West Yorkshire Combined Authority

West Yorkshire Mass Transit Vision 2040

A new transport system to support the Northern Powerhouse

Working draft for engagement, January 2021

West Yorkshire Mass Transit Vision 2040

What is Mass Transit?

Mass Transit is a large-scale public transport system in a metropolitan area. With its own brand and identity, typically Mass Transit would use one or more of modern high capacity buses, trams and tram-train vehicles.

Our plan sets out a bold and ambitious plan for a new form of transport for West Yorkshire. Alongside cycling and walking, and bus and rail we see Mass Transit as essential to help our communities thrive and our economy to flourish, bringing people and places closer together.

Mass Transit is likely to be expensive to construct, but also deliver substantial benefits to West Yorkshire. It will support levelling-up in the Northern Powerhouse. Mass Transit will:

- **Help combat climate change.**
- **Connect West Yorkshire's important places.**
- **Help rebalance the economy.**
- **Improve health & well-being.**
- **Support economic recovery.**

By offering a new public transport option, which increases capacity and provides an attractive alternative to car travel, Mass Transit will support and facilitate:

A low emission, low carbon, inclusive future.

A bigger, stronger and rebalanced economy – increasing access to jobs, education and training.

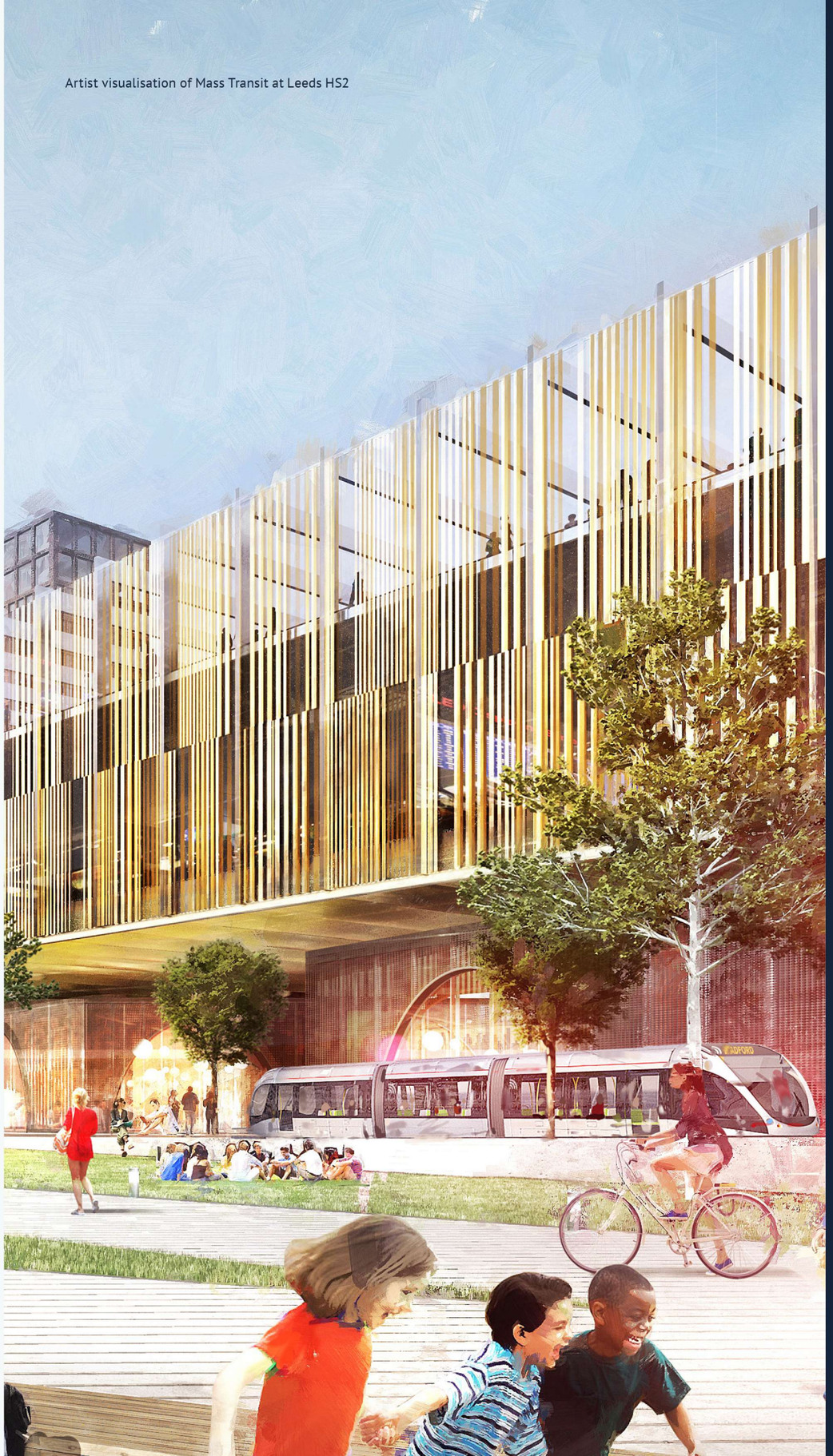
Enhanced quality of life for West Yorkshire's residents and visitors.

Inclusive growth through improving transport for up to 675,000 people within the top 20% most deprived communities within West Yorkshire.

Sustainable development and regeneration of neighbourhoods, district centres, towns and cities – connecting up to 35 housing growth areas, 17 employment growth areas and five hospitals.

While we are planning for construction to start by the mid-2020s, our plans are at an early stage.

To help these develop, we are now seeking views on our vision.



Artist visualisation of Mass Transit at Leeds HS2

A new transport system for West Yorkshire

We have a bold ambition to make West Yorkshire greener, more inclusive and better connected.

To achieve this we need an equally bold approach to public transport.

That is why we propose building a modern, world-class public transport system, using new forms of advanced Mass Transit.

Mass Transit, linked to cycling and walking, bus and rail, is integral to our vision for a sustainable public transport system fit for the 21st Century.

It will support the clean growth of our region. It will help us meet the demands of growing capacity and increased connections so our communities can better access jobs, education and opportunities.

This high-tech, seamless, sustainable Mass Transit system will connect West Yorkshire's cities, towns and district centres, serve areas of new housing development and employment growth, and provide links to inter-city rail services.

Mass Transit will help our communities to thrive and our economy to flourish, bringing people and places together. It will improve the look and feel of our towns and cities and reduce pollution.

Investing in West Yorkshire's future

> **Our vision for West Yorkshire is to be recognised globally as a great place to live with a strong, successful economy. Where everyone can build businesses, careers and lives, supported by a superb environment and world-class infrastructure.**

Our four priorities:

Boost productivity

Enable inclusive growth

Tackle the climate emergency

Deliver 21st century transport

> **West Yorkshire Mass Transit is integral to delivering our priorities by helping to address our region's challenges.**

Our Connectivity Infrastructure Plan is our broader plan for a modern, integrated transport system for West Yorkshire. It sets out how improved walk, cycle, bus and rail networks will help us meet our challenges, and the role that Mass Transit can play.

Our cities and towns have outgrown our transport system. Our reliance on the car is damaging business, the environment and people's health. Many in our most disadvantaged communities have not benefited from car travel and suffer most from its impacts.

A "business as usual" approach to transport will mean economic opportunities are not fully realised and effective action is not taken to decarbonise our economy.

Our transport networks are under increasing pressure. Roads are congested. Public transport can be overcrowded. Journeys can be unreliable. These are all costs to our economy.

They limit opportunities for people to access work, for businesses to connect with their customers and their suppliers, and how communities interact. Pollution from congested roads worsens serious public health and environmental problems.

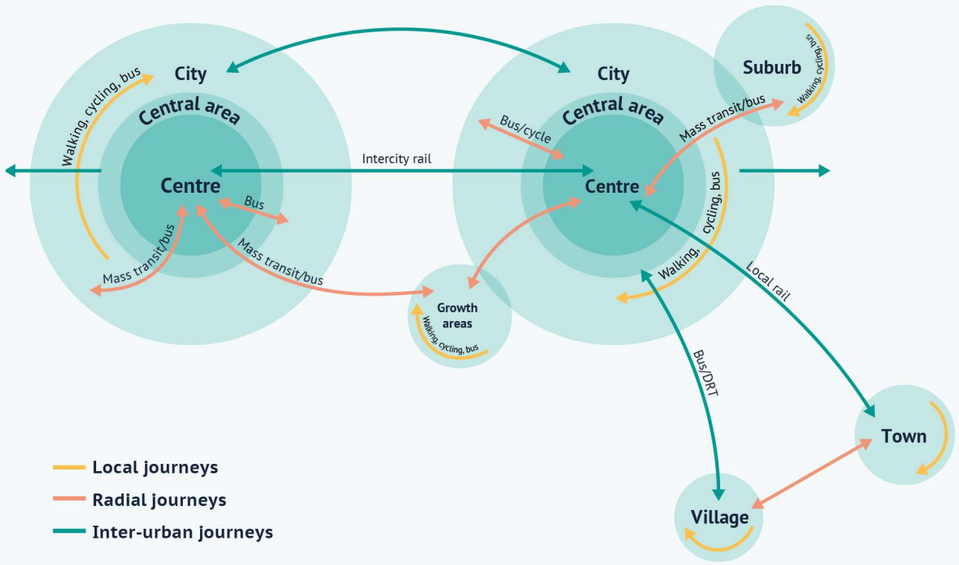
Our three challenges

Covid-19
West Yorkshire has been hit hard by the pandemic and by its economic and social impacts. As well as an immediate recovery plan, we need a longer-term view on how transport can support the economy.

Connecting everyone
Not everyone has benefited from past economic growth and there is a risk that they will fall further behind as the country emerges from the Covid-19 pandemic. We need to overcome the transport barriers that limit access to jobs, training and essential services.

Climate change
The Combined Authority has committed West Yorkshire to reduce its carbon emissions to 'net zero' by 2038. Transport must decarbonise quickly. To enable clean growth, people will need to travel less by car and more by sustainable forms of transport.

One connected door-to-door journey



A flourishing, connected, low carbon region is only possible with a modern, integrated transport system, of which Mass Transit is an integral part. We need transport options that work in harmony with each other and meet the specific needs of the different types of journey made in West Yorkshire.

We need to provide the right transport options in the right places, whether it's rural to urban, inter-city, between towns; for work, or school; shopping or social; daily or occasional.

The best transport networks in other regions and countries integrate different forms of transport together, catering for all journey types and communities, while meeting local economic challenges and needs.

Some forms of transport are best suited to high volumes of travel, others are best for lower flows. Some are best for short journeys and others better for longer ones.

Our goal is to create an integrated and seamless transport system that best meets the needs all of the different journey types. A network that provides the right connections and right capacity, where it is needed while also providing a clean and low carbon way to travel.

Our Connectivity Infrastructure Plan sets out how Mass Transit will be integrated within an improved door-to-door transport system, for West Yorkshire.

Walking is popular for short everyday journeys. Safe, convenient and appealing walking routes to bus, Mass Transit and rail make public transport a more accessible and attractive option.

Cycling is an affordable and healthy way to travel, for many. We plan to extend the network of on-street and dedicated cycle routes to better connect with Mass Transit.

Micro-mobility (e.g. e-bikes) creates new opportunities for shorter journeys.

Bus is best for many public transport journeys. Some bus services will be redesigned to connect with Mass Transit. Buses and Mass Transit will share infrastructure if needed and where practicable, while avoiding competition.

Mass Transit will provide fast, high capacity and direct connectivity, linking major current and future employments sites, areas of significant new housing, Park and Ride sites and areas of regeneration.

