

Leicester ZEBRA Bid

Strategic Case

August 2021



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Introduction

1. This Strategic Case sets out the case for change and demonstrates how the Leicester ZEBRA proposal provides strategic fit with Government and DfT priorities, as well as other projects and programmes being pursued by the authority, local bus operators and other relevant stakeholders.

Context/Background

Leicester - Overview

2. Leicester is the tenth largest city located at the heart of England. It is a compact, densely populated area at the centre of the Central Leicestershire urban conurbation with a workday population of 641,000 people. It provides a focus for economic development, regeneration, housing and business growth in the East Midlands and is the largest unitary authority in the East Midlands.
3. The Central Leicestershire area has excellent road access to the rest of the region and the UK via the M1, M69 motorways, and A46 that are part of the UK's strategic road network. North-South rail connections are good, with excellent services to London.
4. Leicester is the second fastest growing city in the country and it is estimated that the City's population will increase by 16% between 2016 and 2041, with 30,000 more homes. Its population is characterised by its diversity, with an estimated 49% of the population from an ethnic minority background. Nearly half the workforce commutes into Leicester daily, with over 30,000 people travelling into the city centre at peak hours (pre-covid)
5. Leicester provides a centre for employment, shopping, public administration, leisure, health care at three hospitals and further and higher education facilities supporting over a million residents, visitors, and workers. The city's two highly successful universities, the University of Leicester and De Montfort University have a combined total student population of around 40,000 full and part time students.
6. Over the past decade, the Leicester and Leicestershire economy has grown steadily and is currently worth £24.5 billion, equivalent to around a quarter of the East Midlands total. GVA growth of over £4bn has been seen across the Leicester/Leicestershire economy in the last 4 years. In 2017, productivity per worker was 3.9% above the East Midlands average but 12.6% below the UK average. Between 2007 and 2017, Leicester and Leicestershire recorded productivity growth of only 1% per annum, while the UK average grew by 3.7%.
7. The local economy continues to grow from a low base following the contraction of the textile and manufacturing industries in the 1970s/80s. The economy is diverse, but jobs are generally low waged, with a mismatch of skills and labour. There is low representation of value added businesses and key sectors including financial and business services, hi technology (e.g. space and satellite applications), food and drink and creative industries. Manufacturing still features strongly, albeit much below historic levels.

8. In terms of health, levels of obesity are high in the city and physical activity levels are comparatively low. Heart disease and respiratory conditions continue to be key problems in the city and deaths attributable to air quality present an ongoing challenge.
9. Substantial investment in the city centre retail, leisure, cultural and housing offer, the range and quality of jobs and crucially the quality of city centre streets and spaces has helped the city centre to perform strongly in recent years.
10. There has been substantial and continued investment in the main Highcross shopping centre from its owners Hammersons which has helped the retail sector to be remarkably resilient. Whilst 'in person' retail is in decline nationally due to on-line offerings; Leicester city centre recorded its lowest retail vacancy rate in April 2019 for 10 years down 6% to 12.2%. This is partly attributed to the retention or remodelling of large high street store units following closures.
11. Facilities such as the Curve Theatre and the reopened Haymarket Theatre have helped to raise the status of the city as a regional cultural centre. Discovery and re-interment of the remains of Richard III in the cathedral, the subsequent opening of the Richard III Visitor Centre and Leicester City's Premier League success has provided a major boost to the city's national and international profile.
12. The city centre public realm has been transformed in the past 10 years through major investment in city centre streets and creation of six new public squares through the Council's 'Connecting Leicester' programme.
13. The city centre residential development sector is also strong. The number of homes in the heart of the city has doubled from 2011 to around 12,000 in 2018 and there is a strong pipeline of housing schemes, including more recent Private Rented Sector (PRS) housing developments.
14. On the edge of the city centre, large regeneration areas, formerly home to the City's historic textile sector are now being redeveloped for new homes and workspaces. Waterside, immediately to the west of the city centre, will deliver 3,000 homes and 50,000sqm of office space. Progress is good and accelerating with 1,000-homes and 10,000sqm of office space under construction or under contract.
15. To the north of the centre, the Abbey Meadows area will deliver 2,500 new homes and around 10ha of employment land (800 homes are complete or on-site to date). In partnership with the University of Leicester, building on the profile of the National Space Centre, this area will be home to a nationally significant R&D and advanced manufacturing park focussed on space and space enabled technologies. Construction works are underway and substantial committed investment from the Council, University of Leicester and the private sector will see rapid growth of this area in the next few years.
16. The recently designated Waterside Enterprise Zone provides a basis for investment in office development and space sector related investment. Retained business rates are being reinvested in delivery of workspace and related transport infrastructure linked to the TCF programme.
17. To the North and West of the city major housing growth through sustainable urban extensions is underway with an expected 30,000 homes to be built over the next 10-15 years. Some of this lies within the city at Ashton Green to the North, but is mostly within the adjoining districts of Charnwood and Blaby to the North and West. Transport connections to these areas are currently weak and will require significant investment.

18. Fosse Park to the South West of the city continues to be one of the largest and best performing out of town retail parks in the country. A recently approved expansion is now under construction. Major office based business parks have been developed in this area in recent years due to its location on the M1.
19. A 2020 LLEP Business Survey showed that:
 - a. 58% of Leicester city businesses indicated that reducing traffic congestion would be of benefit to their business
 - b. 50% of businesses thought that improving access for customers travelling by sustainable modes is important
20. In summary, Leicester has seen significant recent growth. It has potential for substantial further growth, but this is very likely to be harmed by rising congestion and low productivity. These are inevitably connected – with traffic growth affecting public transport viability/accessibility together with health issues through air pollution.
21. A range of interventions is required to address these economic, social and environmental issues, including improvement of the public transport offer and improvement of air quality for residents and visitors to the area Leicester City Council has a good track record of investing and delivering a range of policies and programmes and has an ambitious set of plans to go much further over the next 15 years.

Bus Network – Overview

22. Leicester is unusual amongst the main cities in the UK in that it does not have a dominant commercial bus operator - 95% of the network is operated commercially by five operators. This makes partnership work more challenging, particularly in relation to setting network wide standards and progressing towards network wide electrification.
23. Services operate out of nine depots, the main five being within the Greater Leicester conurbation. The vast majority of routes operate within the Greater Leicester conurbation, covering both Leicester Unitary and Leicestershire County Council transport authorities.
24. Coverage along all major congested urban corridors is good, with daytime frequencies of every 10-15 minutes. For those travelling from further afield there are express bus services on most major radials, together with 3 park and ride services directly accessible from the primary road network.
25. Pre-covid bus usage was around 30 million passengers p.a. and had been marginally increasing. Fare levels are on a par with comparable cities, as are bus satisfaction levels. Bus accessibility links to all key education, employment, health and leisure sites are good, though harmed by road congestion. Interchange is often necessary, requiring greater integration and more competitive fares. There is a significant programme of works and policies underway to address this – see the 'Complementary Investment' section below.

26. The commerciality of the network is reinforced by the willingness of operators to invest in Euro 6 and now electric buses. This shows the strong role that buses in Leicester can play in helping to address core policy aims in relation to air quality, levelling up the economy/social inclusion and facilitating sustainable growth.
27. The table below shows the number of buses per company on routes which operate within the Leicester City Council area, including spares that are utilised. Many of these routes also operate in areas beyond the Leicester City Council area, including Leicestershire, Rutland, Northamptonshire and Warwickshire Council areas.
28. Market share is shown both in terms of whole route boardings and on the basis of those boarding within the Leicester City Council area.

| Leicester Fleet and Market Share by Operator | | | | | | |
|---|-----------|-------------|--------|---------|----------------------|---------------|
| | | | Type | | Market share - trips | |
| | Fleet Nos | Fleet share | Single | Deckers | Whole route | City boarding |
| Arriva | 205 | 51% | 100 | 105 | 49% | 45% |
| First | 75 | 19% | 36 | 39 | 35% | 40% |
| Centrebus | 54 | 14% | 51 | 3 | 6% | 10% |
| Kinch | 17 | 4% | 17 | 0 | 5% | 2% |
| Stagecoach | 34 | 9% | 34 | 0 | 3% | 1% |
| Roberts | 15 | 4% | 15 | 0 | 2% | 1% |
| | 400 | 100.0% | 253 | 147 | 100% | 100% |

29. Roberts operate the council-subsidised park and ride network, with Centrebus operating all other socially necessary subsidised services.

Case for Intervention

30. The Department for Transport's key strategic objectives in relation to bus travel include:
- Reduce environment impact
 - Grow and Level up the Economy (Social inclusion and Accessibility)
 - Improve Transport for the User
31. These align with Leicester City Council's priorities and there is a strong case for intervention in Leicester & Leicestershire in order to progress towards these.

Reduce Environmental Impact

32. Like many other UK cities, Leicester faces issues of air quality for nitrogen dioxide in a number of areas. These are predominantly areas where there are large volumes of traffic particularly along major routes into the city, the outer ring road and in the city

centre.

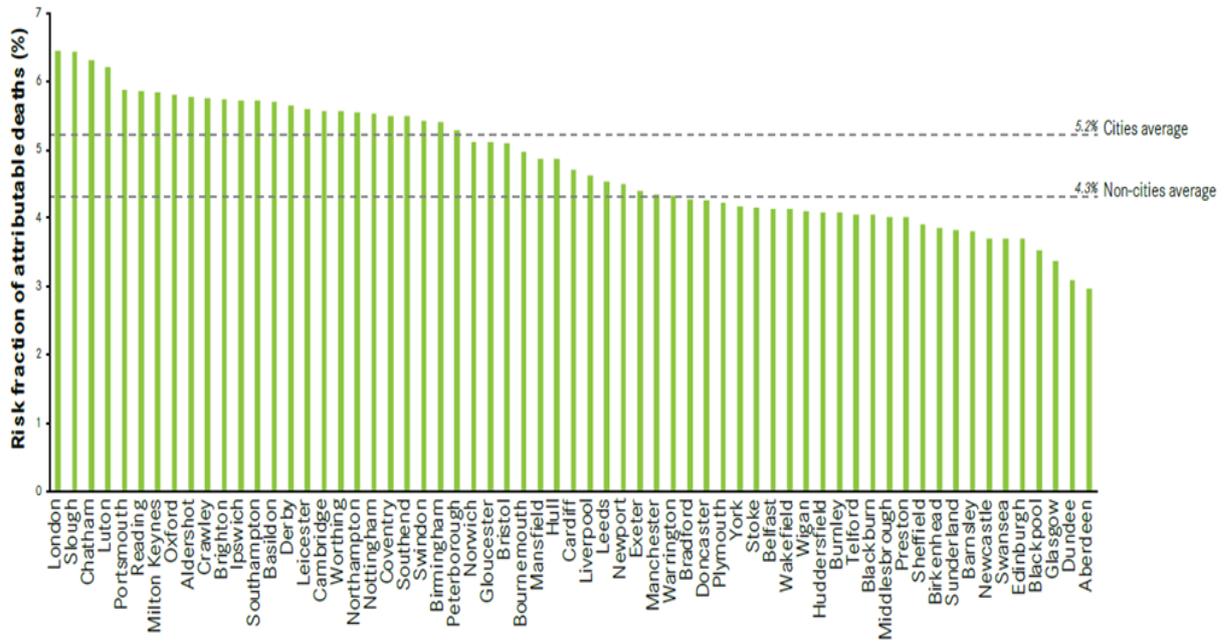
33. Currently the transport sector is responsible for 25% of the carbon emissions in Leicester. Our Climate Emergency Strategy and Action Plan has the ambition for the city to become carbon neutral by 2030. Decarbonisation of the public transport network is clearly a key part of achieving this goal. Moreover, encouraging modal shift from car to bus is critical.
34. Source apportionment shows that over 80% of nitrogen dioxide pollution in Leicester comes from traffic. In 2000, Leicester declared an Air Quality Management Area on the basis of NO₂ exceedances. These include 15 sub-areas, 14 of which are served by high frequency buses.
35. Air pollution is recognised as a contributing factor in the onset of diseases such as heart diseases and cancer. Adverse health effects of air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. It is often found that areas with poor air quality are also the less affluent areas.
36. Leicester City Council (LCC) has the improvement of air quality at the forefront of its actions. LCC has adopted its Air Quality Action Plan (AQAP) in November 2015 aimed at tackling the problem of traffic emissions.¹
37. Leicester has also started to monitor PM_{2.5} levels with a network of portable air quality monitors, our ambition is to work towards WHO Air Quality limit levels. In 2019, Leicester was near the top of the WHO list of towns in the UK which exceeded their recommended PM_{2.5} level of 10 micrograms per cubic metre:

¹ <https://www.leicester.gov.uk/your-council/policies-plans-and-strategies/environment-and-waste/air-quality>).

| UK towns exceeding WHO pollution limit in PM2.5 | | | |
|--|------------------------------------|--|--|
| | Microgrammes per cubic metre | | |
| 2019 | | | |
| Port Talbot | 18 | | |
| Scunthorpe | 15 | | |
| Salford | 15 | | |
| Thurrock | 14 | | |
| Manchester | 13 | | |
| Swansea | 13 | | |
| Gillingham | 13 | | |
| Carlisle | 12 | | |
| Chepstow | 12 | | |
| Leeds | 12 | | |
| Leicester | 12 | | |
| Liverpool | 12 | | |
| Grays | 12 | | |
| Eccles | 12 | | |
| Nottingham | 12 | | |
| Plymouth | 12 | | |
| York | 12 | | |
| Prestonpans | 12 | | |
| Royal Leamington Spa | 12 | | |
| Sandy | 12 | | |
| Sheffield | 12 | | |
| Stoke-On-Trent | 12 | | |
| London | 11 | | |
| Coventry | 11 | | |
| Hull | 11 | | |
| Londonderry | 11 | | |
| Middlesbrough | 11 | | |
| Norwich | 11 | | |
| Southend-On-Sea | 11 | | |
| Stockton-On-Tees | 11 | | |
| Storrington | 11 | | |
| Wigan | 11 | | |

38. The Centre for Cities 2020 report 'Holding Your Breath' puts Leicester well above the average for areas where the proportion of local deaths that can be attributed to long-term exposure to PM2.5.² This is shown in the table below.

² <https://www.centreforcities.org/reader/cities-outlook-2020/air-quality-cities/>



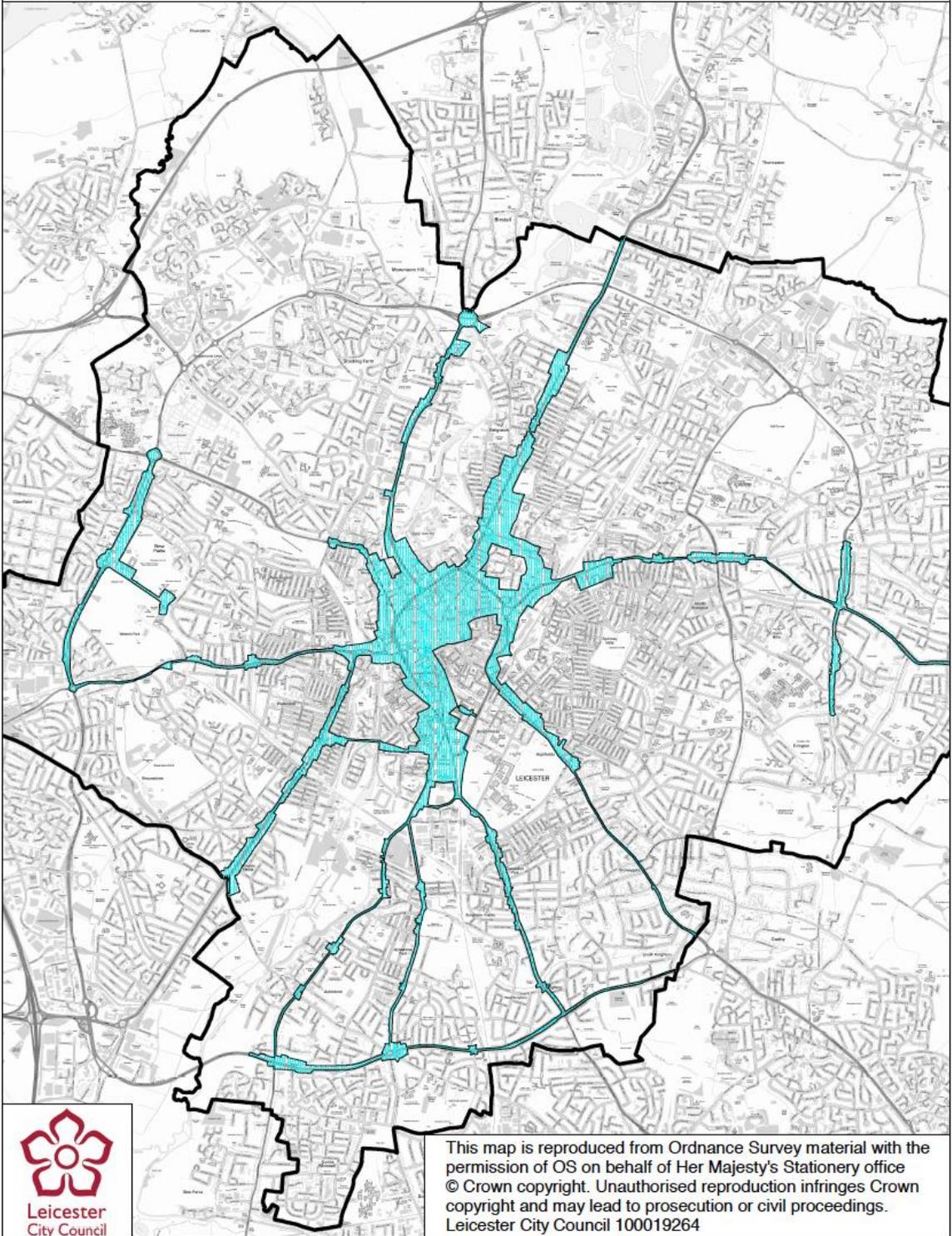
39. In 2020, Fuelgenie concluded that Leicester was one of the ten most congested cities in the UK.

| The UK's most congested cities | |
|---|-----|
| Additional travel time as a percentage of expected travel time | |
| 1. Edinburgh | 40% |
| 2. London | 37% |
| 3. Bournemouth | 34% |
| 4. Hull | 34% |
| 5. Belfast | 34% |
| 6. Brighton | 34% |
| 7. Bristol | 32% |
| 8. Manchester | 32% |
| 9. Leicester | 30% |
| 10. Coventry | 29% |
| Fuelgenie 2020 | |
| https://www.fuelgenie.co.uk/news/the-most-congested-uk-cities/ | |

40. Investment in zero emission public transport has been identified as a crucial step in addressing the air quality and environmental issues outlined above, particularly as the main problems – and areas of exceedance – are along the main urban bus corridors into the City Centre, together with the inner and outer ring road.

