Department for Transport

Zero Emission Bus Regional Areas Scheme – 2021 to 2022 Application Form

Call for Expressions of Interest

Applicant Information

Local transport authority: Worcestershire County Council

(For joint bids only) Which local transport authority is the lead bidder:

Area within authority covered by bid: Bromsgrove District & Redditch District

Bid Manager Name and position: Matt Stone Transport Systems and Technology Manager

Contact telephone number:

Email address:

Postal address: Worcestershire County Council, Spetchley Road, Worcester, WR5 2NP

Submission of proposals:

Applications to the Scheme will be assessed against the criteria set out here and in the guidance document. Please adhere to word limits. We will not accept any additional information unless specifically requested.

Proposals must be received no later than 17:00 on the following days.

- **Fast track process** - 5pm on 21st May 2021
- **Standard process** – 5pm on 25th June 2021.

You will receive confirmation that we have received your proposal within 1 working day.

An electronic copy only of the bid including any supporting material should be submitted to buses@dft.gov.uk.

Please include “**ZEBRA (Fast track Process) Local Transport Authority name**” in the subject line of the email if you are applying under the fast track process.

Please include “**ZEBRA (Standard Process) Local Transport Authority name**” in the subject line of the email if you are applying under the standard process.

Enquiries about the Fund may be directed to buses@dft.gov.uk.

Transparency and privacy

Please refer to the guidance for this scheme before completing the application form to understand how DfT will manage your data.

SECTION A: Mandatory Questions

Areas must satisfactorily answer all of the questions in this section to be eligible to progress to Phase 2 of the scheme. If you would like further information, please contact the Department for Transport at buses@dft.gov.uk.

Areas must provide the information requested in questions A1-A5.

A1. In total, how many new zero emission buses will your proposal deliver?

41 Vehicles are being proposed within this EOI;

We have analysed data for the north of the County and are focusing on upgrading Rotala's older fleet [REDACTED]. This provides the best payback for the investment when considering age of fleet. This allows us to focus on the older Euro 3 & 4 vehicles first that gives the greatest payback

A2. Total DfT funding sought (£m)

£ 10 Million (7.2 ZEBS/ 2.8 Infrastructure)

A3. Third party funding contributions (£m)

A4. Funding from other government schemes (£m).

A5. Total cost of the proposal (£m):

Total Cost of Scheme - £**19.7 Million approx.**

(full breakdown provided in pro-forma)

Areas must be able to answer yes to question A6-A12 to be able to progress to Phase 2.

A6, If your bid is successful, are you able to invest DfT funding within the time outlined by your scheme?

Yes - we have analysed the fleet specifics and consulted with suppliers and are confident that our plans are credible in terms of delivery. Further information can be found in the deliverability section.

A7. If your bid is successful, are you able to capitalise DfT grant funding?

Yes we are able to capitalise DFT grant funding

A8. Have you considered whether additional zero emission buses are needed to replace existing buses?

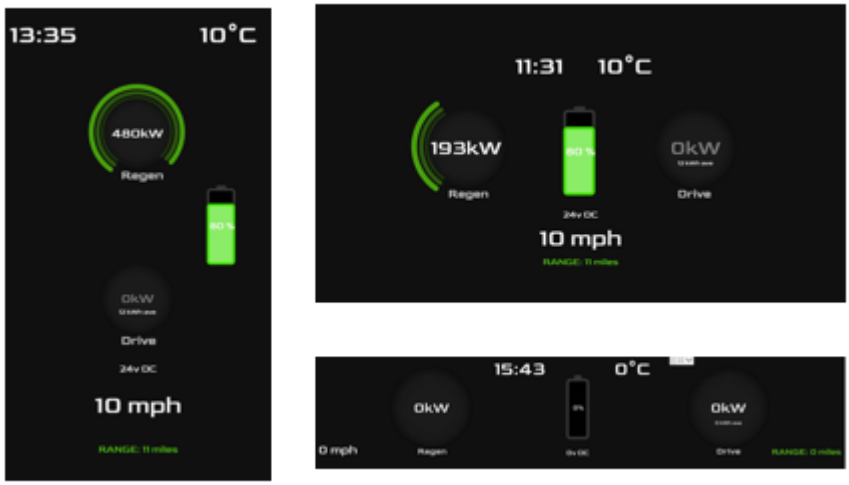
Yes we have considered this essential element.

During the EOI stage we have focused on determining whether we would be delivering EV or Hydrogen Buses. The main Operator and ourselves have come to the conclusion at this stage that EV Buses are more suitable for their depot and the defined areas that their buses currently serve.

We have analysed the routes and fleet and have concluded that rather than additional vehicles, there would be a benefit for additional charging points at strategic locations in Bromsgrove and Redditch. This would provide mechanisms for extending the driving range of vehicles as well as options for mitigating drain related issues for accessibility mechanisms.