Rail and Mass Transit will serve different travel markets. Rail will be best for many longer public transport journeys. Mass Transit will connect with local rail services, inter-city services, HS2 and Northern Powerhouse Rail.

Mass Transit will be an appealing alternative to **car** travel. Park & Ride will offer access to town and city centres. Road space may need to be reallocated from cars to allow Mass Transit to run free from congestion.

How Mass Transit addresses our challenges

Our objectives	Our challenges	What Mass Transit can do
Boost productivity Helping businesses to grow and invest in the region and their workforce, to drive economic growth, increase innovation and create jobs.	West Yorkshire's productivity is lower than the rest of the country. We need the economy to grow. We need to share better the benefits of growth.	**Connect important places across our region** – helping people travel to jobs and education in a reliable, efficient and affordable way.
	West Yorkshire's population and the number of people working is forecast to grow. More people means more travel. We need new housing and new places for people to work.	**Improve connections** between areas of housing growth and employment, education, health and leisure opportunities. Improve connections to new employment sites.
Enable inclusive growth Enabling as many people as possible to contribute to, and benefit from, economic growth in our communities, towns and cities.	Transport needs to add to people's quality of life, not detract from it. Traffic noise and congestion affect day-to-day lives. Traffic blights local communities.	**Make travelling around West Yorkshire a more pleasant experience.** Support improved public realm. Prove an attractive alternative to car travel.
	Poor transport limits what people can do.	**Help reduce transport barriers** which limit travel horizons and so increase access to employment, education, health, leisure and other services. Improve connections to local and district centres. Be fully accessible to all. Support redevelopment and regeneration.
Tackle the climate emergency Growing our economy while cutting emissions and caring for our environment.	There is an urgent need to reduce transport's greenhouse gas emissions. Transport contributes to poor air quality. We need cleaner air.	**Help achieve net carbon zero** and improve air quality by being low emission and providing an attractive and sustainable alternative to car travel.

An evidence led approach to identifying transport investments priorities

Our Connectivity Infrastructure Plan identifies how we need to improve transport to benefit all our communities.

Our Connectivity Infrastructure Plan focuses on how transforming connectivity can help raise productivity, living standards and environmental quality for all.

The Plan's scope covers the whole of West Yorkshire: the local authority districts of Bradford, Calderdale, Kirklees, Leeds and Wakefield.

Our Plan builds on the existing West Yorkshire policies as well as local, pan-northern and national priorities.

It's been developed with input from the National Infrastructure Commission and reflects their October 2020 principles for effective urban infrastructure.

In the Connectivity Infrastructure Plan, we identify the important places we need to connect. Based on the evidence, we identify the areas where there is opportunity for Mass Transit.

How we developed the Connectivity Infrastructure Plan:

1. **Create a single evidence base**

2. **Identify the key communities to connect**

3. **Identify the best transport for local communities**

4. **Identify options for improving connectivity**

5. **Sift options against our objectives**

Our evidence base

- Socio-economic characteristics
- Economic need (Index of Multiple Deprivation)
- Known transport constraints
- Forecast changes to travel demand
- Planned changes to transport networks
- Anticipated land use changes (new employment growth zones, major housing opportunities, etc)
- Transport-related environmental problems
- Local district plans

Our plan for regional growth

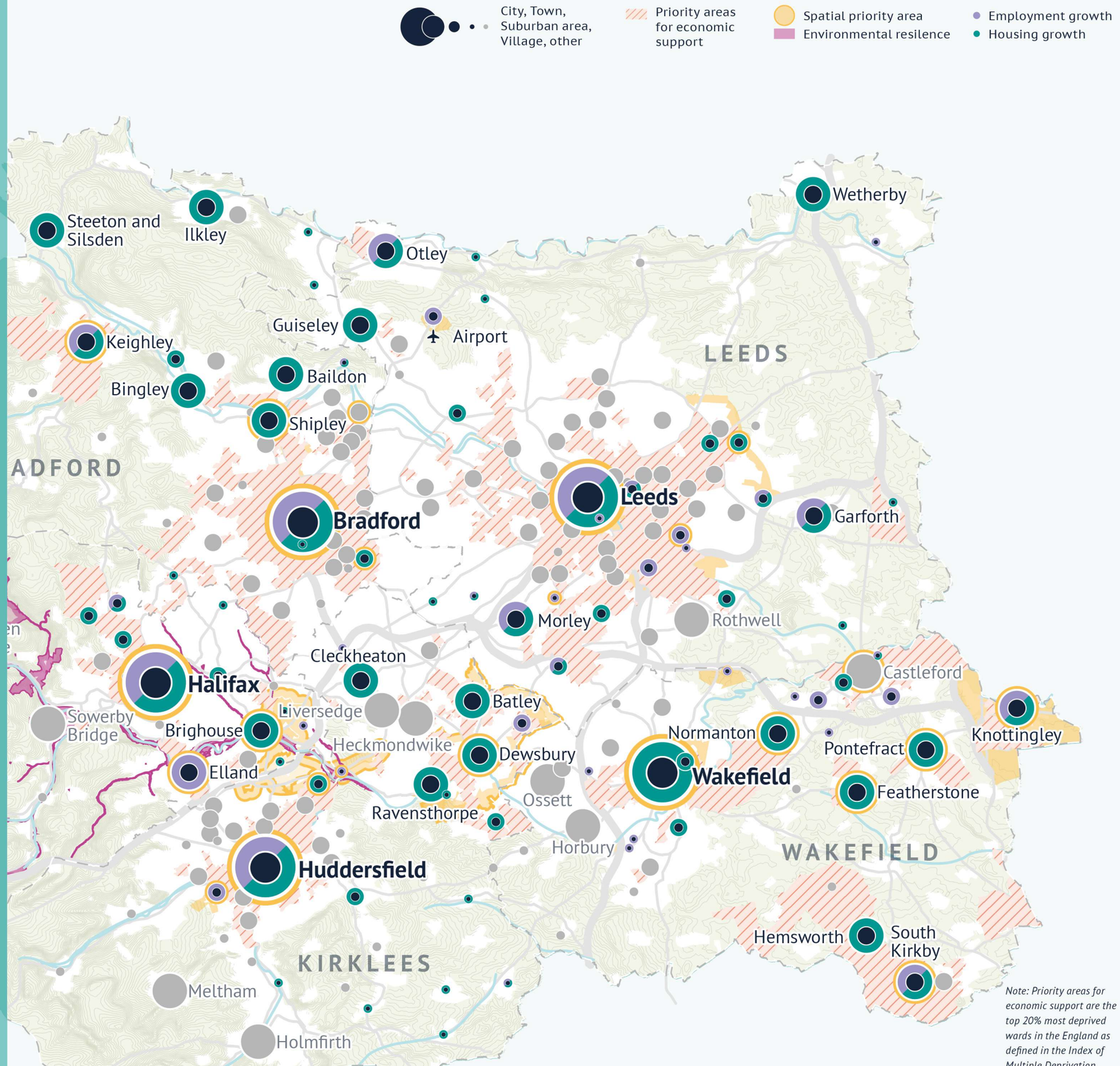
“” Understanding our places now and in the future is central to planning an effective and efficient transport system.

At the heart of northern England, West Yorkshire is a thriving place to live. It’s increasingly attracting highly skilled, knowledge-intensive service sector workers, as well as new tourism, cultural and leisure opportunities.

However, transport congestion is limiting growth, and air quality is a problem. Transport is the largest carbon emitting sector in West Yorkshire.

In order to develop an effective transport system, we need to understand each and every one of our places and communities. Then we can make sure everywhere and everyone is seamlessly connected.

Leeds is our largest city in the region. West Yorkshire is also home to the cities of Bradford, Wakefield and the large towns of Huddersfield and Halifax. Alongside our other town and district centres, West Yorkshire is a great place to live.

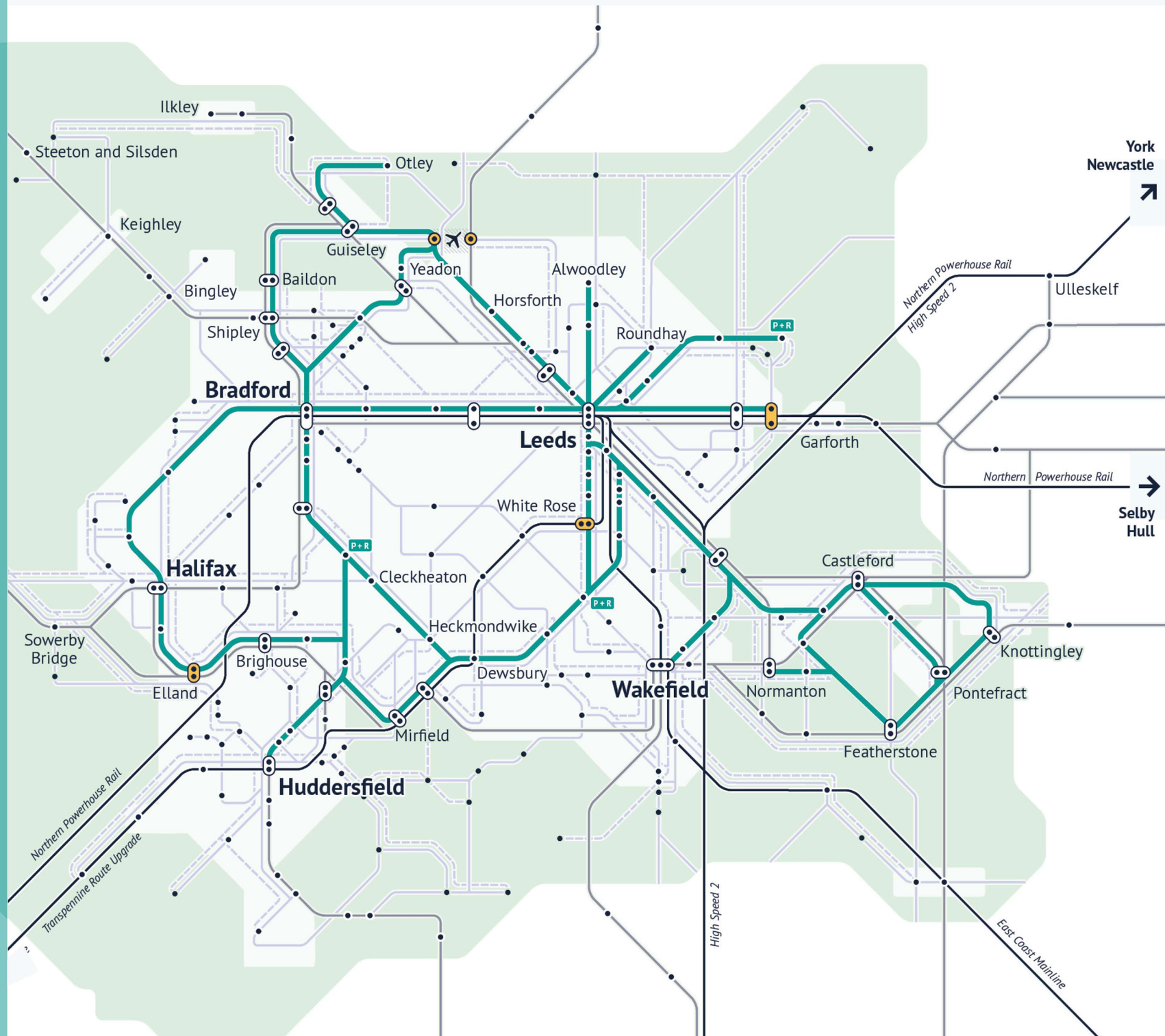


Mass Transit as part of an integrated transport system

Mass Transit, linked to cycling and walking, bus and rail, is essential to providing a public transport system fit for the 21st Century.

