## Appendix 2 - Carbon Impact Assessment

#### **Supplementary Narrative**

#### Introduction

The Carbon Impact Assessment paper discusses progress on the project and the results from the carbon impact assessments of forty schemes which are currently under development. These assessments were carried out as part of the work to develop the Carbon Impact Assessment toolkit, and were not intended to inform decision making about these individual schemes. There is low confidence in many of the numbers. Nevertheless, as explained in the paper, this work has been extremely useful in shaping learning from the project.

All of the numbers within the report need to be considered in that context, and also the wider context in which the schemes have been developed.

This document provides information about the approach to climate change within each local authority, and a summary of the context on each scheme. These local area overviews give important context within which the assessment of individual projects from the Carbon Impact Assessment project are framed, and provide information about how these projects sit within the policies and programmes individual local authorities are implementing to support the wider West Yorkshire net zero ambition.

These have been produced by the five individual local authorities of Bradford, Calderdale, Kirklees, Leeds and Wakefield.

# Bradford

#### How strategic programmes and initiatives in Bradford support the net zero ambition

Bradford Council has an adopted Council Plan that endorses sustainable development and sustainable development goals. The adopted partnership District Plan also works towards this. Both reflect the Local Authority and West Yorkshire decarbonisation declarations and the 2038 ambition. This work provides a support to our shared carbon appraisal, accounting and decision making in future.

All decision making on investment aims to optimise social, health, economic and environmental issues and risks. Bradford Council is working to progress clean growth and sustainability, with a dedicated workstream for Clean Growth. We welcome the learning from this process improvement - based on pre-existing projects and documentation - and will work with WYCA on enhanced modelling and decision support starting with what has been adopted through WYCA.

## Carbon mitigation in project and programme design

This analysis is welcomed to improve our collective approach with the caveats set out by WYCA and on the basis that they provide a basis for retrospective review and process improvement. Bradford Council is undertaking robust assessment of the interventions in its Local Plan and Local Infrastructure Plan for carbon impacts, to ensure that the Council is maximising the potential for sustainable transport and integrating transport and land-use planning to achieve lower carbon emissions and set the district on a path to net zero.

Sustainability, such as through carbon impacts including maximising the use of sustainable transport, is taken into consideration at the earliest level of scheme development. New transport schemes being developed today are developed with clean growth and sustainable transport at their core.

The figures used to assess the schemes below rely on some incorrect assumptions, as these assumptions are required by Government. Significantly, Bradford is making strides in cleaning up its vehicle fleet and will continue to do so through the implementation of the Clean Air Zone in September 2022. The consequence is that there will be fewer carbon emissions from road vehicles and sooner than these assumptions would otherwise indicate.

# **Overview of Projects assessed as part of CA Carbon Impact Project**

# **Great Horton Road CIP**

The figures show carbon benefits to the scheme on the basis of reducing existing levels of congestion. There was no consideration of induced demand due to the type of analysis undertaken as part of the scheme appraisal.

# West Bradford Cycle Superhighway Extension

The scheme as assessed at a very early stage of development did not show carbon benefits overall. However, there are a large number of reasons why this could be considered to be inaccurate. In particular, due to the very low level of existing cycling on the corridor, methods for forecasting increases in cycling are likely to severely underestimate mode shift and new cycling journeys that would be generated.

The figures for capital carbon are taken from a benchmark and do not reflect the actual carbon emissions the scheme is likely to generate from construction, and what carbon savings there may be from activities such as foregone maintenance.

It remains that the scheme is a road-space reallocation scheme aimed at boosting levels of cycling and walking, which are theoretically the highest-impact types of transport scheme for reducing long-term carbon emissions.

# **Darley Street**

The numbers presented on the Darley Street market project are based on very high level and broad assumptions taken from an FBC which had no requirement to provide carbon information as the WYCA FBC did not request this. Results as presented are not reliable as they are not based on any detailed information such as on embedded carbon.

The scheme was designed before Council's climate emergency was announced, before the requirement to design public building to nearly carbon zero operations and before the WYCA CIA was developed We can begin to evidence carbon savings from energy reduction post opening in Autumn 2024.

The project will close 2 old, energy inefficient, life expired buildings, will be energy-efficient with significant sustainability interventions on biodiversity, SUDs, solar thermal, photovoltaics, LED lighting and low energy appliances, air source heat pump, heat recovery, electric vehicle charging

# **Bradford to Shipley Corridor**

The numbers presented for the Bradford Shipley Route Improvement Scheme (BSRIS) are based on a very high level and broad assumptions taken from an Outline Business Case (OBC) developed in 2017-2019 which had no requirement to provide carbon information at that time. Results as presented are not reliable as they are not based on any detailed information.