We have identified that the drain on power that enhanced accessibility requirements need to provide regular updates (especially with live information) may impact range of vehicles. We have spoken to suppliers in relation to this and are considering whether there are options to reduce the drain on batteries. This will be explored during the next stage of business case development.

We are in conversations with one of our strategic partners about how vehicle drainage data can be viewed. This is being considered for Passenger Displays (along with accessibility data requirements) that would highlight that the bus is being powered by Electric.



Example dashboard elements for Passenger Displays

Our conversations have led to consideration of re-thinking dashboards to show how installed equipment impacts battery drainage – this will allow for much better analysis and potentially improve the range of vehicles.

These factors, coupled with operating charging infrastructure, will allow for similar quantities of buses being required to operate the current routes within the depots we have been analysing. This needs to be fully developed during the full business case.

Initial vehicle simulation has taken on more frequent and strategic routes which has indicated that it would be feasible to run EV buses with limited impact. Further analysis of all routes would be required during phase 2.

Indicative ranges (miles)

Route	BEV 340 kWh	BEV 454 kWh	FCEV
43	144 miles	187 miles	366 miles
58	114 miles	147 miles	330 miles

Assumptions

- *Based on Redditch requirements single-deck and route cards provided displayed distance in miles.*
- *Vehicles simulated using ULEB guidance on passenger loading and ambient temperature conditions.*
- *For the 43 Route, the BEV 340 kWh can complete daily duties provided.*
- *For the 58, BEVs could be possible with reshuffling of route cards, but this will depend on the intertwined nature of secondary routes*
- *Both route 43 and route 58, FCEVs can comfortably complete all route cards with 38% remaining capacity on the most challenging route card which highlights why this mechanism is being considered outside WCC Zebra bid.*

A9. Have you provided a breakdown of infrastructure costs for your proposal?

Yes – the initial breakdown we have had is in the value for money pro forma – due the nature of the services that are operated it seems that the reasonable assumption from surveys to date is that the prime delivery mechanism will be to provide depot charging facilities

We have looked at both Hydrogen and EV for the depot and from initial results EV seems to be the optimum solution.

We are still looking at Hydrogen as part of proposals outside this EOI.

More details costs will be provided as part of our phase 2 application

A10. Does your proposal have the support of bus operator(s) in the area?.

Yes - we have the support of the main operator Rotala in this area who will be the focus of this Zero Emission Bid.

In our previous EV Bus Town Bid we had support from all other operators in this area and while the focus initially is on Rotala we are considering how we decarbonise other fleet vehicles in this area.

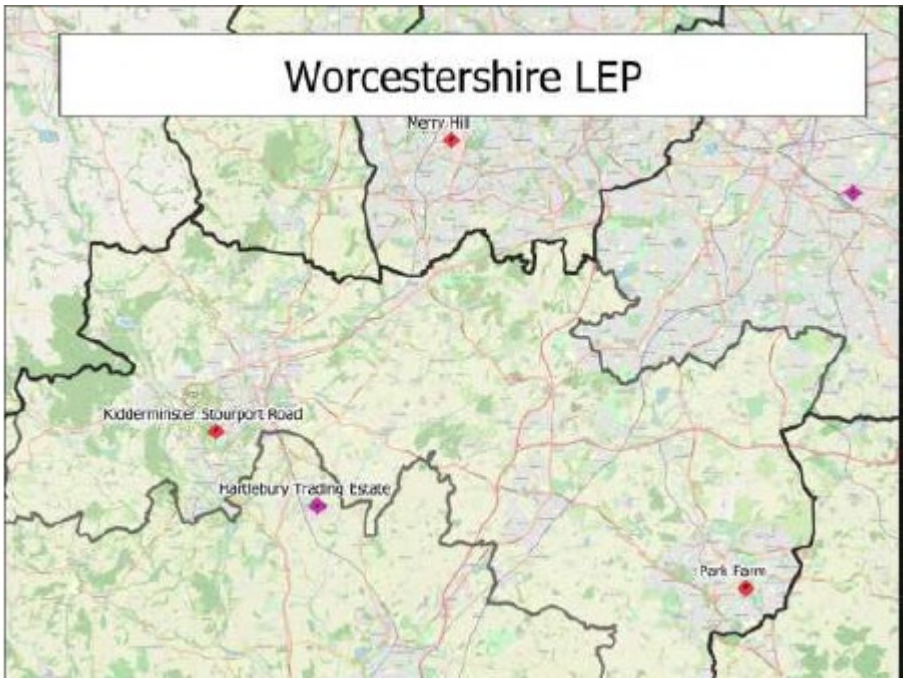
A11. Have you spoken with any energy companies when preparing your proposal?