The benefits of Mass Transit

- A better, more balanced economy.
- Support new housing.
- Sustainable development and regeneration of our towns and cities.
- Enhanced quality of life for West Yorkshire's residents and visitors.
- A low emission and low carbon future.



A bold ambition for a new West Yorkshire transport mode

Mass Transit will be a new form of transport for West Yorkshire. It will be integrated into the urban fabric of every community it serves.

Our design principles have been shaped by our goal to create a 21st Century transport system. Helping us meet our priorities to tackle the climate emergency, boost productivity and enable inclusive growth.

> **Mass Transit, integrated with cycling and walking, bus and rail, is central to making West Yorkshire greener, more inclusive and better connected.**

Our four design principles

People first

Designed for people of all ages and abilities – easily accessible low-floor vehicles.

Reflect the region's diverse communities and cultures.

Multiple doors for quick and easy boarding.

Inclusive safe spaces around stops.

Affordable, easy to use, enjoyable and stimulating.

Environmental responsibility

Zero-emission at the point of use.

An attractive alternative to car travel.

Infrastructure resilient to climate change.

Landscaping to promote biodiversity, improve air quality and overall health.

Sustainable management of surface water.

Better connected

Integrated with local bus services. Bus and Mass Transit will share infrastructure where needed and practicable, while avoiding competition.

Connected to local rail services, yet independently operated. Link to HS2 and Northern Powerhouse Rail.

Cycleways that complement Mass Transit routes.

New and enhanced Park & Ride.

A sense of permanence and ease of use.

Celebrating West Yorkshire

Celebrate our built and natural environment.

Add to, and enhance, our urban spaces and support regeneration.

Respect existing spaces and neighbourhoods, build on their strengths.

Build and retain skills.

Be a symbol of pride for West Yorkshire.

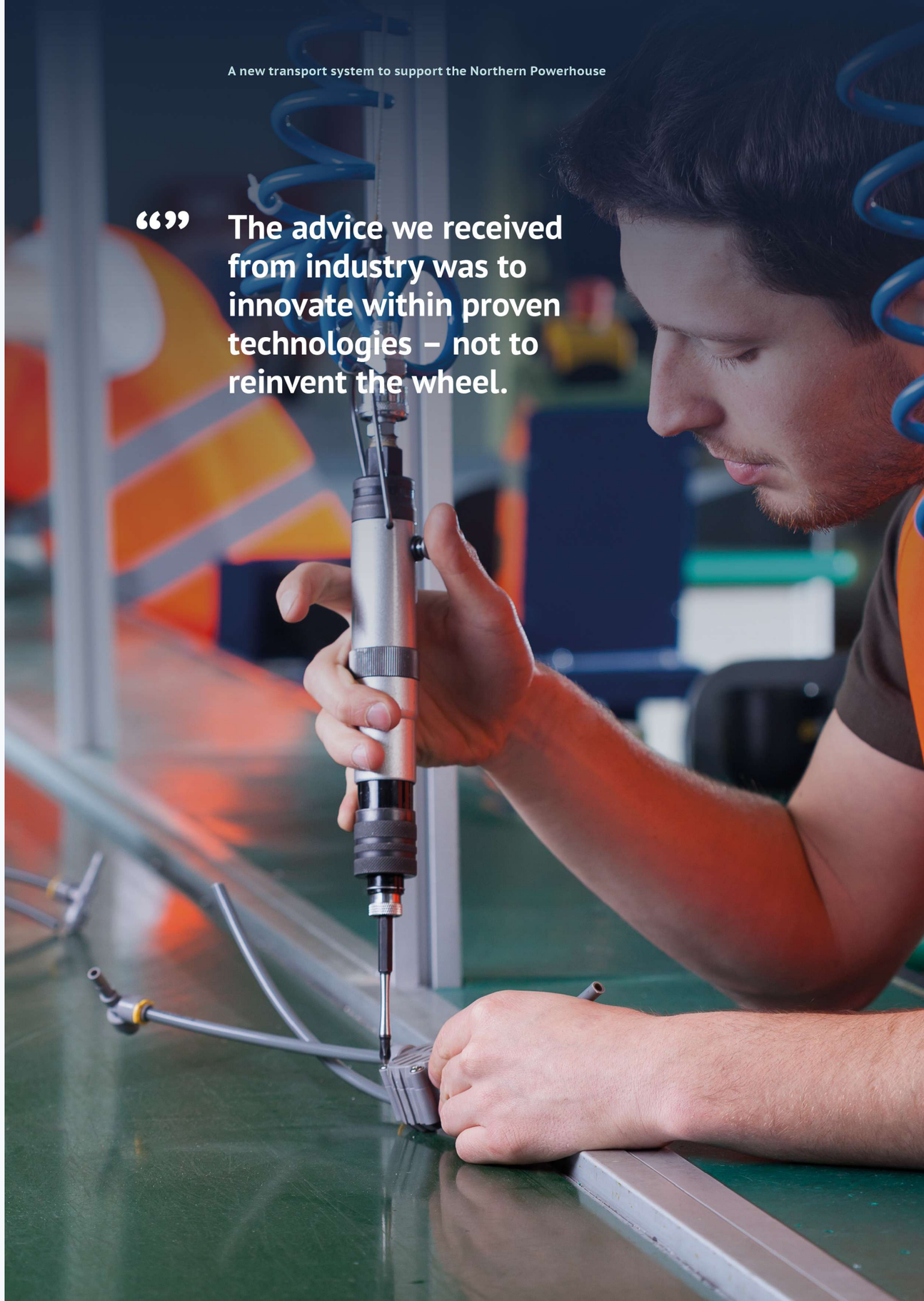
Learning from Industry

> **In 2019, we undertook World Wide Market testing of advanced urban transit technologies.**

The Advanced Urban Transit Technologies – Worldwide Market Testing report can be found on the West Yorkshire Combined Authority website.
westyorks-ca.gov.uk/urban-transit

What we learned:

- Segregation from general traffic is important for journey reliability.
- Bus, Mass Transit and rail will be important as part of an integrated transport network – the preference depends on the capacity need and the ambitions of the region.
- Technologies exist for autonomous operations, but only in a fully segregated environment. Mass Transit systems which require interface with car and/or pedestrians will continue to need a driver for safety and passenger assistance reasons.
- Battery technologies are advancing rapidly and it is realistic to plan for systems without overhead wires.
- World-leading cities are investing in modern Mass Transit alongside bus and rail and sometimes more than one type of Mass Transit technology.



> **The advice we received from industry was to innovate within proven technologies – not to reinvent the wheel.**

Candidate Mass Transit technologies for West Yorkshire

Belfast Glider, Ireland, © Albert Bridge


Birmingham Metro, UK, © West Midlands Combined Authority


Mulhouse Tram-Train, France


Artist impression of Coventry Very Light Rail, UK

	Advanced Bus Rapid Transit	Light Rail/Tram	Tram-Train	Ultra Light Rail
	Can run on street with other traffic and on bus-only alignments.	Can run on street with other traffic and on segregated alignments, which can be integrated with urban realm and green spaces.	Can run on street with other traffic, on segregated alignments like light rail/tram and on the same tracks as trains.	Can run on street with other traffic and on segregated alignments like light rail/tram.
	Rubber tyred vehicles.	Steel wheels on steel rails.	Steel wheels on steel rails.	Steel wheels on steel rails.
	Low-floor vehicles with multiple double doors for easy level boarding and alighting.	Low-floor vehicles with multiple double doors for easy level boarding and alighting.	Either high-floor to use existing platforms at railway stations, or low-floor serving new platforms. Multiple double doors for easy level boarding and alighting.	Low-floor vehicles with multiple double doors for easy level boarding and alighting.
	30-50 seats and an overall passenger capacity of around 120 people.	50-80 seats and an overall passenger capacity of around 200.	50-80 seats and an overall passenger capacity of around 200.	20-30 seats and can carry up to 70 people in total.
	Potential to be battery or hydrogen powered.	Overhead line but doesn't need to be from end to end if battery or hydrogen powered as well.	Overhead line but doesn't need to be from end to end if battery or hydrogen powered as well.	Overhead line but doesn't need to be from end to end if battery or hydrogen powered as well.
	Developing technology.	Proven technology.	Proven technology but interface with rail can make challenging to implement.	Developing technology.
	Belfast, Bogotá, Metz, Nantes.	Birmingham, Bordeaux, Dublin, Nice.	Karlsruhe, Mulhouse, Sheffield.	None in the UK. Coventry system is in development.

A skilled local labour force to deliver and operate Mass Transit

A modern Mass Transit network needs a skilled labour workforce to build and operate it. We need successful employers that provide good quality jobs and which invest in their workforce. This is essential to boosting productivity, increasing social mobility and enabling inclusive growth.

These jobs are in high demand, while the skills are in short supply. This creates a unique opportunity for new skilled jobs. We want as many people as possible from all walks of life across West Yorkshire to benefit from this opportunity. We will partner with and support development of SMEs and local businesses, ensuring they have skills and expertise required to participate in our supply chain.

Building and then operating Mass Transit can help us achieve our skills and employment goals by:

- Supporting innovation and productivity through higher-level skills.
- Working with industry to provide training and technical education, including re-training.
- Creating a culture of investment in workforce skills and supporting career progression.
- Providing an opportunity for a local world-class training capability.

How Mass Transit can support business growth

Mass Transit is more than a transport project.

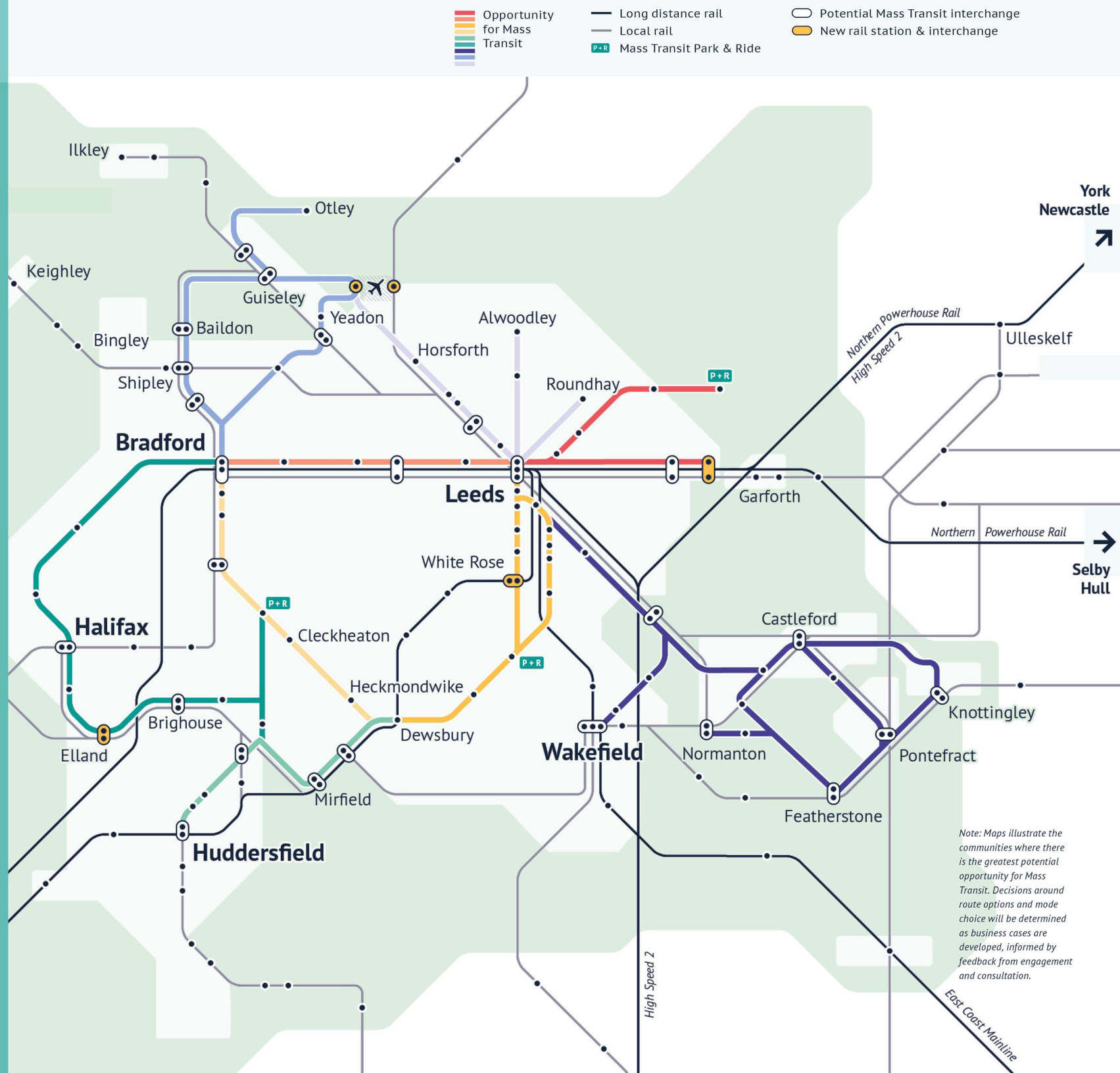
Mass Transit can help attract inward investment and business growth. Providing fast, reliable and attractive public transport links between where people live and where there are jobs can help increase the job opportunities available to people looking for work. For businesses, it can help them get the right person into the right job. It also makes businesses more accessible to customers.

