# West Yorkshire Strategic Bus Network Review

## Summary

February 2020

# Overview

The Combined Authority undertook a strategic review of the bus network (completed February 2020). The review focussed on the Core Bus Network (services with a frequency of every 15 minutes or better) across West Yorkshire and set out a series of interventions, that if delivered could generate patronage growth.

The review provides, by district, a summary of the core bus network in 2018. The future development data is based on published plans in 2018 (utilising information prior to this date) and has been used to create demand projections for three future years, 2024, 2028 and 2033. It should be noted that not all places identified in the review as ‘growth sites’ will planned to receive new developments, they may be being considered for a change of emphasis, which could change how people travel in the area.

It is likely that COVID-19 will have an impact on the bus network. COVID will affect the short term timescales and growth in the network but the analysis is still valid, as it demonstrates a direction of travel, likely to be over a longer timescale.

West Yorkshire Combined Authority

# Summary of Key Results

| District | Summary |
|---|---|
| Bradford | • 72% of addresses in Bradford are within 400m of a bus stop served by 4 buses or more from 7-9.30am<br>• In 2018 it is estimated that there are over 32m annual trips made by bus. By improving frequencies, providing new links to growth areas and capital investment in bus priority then annual trips could increase to over 37m by 2033 -there would need to be an increase of 35% more buses<br>• The number of new buses needed in 2033 to support 5m more trips means the network is challenging, but would bring significant social benefits whilst delivering a self-sufficient bus network -additional gains could be made by improving the 'conditions for success' by integrating wider measures such car parking policy |
| Calderdale | • 65% of addresses in Calderdale are within 400m of a bus stop served by 4 buses or more from 7-9.30am<br>• In 2018 it is estimated that there are almost 29m annual trips by bus in Calderdale, by 2033 this rises to almost 32m if all the additional enhancements are delivered -it is estimated that an increase of 20% more buses would be needed.<br>• If the enhancements are delivered, the bus network has some challenges but operationally delivers significant benefits to a number of dispersed communities -greatest immediate opportunity is providing dedicated services connecting the growth sites and reducing the need for all services to interchange in Halifax. |
| Kirklees | • 60% of addresses in Kirklees are within 400m of a bus stop served by 4 buses or more from 7-9.30am<br>• Background population growth across the district, with no interventions could see demand increase by 8%, however it is estimated that the network will require 11% more buses to maintain the exiting service level in 2033<br>• It is estimated that the future network improvements do not deliver significant demand increases, but they are important for delivering connections to key development sites and for ensuring network sustainability. |
| Leeds | • 79% of addresses in Leeds are within 400 m of a bus stop served by 4 buses or more during the morning peak (7-9.30am).<br>• In 2017, it is estimated that almost 63m annual trips by bus in Leeds, by 2033 this rises to 74m with improvements<br>• The greatest immediate opportunity is to improve journey times and reliability to build on current Connecting Leeds programmes by tackling congestion, providing effective bus priority |
| Wakefield | • 61% of addresses in Wakefield are within 400 m of a bus stop served by 4 buses or more from 7-9.30am<br>• Background growth with no interventions sees demand increase by 24%. It is estimated that the network will require 7% more buses to maintain existing levels of service by 2033, if no enhancements are made. This significantly jeopardises the bus offer in Wakefield<br>• There is opportunity boost demand by an additional 5m trips, it is estimated that this will require 70 more buses by 2033. The bus connections to future development sites need to be improved to enhance longer term sustainability in the network. The social value of the bus network in Wakefield s significant, with very high forecast demand increases |

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# Our approach

Key principles

# Objectives for the Strategic Bus Network Reviews

## Derived from the West Yorkshire Bus Strategy's targets, objectives & priorities

**To develop a bus network that is sustainable and facilitates the aspired level of growth in passenger numbers**

**To enable inclusive growth in West Yorkshire by improving connectivity to areas of economic opportunity**

**To develop an inclusive and accessible bus network that meets the needs and requirements of the customer and enabling access to key services**

**To develop a bus network that is presented within an integrated, single public transport network**

**To realise local environmental aspirations, including significantly reducing local emissions**

**General (non-network review) conditions for success:**

- Consistent and excellent customer services across the bus system
- Integrated, simple and affordable bus fares for all
- Clear and reliable travel information
- Clean fuel and technology to improve air quality
- Good operational standards and management

# Design principles for the bus network reviews

Seven operational and infrastructure attributes:

1. **Service frequency**
2. **Interchange and transfer**
3. **Network legibility**
4. **Inclusive operating hours and days**
5. **Bus type (size)**
6. **Supporting infrastructure (level of bus priority, waiting environment)**
7. **Network access**

# Purpose of the demand assessment

**High level review of the key drivers of demand for the bus today and in three future years: 2021, 2024 and 2033**

**To identify existing and new locations that will generate and attract demand**

**To identify strategic opportunities for the network that will generate new and increased demand for bus use**

**To estimate the impacts of the opportunities to generate demand, both in terms of the potential uplift in patronage, and also in respect of the Peak Vehicle Requirement required to accommodate the demand**

# How the demand assessment works

## The current network

The networks have been divided into segments

## The model

Analysis uses data at MSOA level and is undertaken in a spreadsheet based on the segments

## Inputs

End-to-end journey times, frequencies, network access & egress data

## The model accounts for

Exogenous factors such as population growth and change in employment

## Initial demand

Is derived from ticket data provided by operators to the CA, and distributed between MSOA pairs

## The model

Is based on the principles within the UTG Metropolitan Bus Model and quantifies generalised journey times, capacity, future demand, and PVR

## Inputs

Future land uses and development sites to enable production of future year estimates

## The model accounts for

Endogenous factors such as car ownership, fuel costs

# Metrics for determining network operating costs

An overview

**Inputs:**

- End to end journey time
- Service frequency (headway)
- Start and end times
- Staff costs and other variable costs (no. buses and mileage)
- CPT cost index and other local data

**Outputs:**

- Peak Vehicle Requirement (PVR) – no. of buses required to operate the service at its busiest time, considering journey time between stops, dwell times at stops and layover/recovery time at each end of the service

- Fleet requirement (to include for maintenance / repairs)
- Annual vehicle operating cost
- Annual distance and hours operated
- **Annual network cost**

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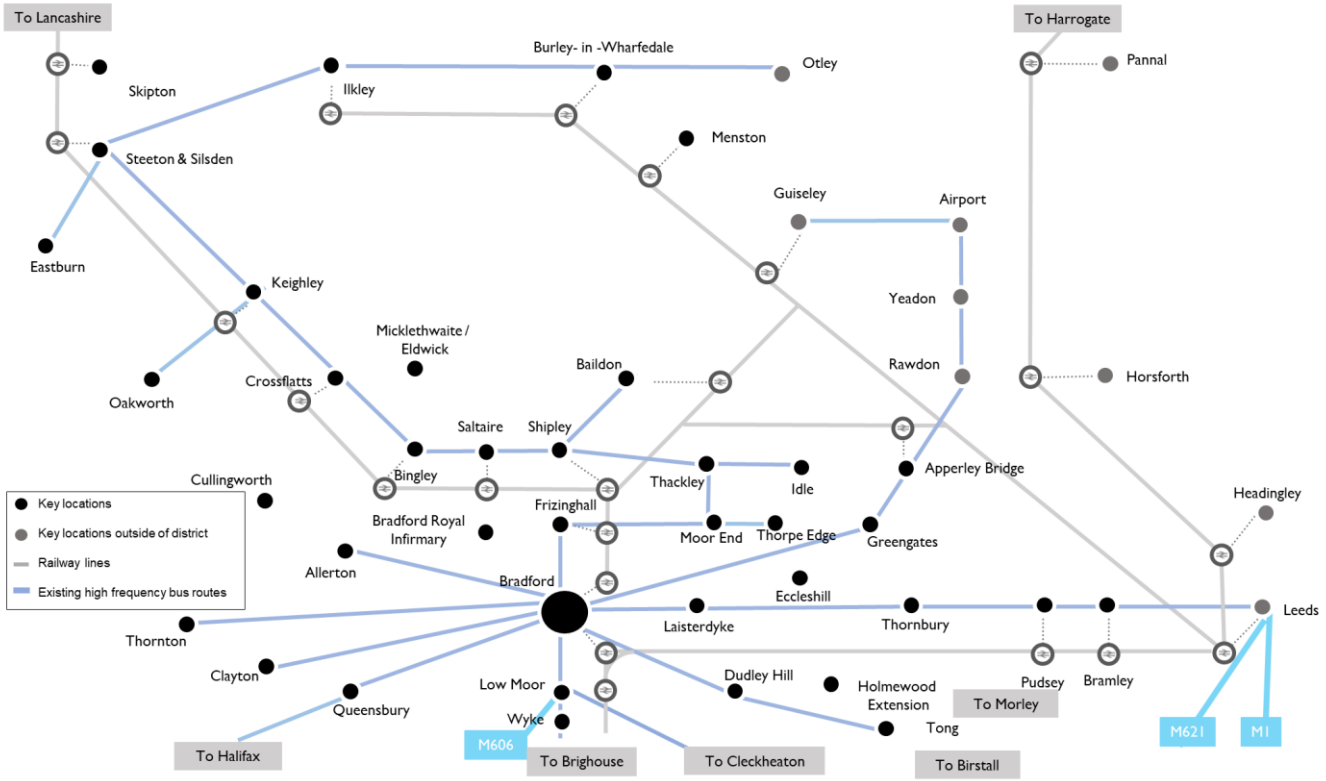
# Bradford

# Existing high frequency network

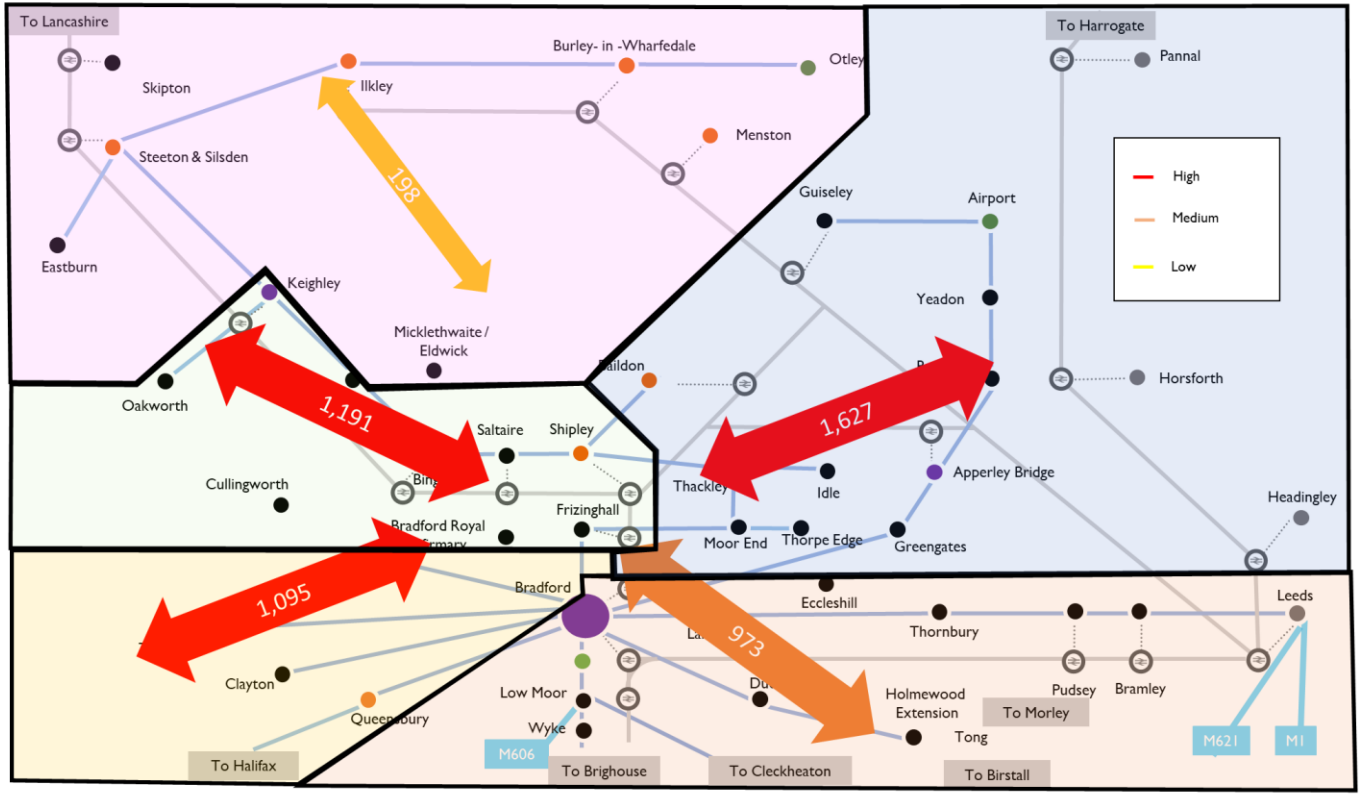
## Based on communities served by at least 4 buses per hour

97% of addresses in Bradford are within 400m of a bus stop; 72% are within 400m of a bus stop served by 4 buses or more during the morning peak (7.00-9.30am).



# Current key network demands

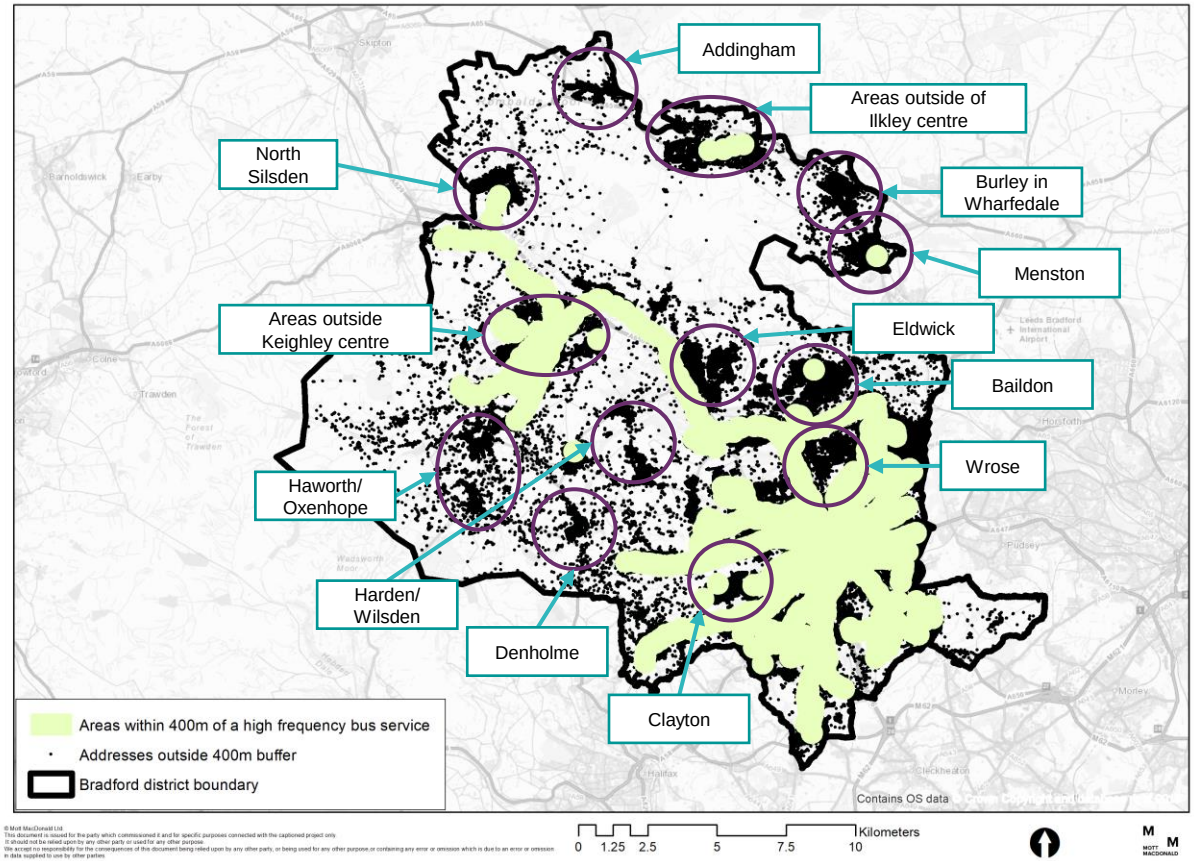
## 2018 bus journey ‘productions’ by segment (average hour)




Please note, the demand shown for each of the areas is indicative as the number shown is dependent on where the MSOA boundaries lie in relation to the corridor boundaries - i.e. the visual representation of the corridors does not mirror the areas as defined by the MSOAs.

# Areas with poor access to high frequency services

The dark areas indicate addresses that currently sit beyond 400m of a bus stop served by at least 4 buses in the morning peak (07:00-09:30)