Yes we have spoken to several suppliers in terms of energy provision as part of the initial discussions looking at those that could supply both Hydrogen and EV charging facilities.

As a result of the decision to move forward with EV we have been working with ENGiE as well as Wright-Bus to understand the mechanisms that would need to take place to deliver charging facilities to Rotala Depot.

We have also been working with Worcestershire LEP and Hydrogen Fuel providers to look at how Fuel Depots could be set up in Worcestershire to provide other opportunities for delivering Zero Emission Fleets.

You can also find evidence of this within the Letters of support that we have received.



Possible Worcestershire Hydrogen Depot Locations

A12. Does your proposal comply with the accessibility requirements set out in the scheme guidance?

Yes – Worcestershire County Council is in a strong position to deliver next-generation accessibility requirements.

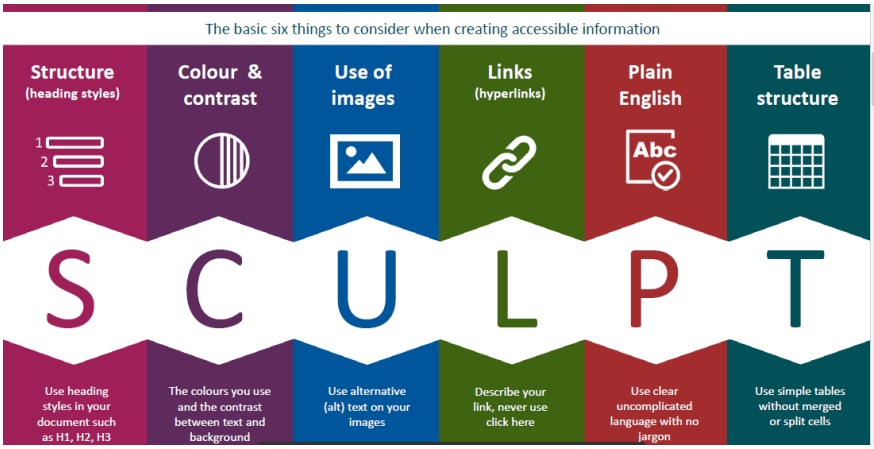
Worcestershire has been working with software and hardware suppliers to work on methods to deliver next generation accessibility information both on-bus and off-bus. This includes the use of traditional LED displays as well as using modern displays that can show additional information such as diversions.

Example of accessibility screens installed in Worcestershire buses

These elements are not as simple as having factory installed equipment and require dedicated back office systems (that Worcestershire has access too) that can provide both next stop announcements and disruption information

As previously mentioned, there is some concern with suppliers that the more accessibility equipment that is installed will drain batteries and will impact range of vehicles

Worcestershire is leading the way with ensuring that digital content is accessible, with all staff and invested stakeholders made aware of the importance of providing information in this format. This is essential when designing information for Digital Estate.

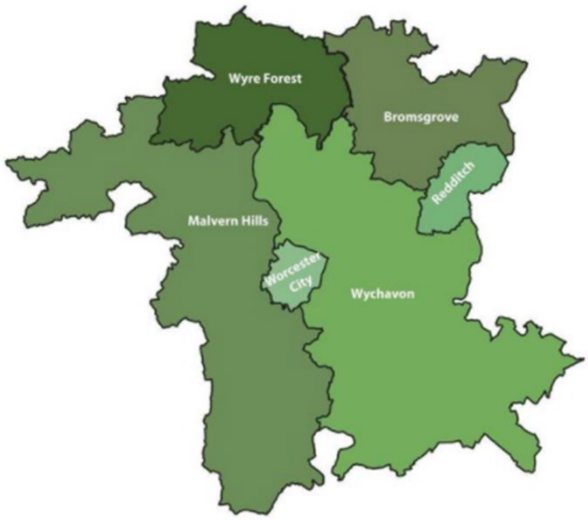


Worcestershire County Council SCULPT guidance for creating accessible documents

We will also be looking to carry out a full Equality Impact Assessment during the building of the Phase 2 business case. This will be carried out to ensure that Accessibility developments and enhancements are suitable to all groups as covered within the Equality Act 2010

SECTION B. Defining the place – 10%

Geographical area:



The proposed extent of the ZEBRA scheme covers the districts of Bromsgrove and Redditch in the north east of Worcestershire. Bromsgrove and Redditch work collaboratively, sharing a number of key services with the majority of key commercial services run by one operator Rotala.

As the predominant Operator we are focusing on de-carbonising Rotala (Diamond Bus) fleet. We have support from other operators (due to WCC previous EV Town bid) but these do not form part of this proposal as we currently considering what Worcestershire's subsidised network looks like and how Strategic Commercial Network routes can be supported by Demand Responsive Transport (DRT)

We have already been in conversations outside of the ZEBRA fund with Worcestershire LEP and Hydrogen Fuel providers on delivery mechanisms for fleet within Worcestershire which includes elements of Local Bus provision.