This scheme is being taken forward with a view to meeting the latest standards for sustainability in transport schemes and objectives of the West Yorkshire Plus Transport Fund.

# Calderdale

Our vision for Calderdale in 2024 and beyond is to be a place where residents can realise their potential and live a larger life. Critical to achieving this aim is to ensure we safeguard Calderdale's distinctive environment and ensure we are resilient to the effects of climate change.

With its steep-sided valleys and riverside communities, Calderdale is more vulnerable to the effects of climate change. In recent years, the number and severity of flooding events in the borough has greatly increased. Our climate has changed - and Calderdale is flooding more frequently than at any time in history.

In early 2019, we declared a climate emergency. This recognised the threat and challenge that climate change is to Calderdale. Since then, we have made major progress and have hit our historic target to reduce  $CO_2$  emissions by 40% by 2020. We are now re-doubling our efforts to meet our new target of net zero emissions by 2038.

#### How strategic programmes and initiatives in Calderdale support the net zero ambition

The Council has embedded the commitment to net zero into both its operations and its capital programme. Significant activity is on-going to decarbonise our estate and our activities; and to ensure our projects and strategies make a positive contribution to this agenda. The Council has established a Climate Emergency Fund and is developing a detail Climate Action Plan for the borough to cut use of fossil fuels, introduce cleaner technology, transform how we travel and how we use land. This work is overseen and monitored through a variety of mechanisms, including a specific Climate Change Working Party, and is closely linked to the Regional Emissions Reduction Pathway. The Authority has also embedded its response to climate change into the development of its capital programme and this is illustrated in the following examples.

#### <u>A641</u>

Over the last 2 years, following a shift in strategic and policy direction and feedback from the Strategic Outline Case (SOC) report, the A641 scheme vision, objectives and interventions have changed significantly. As the Outline Business Case has developed, there is now prioritisation of active travel, modal shift and a response to the climate emergency which is reflected in the updated interventions.

The Outline Business Case was presented and approved at the Combined Authority board on 23 June and includes details of:

- On and off-road walking and cycling infrastructure
- New and improved controlled crossings
- Continuous footways
- Bus priority (bus lanes and gates)
- Cyclops junctions
- Neighbourhood improvement schemes
- Quiet routes

The scheme will deliver transformational change for communities, the environment and the economy in the three areas, including 'Clean Growth and Carbon Mitigation' - improving quality of place and providing a net increase in sustainable drainage systems (SUDS), green landscaping and trees. The A641 scheme has also championed the Council's Green and Healthy Streets Policy.

Feedback from the Combined Authority's Project Appraisal Team (PAT) stated the A641 OBC is one of the best examples of analytical work and presentation of information that has been received to date, and specifically identified and acknowledged the aspiration to better meet sustainable travel strategic priorities of the Combined Authority and City Region. Within the OBC PAT report, conditions relevant to carbon assessment have been attached to the recommendation for Outline Business Case approval and will be taken forward during the development of the Full Business Case, along with continued engagement with the Combined Authority.

Similar considerations are embedded into other corridor improvement schemes in our Upper Valley area, reflecting the individual challenges in each of our important towns and the aspirations and requirements of our diverse communities. These infrastructure projects are key to the realisation of the outcomes of the Calderdale Local Plan and for sustainable development in our communities.

## Northgate House and Central Library

At the outset of the project, Northgate House and the former Central Library were vacant, uninsulated, and heated and lit by out of date and inefficient systems well beyond their service life.

With redevelopment proposals for the site for 'big-box' retail proving to be unviable, the Council were left with a significant asset in the town centre which was no longer fit for purpose, energy hungry due to outdated services and absence of insulation, and an ongoing cost for business rates.

The options the Council had at this point were demolition and subsequent redevelopment of the site or to find appropriate and creative new uses for the existing buildings.

While specific sustainability assessments, such as BREEAM or LEED, or energy performance targets did not form part of the brief for the project, the redevelopment designs followed a 'best principles' approach to energy reduction and carbon saving:

- Introduction of insulation to walls and roof, which were previously entirely uninsulated, dramatically improving thermal performance and air-tightness.
- Replacement doors and windows with high-spec double-glazing to improve daylighting and thermal performance
- Glazing incorporates 'low-e' coatings to limit solar gains which would otherwise contribute to an increased need to cool the buildings
- Installation of new energy-efficient services controlled by a weather-compensated Building Management System (BMS) to reduce energy consumption;
- New heating systems utilising heat-recovery
- Low-energy LED lighting with presence/absence detection and daylight dimming
- Low-flow sanitaryware to improve water usage
- New systems moved from gas-fired boilers to electric
- The building achieved an Energy Performance Certification (EPC) rating of 'B'

The retention and reuse of such a large concrete structure is inherently positive in terms of retaining the embodied carbon, particularly when compared to the alternative which was to demolish the building and construct a new building or buildings on the site. Many of the new materials were specified to have high levels of recyclability; zinc cladding, aluminium curtain walling and framing, and metal ceiling systems are removable and can be recycled. Materials removed from the building such as areas of stone cladding, were re-used in the scheme for repairs to damaged areas or to form planters within the car park.