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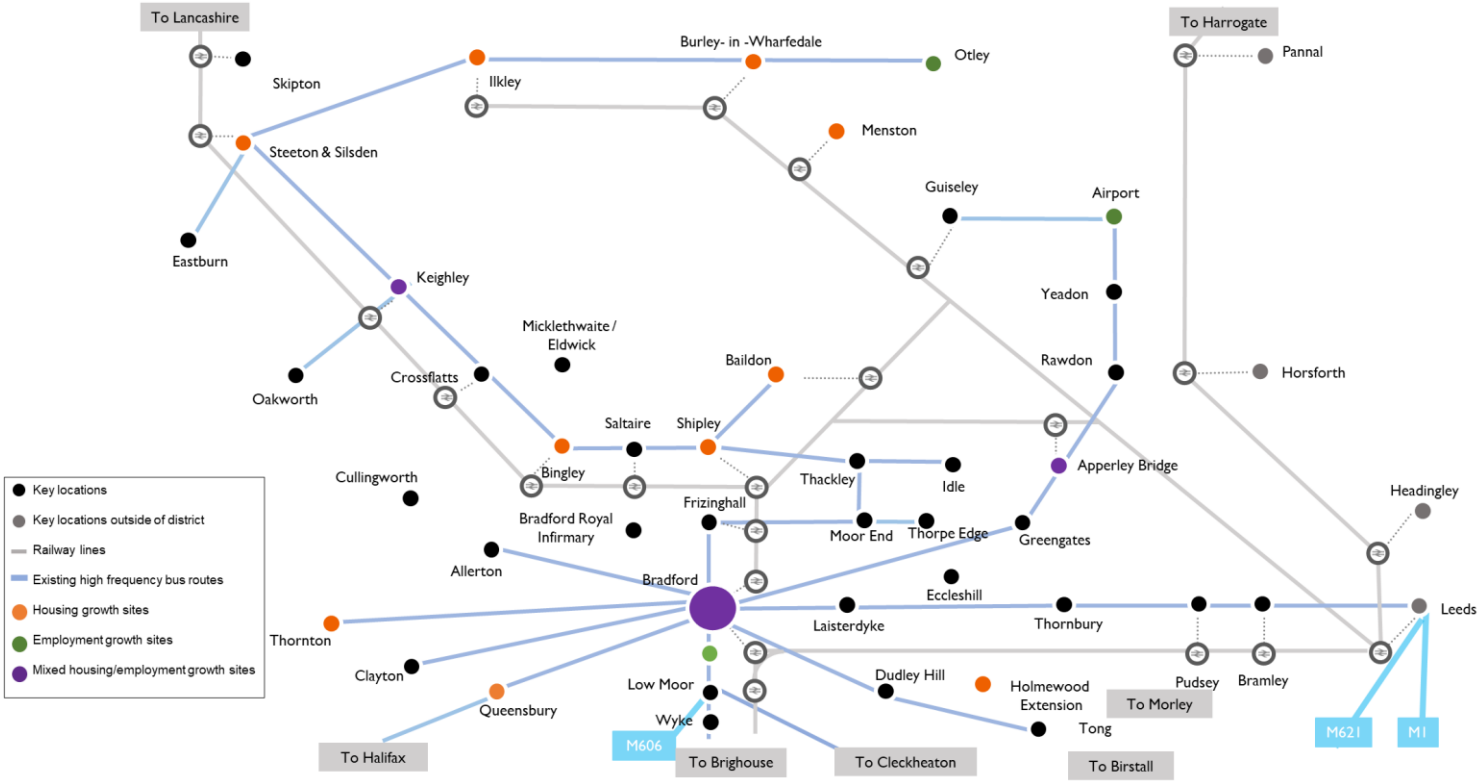
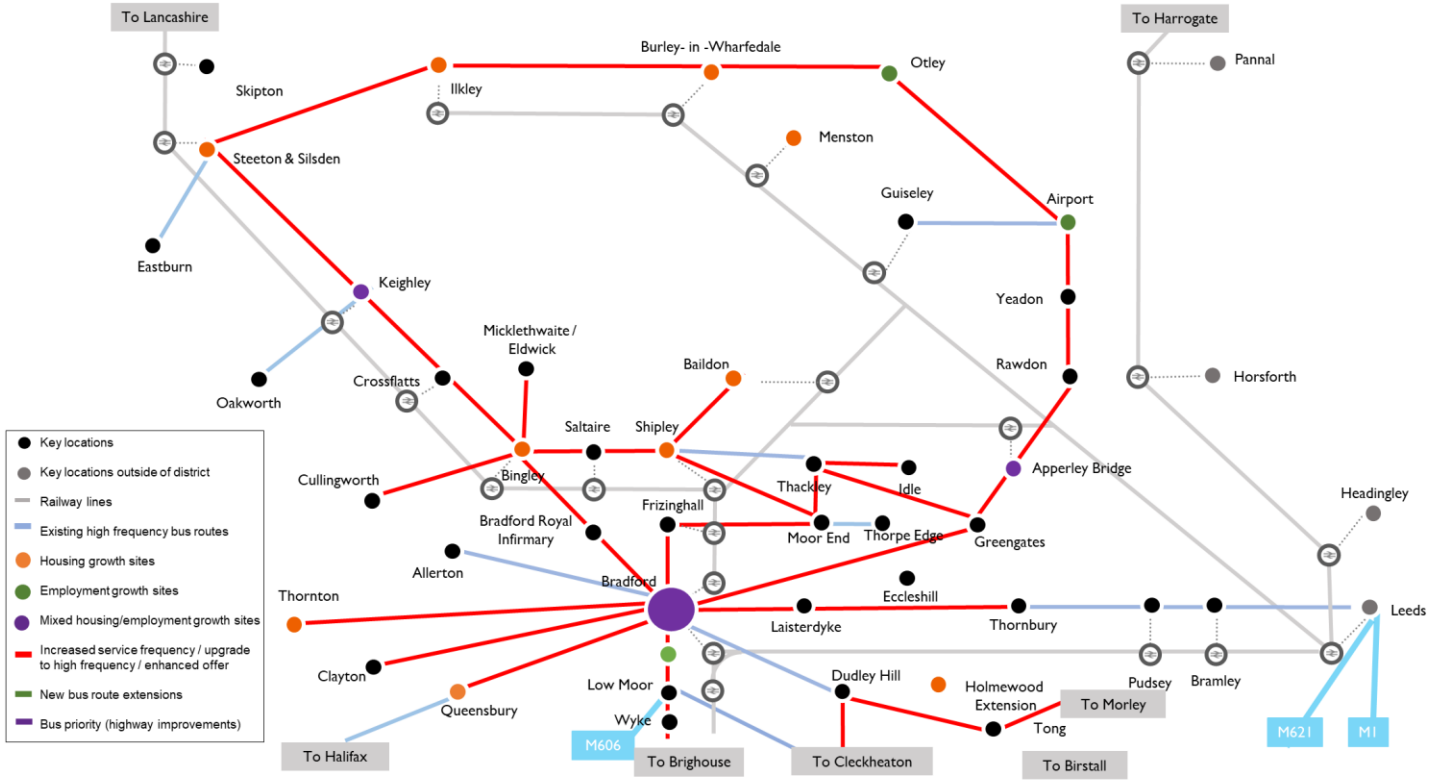
# Opportunities to grow the Demand

# Future growth

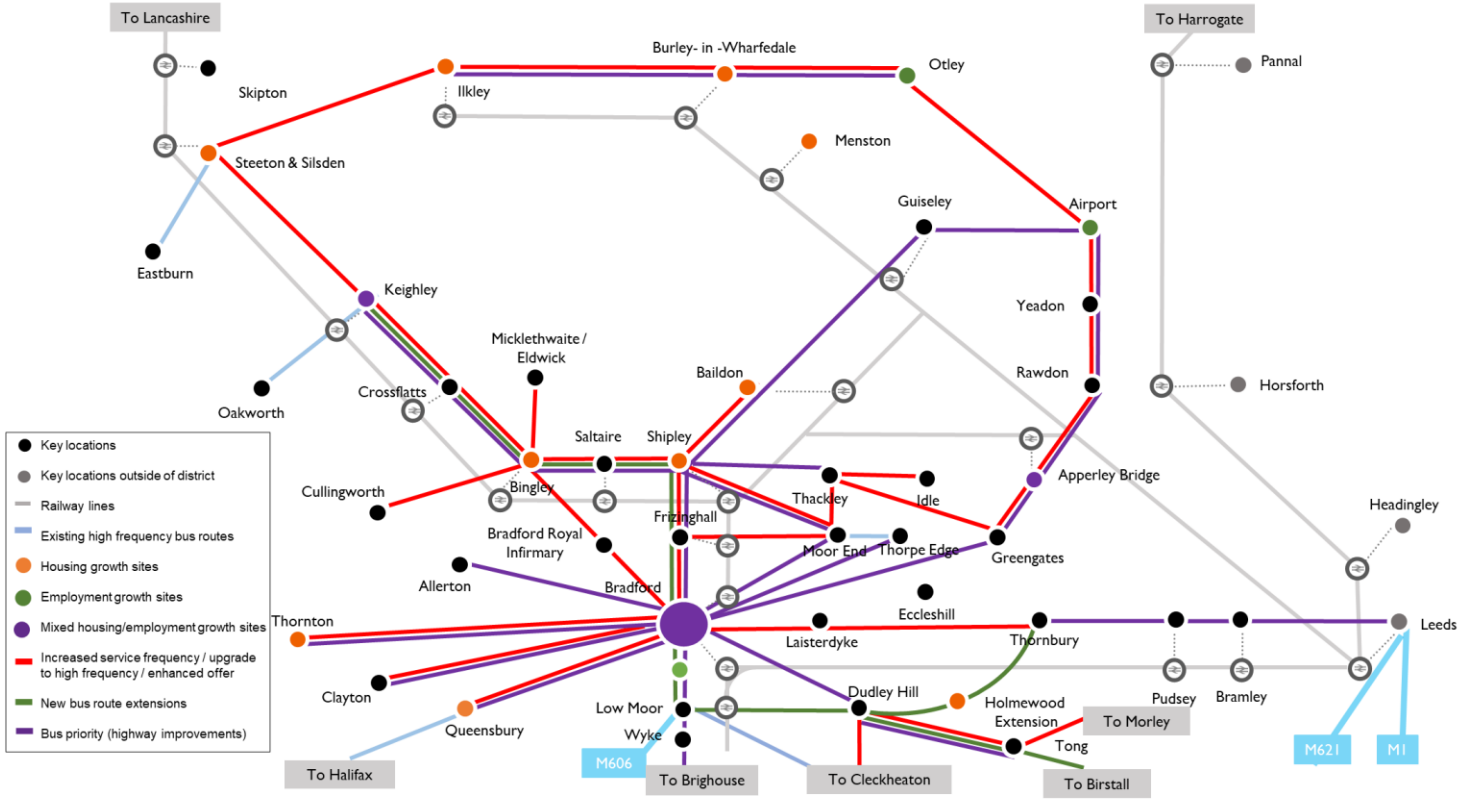
## There is growth in places currently not on the high frequency network



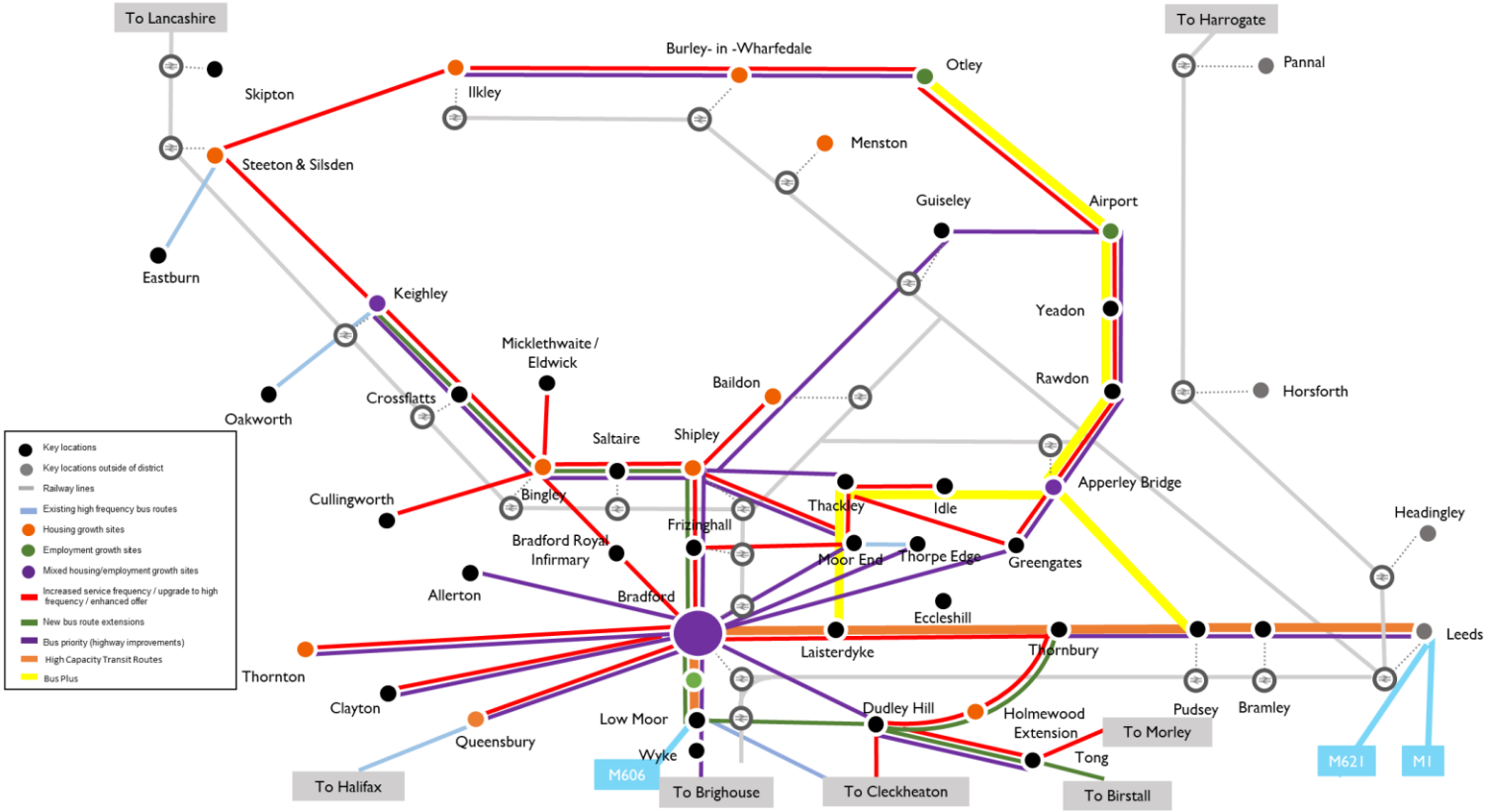
# Growing the Demand – 2021 opportunities



# Growing the Demand – 2024

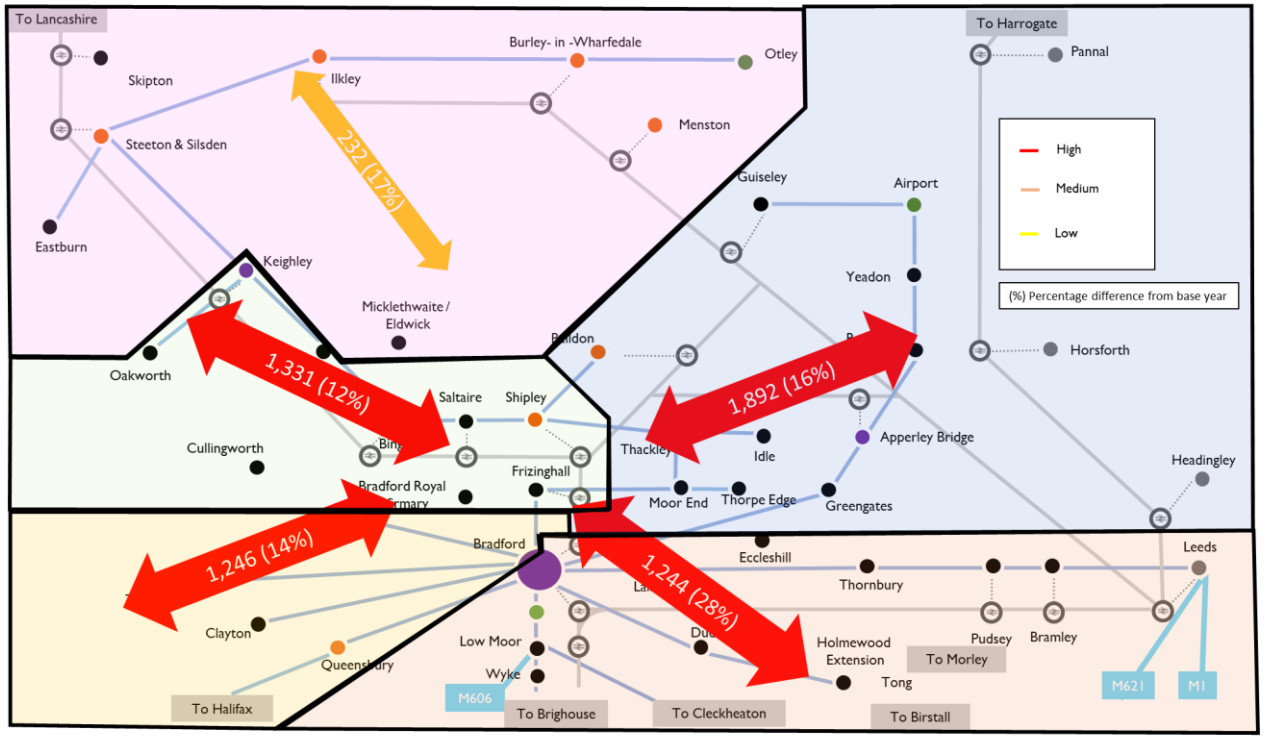


# Growing the Demand – 2033

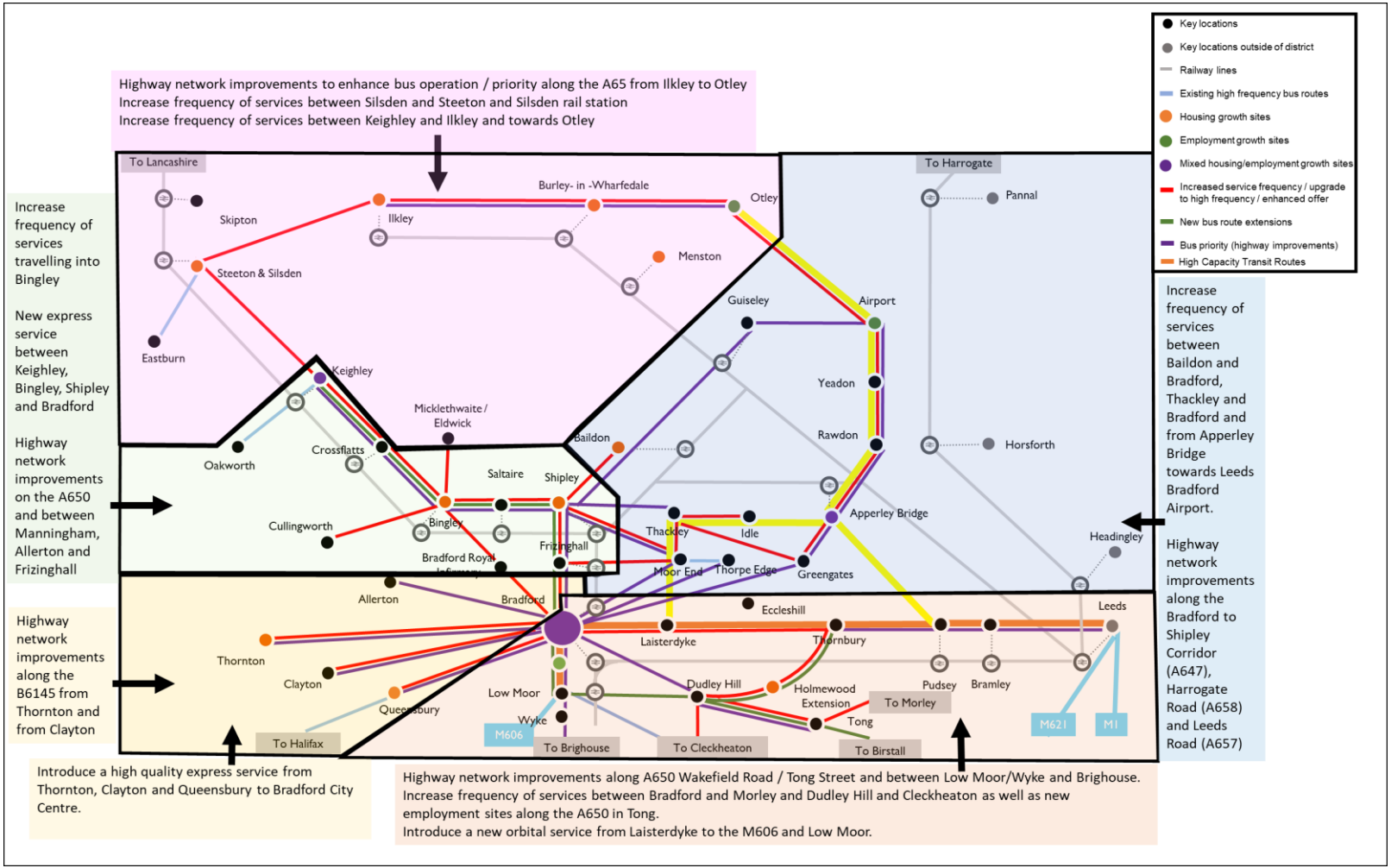


# Future network demands

## 2033 bus journey ‘productions’ by segment (average hour)




| | 2018 | 2033 |
|---|---|---|
| Current annual trips | 32.4m | |
| Deliver current investment | | 33.8m |
| Deliver additional enhancements | | 37.1m |


Highway network improvements to enhance bus operation / priority along the A65 from Ilkley to Otley
Increase frequency of services between Silsden and Steeton and Silsden rail station
Increase frequency of services between Keighley and Ilkley and towards Otley
Increase frequency of services travelling into Bingley
New express service between Keighley, Bingley, Shipley and Bradford
Highway network improvements on the A650 and between Manningham, Allerton and Frizinghall
Highway network improvements along the B6145 from Thornton and from Clayton
Introduce a high quality express service from Thornton, Clayton and Queensbury to Bradford City Centre.
Highway network improvements along A650 Wakefield Road / Tong Street and between Low Moor/Wyke and Brighouse.
Increase frequency of services between Bradford and Morley and Dudley Hill and Cleckheaton as well as new employment sites along the A650 in Tong.
Introduce a new orbital service from Laisterdyke to the M606 and Low Moor.
Increase frequency of services between Baildon and Bradford, Thackley and Bradford and from Apperley Bridge towards Leeds Bradford Airport.
Highway network improvements along the Bradford to Shipley Corridor (A647), Harrogate Road (A658) and Leeds Road (A657)
Key locations
Key locations outside of district
Railway lines
Existing high frequency bus routes
Housing growth sites
Employment growth sites
Mixed housing/employment growth sites
Increased service frequency / upgrade to high frequency / enhanced offer
New bus route extensions
Bus priority (highway improvements)
High Capacity Transit Routes
To Lancashire
To Harrogate
Skipton
Ilkley
Burley- in -Wharfedale
Otley
Steeton & Silsden
Menston
Eastburn
Keighley
Micklethwaite / Eldwick
Oakworth
Crossflatts
Saltaire
Shipley
Cullingworth
Bingley
Bradford Royal Infirmary
Frizinghall
Allerton
Bradford
Thornton
Clayton
Queensbury
To Halifax
Low Moor
Wyke
M606
To Brighouse
Laisterdyke
Dudley Hill
To Cleckheaton
Thackley
Idle
Moor End
Thorpe Edge
Eccleshill
Thornbury
Holmewood Extension
Tong
To Birstall
To Morley
Pudsey
Bramley
M621
M1
Leeds
Guiseley
Airport
Yeadon
Rawdon
Baildon
Apperley Bridge
Greengates
Pannal
Horsforth
Headingley

