difficulties and those needing extra heating could well cancel each other out | Neutral – many users would benefit from screened information but who benefits is not determined by characteristic itself | Strongly beneficial – a smooth ride with fewer jerky movements will provide a greater benefit to those with restricted movement or have a pram / pushchair | Strongly beneficial – cleaner air will have a positive impact on the health of unborn babies, newly-born babies and young children. | Beneficial – a safer journey for bus occupants and other road users. Useful re hate crime risk |
| Race | Neutral – many users would benefit from heating but who benefits is not determined by characteristic itself | Neutral – many users would benefit from screened information but who benefits is not determined by characteristic itself | Beneficial - a smooth ride for all passengers, reducing vibration and any jerky movements | Neutral – cleaner air will aid everyone's health and wellbeing but characteristic itself is independent of specific benefit | Beneficial – a safer journey for bus occupants and other road users. Useful re hate crime risk |



| Proposal Element / Protected Characteristic | Efficient heating in the bus | New buses will have electronic screens | Automatic transmission to drive the bus | Clean air within the bus | CCTV systems installed |
|---|--|--|---|---|---|
| Religion or Belief | Neutral – many users would benefit from heating but who benefits is not determined by characteristic itself | Neutral – many users would benefit from screened information but who benefits is not determined by this characteristic | Beneficial - a smooth ride for all passengers, reducing vibration and any jerky movements. | Neutral – cleaner air will aid everyone's health and wellbeing but characteristic itself is independent of specific benefit | Beneficial – a safer journey for bus occupants and other road users. Useful re hate crime risk |
| Sex | Neutral – many users would benefit from heating but who benefits is not determined by characteristic itself | Neutral – many users would benefit from screened information but who benefits is not determined by this characteristic itself | Beneficial - a smooth ride for all passengers, reducing vibration and any jerky movements. | Neutral – cleaner air will aid everyone's health and wellbeing, but characteristic itself is independent of specific benefit | Strongly beneficial – women, in particular, are likely to feel safer if the bus has cameras that monitor inside the bus. |



| Proposal Element / Protected Characteristic | Efficient heating in the bus | New buses will have electronic screens | Automatic transmission to drive the bus | Clean air within the bus | CCTV systems installed |
|---|--|--|---|---|---|
| Sexual orientation | Neutral – many users would benefit from heating but who benefits is not determined by characteristic itself | Neutral – many users would benefit from screened information but who benefits is not determined by this characteristic itself | Beneficial - a smooth ride for all passengers, reducing vibration and any jerky movements. | Neutral – cleaner air will aid everyone's health and wellbeing, but characteristic itself is independent of specific benefit | Strongly beneficial – Cameras monitoring inside of the bus may make some individuals feel safer. |

Table 3: Impacts of scheme on those with protected characteristics (continued)

| Proposal Element / Protected Characteristic | Buses have electronic screens | Buses have audible announcements and hearing loops | Buses are quieter inside | Brighter, higher quality interior environment | Second priority wheelchair space |
|---|--|--|--|---|---|
| Age | Strongly beneficial – older travellers and younger travellers, may particularly benefit from knowing where the bus is and when to prepare to get off the bus. | Strongly beneficial – older travellers who may be hard of hearing and have hearing aids would particularly benefit from the hearing loop functionality. | Strongly beneficial – a quieter bus may be of particular benefit to older travellers or young children. | Strongly beneficial – a brighter interior and the increased safety this offers may be of particular benefit to older travellers or young children. | Strongly beneficial – this extra space is particularly beneficial to elderly passengers whose mobility is reduced and who may depend on walking aids. They may need to use this space if it is vacant. |
| Disability | Strongly beneficial – travellers with specific disabilities, such as hearing loss, may particularly benefit from knowing where the bus is and when to prepare to get off the bus. | Strongly beneficial – travellers with specific disabilities and/or poor sight may particularly benefit from audible announcements and hearing loops. | Strongly beneficial – a quieter bus may particularly benefit those with disabilities where a quiet environment would help (e.g. autism) | Strongly beneficial – a brighter interior and the increased safety this offers may be of particular benefit to those with disabilities. | Strongly beneficial – this extra space is particularly beneficial to those with wheelchairs and other aids that may be required for moving around. |