The project has brought considerable regeneration benefits to Halifax Town Centre including a dramatic increase in footfall to assist the recovery of retail businesses from the recent pandemic.

#### **Kirklees**

In January 2019, Kirklees Council declared a Climate Emergency with the aim of achieving net zero for the whole of Kirklees district by 2038, which also aligns to the target set by the West Yorkshire Combined Authority.

Kirklees Council wishes to rise to the challenge and be a leader to achieve this target by bringing along local partner organisations, businesses and residents with the help and support of the national government and regional partners and aligned to our corporate ambitions for People, Places and Partners. This will be a challenging ambition, but it is also a great opportunity to improve our quality of life and create a borough that is healthier, more sustainable, and fairer for everyone.

#### How strategic programmes and initiatives in Kirklees support the net zero ambition

As part of its initial response to addressing the climate emergency, the Council has pledged to be transparent and disclose the district carbon emissions each year. Participating in the Carbon Disclosure Project (CDP) process is both a statement of intent and also allows the Council to learn from and follow best practice from other municipalities across the world.

In 2021, Kirklees Council commissioned the Place-based Climate Action Network team, based at the University of Leeds, to undertake a 'Net-Zero Carbon Assessment' for the district. The report highlighted that, dividing the global carbon budget up by district population gives Kirklees a total carbon budget of 15 million tonnes from 2021. Based only on the transport, fuel and electricity used within its boundaries, Kirklees currently emits c.2 million tonnes of carbon a year, and as such it would use up its carbon budget by the end of 2028.

The report also outlined the science-based emission reduction pathway to achieving net-zero by 2050 to meet the UK's Net Zero target. This means a 63% reduction by 2025, 78% by 2030, 87% by 2035 and 95% by 2040 (against a 2000 baseline), which will be 'steppingstone' targets. Without further activity to address its carbon emissions, it has been estimated that Kirklees' annual emissions will exceed its carbon budget by 1.1 million tonnes in 2030, and 1.6 million tonnes in 2050.

In parallel with Kirklees Council's Net Zero targets, we recognise the need to understand the proposed Carbon Impact of our emerging projects, plans and transport schemes in support of the borough's sustainable development and regeneration ambitions. We also acknowledge and welcome the need for a new approach being developed to support decision making on investments across our region with a focus on the quantification of a schemes operational and embodied Carbon Impact.

In the context of Kirklees Council's transportation investment, the Council is keen to combine a strong, sustainable, cleaner, and greener economy with a great quality of life - leading to thriving communities, growing businesses, high prosperity and low inequality where people enjoy better health throughout their lives shared outcomes. Our approach to travel is to put reliable and affordable public transport at its heart. This, along with the promotion of appropriate modes of travel for appropriate journeys, is key to the connectivity and accessibility in Kirklees and decarbonising transportation in the Kirklees context.

Our transportation investment programme seeks to invest in all transport modes to address local congestion and air quality issues, aid economic recovery, assist inclusive growth, integrate active travel, improve journey times, and make it easier for Kirklees residents to move around. Significant investment in Kirklees is focused on public transport and active travel through Government funding into our local rail system (over £1 billion investment electrifying the Trans-Pennine Route Upgrade

and directly benefiting local train stations), investment in our local bus services (WYCA Bus Service Improvement Plan), investment in public transport hubs and walking and cycling schemes (Transforming Cities Funding and City Region Sustainable Transport Settlement).

Alongside this, the West Yorkshire Transport Fund allows for improvements to the highway network (noting in Kirklees that this is not funding 'new' roads) which aim to meet the above objectives and also seek to incorporate bus prioritisation measures, address air quality and other environmental concerns, improve public safety, embed green infrastructure, and incorporate active travel measures.

#### Monitoring of net zero through local programmes

Any Carbon Impact Assessment guidance or toolkits aimed at helping Kirklees Council to quantify Greenhouse Gas emissions (Carbon Footprint) to ensure work is undertaken to minimise its contributory impact on the region's climate change, environmental and sustainable targets is a welcomed outcome. We acknowledge the work the West Yorkshire Combined Authority have been leading and have been forthcoming in putting forward our own schemes to contribute to the learning as well as shaping the research and development of the guidance.