# Bradford Key Conclusions

- 97% of addresses in Bradford are within 400m of a bus stop; 72% are within 400m of a bus stop served by 4 buses or more during the morning peak (7-9.30am)
- In 2018 it is estimated that there are over 32m annual trips made by bus. By improving frequencies, providing new links to growth areas and capital investment in bus priority then the number of annual trips could increase to over 37m by 2033
- It is estimated that there would need to be an increase of 35% more buses operating in the district by 2033
- Background population growth across the district, with no interventions could see demand increase by 4%, however it is estimated that the network will require 6% more buses to maintain the exiting service level in 2033
- The number of new buses needed in 2033 to support 5m more trips means the network is a challenge, but the investment would bring significant social benefits whilst delivering a self-sufficient bus network
- Additional gains could be made through making the ‘conditions for success’ better by integrating wider measures such a refining car parking policy

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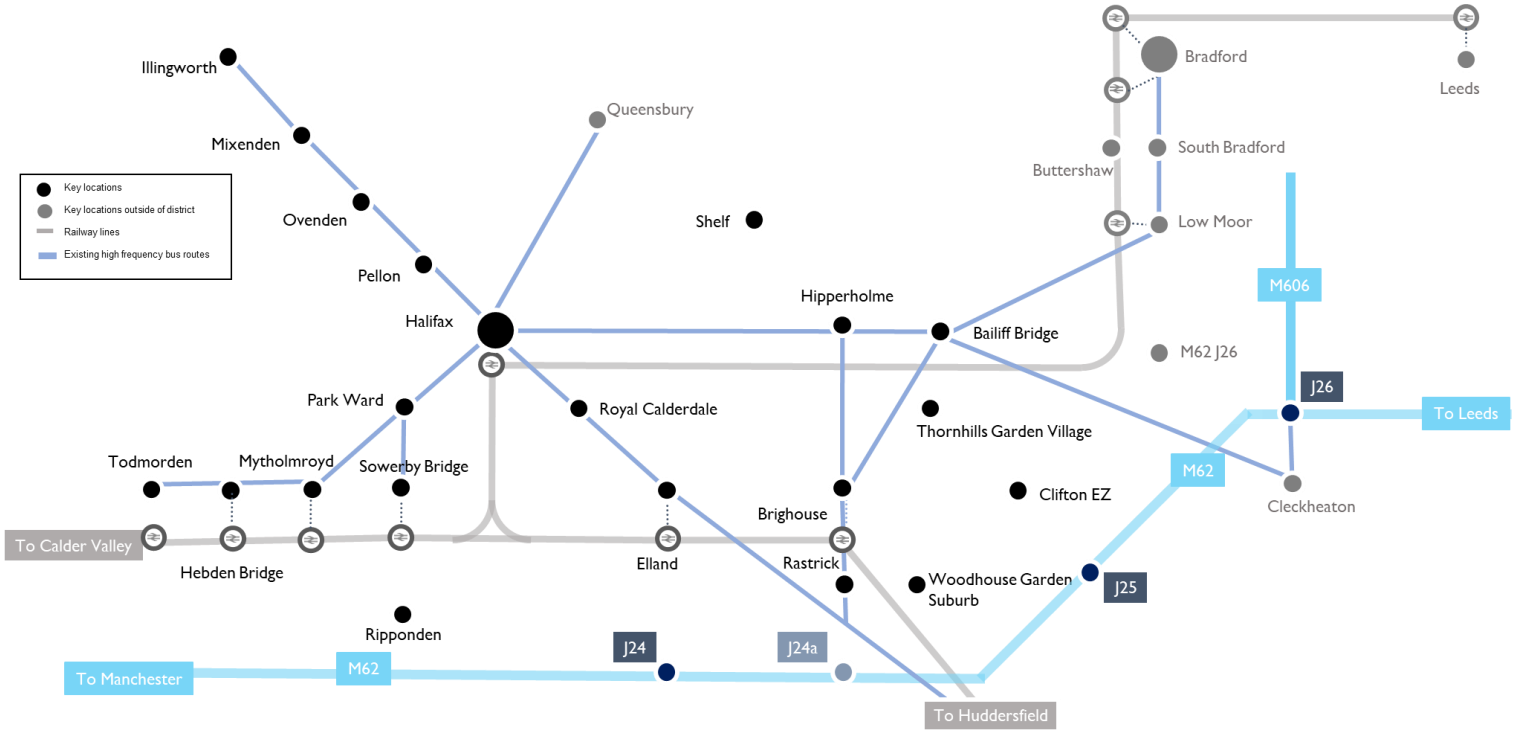
# Calderdale

# Existing high frequency network

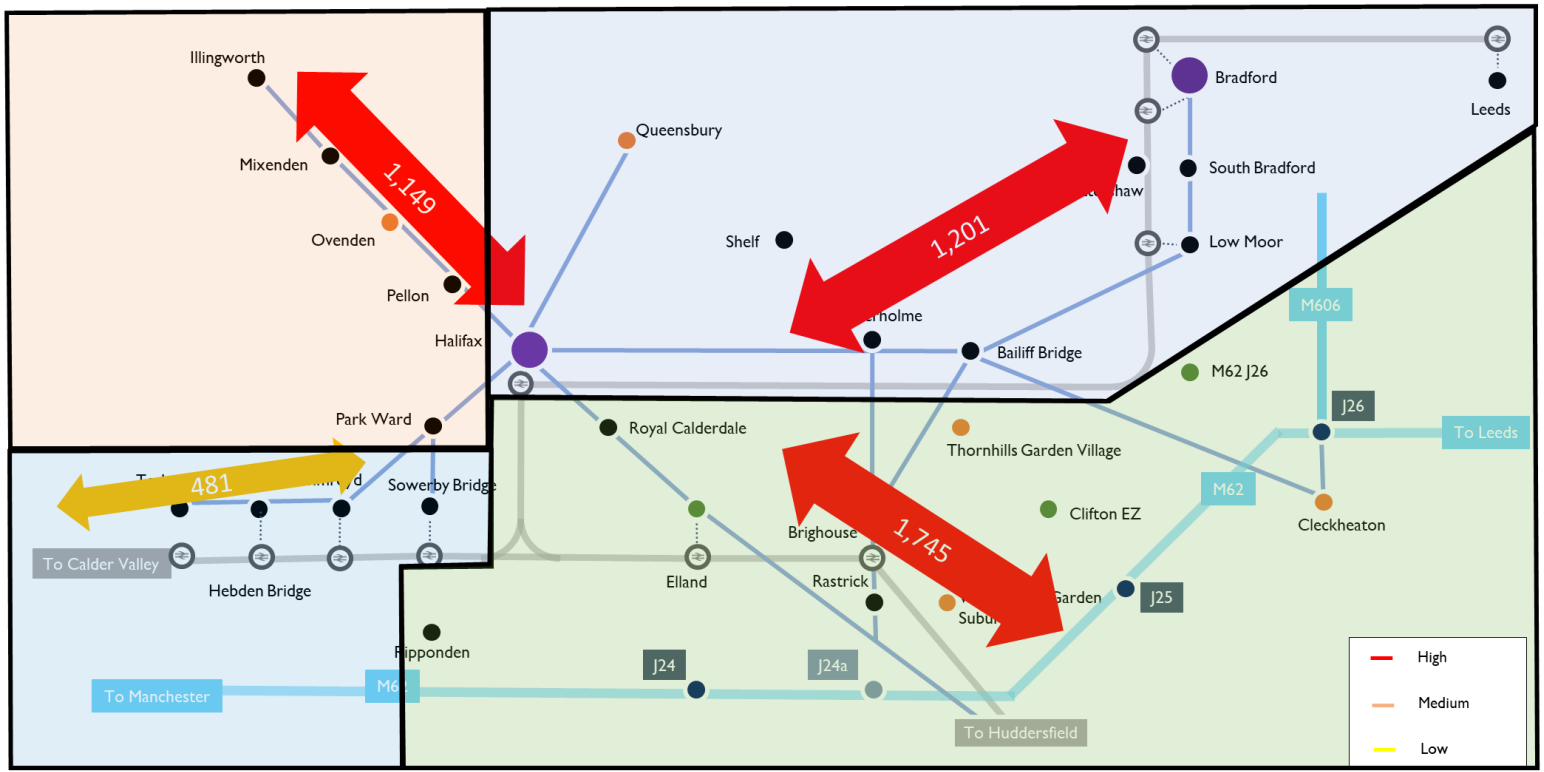
## Based on communities served by at least 4 buses per hour

96% of addresses in Calderdale are within 400m of a bus stop; 65% are within 400m of a bus stop served by 4 buses or more during the morning peak (7-9.30am).



# Current key network demands

## 2018 bus journey ‘productions’ by segment (average hour)

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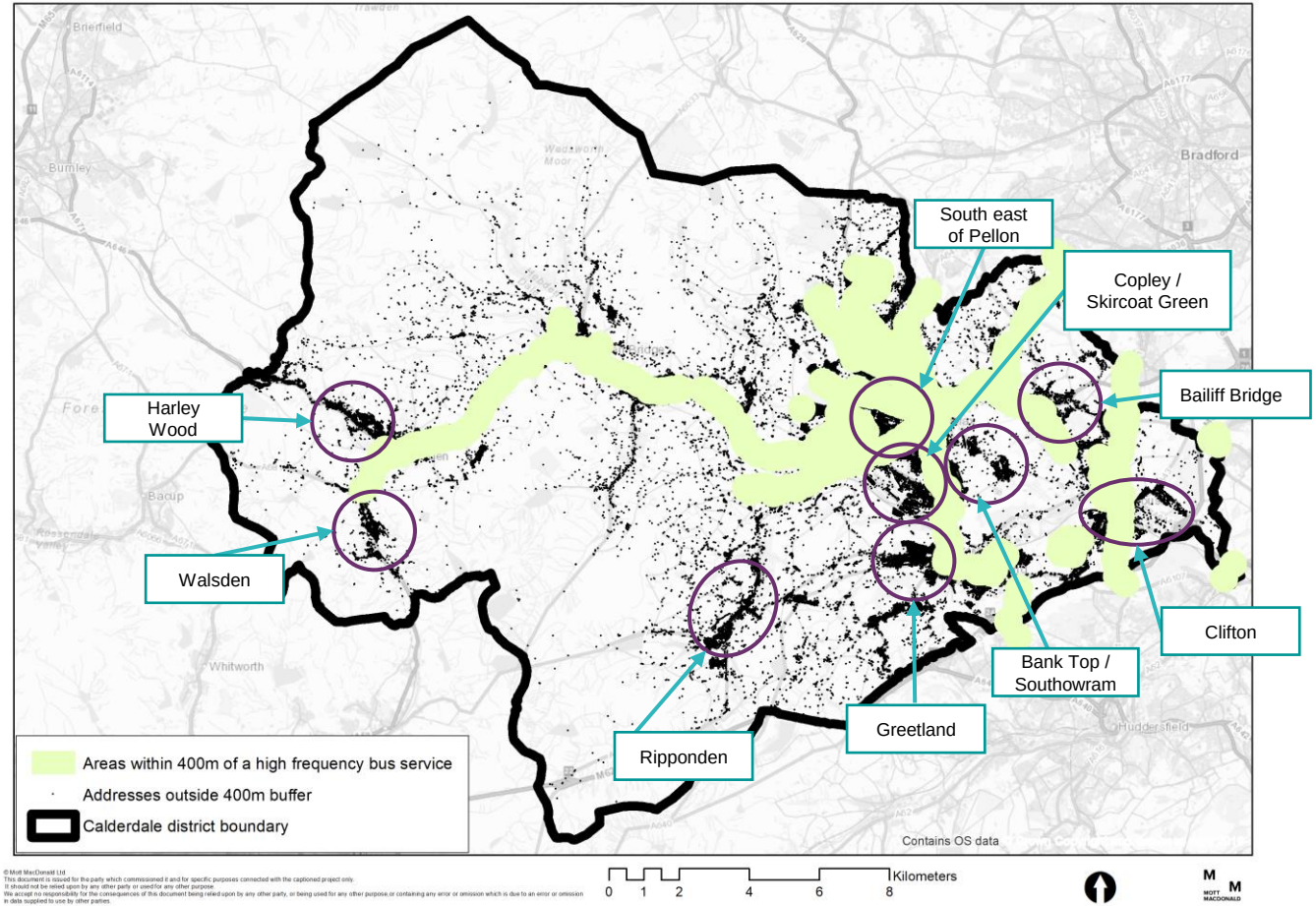
# Areas with poor access to high frequency services

The dark areas indicate addresses that currently sit beyond 400m of a bus stop served by at least 4 buses in the morning peak (07:00-09:30)



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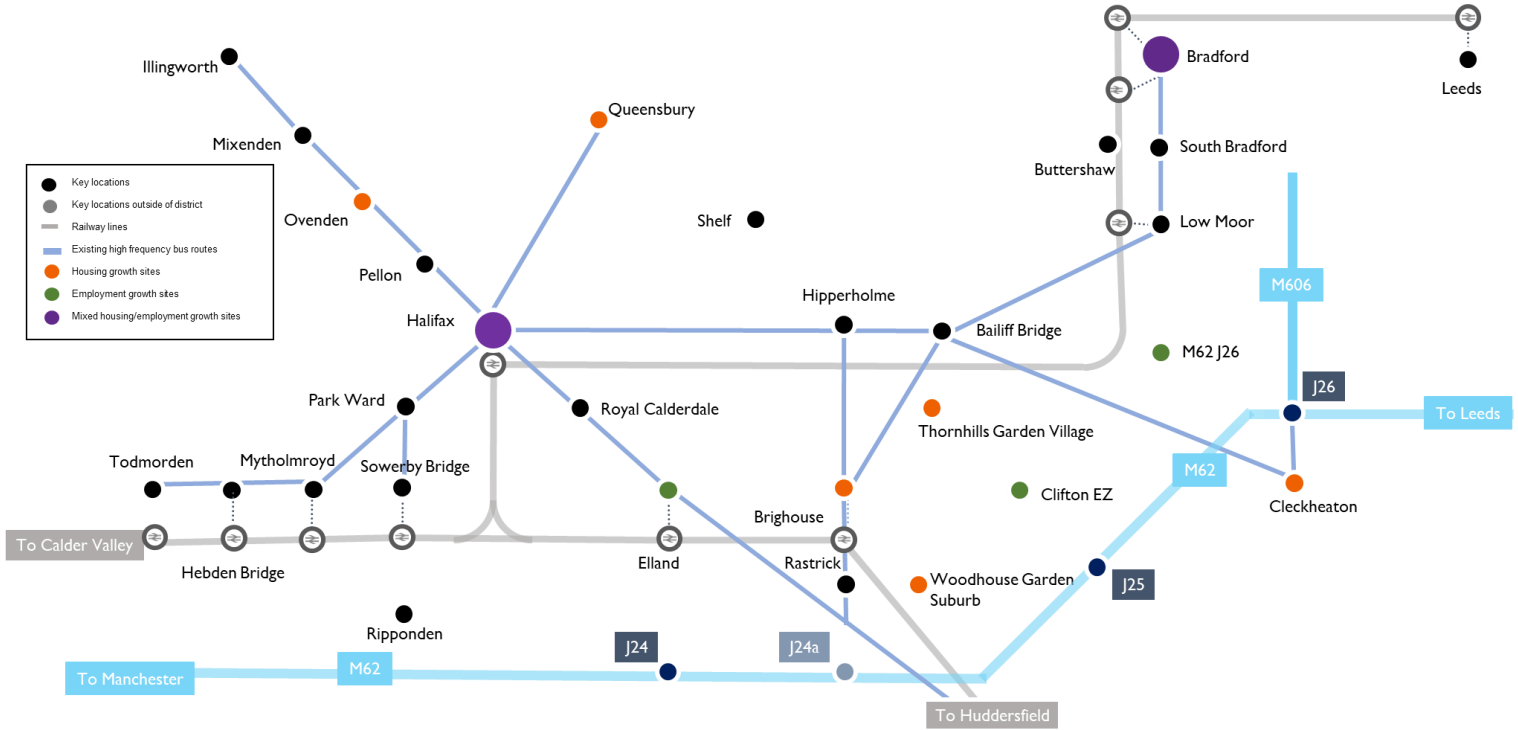
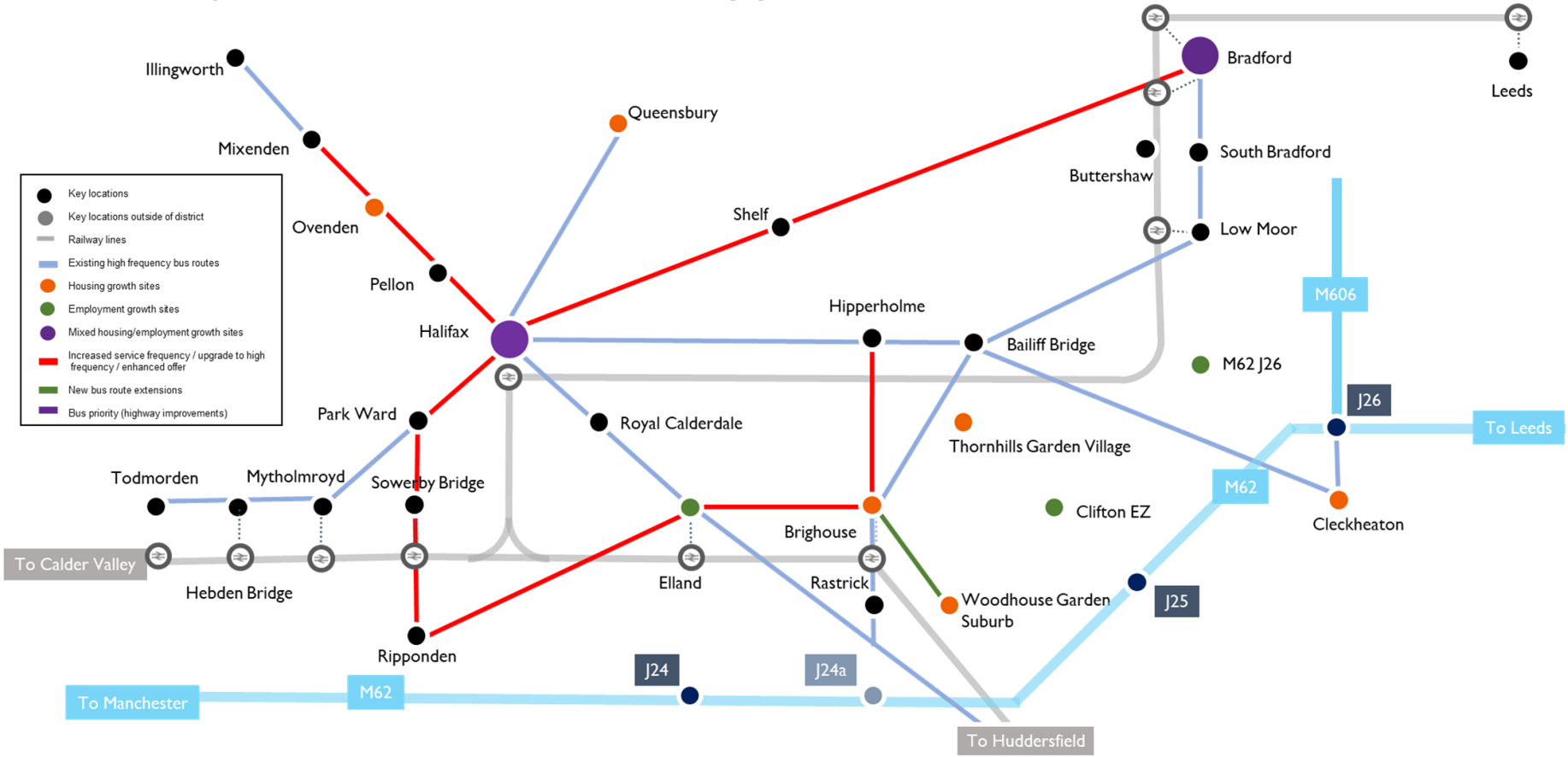
# Opportunities to grow the Demand