Further ways businesses can benefit from a Mass Transit scheme include:

- Giving business more confidence to invest in an area.
- Kick-starting development and regeneration of undeveloped or long-vacant sites.
- Supporting population growth in areas previously in decline.
- Making transport stops close to places that are attractive to locating a business.
- Helping give an area a buzz.

Our 2040 West Yorkshire Mass Transit vision

We set out in the following pages a summary of the case for Mass Transit in each of the following parts of West Yorkshire



East Leeds

City, Town, Suburban area, Village, other

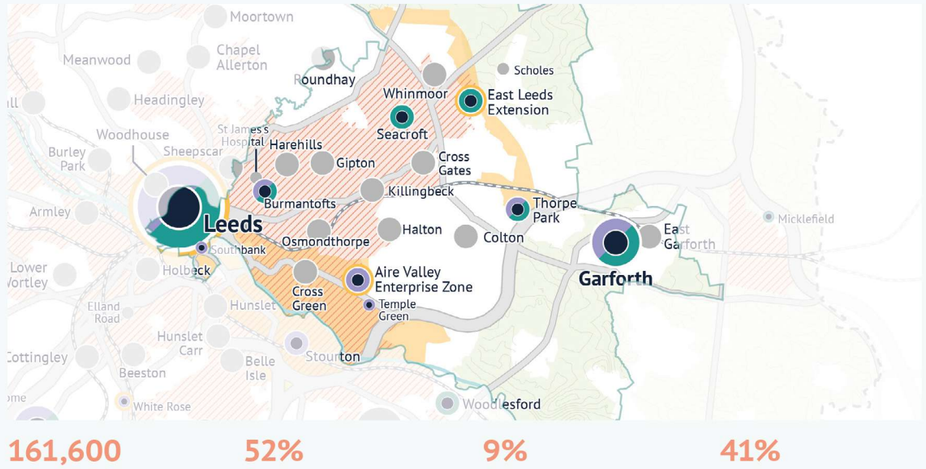
Priority areas for economic support

Spatial priority area

Environmental resilence

Employment growth

Housing growth



161,600
people live in East Leeds

52%
live within 20% most deprived communities in England

9%
use public transport to get to work

41%
of households don't have access to a car or van

East Leeds is a rich patchwork of well-populated areas and diverse communities including a number of priority areas for economic support and regeneration.

Harehills is an older area of the city with large amounts of high occupancy terraced housing, resulting in one of the densest populations in West Yorkshire. St James's University Hospital is close to Harehills and is one of the largest hospitals in the North. Nearby, Seacroft and Cross Green are priority areas for economic support and regeneration.

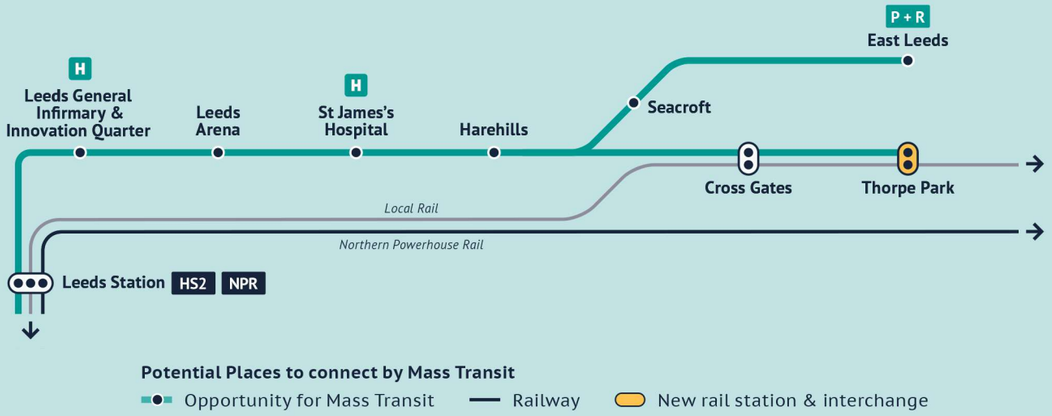
The area is primed for further residential growth, with new communities at Manston Lane and in the East Leeds Extension. The area is a key employment zone with hubs at Seacroft, Cross Gates and Thorpe Park and the Aire Valley Enterprise Zone. Thorpe Park alone will support 7,000 houses and 19,000 jobs. The area is a key employment zone with hubs at Seacroft, Cross Gates and Thorpe Park supporting retail and commercial jobs, and the Aire Valley Enterprise Zone.

Local communities generate a lot of local travel and key arterial routes into central Leeds from North Yorkshire and beyond pass through East Leeds. High levels of car traffic lead to congestion and pollution. East Leeds has some of the highest bus use in Leeds, but services are delayed by congestion. Trains from Cross Gates into Leeds are often overcrowded during rush hour.

Connect new & existing housing in East Leeds to the city centre.

Provide new public transport opportunity to communities in need of economic support.

Park & Ride for longer distance trips and interchange with rail at Thorpe Park.



Advanced Bus Rapid Transit

Light Rail / Tram

Ultra Light Rail

Tram-Train

With the capacity it can offer, and the opportunity to integrate into regenerated communities and new developments, Light Rail/Tram is the leading option.

Mass Transit will provide fast, high capacity connectivity, linking areas of economic need, new employment sites, areas of new housing. It would improve links to St James's Hospital.

With priority over traffic, Mass Transit would be an attractive alternative to car travel, including Park and Ride for longer distance trips from North Yorkshire and York heading to Leeds city centre.

Railway stations at Cross Gates, Garforth and East Garforth offer services to Leeds City Centre. The new railway station at Thorpe Park would provide access to the local employment growth area, and interchange with Mass Transit.

Buses would continue to be important for East Leeds with routes recast to feed and integrate with Mass Transit.

New connections to the cycle superhighway route on A64 would provide a safe protected space. Local cycle connections would enable cycling to be a convenient option to access Mass Transit services.

Bradford – Leeds

City, Town, Suburban area, Village, other

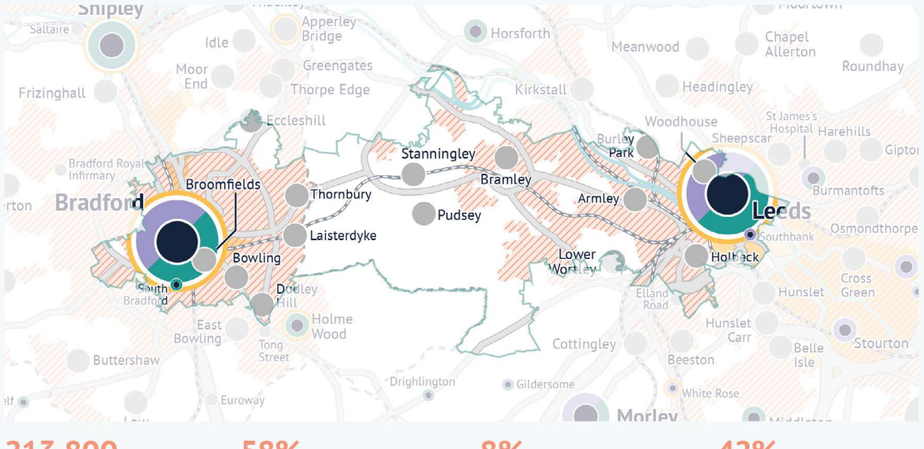
Priority areas for economic support

Spatial priority area

Environmental resilence

Employment growth

Housing growth



213,800
people live between Leeds and Bradford

58%
live within 20% most deprived communities in England

8%
use public transport to get to work

42%
of households don't have access to a car or van

Leeds and Bradford city centres are the largest centres of employment in West Yorkshire. The 8 miles between the city centres are almost entirely built-up with a dense, high population.

Armley and Wortley close to Leeds city centre and Laisterdyke close to Bradford city centre are priority areas for economic support and regeneration. The communities in the corridor have a number of employment sites including at Stanningley and Gelderd Road.

Bradford's Southern Gateway is a major new development area earmarked as a site for a Northern Powerhouse Rail station, as well as new housing, employment and health infrastructure opportunities.

New housing and employment growth is planned elsewhere: a large urban extension planned at Holme Wood, and at many smaller sites between the two city centres. There will be new employment opportunities as Leeds city centre grows to the south and west.

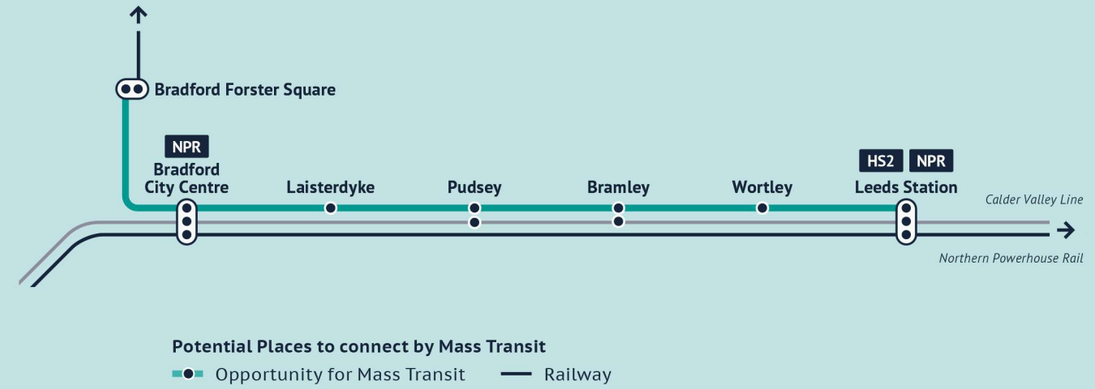
The corridor is served by the longer distance Calder Valley railway line, which experiences overcrowding. The Bradford ring road (A6177) and Leeds ring road (A6120) both pass through the area. There is congestion at key junctions such as Dawsons Corner.