The Council is progressing work on its second phase Climate Change Action Plan and Environment Strategy, alongside reviewing its Economic Strategy and Transport Strategy, giving us the opportunity to align these objectives and priorities and establish a monitoring framework of moving to net zero. In addition to disclosing the district's carbon emissions by participating in the CDP process, individual projects (such as transport schemes) are to be accompanied by monitoring and evaluation criteria to determine how well they are meeting their objectives.

#### Carbon mitigation in project and programme design

All transportation projects, including those relating to highway improvements, seek to incorporate bus prioritisation measures, address air quality and other environmental concerns, improve public safety, embed green infrastructure, and incorporate active travel measures wherever possible.

Kirklees Council welcomes the use of carbon impact assessments as a useful tool to assess the potential carbon impacts of a specific project, alongside other key assessments which look at the benefits of a scheme. Whilst it is not the only determinant in whether a project should proceed or not, the results of a carbon impact assessment can be useful in determining whether further mitigations might be possible to limit carbon impacts. Such impacts, however, must be seen proportionately, in the context of wider investment in transportation aimed at decarbonisation, and even wider activities across the district and region.

Mitigation is inherent within scheme development. Designs are refined and optimised from inception through to detailed design to provide the most appropriate scheme, within constraint parameters, to achieve its objectives.

Further mitigation may be developed once a preferred option is selected but again within constraint parameters. Mitigation may also be built into the construction phase as well as the longer-term operational phase of a scheme.

Development of projects start with identifying the issues, problems, and objectives. Optioneering is then done, generally using a multi-criteria approach, to identify a long list of possible solutions. The long list is further assessed to reduce the list to fewer options (short-list) which are developed and assessed in more detail, taking account of constraints, impacts, costs, and benefits, resulting

in a single preferred option. The preferred option is then assessed in greater detail. It may be the case that two or three options are developed to the same level of detail to provide comparisons of certain evaluation criteria.

Detailed carbon impact assessments cannot be done at long and short list stages, so impacts are likely to be based on professional judgement and / or as part of a multi-criteria assessment developed for each project. For example, carbon impacts may be assessed as low, medium or high in the context of the long list of possible solutions, rather than any threshold of carbon quantities.

Once a short list is identified, the level and complexity of further assessment is proportionate based on guidance particular to the solution being developed, and in accordance with planning requirements where planning permission is needed. In the case of highway schemes, the Department for Transport' Transport Analysis Guidance is applied.

There are limited tools available to assess mitigation. The primary tools to quantify carbon are used to compare different solutions and therefore assess mitigation of one proposal over another which may be done for the project as a whole or to compare different materials, for example, Transport User Benefits Appraisal (TUBA) software may be used to compare carbon quantities for different highway proposals or comparing 'with' and 'without' scheme scenarios.

A 'with' scheme scenario may result in more or less carbon being emitted than the 'without scheme' scenario, particularly where additional capacity is provided to cater for additional traffic, say from new housing or employment sites, but in any event the scheme will result in a carbon footprint.

Going forward we propose to consider, more widely, opportunities to mitigate the carbon footprint, such as tree planting, considering different types of materials, influencing the types of plant and equipment used in the construction process at procurement stage, and inclusion of electric vehicle charging points, where possible, to enable more take-up of electric vehicles

Further mitigation at individual project level is difficult to achieve as some mitigations may conflict with other objectives such as biodiversity, minimising land take, impact on historical feature. For example, tree planting may be better for carbon sequestration, but not necessarily better for biodiversity. Taking more land than that required for the scheme itself, within an urban environment, may have adverse impacts on residents, businesses, or character of the area. It is therefore also necessary to consider mitigation and carbon accounting on a wider scale.

#### Overview of projects assessed as part of CA carbon impact project

#### A629 Halifax Road Phase 5

The scheme forms part of a £125m programme of interventions along the A629 between Halifax and Huddersfield and sits within a £1b programme of transport investments (West Yorkshire + Transport Fund) for the region which include active travel and improved bus journey times, amongst other objectives. Although split into phases the strategic context of a programme of wider corridor improvements for different travel modes should not be lost.

The junctions to be altered, which make up the A629 Phase 5 project are set out as policies within the Councils' adopted Local Plan. Having been identified as necessary, amongst other measures, to enable Local Plan housing and employment sites to come forward.

Because there will be additional traffic accommodated on the network, there will be additional carbon emissions until a significant proportion of all vehicles on the network transition to carbon free emissions.

To mitigate against this, the scheme proposes to plant around 640 new trees, provide capacity for charging up to 48 electric vehicles, re-use existing stone, and other materials (where possible), integrate recycled materials into the supply chain, and require (where practicably possible) the use of electric vehicles, plant and equipment in the construction phase.