# Future growth

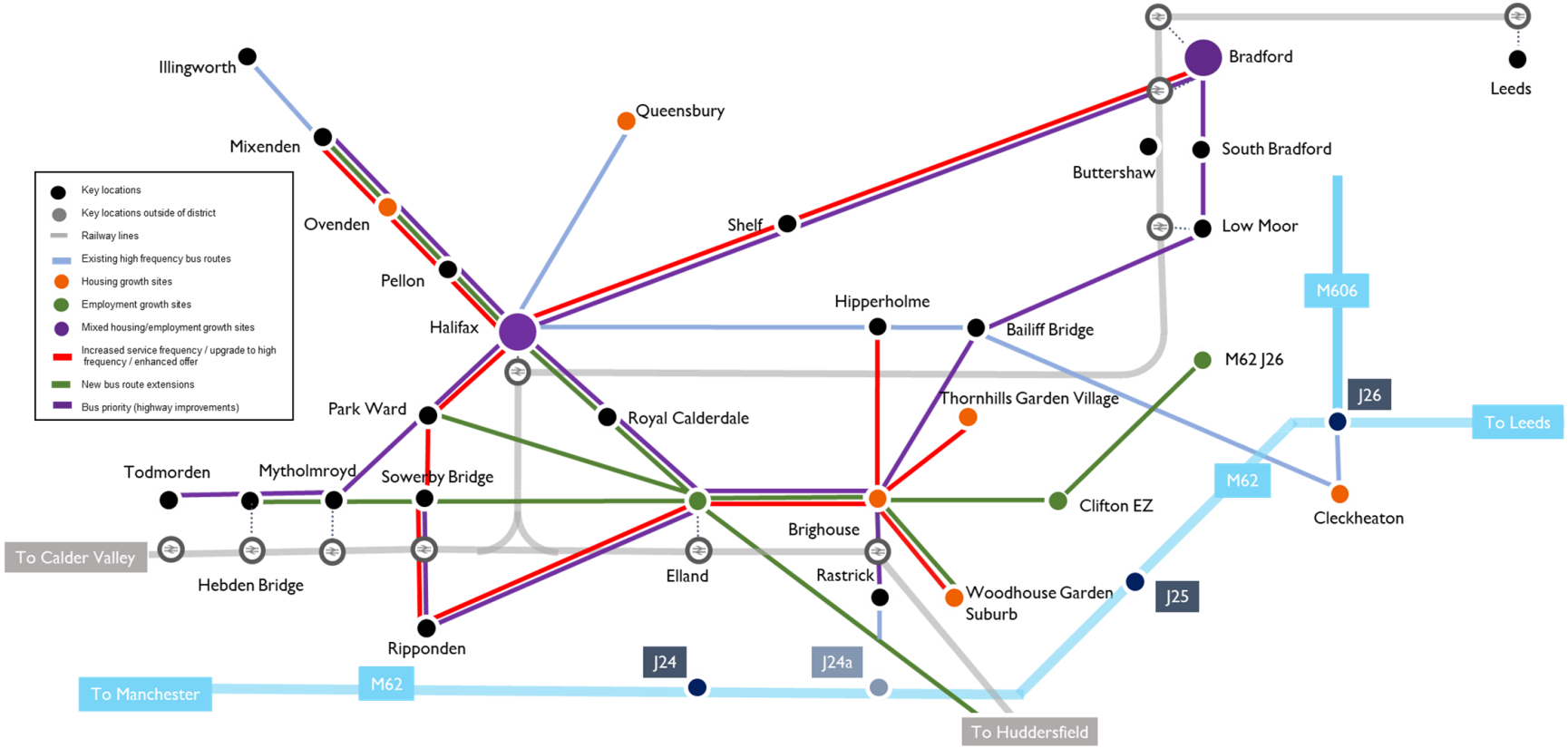
## There is growth in places currently not on the high frequency network



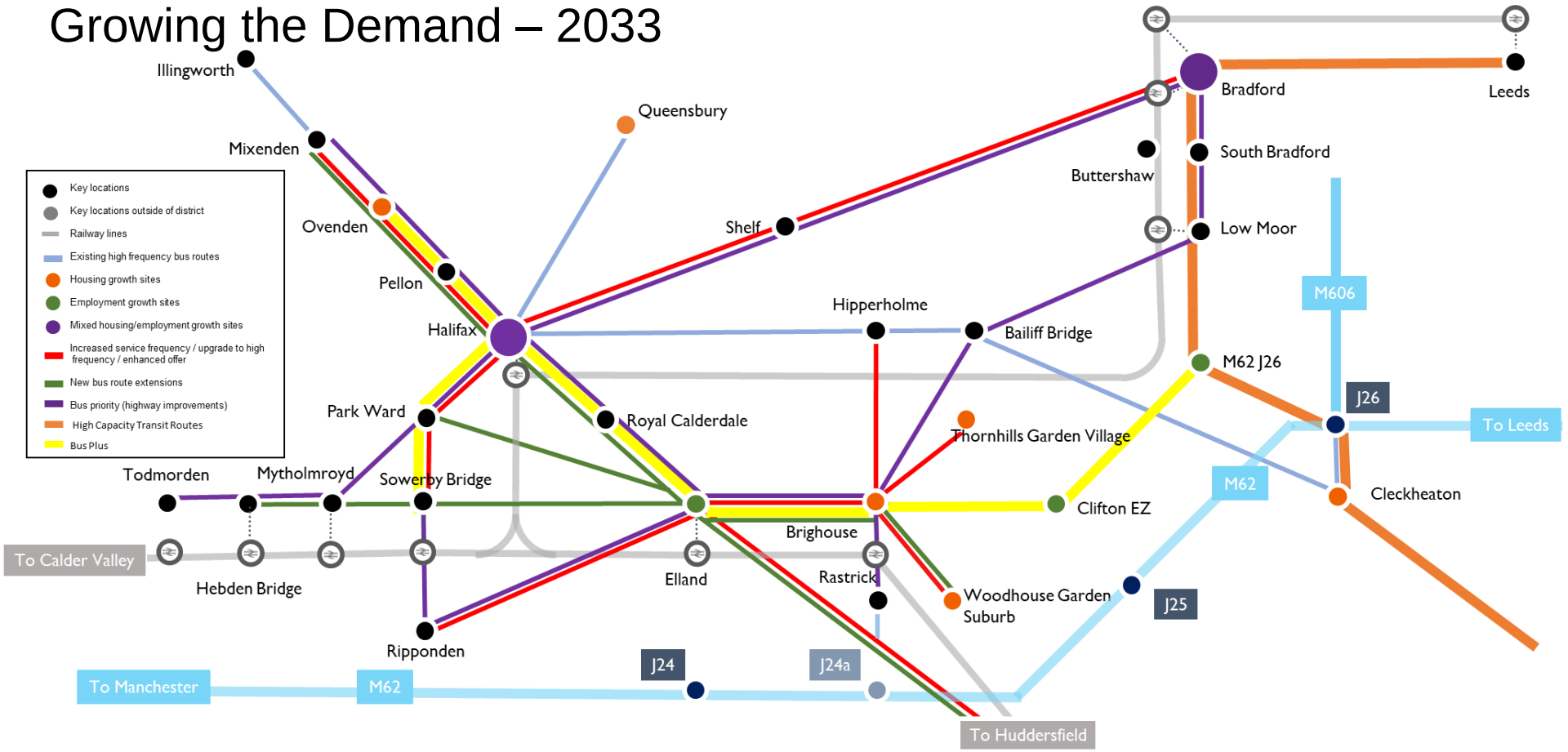
# Growing the Demand – 2021 opportunities



# Growing the Demand – 2024



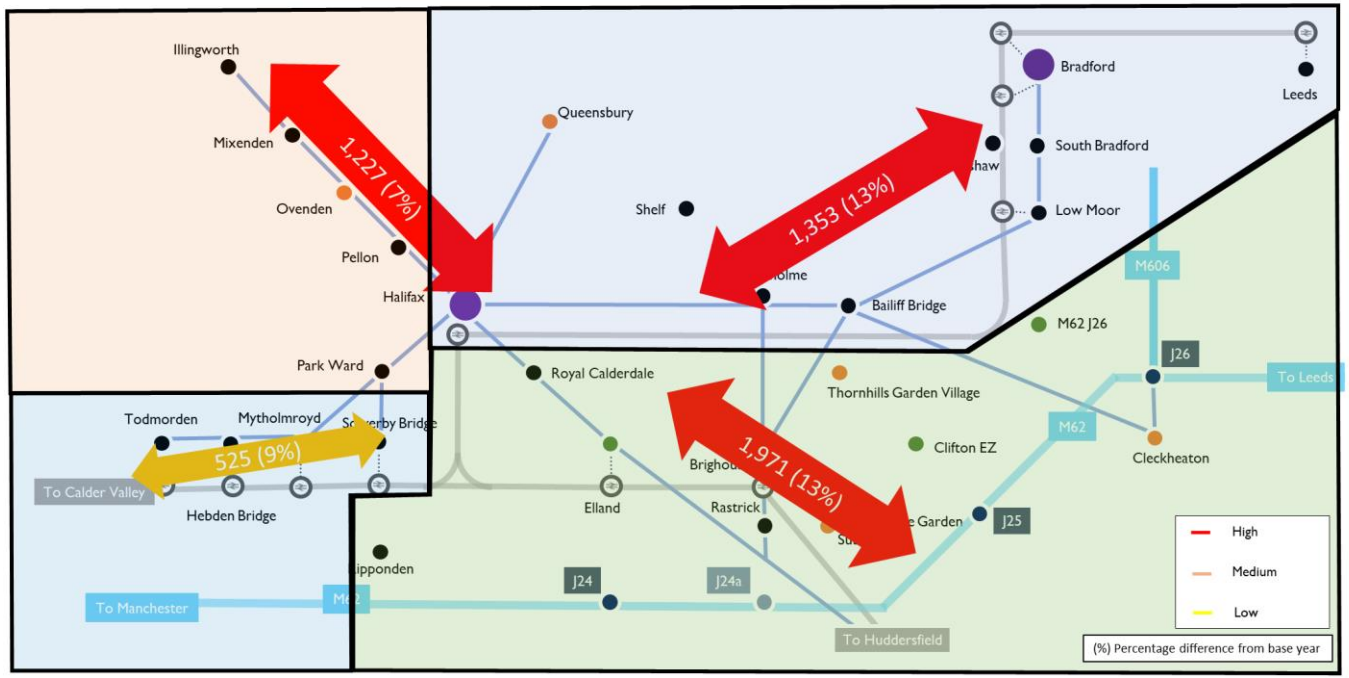
# Growing the Demand – 2033



# Future network demands

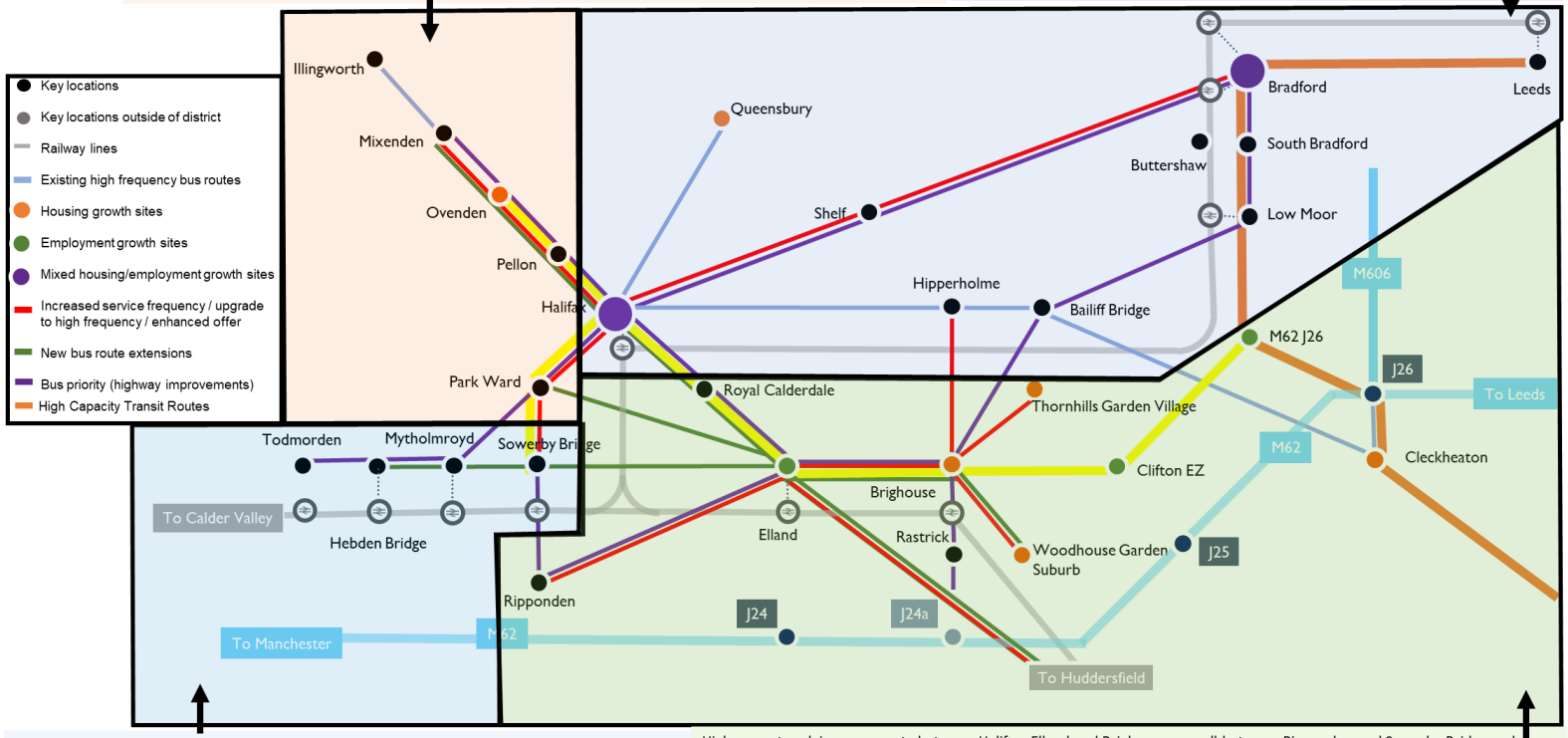
## 2033 bus journey ‘productions’ by segment (average hour)

| | 2018 | 2033 |
|---|---|---|
| Current annual trips | 28.6m | |
| Deliver current investment | | 30.4m |
| Deliver additional enhancements | | 31.7m |



New through services from Mixenden and King Cross towards Elland and Brighouse (negating the need for interchange in Halifax).
Increase frequency of services and introduce bus priority between Mixenden and Halifax, whilst rationalising / simplifying the network around Mixenden.

Highway network improvements along the A6036 between Bradford and Halifax.
Increase frequency of services between Bradford and Halifax.
Introduce bus priority measures between Bradford and Brighouse via Bailiff Bridge.




Highway network improvements between Todmorden, Hebden Bridge, Mytholmroyd, King Cross and Halifax
Increase frequency of services between Sowerby Bridge and Halifax
New service from Hebden Bridge towards Elland

Highway network improvements between Halifax, Elland and Brighouse, as well between Ripponden and Sowerby Bridge and Elland.
Increase frequency of services to new housing growth at Thornhills, and between Hipperholme and Brighouse.
Extend existing services and increase frequency to serve growth at Clifton and Woodhouse Garden Suburb.
New bus route from Kings Cross to Elland, to negate the need for interchange in Halifax.

# Calderdale Key Conclusions

- 96% of addresses in Calderdale are within 400m of a bus stop; 65% are within 400m of a bus stop served by 4 buses or more during the morning peak (7-9.30am)
- In 2018, it is estimated that there are almost 29m annual trips by bus in Calderdale, by 2033 this rises to almost 32m if all the additional enhancements are delivered
- It is estimated that an increase of 20% more buses would be needed to deliver the patronage growth. If the enhancements are delivered, the bus network has some challenges but operationally delivers significant benefits to a number of dispersed communities
- It is estimated that the network will require 8% more buses to maintain the same service level in 2033
- The greatest immediate opportunity is  providing dedicated services connecting the growth sites and reducing the need for all services to interchange in Halifax. Some of these links will upgrade to high capacity routes in future years

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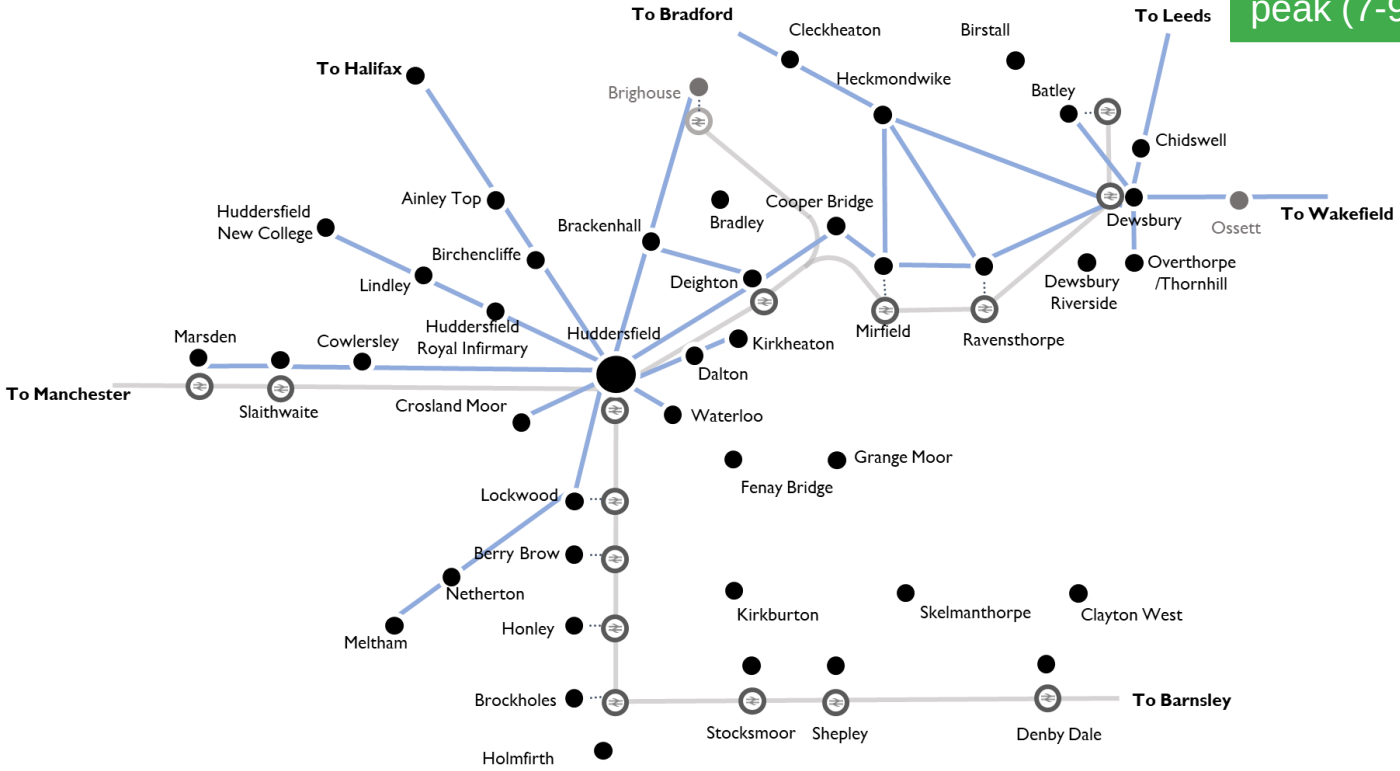
# Kirklees