41. These are shown on the Air Quality Management Areas below.

Leicester Air Quality Management Area (AQMA)



Levelling Up – Social Inclusion and Accessibility

42. Leicester is ranked 305 in the index of multiple deprivation 2015 out of 326 local authorities, within the 10% most deprived in England. Currently only 63.1% of households have access to a car in Leicester, with the authority ranked 325 out of all 348 authorities in terms of this measure (2011 census).
43. These statistics demonstrate that Leicester represents an area in need of targeted investment to assist in levelling up and make a compelling case for investment in zero emission public transport.
44. Leicester is well placed to benefit from significant growth over the next 20 years as discussed in the overview section above. The Leicester and Leicestershire region is planning to undergo significant development over the next decade, driven by Midlands Connect. This is a 25-year programme of strategic road and rail improvements to boost economic growth and Leicester is identified as one of four strategic economic hubs. These projects underpin the Strategic Growth Plan and the Energy Infrastructure Strategy for the region as well as shaping the grid demands of the future.
45. Several areas adjacent to new road and rail infrastructure have been proposed as ideal development sites. From housing developments to park and rides, housing to business park expansion, all these sites will require to some degree of charging infrastructure for EVs which will take capacity from the network.
46. The local Leicester 2020-2036 plan is currently progressing through consultation but demonstrates where significant infrastructure for housing, commercial and transport is likely to take place in the next fifteen years.
47. This demonstrates that intervention in 'green' bus investment is required to:
 - a. Plan and co-ordinate electricity demand and upgrade accordingly
 - b. Ensure that those in the most deprived areas, and often without access to cars, are able to access these new employment, training and health facilities by bus.
 - c. Ensure that all growth is environmentally sustainable. This is particularly relevant given the significant growth predicted on the outskirts of the conurbation, some distance from the most deprived areas of the City.

Improve Transport for the User

48. Although Leicester has relatively good bus usage – increasing marginally before Covid – there is still considerable potential for growth. Usage is around half the level of nearby Nottingham which has similar density, size and socio-economic characteristics.
49. User Satisfaction ratings (rated 'very' and 'fairly satisfied' in Autumn 19 Passenger Focus Survey) show a reasonable position, but with significant room for improvement:
 - Punctuality and reliability 72% (top authority 81%)

- Value for Money 62% (top authority 81%)
- Journey time 83% (top authority 92%)

50. Unlike other cities, there has so far been no commercial investment in zero emission buses, although all bus operators have progressed very well towards their commitment to have their diesel fleets at Euro 6 standard by the end of 2020.
51. New electric buses have considerable additional benefits to the user over existing diesel buses. Not only do they emit 34% less carbon dioxide, they are quieter and will be specified to a more accessible enhanced PSVAR standard – with on board ‘next stop’ announcement and electronic displays, digital fare capping and air conditioning. Their introduction will also be accompanied by other complementary investment such as bus priority measures and real time information at all bus stops.
52. Unfortunately, the economics of bus operation are such that for networks to be commercially viable – and investment to continue - fares have to be set at levels that are perceived to be high by many on low incomes.
53. It is for this reason that commercial investment in upgrading buses to electric buses, accompanied by complementary investment in bus priority and roadside infrastructure, is not feasible and currently requires third party capital investment.
54. Although electric buses are cheaper to run and maintain, their initial capital cost is around 100% greater than a comparable diesel bus, rising to around 140% when battery replacement is taken into account. In addition, there are additional one-off and ongoing infrastructure costs required to upgrade the power supply to bus depots and undertake the necessary civils works to install chargers.
55. For this reason, capital subsidy is still required to support investment. This has already greatly assisted in developing the market and supply chain for electric buses, significantly fast-tracking their development. Battery efficiency and degradation has improved such that all urban and suburban routes in Leicester can now be operated by buses with batteries requiring a single overnight charge. The whole-life cost differential is reducing each year, each depot now has plans for upgrading to electric operation and there is potential for solar power provision at each to further to improve commerciality and improve green credentials.
56. However, for the next 4-5 years at least, it is considered by operators that financial capital (and BSOG revenue) intervention is required in order to stimulate commercial investment at levels above that planned for diesel bus replacement.
57. Following in-depth discussions with both First Bus and Arriva, it is considered that the current ZEBRA subsidy arrangements are well pitched and sufficient to significantly stimulate early commercial matched investment. However, this is not without risk on behalf of the operators and both have agreed only to prioritise Leicester for investment if there is matched local authority investment in a range of projects and policies designed

to promote bus operation. These are now fully in place and being delivered in stages, as summarised below.

How Council Already Addressing Objectives

58. The following broad approaches to address these objectives have been considered by the Leicester Bus Partnership over the past 3-4 years in relation to the overall DfT objectives.

Quality bus partnership approach

59. This has been the main approach over the past 3-4 years and has involved investment in a package of capital investment in relation to bus priority and enforcement work, real time and smart information systems and waiting facilities.

60. This has been complemented by commercial bus operators' investment in cleaner diesel buses, integrated ticketing and lower fare rises. This has resulted in significant improvements to passengers and patronage levels starting to rise after years of decline. There has been a noticeable impact on air quality, but it has remained relatively high on the main congested corridors.

61. This approach has been continued with by a range of actions and outputs in Leicester's successful Transforming Cities Bid³.

62. This sets out a £40m ongoing programme of bus projects which are currently due for completion by 2024 – all designed to target improvements in air quality across the city. This is also supported by a £10m scheme – currently in build – to replace St Margarets Bus Station, bringing it upto the same high standard as the Haymarket Bus Station.

63. The Council is also currently consulting on the introduction of a Bus Services Improvement Plan and associated Enhanced Bus Partnership by March 2022, in line with the guidance in the National Bus Strategy.

Park and Ride

64. There has been investment and revenue funding in three park and ride services linked to the main trunk road network. Usage is reasonably good, but relatively cheap central private parking has limited their impact on mode shift and air quality improvements.

Retrofit current diesel buses

65. This work is described in more detail below. There has been a retrofit programme of around 150 buses to ensure that – complemented by new bus investment – virtually all buses reached Euro 6 emission standard by 2021.

³ <https://www.leicester.gov.uk/media/xkhfuzsk/transforming-cities-fund-strategic-outline-business-case-2019.pdf>.

Demand management tools

66. This has focussed on increasing prices for all-day central area parking on-street and in Council car parks. Again, this has had some impact on air quality, but has been limited by the abundance of cheap private parking spaces.

Active travel measures

67. This is described in more detail in the complementary measures section below. Again, there has been a noticeable increase in walking and cycling, but car usage in key congested areas remains high and impacts on air quality low.

Mass Transit scheme investment

68. Investment in a low carbon mass transit network, such as a tram, sitting alongside the existing bus network has been considered but rejected for the following reasons:

- a. Leicester is a compact dense city with a diverse and growing range and spread of travel movements.
- b. Evidence shows that modern high quality, high capacity electric buses with P&R and full route priority can give equivalent passenger experience and greater modal shift than a tram.
- c. There would not be a robust business case to build a tram on any corridor in Leicester, since the current bus-base is too low and there is no control over the competing bus market, unlike in some other cities.
- d. The funding, governance, build and ongoing cost risks of a tram are considered to be too great.

Cost of travel

69. The council has a range of ongoing measures costing over £11m p.a. designed to reduce the cost of travel for those on low incomes. These include discounted travel for the elderly, disabled, unemployed and school children, together with a network of subsidised bus services linked to key employment and health facilities.

Future policies

70. Currently the Council is consulting on a Local Transport Plan 2021–2036 which sets out a similar sized programme of future capital and revenue-based work to further address air quality, accessibility, and sustainable growth.⁴

71. This sets out ‘carbon neutrality in transport’ and ‘public transport as the first choice for transport’, as two of seven main targets to reach by 2036:

⁴ <https://consultations.leicester.gov.uk/communications/ltp4/> and <https://www.youtube.com/watch?v=mWl6TGrzjK0>

| <u>Local Transport Plan 2021 - 36</u> | |
|--|---|
| Transport Ambitions up to 2036 | |
| 1 | 100% zero emission vehicles |
| 2 | More people regularly working from home and more responsible use of cars for necessary trips only |
| 3 | Public transport, Park & Ride, cycling or personal e-mobility as first transport choice for most people (longer journeys) |
| 4 | Active transport, cycling and walking as first transport choice for most people (shorter journeys) |
| 5 | A thriving, accessible city centre that is easy to move around in and which supports economic growth in the whole city |
| 6 | Healthier neighbourhoods, aiming for all local services to be available by walking or cycling within 15 minutes, with cleaner air and a safer local environment |
| 7 | A rush-hour free city, gradually managing traffic to reduce peak hour demands |

72. The plan will be delivered through work within three themes:

Connected Corridors & Hubs

- Connected commuter corridors for buses, cycling and walking
- Greenlines electric bus network
- New and improved Park & Ride sites
- Transformed Leicester Rail Station

Connected Healthy Neighbourhoods

- Connected cycling and walking networks city centre and local neighbourhoods
- Good local bus network
- Fewer and cleaner vehicles in neighbourhoods

Managing Demand for Car Use

- Parking management and co-ordination
- Behaviour change
- Smart transport
- Network management
- Workplace parking levy

73. Significantly, this includes the proposal to introduce a workplace parking levy by April 2023 across all the city's employment sites to promote modal shift from the car and raise local funds to improve sustainable transport.

The Preferred Solution – Case for Change

74. The council is convinced of the case for investment in zero emission buses in Leicester and has a proposed programme that best meets local objectives, the ZEBRA programme objectives and the Department's strategic objectives set out below.

| Objectives | |
|----------------------|--|
| DfT Overall | |
| 1 | Grow and Level Up the Economy |
| 2 | Reduce Environmental Impacts |
| 3 | Improve Transport for the User |
| ZEBRA Funding | |
| 4 | Reduce CO2 emissions from transport |
| 5 | Support Zero Emission Bus national roll out |
| 6 | Support Zero Emission Bus manufacturing development |
| 7 | Support local partnership working in line with National Bus Strategy |
| 8 | Understand challenges with Zero Emission Bus roll out |

Local Options Considered To Meet ZEBRA Objectives

75. As the ZEBRA fund is restricted to investment in Zero Emission Buses, and in order to make the most effective intervention in air quality and transport quality, low emission buses were ruled out.

76. There are several possible methods for employing ZEBs within an urban bus operational setting. The relative merits of each have been considered by each Leicester Bus Operator and discussed with the City Council in preparation for the Zebra bid. The methods considered are set out below:

- Electric: In-service charging options
- Electric: Overnight charging, small battery capacity, small bus
- Electric: Overnight charging, small/medium battery capacity, diesel in evening
- Electric: Overnight charging, large battery, single decker
- Electric: Overnight charging, large battery, lightweight single decker
- Electric: Overnight charging, large battery, double deckers
- Add Ons - Energy capture and storage systems
- Hydrogen Bus

Electric bus - In-service charging, overnight battery management

77. This solution has on-street charging mechanisms which regularly charge the bus whilst it is in service. These can be in the form of overhead pantographs, charging plates or other methods such as supercapacitors. This solution means the bus only requires a small battery but can power a large capacity vehicle (double decker, articulated bus etc) and a long route/timetable. There are many systems that fall into this category and have been implemented world-wide over the past two decades.

78. This solution was discounted by the council and operators for the following reasons:

- Significant, costly, on-street infrastructure required, sited away from the operator's own premises.
- Any fault in the infrastructure affects all bus services on the route and therefore have the potential to cause disruption.
- Driver costs rise significantly due to the need to build in substantial increase to lay-over times to allow charging.
- Was deemed to be too significant a change to current operations, increasing costs and risks unnecessarily. Also requires overnight battery management.
- Energy must be purchased during the day at costlier rates
- Inflexible – once installed, the on-street infrastructure means that routes cannot be easily changed.
- Virtually all routes have operating mileages and bus sizes that enable other, easier solutions.

Electric – overnight charging plus a single daytime fast charge

79. This can be an effective solution where the bus operations are characterised by either:

- Low capacity buses and restricted timetable, with no service at lunchtime. No timetables of this type in Leicester, as there are in Nottingham where this solution is practiced; or
- Low capacity buses, limited timetable, bus swapped over during the day. This option is used in Nottingham using buses with a capital cost of around half the cost of bigger buses with large capacity batteries. Leicester bus routes require larger buses and the relative cost difference has narrowed in past few years.

Electric - overnight charging, medium sized battery, diesel bus in the evening

80. This solution allows for the deployment of a cheaper battery with a shorter range. This might be sufficient for the majority of a service's operations, with a diesel bus replacing it in the evening to complete operations.

81. This solution was discounted on the grounds that the operational and user costs of replacement outweighed the capital cost savings. Additionally, the use of diesel buses in the evening reduces the green credentials and air quality benefits of the scheme.

Electric - overnight charging, large battery, single decker.

82. This solution has the most suppliers within the market and is subject to the swiftest market developments in terms of battery range and bus weight/capacity.

83. It is a solution most preferred by Leicester's operators because it:

- most mirrors current operations;
- is a competitive, maturing market with good back-up, base knowledge;
- allows energy to be purchased at night, when cheaper;
- is flexible and doesn't increase daytime operational costs;
- has a battery range (allowing for degradation over time) which is sufficient for most Leicester routes current timetables; and
- can be easily interworked with diesel deckers where there is need for specific peak capacity.

Electric - Overnight charging, medium/large battery, lighter weight single decker

84. This is the solution currently preferred by First Bus (and other operators) since it

- Redacted

85. Redacted

86. Redacted

87. Redacted

88. Redacted

Electric - Overnight charging, large battery, double deckers.

89. This is the solution preferred by current operators of diesel double decker routes.

However, commercial investment in this area is limited due the relative cost difference (including battery replacement), the maximum operating range and the limited supplier market.

Electric generation - Energy capture and storage systems

90. All main bus depots in Leicester have potential for energy capture via PV panels installed on their extensive roofing areas, though room is limited for battery storage. This has potential to 'feed' all overnight charging electric bus solutions in the future.

Hydrogen buses and fuelling stations

91. All operators believe that hydrogen buses could well be a potential solution in the future, particularly for high capacity routes with lengthy timetables. However, the investment costs involved are such that this may only become financially viable for a significant fleet size. Leicester's network doesn't currently have a sufficient number of routes of this type to justify this approach. First Bus is currently trialling hydrogen fuel cell buses in Aberdeen but have yet confirm their longer term position with this technology.

Preferred Overall Approach

92. The Leicester ZEBRA bid sets out a mixed solution, differing by each of Leicester's operators - dictated by route type, capacity, mileage, current investment/commercials, external funding opportunities and future likely developments.

93. In all cases, the preferred local approach is for a solution that is :

- a. Least risk in terms of life-time financial exposure – has greatest long term commercial viability
- b. Least disturbance to current operations – both depot and service/timetable.
- c. Flexible and adaptable to efficiently roll out to the whole of a depot
- d. Low operational risk – doesn't rely on in-service charging equipment
- e. Low risk in terms of ongoing maintenance and expansion

First Bus

94. Redacted

95. Redacted

Arriva

96. **REDACTED**

Council

97. The smaller two bus operators in Leicester – Centrebus and Roberts – mainly do contracted bus work. This significantly limits their commercial interest in electric bus investment, with previous 'dual' tenders showed little appetite in this area. For this reason, the Council has decided to make the investment itself as part of its Greenlines project detailed below – including electric bus purchase and depot charging equipment at these two operators.

98. The Council has already invested in 15 overnight charging single decker buses with large batteries and associated infrastructure. It only intends to invest in 6 more in the near future – using the same operators and depot - and so it is operationally best to keep with this current solution.

Other

99. Stagecoach is already committed to upgrading its flagship double decker route between Coventry and Leicester to electric deckers (overnight charging) by 2024 under the Coventry All-Electric Town initiative. Its other long distance route into Leicester doesn't currently justify further investment from its recent upgrade to Euro 6.
100. Kinchbus has two long distance single decker routes terminating in Leicester, one of which has a 24hour timetable (to the airport area). It is currently of the opinion that there is no suitable ZEB solution for these routes which is commercial attractive of its own investment. It is however, keeping a close watch on developments, particularly in relation to First Bus's proposal.

Why Best Solution To Meet ZEBRA Objectives

101. It is considered that the other technical options for delivering ZEBS in Leicester will not meet the ZEBRA objectives as well for the following reasons shown in the table below:

| ZEBRA Objectives - by ZEB type | | | | | | | |
|--|--|-------------------------------|------------------------------|------------------------------------|-------------------------------------|---------------------------------------|-----------------|
| | | | | | | | |
| | | Overnight charging -----> | | | | | |
| ZEBRA Objective | | medium battery, saloon | large battery, saloon | large battery, light saloon | large battery, double decker | Electric : In service charging | Hydrogen |
| Reduce CO2 emissions from transport | | partially meet | partially meet | fully meet | partially meet | partially meet | partially meet |
| Support Zero Emission Bus national roll out | | partially meet | partially meet | fully meet | partially meet | not meet | not meet |
| Support Zero Emission Bus manufacturing development | | partially meet | partially meet | fully meet | partially meet | partially meet | partially meet |
| Support local partnership working in line with National Bus Strategy | | not meet | fully meet | fully meet | fully meet | not meet | not meet |
| Understand challenges with Zero Emission Bus roll out | | not meet | fully meet | fully meet | fully meet | partially meet | partially meet |

102. In short, a programme that just uses existing overnight charging solutions and suppliers would not meet the ZEBRA objectives of supporting ZEB manufacturing development. Their cost also restricts significant short term partnership investment and roll out.

103. A programme that focussed on either in-service charging or hydrogen solutions was not acceptable to the operator partnership due to the reliance on complex infrastructure and would not have led to significant local ZEB roll out within 2 years.

ZEBRA Fast Track Bid: 2022-24

104. This bid focusses mainly on First Bus and Arriva investing in electric buses on core high-frequency commercial bus routes that they operate. However, it will also include Council investment in electric buses on a key contracted route - operated by Centrebus - as part of its strategic network development.

105. A summary of the proposed investment from each party is as follows:

| Leicester ZEBRA - summary | | | | | | | | | |
|----------------------------------|---------------|-------------|----------------|-----------------|--------------------|------------------------|---------------------|-----------------|------------------|
| Operator | Routes | Type | E Buses | Bus Size | Charge Type | Double chargers | Grid upgrade | Supplier | Ownership |
| First | 16 | Commercial | 68 | Single decker | Overnight | 35 | 3 MVA | | First |
| Arriva | 4 | Commercial | 22 | Double decker | Overnight | 13 | 2 MVA | ADL/BYD | Arriva |
| Council / Centrebus | 1 | Commercial | 6 | Single decker | Overnight | 4 | not required | TBD | Council |
| Total | 21 | | 96 | | | 52 | | | |

Table Redacted

106. This proposed significant programme consists of three different projects, of differing scales, with three different suppliers, three different operators and three different local investors.

107. This proposal is slightly more ambitious than that set out in the expression of interest, with Arriva opting to invest in four more electric double decker buses, and its associated charging equipment. This reflects the intervening development in partnership working and planned complementary investment by the Council over the next few years, leading to Arriva wanting to commercially increase frequency on two key routes.