Annex 1 Figure 1 shows the routes and areas that form the proposal for ZEBRA funding with Rotala. We have also highlighted the 144 First bus due to its strategic nature and is being considered separately for decarbonisation options.

Bromsgrove Town
The Authority can study the opportunities that ZEBRA would bring to residents and project partners alike, especially when tackling the issues surrounding congestion and air quality.

ZEBRA funding will complement other recent strategies and initiatives that will aid decarbonisation in the district and modal shift that are explained within the ambition section of this EOI.

Redditch Town

The proximity of Bromsgrove to Redditch means that many bus services operate between the towns and decarbonising Rotala's fleet would also see additional benefits within Redditch town and critically it's Bus Station.

Fleet
Initial Analysis has taken place on the vehicles being utilised within the defined areas as well as pre-covid levels of patronage.

[REDACTED]

This highlights that Diamond operates 63% of the vehicles within the area and carries approx. 72% of passengers. First's 144 stretches across the county from Worcester City to Birmingham so significant proportions of this will be outside the area but at this stage we only have access to total patronage by Service.

While we have provided appropriate fleet sizes this is subject to operational changes daily, we have started to analyse mileage, as this will be critical as part of the value for money proposals.

An analysis of all routes in the district has been undertaken for a week using our Novus back office system.

44,499.96 miles per week were travelled on Routes by Diamond Buses (Rotala)

23,291.25 miles per week were travelled on Routes by other operators in the area.

From a total of **67,791**.**21** available weekly miles, DIA have **66%** and other operators have **34%**.

This will be improved significantly when only mileage is considered within the district boundaries

SECTION C: Ambition

C1. Public transport ambitions

Decarbonisation and encouraging modal shift
Worcestershire County Council is highly ambitious in its views and has a number of complementary strategies and initiatives that will be complemented by the introduction of ZEBs.

Decarbonisation and Modal Shift Strategies and Initiatives

Decarbonisation and Modal Shift are all fed into by:

1. Worcester Passenger Strategy
2. Demand Responsive Transport
3. Enhanced Information and Monitoring
4. Active Travel
5. Air Quality Strategies

All 5 strategies and initiatives feed into both each other and into the general aim of decarbonisation and encouraging model shift.

Air Quality Strategies (Decarbonisation)
Worcestershire Local Transport Plan 4 (2018-2030). The strategy identifies commitments, particularly for communication and co-operation within and between local authorities, external organisations and the community.

A critical objective within LTP 4's Environment section is reducing transport-related emissions of nitrogen dioxide, particulate matter, greenhouse gases and noise pollution.

Annex 2 provides **a copy of Worcestershire Energy Strategy** (**2019 – 2030),** this recognises that low carbon transport, particularly the rising use of electric vehicles, is an opportunity for rapid decarbonisation driven by both legislation and consumer trends

Worcestershire County Council, in collaboration with partners, is currently developing an ***Electric Vehicle Strategy*** to set policy measures and bring forward initiatives that can be used to encourage the uptake of EV including the decarbonisation of buses that will sit alongside other relevant strategies.

Worcestershire Passenger Transport Strategy (2019-2030)

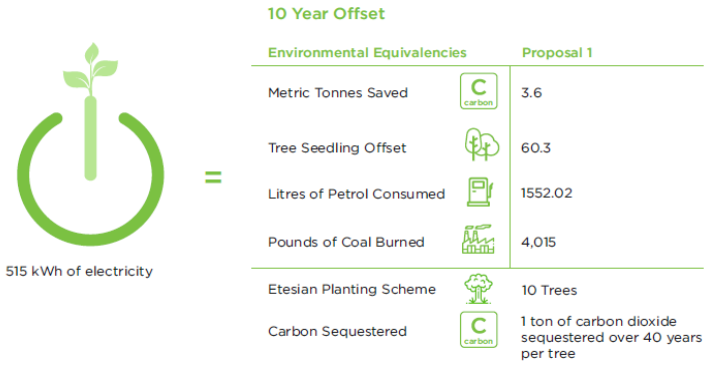
This supports and enhances the wider provision and operation of local bus services within the County and recognises the importance and pivotal role public transport plays for residents.

Demand Responsive Transport (DRT)

Worcestershire is delivering a Demand Responsive Transport (DRT) Service in Bromsgrove to improve the attractiveness of using Public Transport for Commuters. This will also allow us to consider how we reduce the need for other fixed subsidised services within the area and throughout the County. Following the launch of this service in early July we are considering how minibuses can be decarbonised which will form a complementary measure to this proposal.