Achieving further mitigation at project level is challenging, particularly with respect to also seeking to achieve an increase in biodiversity of at least 10%, whereby tree planting from a biodiversity perspective may not give the highest returns as other measures such as meadows.

## City Connect Phase 3 (Cross Church Street)

This scheme aims to significantly improve the environment for pedestrians and create a key element of a cross town cycle route to provide further connectivity to several cycle routes across the district. Through-traffic will be removed with restrictions on access for loading implemented. The street sits within a conservation area and its function is primarily retail and leisure. The existing road is of bituminous construction with sandstone flags and kerbs. The existing materials are of poor quality through deterioration and the street was earmarked for a full refurbishment on a like for like basis prior to the inception of this scheme. The street is proposed to be remodelled with a similar cross section with bituminous and sandstone materials replaced with granite.

In considering the carbon impact of the scheme, account has to be taken of the refurbishment of the street in the absence of this scheme as a starting point. As such, the overall impact of carbon from a construction perspective will be similar to that of the refurbishment scheme.

There is a likelihood that additional carbon may be generated from re-routed traffic that will use the ring road, rather than cutting through Cross Church Street (as a rat-run), as a result of the scheme. Whilst this may be the case in some instances, the strategic need for the scheme and the benefits arising outweigh the potential additional carbon emissions that may be generated by longer car journeys.

# Holmfirth Town Centre Action Plan

The proposed Holmfirth Town Centre Access Plan (HTCAP) aims to support economic growth through investment in improvements at key junctions which focus on reducing current and forecast congestion, improving journey time reliability, and widening sustainable travel opportunities.

Holmfirth is a tourist / visitor area and relies on the rural economy. Improvements to public realm, pedestrian facilities and the creation of riverside seating and links to the river within the area will improve the quality of life for residents, whilst improving the visitor / tourist experience.

The Holmfirth Town Centre Access Plan is a package of measures which includes:

- Rationalisation and upgrading of the existing signal-controlled junctions to reduce congestion and improve journey times through the area
- Widening of footways to better facilitate pedestrian movement
- Improvements to pedestrian crossings to better facilitate pedestrian movement
- Inclusion of Electric Vehicle (including cycles) charging points
- · Improvements to public realm and around the River Holme

- · Improvements to bus stop facilities
- · Improvements to car parks including EV charging points
- Introduction of 20mph areas in the town

The scheme is progressing to Full Business Case. Comments and recommendations from the WYCA carbon impact assessment process have been considered and a revised approach to modelling the scheme together with a revised carbon impact assessment will be submitted at FBC stage.

#### **Concluding statement**

Kirklees Council recognises the usefulness of the consultant's recommendations in these assessments but does consider that work carried out to date for these projects remains robust, credible, and carried out in accordance with the best available guidance. We recognise the importance of utilising and applying the principles so as to reinforce the validity of carbon impact assessments, however, as an authority we have raised concerns about the consistency applied or whether a single methodology has been used. It remains the case that issues of project specific carbon impact must be seen in the wider context of other transportation benefits, including investing in the infrastructure which will enable greater use of public transport and active travel and what is being done at wider programme levels to decarbonise our transport systems.

With regard to confidence levels expressed within documentation provided by the consultants, it is Kirklees Council's view that this relates to the need to further explore the impacts of carbon for projects as they develop towards their final stages to ensure all the relevant elements have been fully considered as schemes reach final scheme design, when more detailed information is available.

This could result in the current assessment of carbon impact going up or going down depending on scheme progression, and we trust this will be assured by uniformly applying a singularly adopted, consistent approach to Carbon Impact Assessment further supported by clear guidance and toolkits.

By working with WYCA's appraisal team and the consultants, Kirklees continue to play an active role in the development of the Carbon Impact Assessment approach to be agreed as part of the assurance process, alongside all the other factors that decision makers need to consider.

# Leeds

# Local climate emergency priorities and strategies and relationship to West Yorkshire net zero

In 2019, Leeds City Council declared a climate emergency with a target of achieving net zero emissions for the city by 2030. Zero Carbon is one of the three pillars of the Best City Ambition, the council's overall vision for the future of Leeds. Leeds City Council support the delivery of WYCA's climate action plan and work with the Mayor of West Yorkshire to realise our best city ambitions, including:

- Deliver a low-carbon and affordable transport network which encourages people to be physically active and reduces reliance on the private car, helping people get around the city easily and safely.
- Promote a fair and sustainable food system in which more produce is grown locally, and everyone can enjoy a healthy diet.
- Address the challenges of housing quality and affordability, tackling fuel poverty and creating vibrant places where residents have close access to services and amenities.
- Join with local communities, landowners and partners to protect nature and enhance habitats for wildlife.
- Invest in our public spaces, green and blue infrastructure to enable faster transition to a green economy while improving quality of life for residents.