108. The table below shows the current and proposed distribution of electric buses across operators and route types (commercial or contracted). If the ZEBRA bid is successful, 34% Leicester's network will be electric by 2024.

| Electric bus progress and plans | | | | | |
|--|-------|----------|----------|----------|----|
| 2021-2024 | | | | | |
| | | Already | Zebra | Total | |
| | Total | Electric | Electric | Electric | |
| Arriva | 205 | 0 | 22 | 22 | |
| First | 75 | 0 | 68 | 68 | |
| Centrebus | 54 | 7 | 6 | 13 | ** |
| Kinch | 17 | 0 | 0 | 0 | |
| Stagecoach | 34 | 22 | 0 | 22 | * |
| Roberts | 15 | 11 | 0 | 11 | ** |
| | 400 | 40 | 96 | 136 | |
| | | 10% | 24% | 34% | |

* committed - for operation in 2024 as part of Coventry Electric bus bid
** council owned on contract work (including upcoming tenders)

109. Around 4% of all patronage is currently on routes already operated by electric buses. A successful ZEBRA bid, together with the other routes already committed for electric conversion, would see 50% of all passengers in Leicester travelling on routes operating electric buses by 2024.

| Passengers Travelling on Electric buses by 2024 | | | |
|--|-------------------|---------------|--------------|
| All routes coming into Leicester | | | |
| Bus Type | Status | Passengers pa | % passengers |
| Electric | Already Committed | 2,811,266 | 7.4% |
| Electric | ZEBRA Fast Track | 15,995,884 | 42.2% |
| Diesel Euro 6 | In place | 19,074,760 | 50.4% |
| | | 37,881,910 | |
| Electric | | | 49.6% |

110. The bid covers 21 key high frequency routes across the Leicester City Council administrative area, all of which terminate in the city centre. Several also cross the council boundary and operate within the Leicestershire County Council local transport area.

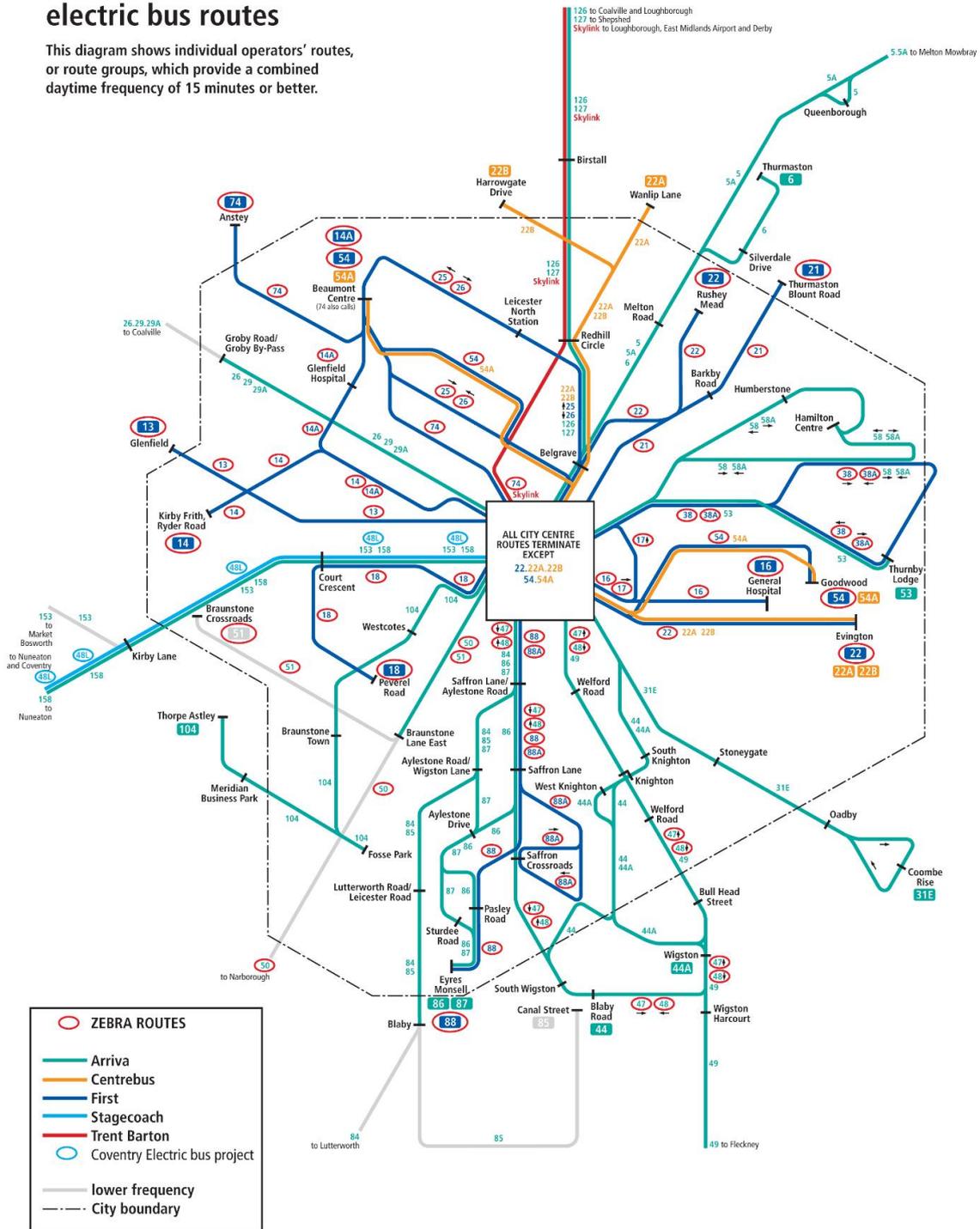
111. These county areas include: Narborough, Blaby, Wigston, Thurmaston, Anstey and Glenfield – all areas in which there has been significant housing growth. They also including the rapidly expanding retail/industrial areas of Meridian Business Park and Fosse Park.

112. The geographical area covered by all the proposed 21 electric ZEBRA routes is shown below - including city and county settlements/boundaries.

Greater Leicester Zebra

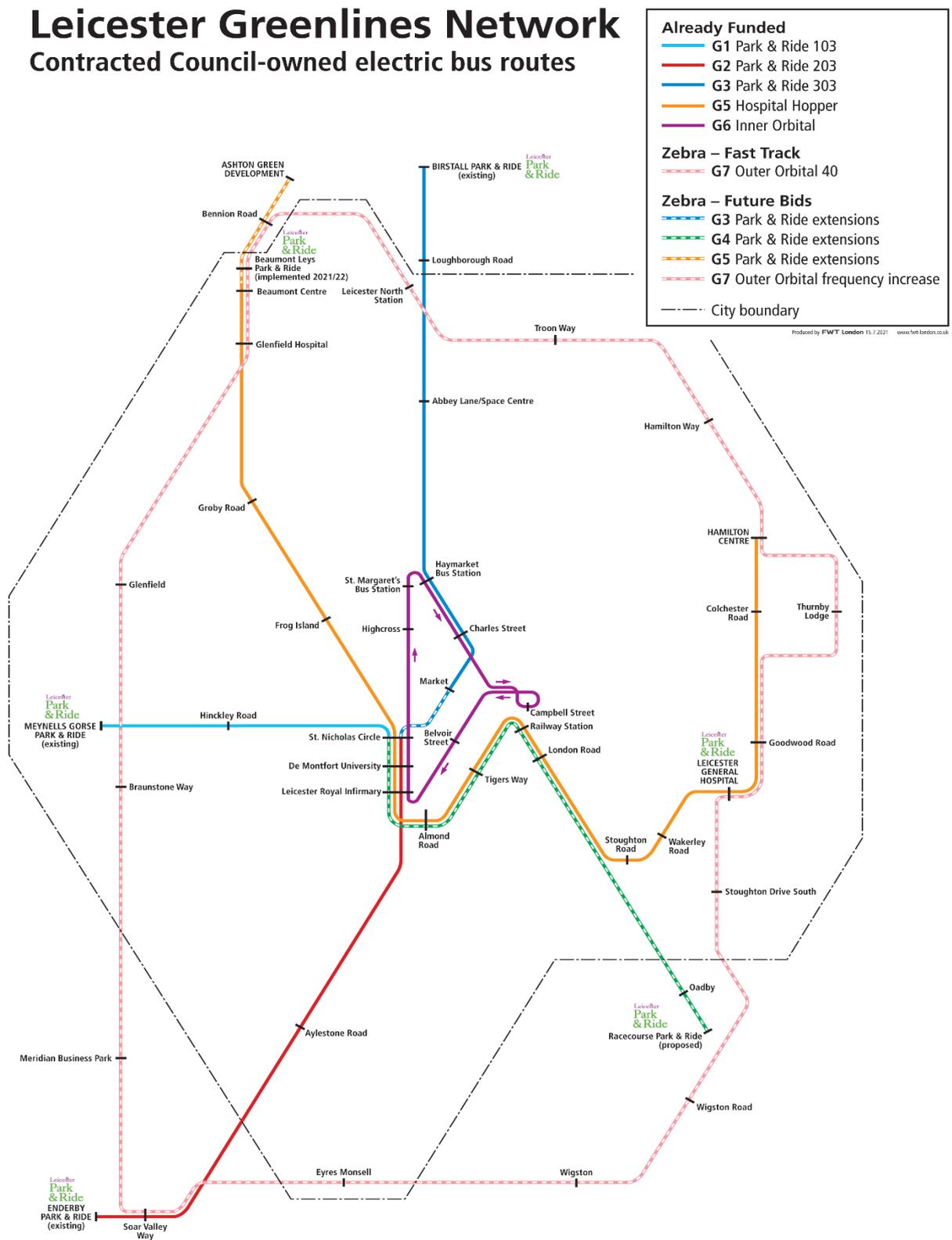
Proposed commercial electric bus routes

This diagram shows individual operators' routes, or route groups, which provide a combined daytime frequency of 15 minutes or better.



114. The geographical area covered the proposed contracted (Greenlines) ZEBRA routes together with those already implemented or planned in the next 3-4 years is shown below:

Leicester Greenlines Network Contracted Council-owned electric bus routes



115. The geographical location of all operators' depot sites, showing ZEBRA proposed electrified sites and future plans is shown in the map and table below.

Electric Bus Charging Infrastructure in and around the Leicester City Council area



Thurmaston Depot : Leicester City Council Unitary area : Zebra Fast Track (expanded)



Wigston Depot : Leicestershire County Council/Blaby District Council : to close October 2021
Barwell Depot : Leicestershire County Council/Hinckley & Bosworth District Council : Future Zebra bids

Centrebus

Thurmaston Depot : Leicestershire County Council/Charnwood Borough Council : being built (part) and Zebra Fast Track (expanded)

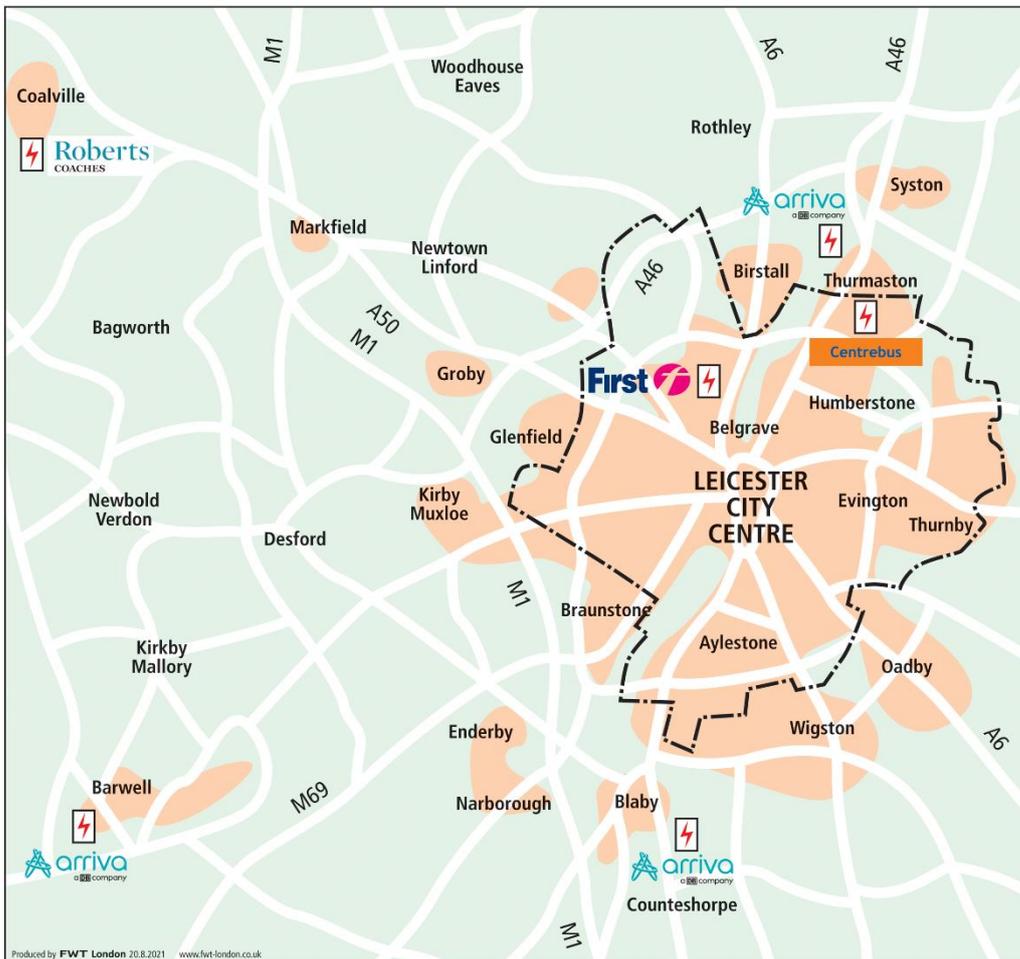


Abbey Park Depot : Leicester City Council Unitary area : Zebra Fast Track (expanded)



Coalville Depot : Leicester County Council/North West Leicestershire District Council : in operation

Other operators' depots serving Leicester:
Kinch – Loughborough
Stagecoach – Northampton and Nuneaton



| Bus operator depots - Leicester Network | | | | | | | | |
|--|------------------|-----------------------|---------------------------|-------------------------------|--|--------------------------|----------------------------|------------------------------|
| ZEBRA depots in Green | | | | | | | | |
| Depot | Operators | Depot location | District | Highways Authority | Local Transport Authority for project | Greater Leicester | Routes in Leicester | ZEBRA Electric Routes |
| 1 | Arriva | Thurmaston | Charnwood | Leicestershire County Council | Leicestershire County Council | Yes | 22 | 4 |
| 2 | Arriva | Wigston | Blaby | Leicestershire County Council | Leicestershire County Council | Yes | To Close Oct 21 | 0 |
| 3 | Arriva | Hinckley | Hinckley and Bosworth | Leicestershire County Council | Leicestershire County Council | No | 7 | 0 |
| 4 | First | Abbey Park | Leicester UA | Leicester UA | Leicester UA | Yes | 17 | 16 |
| 5 | Centrebus | Thurmaston | Leicester UA | Leicester UA | Leicester UA | Yes | 8 | 1 |
| 6 | Roberts | Hugglescote | North West Leicestershire | Leicestershire County Council | Leicestershire County Council | Yes | 3 | 0 |
| 7 | Kinchbus | Loughborough | Loughborough | Leicestershire County Council | Leicestershire County Council | No | 2 | 0 |
| 8 | Stagecoach | Northampton | Northampton | Northants County Council | Northants County Council | No | 1 | 0 |
| 9 | Stagecoach | Nuneaton | Nuneaton and Bedworth | Warwickshire County Council | West Midlands Combined Authority | No | 1 | 0 |

116. Both the Arriva and First Bus ZEBRA depots are suitable for upgrade to electrification, with sufficient space for dual operation until their whole fleets are converted. They are in the ownership of each company and do not require any 'change of use' planning consents to include electric charging operations.

117. However, in both cases, a power upgrade is required. This will require planning consent from the district/unitary council, since it requires cabling and substation equipment on Council land. In addition traffic regulation orders/licences will be required from the highway authority – these will be made by the operator's chosen DNO/IDNO.

118. The planning/highway authority will be Leicester City Council for First Bus's depot and Leicestershire County Council and Blaby Borough Council for Arriva's depot. Leicestershire County Council fully support this bid and plan. No further upgrade is required at the Centrebus depot.

119. All routes in the bid proposed for electric bus investment operate through formal Air Quality Management Areas ⁵.

120. The table below shows that the proposed ZEBRA programme of investment will introduce electric buses on 100% of Leicester’s Air Quality Management Areas (AQMAs) served by buses. The ZEBRA bid accounts for 42% of all routes across the AQMAs, rising to 52% of all routes covered once the existing electric bus commitment is also included.

| Bus routes on Each AQMA | | | | | | |
|--|---------------------------|-----------------------|----------------------|--------------|-----------------------|---------------------|
| Air Quality Management Area: | Electric Committed | Electric Zebra | Diesel Euro 6 | Total | Zebra Electric | All Electric |
| City Centre/Inner Ring Road | 5 | 20 | 29 | 54 | 37% | 46% |
| Ring Rd - Glenhills Way/Braunstone Way | 1 | 1 | 0 | 2 | 50% | 100% |
| Ring Rd - New Parks Way | 0 | 1 | 0 | 1 | 100% | 100% |
| Ring Rd - Colchester Rd/Goodwood Rd | 1 | 2 | 0 | 3 | 67% | 100% |
| Abbey Lane | 1 | 2 | 0 | 3 | 67% | 100% |
| Melton Rd | 0 | 3 | 7 | 10 | 30% | 30% |
| Humberstone Rd/Uppingham Rd | 0 | 2 | 3 | 5 | 40% | 40% |
| London Rd | 1 | 3 | 4 | 8 | 38% | 50% |
| Welford Rd | 0 | 2 | 1 | 3 | 67% | 67% |
| Saffron Lane | 0 | 2 | 3 | 5 | 40% | 40% |
| Aylestone Rd | 0 | 3 | 2 | 5 | 60% | 60% |
| Narborough Rd/Braunstone Gate | 1 | 2 | 0 | 3 | 67% | 100% |
| Hinckley Rd | 1 | 1 | 3 | 5 | 20% | 40% |
| Northgate | 0 | 3 | 1 | 4 | 75% | 75% |

Reasons For Choosing Routes

121. These routes were identified as those at which investment could be targeted in order to best achieve the strategic objectives of the council, the DfT and the wider ZEBRA programme:

Reducing Environmental Impact

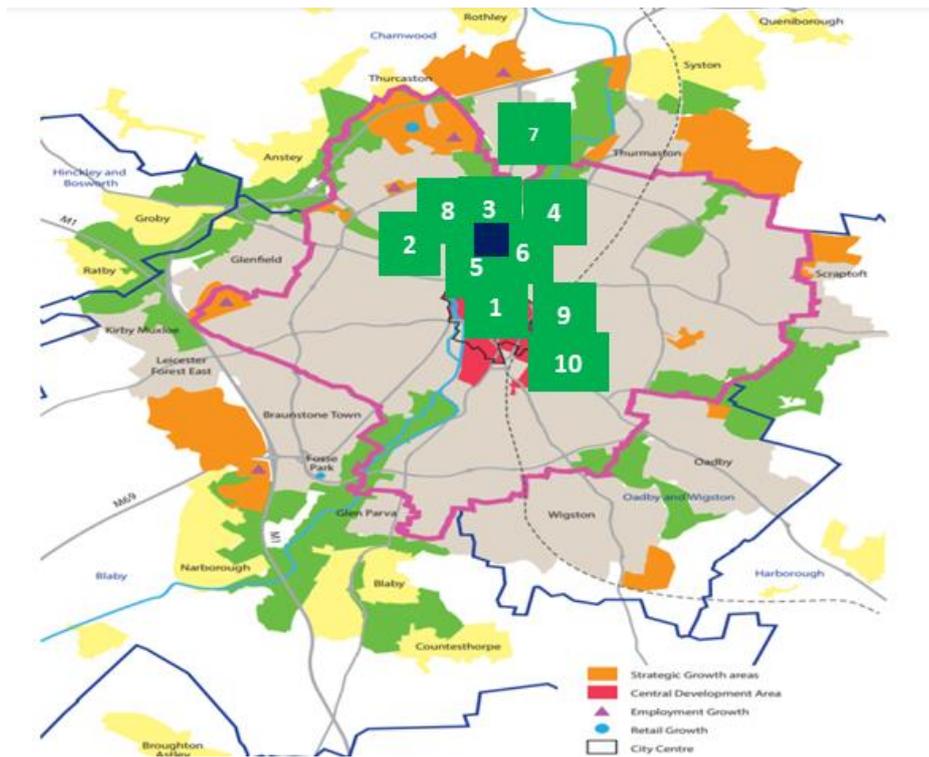
- a. There was Partnership desire to make a significant impact on air quality on each main AQMA sub-area, with frequent electric buses on each AQMA corridor. It is estimated that this investment will bring about a local saving of over 91 tonnes of CO2 within Air Quality Management Areas of Leicester
- b. Investment is focussed on areas of dense housing, where schools and hospitals are located and targeted air quality improvements are effective.
- c. A desire to make a visual and environmental impact on the city centre for both passengers and pedestrians – making it a more attractive place to work, live and shop following the pandemic.