Bus services connect the city centres together, but are delayed by congestion.

Better connect communities between Leeds and Bradford to employment, health, education, entertainment and retail opportunities.

Additional public transport capacity to serve growing population and employment.

Connect the Bradford Southern Gateway City Centre extension to employment growth areas.



Potential Places to connect by Mass Transit

Opportunity for Mass Transit — Railway

Advanced Bus Rapid Transit

Light Rail / Tram

Ultra Light Rail

Tram-Train

With the capacity it can offer, and the opportunity to integrate into regenerated communities and new developments, Light Rail/Tram is the leading option.

Mass Transit would provide frequent, high-capacity local connections between communities within the corridor, and the Bradford Northern Powerhouse Rail (NPR) and Leeds NPR/HS2 stations. Mass Transit would link the areas of high demand and economic need with new employment and housing sites.

NPR would deliver the fast city centre to city centre connectivity, with journey times less than 10 minutes. Via the city centre, Mass Transit would connect the Bradford NPR station to Forster Square station. The Calder Valley line would serve longer distance journeys to Halifax, Hebden Bridge and beyond.

Buses would continue to be important for the the communities in the corridor, with services recast to feed and integrate with Mass Transit.

Further investment in facilities for cyclists would build on the success of the Leeds-Bradford Cycle Superhighway. Local cycle connections would enable cycling to be a convenient option to access Mass Transit services.

South Leeds – Dewsbury

City, Town, Suburban area, Village, other

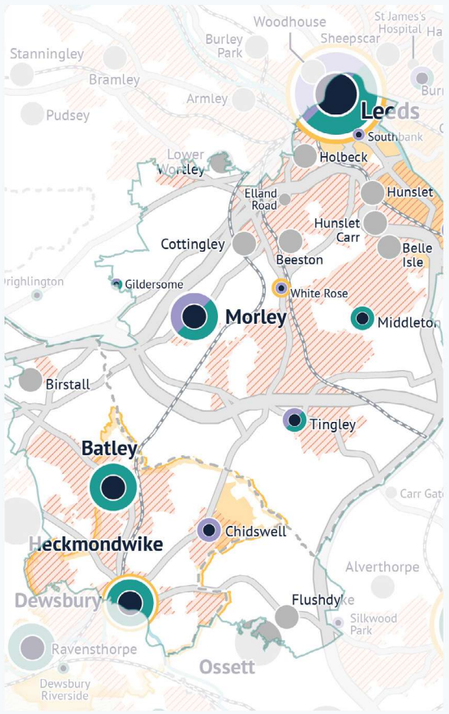
Priority areas for economic support

Spatial priority area

Environmental resilence

Employment growth

Housing growth



220,400
people live between Leeds and Dewsbury

7%
of journey to work by public transport

46%
live within 20% most deprived communities in England

35%
of households don't have access to a car or van

The area between Leeds and Dewsbury includes the towns of Batley, Morley and Tingley, as well as suburbs of Leeds such as Beeston, Hunslet and Middleton.

Dewsbury itself is a historic market town with a rich industrial past. Many of the communities between Leeds and Dewsbury are in need of economic support and regeneration. These include Hunslet, Beeston, Belle Isle and Batley, as well as parts of Dewsbury.

The M62 and M621 both cut through and sever the area. Leeds Southbank, including the HS2 station, is a Spatial Priority Area. South of the M62, North Kirklees is a Spatial Priority Area with housing and employment growth planned. Opportunities for employment and housing growth also include Tingley, Morley and Middleton.

There are high numbers of car trips, particularly from the M62 and M621 into Leeds and Dewsbury. Bus is the main public transport mode for local trips, with the Trans Pennine rail route providing fast connectivity from Dewsbury to Leeds. As a result of the congestion, the corridor has slow and unreliable bus journeys. While there are buses that run from Leeds to Dewsbury, the bus network in the Leeds suburbs is focused on the city centre. There are local routes centred on Dewsbury.

Connect new housing in South Leeds and North Kirklees to employment centres in Leeds and Dewsbury.

Provide faster and more reliable local public transport.

Park & Ride on the M62 at Tingley, to cater for longer distance trips to Leeds.

Potential Places to connect by Mass Transit

Opportunity for Mass Transit — Railway — New rail station & interchange

- ☑ **Advanced Bus Rapid Transit**
- ☑ **Light Rail / Tram**
- ☑ **Ultra Light Rail**
- ☐ **Tram-Train**

With the capacity it can offer, and the opportunity to integrate into regenerated communities and new developments, Light Rail/Tram is the leading option.

Rail will be the quickest way to travel between Dewsbury and Leeds city centre. Railway stations at Batley and Morley offer services to Leeds city centre and to Dewsbury. A new railway station at White Rose would provide access to the local employment growth area, and interchange with Mass Transit.

Mass Transit would provide fast, high capacity local connectivity, linking areas of high travel demand, economic need, new employment sites, and new housing. Park and Ride at the M62 Tingley junction to Leeds City Centre will cater for trips from the motorway network.

Buses would continue to be important for South Leeds and for Dewsbury, supported by the bus priorities being introduced. Routes would be recast to feed and integrate with Mass Transit.

Local cycle connections would enable cycling to be a convenient option to access Mass Transit services.

With priority over traffic, Mass Transit would be an attractive alternative to car travel, and could supplement and enhance existing P&R provision.

Bradford – Dewsbury

City, Town, Suburban area, Village, other

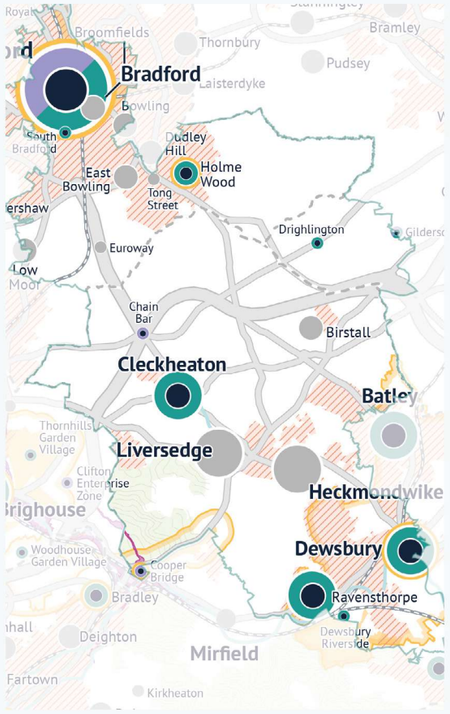
Priority areas for economic support

Spatial priority area

Environmental resilence

Employment growth

Housing growth



As well as the suburbs of Dewsbury and Bradford, the corridor includes the towns of Cleckheaton, Gomersal and Birstall.

Much of South East Bradford and communities such as West Bowling, East Bierley and Holme Wood are in need of economic support and regeneration. Bradford city centre is an important centre of employment, as well as cultural, leisure and other services. Dewsbury is a centre of employment, as are the intermediate towns.

This corridor includes a number of growth areas including M606, Holme Wood, Dewsbury Riverside and North Kirklees Growth Zone.

The area is divided by the M62. Arterial routes serving Bradford city centre experience high levels of congestion, as do other routes throughout the area. While rail routes pass through the area, they do not cater for movements within it. There are bus services throughout the area, but only the Bradford suburbs have a high frequency. Dewsbury and Bradford offer bus rail interchanges.

220,900
people live between Bradford and Dewsbury

5%
of journey to work by public transport

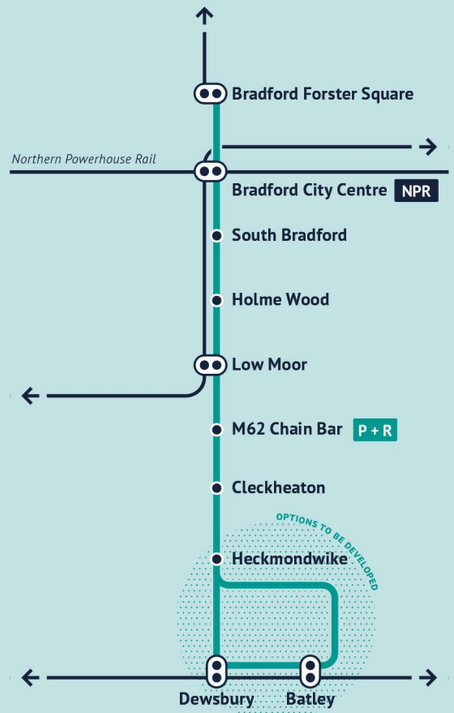
50%
live within 20% most deprived communities in England

33%
of households don't have access to a car or van

Support redevelopment and regeneration in Bradford Southern Gateway to the North Kirklees Growth Zone.

Enhance public transport between Leeds and Cleckheaton/ Heckmondwike.

Provide a Park & Ride on the M62 at Chain Bar junction, for longer distance trips. Better connections to Bradford and Dewsbury.



Potential Places to connect by Mass Transit

Opportunity for Mass Transit — Railway

- [x] **Advanced Bus Rapid Transit**
- [x] **Light Rail / Tram**
- [x] **Ultra Light Rail**
- [ ] **Tram-Train**

With the capacity it can offer, and the opportunity to integrate into regenerated communities and new developments, Ultra Light Rail or Light Rail/Tram are the leading options.

Mass Transit would provide fast, high capacity connectivity, linking areas of economic need, new employment sites, and areas of new housing. The Park and Ride sites on the M62 at Chain Bar and at Odsal Top would provide onward connections to Bradford, Dewsbury and Leeds.

Rail would provide fast connectivity to Leeds and Manchester. Mass Transit would interchange with rail and Northern Powerhouse Rail in Bradford with enhanced trans-Pennine rail services at Dewsbury, and link the two Bradford stations.

Buses would continue to be important through the corridor. Routes would be recast to feed and integrate with Mass Transit.

Local cycle connections would enable cycling to be a convenient option to access Mass Transit services. Greenways and walkways would provide additional pedestrian access. Mass Transit will not lead to a reduction in the provision for cyclists.

With priority over traffic, Mass Transit would be an attractive alternative to car travel.

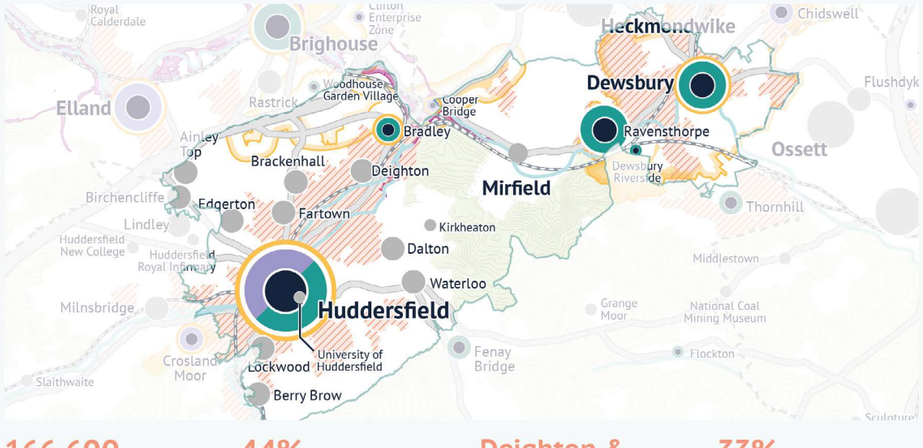
Huddersfield – Dewsbury

City, Town, Suburban area, Village, other

Priority areas for economic support

Spatial priority area
Environmental resilence

Employment growth
Housing growth



166,600
people live between Huddersfield and Dewsbury

44%
live within 20% most deprived communities in England

Deighton & Fartown are in the top 10% deprived areas for education in England

33%
of households don't have access to a car or van

Midway between Leeds and Manchester, Huddersfield is the biggest town in Kirklees. Dewsbury is a historic market town with a rich industrial past. This corridor covers the densely-populated urban valleys, bounded by steep hills. Average household income in the corridor is lower than both national and regional averages.