# How strategic programmes and initiatives in Leeds support the net zero ambition

We have made a commitment to invest £100m in domestic retrofit measures in social housing by 2025. Leeds secured £4.1m from the Social Housing Decarbonisation Fund (SHDF) demonstrator to fund innovative whole house improvements to make 190 council homes net zero carbon. A further £9.6million SHDF grant has recently been secured to support the retrofit of an additional 630 properties in Leeds within multi storey flats. Phase 3 of the Leeds PIPES district heating network will also see several residential developments connected, including multi-storey flat blocks, leading to c38GWh of low carbon heat supply from a £52m+ investment. We have developed a Net Zero Housing Plan which outlines the challenges of retrofitting privately owned and rented housing in Leeds, including low-income Victorian terraced areas and more affluent areas requiring more expensive improvements. The plan sets out the key actions that need to be taken to accelerate housing decarbonisation within the existing stock, both locally/regionally and at a national level.

The White Rose Forest Strategy for Leeds aims to significantly increase the existing 17% tree canopy cover across the district to 33% by 2050 in partnership with business, residents, institutions, communities, landowners, and farmers. It will build on the substantial work that the Council already carries out around the planting and management of trees, as well as encouraging planting and protection of trees though the planning process.

In February 2022, the council published the Energy Strategy and Action Plan (ESAP) for our own operations. This is based around reducing the demand for energy is the first principle, i.e. through the c£25m PSDS phase 1 investment, before then meeting the energy demand by the greenest method available. This is likely to see the council make a significant strategic investment in renewables to self-supply green electricity as well as installing more heat pumps and connecting more buildings to district heating.

We are currently updating our Local Plan. The focus is on the role of planning in helping the Council deliver its climate emergency commitments. The five key topics of the update are carbon reduction, flood risk, green infrastructure (including biodiversity), place making and sustainable infrastructure.

The Connecting Leeds Transport Strategy sets out our vision for Leeds to be a city where you don't need a car, where everyone has an affordable, low carbon, healthy and accessible choice in how they travel. The strategy outlines the key steps to deliver the changes needed in Transport to meet the city's 2030 target of making Leeds Carbon neutral. Key highlights of projects and schemes delivered in the last year include the opening of Stourton Park and Ride (the UK's first solar powered park and ride), £161 million investment in Leeds Train Station that has increased the capacity of the station to work towards meeting existing demand, and delivery of a rapid charge that now provides 30 dual 50kW rapid charging stations across 28 locations that are spatially spread across the city.

Leeds currently holds the 'Sustainable Food Places' Bronze award and work is now beginning, alongside Food Wise Leeds, towards the Silver and Gold awards. A fundamental part of this is the development of a cross-cutting food strategy for the city. Several events and workshops have taken place with local food organisations to develop the objectives of the strategy, and the first draft will be considered at Executive Board in Autumn 2022 with a full public consultation to follow.

The council's scope 1, 2 and 3 emissions are <u>reported annually to Executive Board</u> and are also provided as part of the annual submission to the Carbon Disclosure Project (CDP).

## Carbon mitigation in project and programme design

The council continues to work to shrink the corporate estate in response to new ways of working and changes to models of service delivery, as well as ongoing work to raise awareness amongst building managers, staff and service users of the impacts of energy usage, and the improved use of data to understand where further energy savings can be achieved through better energy management.

All formal council decisions must evidence impact on our net zero ambitions as one of three key strategic aims through our corporate report template. The Environment, Housing and Communities Scrutiny Board also has oversight functions relating to executive decisions and other matters of interest regarding climate change, providing checks and balance to the city's journey to net-zero.

#### Overview of projects assessed as part of the CA Carbon Impact Project

This section provides information relating to some of the specific projects assessed, highlighting the strategic benefits of these programmes including mitigation and offset issues which may not have been addressed within the CA carbon impact assessment.

#### Flood Alleviation - Leeds (FAS2).

The assessment has not quantified the benefits accruing from a reduction in flood events. A study by students at the University of Edinburgh suggested that prevention of a single 1 in 200 year flood event would save over 50,000 tCO2e, which is greater than the capital carbon emissions. The FAS2 scheme also includes a 20% target emissions reduction during construction and measures currently employed including sourcing clay from an adjacent field instead of transporting it, using electric vehicles, switching to Hydrotreated Vegetable Oil for use by plant, and Eco Sheet Piles made from scrap metal. The scheme has already planted 400,000 trees.