# Existing high frequency network

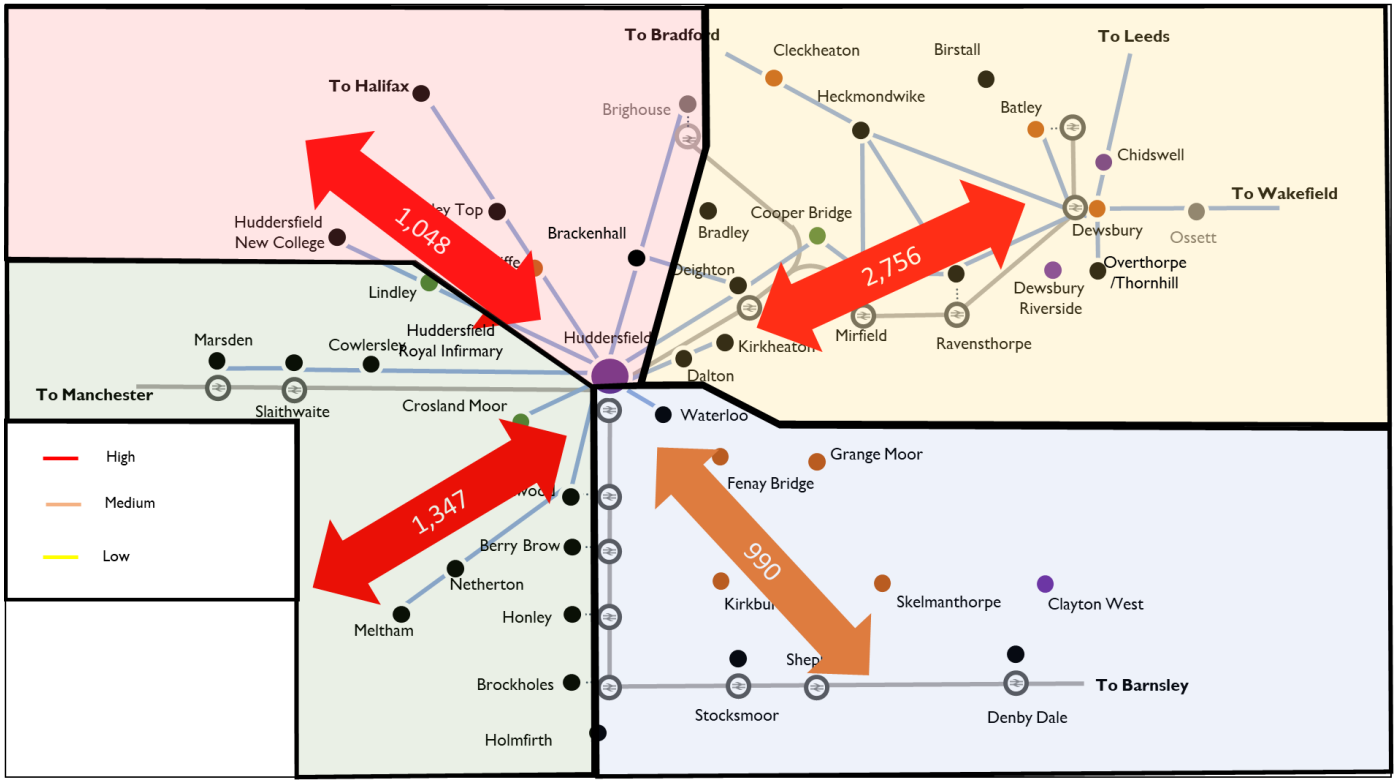
## Based on communities served by at least 4 buses per hour

97% of addresses in Kirklees are within 400m of a bus stop; 60% are within 400m of a bus stop served by 4 buses or more during the morning peak (7-9.30am).



# Current key network demands

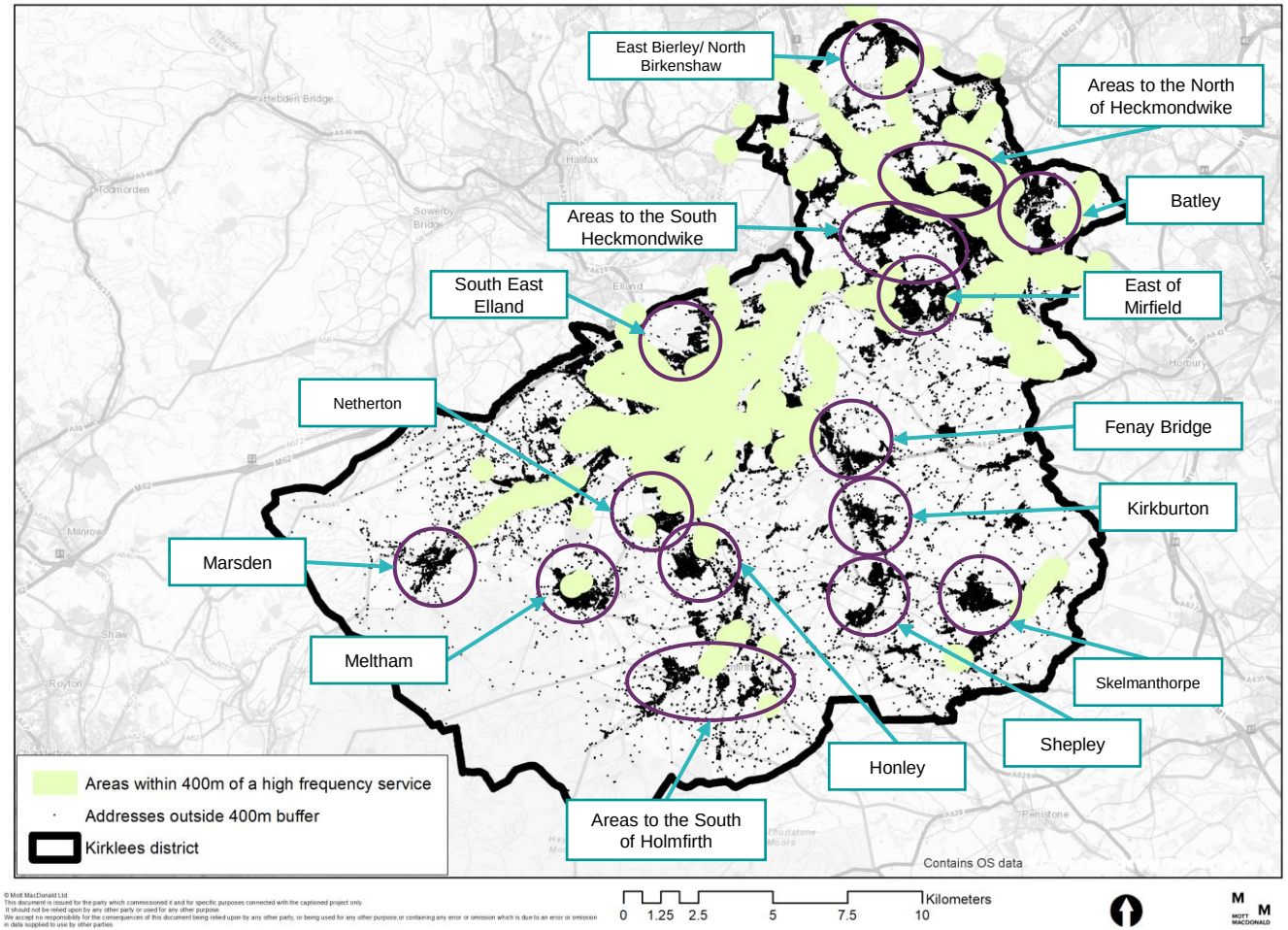
## 2018 bus journey ‘productions’ by segment (average hour)




Please note, the demand shown for each of the areas is indicative as the number shown is dependent on where the MSOA boundaries lie in relation to the corridor boundaries - i.e. the visual representation of the corridors does not mirror the areas as defined by the MSOAs.

# Areas with poor access to high frequency services

The dark areas indicate addresses that currently sit beyond 400m of a bus stop served by at least 4 buses in the morning peak (07:00-09:30)



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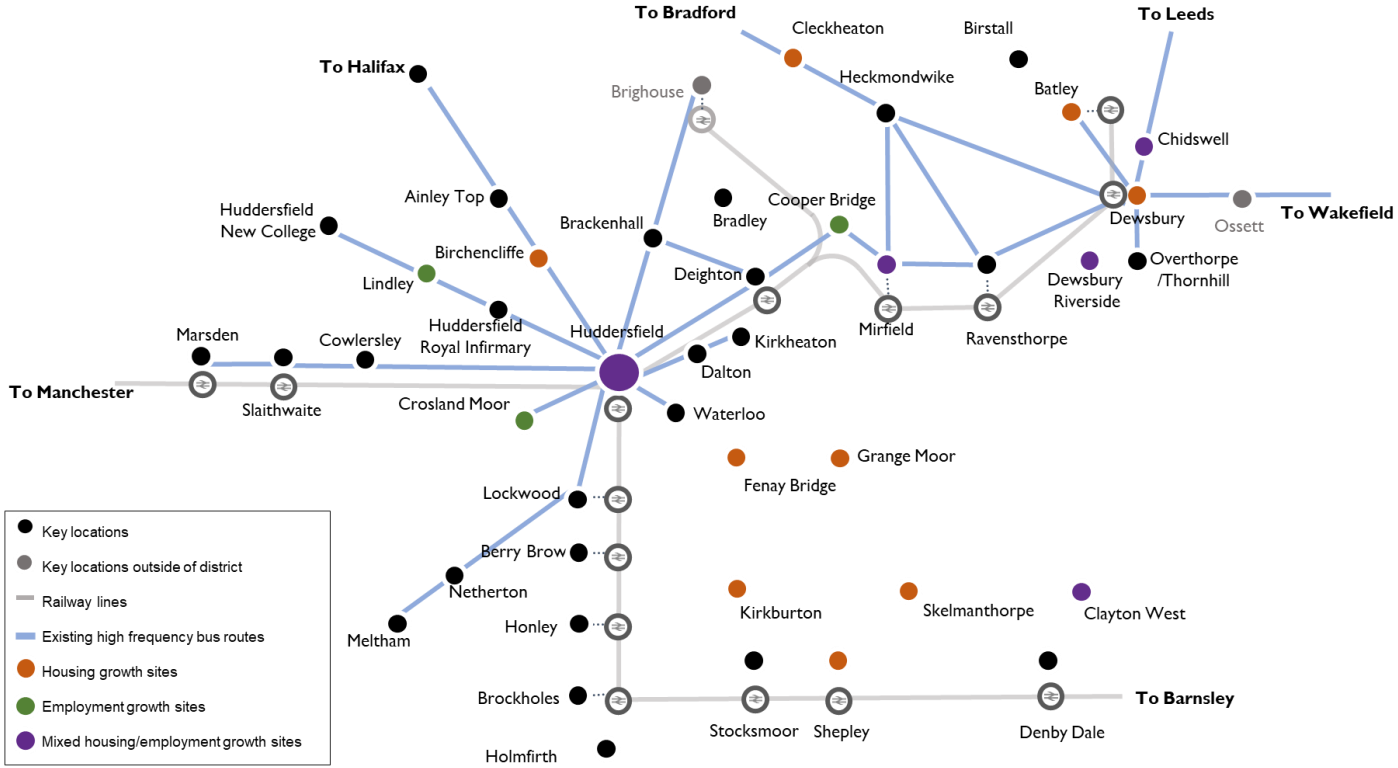
# Opportunities to grow the Demand

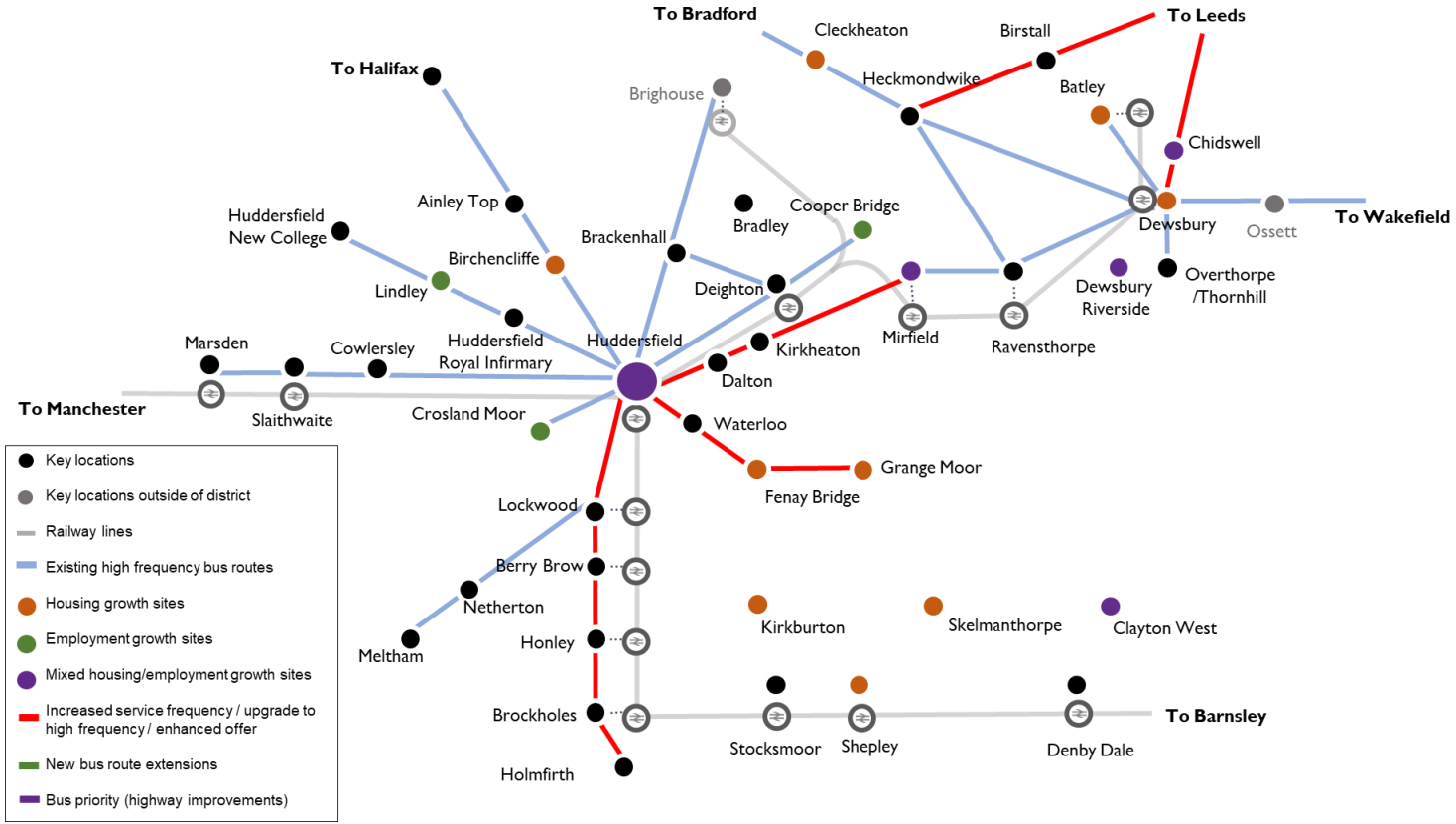
# Future growth

## There is growth in places currently not on the high frequency network

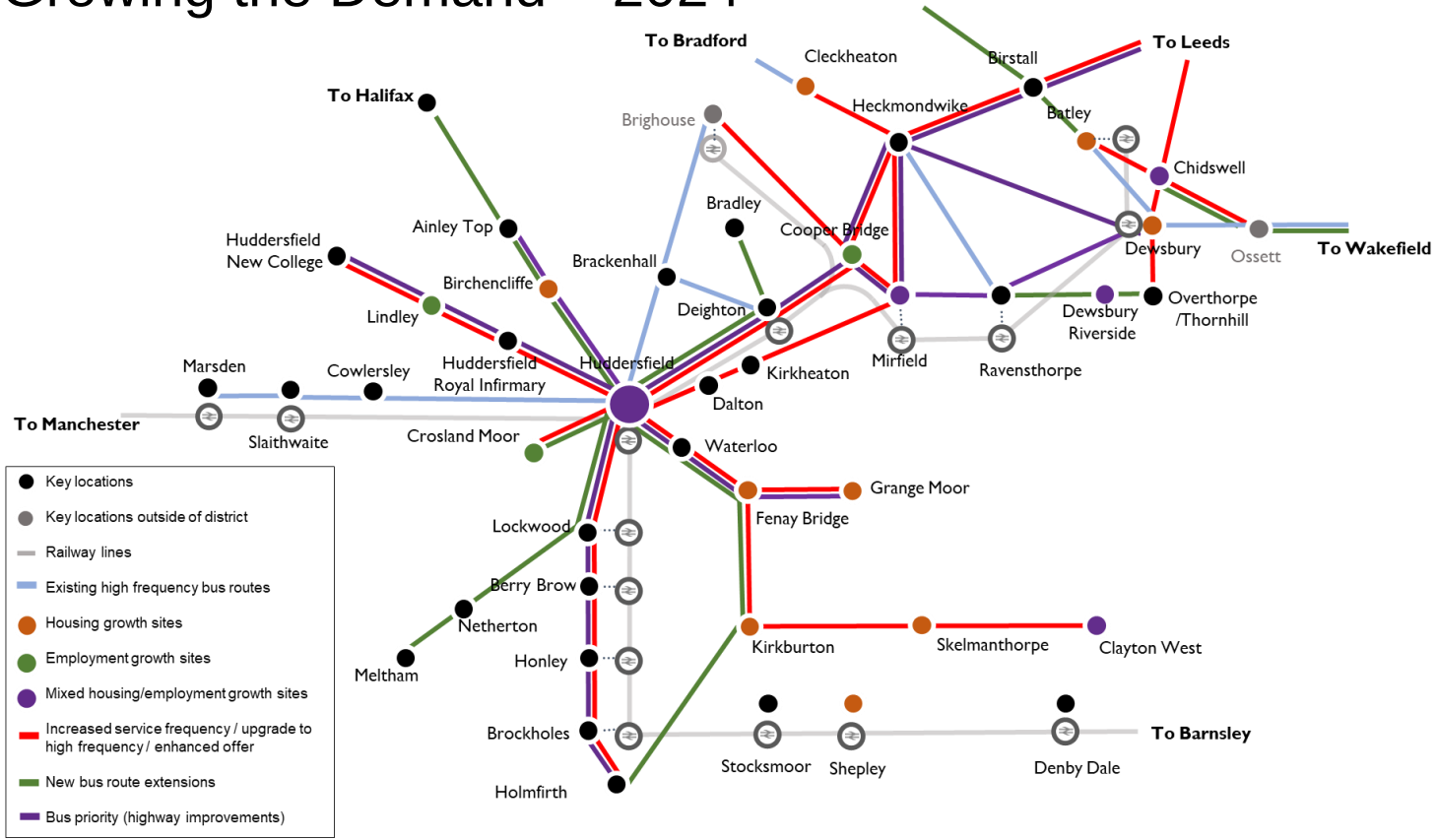



NB: Cooper Bridge is no longer being considered as a focus for new employment, instead future development will focus more in the North Kirklees Growth Zone (Dewsbury and surrounding area)