People in communities within the corridor, including in Deighton, Fartown and Elland have low employment and skills prospects, low household income, and low car ownership. Several are within the top 10% of most deprived communities in the country. Many job opportunities rely on car access and are poorly served by other transport options.

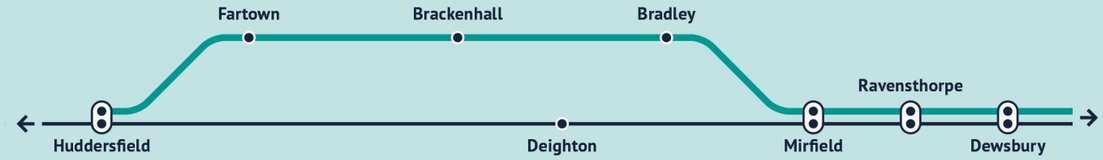
Housing growth is focused around Bradley, Mirfield and Huddersfield. There are also development sites at Brighouse, and Dewsbury Riverside. Key employment sites include Elland, Clifton Enterprise Zone and Cooper Bridge.

Huddersfield is a major destination. There are high levels of peak-time traffic and congestion on the M62 and roads in and out of Huddersfield, including the A640, A629, A641, A62 and A616. The railway stations of Deighton, Mirfield and Ravensthorpe provide connectivity to Dewsbury and Huddersfield. Bus services are slow and unreliable and are focused on Huddersfield and Dewsbury town centres.

Support redevelopment and regeneration in Bradley, Cooper Bridge and Dewsbury Riverside.

Enhance public transport between and Dewsbury.

Integrate and complement the Trans Pennine Route upgrade programme.



Potential Places to connect by Mass Transit
Opportunity for Mass Transit — Railway

- [x] **Advanced Bus Rapid Transit**
- [x] **Light Rail / Tram**
- [x] **Ultra Light Rail**
- [ ] **Tram-Train**

Choice of technology would need to consider likely demand, revenue and benefits, as well as the implementation costs.

Rail would be the quickest way to travel between Huddersfield and Dewsbury and beyond through the Transpennine Route Upgrade.

Mass Transit would provide fast, high-capacity connectivity, linking areas of economic need to employment opportunities and areas of new housing.

Buses would continue to be important through the corridor. Routes would be recast to feed and integrate with Mass Transit.

Local cycle connections would enable cycling to be a convenient option to access Mass Transit services.

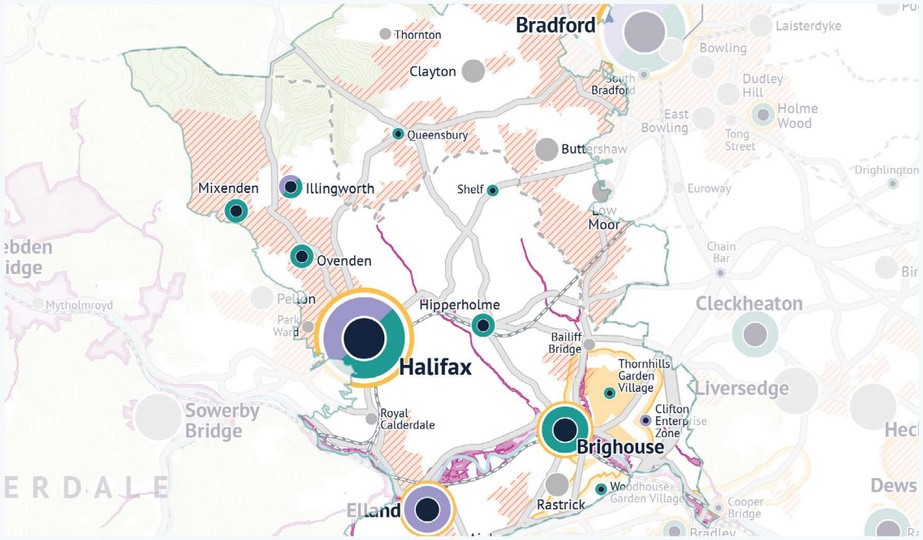
Bradford – Halifax

City, Town, Suburban area, Village, other

Priority areas for economic support

Spatial priority area
Environmental resilence

Employment growth
Housing growth



226,000
people live between Bradford and Halifax

45%
live within 20% most deprived communities in England

Ovenden, Mixenden, Park Ward and South Bradford are in the top 10% most deprived areas for education in England.

30%
of households don't have access to a car or van

As well as the western suburbs of Bradford, this corridor includes Halifax, Elland and Brighouse. Densely populated urban areas are concentrated in valleys, bound by steep hills.

Household income in the corridor is lower than both national and regional averages and just over half of the population is employed. Ovenden, Mixenden and Park Ward have low employment and skills prospects, low household incomes and car ownership. They are within the top 10% of the most deprived communities in the country. Many job opportunities rely on car access.

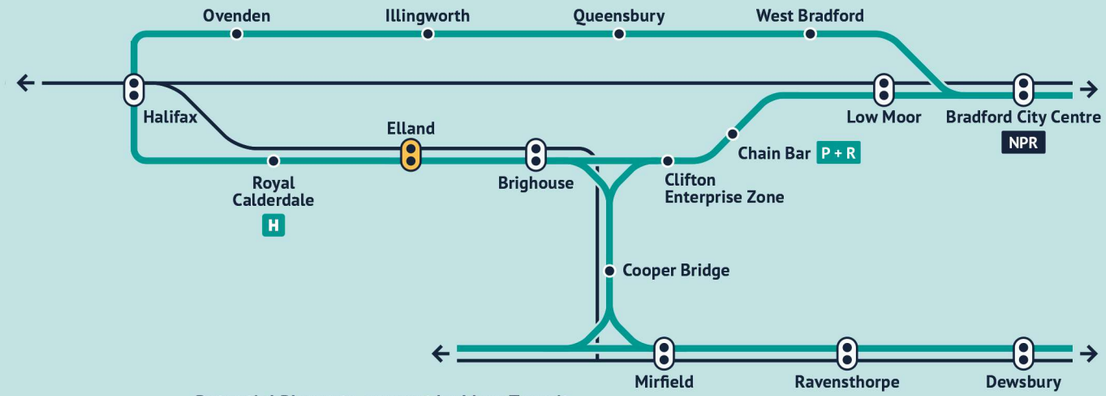
Housing development is planned in west Bradford. There are employment growth areas in Halifax, Elland, Clifton Enterprise Zone and Brighouse. There is traffic congestion, particularly on the M62 and at Stump Cross and Hipperholme crossroads. The A641, A629 and A58 are also congested. Traffic levels and congestion contribute to poor air quality .

Rail services link Halifax to Bradford and Huddersfield, and Brighouse to Dewsbury/ Leeds. Focused on north-south routes on the A629 and A641 and east-west on the B6145, local bus services are slow and unreliable.

Enhance connectivity of North Halifax and West Bradford.

Connect housing and employment growth areas in Elland, Brighouse and the Royal Calderdale Hospital to Bradford and Halifax.

Park & Ride on the M62 at Chain Bar, for longer distance trips, better connections to Bradford and Dewsbury.



Potential Places to connect by Mass Transit

Opportunity for Mass Transit — Railway — New rail station & interchange

- ☑ **Advanced Bus Rapid Transit**
- ☑ **Light Rail / Tram**
- ☑ **Ultra Light Rail**
- ☑ **Tram-Train**

Choice of technology would need to consider likely demand, revenue and benefits, as well as the implementation costs.

Mass Transit would link existing employment, regeneration and development sites and major hospitals to the new and existing housing areas. It would provide an alternative to the car to the communities within the corridor.

Rail would provide connectivity between Halifax, Bradford, Dewsbury and Leeds. Mass Transit would interchange with rail and Northern Powerhouse Rail in Bradford, and with the Calder Valley railway line at Low Moor, Halifax and at a new Elland railway station.

Buses would continue to be important through the corridor. Routes would be recast to feed and integrate with Mass Transit.

Local and strategic cycle connections and routes such as the Great Northern Railway Trail would enable cycling to be a convenient option to access Mass Transit services. Greenways and walkways would provide additional pedestrian access. Options will be considered for Mass Transit to use the disused Queensbury railway tunnel, although the initial priority is that it is retained and becomes a walking and cycling route.

Wakefield and Five Towns

City, Town, Suburban area, Village, other

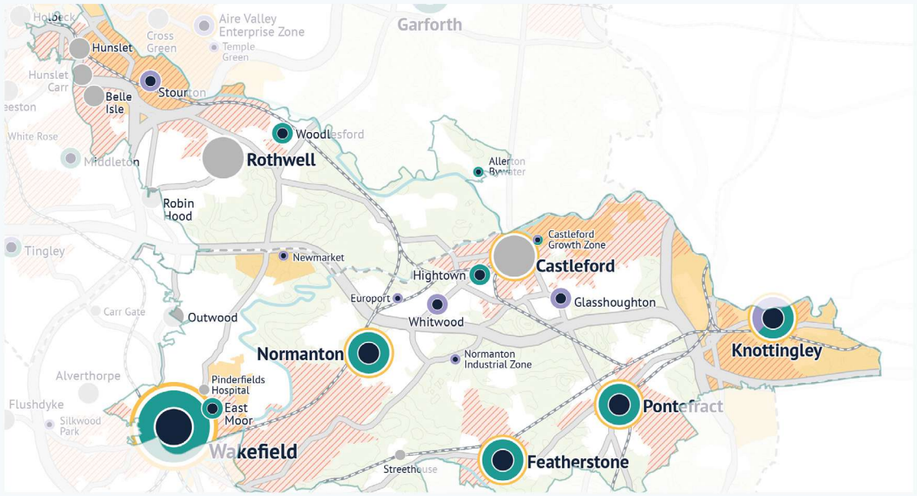
Priority areas for economic support

Spatial priority area

Environmental resilence

Employment growth

Housing growth



38

39

210,100
people live between Leeds, Wakefield and the Five Towns

42%
live within 20% most deprived communities in England

6%
of journey to work by public transport

31%
of households don't have access to a car or van

South of Leeds towards Wakefield are Hunslet, Belle Isle, Cross Green, Rothwell and Woodlesford. High density residential employment areas, separated by open space.

The city of Wakefield is an important commercial centre. The Five Towns – Pontefract, Castleford, Normanton, Knottingley and Featherstone – each have their own distinct identity. Throughout the area are communities with limited public transport access which are prioritised for economic support.

Employment growth is focussed around Cross Green, Leeds Valley Park and the M62 corridor. Eastmoor (City Fields) in Wakefield is earmarked for new housing, as are Castleford, Knottingley and Featherstone and a number of sites located along the M62 corridor.