Infrastructure Improvements – Eco Shelters

Annex 3 Figure 1 showcases new Eco shelters that are proposed for Bromsgrove Station installation as well as throughout Bromsgrove initially (***Annex 1 Figure 2*** highlights possible locations that are for consideration). These harness power via solar panels and wind turbines to power in-shelter displays, lighting and other sensor technology. Worcestershire was one of the first local authorities to embrace these types of technology in order to increase the level of information provided to passengers whilst reducing energy consumption.



Example of offset data for one shelter.

Enhanced Information and Monitoring.

Worcestershire is currently considering how innovative data collection can provide enhanced passenger information and can benefit new and potential users. This includes

capturing Capacity and Carbon Footprint Data and utilising these to highlight the impact of using Zero Emission Buses. The objective is to consider not only the improvement of delivering Zero Emission Buses but also the impact that capacity has in highlighting the positive outcome

Active Travel

In line with the Government's 2020 Gear Change plan Worcestershire County Council is committed to making cycling and walking more natural choices for shorter journeys. The Local Transport Plan (LTP4) sets out a network of strategic Active Travel Corridors throughout the County. We are also developing next generation "smart hubs" that can incorporate active travel elements such as Safe Cycle storage and enhanced walking/ cycling information (***Annex 3 figure 3*** for initial proposed designs).

C2. Community benefits

Please highlight any community benefits from your proposal. This could include economic development in the area or the creation and/or retention of jobs and apprenticeships related to the maintenance of zero emission vehicles, including batteries and fuel cells, and supporting infrastructure.

Having discussed this with the suppliers involved placing orders with UK bus manufacturers and suppliers Worcestershire has been working with on this initial EOI will maximise the community benefit achieved by Government Investment.

Worcestershire LEP's vision for the County is "To build a connected, creative, dynamic economy that delivers increased prosperity for all those who choose to live, work, visit and invest in Worcestershire." This is working to create 25,000 jobs; increase Gross Value Added (GVA) by £2.9bn; and contribute towards the delivery of 47,200 new homes by 2030.

Delivering ZEBRA coupled with other initiatives will have a major impact on Local Communities and businesses within the defined areas. The estimated new dwellings for Bromsgrove (7000) and Redditch (6400) showcase the need to ensure that an attractive public transport system is in place to drive community benefits.

Redditch has recently been awarded funding for the creation of "an integrated multi-modal transport interchange" and will feature a two-storey railway station straddling the line and giving access to the bus station and Kingfisher Shopping Centre. The overall aim would be to create a true 'gateway' to the town for rail and bus passengers which would be aided by the delivery of ZEBs.

Redditch Digital Manufacturing and Innovation Centre is also to be built around the provision of 5G technology and offering flexible workshop and office accommodation mainly, but not exclusively, for the manufacturing sector.

It would also aim to develop a skilled local workforce to drive the town's digital economy and aid in the ambitions we have within this EOI and has the potential to create jobs within this area.

In addition to the key local environmental benefits, wider benefits and synergies include:

- Contribution toward the UK's net zero target by 2050.
- Making buses more attractive to existing car users and promoting modal shift.
- The positive messaging that Zero Emission Buses and Net Zero Infrastructure can create promotes passenger transport and active travel options.
- Complementing recent and upcoming initiatives to promote passenger transport and active travel within the community.

C3. Support for your proposal and wider vision

Letters of support are contained as annexes to this expression of interest and provides significant support to Worcestershire's ZEBRA EOI

Operator Support

- ***LOS 1*** critically contains the letter of support from Rotala Group for Worcestershire's ZEBRA BID

Political Support

- **LOS2** provides the letter of support from Rachael Mclean MP Parliamentary Under Secretary of State at the Department for Transport and MP for Redditch
- **LOS3** provides the letter of support from Councillor Alan Amos Worcestershire Cabinet Member with responsibility for Transport and Highways

Suppliers

- **LOS4** contains the Letter of Support from Wright Bus
- **LOS5** contains the letter of Support from ENGiE
- **LOS6** contains the letter of support from Etesian Green
- **LOS7** contains a letter of support from Journeo one of our strategic partners.

Other

- **LOS8** contains a letter of support from Worcestershire LEP (WLEP)

This highlights that this bid is aligned with their refreshed local economic strategy and County-wide energy Strategy to reduce carbon emissions, support the low-carbon economy and increase energy generation from renewable sources county-wide.

Also, of note is that as part of the recent refresh of the Worcestershire Local Transport Plan, Worcestershire County Council has engaged with, and developed its relationship with, a wide range of statutory and non-statutory stakeholders, including focus and interest groups. The County Council has a range of established processes and communications channels in place to ensure that key stakeholders are fully briefed and able to engage during the building of the business case when solutions and requirements become more defined.