Levelling Up

- d. The routes already have significant partnership local investment to complement ZEBRA funding and boost a range of secured and planned other investments. These are all detailed within the draft Bus Services Improvement Plan/Enhanced Partnership.
- e. Improved public transport offering has the ability to assist sustainable regeneration and housing growth – there are proposed electric bus routes going through each of the designated housing and regeneration areas:

- Waterside Enterprise Zone
 - Abbey Meadows/National Space Centre
 - Hallam Fields
 - Ashton Green
 - Fosse Park
 - Optimus Point
 - Hamilton/Scraptoft
 - Meridian Business Park
- f. Leicester's ZEBRA bid aims to improve sustainable accessibility to major employment and educational sites, requiring investment on the outer and inner orbitals:
- Beaumont Leys District Shopping Centre
 - Fosse Park shopping centre
 - Three Hospitals
 - De Montfort University
 - Leicester College
 - Samworth Brothers
 - Walkers
 - Crown Packaging
 - Bradgate Bakery
 - Pepsico
- g. Facilitating economic development:
- The Leicester and Leicestershire Region is planning to undergo significant development over the next decade, driven by Midlands Connect. This is a 25-year programme of strategic road and rail improvements to boost economic growth and Leicester is identified as one of four strategic economic hubs. These projects underpin the Strategic Growth Plan and the Energy Infrastructure Strategy for the region as well as shaping the grid demands of the future.
 - Several areas adjacent to new road and rail infrastructure have been proposed as ideal development sites. From housing developments to park and rides, housing to business park expansion, all these sites will require to some degree of charging infrastructure for EVs which will take capacity from the network.
 - The local Leicester 2020-2036 plan is currently progressing through consultation but demonstrates where significant infrastructure for housing, commercial and transport is likely to take place in the next fifteen years.

- This plan sets out the vision and objectives for the growth of the city with the locations identified for general development, the strategic development sites, the policies that will guide planning and how the plan will be delivered.
- This clearly shows the need for energy upgrade investment within the vicinity of the First Bus depot, together with the potential increased demand for bus services in this area.



■ Leicester bus depot

| | Major Infrastructure project | Area of City | Potential impact on network |
|----|-----------------------------------|--------------|-----------------------------|
| 1 | Central Development Area | Centre | Medium |
| 2 | Western Park Golf Course | West | Low |
| 3 | Land East of Ashton Green | North | Medium |
| 4 | Land by A46 Bypass (North) | North | Low |
| 5 | Land West of Anstey Lane | North | Low |
| 6 | Pioneer Park development | North | Medium |
| 7 | Midlands mainline electrification | North | High |
| 8 | Beaumont Leys Park & Ride | East | Medium |
| 9 | Leicester General Hospital Site | East | Low |
| 10 | A46 Expressway | East | Low |

h. Consideration of future potential electric vehicle demand from distribution clusters. Due to the proximity of Leicester to major distribution hubs at Castle Donington, to the North, and Lutterworth and Daventry to the South, Leicester does not have significant logistics fleet operations, but two distribution clusters are:

- Beaumont Park (North): Pepsico, Walkers
- Meridian Park (West): DHL, Royal Mail, Topps Tiles

It is considered that these locations will not place a potential strain on energy distribution to the proposed ZEBRA electric bus depots.

i. Focus on routes to and from areas of multiple deprivation, where health issues and productivity issues are highest:

- Beaumont Leys
- Evington
- Belgrave
- Eyres Monsell

This focus means that intervention is targeted at areas in which environmental and socio-economic investment is most needed and will yield the greatest improvements.

Improve Transport for the User

j. A focus on higher use commercial bus routes means that the ZEBRA investment will ensure around 50% of users will be travelling on electric buses by 2024. This will significantly raise the profile of bus travel and improve passenger experience on bus travel as we emerge from the pandemic, encouraging further passenger growth.

k. Partnership desire to have an Enhanced Partnership with significant local investment, in order to maximise potential to access upcoming government grant opportunities. This will ensure that the upcoming growth of the conurbation will be able to take place in a sustainable and accessible manner.

l. A focus on routes which go through or close to the three major hospitals: Leicester Royal Infirmary, General Hospital and Glenfield Hospital.

m. A focus on routes which serve the 18 out of the 30 (60%) main secondary schools within Greater Leicester. This will provide cleaner and higher quality buses to pupils, maximising their chances of continuing to use the bus as they get older. Children are more prone to asthma and other breathing difficulties exacerbated by air pollution and therefore the introduction of ZEBs on these routes is important.

n. The choice of routes enables complete electric operations for all services from three operator depots: First Bus, Centrebus and Roberts, together with partial electrification of one of Arriva's two depots. This assists with operations and maximises early investment in depot changes and grid upgrades. With Stagecoach and Kinch depots being outside of Greater Leicester, this will leave just the Arriva Wigston depot to electrify, together with the remainder of its Thurmaston depot.

- o. The routes chosen enable a third of Leicester’s bus network to be fully electric by 2024 and there is a realistic Enhanced Partnership Plan to complete the rest of the network by 2030.
- p. Allows early delivery of the Greenlines project. This focuses on employment sites along the outer orbital, many of which will be liable for workplace parking levy which will raise funds to help deliver the second stage of the Greenlines project.
- q. In addition, it should be noted that for First Bus and Arriva fleets, this investment will effectively cascade 90 Euro 3 diesel buses out of their wider national fleets, giving benefits beyond Leicester.
- r. The enhanced PSVAR bus features assist accessibility for those with various travel needs. The table below shows users views on these from a recent online survey with over 330 respondees.

| Views on Enhanced PSVAR features | | |
|---|--|-------------------------|
| Item | Feature | Rank (5 highest) |
| 1 | Additional room for a second wheelchair or two unfolded buggies | 4.7 |
| 2 | Dedicated seats with leg room for an assistance dog | 4.5 |
| 3 | On-board screens showing next bus arrival information | 4.7 |
| 4 | On-board public address systems alerting passengers of oncoming stop and other route/timetable information | 4.6 |
| 5 | Acoustic bus alert system for pedestrians when travelling at low speeds in areas of high pedestrian usage | 4.4 |
| | total | 4.6 |

Operational and Commercial Reasons for Solution

First Bus

122. Redacted.

123. Redacted

124. Redacted

125. Redacted

126. Redacted

Arriva

127. REDACTED

Council

128. The City Council has chosen to invest in electric buses for the remainder of its tendered services fleet for the same reasons it has already invested in them on other contracted work, including the park and ride services. It has a strong political steer to reduce emissions through all its transport work, and is looking to contain operational tender cost rises through invest-to-save initiatives.

129. It should be noted that previous tendering rounds invited dual bids from operators – both diesel and electric. However, no operator bid on the basis of providing its own electric buses. All tenders are currently let to ‘smaller’ operators with a lower cost base and a mix of bus and coach contract work. Both of these operators have confirmed that they are unable to make the commercial investment risk in electric bus and infrastructure at this stage, due to the relatively short length of bus contracts (5-8 years). As a result, the council is choosing to purchase electric buses.

Meeting ZEBRA Programme Objectives

130. It is considered that this proposed investment in electric buses in Leicester will fully meet the DfT’s objectives for their ZEBRA bus programme

To support the government’s commitment to decarbonisation and to reduce the transport sector’s contribution to CO2 emissions.

131. It is estimated that this investment will bring about a local saving of over 91 tonnes of CO2 within Air Quality Management Areas of Leicester. This is expected to be a 34% reduction in GHG emissions overall.

To support the roll-out of 4,000 Zero Emission Buses

132. This investment will deliver 96 new electric buses to Leicester by 2024. Together with other investment that has already taken place or is already committed, the total electric bus fleet will be 132 by 2024, representing a third of the fleet employed across Greater Leicester.

To support bus manufacturers in the development of zero emission bus technology.

133. This bid will support three different bus manufacturers. All three will further develop their local supply chains and associated warranty and maintenance capabilities within the UK.

134. Redacted

135. Redacted

To support partnership working between Local Transport Authorities, bus operators, and other local stakeholders as set out in the National Bus Strategy.

136. This bid forms a significant part of Leicester's Bus Services Improvement Plan and associated Enhanced Bus Partnership as outlined further below – part of the National Bus Strategy. It brings together local bus operators, with the bus investment matched by a significant programme of other investment designed to radically improve the bus offer to Leicester's travelling public – giving a sustainable alternative to using the car and facilitating green growth.

137. It will also give the bus network greater commercial viability and offer accessibility to this growth for those without access to a car.

To understand better the challenges of introducing zero emission buses and supporting infrastructure to inform future government support for Zero Emission Buses.

138. This bid will further expand electric bus operation to another three bus depots in Greater Leicester, leaving just one main one remaining. The overall programme will have at least 4 different bus suppliers, each with different charging methods and bus types.

139. There will be both double deckers and single deckers covering a range of different route types – urban, longer distance and even operations in pedestrianised areas. It will also give experience of converting a whole depot and operator network to electric, together with operating contacted electric buses and mixed fleets.

140. Leicester is unique in having several main bus operators – so this bid will give experience of introducing across a range of operators within a small area and time period. The programme is therefore likely to offer a wide range of experiences and learnings.

Measuring ZEBRA Outputs and Objectives

141. This is described in more detail in the Monitoring and Evaluation section, but is summarised by the two tables below. These show the outputs and outcomes set out within the Leicester proposal, together with the relevant objective/s to be met for each.

| Objectives | |
|----------------------|---|
| DfT Overall | |
| 1 | Grow and Level Up the Economy |
| 2 | Reduce Environmental Impacts |
| 3 | Improve Transport for the User |
| ZEBRA Funding | |
| 4 | Reduce CO2 emissions from transport |
| 5 | Support ZEB national roll out |
| 6 | Support ZEB manufacturing development |
| 7 | Support local partnership working - NBS |
| 8 | Understand challenges with ZEB roll out |

| Leicester Zebra | | |
|------------------------|---|------------------|
| Output | | Objective |
| 1 | Dft and local investment in ZEB | 1,7,5,8 |
| 2 | Introduction of 96 ZEBs by 2024 | 1,2,4,5,6,7,8 |
| 3 | Reduction in tail pipe exhaust emissions | 2,4 |
| 4 | EV charging equipment at 3 different operator depots | 1,6,8 |
| 5 | Power upgrade to 2 depots | 1,6,7,8 |
| 6 | Introduction of three different types of ZEB manufacturers | 1,6,8 |
| 7 | Contracts with other associated third parties | 5,6,7,8 |
| 8 | Single and double decker ZEB investment | 5,6,8 |
| 9 | Different charging systems : AC and DC | 5,6,8 |
| 10 | Contracted and commercial route mix | 5,6,7,8 |
| 11 | ZEB routes introduced in each AQMA area | 2,3 |
| 12 | Enhanced PSVAR bus specification features | 3,7 |
| Outcome | | Objective |
| 1 | Reduction in CO2 and NOx per year in local AQMA areas | 2,7 |
| 2 | Improvement to passenger experience, particularly vulnerable users | 3,7 |
| 3 | Develop constructive partnership : LCC, Arriva, Firstbus, Centrebus | 3,7 |
| 4 | Complementary projects within BSIP/EPS process as part of NBS | 3,7 |
| 5 | Improved bus route viability and accessibility in low income areas | 1,8 |
| 6 | Reduce commercial risk and stimulate ongoing commercial ZEB investment | 1,7,8 |
| 7 | Better understand commercial and LTA business case for ZEB investment | 1,7,8 |
| 8 | Reduce operational risk of ZEB introduction - to stimulate further investment | 1,7,8 |
| 9 | Trial range of different procurement and financing methods | 1,6,7,8 |
| 10 | Trial range of partnerships and use of third party expertise | 1,6,7,8 |

Complementary Investment and Policy

Progress Towards Low Emission Bus Network: 2018 - 2021

142. In January 2018 the Council and bus operators signed a 'Clean Air Zone' partnership to ensure that all services operate with buses to 'Euro 6' or better emission standard by January 2020 (Appendix 1).

143. Since this date, the Council has been successful in securing and managing grant funding for operators to retrofit exhaust emission equipment to over 150 buses. By January 2020, 416 buses (96%) were Euro 6 standard or above, with funding and plans now in place for the others to be Euro 6 standard by September 2021.

| Euro 6 compliance | | | | | | |
|--------------------------|------------|------------------|------------|------------------|------------|--|
| | | Jan-20 | | Sep-21 | | |
| | Fleet Nos | Nos buses Euro 6 | % | Nos buses Euro 6 | % | |
| Arriva | 205 | 205 | 100% | 205 | 100% | |
| First | 75 | 75 | 100% | 75 | 100% | |
| Centrebus | 54 | 47 | 87% | 49 | 91% * | |
| Kinch | 17 | 17 | 100% | 17 | 100% | |
| Stagecoach | 34 | 25 | 74% | 34 | 100% | |
| Roberts | 15 | 12 | 80% | 15 | 100% | |
| Total | 400 | 381 | 95% | 395 | 99% | |

* includes x5 buses converted to Euro V standard through previous CVT funds

144. There are also 27 buses used for school bus contract work and not registered as local bus services. Funding is now available to convert these to Euro 6 compliance by March 2022.

| School Buses - Leicester | |
|---------------------------------|-----------|
| Company | Nos Buses |
| Ausden Clark | 9 |
| Confidence | 7 |
| Orbit Coaches | 11 |
| Total | 27 |

Progress Towards Zero Emission Bus Network: 2021- 2022

145. Significantly, there is already good progress towards moving all contracted services to fully electric as part of the Council's Greenlines project (see map in para 106 above). This focusses on contracted buses operating from two 'small' bus operators who are unlikely to be able to make investment of this kind themselves.

146. All park and ride services are now in operation with x11 fully electric (overnight charged) buses. This includes a charging depot at Roberts Travel Group specified up for up to 20 buses. See video link: <https://youtu.be/tStKpHOnvc>

147. In addition, the Hospital Hopper will go electric this October. The electric buses have been delivered and the charging depot at Centrebus is currently being built – again for up to 20 buses to allow for future planned expansion of contracted work.

148. The final stage is the introduction of a new electric inner orbital service around the City Centre in Autumn 2022. This will connect the train and bus station with all main travel generators in the City Centre – shopping areas, hospital, university, college etc. This will have the unique feature of introducing electric buses along a main pedestrianised shopping road (High St) – to give better, sustainable, accessibility.

| Greenlines - phase 1 | | | | | |
|---|-----------------|------------------|-----------------|--------------|-------------|
| Electric Buses - in service or in delivery | | | | | |
| Contracts | Operator | Nos buses | Supplier | Funds | Date |
| Park and Ride 103 | Roberts | 3 | Pelican Yutong | TCF | May-21 |
| Park and Ride 203 | Roberts | 4 | Pelican Yutong | TCF | May-21 |
| Park and Ride 303 | Roberts | 4 | Pelican Yutong | TCF | May-21 |
| Hospital Hopper | Centrebus | 4 | Pelican Yutong | TCF | Oct-21 |
| Inner Orbital | TBD | 3 | TBD | TCF | Sep-22 |
| | | 18 | | | |
| TCF - Transforming Cities Fund | | | | | |
| TBD - operation and supplier to be tendered. | | | | | |

149. This is being delivered in four work packages to the total cost of £7.1m

| Greenlines - phase 1 | | | |
|---|-------------|-------------------------|----------------------|
| Electric Buses - in service or in delivery | | | |
| Contracts | Cost | Funds - external | Funds - local |
| Park and Ride 303 | £1,990,000 | TCF1 | City Council |
| Park and Ride 103&203 | £2,950,000 | TCF2 | City Council |
| Hospital Hopper | £1,050,000 | TCF2 | City Council |
| Inner Orbital | £1,100,000 | TCF2 | City Council |
| Total | £7,090,000 | | |

150. These five services operate with x18 electric buses and all travel within the Council Air Quality Management Areas.

151. The two (small) operator depots have both been suitable for electrification and required no further planning consents. Both have been future-proofed for up to x20 electric buses through power upgrades to 1MW. Both projects required works on the highway and new substations, requiring traffic regulation orders from the local highway authority. This was facilitated by the DNO for Roberts Travel and the IDNO for Centrebus through

a joint partnership between the Council, the two operators, Zenobe Energy and Pelican.

152. It is important to note that both phases of the Greenlines project also includes the following additional features:

- Significant revenue subsidy – existing (£1.4m p.a.) and planned (£1.7m p.a.)
- Existing and new park and ride sites
- New and existing bus priority measures
- Smart signalling and red routes
- Automated tap-in/tap-out digital capping
- Real time displays at all stops and on all electric buses
- New bus shelters
- High quality branding and promotion

153. Phase 1 of the Greenline project has around £5m of secured capital funding to implement these complementary measures over the next 2 years. Phase 2 will require an additional £10m and will be dependent on securing local funds through a workplace parking levy, matched by successful government funding bids.

154. Finally, it should also be noted that Stagecoach are already committed to moving its service 48 (Coventry – Nuneaton – Leicester) service to electric by 2024. This forms part of the Coventry Electric Bus Town project and covers all 22 buses on this service.

155. In summary, 40 buses of the Leicester fleet are either already electric or committed to being electric by 2024.

Complementary Bus Investment On Proposed ZEBRA Routes

156. Both the Greenlines project and the commercial electric bus routes within the ZEBRA bid will also benefit from a raft of complementary measures over the next 6 years.