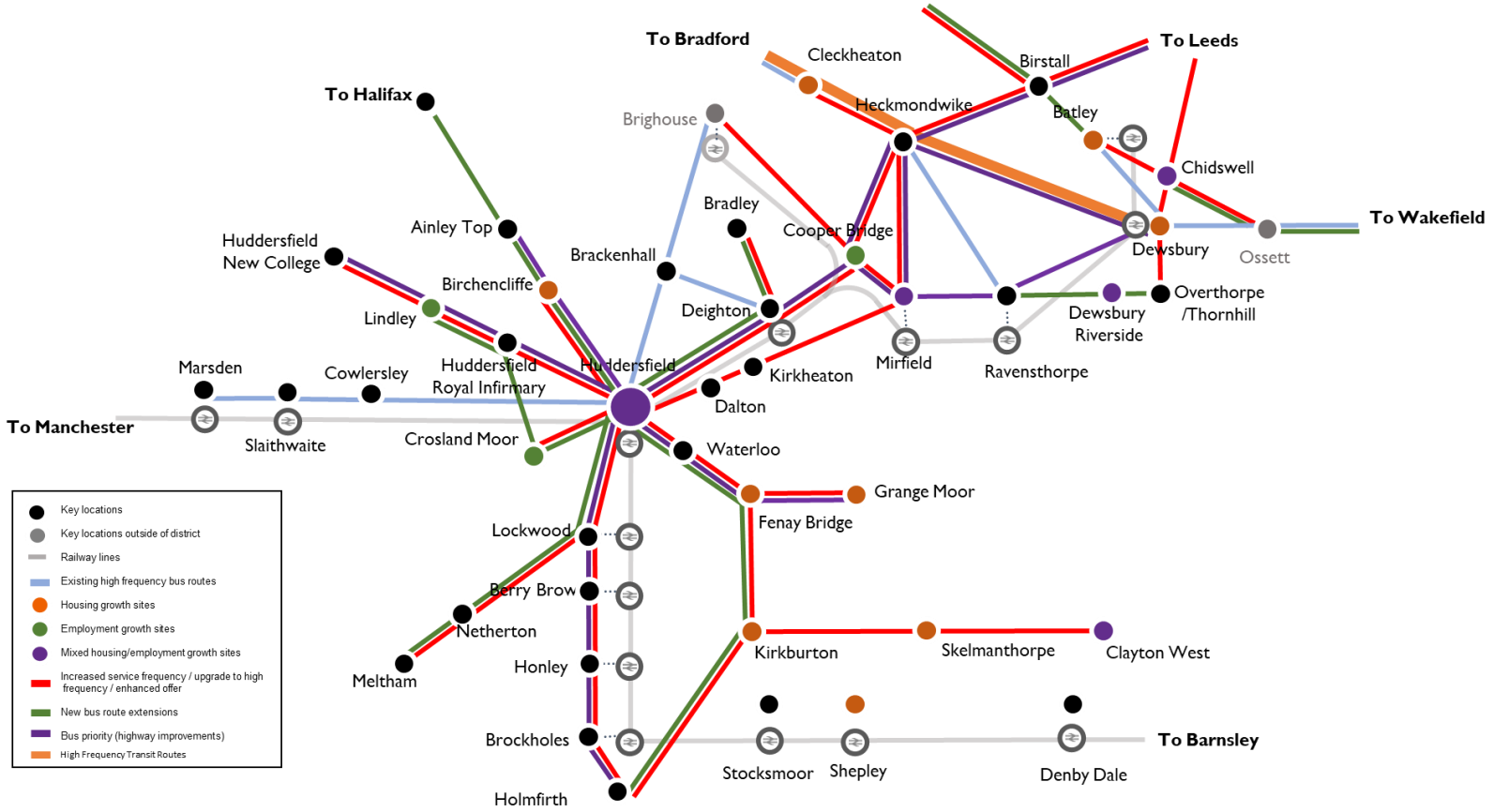
# Growing the Demand – 2021 opportunities



# Growing the Demand – 2024

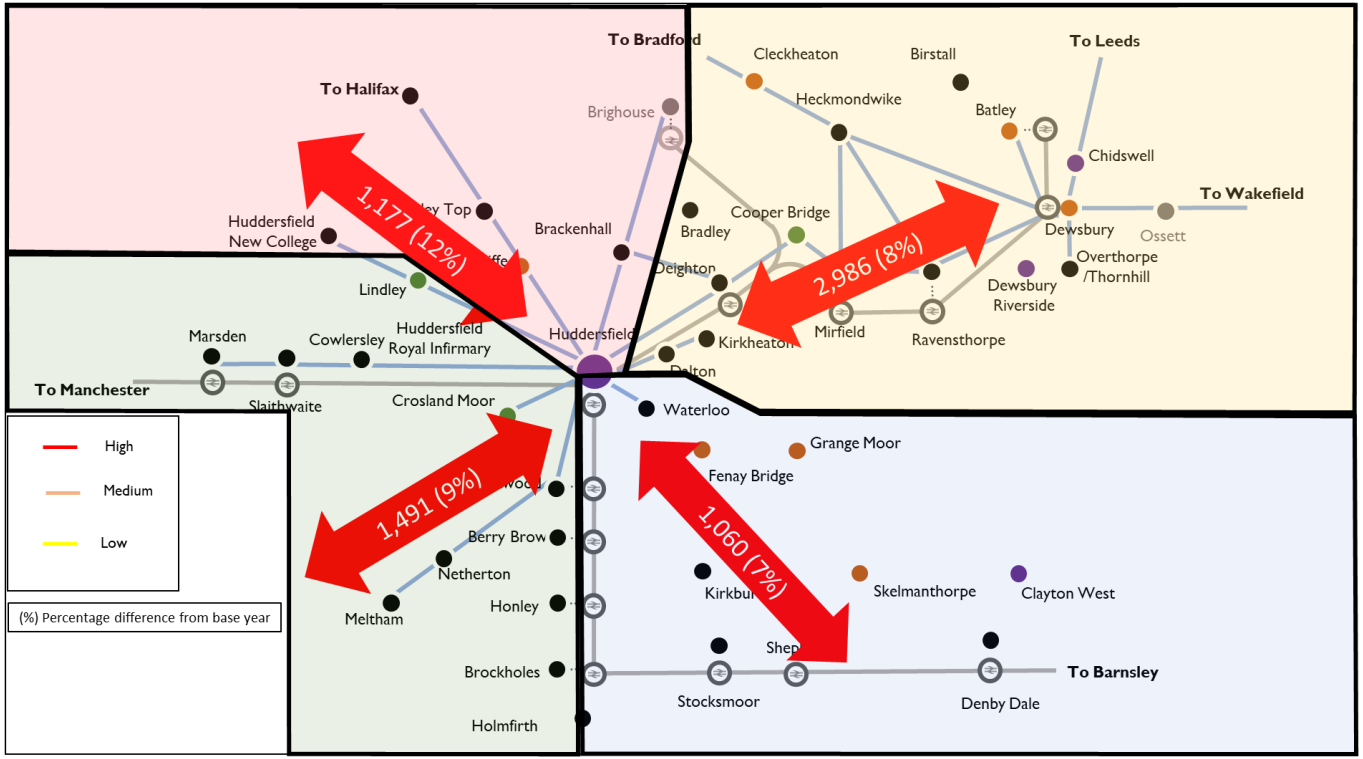


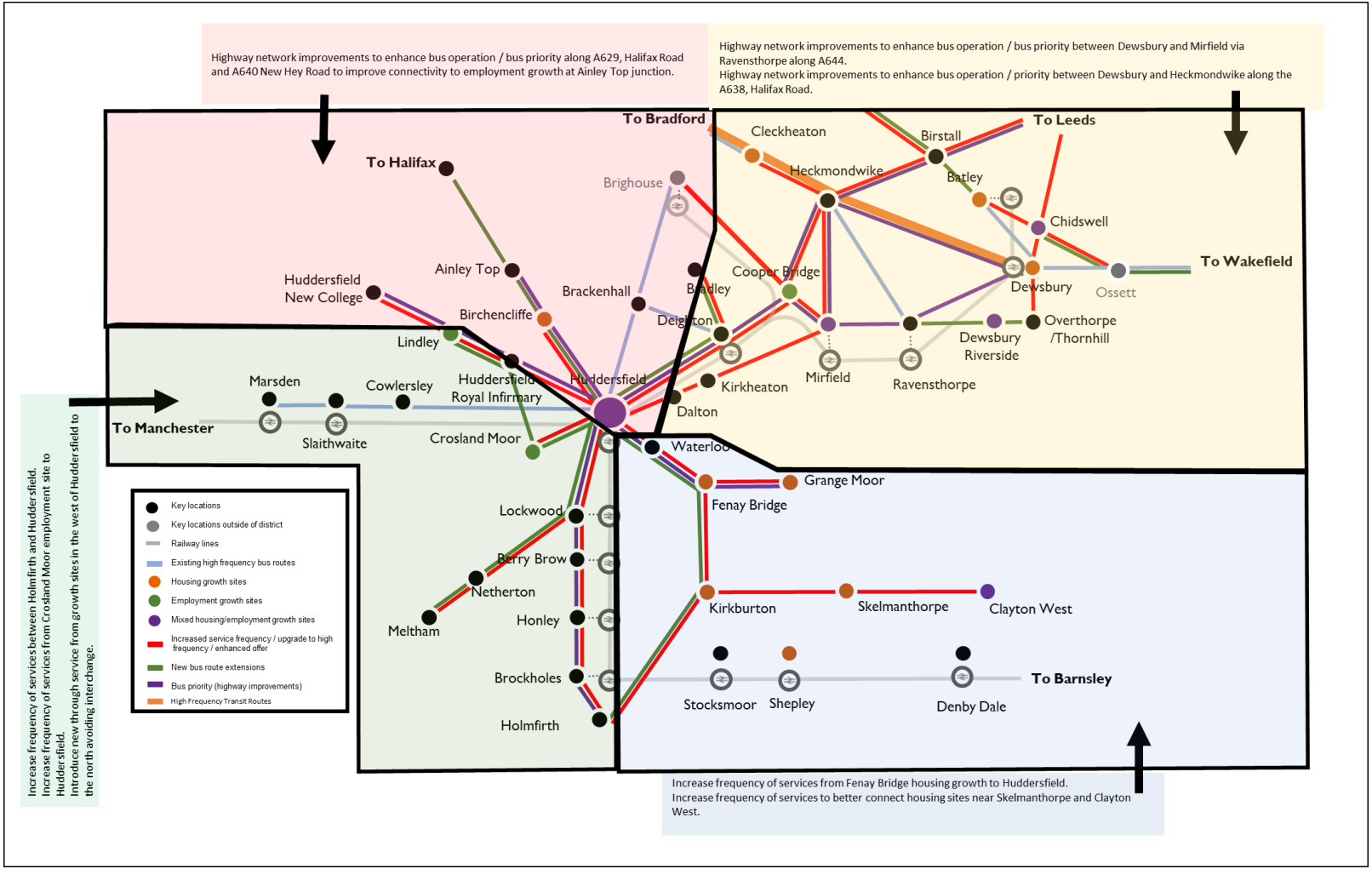
# Growing the Demand – 2033



# Future network demands

## 2033 bus journey ‘productions’ by segment (average hour)




Highway network improvements to enhance bus operation / bus priority along A629, Halifax Road and A640 New Hey Road to improve connectivity to employment growth at Ainley Top junction.
Highway network improvements to enhance bus operation / bus priority between Dewsbury and Mirfield via Ravensthorpe along A644.
Highway network improvements to enhance bus operation / priority between Dewsbury and Heckmondwike along the A638, Halifax Road.
To Bradford
To Leeds
To Halifax
To Wakefield
To Manchester
To Barnsley
Cleckheaton
Birstall
Heckmondwike
Batley
Chidswell
Brighouse
Ainley Top
Huddersfield New College
Brackenhall
Birchencliffe
Lindley
Bradley
Cooper Bridge
Dewsbury
Ossett
Deighton
Overthorpe /Thornhill
Dewsbury Riverside
Mirfield
Ravensthorpe
Kirkheaton
Dalton
Marsden
Cowlersley
Huddersfield Royal Infirmary
Huddersfield
Slaithwaite
Crosland Moor
Waterloo
Grange Moor
Fenay Bridge
Lockwood
Berry Brow
Netherton
Meltham
Honley
Brockholes
Holmfirth
Kirkburton
Skelmanthorpe
Clayton West
Stocksmoor
Shepley
Denby Dale
Key locations
Key locations outside of district
Railway lines
Existing high frequency bus routes
Housing growth sites
Employment growth sites
Mixed housing/employment growth sites
Increased service frequency / upgrade to high frequency / enhanced offer
New bus route extensions
Bus priority (highway improvements)
High Frequency Transit Routes
Increase frequency of services between Holmfirth and Huddersfield.
Increase frequency of services from Crosland Moor employment site to Huddersfield.
Introduce new through service from growth sites in the west of Huddersfield to the north avoiding interchange.
Increase frequency of services from Fenay Bridge housing growth to Huddersfield.
Increase frequency of services to better connect housing sites near Skelmanthorpe and Clayton West.

# Kirklees Key Conclusions

- 97% of addresses in Kirklees are within 400m of a bus stop; 60% are within 400m of a bus stop served by 4 buses or more during the morning peak (7-9.30am)
- In current conditions the bus network offers reasonable connections, however, 40% of the population are not served by the core bus network
- Background population growth across the district, with no interventions could see demand increase by 8%, however it is estimated that the network will require 11% more buses to maintain the exiting service level in 2033
- It is estimated that the future network improvements do not deliver significant demand increases, but they are important for delivering connections to key development sites, particularly around Birchencliffe, Bradley and Dewsbury to ensure the future viability of the bus network. There is also likely to be greater cross-boundary demand to South Yorkshire than presented in the review –due to limited inclusion of data from South Yorkshire.

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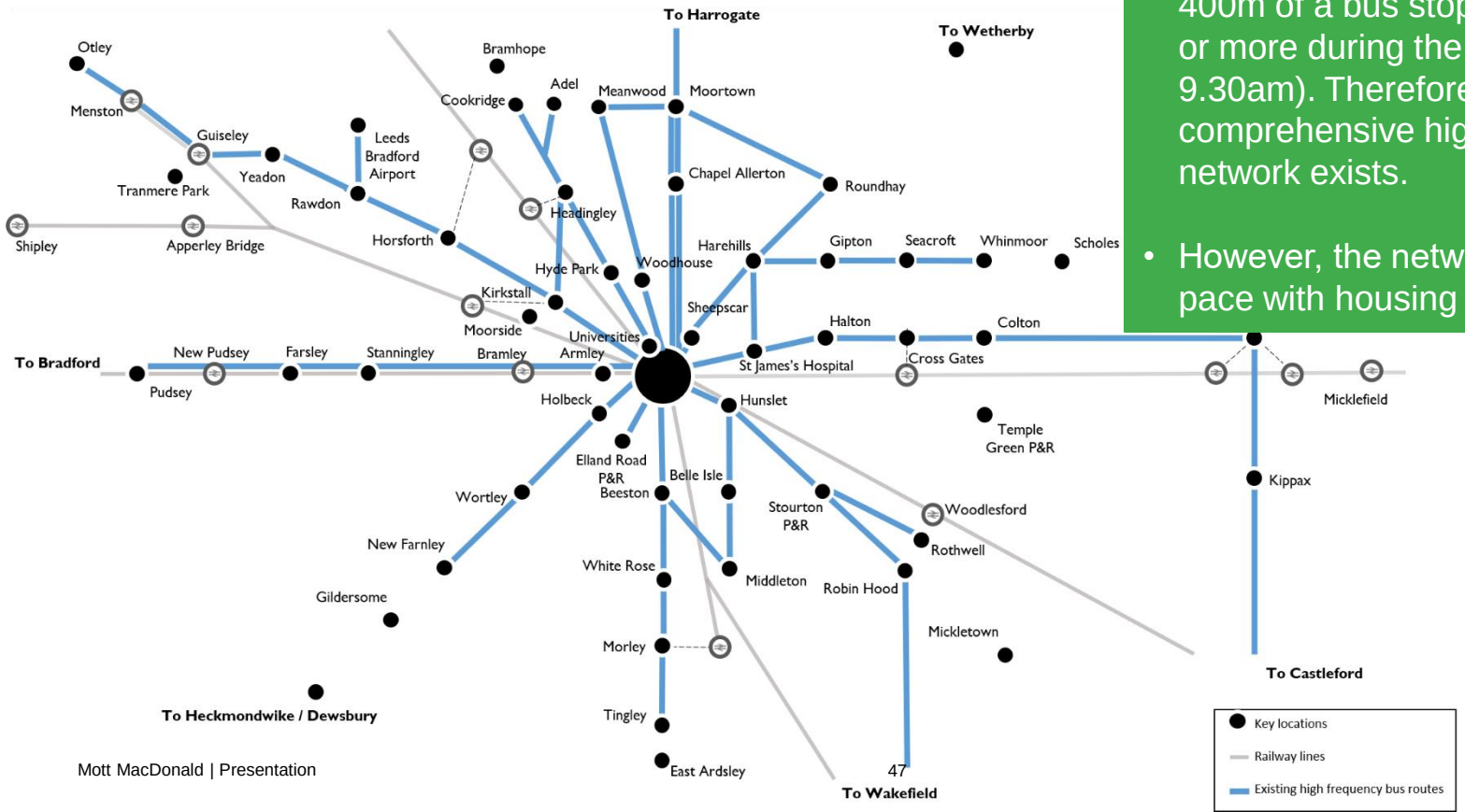
# Leeds

# Existing high frequency network

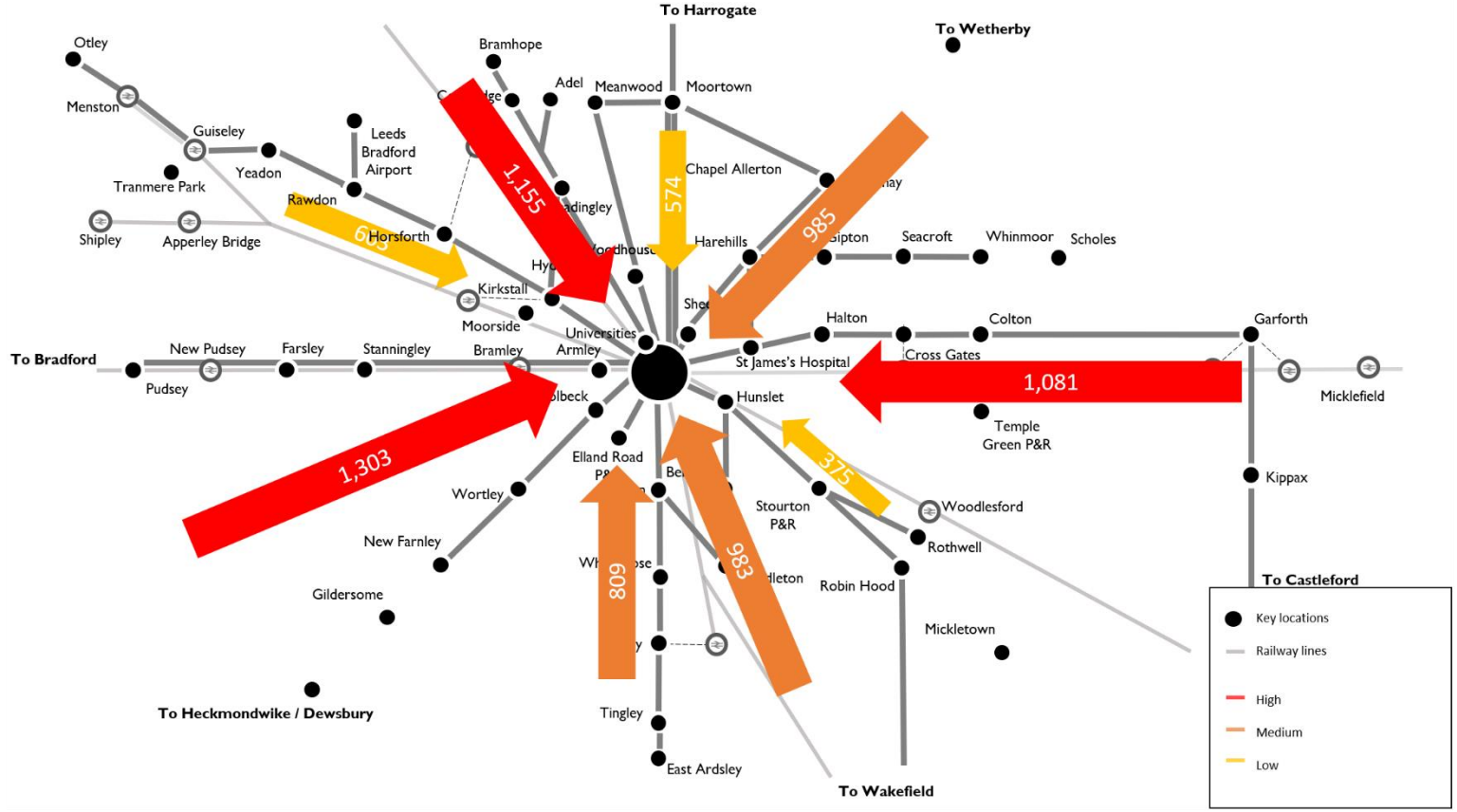
## Based on communities served by at least 4 buses per hour