Unfortunately we were unable to get a Letter of support from Sajid Javid's office at this stage, which is understandable after the last couple of weeks events. ***LOS9*** contains the letter of support that was provided for WCC EV Bus town bid.

SECTION D: Air Quality – 10%

Air quality challenge

In 2003 the Worcestershire Partnership published one of the first partnership Climate Change Strategies in the Country. It was revised in 2008 and the Partnership received national recognition for its work tackling climate change

Bromsgrove currently has three AQMAs declared. Details of these can be found in Annex 1 Figure 3.

The AQMA declaration at B4091 Worcester Road just to the south of the historic Bromsgrove town centre is especially problematic as it is located adjacent to local schools, shops and local businesses. The B4091 Worcester Road is a key highway access to the town centre and vital for the local Bromsgrove economy and so any measures to reduce the emissions will be very welcome.

Unlike in many parts of the neighbouring West Midlands conurbation, the bus fleet serving Bromsgrove and the wider area tends to be older and mainly Euro 3 to Euro 5. This is partly because areas like Worcestershire tend to have buses that have been cascaded from the larger conurbations. This is a key challenge for Worcestershire and creates a health issue for all our residents as buses are second only to diesel cars in contributing to the harmful emissions. A further challenge is that Bromsgrove District has the highest car ownership in Worcestershire, with only 15% of households with no access to a car, compared to the national average of 24%.

Worcestershire has seen significant decreases in bus mileage and patronage in recent years, something which the County Council is keen to reverse with the introduction of the Passenger Strategy Transport. While we acknowledge that there are measures under our control to help reverse this trend, it is vital that the commercial (and contracted) bus fleet is greener and fit for purpose to attract new users and contribute to lower emissions for a healthier and wealthier Worcestershire.

Redditch has no AQMAs declared currently but there are concerns regarding emission levels at Other Road to the east of the Town Centre and particularly at Redditch Bus Station, which is located on the ground level of the Kingfisher Shopping Centre.

Redditch Bus Station is one of the busiest in Worcestershire and it is the key passenger transport interchange for journeys to wider Redditch and has a ‘cavernous’ environment with limited ability for dispersal of emissions created by buses.

Improving Air Quality

We know from evidence in urban Worcestershire that car traffic accounts for over 80% of all traffic and contributes to 38%-47% of local traffic emissions (approx. 85% from diesel cars). Local buses account for a much smaller proportion but account for over 30% of local traffic emissions. These figures show that even modest improvements will reduce harmful emissions

The bus fleet in Bromsgrove and Redditch tends to be older than other areas resulting in higher NOx emissions. We know that the latest Euro 6 engines reducing emissions by 95% compared to Euro 5 engines.

SECTION E: Value for Money

Please see the completed spreadsheet with indicative data based on various assumptions from the data that has been provided to date. At this stage we have been cautious in methodology and savings due to the current impact of Covid as it is not yet know whether all those who previously used local bus transport will use it the same way that they did previously. Worcestershire sees the opportunity to change the way that services are delivered to build confidence for previous users as well as being more attractive to those who wouldn't of considered local bus travel previously.

Redditch Depot Analysis

Using these as key inputs, along with average CO2 and NOX emissions assumptions sourced from the public domain the table below summarises the present value of benefits per bus based on their Euro Emission standard.

Estimates of greenhouse gases emission savings were estimated using TAG Greenhouse Gases Workbook and estimates of NOX emission savings were using TAG Air Quality Valuation Workbook. The PVBs are in 2010 prices and values, assuming scheme opening in 2022, and the default appraisal period of 60 years. More detailed analysis can be found in ***Annex 4***

[REDACTED]

While these are indicative savings, they do showcase that the minimum contribution per bus is equal to the asset replacement cost (Euro 6 diesel) and this will be finessed if successful in phase 2;

[REDACTED]

Critically we see the additional output as key drivers that will form part of BSIPS and as such, new buses will result in significant additional on-board facilities for existing users and improve the attractiveness to new users which has the potential to increase demand. This will include areas of innovation (improved passenger information / on-board screens) but could also include other elements such as USB charging mechanisms and wi-fi (if power drainage was not significant).

We also believe that complementary measures such as delivery of ECO shelters will improve the overall savings, Annex 3 Figure 2 showcases the 10 year offset that these shelters would bring and highlights these in easy to understand "environmental equivalencies" that will aid in terms of showcasing value for money but critically may aid in showcasing the impact that these schemes have on users' carbon footprints.

There will also be a net reduction in Operator OPEX required to meet the Service Level Agreement and significant facility benefits will be achieved that are not currently monetised. Combining the benefits that this solution will bring with monetised greenhouse gases, NOX and PM savings will result in a higher BCR which should be in the excess of 2 for the proposed interventions.

SECTION F: Deliverability

F1. Method of delivery and timescale for implementation

It is envisaged that this project will fall under WCC's major scheme programme.