157. This investment will build on work already undertaken on the several AQMA corridors in relation to bus priority, real time, contactless ticketing and smart signal management – see table below.

158. The Council future bus plans are summarised within the draft LTP4 2021-365.

159. The Council's Draft Bus Services Improvement Plan (Appendix 3) will be finalised by end October 2021 and an associated Enhanced Partnership Scheme established by April 2022, in line with the guidelines in the National Bus Strategy. This sets out a range

⁵ <https://consultations.leicester.gov.uk/communications/ltp4/> & <https://www.youtube.com/watch?v=mWI6TGrziK0>

of funded and proposed projects and policies designed to significantly improve the sustainable use of buses across Leicester over the next 6-7 years.

Stage 1: 2021–23

161. This represents £50m of work already funded by Transforming Cities, Getting Building and local capital funds on bus priority measures, infrastructure (including a new bus station and two park and ride sites), digital ticketing, new shelter and real time information displays along each ZEBRA bus route. The bus priority measures are focussed on the following AQMA corridors: Melton Rd, Abbey Lane/Loughborough Rd, Braunstone Gate, Ring Road and London Rd. The measures include a mix of bus lanes, signal priority, parking regulation and red routes. These are designed to reduce congestion and further boost modal shift to the new buses.

| Leicester City Council - Bus Enhancement Projects/Schemes | |
|--|----------------------------|
| Aug-21 | |
| Project | Implementation date |
| Bus priority schemes: | |
| A6 Abbey Lane | Summer 2022 |
| Abbey Park Rd | Mar-23 |
| Anstey Lane (south) | Jan-22 |
| Anstey Lane (Gorsehill) | Mar-23 |
| Groby Rd | Summer 2021 |
| Melton Rd | Dec-21 |
| Braunstone Gate | Mar-23 |
| Soar Valley Way | Summer 2022 |
| Fosse Rd North/Northgate | Mar-23 |
| Savoy St link | Completed |
| London Rd Red Route (permanent) | Spring 2021 |
| New P&R/Interchange facilities: | |
| Beaumont Leys P&R | Summer 2022 |
| General Hospital P&R | Autumn 2021 |
| New St Margarets Bus Station | Spring 22 |
| City-wide bus integration projects : | |
| Real Time Stop Totems (575) | Autumn 21 – 22 |
| Digital Capping – single operator | Autumn 21 |
| Digital Capping – multi operator | Feb-22 |
| Traffic Light bus priority system | Sep-23 |
| Shelter replacement programme | Spring 21- 22 |
| Bus Stop infrastructure (upto 800 Totems) | Autumn 21 – 22 |
| Electric bus projects: | |
| E buses P&R x3 | Spring 21 |
| E buses Hospital Hopper | Autumn 21 |
| E buses City Centre - operations tender | Autumn 22 |
| E buses City Centre - bus tender | Autumn 22 |
| E buses Zebra bid | Autumn/Winter 21 |
| Enhanced Partnership Scheme: | |
| Advertise EPS process | 30-Jun-21 |
| Bus Services Improvement Plan | 31-Oct-21 |
| Enhanced Partnership Scheme | 31-Mar-22 |

162. This fully funded programme is already subject to an existing formal Bus Partnership scheme with the operators (Appendix 2). Below is a summary of its key planned outputs and outcomes.

Key Outputs

- Deliver four demonstration 'rapid transit' bus corridors by 2024.
- Ensure all registered bus services meet Euro 6 diesel standard by end 2020 (In accordance with the Bus Clean Air Zone Partnership Jan 2018).
- All contracted P&R buses to be fully electric by 2025.
- An 'all operator' plan to move to zero emission buses on all main bus routes by an agreed date.
- Agreed rolling five year network development plans to facilitate economic and housing growth.
- Widen the range and retail network for all-operator Flexi tickets.
- Introduce all-operator automated (model 2) contactless ticketing across all operators with single and multi-operator capping.
- Introduce an integrated all operator discounted travel scheme for young persons between 16 and under 19 years old.
- Agreed Main Route Network promotional programme with clear user understanding.

Key Targets

- 10% increase in bus patronage on TCF growth route network by 2025
- 5% increase in bus patronage across whole main route network by 2025
- Overall bus user satisfaction to increase from 87% to 90% by 2025.
- Reduction in journey times and improvement in punctuality of Main Bus Network (daytime 15 minute frequency or better)
- No deterioration in frequency or hours of operation of Main Bus Network.

Stage 2: 2024-28

163. Predicted £30m of capital work on bus priority measures and infrastructure, funded by Workplace Parking Levy and matched funding from external bids. These will focus on ZEBRA bus routes along the following AQMA corridors: Humberstone Rd/Uppingham Rd, Ring Road, and Saffron Lane, together with a further roll out of real time information displays to complete all boarding stops on the ZEBRA routes.

164. A summary of these measures in relation to each AQMA bus corridor with proposed electric ZEBRA buses is shown below:

| Complementary measures to enhance electric bus routes | | | | | | | | | | | |
|--|------------------|------------------|-----------------|---------------------------|------------------------------|------------------------|------------------------|--|--|---|--|
| Air Quality Management Area: | Bus Lanes | Red Route | Shelters | Real time Displays | Contactless ticketing | Digital Capping | New Bus Station | | | | |
| City Centre/Inner Ring Road | Pre-2021 | 2023 | Pre-2021 | Pre-2021 | 2021 | 2022 | 2022 | | | | |
| Ring Rd - Glenhills Way/Braunstone Way | 2022 | 2022 | 2024-6 | 2024-6 | 2021 | 2022 | 2022 | | | | |
| Ring Rd - New Parks Way | 2024-6 | 2024-6 | 2024-6 | 2024-6 | 2021 | 2022 | 2022 | | | | |
| Ring Rd - Colchester Rd/Goodwood Rd | 2024-6 | 2024-6 | 2024-6 | 2024-6 | 2021 | 2022 | 2022 | | | | |
| Abbey Lane | 2022 | 2022 | 2022 | 2022 | 2021 | 2022 | 2022 | | | | |
| Melton Rd | 2022 | 2022 | 2022 | 2022 | 2021 | 2022 | 2022 | | | | |
| Dysart Way | na | na | na | na | na | na | 2022 | | | * | |
| Humberstone Rd/Uppingham Rd | 2024-6 | 2024-7 | 2022 | 2022 | 2021 | 2022 | 2022 | | | | |
| London Rd | Pre-2021 | 2021 | 2022 | 2022 | 2021 | 2022 | 2022 | | | | |
| Welford Rd | Pre-2021 | 2022 | 2022 | 2022 | 2021 | 2022 | 2022 | | | | |
| Saffron Lane | 2024-6 | 2023 | 2022 | 2022 | 2021 | 2022 | 2022 | | | | |
| Aylestone Rd | Pre-2021 | 2023 | 2022 | 2022 | 2021 | 2022 | 2022 | | | | |
| Narborough Rd/Braunstone Gate | 2022 | 2023 | 2022 | 2022 | 2021 | 2022 | 2022 | | | | |
| Hinckley Rd | Pre-2021 | 2023 | 2022 | 2022 | 2021 | 2022 | 2022 | | | | |
| Northgate | 2023 | 2023 | 2022 | 2022 | 2021 | 2022 | 2022 | | | | |
| * no buses on this corridor | | | | | | | | | | | |

Future Zero Emission Bus Plans Beyond 2024

Contracted Routes

165. The Council's future investment plans in electric buses focus on developing phase 2 of the Greenlines Project.

| Greenlines - phase 2 | | | | |
|-----------------------------|------------------|---------------------|----------------------|---------------------|
| Contracts | Nos buses | Planned date | Funds - local | Fund - other |
| Outer Orbital - P1 | 6 | Sep-22 | City Council | ZEBRA - Fast Track |
| Park and Ride expansion | 3 | Apr-23 | City Council - WPL | ZEBRA - future |
| Hospital Hopper | 4 | Apr-23 | City Council - WPL | ZEBRA - future |
| Outer Orbital - P2 | 4 | Apr-23 | City Council - WPL | ZEBRA - future |
| | 11 | | | |

166. Subject to getting the necessary internal capital and revenue funds, together with matched future ZEBRA funding, the Council intends to purchase a further eleven electric buses, shown in the table above and Greenlines map in paragraph 114.

167. This further planned expansion has not been included within this fast-tracked ZEBRA bid as it requires the necessary matched revenue funds for operation. These funds will only be confirmed once formal approval is given to introduce a Workplace Parking Levy – expected within the next 12 months – or if the Council secures an alternative source of funding.

168. In addition, any future expansion will also be reliant of securing funding for a complementary range of other bus promotional investment to secure the long term viability of the electric bus investment on these routes.

Commercial Routes

169. The Partnership is currently formulating plans for private operator investment in electric buses beyond 2024 and it is anticipated that an indicative plan will be outlined within the forthcoming Bus Service Improvement Plan and Enhanced Partnership by March 2022.

170. This will inevitably be subject to variability and dependent on changes in commercial decision making, but the current broad aim is complete the whole fleet by 2030 at the latest.

171. Greater investment by the operators within the fast-tracked bidding process was considered at length within partnership meetings, and indeed rose throughout this discussion as the operators developed a greater understanding of the matched commitments of the City Councils. Investment has risen from their planned £11m committed when the partnership formed in 2020, to over £26m now committed within the ZEBRA bid.

172. Further investment at this stage was constrained by the following factors:

- Recent investment in Euro 6 diesel buses and in clean vehicle technology to make Leicester fleets fully Euro 6 compliant.
- Cost of battery mid-life battery replacement, particularly for double decker routes
- Unknown costs of energy and electric bus and charger maintenance.
- Unknown future levels of BSOG
- Unknown market recovery position post-covid.
- Limitations of the Council's future programme of projects and policies to assist buses, in favour of alternative options, particularly given private ownership of central area parking.
- Council proposals to introduce workplace parking levy not yet formally approved by the DfT.
- Lack of internal resources to cope with any greater level of change.

173. Below is the current Greater Leicester depot electrification status by operator:

| Depot Electrification Status | | | | | | | |
|-------------------------------------|-----------------------|----------------------|------------------------|-------------------------|------------------------|---------------------------|------------------------|
| Operators | Depot location | Current | | Zebra Fast Track | | Future Zebra (TBD) | |
| | | Power upgrade | Double Chargers | Power upgrade | Double Chargers | Power upgrade | Double Chargers |
| Greater Leicester | | | | | | | |
| Arriva | Thurmaston | None | None | 2 MVA | 13 | 4 MVA | 29 + |
| Arriva | Wigston | None | None | None | None | To be shut in October 21 | |
| First | Abbey Park | None | None | 3 MVA | 34 | Complete | 6 |
| Centrebus | Thurmaston | 1 MVA | 3 | None | 3 | Complete | 5 |
| Roberts | Hugglescote | 1 MVA | 7 | Complete | Complete | Complete | Complete |

174. After the ZEBRA scheme is complete, this table shows that for depots in Greater Leicester, and therefore the vast majority of the Leicester bus network:

- Only one depot will require full power upgrade.
- Only 80 additional double chargers are required.

Active Travel and Other Transport Measures Assisting Air Quality

175. The full range of the Council's current and future programmes aimed at improving air quality are contained in:

- <https://www.leicester.gov.uk/your-council/policies-plans-and-strategies/environment-and-waste/air-quality>
- <https://www.leicester.gov.uk/media/xkhfuzsk/transforming-cities-fund-strategic-outline-business-case-2019.pdf>

176. These measures include the following:

- a continued programme of developing a network of 'mini-Holland' dedicated bike lanes⁶
- extensive and developing electric cycle hire scheme, now in operation across the City with over 500 bikes and 50 docking stations currently being implemented.⁷
- significant programme of active travel and smarter choices promotional activity aimed at children and families. See www.choosehowyoumove.co.uk for more details.
- significant expansion and redevelopment of the train station.
- proposal to introduce workplace parking levy by April 2023, subject to the current consultation process.⁸
- parking pricing policies designed to promote use of park and ride and public transport

⁶ <https://www.leicester.gov.uk/media/179027/leicester-cycle-city-action-plan.pdf>

⁷ <https://rideonleicester.com/index.html>

⁸ <https://consultations.leicester.gov.uk/communications/ltp4/>

177. Appendix 4 provides a note on the continuous work supporting sustainable travel through behavioural change activities over the past 9 years. This typically invests around £1m p.a. into initiatives focussed at schools, business, and personal travel planning.
178. Each phase of investment has been in response to the aims of the funding body and the city goals. Including supporting specific investments such as the Leicester North West Major Transport Project (LNWMTP), economic growth and the Connecting Neighbourhoods developed through the LCWIP initiatives. The objective of the behaviour change programme is to 'multiply the benefits' expected from sustainable transport schemes delivering bus, cycling and walking improvements. This is achieved by providing people with help in recognising where they could make changes in the way they travel and providing them with opportunities and help to try it.
179. This has resulted in a situation where investment has moved around different areas of the city as well as supporting city-wide initiatives. Our aim is to keep a rolling programme that builds year-on-year and for each of our wards. For targeted interventions we have (and will continue to) prioritised those wards where greatest benefits are likely to be gained. So far this has resulted in the majority of our targeted interventions occurring in the NW, SW and central areas of the city which are associated with higher economic activity, and higher levels of growth, but would expect each ward to see bespoke interventions every 5-10 years.
180. LCC has committed £3.5M to a behaviour change programme as match funding to the successful Transforming Cities Fund and this will ensure that there will be around £1M invested in behavioural change programmes each TCF year. This will be funded by external funding such as the Capability Fund and Active Travel Fund. The rolling range of initiatives will actively support all forms of sustainable transport that are being targeted within the TCF transport investment programme.
181. Cycle measures that will take place over the next 3 years include the following:

Infrastructure to assist cycling

- Radial Corridor Improvements (Including London Road, St Augustine's & Saffron Lane)
- A6 / A50 Stage 2
- North City Centre Access Improvements Stage 2
- A5199 Welford Road
- NCN6 (Bede to Abbey Park)
- Hamilton Way Link • Public Bike Share
- Rail Electrification Improvement Projects 'Pinch Point', 'Missing Link' & 'Safer Cycling' including;
- Neighbourhood Railway Crossings Severance Project
- Cycle hubs at all transport interchanges
- Citywide 20mph zones

- RIII Bike Route Heritage Route (Leicester to Bosworth)
- Cycle Streets on all strategic neighbourhood routes
- Advanced Stop Lines on traffic signal junctions
- Electric bike hire scheme – with over 50 docking stations and 500 bikes.

Training

- Scootability Training offer for 100% Early Years pupils
- Level III Bikeability Cycle Training on request
- Cycle training for all adults on request
- Mechanic training for 500+ young people & adults p.a.
- Social enterprise development programme
- Ellesmere & New College 'Special Needs' Programmes

Promotions

- CURVE Schools Ride for 750+ pupils
- Led-rides for 2,000+ participants p.a.
- £300 Bike Challenges for 40 projects p.a. & grant project
- Mobile Bike Parks for 20+ days p.a.
- Ride Leicester Festival for 25,000 participants including
- Leicester Castle Classic Elite Race plus Go-ride Youth races & regional development programme, Sportive athletes of 1,000+, Triathlon athletes of 1,000+, Amateur Challenge riders of 1,000+, Sky Ride 'Open Streets' family event for 20,000+ people
- Neighbourhood Cycling Events in 16+ areas p.a.

Conclusions

182. Given the above strategic background and analysis it is concluded that:

- a) There has been significant progress by all partners within Leicester to limit emissions from transport and improve bus travel for all passengers.
- b) However, there remains an air quality problem on all the main bus corridors within in a growing conurbation. Additionally, socio-economic issues are most prominent in those areas with poor air quality and low car ownership.
- c) These issues must be addressed and there is a strategic case for significant further investment and capital support for electric bus investment.

- d) The proposed ZEBRA investment has been structured such that it will directly target environmental impact, socio-economic factors/levelling up and overall, improve transport for the user.
- e) The proposed investment will directly meet the wider ZEBRA programme's objectives by:
- Increasing the number of ZEBs by 96 buses
 - Building capacity/capability in zero emission bus technology in the UK, including supporting the first order for a manufacturer in Bicester
 - Giving a reduction of 91 tonnes of CO₂, 44 tonnes of NO_x and 1.1 tonnes of PM_{2.5}
 - Building greater understanding of practicalities/ difficulties of rolling out zero emission buses to support future schemes
 - Supporting local partnership working with three local bus operators and the Council.
- f) The main bus operators together with the City Council are willing to make significant local investment in electric buses over the next 2 years, £17m more than originally planned in their existing partnership.
- g) The Leicester Bus Partnership is well organised and well placed to deliver this investment and to complement it with a significant range of other complementary programmes and policies.

Appendix 1

Leicester Bus Partnership – Clean Air Zone Agreement

This agreement outlines the Partnership commitment between bus operators⁺ and Leicester City Council to deliver a Clean Air Zone in Leicester for registered bus services.

- The overall partnership objective is to help reduce nitrogen dioxide air pollution to below EU target levels and deliver significant health improvements for Leicester
- Through investment in new buses and engine retrofits, bus operators have already made significant progress since the introduction of the City Council's Air Quality Action Plan in 2015:
 - Over £20 million investment since 2015 to upgrade old vehicles
 - 40% (of 368 vehicles) of the city bus fleet now have cleaner Euro VI or retrofitted engines, a four-fold increase from 10% in 2015.
 - 90% of all passengers in Leicester now ride on buses with EURO IV or better engines
 - Since 2015, the average EURO standard in the city has increased from 3.8 to 4.8
- The bus operators are committed to achieve EURO VI* or better standard across the Leicester fleet by the end of 2020
- The bus operators will not replace any vehicle with one producing higher pollution levels unless in exceptional circumstances**
- We will work together to:
 - identify grant and other funding opportunities to help meet our targets.
 - introduce electric or other zero emission vehicles by 2030.
- From January 2021 the council will introduce a charging regime for buses that don't meet the EURO VI* standard. The standard charge will be £15 per bus per day, to be reviewed by the partners in July 2019.
- Buses achieving EURO VI* or better standard will display the Healthier Air for Leicester logo as appropriate.

Agreed by Leicester City Council, Arriva, Centrebus, First Bus, Kinch and Stagecoach

January 2018

⁺ Includes: Arriva; Centrebus; First Bus; Kinch and Stagecoach. This does not currently include Travel de Courcey and Diamond Coaches who only run one service each.

^{*} This includes all retrofitted vehicles in the Breathe 1, 2 and 3 programme.

^{**} Exceptional circumstances will be defined in detail separately. Charges will be applied for non-compliance at £15 per bus per day.

Appendix 2

Memorandum of Understanding to form the Leicester Better Buses Partnership 2020 - 2024

Leicester City Council

Arriva Bus Midlands

First Bus Leicester

Centrebus

Kinchbus

Introduction

This Memorandum of Understanding follows recent discussions between the parties above directed towards creating a partnership to improve all registered bus services across Leicester.

The Leicester Better Buses Partnership voluntarily brings together all main parties involved in bus travel to deliver a joint action plan over the next four years. The overall aim is to increase patronage by 5% across the main bus route network.