# Leeds City Centre Network and Interchange Package – Armley Gyratory.

The removal of traffic from the city centre is a key part of the aspiration to make the city centre a more liveable, walkable environment supporting sustainable living and moving around on foot, by bike or public transport, through better facilities, cleaner air and world-class open spaces. Reallocation of roadspace is required to achieve these aims including the closure of City Square to through traffic, which displaces traffic away from the city centre and onto the Inner Ring Road. The proposed improvements at Armley enable further roadspace reallocation and priority for sustainable modes. It also helps to future-proof the city centre for other future developments required to serve a growing city centre including Mass Transit. It is a stated aim in the approved Transport Strategy to remove traffic from the city centre, and the Armley Gyratory improvements facilitate this by providing some extra capacity on the Inner Ring Road at a key location. Although appraisal shows an increase in emissions from the Armley Gyratory scheme is isolation, the strategic case is strong when all future aspirations are taken into account.

## TCF Leeds Station Sustainable Travel Gateway.

Investment in improvements to Leeds Station, the busiest outside London, is vital to meet growing demand for rail services and provide an effective high-capacity sustainable travel option to and from the heart of Leeds to complement bus services, the proposed Mass Transit system and the developing cycle network.

## Park and Ride schemes: A64 and Temple Green extension.

One of the benefits of the council's recent investment in park and ride is that it has allowed the capacity of the transport network to be maintained after a reduction in the supply of 'cleared site' car parking on the periphery of the city centre to facilitate redevelopment such as the £1bn Aire Park development on the former Tetley Brewery site. The Council's most recent addition to the park and ride network is at Stourton, which uses electric buses charged from solar panels, electric charging points, and included the planting of 11,000 trees and operates with a net annual saving of nearly 500 tCO2. This scheme has set the benchmark for quality and sustainability and indicates the council's aspirations to reduce emissions across the range of travel options wherever this can be delivered.

# Fink Hill

The junction improvement provides much needed connectivity across the outer ring road, providing signalised crossings to reduce severance and encourage walking, cycling and access to public transport. The scheme's carbon assessment included a coding error and a corrected value shows a marginal benefit in terms of carbon based on increased efficiency of the junction operation.

**TCF Leeds City Centre Cycle Network.** The scheme shows a modest benefit in the appraisal, but the Mayor has an ambitious target for growing cycling and the council is also continuing to expand its network of segregated safer cycle routes which will also contribute to growing demand.

#### A6120 Leeds Northern Outer Ring Road improvements.

This scheme has no further development or implementation funding at this present time.

Additionally, it should be noted that the **Leeds District Heat Network (DHN) – Leeds Pipes** was not assessed as part of the CA carbon impact toolkit development work as not all key information

was available at the time of assessment. Subsequently Leeds Council has updated the project carbon assessment using a benchmarking exercise with other operators of DHNs fed by EfW plants and used this to refine the approach to calculating the carbon factor for the heat supplied through the DHN. This is now done using the methodology created by the Building Research Establishment (BRE) based upon establishing the amount of grid electricity and gas that has been displaced by the DHN, utilising up-to-date carbon factors for both. Applying this methodology and relevant factors to customers counterfactual positions, and including emissions from losses and pumping, yields a total carbon saving of over 7000 tonnes pa when supply is 38GWh pa.

The Leeds PIPES project is a multi-phase project, developed by Leeds City Council and constructed and operated by Vital Energi. The network is owned by the council and enjoys strong political support, as it is a key part of the council's net carbon zero strategy. The network went live in 2019, utilising low carbon heat from the city's Recycling and Energy Recovery Facility (RERF) to supply council flats and commercial businesses around the Quarry Hill area of Leeds as well as St James' Hospital and Leeds Beckett University. Additional significant connections will be made throughout 2022, which will increase the supply of low carbon heat to c38GWh pa

## Wakefield

Wakefield Council has pledged to become a carbon neutral organisation by 2030, for those emissions that are under its direct control. This means having a net zero carbon footprint, and the aim is to help the entire district achieve this goal too, within the same timeframe - if possible - but by 2038 at the latest. This is consistent with the West Yorkshire net zero target.

A Wakefield Council report, produced in partnership with low carbon energy experts, shows that if the Council is to meet the target of being a carbon net zero district by 2038 there is a need to:

- Reduce car use by 30%
- Increase walking by 80%
- Take 20 times more journeys by bike

#### How strategic programmes and initiatives in Wakefield support the net zero ambition

Wakefield Council has produced a climate change action plan that sets out how it will go about achieving this ambition over the next ten years, which it is committed to deliver and which will be further developed as new technologies emerge. Six priority workstreams have been identified that target activities and actions of the Council as an organisation, residents and visitors. These comprise Low carbon estate, Low carbon fleet, renewable energy, carbon offsetting, behaviour change / influencing and place : district wide net zero.

A greener Wakefield district is a key priority identified in the 2022 – 2024 Corporate Plan with achievement of carbon and net zero targets specifically listed. A greener district will be achieved by continually investing in parks and open spaces and doing our bit to tackle climate change.