| Proposal Element / Protected Characteristic | Buses have electronic screens | Buses have audible announcements and hearing loops | Buses are quieter inside | Brighter, higher quality interior environment | Second priority wheelchair space |
|---|--|--|---|--|--|
| Gender Reassignment | Neutral – users will have better information, but characteristic itself is independent of specific benefit. | Neutral – provides reassurance about where the bus is and what the next stop will be, but characteristic itself is independent of specific benefit. | Neutral – a quieter bus is more attractive to users, but this characteristic is independent of specific benefit. | Neutral – a better quality bus is more attractive to users, but this characteristic is independent of specific benefit. | Neutral – many users may benefit from extra space but who benefits is not determined by characteristic itself |
| Marriage and Civil Partnership | Neutral – users will have better information, but characteristic itself is independent of specific benefit. | Neutral – provides reassurance about where the bus is and what the next stop will be, but characteristic itself is independent of specific benefit. | Neutral – a quieter bus is more attractive to users, but this characteristic is independent of specific benefit. | Neutral – a better quality bus is more attractive to users, but this characteristic is independent of specific benefit. | Neutral – many users may benefit from extra space but who benefits is not determined by characteristic itself |



| Proposal Element / Protected Characteristic | Buses have electronic screens | Buses have audible announcements and hearing loops | Buses are quieter inside | Brighter, higher quality interior environment | Second priority wheelchair space |
|---|---|--|---|--|--|
| Pregnancy and Maternity | Strongly beneficial – this may be particularly beneficial in terms of knowing where the bus is and when to prepare to get off the bus. | Beneficial – provides reassurance about where the bus is and what the next stop will be would help those with reduced mobility. | Strongly beneficial – a quieter bus may be of particular benefit to those with young babies | Neutral – a better quality bus is more attractive to users, but this characteristic is independent of specific benefit. | Strongly beneficial – this extra space is particularly beneficial to those with pushchairs who may need this space if it is vacant. |
| Race | Strongly beneficial – may particularly benefit those who do not speak English as a first language. | Strongly beneficial – may particularly benefit those who do not speak English as a first language. | Neutral – a quieter bus is more attractive to users, but this characteristic is independent of specific benefit. | Neutral – a better quality bus is more attractive to users, but this characteristic is independent of specific benefit. | Neutral – many users may benefit from extra space but who benefits is not determined by characteristic itself |



| Proposal Element / Protected Characteristic | Buses have electronic screens | Buses have audible announcements and hearing loops | Buses are quieter inside | Brighter, higher quality interior environment | Second priority wheelchair space |
|---|--|--|---|--|--|
| Religion or Belief | Neutral – users will have better information, but characteristic itself is independent of specific benefit. | Beneficial – provides reassurance about where the bus is and what the next stop will be. | Neutral – a quieter bus is more attractive to users, but this characteristic is independent of specific benefit. | Neutral – a better quality bus is more attractive to users, but this characteristic is independent of specific benefit. | Neutral – many users may benefit from extra space but who benefits is not determined by characteristic itself |
| Sex | Neutral – users will have better information, but characteristic itself is independent of specific benefit. | Neutral – provides reassurance about where the bus is and what the next stop will be, but characteristic itself is independent of specific benefit. | Neutral – a quieter bus is more attractive to users, but this characteristic is independent of specific benefit. | Strongly beneficial – the increased feeling of safety from a brighter interior may be particularly welcome by women. | Neutral – many users may benefit from extra space but who benefits is not determined by characteristic itself |



| Proposal Element / Protected Characteristic | Buses have electronic screens | Buses have audible announcements and hearing loops | Buses are quieter inside | Brighter, higher quality interior environment | Second priority wheelchair space |
|---|--|--|--|--|--|
| Sexual orientation | Neutral – users will have better information, but characteristic itself is independent of specific benefit. | Neutral – provides reassurance about where the bus is and what the next stop will be, but characteristic itself is independent of specific benefit. | Beneficial – a quieter bus provides a more attractive environment in which to travel. | Strongly beneficial – the increased feeling of safety from a brighter interior may be particularly welcome. | Neutral – many users may benefit from extra space but who benefits is not determined by characteristic itself |

5.1.4 As well as the positive impacts outlined in **Table 2** and **Table 3** above, there are also possible negative impacts. A summary of these impacts is outlined in **Table 4** for each protected characteristic. In terms of mitigating these impacts, the following could be considered:

- **Electric vehicles are quieter than ICE vehicles so may make pedestrians and cyclists have concerns about colliding with an electric bus when crossing or using the road.** All new electric vehicles must be fitted with an Acoustic Vehicle Alerting System (AVAS), so this will help to mitigate this impact. We are committed to stakeholder engagement and we will look to involve groups such as Norfolk Vision and the Norfolk Older People's Forum, to gain a better understanding of what audible sound, or other feature(s), would be most appropriate to deliver to mitigate this impact. This form of engagement will raise awareness and understanding of electric vehicles and their operation, which will also help to mitigate any concerns.
- **Concerns from users that the bus may run out of battery power during a journey and leave passengers stranded along the route.** This will be mitigated through ensuring all vehicles are charged to meet their required operation, careful monitoring of vehicle and battery performance, selection of routes for new vehicles that are comfortably within the 200- mile operating range of the vehicles and operation plans in place to take passengers to their destination within minimum inconvenience. The double deck vehicles themselves have been selected for their extended range.