The members of this partnership will be the local bus operators of Leicester and the City Council. All will agree to deliver the actions set out in this plan, to regularly monitor and publish yearly progress reports, and to highlight all ongoing issues in a timely manner.

Vision

A transformative change in bus travel, making it quicker, more reliable, affordable and sustainable.

Key Objectives

The key objectives of the Partnership are to :

- Facilitate sustainable economic and housing growth
- Help reduce congestion through measures to promote modal shift
- Improve equitable access to work, education and health facilities

- Improved local air quality
- Improve commercially viability of the main bus network

The strategic context behind this plan is outlined in the Leicester Bus Strategy 2020 - 2028

Key Outputs

- Deliver four demonstration 'rapid transit' bus corridors by 2024
- Ensure all registered bus services meet Euro 6 diesel standard by end 2020 (In accordance with the Bus Clean Air Zone Partnership Jan 2018)
- All contracted P&R buses to be fully electric by 2025.
- All operator plan to move to zero emission buses on all main bus routes by an agreed date.
- Agreed rolling five year network development plans to facilitate economic and housing growth
- Widen the range and retail network for all-operator Flexi tickets.
- Introduce all-operator automated (model 2) contactless ticketing across all operators with single and multi-operator capping where customer, alliance and operator requirements define it is required.
- Introduce an integrated all operator discounted travel scheme for young persons between 16 and under 19 years old.
- Agreed Main Route Network promotional programme with clear user understanding

Key Targets

- 10% increase in bus patronage on TCF growth route network by 2025
- 5% increase in bus patronage across whole main route network by 2025
- Overall bus user satisfaction to increase from 87% to 90% by 2025.
- Reduction in journey times and improvement in punctuality of Main Bus Network (daytime 15 minute frequency or better)
- No deterioration in frequency or hours of operation of Main Bus Network.

Key Deliverables – City Council

Bus priority highways measures

- Bus reliability 'pinch points' programme – up to 2021
 - A50 Groby Rd – new 24/7 bus lane inbound between Mary Rd and Blackbird Rd
 - Narborough Rd – Smart Cities solution using traffic signals to gate traffic at Fullhurst Avenue, allowing busses to bypass the queuing traffic in existing bus lanes.
 - Welford Road – Review of existing bus lanes and extension of inbound bus lane towards Wigston
 - Humberstone Rd – Additional enforcement of existing bus lanes
 - Uppingham Road – Changes to lining inbound to increase compliance and additional enforcement.
 - Burleys Way – new junction for egress from St Margaret's Bus Station.
 - Mansfield St – New road to link with Belgrave Gate
 - Welford Rd - Smart Cities solution using traffic signals to gate traffic at Chapel Ln junction allowing busses to bypass congestion.
 - Abbey Lane - Smart Cities solution using traffic signals to gate traffic at Thurcaston Road junction allowing busses to bypass congestion.
 - Beaumont Leys Ln – developer funded new bus lane inbound to Red Hill Way
 - Anstey Lane – Capacity improvements between A46 and Krefeld Way
 - Ravensbridge Drive – Capacity improvements between Abbey Lane and Blackbird Rd
 - Fosse Rd North – northbound bus lane

- Bus Demonstration Schemes : one per year from 2020 – 2024
 - Anstey – Beaumont Leys – Anstey Lane – St Margarets Way – City Centre
 - Birstall – Red Hill Circle – Abbey Lane – St Margarets Way – City Centre
 - Beaumont Leys Lane – Abbey Lane – Abbey Park Rd – Belgrave Rd – City Centre
 - Melton Road – Belgrave Rd – City Centre

- Bus Priority Enforcement System Enforcement Cameras at :
 - Groby Rd at Blackbird Rd
 - Uppingham Rd near Oak Street
 - Uppingham Road at Mornington Street
 - Narborough Road at Fullhurst Avenue
 - Duns Lane in both directions
 - Aylestone Road at Rawdykes Rd
 - Specific locations along demonstration bus corridors above

Red Route TRO application to Main Bus Network :

2020 - 1

- City Centre inner ring road
- Bus

Demonstration corridors

- Other Main Bus routes

- Signalised priority to late running buses – at least 10 key signalised junctions by end 2022.

Improved Park and Ride - reducing congestion on key corridors

- Improved frequency and reliability to existing three contracted P&R services
- New P&R site at Beaumont Leys District Centre to City Centre and Glenfield served by existing bus services in the area.

Passenger Waiting Facilities

- Refurbished St Margarets Bus Station
- Install new bus shelters along all main bus routes and all key stops.
- Maintain all bus station and shelters to agreed maintenance standards
- Real time displays and improved waiting facilities installed at all stops on Main Bus Route Network.

Fares and Smart Ticketing

- Co-ordinate and administer the introduction and promotion of multi-operator 'Flexi' ticket purchases on each operator's mobile and contactless ticketing platforms.
- Co-ordinate and administers the widen of the range of flexi tickets, to include season and under 19 options.
- Introduce contactless Model 2 automated EMV ticketing on all subsidised services, including P&R
- Co-ordination of all-operator commercial capping schemes
- Co-ordination of all-operator travel scheme for 16-19 year olds
- Lead and co-ordinate appropriate Advanced Ticketing Schemes required to formally introduce the above all-operator ticketing arrangements.

Greening the Fleet

- Fully Electric buses on all subsidised P&R services

Main Bus Route Network

- Co-ordination of promotional plan to promote the legibility of the Main Bus Route Network concept
- Co-ordination of Main Bus Network development plan

Parking

- Introduce Workplace Parking Levy within 3 years, subject to successful consultation
- Ringfence a significant proportion of WPL income for the improvement and development of the existing bus network.
- Look to expand peripheral park and ride facilities for long term parking, with central area parking aimed at short stay parking only.

Key Deliverables – Bus Operators

Greening the fleet

- All registered bus network to meet Euro VI emissions standards by end Dec 2020. This will be in accordance with the Bus Clean Air Zone Partnership Jan 2018.
- Operators to examine options for moving to fleetwide zero emission bus provision by 2030, subject to progress with Workplace Parking Levy, wider Leicester transport strategy and individual operator business plan approval and the availability of external grants.

Ticketing

- Introduce multi-operator 'Flexi' ticket purchases on each operator's mobile and contactless ticketing platforms.
- Widen range of flexi tickets, to include season and under 19 options.
- Implementation of model 2 touch-in/touch out cEMV contactless ticketing with single and multi-operator capping. This will be subject to where customer, partnership and operator requirements define it is required.
- Implementation of an agreed commercial unified discounted ticketing scheme for 16-18 year olds.
- Review future fares policy framework.

Route and network optimisation

- Participation in Qualifying Agreements to achieve route timetable optimisation and ticket integration on three agreed corridors.

- Full participation in network development planning process – in line with major housing growth. This will include the development of demand responsive transport solutions as well as the main bus network.
- Promotion of the Main Bus Network in all standard operator-led local channels.
- Work towards a jointly agreed local branding of four demonstration bus corridors.
- Bespoke travel planning work with all key businesses impacted by proposed future Workplace Parking Levy.

Delivery plan timescales

An agreed set of timescales for the delivery of each element of the above plan will be agreed by partners by July 2020, subject to funding availability and future ownership dynamics.

Funding

All deliverables are subject to

- a) a successful Council funding bid to the Department for Transport Transforming Cities Fund - to be announced by March 2020
- b) further external 'Green Bus' ULEB funding streams being available
- c) agreed yearly business and investment plans by each operator.
- d) LCC's development of Workplace Parking proposals and the wider Leicester transport strategy

Monitoring

Quarterly and annual progress reports on this agreed plan will be presented to the Senior Bus Managers meeting over the full four-year period. All issues with delivery and any required changes will be agreed at this forum.

Publicity

Co-ordinated publicity will be held and periodic intervals to promote the delivery of each milestone within this plan.

Partnership Stakeholders

Leicester City Council

Signature :

Position : Director PTE.D

Name: Andrew Smith

Date: 27/11/19

Arriva Bus Midlands

Signature :

Position : AREA MANAGING
DIRECTOR

Name: SIMON MATHIESON

Date: 26/11/19.

First Leicester

Signature :

Position : COMMERCIAL
DIRECTOR

Name: KEVIN BELFIELD

Date: 26/11/19

Centrebus

Signature : matt Evans

Position : MANAGING DIRECTOR

Name: MATTHEW EVANS

Date: 26/11/19.

Kinchbus

Signature : James

Position : Director of Commercial Services

Name: VICKY WILLIAMS

Date: 26/11/19

Appendix 3

Draft Greater Leicester Bus Plan 2021 – 2030

(Bus Services Improvement Plan)

Mar 2021

Introduction

1. Leicester is one of the fastest growing UK cities and bus travel can play a vital role in ensuring this growth is both environmentally sustainable, accessible to all and free from inefficient congestion.
2. The majority of local companies surveyed felt that congestion was harming their businesses and sustainable travel improvements would assist their customers and staff.
3. However, this is a significant challenge given the competing use of limited road space, the growth in car use, cheap private parking and the diverse spread and times that travel takes place.
4. To encourage a switch from car to bus, the relative attractiveness of each mode needs to be addressed. This relates to all aspects of travel – its cost/fare, time, reliability, flexibility and quality.
5. Leicester has a dense network of urban and interurban bus routes, three park and ride services but a poor suburban rail network. Unusually for a medium sized city there is no single dominant network bus operator.
6. The vast majority of routes are commercially operated, terminate in the city centre, with interchange between operators often required to access the many non-central employment, health and educational facilities.
7. Virtually all public transport to schools, colleges and universities takes place on the mainstream commercial bus network, rather than on bespoke commissioned contracts.
8. This draft sets out a plan for the next 10 years designed to radically transform bus travel, increase patronage by 10%, reduce congestion and help Leicester grow in a fully sustainable and accessible way.

Strategic Objectives

9. The majority of bus services in Greater Leicester are commercially operated by private companies, with the main objective to maximise profit.

10. However, the Council has wider strategic objectives to promote use of bus travel in order to :

- facilitate sustainable growth of the city by making maximum use of restricted road space to transport people in an environmentally sustainable way.
- reduce road congestion to free up road space for freight and necessary longer distance work-based trips.
- assist in the equitable access to work, health and educational facilities, particularly for those on low incomes without access to a car.
- help the City to meet its national Clear Air Zone obligations in relation to air pollution.
- allow the City to fulfil its statutory transport obligations in relation to access to education, health and social services in the most cost effective way.

11. These wider objectives focus more on maximising

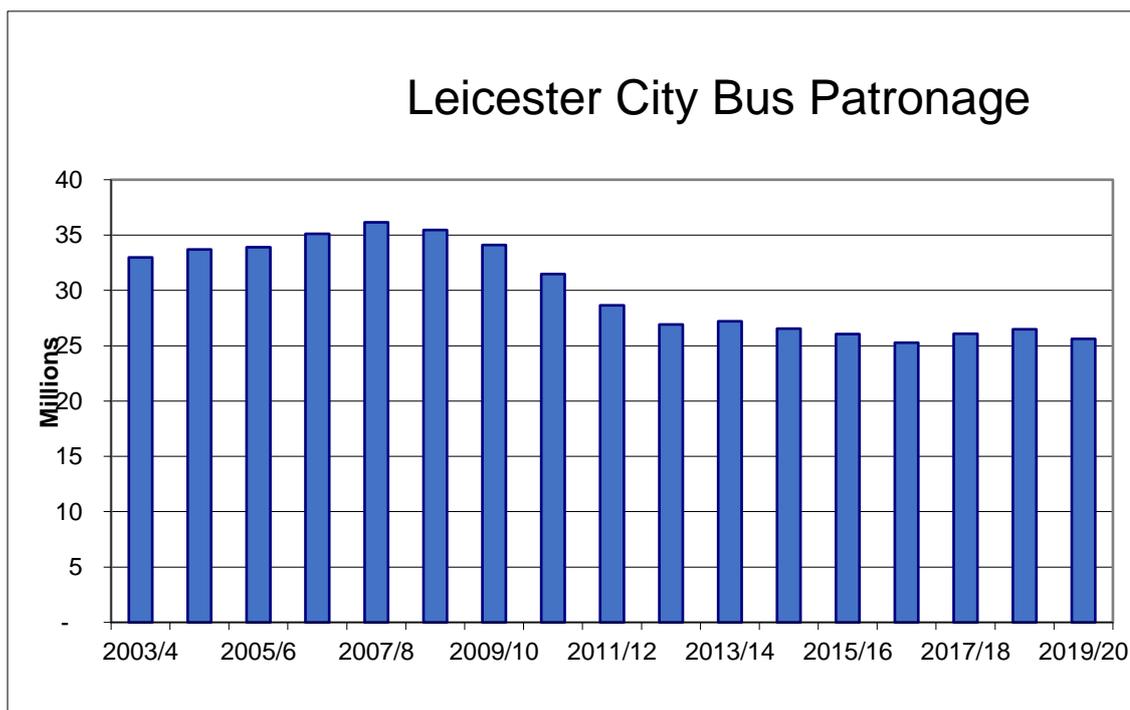
- the number of people travelling bus
- bus accessibility – both geographically, temporally and financially.

12. This bus plan looks to blend these private and public sector objectives through a cohesive partnership approach.

Current trends in bus travel

13. The current trend metrics for bus travel are as follows:

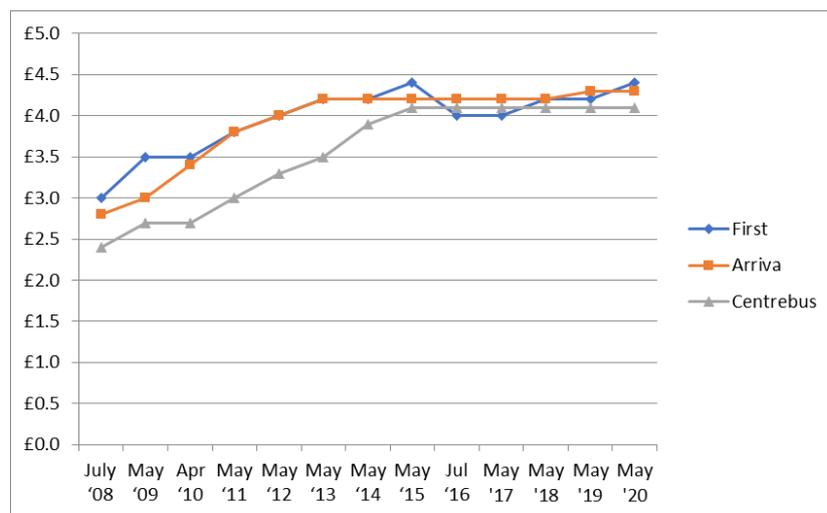
- Falling city patronage 28% (2008-17); 7% (2013-16).
- However, stable last four years (2016-2020)



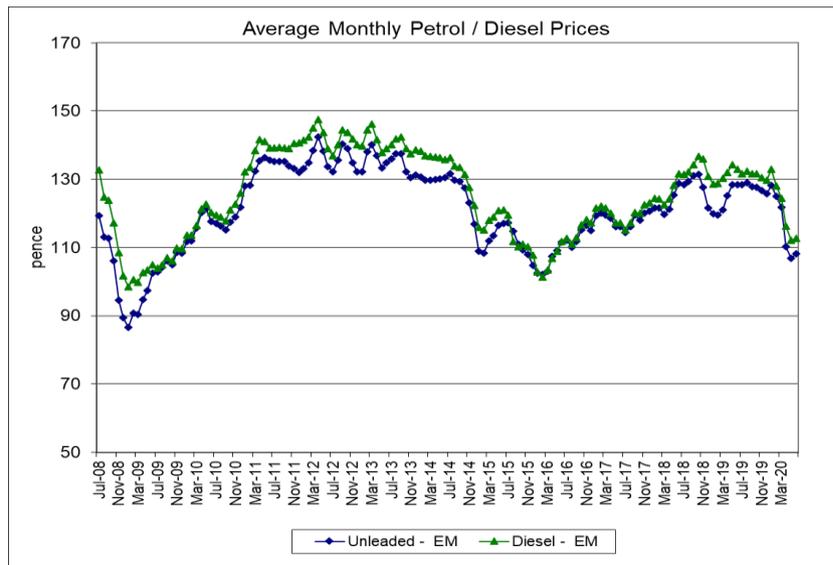
- Bus patronage of 76 trips/head of population (2015/16) is approximately 50% of best performing comparable cities (Nottingham (149); Brighton (160))
- User Satisfaction ratings (rated very and fairly satisfied in Autumn 18 Passenger Focus Survey)
 - Punctuality and reliability 72%, top authority 81%
 - Value for Money 62%, top authority 81%
 - Journey time 83%, top authority 92%
- Congestion leading to declining punctuality and increasing journey times over time.
- Over 92% of routes are commercially operated, with daytime accessibility levels to the City Centre at around 90% of homes within walking distance of a half-hourly or better service. However, this drops to less than 50% in the evenings.
- Competition on several main corridors, with uncoordinated overall timetables leading to bunching and reducing overall effective frequency.

- Poor orbital bus service provision and few cross city routes to growing non-central employment locations – hourly or worse.
- Very limited council budget to fill in gaps left by the commercial network, particularly in evenings and to non-central employment locations.
- Cost of bus travel :
 - More than double rate of inflation since 2006
 - Three times rate of inflation for shorter inner city journeys
 - Highlighted as key issue for accessing facilities for young persons aged 16+.
 - 25% fare premium for interchange between operators, leading to significant financial costs to access growing number of peripheral employment sites

Day ticket prices 2008 – 20



Petrol - Average Forecourt prices for East Midlands 2008 - 2020



- Fuel duty was frozen by the Government from 2010 and petrol and diesel prices have not risen in real terms. This contrasts with the real terms increase in bus fares over the same period.
- Parking costs and availability. Cheap, plentiful, central area private parking – including employer deals. Daily commuter parking costs at £3/day or lower, significantly undercutting average bus fares. There are 5000 more spaces than Nottingham, with fares around 50% lower. Nottingham also has 5000 more P&R spaces than Leicester.
- Fleet wide bus emissions standard of 99% being Euro 6 compliant by end 2020.
- No formal network wide commitments to future investment in ultra low emission buses on the commercial network.
- Very low bus usage to non-central employment, health and educational locations - less than 12%.
- Low quality of waiting infrastructure, particularly real time information at stops on key bus routes
- Three underutilised Park&Ride sites due to unattractive frequency and journey times and cheap central parking. No eastern P&R sites.
- St Margaret's Bus Station provides poor transport hub experience/modal interchange and is underutilised. On-street central alternatives more attractive but over-used and congested.

14. In summary, although there has been a previous significant downward patronage trend, this appears to have now slowed down, with bus investment and accessibility levels remaining relatively high.
15. Leicester has a reasonably strong bus base from which to build, particularly given the overall predicted growth of the City. However, the relative attractiveness of car travel compared with bus travel remains a significant issue.

Key Issues

16. Key customer issues that have been identified are as follows:

- Buses need to be more reliable and journey times quicker and less variable
- Buses need to be better value to facilitate modal shift, particularly for interchange journeys and in relation to car parking costs.
- Evening service levels are poor for many areas of the City.
- Access to the growing number of non-central employment locations requires improvement.
- Park and ride facilities are not present the eastern and north western side of the conurbation.
- New users struggle with the complexity of cross-operator information and ticketing – there needs to be better integration, simplification of ticketing and information and more provision of real time information, particularly at stops.
- The quality of many waiting facilities and electronic information – including on bus and at bus stops - could be improved.