The project management for this major scheme is based on the structure and processes that have been successfully applied by WCC on other major schemes, for example on the Worcester Southern Link Road.

The structure is based on PRINCE2 principles and the Project Management Handbook for Local Authorities: Programme, Project and Change Management. It also considers the Office of Government Commerce (OGC) guidelines for delivering projects. Specific attention has been given to governance, to provide a clearly defined structure for the role of the Cabinet, Project Board, Project Manager and Project Teams.

WCC's Cabinet has ultimate authority for the project. The Cabinet meets on a monthly basis and if successful with our EOI the full business case will be presented for final approval.

During the delivery stage, the scheme is overseen by a Project Board comprising officers with responsibility for delivery of the scheme. Officers from a wide delivery team will be involved in several elements of the project including the risk workshop, package sifting and public consultation. The Project Board meets regularly throughout the life of the project to ensure Project Assurance objectives are met. The Project Board also specifically meets at key milestones during the project, tying in with their role in procurement, design, and financial approval in the next stages of the project.

The role of the Senior Responsible Officer is to lead the management and delivery teams and provide the interface with the executive team. In this instance, the Senior Responsible Officer is required to:

- Report to and receive feedback from the Project Board.
- Ensure the appropriate resources, project management and technical expertise are in place for the project.
- Make decisions and approve changes within agreed tolerances or seek authorisation if required.
- Monitor and evaluate project progress against milestones and assess outcomes; and
- Provide guidance, support and direction to the Project Manager and project team.

The Project Manager will manage the project using PRINCE 2 methods within set tolerances as agreed by the Project Board. He will lead the work of the Project Teams and will be a member of the Project Board. The role of the Project Manager is to:

- Lead and coordinate the project team and its work-streams.
- Procure consultants and contractors.
- Prepare and report project budgets.
- Manage project risks and issues
- Report to and receive feedback from the responsible officer; and
- Produce periodic progress reports to relevant committees.

The Project Manager is supported by a project team covering all related disciplines. In most cases a discipline has a lead officer or consultant who is, where relevant, supported by a co-ordinator and wider team.

A dedicated project manager will be assigned to the project during phase 2 of the bidding process.

A risk register has been created (***Annex 7***) with initial mitigations has been created and this will form an essential part of project delivery. This will be fully developed during the building of the business case.

The existing fleet of buses has been assessed and quantified and meetings are currently held monthly with Rotala as part of ongoing network improvement discussions outlined within Worcestershire's Passenger Transport Strategy.

The Worcestershire Passenger Transport Strategy included a full and inclusive consultation (***Annex 6)*** with online surveys as well as staff attending various locations and roadshows throughout the County during the 13 week consultation period to highlight the critical areas of the Strategy, it is envisaged that this will be used as the basis for BSIP creation and can be used to aid one of the themes of Decarbonising Worcestershire's Fleet.

Deliverability plan

This is an indicative timescale for delivery based on initial conversations with suppliers. Covid 19 continues to impact on all areas of delivery. The view from from the main supplier we have been dealing with for EV buses is that based on the current bus market conditions, they expect to have relatively high availability of production slots (as will other bus manufacturers and our associated supply chain) and therefore we would expect the delivery pipeline to be relatively smooth and the 24-month delivery timeframe set out by the ZEBRA scheme will be of no concern to be fully available.

From the work that has been undertaken with local transport authorities the supplier has a refined delivery schedule and would expect in any case to be ready to commence bus deliveries within 12 months of purchase order.

If funding is awarded in Feb 2022 and purchase order in place by Apr 2022, then we would expect to be able to commence deliveries no later than Apr 2023 and from there we could receive delivery of 4 Zero Emission Buses per week but this can be scaled up/down to suit bus operator demand and to align with infrastructure readiness which typically will take approx1imately 12 months to deliver from time of order.

High Level Project Milestones

Milestone	**Expected completion date**
DRT Launch (Complimentary Measures)	July 2021
Monitoring of existing fleet (Pollution Data) – Complimentary Measure	Aug 2021
Eco Infrastructure Delivery (Phase 1) – Complimentary Measure	Sept 2021
Funding awarded	Feb 2022
EV Vehicles (Batch 1)	Apr 2023
Depot Infrastructure Delivery	Apr 2023
Eco Infrastructure Delivery (Phase 2) – Complimentary Measure	Apr 2023
EV Vehicles (Batch 2)	Apr 2024
Eco Infrastructure Delivery (Phase 3) – Complimentary Measure	Apr 2025
EV Vehicles (Batch 3)	Apr 2025
Operating Charging Mechanisms	Apr 2025

Final Cabinet approval will be required for when the full Phase 2 Business Case has been developed.