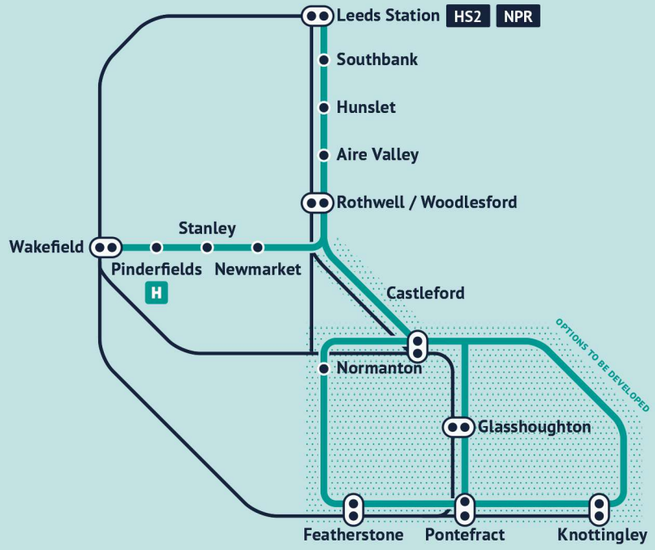
Road congestion is a problem in south Leeds and north of Wakefield and, around M62 Junction 31, and Castleford and Pontefract town centres. Air quality is a problem, with Air Quality Management Areas along the M62, as well as at Pontefract and Castleford town centres.

Wakefield has regular rail services from Westgate and Kirkgate stations, but while the Five Towns are linked to Leeds by rail, services are relatively slow and infrequent. As well as linking the Five Towns, bus routes link the area to Leeds and Wakefield city centres.

Better public transport links within and between the Five Towns, to Leeds and Wakefield, better connecting housing and employment sites.

Support development of new housing and new employment sites.

Potential to serve Pinderfields Hospital.



Potential Places to connect by Mass Transit

Opportunity for Mass Transit — Railway — Options to be developed

Advanced Bus Rapid Transit

Light Rail / Tram

Ultra Light Rail

Tram-Train

Choice of technology would need to consider likely demand, revenue and benefits, as well as the implementation costs, and future role of rail.

Mass Transit can provide fast, high-capacity connectivity, linking areas of economic need with new employment and housing sites. It can provide better public transport links between the Five Towns, and employment in south Leeds and Leeds city centre. It can support the development of new housing and employment sites.

Rail would be the quickest way to travel between Wakefield and Leeds. There is potential for interchange between rail and Mass Transit in Wakefield, at Five Towns railway stations and Woodlesford. Rail or Mass Transit could be used to enhance links between the Five Towns and Leeds.

Buses would continue to be important through the corridor. Routes would be recast to feed and integrate with Mass Transit.

Local cycle connections would enable cycling to be a convenient option to access Mass Transit services.

With priority over traffic, Mass Transit would be an attractive alternative to car travel.

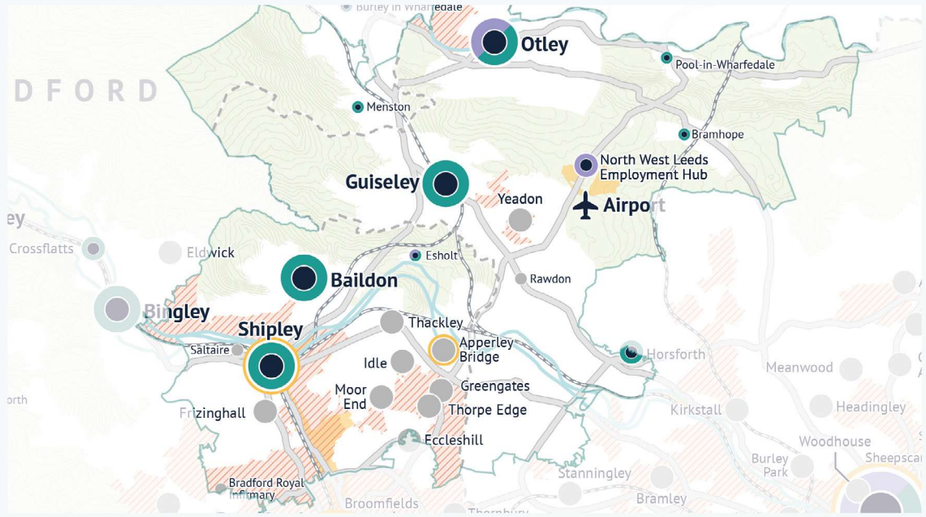
Bradford and North West Leeds

City, Town, Suburban area, Village, other

Priority areas for economic support

Spatial priority area
Environmental resilence

Employment growth
Housing growth



193,500
people live in this area

27%
live within 20% most deprived communities in England

Bradford & Shipley are in the top 10% most deprived areas for education in England

24%
of households don't have access to a car or van

The northern suburbs of Bradford, Shipley and the Saltaire World Heritage site, Yeadon, Guiseley, Menston and Otley, and Leeds Bradford Airport are all part of the corridor.

While some communities in the north of the corridor are relatively affluent, many in the northern suburbs of Bradford, such as Manningham, Greengates and Shipley need support to thrive and regenerate. They have low employment and skills prospects, low household income and low car ownership.

Leeds Bradford Airport is a centre of employment growth, and a major economic hub. The Shipley Canal corridor, Baildon, Menston and Otley are earmarked for growth.

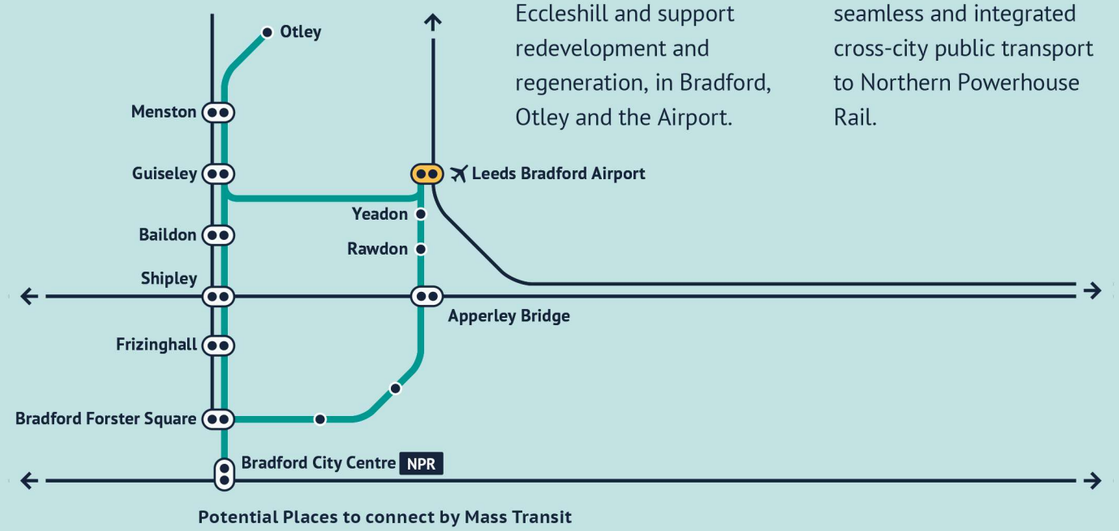
Employment and housing development is proposed at Apperley Bridge and Esholt. Housing developments are also proposed in Otley, Horsforth, Guiseley and Shipley.

While communities are characterised by low car ownership, there are high levels of congestion on arterial roads to Bradford city centre (such as A650 which also provides access to Manningham and Shipley), on the A65 and in local centres such as Otley. High frequency bus routes link northern Bradford to the city centre. Otley and Menston are also linked by bus to Leeds. The area is served by local rail, with connections to Bradford and Leeds city centres.

Be a fixed link between Bradford and the Airport.

Link to labour markets in Manningham, Idle and Eccleshill and support redevelopment and regeneration, in Bradford, Otley and the Airport.

Link Bradford railway stations to provide seamless and integrated cross-city public transport to Northern Powerhouse Rail.



Potential Places to connect by Mass Transit

Opportunity for Mass Transit — Railway — New rail station & interchange

- [x] **Advanced Bus Rapid Transit**
- [x] **Light Rail / Tram**
- [ ] **Ultra Light Rail**
- [x] **Tram-Train**

Interface with the rail network means tram-train is the leading option for the western option. For the eastern option, topography means Advance Bus Rapid Transit appears more appropriate.

Local rail will continue to be important, linking the Aire Valley with Bradford and Leeds city centre. It would link Bradford railway stations with Mass Transit, wider rail services and Northern Powerhouse Rail. Interchange at Guiseley would enable direct connection on existing local rail services.

Mass Transit can provide fast, high capacity connectivity, linking areas of economic need to employment opportunities and to areas of new housing. Potential to improve links from Bradford, and from Otley, to the Airport . With priority over traffic, Mass Transit would be an attractive alternative to car travel.

Buses would continue to be important through the corridor. Routes would be recast to feed and integrate with Mass Transit.

Local cycle connections would enable cycling to be a convenient option to access Mass Transit services. Greenways and walkways would provide additional pedestrian access.

North Leeds

City, Town, Suburban area, Village, other

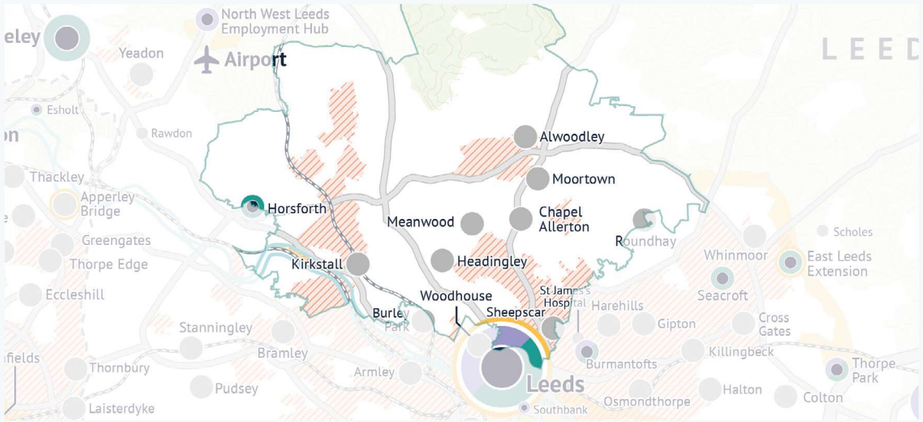
Priority areas for economic support

Spatial priority area

Environmental resilence

Employment growth

Housing growth



192,600
people live in North Leeds

23%
live within 20% most deprived communities in England

9%
of journey to work by public transport

31%
of households don't have access to a car or van

Mainly residential, North Leeds is an area of contrasts. It includes thriving areas such as Headingley and Chapel Allerton and suburbs such as Roundhay and Alwoodley, as well as Chapeltown, Holt Park and Kirkstall, which are priority areas for economic support and regeneration.

It includes the campuses of the University of Leeds and Leeds Metropolitan University. Inner city areas such as Kirkstall, Hyde Park and Chapeltown are dominated by high density low income housing.

Employment growth is focused on the City Centre with commercial/financial services and the Innovation Quarter housing the universities. Housing growth is planned for the suburbs of Headingley and Alwoodley.

To the west of the area, there are development sites in Horsforth, Kirkstall and the Airport.