Wakefield's corporate plan has recently been updated and now addresses the importance of tackling climate change. As a result the directorate has also been refocused and named to Communities, Environment and Climate Change and the Climate Change Team is in the process of being established. It's recognised that the level of investment needed to decarbonise is significant and Wakefield has recruited an additional bid writer to help secure additional funding support. To deliver Net Zero it will require a collaborative approach and one that each service area will need to contribute to with the support of the Climate Change Team.

Each workstream will report progress on a bimonthly (8 weekly) basis to the programme board, and this will capture key milestones achieved in the last quarter and any risks or issues for the workstream in question. A suite of relevant key performance indicators will also be developed to assist with performance management and this will capture key milestones achieved during the last reporting period and any risks or issues for the workstream in question. The council will continue to report our greenhouse gases through existing government reporting requirements and a carbon reduction tracker will also be used to quantifiably monitor progress made towards net zero, both organisationally and in relation to the district itself.

In February of each year, between 2021 and 2029, an annual report will be published to summarise the progress made during the previous calendar year, and to give a forward projection of the projects anticipated for delivery within the remainder of that calendar yea

#### Carbon mitigation in project and programme design

All schemes presented to cabinet for addition on to the capital programme are required to consider impact on climate change in Cabinet reports. The Council has adopted the following approach to managing carbon generation.

- 1) Avoid staff training in carbon literacy, to change behaviours (e.g. reduce business miles by not making journeys)
- 2) Reduce for example by adopting energy efficiency measures and decarbonising the running of the Council's estate, such as using electric vehicles.
- 3) Substitute for example by self generation of energy and buying renewably generated energy
- 4) Compensate where the Council can't avoid, reduce or substitute then good quality carbon offsetting projects will be used to cover the balance. This will include urban greening in transport projects.

When projects are developed it is expected that the Council's future procurement activity addresses both climate change and wider sustainability issues. The Council will engage with its' existing supply chain to reduce current service delivery-based emissions as well. The Council is reviewing procurement guidelines and category plans in line with the internationally-recognised guidance standard set out by ISO20400.

The Council will make relevant interventions into future procurement activity, based on a system of prioritisation, to ensure that the contract provision created aligns with climate change ambitions. The Council will engage with existing suppliers to ascertain ongoing carbon reduction activities that can be attributed to service delivery in the district and to encourage greater action where opportunities exist.

# Overview of projects assessed as part of CA carbon impact project

Two schemes in the Wakefield district have been assessed, the Castleford Growth Corridor Scheme and Wakefield City Centre Package (Phase 2) - Ings Road.

# **Castleford Growth Corridor Scheme**

The Castleford Growth Corridor scheme has been under development for some time. The scope of the scheme has been reduced from that originally envisaged to reduce scheme costs. The approved OBC scheme included some road widening and capacity increases at junctions to support development (housing and employment) in the area to the north east of the town centre. It is acknowledged that modelling of the scheme at OBC only allowed for reassignment with no consideration of potential induced traffic and that this needs to be addressed in any further modelling.

As detailed design has progressed, the scope of the scheme has changed to focus more on addressing issues for active travel with more limited capacity increases. Counterintuitively an updated carbon appraisal may conclude that the revised scheme is less beneficial, as modelling would be expected to show less carbon benefits (as congestion might be forecast to increase). If the new modelling accounts for induced traffic it is anticipated that the revised scheme will be forecast to induce little extra traffic as capacity changes are modest. No account has yet been made for the potential carbon benefits of modal shift to active travel that the scheme would encourage. The assessment work for the Full Business Case for the revised scheme will assess and quantify this. The aim is to facilitate growth with a greater emphasis on sustainable travel.

## Wakefield City Centre Package (Phase 2)

The Wakefield City Centre Package (Phase 2) - Ings Road has been under development for some time as the final part of a package of improvements that have increased capacity to address congestion as well as improving crossings for active travel users. Since the OBC was approved, further scheme development work has been undertaken on adjacent schemes proposed for the A638 Doncaster Road (Corridor Improvement Programme 2), City Centre and A61 (Transforming Cities Fund). These corridors interact closely with Ings road. Modelling has suggested that the Ings Road scheme as presented at OBC may shift issues to the A638 Doncaster Road and A61 Barnsley road.

The recent work on these corridors has indicated that a revised scheme is required for Ings Road, with more focus on active travel, and less capacity increases for general traffic. Similarly to the Castleford Growth Corridor scheme a revised carbon assessment of the reduced scheme may conclude that it has less benefits due to the model forecasting a smaller reduction in congestion. Quantified modal shift analysis would be expected to indicate some additional carbon benefits to offset the previously modelled traffic benefits.