Table 4: Possible negative impacts of scheme on those with protected characteristics

| Protected Characteristic | Proposal Element - Electric bus is quieter than an Internal Combustion Engine bus | Proposal Element - Range anxiety for passengers |
|--------------------------------|--|---|
| Age | Moderate Negative – more elderly passengers who may have some element of hearing loss may have an increased concern about not being able to hear the approach of an electric bus. | Moderate Negative – more elderly passengers may have increased concern that the bus may run out of battery and not be able to complete the journey. |
| Disability | Moderate Negative – those with disabilities may have an increased concern about not being able to hear the approach of an electric bus. | Moderate Negative – those with disabilities may have increased concern that the bus may run out of battery and not be able to complete the journey, particularly if they need to transfer to a different bus to continue their journey. |
| Gender Reassignment | Neutral – some users may have concerns about being unable to hear electric buses approaching, but characteristic itself has no influence | Neutral – some users may have a concern about bus range and not being able to complete the journey, but characteristic itself has no influence. |
| Marriage and Civil Partnership | Neutral – some users may have concerns about being unable to hear electric buses approaching, but characteristic itself has no influence | Negative – some users may have a concern about bus range and not being able to complete the journey. |
| Pregnancy and Maternity | Moderate Negative – some users may have concerns about not being able to hear the approach of an electric bus, especially those with reduced mobility. | Moderate Negative – those that are pregnant or with young children may have increased concern that the bus may run out of battery and not be able to complete the journey, particularly if they would need to transfer to a different bus to continue their journey. |



| Protected Characteristic | Proposal Element - Electric bus is quieter than an Internal Combustion Engine bus | Proposal Element - Range anxiety for passengers |
|--------------------------|---|--|
| Race | Neutral – some users may have concerns about being unable to hear electric buses approaching, but characteristic itself has no influence | Neutral – some users may have a concern about bus range and not being able to complete the journey, but characteristic itself has no influence. |
| Religion or Belief | Neutral – some users may have concerns about being unable to hear electric buses approaching, but characteristic itself has no influence | Neutral – some users may have a concern about bus range and not being able to complete the journey, but characteristic itself has no influence. |
| Sex | Neutral – some users may have concerns about being unable to hear electric buses approaching, but characteristic itself has no influence | Moderate Negative – women may have an increased concern that the bus may run out of battery and not be able to complete the journey, particularly if they are travelling alone and / or at night. |
| Sexual orientation | Neutral – some users may have concerns about being unable to hear electric buses approaching, but characteristic itself has no influence | Neutral – some users may have a concern about bus range and not being able to complete the journey, but characteristic itself has no influence. |

6 Monitoring and evaluation

6.1.1 A separate monitoring and evaluation plan has been prepared for this application. The monitoring process will be split into three stages:

- Prior to vehicles being purchased and infrastructure upgraded,
- One year after,
- Five years after.

6.1.2 Data to be collected, as well as the frequency of data collection, are outlined in the monitoring and evaluation plan. Data most relevant to assessing impacts on people with protected characteristics is outlined below.

- Passenger satisfaction with using buses. This will be particularly important in terms of covering the different elements of the proposal outlined in Table 2, Table 3 and Table 4 to identify whether the positive and negative impacts have all been captured and whether the mitigation proposed for negative impacts is sufficient. We will look to work with the following organisations:
 - Passenger Focus,
 - Internal communications teams,
 - Community of Practice discussions with other successful cities to share feedback and approach to monitoring and evaluation,
 - Norfolk Access Forum,
 - Vision Norfolk,
 - Norwich Older People's Forum,
 - Norwich Deaf Centre.
- Bus passenger data. This will identify whether those with protected characteristics that can be monitored and evaluated are using the bus in greater or lesser numbers as a result of this vehicle investment along specific routes. Use will be made of bus operator ticket data, particularly concessionary ticket data and Young Person tickets.