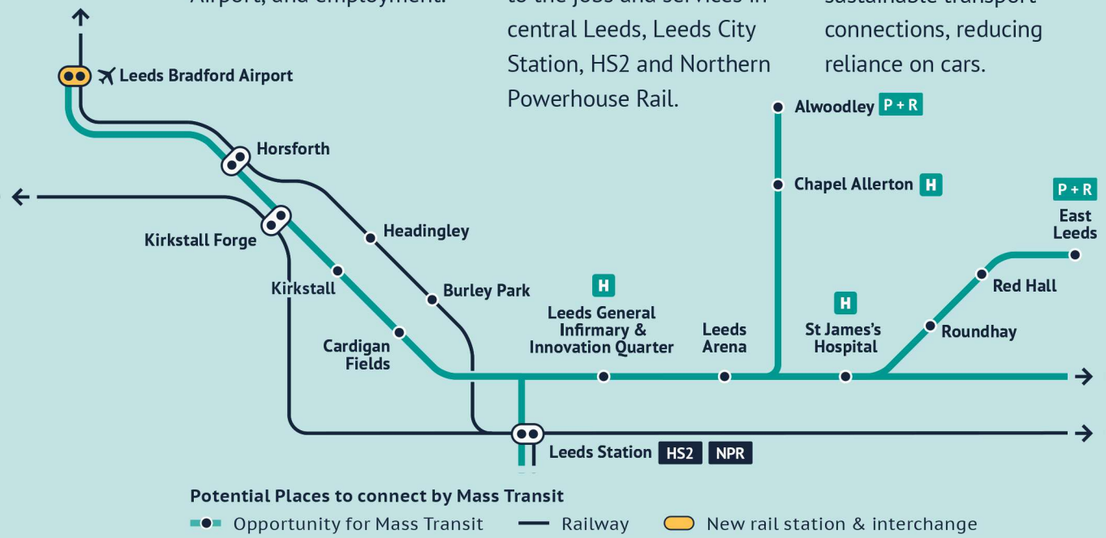
The Ring Road (A6120) and radial routes including the A61, A660 and A65 are congested. The area is served by high frequency bus routes. At peak time, bus and rail services are overcrowded.

Rail in the area is restricted to only a few communities, with a fast but relatively low-capacity link, which is overcrowded at peak times. The main radial routes along the A65, A660 and A61 connect to communities north of the city such as Otley and Pool. Frequently congested, bus journey times on these roads are slow and unreliable.

Improved links to the hospitals, universities, the Airport, and employment.

Better public transport links and greater capacity to the jobs and services in central Leeds, Leeds City Station, HS2 and Northern Powerhouse Rail.

Provide attractive high quality and reliable sustainable transport connections, reducing reliance on cars.



Advanced Bus Rapid Transit

Light Rail / Tram

Ultra Light Rail

Tram-Train

With the capacity it can offer, and the opportunity to integrate into regenerated communities and new developments, Light Rail/Tram is the leading option.

Mass Transit would provide fast, attractive, reliable and high capacity connections to the city centre, the Innovation District and Leeds General Infirmary. There are opportunities for Park & Ride, at Alwoodley for example.

It would provide interchange in Leeds with HS2 and Northern Powerhouse Rail, as well as existing rail services. Bus services would be recast to feed and complement Mass Transit. It would be integrated with local cycling and walking networks.

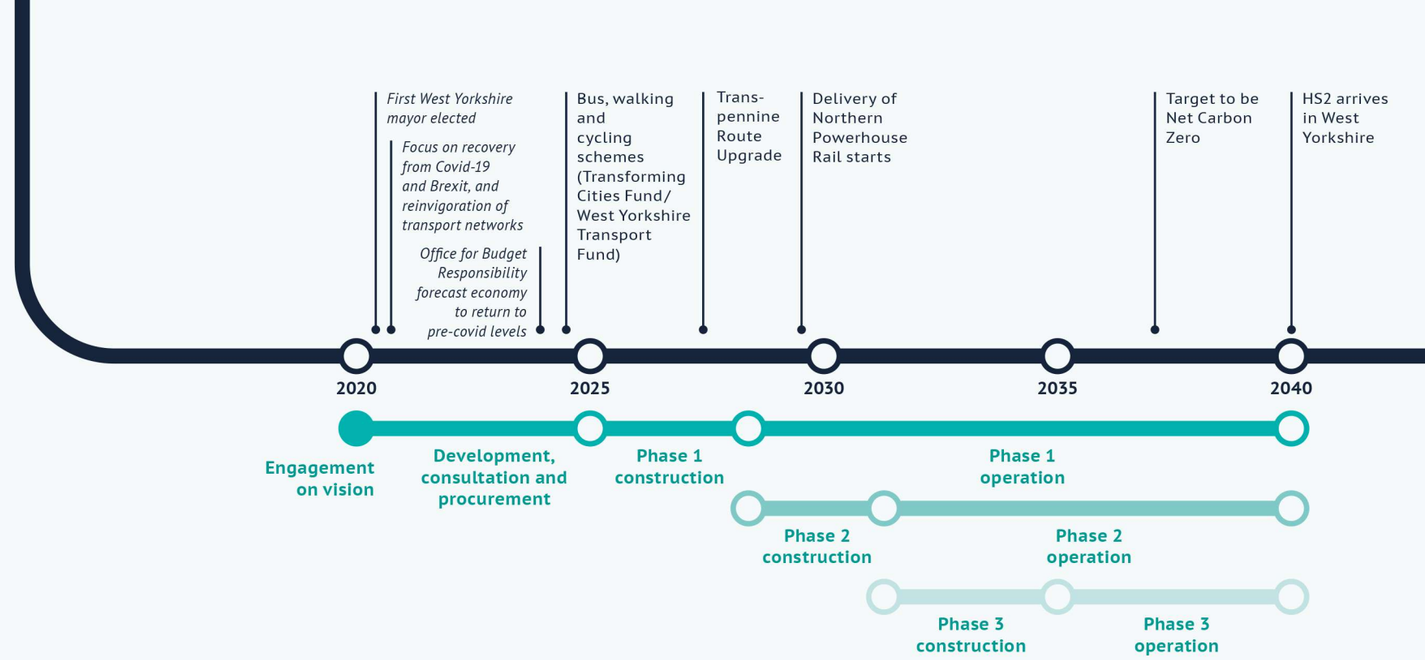
For most communities in North Leeds bus is the only available form of public transport. Bus is at the heart of our plans.

Post Covid-19, bus networks will need be revitalised, potentially with additional infrastructure to reduce bus journey times and improve journey reliability. With priority over traffic, Mass Transit would be an attractive alternative to car travel.

The immediate priority to improve access to the Airport is a new Airport Parkway railway station, which is currently in development. In time there may be the opportunity for extension of Mass Transit to the Airport.

Accelerating delivery of Mass Transit

Mass Transit is likely to be expensive to construct, but also deliver substantial benefits to West Yorkshire.



Funding

The March 2020 Devolution Deal between the Government and West Yorkshire Combined Authority said:

> **The Government is committing to a five-year, integrated transport settlement with West Yorkshire Combined Authority starting in 2022/23 from a wider £4.2bn envelope … the Government commits to working with the West Yorkshire Combined Authority to explore the case and options for funding … a modern, low carbon West Yorkshire Mass Transit System.**

Our ability to truly accelerate the delivery of these ambitious proposals is subject to long term certainty over funding and the strength of the Business Case. We set out in this document our ambitious plans and look forward to working in partnership with Central Government to deliver them.

Phased delivery

The Combined Authority is now accelerating development of a West Yorkshire Mass Transit Strategic Outline Business Case. The business case for Mass Transit will consider the longer-term implications of Covid-19.

Delivery of the whole network will take time and will be phased. As the most travelled area in West Yorkshire, Leeds city centre will be at the heart of the system.

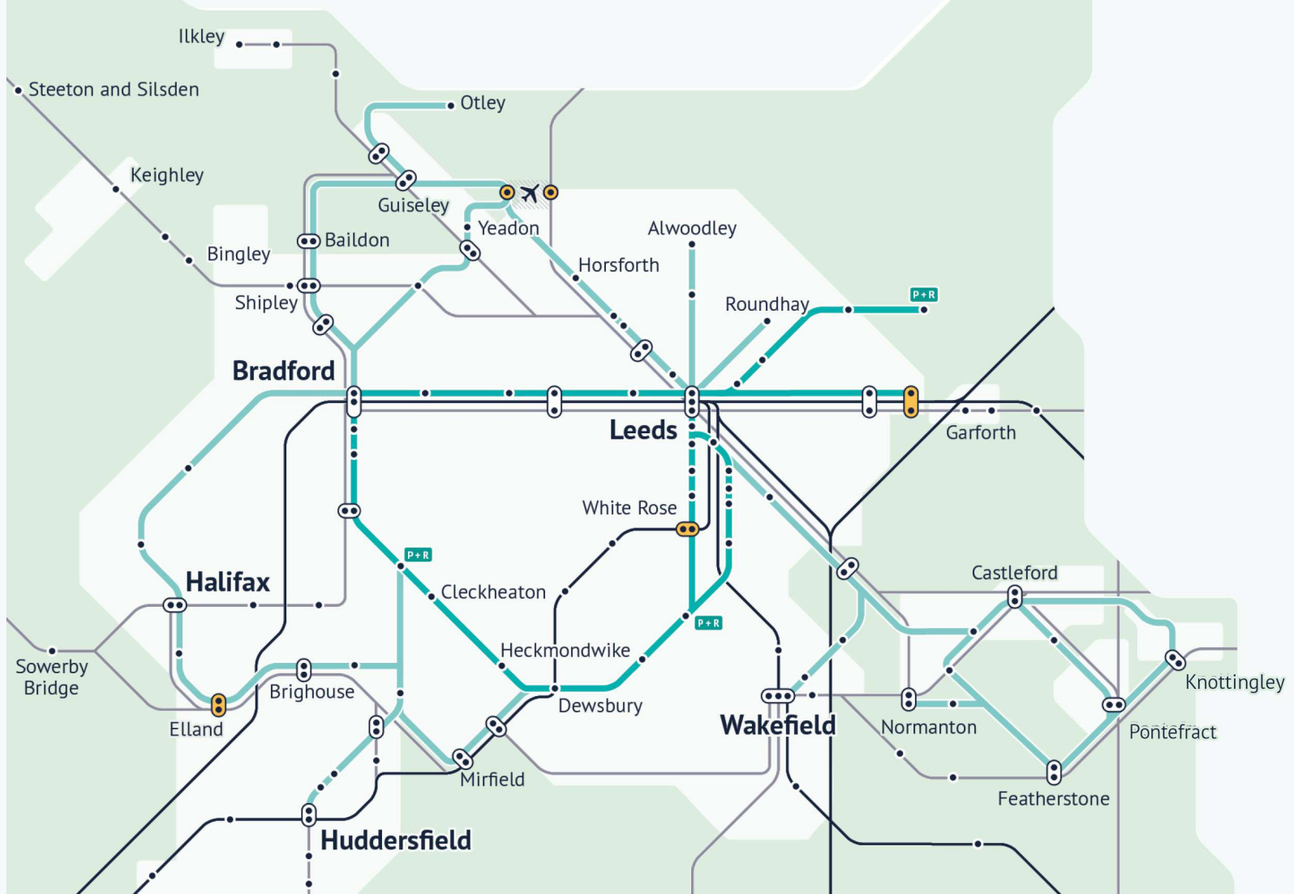
We are planning for construction to start in the mid-2020s. The timing, shape and form of the Mass Transit system will be subject to engineering feasibility, environmental assessment, its business case and funding availability.

Our priorities are for a first phase network which:

- Is part of the overall Connectivity Infrastructure Plan.
- Has a strategic rationale and is operable as a standalone system.
- Offers value for money and is financially sustainable and be affordable.
- Allows for network expansion.
- Reflects feedback from stakeholder and public engagement.

The map highlights what could form part of a first phase.

Learning from cities around the world, a commitment to a coordinated delivery programme to deliver a number of transit routes will be the most effective way of securing the benefits that Mass Transit can bring.



We want your views on our vision.

Have we understood the challenges and issues faced? Are we connecting the right places? Have we identified the right mass transit technologies? Our engagement begins in January 2021 and runs to 11th April 2021.

West Yorkshire Mass Transit will:

- Help combat climate change and meet our net zero carbon target
- Connect West Yorkshire's important places
- Support the Northern Powerhouse and the rebalancing of the economy
- Improve health and well-being for our communities
- Form an important part of our green recovery from Covid-19