F2. Monitoring and evaluation

Working with ZEBRA partners it is essential that the effectiveness and impact of the funding is monitoring correctly to ensure that lessons learnt can be shared to those with vested interest.

We are proposing to improve the effectiveness of data that can be reported by Zero Emission Vehicles as well as infrastructure so that it can provide more accurate evaluation of the scheme. During the building of the phase 2 business case we will highlight the data collection mechanisms and how these will aid monitoring and evaluation and the production of Key Performance Indicators that potentially could be shown via a live dashboard as well as being provided in more traditional reporting mechanisms.

Worcestershire County Council has successfully delivered a feasibility study around the use of camera technology in conjunction with pollution sensor technology to monitor individual vehicles which will aid in ZEBRA monitoring and evaluation (see ***Annex 5*** for the feasibility study on this).

Each of the outputs will be measured for its effectiveness and impact in increasing patronage as well as the overall impact it has on Air Pollution. A summary table of possible monitoring areas is shown below and will be developed during the phase 2 business case;

Monitoring Area	**Source**	**Data Type**
Vehicle	On-board Sensors Driver Behaviour system	Impact of Equipment on Battery Battery Condition Range Emission Impact Driver Behaviours impact on Battery
EV/Hydrogen Charging	System Software Meter Records	Power Supplied Costs of Power Supplied
Operational Efficiency	Real Time System Operator Records	Fleet Utilisation Punctuality Patronage Mileage
Customer Satisfaction	Surveys Patronage Data	Overall Journey Quality Impact of Measures on Patronage
Air Quality	Pollution Sensors Cameras	Air Quality Impact Impact on Routes

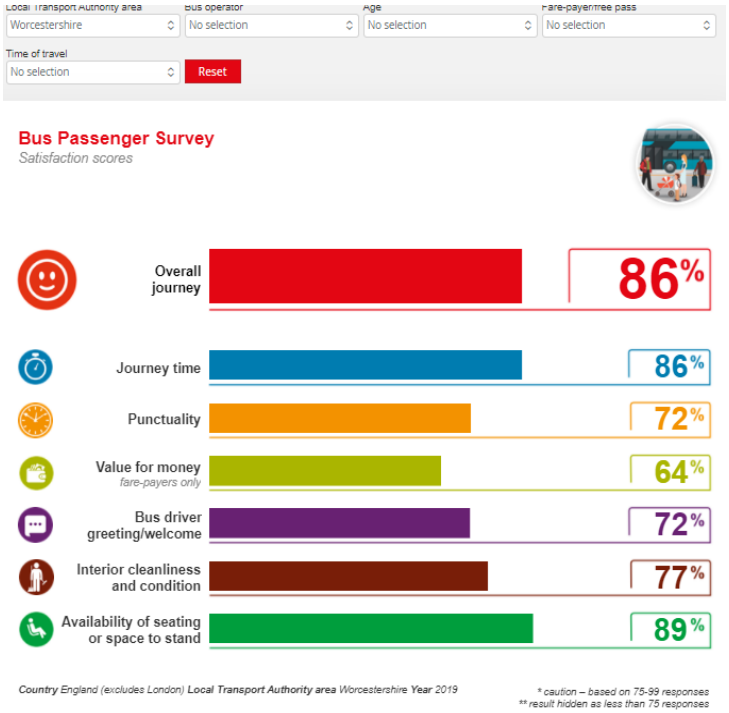
We will look at creating process/ Logic models to highlight how these areas interact and complement each other which we believe will highlight the factors that impact, vehicle capabilities, patronage as well reducing emissions.

It is envisaged that by developing a more technologically advanced solution, monitoring and evaluation of outputs will allow for better value for money assessments.

As part of the building of the phase 2 business case we are looking to deliver pollution monitoring sensor into Redditch Bus Station to enable us to monitor the aging fleet there and feel that critically introducing new methods of proving information as well as

monitoring will allow us to understand which elements will improve the viability of Zero Emission Buses in the future.

In parallel work undertaken with Transport Focus on Bus Passenger Satisfaction is integral for measuring success and ultimately will provide final verification of proposals being put forward.



Transport Focus Worcestershire Overall Satisfaction %

Worcestershire Bus Passenger Survey	
Satisfaction scores 2019	
Overall journey	86%
Journey time	86%
Punctuality	72%
Value for Money	64%
Bus driver greeting/welcome	72%
Interior cleanliness and condition	77%
Availability of seating or space to stand	89%

F3. Procurement, State Aid and subsidy rules

Worcestershire County Council has taken legal advice on the application of EU State Aid rules. In the context of the use of commercial partners, the Council has identified exemptions under the General Block Exemption Regulations that could be applied to the project, subject to adherence to the relevant thresholds and where needed. A more substantive review would be undertaken as part of developing the business case and project plan pursuant to any subsequent application stage.