17. Network development issues highlighted through local investigations are:

- Cheap and available City Centre and non-central employee parking is undermining long term modal shift, particularly to P&R.
- Commercial bus fares have risen significantly above inflation over time and is also a significant block on raising bus usage. Congestion is partly responsible for raising costs and therefore fares.

- Growth on the edge of conurbation requires integration into mainstream bus network.
- Bus and rail stations in the City Centre are dislocated from each other and some key central employers.
- Significant operational time and cost is spent in accessing and turning within the City Centre, with bus congestion in several areas.
- Few cross-city routes mean access to non-central sites requires interchange in the City Centre.
- There are significant orbital travel movements due to location of employment and health facilities. These are difficult to provide with sustainable commercial bus route solutions.
- Restricted funds to supplement existing commercial network and improve park and ride.

Key ways of working – legal framework

18. Leicester currently has a mayoral unitary governance model. As such it has direct powers over planning, highways, public transport, parking and development within its boundaries – all key areas that can influence bus travel.

19. However, it is not classed as ‘combined mayoral authority’ and so has no *direct* route to move from a deregulated bus market to one which is franchised by the authority. Any desire to move to such a model would need to be sanctioned by the Secretary of State for Transport via a very long, complex and unpredictable approval route.

20. Given this, the Council has the following powers available to significantly influence the relative attractiveness of bus travel :

- Provision of contracted bus services not provided by the commercial sector.
- Provision of interchange and stop waiting facilities, including P&R sites
- Provision of integrated information and ticketing systems
- Ability to form legal partnership schemes with private bus operators to escalate and prioritise their investment and operations.
- Ability to bid for capital funding to invest in facilities which jointly assist all operators

- Implement Highways schemes that prioritise buses over other forms of travel
- Traffic management schemes including signalling and enforcement which assist bus flows.
- Pro-bus planning policies in relation to new developments
- Pro-bus parking policies and costs at own car parks and on highway.
- Ability to introduce workplace parking levy with the City Council area (subject to ministerial approval)

21. For the majority of Leicester's network, the bus companies take all commercial risk and determine routes, timetables, fares and bus fleet investment. However, under the current deregulated framework, Councils can form legal binding partnerships with operators of various forms. These commit operators to operate and invest in a given way in return for the Council undertaking a range of activities which improve their commercial viability.

22. Such partnerships must be compliant with all state aid and competition regulations. Any proposed partnership restriction on competition must be in the public interest, agreed by the majority of operators and not overly restrict any new operator wanting to enter the Leicester market.

23. It should be noted that Council investment in infrastructure which requires regulation of commercial bus usage or high complementary private sector investment is unlikely to be approved Central Government. This is particularly the case if such investment is proposed along an existing commercial bus corridor with no entry restrictions. Nor can such investment be used for the purchase of specialised buses on routes which are already commercially served by standard buses.

24. Proposals for investment in trams, guided busways or trolleybus schemes need to be considered very carefully in this context. They will only normally be allowed in areas not currently served by commercial routes. However, in such cases it is difficult to build up a business case for such investment, given the initially low likely patronage levels.

25. It should be noted, though, that Council investment in Park and Ride express services – sites, buses, operations etc – is generally allowed within the regulations. However, these must be aimed a longer distance commuters and not be priced to undermine local bus services

26. Following consultation between the various parties, it has been agreed that the best approach is to develop formal Bus Partnerships, with clearly defined legal parameters, deliverables, responsibilities and targets. To achieve this will require formal resource commitment on each side over a sustained period of time.

Proposed areas for intervention investment

27. Given the above background and highlighted issues, a proposed broad range of partnership investment and intervention measures is proposed over the course of this plan, subject to funding availability.

Bus services – main conurbation travel corridors

28. This looks at joined up investment to improve bus travel along the main commuting bus corridors for those living and working within the conurbation (see appendix 1)

29. These bus services are currently all operated commercially, with a daytime frequency of every 15 minutes or better.

30. The approach set out for these services is a package of measures delivered under a range of formal partnerships between the operators and Council. This mirrors and builds on previously successful work such as on the Aylestone Rd corridor.

31. This will include a combination of the following :

- a. Bus priority measures – bus lanes, signal priority and ‘smart’ traffic management, no stopping red routes and parking changes.
- b. Traffic regulation enforcement measures – to keep bus lanes and red routes clear of illegal traffic.
- c. Automated digital ticketing – to speed boarding times
- d. Real time information displays and bus shelters at all boarding stops.
- e. Integrated timetables and ticketing across operators which share the same travel corridor – to maximise frequency and efficiency
- f. Investment in electric buses

32. There will be a focus on one main corridor per year for the next ten years, subject to successful funding bids. For the next 5 years these will focus on for the following corridors:

- a. Groby Rd
- b. A6 from City to Redhill Circle
- c. Abbey Park Rd and Beaumont Leys Lane bus route
- d. Anstey - Anstey Lane
- e. Melton Rd

33. This focus builds on the previous Connecting Leicester programme and is fully funded through the Council's successful Pinch Points and Transforming Cities Funds.
34. Thereafter, the focus will be on the following corridors :
- a. Humberstone Rd/Uppingham Rd
 - b. Saffron Lane
 - c. Evington Rd
 - d. Ring Road
35. This focus reflects where future growth is planned, the investment plans of the bus operators and the complex practical issues involved in delivery.
36. Those multi-operator routes where integrated timetable and operations will be reviewed and jointly developed with operators via Quality Agreement legislation are:
- a. Beaumont Leys – Goodwood : First Bus/Centrebus
 - b. Evington – City : First Bus /Centrebus
 - c. Braunstone Frith – City : First Bus/Arriva
 - d. Saffron Lane – City : First Bus/Arriva
 - e. Uppingham Rd – City : First Bus/Arriva
37. This overall corridor-based approach is favoured over more significant investment in a single higher profile mass transit scheme such as a tram route or guided busway. The rationale for this is set out in appendix 3.

Bus services – other conurbation linkages

38. This looks at what approach could be taken to improve linkages which are not currently provided by the commercial sector.
39. These fall into five types:
- Off peak travel to the city centre from housing situated beyond walking distance of the main commercial travel corridors.
 - Peak travel to non-central employment sites
 - Orbital linkages between non-central locations
 - Off peak travel for those unable to access public transport for mobility reasons
 - Later evening services on several mainline corridors.
40. Currently, over £0.75m pa is spent on contracting additional buses to fill these accessibility gaps with conventional bus services and specialised dial-a-ride

services.

41. This has also been supplemented by individual housing developers directly contracting more specialist demand-responsive transport, such as the Arriva Click service to the new Lubbesthorpe development.
42. It is currently unclear what is the best approach to address these diverse travel needs and how much funds could be available for their future development.
43. It is the intention of the City Council to undertake a detailed review of this area during 2021, set in the context of a better understanding of the likely national funds that might be available as laid out in the forthcoming DfT National Bus Strategy, together with commercial operators' response to Covid.
44. At present it is suggested that the focus of any future investment intervention should be focussed on :
 - a. maintaining the network to its pre-covid level of operation. This includes replacing any commercial services which are deregistered once Covid support ceases
 - b. improving the current hourly orbital bus service (Centreline 40). This connects a significant number of housing areas with growing number of non-central employment, health and educational sites. Many of these linkages are very time consuming and expensive to make by the alternative option of using two high frequency radial routes and interchanging in the City Centre.
45. The Centreline service is well established, with a reasonable base patronage level for a subsidised service. Its main issues relate to its frequency, hours of operation and unreliability due to congestion.
46. It is proposed that future capital and revenue funding is sought to :
 - a. Increase frequencies and hours of operation
 - b. Convert to fully electric new buses
 - c. Provide bus priority measures on certain sections, particularly the Ring Road

'Greenlines' Electric Bus Routes – wider catchment connectivity

47. This focuses on those travelling from *outside* the conurbation into the City Centre, interchanging at either P&R sites, bus stations or the railway station.
48. It looks to radically develop three existing P&R services and the Hospital Hopper service into three high profile limited stopping frequency *cross-city* routes.

49. The three cross-city routes have been chosen because they:

- Develop existing successful routes by joining them together to give greater connectivity across the City.
- Enable cross-city connectivity to key non-central locations – Beaumont Leys and Hamilton District Centres, Glenfield and General Hospital, Fosse Park.
- Have potential to improve P&R provision from the East and from the North West of Leicester
- Are well located in relation to the strategic road network for P&R connectivity.
- Have approved funding to provide significant bus priority measures to add to those already previously implemented
- Focus on serving area of current housing expansion : Hallam Fields, Ashton Green and Lubbethorpe, either directly or by P&R.
- Focus on assisting with the transformation and expansion Leicester's hospital programme
- Focus on corridors with know congestion and bus punctuality issues
- Are currently contracted out, rather run commercially. This gives the local authority the ability to directly determine all investment, including the proposed electric buses. It also gives the ability to directly subsidise fares and service levels.
- Provide connectivity for interchange at the Train and bus stations

50. This will be done by a radical change in the overall passenger experience:

- a. Introduction of upto 25 electric single decker buses
- b. Full range of bus priority measures improving reliability and journey times : bus lanes, smart signalisation, red routes and CCTV enforcement
- c. Introducing cross-city and cross- city centre connectivity
- d. Investment to keep costs down and therefore fares down
- e. Automated 'best fare' digital capping
- f. Discounted fares for key groups (eg health workers)
- g. Improving frequencies and hours of operation
- h. Expansion of park and ride facilities

51. These services are non-commercial, enabling the above changes to be delivered via operating and lease contracts, together with partnership arrangements with the Health Trust and County Council.

52. The objective of the project is to double passenger numbers on these routes within five years from a pre-covid base of around 1.5m passengers a year.

53. In addition, a brand new free City Centre circular electric bus service is proposed in order to provide connectivity between different parts of the City Centre and its transport interchanges – the bus stations, railway station and main on-street bus departure points.
54. This will provide connectivity to the universities, hospital, college, shopping centres, sporting venues and cultural quarter for those unable to readily make this link by foot. As well as public transport interchange, it will also provide a link the central area car parks.
55. The route chosen will enable as many of these links to be made with a reliable ten minute frequency compact circular service using two electric buses.
56. This overall network of five key high profile routes with seventeen fully electric buses will be branded as the 'Greenlines' network, with each bus having a distinctive 'electric green' livery. See attached appendix 2.
57. In addition to these routes, it is also proposed that the currently contracted orbital bus service is developed along the same lines through the course of this plan, again with conversion to electric buses, enhanced frequency, significant bus priority and bus stop infrastructure. This would also be integrated into the park and ride sites where possible.
58. This would mirror similar approaches in Birmingham and Nottingham, facilitating the growing demand for orbital movements across the conurbation – to employment sites, hospital sites and non-central shopping centres such as Fosse Park and Beaumont Leys.
59. It is proposed that the funding for these routes will come from a blend of existing capital and revenue streams, together with future funding streams such as the proposed workplace parking levy and central government capital bids.

Buses – greening the fleet

60. The commercial operators have already made a formal partnership commitment for all their existing diesel bus services to meet Euro6 emission standard by 2021. This has been now been achieved by First Bus and Arriva, with the Centrebus and Stagecoach on track during early 2021.
61. Future investment in ultra-low emission buses on these services is currently unknown. It is anticipated that each operator is likely to develop their plans over the course of 2021/2 in line with recovery from Covid-19 AND details of central government capital funding in this area, expected in the forthcoming

National Bus Strategy.

62. For non-commercial services, fifteen fully electric buses will come into operation in 2021 for the three Park and Ride and the Hospital Hopper services, with a further two on the proposed City Centre bus link in 2022.
63. It is hoped that further investment in the orbital contracted bus service and other tendered bus services can also take place between 2022 and 2024 subject to central government funding and a suitable source of local capital funds becoming available. This would require investment in around 10 additional electric buses.

Waiting infrastructure – stations and stops

64. Traditionally the capital cost of waiting infrastructure at bus stops and bus stations is funded by local and central government. It is generally located on public highway or council-owned land and open for use by all operators. There is little commercial incentive for an operator to provide this, particularly as it is unable to restrict its use to just its own services.
65. Revenue costs tend to be met by a combination of operator and council revenue funds, together with other income streams such as advertising contracts.
66. Leicester already has a relatively new and well equipped bus station at Haymarket. Over the next 2 years, all funds and plans are in place for the replacement of St Margarets Bus Station with a state-of-the art new bus station. In addition all existing bus shelters will be replaced and their stock increased to cover the majority of all main boarding stops.
67. In addition, all main boarding stops outside the City Centre will have smart real time bus stop poles installed over this period. These will be battery driven and provide next-bus arrival and other service information via electronic displays and text-to-speech facility.

Cost of travel – discounted ticketing

68. The City Council funds all day bus travel for those with qualifying disabilities and free off-peak travel/half fare peak travel for those of a qualifying age (currently 67 years old). This applies to both mainstream buses and park and ride. Around 8.6m trips are made at the cost of £9.0m pa.

69. The City Council also provides half fare travel for those who are unemployed, with each applicant having to purchase a monthly pass at £1 per month.
70. It is currently planned that these schemes will continue subject to funding availability and ongoing legislation relating to the English National Concessionary Travel Scheme.
71. In addition, it is planned a review will take place in 2021 to look at the feasibility of widening out free travel to health sector workers to the whole of the Greenline P&R network.

Ticketing – multi-operator ticketing and capping

72. The Council co-ordinates and leads the joint development of multi-operator ticketing products. These are branded as Flexi tickets and allow unlimited travel on all operators within the Greater Leicester Flexi zone for a given period.
73. All aspects of this scheme is controlled by commercial agreement of the operators, under an agreed roadmap. The objective is to facilitate joined up travel between different operators, particularly to non-central employment and educational locations.
74. The product range has recently been expanded and can be purchased on-bus or via each operator's mobile ticketing/web platforms. On bus purchase can be made via contactless payment.
75. Unlike in London and some other cities, advanced payment is required, meaning the user has to anticipate future movements and know all fare options. This reduces flexibility and perceived user value for money.
76. The partnership has therefore agreed to develop best fare 'capping', with post payment made on the basis of actual journey undertaken. Agreement and funding has been secured to implement this during 2021 and 2022. Users will simple 'tap on' and 'tap off' using given digital media (bankers card or phone app), with payment then made automatically at the end of the day on the basis of the cheapest fare available for the journeys undertaken.
77. This advanced functionality will also speed up boarding times by removing any required for a transaction with the bus driver.
78. This facility will be introduced on all commercial and contracted bus services, including park and ride.

Intervention policy measures

79. As well as the above investment intervention, a range of policy intervention tools are also proposed, including the following:

- a. Introduction of Workplace Parking Levy – making it more expensive to park at a workplace than travel there by public transport (or cycle/walk).
- b. Redevelopment and planning policies to actively promote access by sustainable modes
- c. Parking pricing policies to discourage all day central area parking and encourage park and ride.

Funding Streams

80. Around £40 m of capital funding streams is secured for the next 3 years from the DfT Transforming Cities Bid for investment in the following areas described in more detail above.

| Project | Funds |
|--|---------------|
| | £000's |
| City Centre Electric Linkbus | £ 1,100 |
| Electrification of 2 Park and Ride services | £ 2,950 |
| New Beaumont Leys Park and Ride site | £ 1,375 |
| Soar Valley Way bus priority | £ 1,950 |
| New Glenfield Hospital Park and Ride Service | £ 1,050 |
| Melton Road (A607) | £ 700 |
| St Margaret's to Birstall (A6) | £ 8,200 |
| Anstey Lane (A5630) | £ 6,940 |
| Abbey Park Rd/Beaumont Leys Lane | £ 7,920 |
| Saffron Lane (B5366) | £ 970 |
| Real Time bus information | £ 3,950 |
| Traffic light signal bus priority | £ 900 |
| Smart Integrated Ticketing | £ 975 |
| Bus Stop waiting infrastructure | £ 1,100 |
| | £ 40,080 |

81. Other aspects set out in this plan beyond 2024 are subject to future availability of funds by both the City Council and bus operators.

82. As a broad indication the additional 'Public Sector' capital investment required to meet the above plan is around £17m and £3.5m pa ongoing support. It is hoped that around £10m of this capital investment will be met from external

national funding streams, with the remaining amounts coming from future local fund- raising initiatives.

83. To match this it is also hoped that operators will invest at least £10m in upgrading to new electric buses over the lifetime of this plan, matched by government grant of over £20m.

Outcomes

84. The following key outcomes are predicted from the above 10 year plan

- a. 10% increase in bus patronage
- b. Increase in bus satisfaction to above 90%
- c. Measurable increase in geographic bus accessibility.

Appendix 4.

Leicester City Council

Behaviour Change Programme 2012-2021

Summary

1. Leicester City has been actively supporting sustainable travel through behavioural change activities for the past 9 years. Typically investing around £1,000,000 per year into initiative related to schools, businesses and personal travel planning.
2. Each phase of investment has been in response to the aims of the funding body and the City goals. Including supporting specific investments such as the Leicester North West Major Transport Project (LNWMTP), economic growth and the Connecting Neighbourhoods developed through the LCWIP initiatives. The objective of the behaviour change programme is to 'multiply the benefits' expected from sustainable transport schemes delivering bus, cycling and walking improvements. This is achieved by providing people with help in recognising where they could make changes in the way they travel and providing them with opportunities and help to try it.
3. This has resulted in a situation where investment has moved around different areas of the City as well as supporting City-wide initiatives. Our aim is to keep a rolling programme that builds year-on-year and for each of our wards. For targeted interventions we have (and will continue) to prioritise those wards where greatest benefits are likely to be gained. So far this has resulted in the majority of our targeted interventions occurring in the NW, SW and central areas of the City which are associated with higher economic activity, and higher levels of growth.
4. LCC has committed £3.5M to a behaviour change programme as match funding to TCF and this will ensure that there will be around £1M invested in behavioural change programmes at home, school business scheme in each TCF year. This will be funded by external funding such as the Capability Fund and Active Travel Fund.
5. The rolling range of initiatives will actively support all forms of sustainable transport that are being targeted within the TCF transport investment programme.

Programme Cost and Sources of Funding

6. Leicester City Council has invested just under £1m per year in its behavioural change programme since 2012 and plans to continue this programme through 2021 and beyond.
7. Our programme to date has primarily been funded through successful competitive bids, and we would expect to continue doing so as opportunities arise.
8. Agreed funding for 2021/22 is shown in Table 1, and we understand that the Capability fund will evolve into a 3 year programme starting in 2022.