- **Employment data.** This will help to identify whether those with protected characteristics are being assisted in terms of accessing employment using the bus routes that benefit from this vehicle investment. We will look to work with organisations that include the Norwich Business Improvement District and Chamber of Commerce.
- **Indices of Multiple Deprivation.** We have shown in Figure 1, above that bus routes benefiting from this investment in zero emission buses serve areas of high deprivation. We will target our monitoring in these areas when evaluating passenger satisfaction, passenger, employment and air quality data.
- **Air Quality.** The areas of high deprivation that the bus routes outlined in this application operate through are associated with dense housing and poorer health. Monitoring of air quality in these areas will be undertaken.

7 Conclusion

- 7.1.1 This proposal has outlined that there are many positive impacts of this proposal for users with protected characteristics, with some groups having a larger positive impact than others. There are some potential adverse impacts and these have been outlined, as well as proposed mitigation measures.
- 7.1.2 Overall, it is not anticipated that there will be a residual adverse impact to those with protected characteristics.

8 Recommended Actions

8.1.1 The actions set out in Table 5 below are in response to the possible negative impacts identified in this assessment.

Table 5: Recommended actions to address negative impacts.

| Item | Action | Lead | Date |
|------|---|------|---------------------|
| 1. | Further work with the successful vehicle manufacturer, transport groups, government and other cities who already have experience of running battery-powered buses to determine the most appropriate solution(s) to mitigate quieter operation of buses on the highway. An acoustic noise may be one of a number of initiatives considered and taken forwards. | NCC | Spring 2022 onwards |
| 2. | Engage with a wider audience specifically on electric buses to identify any perceived negative impacts. | NCC | Spring 2022 onwards |

9 Glossary of Abbreviations and Defined Terms

| Abbreviation | Defined Terms |
|-----------------------|-------------------------------|
| AQAP | Air Quality Action Plan |
| AQMA | Air Quality Management Area |
| BCR | Benefit Cost Ratio |
| BEV | Battery Electric Vehicle |
| BID | Business Improvement District |
| BSIP | Bus Service Improvement Plan |
| BSOG | Bus Service Operator Grant |
| CO₂ | Carbon Dioxide |



| Abbreviation | Defined Terms |
|---------------------|--|
| COPD | Chronic Obstructive Pulmonary Disease |
| CSS | Combined Charging System |
| CYC | City of York Council |
| DEFRA | Department for Environment, Food and Rural Affairs |
| DfT | Department for Transport |
| DNO | Distribution Network Operator |
| EOI | Expression of Interest |
| EqIA | Equality Impact Assessment |
| EV | Electric Vehicle |
| GBT | Greener Bus Tool |
| GDP | Gross Domestic Product |
| GJT | Generalised Journey Time |
| GNT | Greater Norwich Time |
| ICE | Internal Combustion Engine |
| ITT | Invitation to Tender |
| JCS | Joint Core Strategy |
| LED | Light-Emission Diode |
| LEZ | Low Emission Zone |
| LTA | Local Transport Authority |
| LTP | Local Transport Plan |
| M&E | Monitoring and Evaluation |
| NBS | National Bus Strategy |
| NCC | Norfolk County Council |



| Abbreviation | Defined Terms |
|-------------------------|---|
| NNUH | Norfolk and Norwich University Hospital |
| NO₂ | Nitrogen Dioxide |
| NO_x | Oxides of Nitrogen |
| NRP | Norwich Research Park |
| NSIDP | Norfolk Strategic Infrastructure Delivery Plan |
| OEM | Original Equipment Manufacturer |
| OfGEM | Office of Gas and Electricity Markets |
| ONS | Office of National Statistics |
| PIPs | Punctuality Improvement Partnerships |
| PM₁₀ | Particulate Matter up to 10 microns in size |
| PM_{2.5} | Particulate Matter up to 2.5 microns in size |
| PSVAR | Public Service Vehicles Accessibility Regulations |
| PVB | Present Value of Benefits |
| PVR | Peak Vehicle Requirement |
| R&D | Research and Development |
| SCRT | Selective Catalytic Reduction Tec |
| SLA | Service Level Agreement |
| SRO | Senior Responsible Owner |
| SSE | Scottish and Southern Electricity |
| TAG | Transport Analysis Guidance |
| TCA | Trade Corporation Agreement |
| TCF | Transport Cities Fund |
| TfN | Transport for Norwich |



| Abbreviation | Defined Terms |
|---------------------|-------------------------------------|
| ToR | Terms of Reference |
| UEA | University of East Anglia |
| UKPN | UK Power Networks |
| VfM | Value for Money |
| VQP | Voluntary Quality Partnership |
| WHO | World Health Organisation |
| ZEB | Zero Emissions Bus |
| ZEBs | Zero Emissions Buses |
| ZEBRA | Zero Emissions Buses Regional Areas |