- 97% of addresses in Leeds are within 400 m of a bus stop
- 79% of addresses in Leeds are within 400m of a bus stop served by 4 buses or more during the morning peak (7-9.30am). Therefore, at present, a comprehensive high frequency network exists.
- However, the network hasn't kept pace with housing and jobs growth



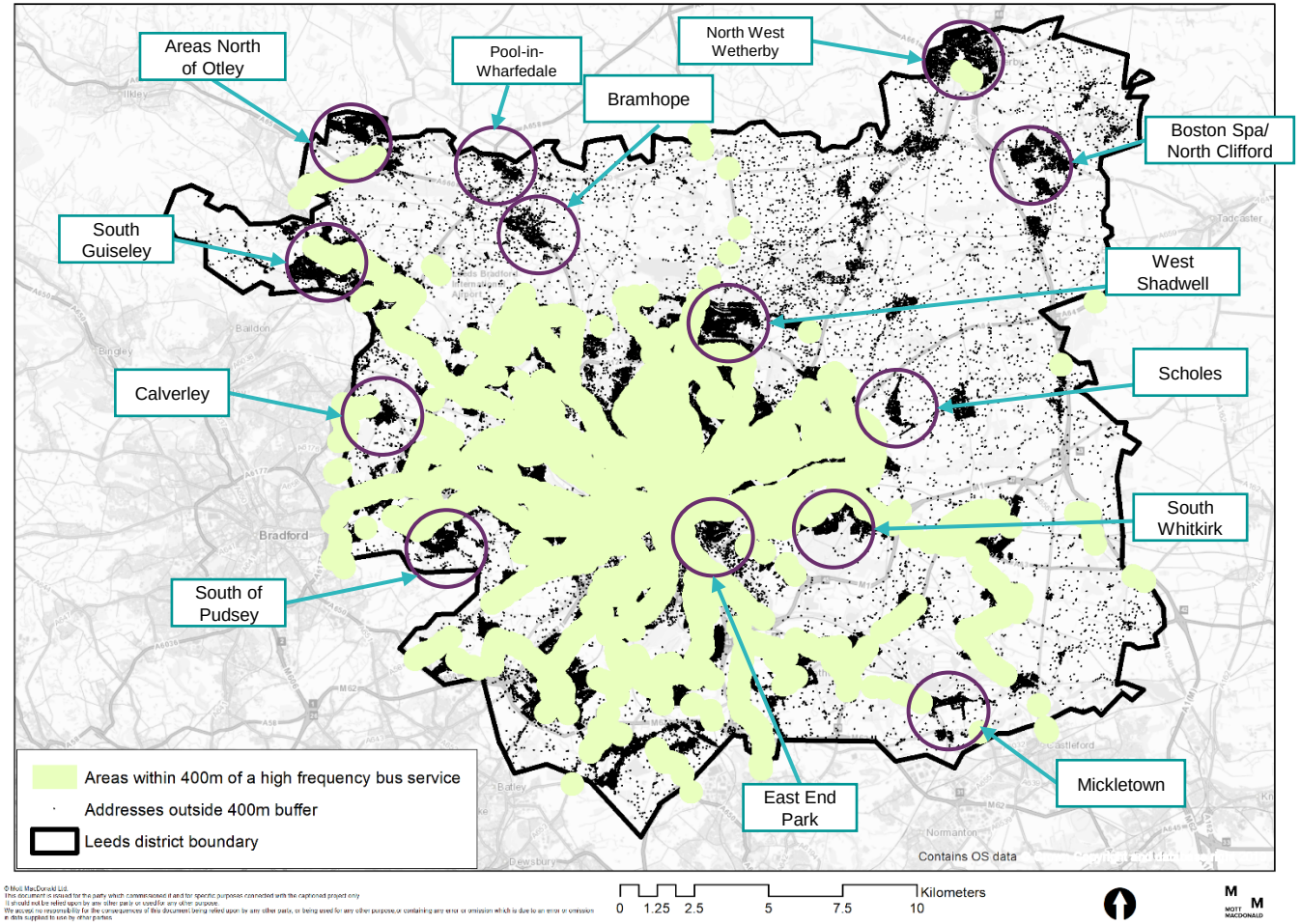
# Current key network demands

## 2017 bus journey ‘productions’ by segment (average hour)



# Areas with poor access to high frequency services

The dark areas indicate addresses that currently sit beyond 400m of a bus stop served by at least 4 buses in the morning peak (07:00-09:30)



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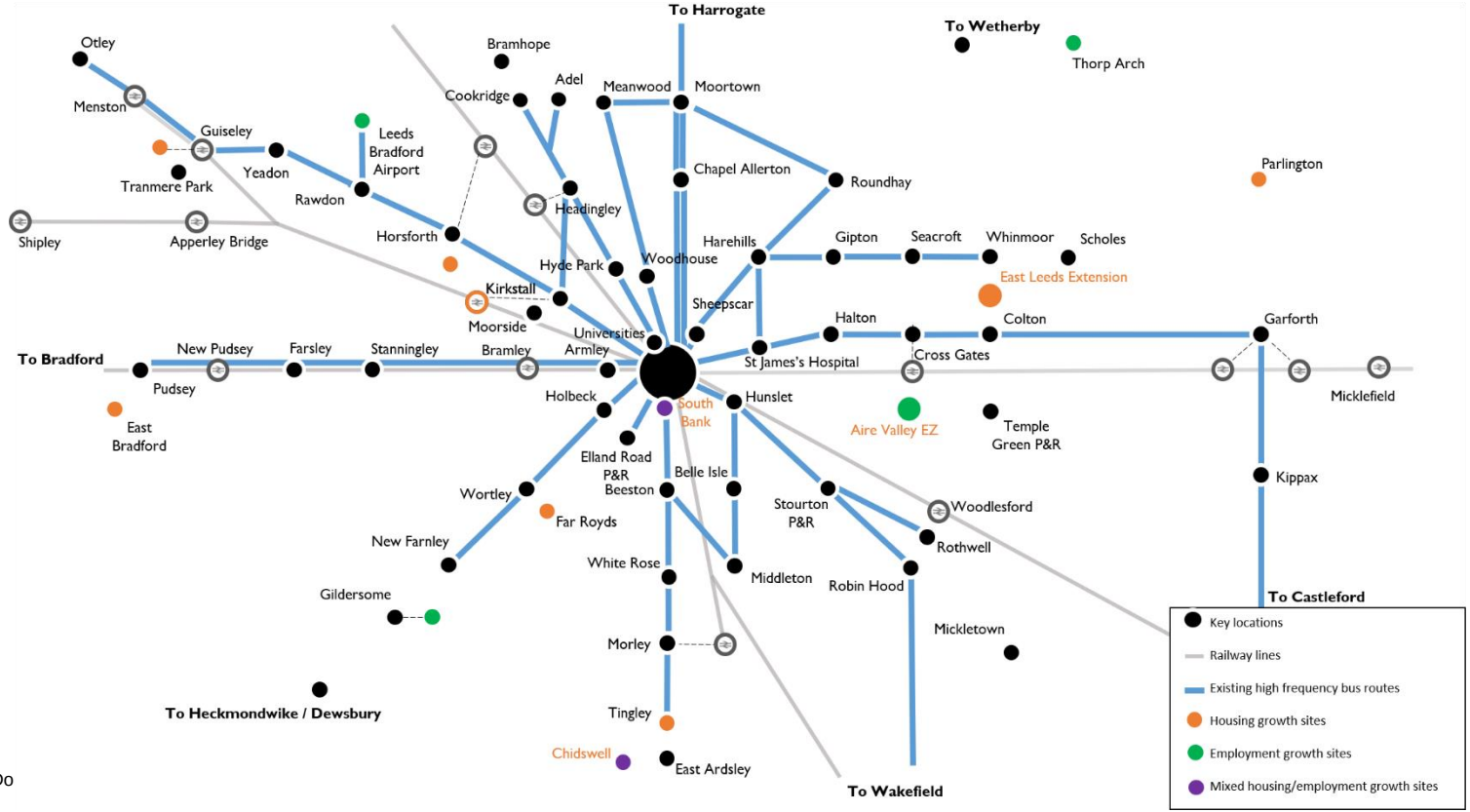
# Opportunities to grow the Demand

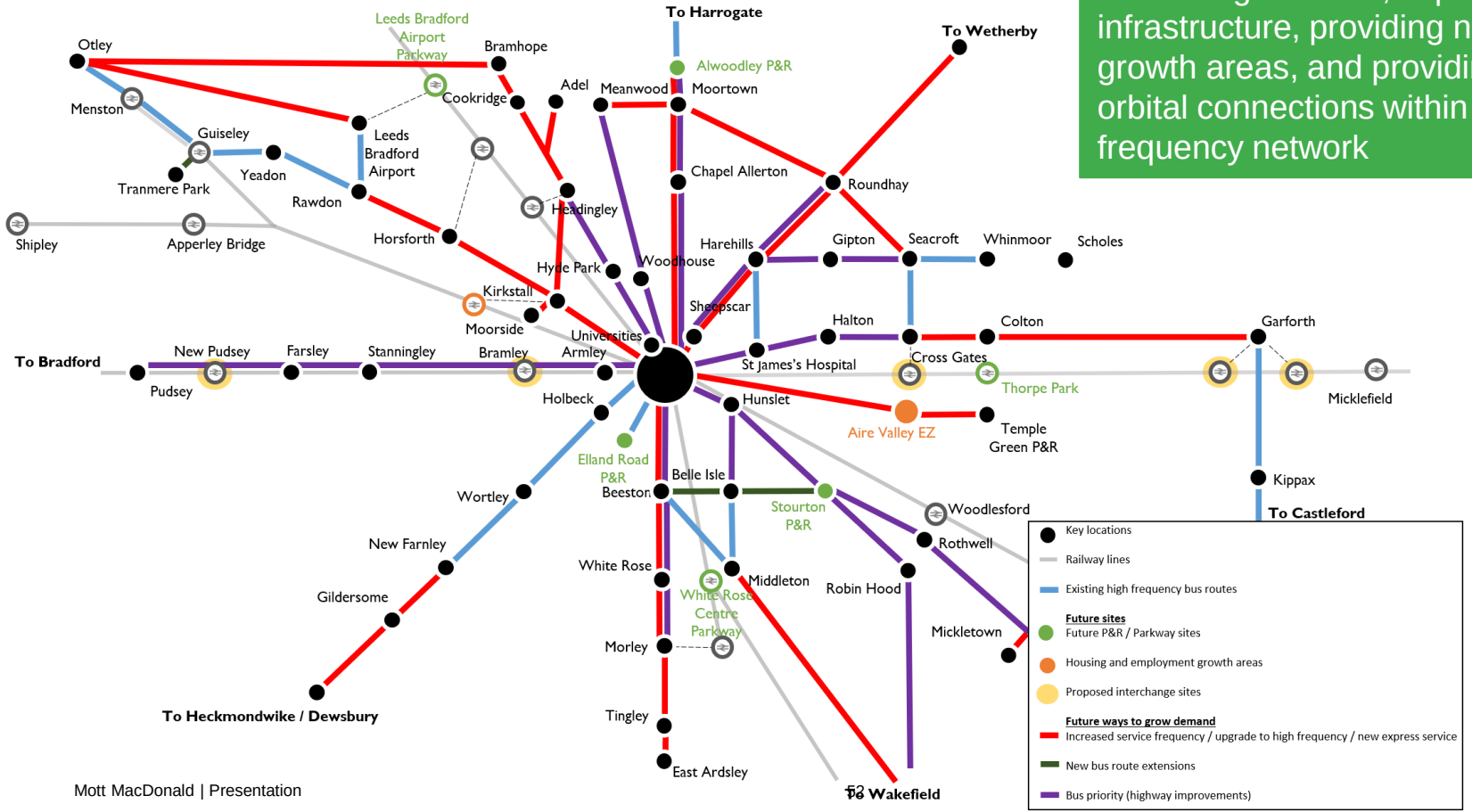
# Future growth

## There is growth in places currently not on the high frequency network

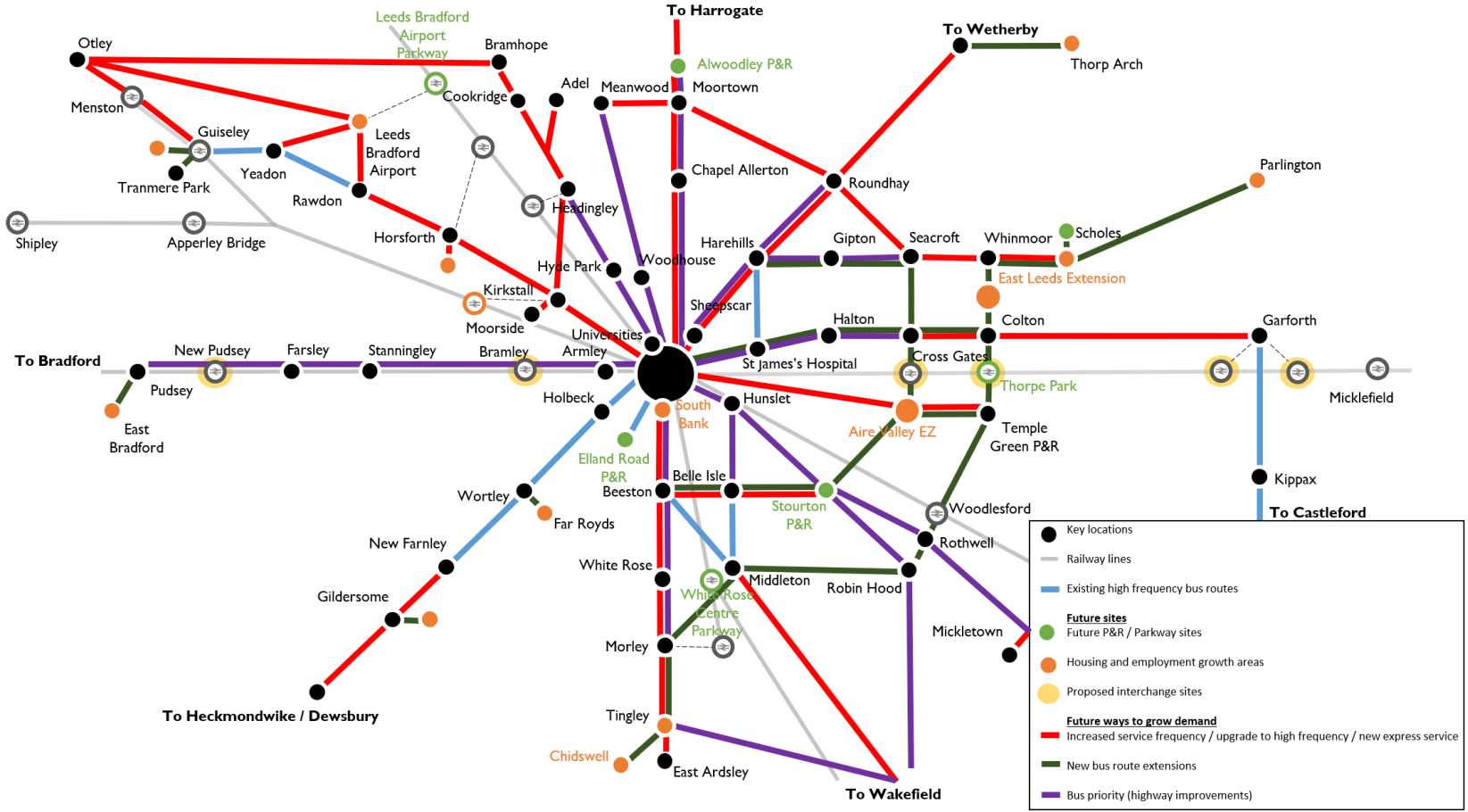


# Growing the Demand - 2021 opportunities

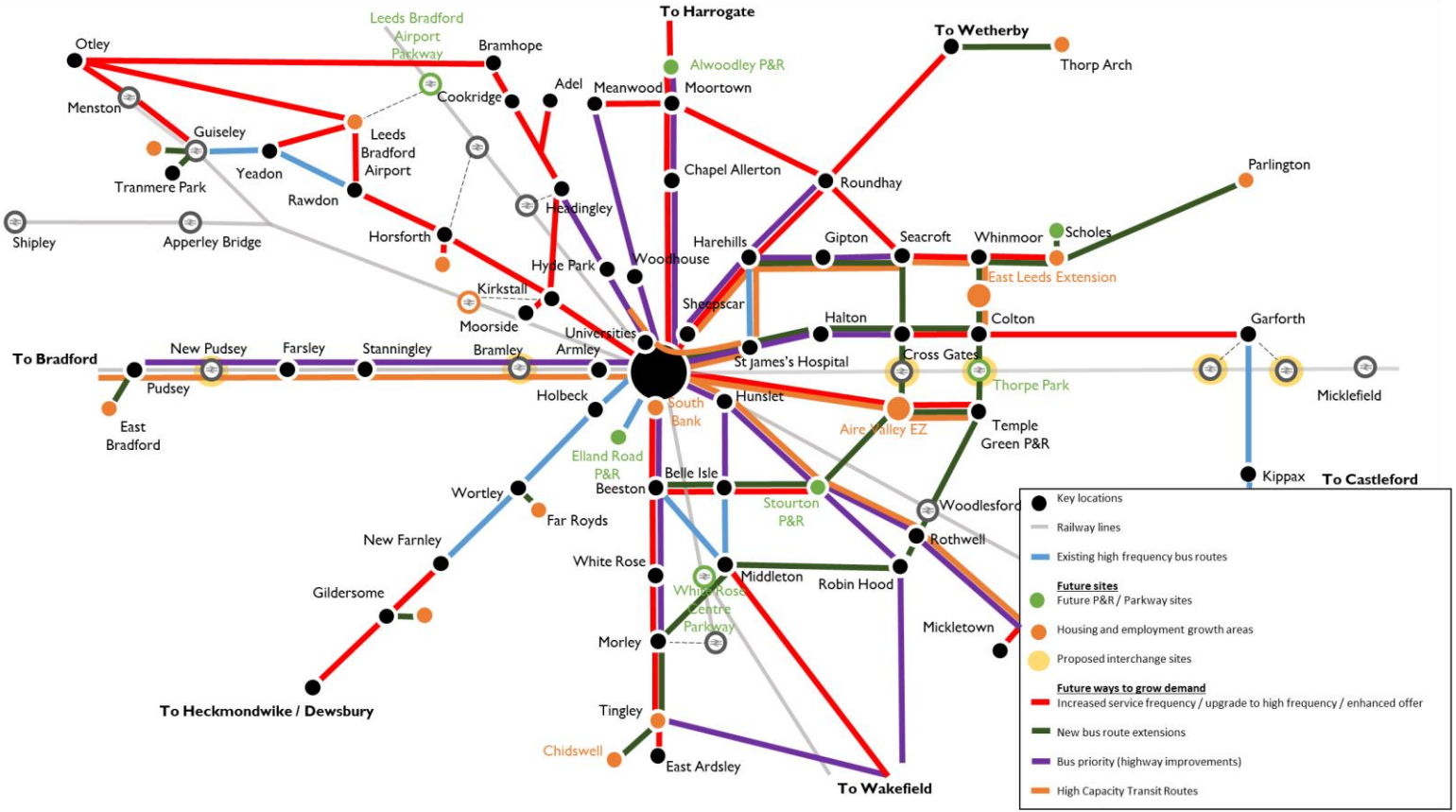
There are opportunities to grow the demand by improving frequencies, enhancing services, improving infrastructure, providing new links to growth areas, and providing selected orbital connections within the high frequency network