Table 1: 2021/2022 Funding

| Funding Source | 2021/2022 |
|---|------------------|
| Capability Fund | £364k |
| Active Travel Fund | £275k |
| Bikeability | £137k |
| European Regional Development Fund (EU) | £170k |
| Total | £946K |

Geographic Areas Targeted 2012 to 2021

9. The Behaviour Change programme is made up on City Wide as well as local initiatives. Figure 1 shows the local areas that have been targeted since 2012, whilst Figure 2 shows the potential areas for interventions in 2021 and beyond.
10. These have included targeted programmes within the County as well as the City and have largely focussed on the area of deprivation, economic activity, and growth. Historically this has focussed on the North and West of the City although as the areas of growth move to the South and the East we plan to develop plans into these areas

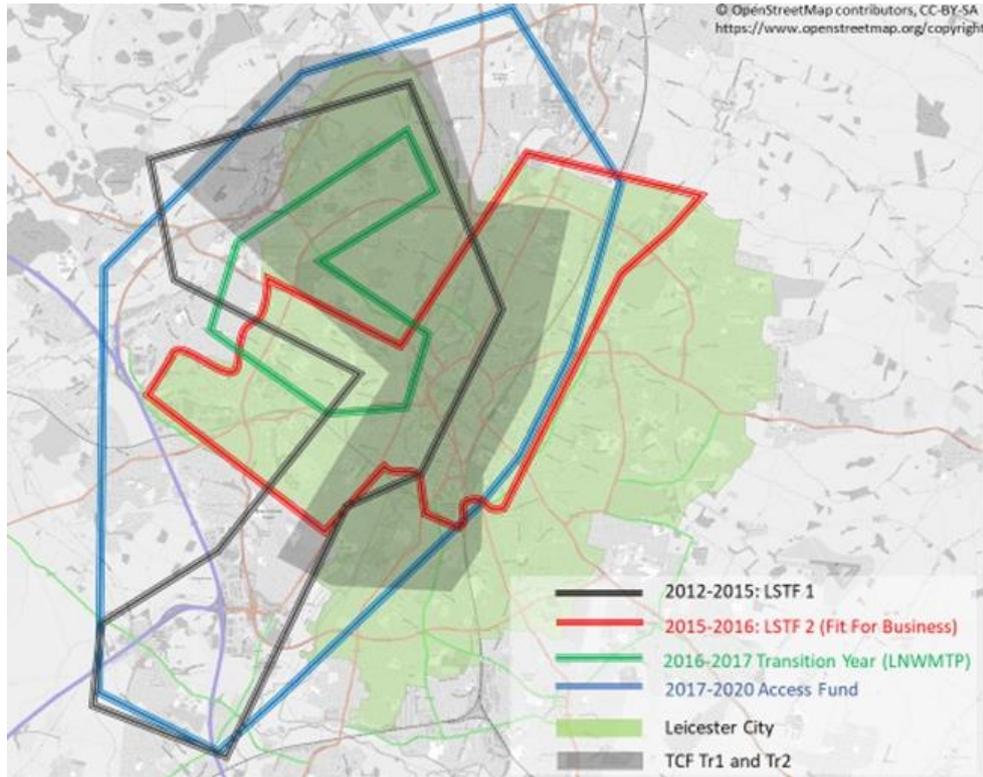


Figure 1: Areas Targeted for Local Interventions 2012/13 to 2020/21

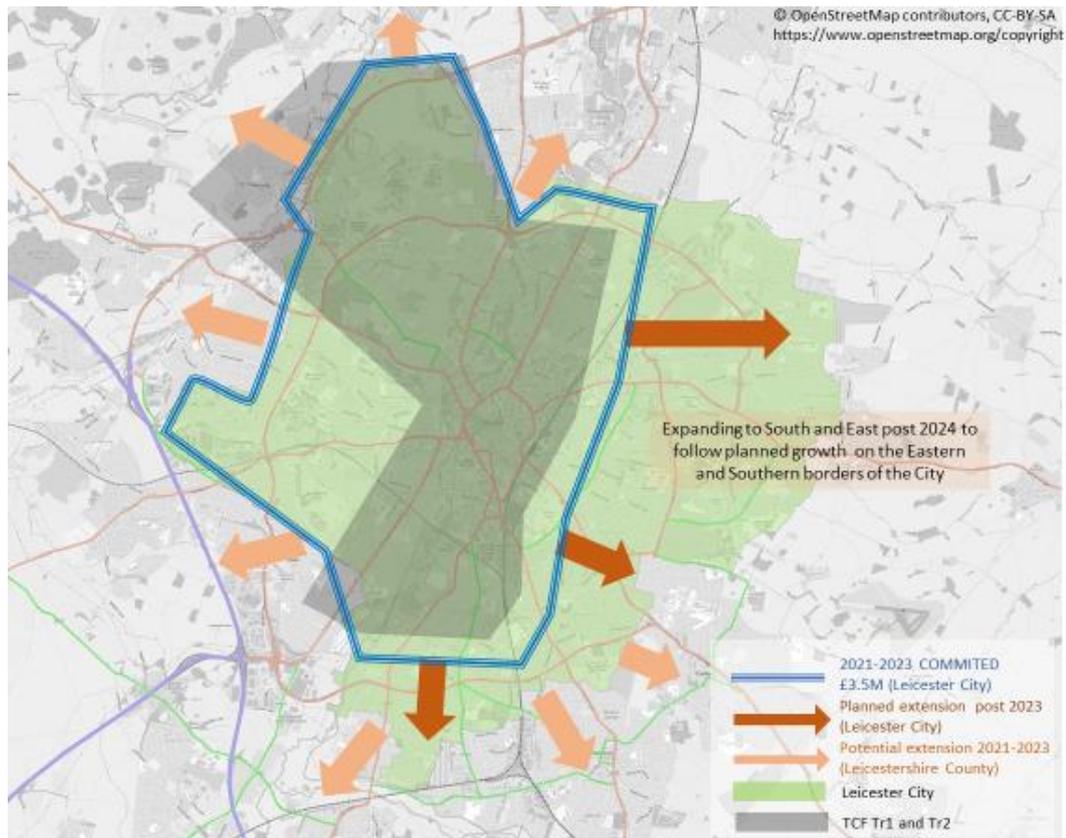


Figure 2: Areas to be targeted post 2020/21

What are the Objectives?

11. The objectives of the TCF programme are to support the sustainable plans and visions within the City by encouraging the use of sustainable travel. In the short term they are also important in facilitating COVID-safe travel by complimenting the walking, cycling and social distancing measures that have been delivered as part of the Governments Emergency Active Travel Fund (EATF).

12. Leicester City Objectives and visions, plans and strategies include

- a. Leicester and Leicestershire Local Industrial Strategy (2018)
- b. TCF Fund Objectives
- c. Leicester Economic Action plan
- d. LTP3 and emerging LTP4
- e. Air Quality Action Plan (Healthier Air for Leicester 2015-2026)
- f. Cycle Action Plan (2015 -2024)
- g. Sustainability Action Plan (2016-2019)

What are the Outputs

13. The output of the Behaviour Change programme are a series of initiatives which focus on different segments of the population and business. These may be City-wide or local activities that focus on individuals, businesses, schools or larger groups.
14. The table below shows the types of interventions delivered to date split between the needs of business and the needs of the community.
15. Funding for the schemes includes the costs for managing, monitoring and evaluating the programmes and ensuring the programme continues to develop.
16. For the period 2021 these types of interventions will continue, with refinements to build upon those interventions that show strong success, and also building on experience elsewhere in this country and abroad.
17. Upto 2023/24 the interventions will focus on ensuring we complement the investment in TCF, whilst from 2024/25 onwards the scheme will also include behavioural change interventions related to a Work Place Parking levy which the City Council plans to consult on in 2023. It will also reflect changing patterns of growth with potentially greater emphasis on the South and East of the City.

Needs of Business Training

Choose How You Move Travel Portal - The portal is a vital online tool used for the provision of travel information in Leicester and Leicestershire. It includes a real-time journey planner, which enables residents and visitors of Leicester & Leicestershire to make informed travel choices. Since March 2017 it has received 690,594 visitors. In 2019 the website went through a transformation

Business Travel Engagement – Since 2017 we have reached 834124 employees with engagement activities including Travel Clinics, sponsorship of the Leicestershire Live Business Awards, attendance and promotion of CHYM at the Blaby Business Breakfast events, the LRS workplace world cup, The Job Show, Modeshift Conference, 60 Walking & Cycling Roadshows at

the main city employers, events co-hosted with HSBC and Santander at the Leicester Business Festival, Cycle to Work Day, partnership working with both city universities, and one to one meetings with a number of businesses within the AF area. Circulation of our support package of initiatives to our network of business, business intermediaries and hubs. In order to achieve maximum behaviour change, an employee may have been targeted more than once through various initiatives.

Sustainable Travel Business Grants - With a £5,000 grant for businesses prepared to match fund a specific travel solution. Since 2011 91 businesses have benefited from a sustainable travel grant, which have provided: training for community cycle champions; electric charging points; cycle parking spaces; cycle maintenance courses; Dr. Bike sessions; cycle lockers and showers; video conferencing facilities; workplace travel plan studies, town centre wayfinding kiosks and equipment for a cycle hire schemes. Those businesses that have benefited from the grants have shown a 25% modal shift away from single occupancy car use.

Wheels 2 Work - helps individuals overcome transport barriers which prevent them from accessing or maintaining employment and training. Since 2011 our existing scheme has assisted over 800 people to access work or training. The fleet now comprises of entirely electric bicycles and has expanded to low income earners regardless of age. The scheme has also expanded to cover a 'loan to own' element.

Employment Advisor Training – This initiative enables the dissemination of travel information to staff at Job Centre training sessions. Mini-road shows are also delivered for job centre clients. Since 2017 over 300,000 job centre clients have received sustainable travel advice. National evidence shows that 4.5% of the job centre clients change their travel behaviour as a result of the intervention.

Choose How You Move Betterpoints Challenge - All modes of sustainable and active travel are tracked and recorded using an online website and smartphone app. CHYM Betterpoints has a 35% (above average) engagement rate. There are currently over 2000 users. These users have completed 19,451 cycle journeys covering 48,639 miles and 84,423 walking activities covering 66,854 miles.. 76% did at least 1 activity and the average number of activities per person was 259 during the first year of the programme. Average Leicestershire engagement rate (users that complete at least one activity a week) was 61%, well above a national average of 48%. 138,572 sustainable and active journeys were recorded (car share, public transport, by foot or bike) of those, 125,020 active journeys on foot, bike or scooter were recorded covering 221,475km. 11.9 million calories were burned.

Workplace Cycling Programme - A series of cycling workshops including Dr Bike, bike maintenance sessions, try-out sessions, cycle training and led rides has been delivered in over 20 businesses, with over 2500 employees actively engaged . Focus has been on the health sector workers and the tourism and hospitality industry.

The Needs of the Community and Training

Choose How You Move Schools Programme – A comprehensive schools programme delivering a range of safe and sustainable travel initiatives to the many schools within the bid area reaching over 55,000 pupils. Activities include establishing new Bike It crews and new school sustainable travel champions. Participation in bike maintenance sessions and Dr Bike check and fixes. Schools were supported with the development of travel plans, park and stride/walking bus schemes. They are also provided with a range of safe and sustainable travel literature for use on their web sites and distribution to parents to help ease the safety and congestion pressures around the school gate. Local evidence shows that this type of activity leads to a 17% increase in cycling activity in the participating schools and an overall decrease of single occupancy vehicle trips to the school gates by 7.8%. These activities will also help to encourage safer riding on well-maintained bikes thus helping to reduce the rate of cyclists killed and seriously injured. This work is supplemented by the Walk To project delivered by Living Streets and Bikeability.

Personalised Travel Planning (PTP) – Both authorities have a strong track record in delivering successful PTP programmes. Since 2017 we have worked with over 21000 households providing information for them to make informed travel choices and maximise the use of new cycling and walking infrastructure to be implemented as part of the 'Connecting Leicester North City Centre' improvements, the 'Leicester North West Major Transport Scheme' and Waterside as well as the use of the extensive network of existing cycling and walking infrastructure within the Access Fund area. Typical yearly outcomes are:

There was an overall reduction in reported single occupancy car trips amongst participants for journeys to work (23 percentage points) and shopping (10percentage point).

The biggest gains were for walking (15 percentage point increase in mode share for trips to work) and car sharing (5 percentage point increase for shopping trips).

Overall the length of time that participants spend walking and cycling per week increased in the after survey.

18% of participants in the after survey stated that they had changed their behaviour since the project began. The most cited changes were walking more, driving less and cycling more."

Adult Cycle Training – These courses train participants to the equivalent of level 2 Bikeability standards and provide adults with the confidence and skills to cycle as part of their everyday journeys and help towards reducing the rate of cyclists killed and seriously injured. Since 2017 we have trained 449 adults in learning to ride with confidence. 90% (132 participants) were female, and 77% (112 participants) were of Black, Asian and minority ethnic groups. A total of 66 participants (45%) indicated that they had no experience of cycling prior to registering for a course. Analysis of the age demographic of participants showed that 5% were between the ages of 18-24, 17% were 25-34, 26% were between 35-44, 24% between 45-54, 23% between 55-64, and 5% of participants were aged 65 and over.

Data from 56 participants who returned their completed 5- week survey was analysed for changes in physical activity and travel behaviour. In the survey, participants were asked to indicate on a scale from 0-7, the number of days on which they did at least 30 minutes of exercise enough to make them breathe faster. Analysis of the baseline and 5-week data showed that overall, 50% of participants indicated that their weekly level of physical activity had increased since enrolling on a cycling course. The comparison of baseline and 5-week survey responses showed that 48% of participants reported an increase in using cycling as a method of travel. The survey data also showed that 94% of participants had felt that attending the cycle training course had improved their health and that 98% of participants indicated that they felt the course had helped them to become more active.

Walking Initiatives - 1164 new people have registered to a walking activity since 2017/18

Outcomes measured (short term): Survey data on physical activity and travel behaviour was gathered from participants at baseline (week1, their first group walk) then at 12 weeks and 6 months afterwards. Data from 145 participants who returned the 6-month survey was collated and analysed at the end of the 3-year project. Analysis of the baseline and 6-week data showed that 41% of participants did more physical activity at 6 months than at baseline. With regard to walker behaviour, overall across the group, there was a small 2% increase in people walking 'weekly or more' by 6 months.

Overall, across the group there was a slight decrease in single occupancy car journeys of 2-3% at 6 months. 72 respondents reported to commute. Overall across this group there was a slight uplift in commuting by active travel (by 4%) and more sustainable travel (3%) and a slight decrease (7%) in unsustainable travel at 6 months. Looking at individual behaviour, 5% of participants made a positive change from 'unsustainable' to 'more sustainable' (public or shared) travel, and 7% made a positive change from 'unsustainable' to 'active travel' (walk/ cycle). Additionally, at the end of the project, 36 people returned a final survey looking at whether their knowledge, confidence and wellbeing had changed since participating in group walks. 92% of these respondents agreed that they had discovered new places and had a better knowledge where to walk. 91% agreed that they find going for a walk more enjoyable now, whether with a group or alone. 75% agreed that they feel more confident in their ability to walk for a longer period of time. 80% agreed that they are more likely to go for a walk in Leicester (either alone or with family/friends).

In a typical year, approx. 47 walk events and 9 walk programmes take place (including 4 schools engaged on bespoke weekly walks for parents). 15 new walk leaders are trained. Walk Leicester Festival has been established. 3 have now been held in May with over 3550 attendees across 24 events and 67,172 people reached by social media per year. Over 1,700 people now receive the monthly Walk Leicester e-newsletter, a subsidiary of the Active Leicester newsletter that goes out to over 4000 people.

Ride Leicester Promotions - For over 15 years Leicester has been delivering a Ride Leicester Festival which has included the Sky Ride and Let's Ride mass participation events. Of the 53,000 people that have attended the Ride Leicester Festival 38% are new, returning or occasional cyclists and 58% said they would increase their cycling as a result. This is delivered, in partnership with British Cycling.

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| <p><u>Led Ride Programme</u> - In partnership with British Cycling, we will be delivering a programme of 50 rides throughout the year to encourage more people to cycle and get the best of our new and existing cycle and walking infrastructure (see Appendix A). Referrals to the led ride programme will come from the extensive British Cycling marketing programme but also from Adult Cycle Courses and Wheels for All to promote the Led Rides enabling those that have been trained to be sign posted to future cycling opportunities.</p> |
| <p><u>Bike Maintenance Training</u> More than 80 adults took part in some cycle maintenance training during the year at a number of different settings. These included 42 adults who took part in bike maintenance training sessions in City schools. 28 staff were trained in workplace sessions and 10 residents were trained at community events. Future Cycles also continued to teach adults in the Cycle Works workshop but the figures are not currently available.</p> |
| <p><u>Bike Hubs</u> : The Town Hall public Bike Park has securely parked over 15,000 cycles in the year from April 2019. The Bike Park has also been used as a base for Open Street events and City Festival entertainers and for led walks and rides. After hours it has also been used as a venue for the Leicester Comedy Festival and for Ride Leader meetings.</p> |
| <p><u>Freight and Bus Driver awareness scheme</u>- We have delivered Cycle awareness training to 50 Biffa drivers. The Dutch Reach has been widely promoted through the City Taxi drivers as part of the Sam Says campaign. This encourages passengers to open the offside door with their left hand in order that they have to look behind them to see if there are any cyclists approaching, and is supported by social media and stickers in the taxi's.</p> |
| <p><u>General Marketing:</u> During 2019/20 we reached over 74,701 people using the Choose How You Move website, of which 72,944 were new users. We reached 122,000 people using marketing tools such as radio advertising, print and billboards. Through the Choose How You Move social media platforms Facebook, Twitter and Instagram we have a combined following of 2,643 people, and our information posts and have made over 996,245 impressions during the 2019/20 financial year. In this time, 100 individual events were advertised using Facebook, which reached over 102,800 people throughout the year. Over 1700 people now receive a monthly Walk Leicester newsletter, and a further 433 people receive a monthly Ride Leicester newsletter, both of which promote Choose How You Move travel events and initiatives.</p> |

Outcomes

18. Leicester City Council have provide input into the Governments National Evaluation and Monitoring programme for the various behavioural change programmes.
19. Typical outcomes expected from behaviour change interventions are shown in below.

| | Outcome | Evidence source |
|----|--|--|
| 1 | Number of people continued in sustained employment | Element reporting |
| 2 | Increased accessibility to employment and key services by Public Transport, Walking and Cycling | Element reporting Own Tracc software |
| 3 | Increased levels of walking and cycling | Traffic surveys Travel plans- business and personal travel plans Travel Challenge monitoring |
| 4 | Increased bus patronage | Bus occupancy surveys |
| 5 | Reduction in business mileage | Travel plans Business travel networks Personal Travel Plans |
| 6 | Modal shift on journey to work - % increase PT - % increase walking and cycling - % increase car-sharing - % decrease in single occ. car | Census 2011 Travel plans Business Travel Networks Personal Travel Plans (Business & Resident) Modelling Strategic Cordon Surveys Smarter Ticketing Monitoring |
| 7 | Improved network performance - increase in average vehicle speeds | Traffic data from Leicestershire's Transport Trends |
| 8 | Reduction in carbon emissions from road transport | DfT carbon calculator - using transport data |
| 9 | Increased satisfaction - with bus services - with walking and cycling network - with congestion - with road safety | Business Travel Networks Business Travel Planning Bus user panel Route user survey |
| 10 | Increase in physical activity | Element reporting Sport England's annual Active People Survey |
| 11 | Number of people aware of sustainable transport options | Personal Travel Plans Business surveys |

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