# Growing the Demand – 2024

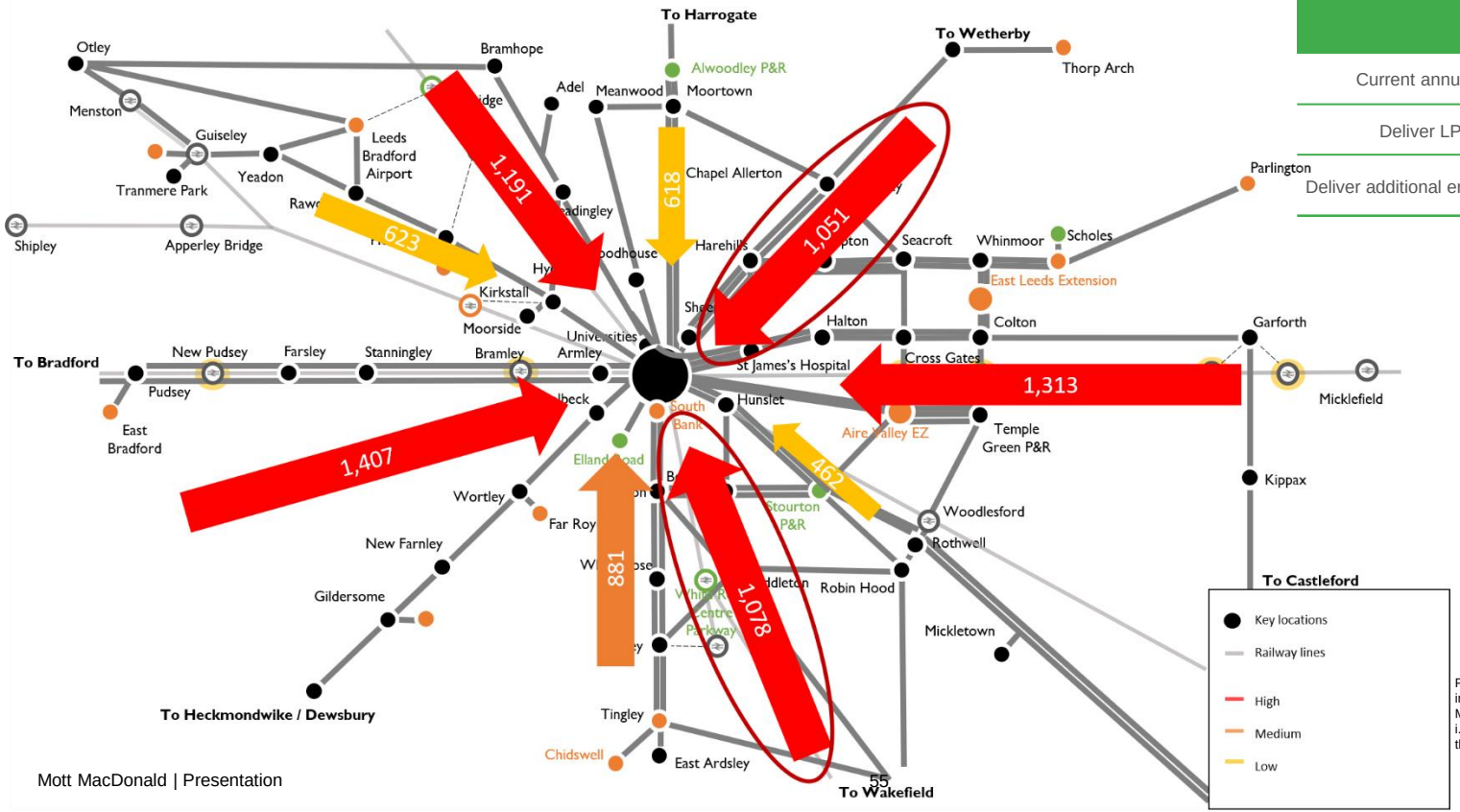


# Growing the Demand – 2033



# Future network demands

## 2033 bus journey ‘productions’ by segment (average hour)




| | 2017 | 2033 |
|---|---|---|
| Current annual trips | 62.5m | |
| Deliver LPTIP | | 70m |
| Deliver additional enhancements | | 74m |

Please note, the demand shown for each of the areas is indicative as the number shown is dependent on where the MSOA boundaries lie in relation to the corridor boundaries - i.e. the visual representation of the corridors does not mirror the areas as defined by the MSOAs.

Increase frequency of services from Otley to Bramhope, Guiseley and Leeds Bradford Airport.

Connect housing sites in Guiseley, Horsforth and Kirkstall to the existing bus network.

Introduce a high-quality express service from Rawdon to Leeds.

Highway network improvements to enhance bus operation / priority from Headingley to the City Centre.

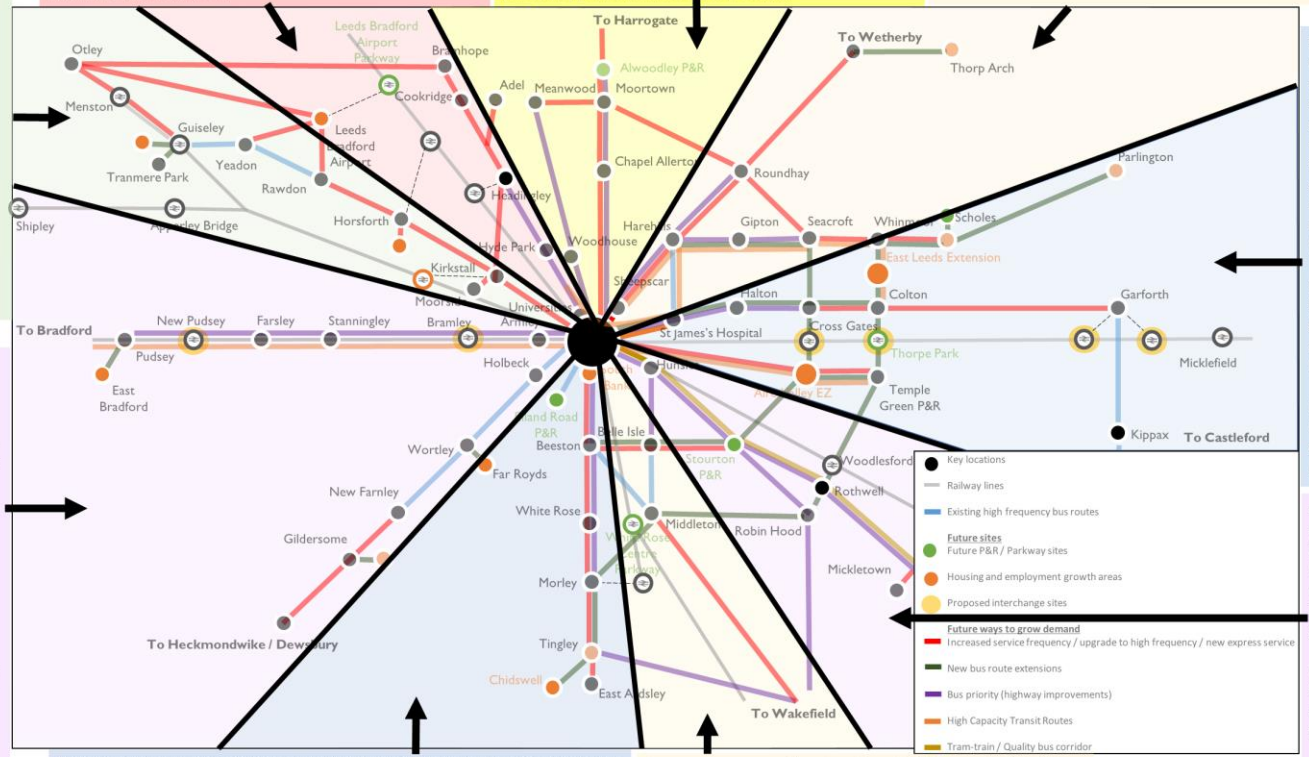
Increase frequency of services from Headingley to Otley via Bramhope and from Adel.

Highway network improvements to enhance bus operation / priority from Meanwood / Woodhouse to the City Centre.

High-quality express service and increase frequency from Alwoodley / Moortown to the City Centre.

Increase frequency of services between Wetherby and Leeds and introduce an express service between Roundhay and the City Centre.

Highway network improvements to Roundhay and between Harehills and Seacroft to address forecast decline.




Introduction of new orbital routes running across multiple corridors in order to connect new growth sites at East Leeds Extension and Aire Valley EZ.

Increase service frequency between the City Centre and Aire Valley EZ.

Improve interchange connections into the rail network.

Highway network improvements on the Pudsey – Leeds corridor to address forecast decline.

New routes to connect new housing in East Bradford.

Improve interchange connections into the rail network.

High-quality express service between Heckmondwike/ Dewsbury and Leeds.

Increase service frequency between East Ardsley / Tingley and Beeston through to the City Centre.
New route to connect future employment site in Chidswell.
Highway network improvements from Morley to address forecast decline.

Increase frequency of services from Middleton to Wakefield.
Highway network improvements between Belle Isle and the City Centre.
New orbital routes via Middleton and Belle Isle.

Highway network improvements from Castleford and Wakefield to Leeds City Centre.

Increase frequency of services to Mickletown.

New orbital routes via Rothwell and Stourton P&R.

# Leeds Key Conclusions

- 97% of addresses in Leeds are within 400 m of a bus stop, 79% of addresses in Leeds are within 400m of a bus stop served by 4 buses or more during the morning peak (7-9.30am). Therefore, at present, a comprehensive high frequency network exists
- In 2017, it is estimated that there are almost 63m annual trips by bus in Leeds, by 2033 this rises to 74m if all the additional enhancements are delivered
- In some areas, the network hasn't kept pace with housing and jobs growth meaning that some locations in the district have limited connectivity by bus
- It is estimated that the network will require 7% more buses to deliver the same level of service by 2033, if no enhancements are made
- The greatest immediate opportunity is to improve journey times and reliability to build on current Connecting Leeds programmes by tackling congestion, providing effective bus priority

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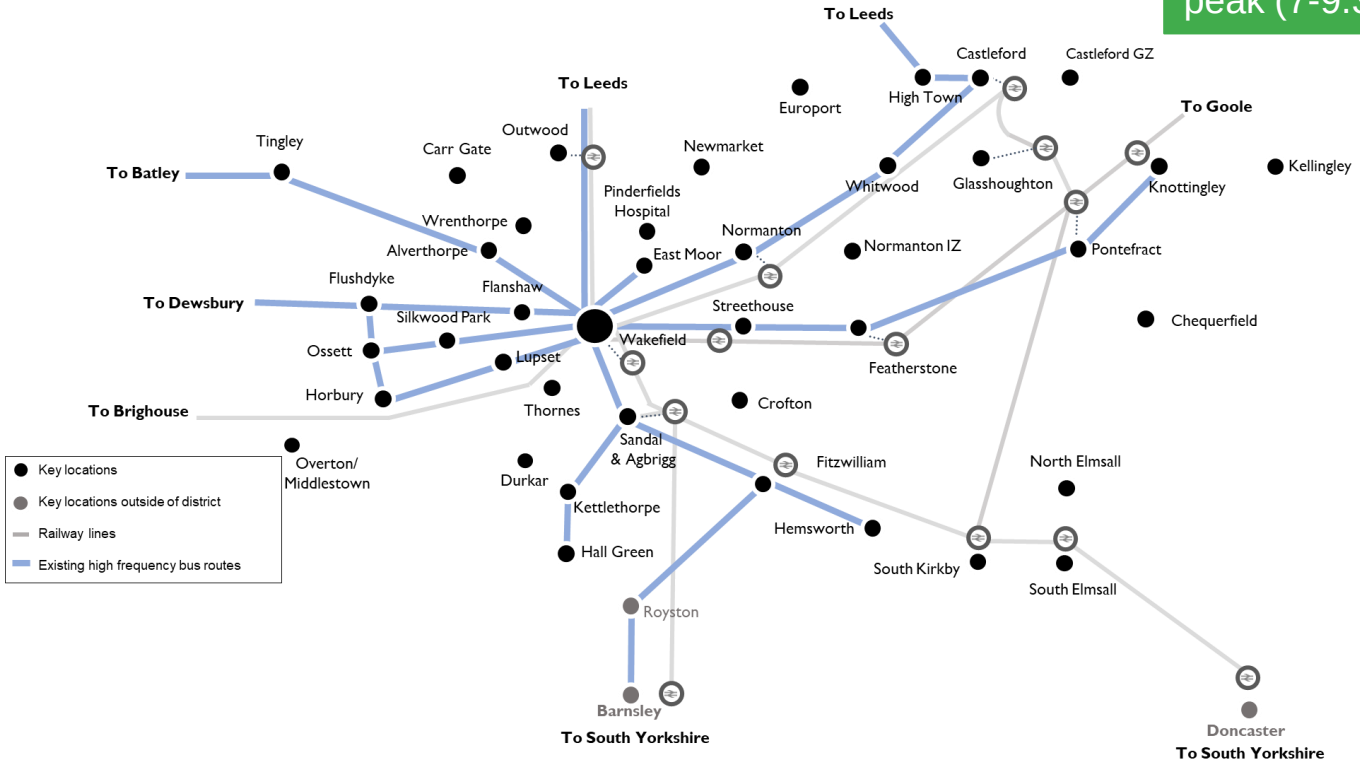
# Wakefield

# Existing high frequency network

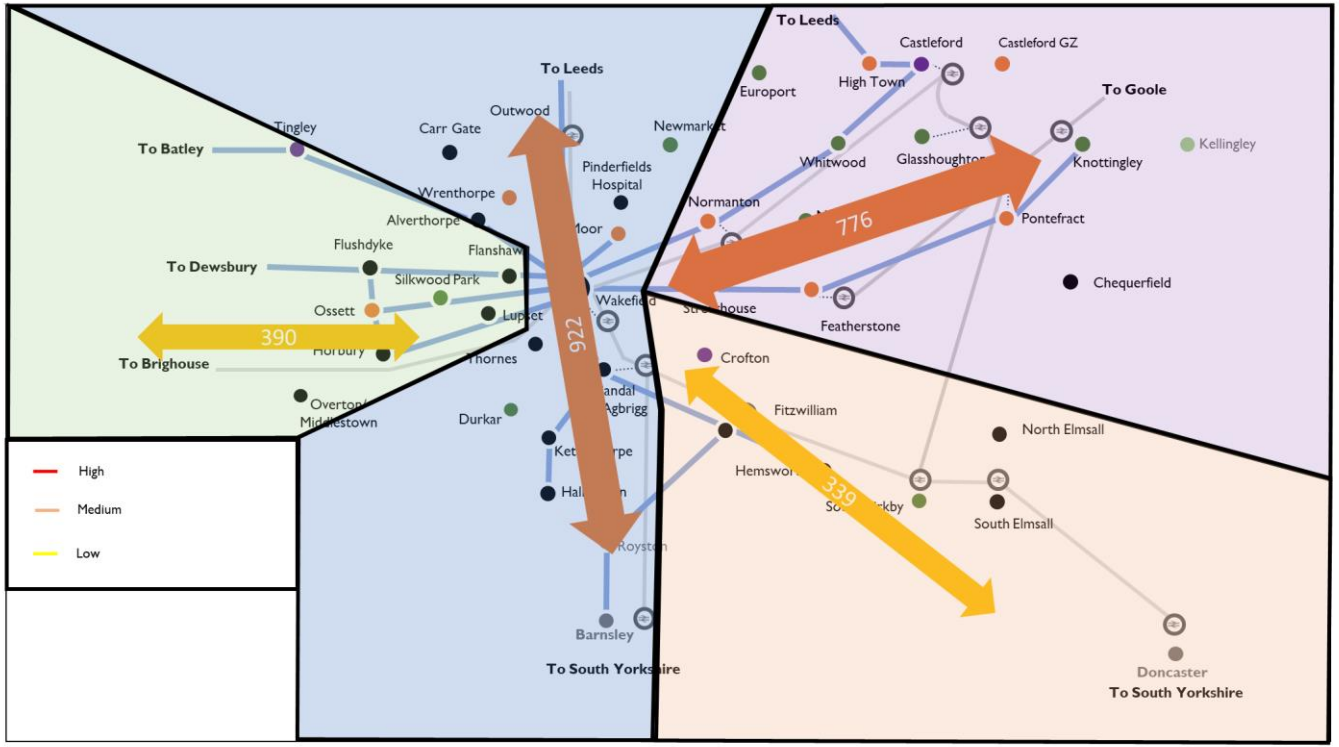
## Based on communities served by at least 4 buses per hour

97% of addresses in Wakefield are within 400 m of a bus stop; 61% are within 400m of a bus stop served by 4 buses or more during the morning peak (7-9.30am).



# Current key network demands

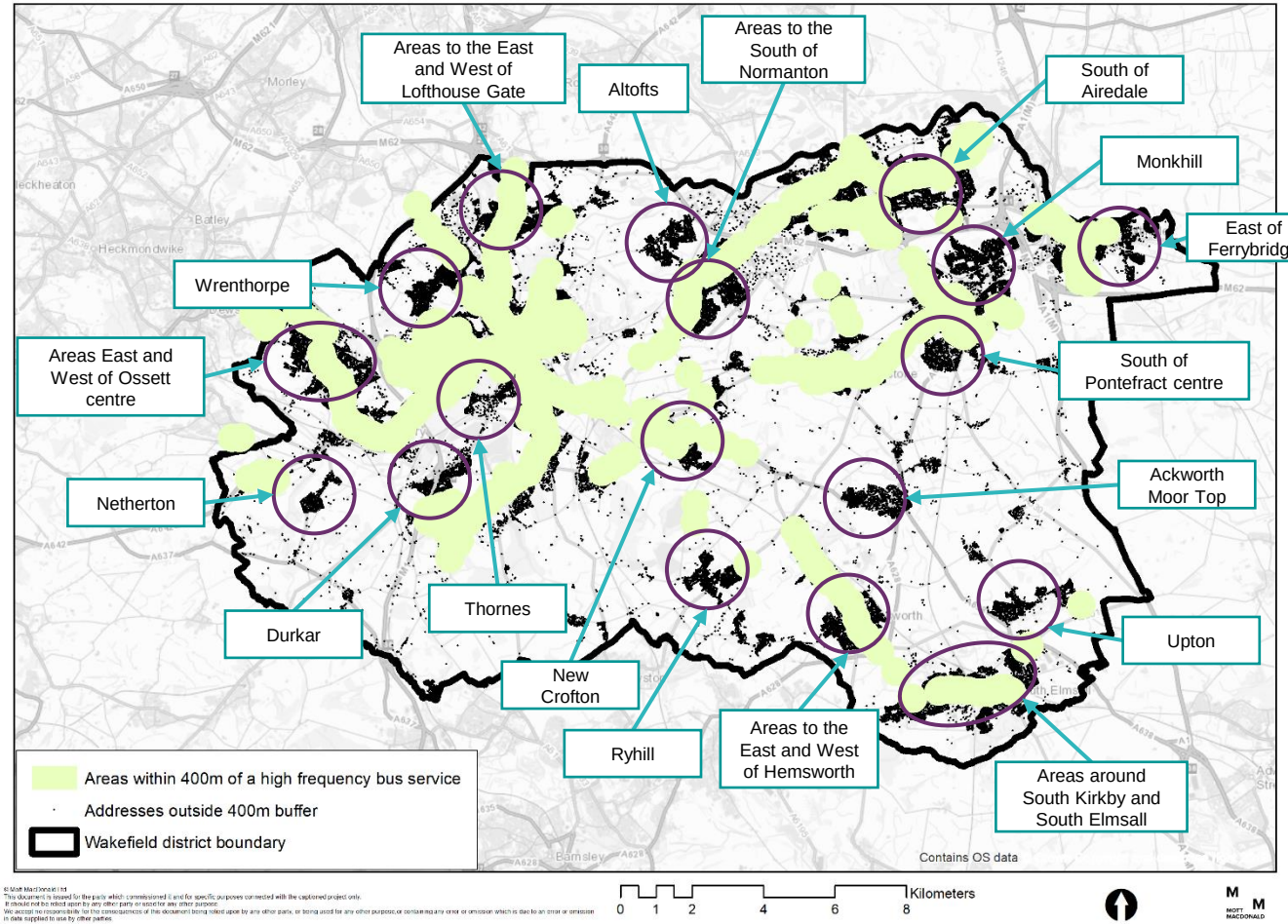
## 2018 bus journey ‘productions’ by segment (average hour)




Please note, the demand shown for each of the areas is indicative as the number shown is dependent on where the MSOA boundaries lie in relation to the corridor boundaries - i.e. the visual representation of the corridors does not mirror the areas as defined by the MSOAs.

# Areas with poor access to high frequency services

The dark areas indicate addresses that currently sit beyond 400m of a bus stop served by at least 4 buses in the morning peak (07:00-09:30)



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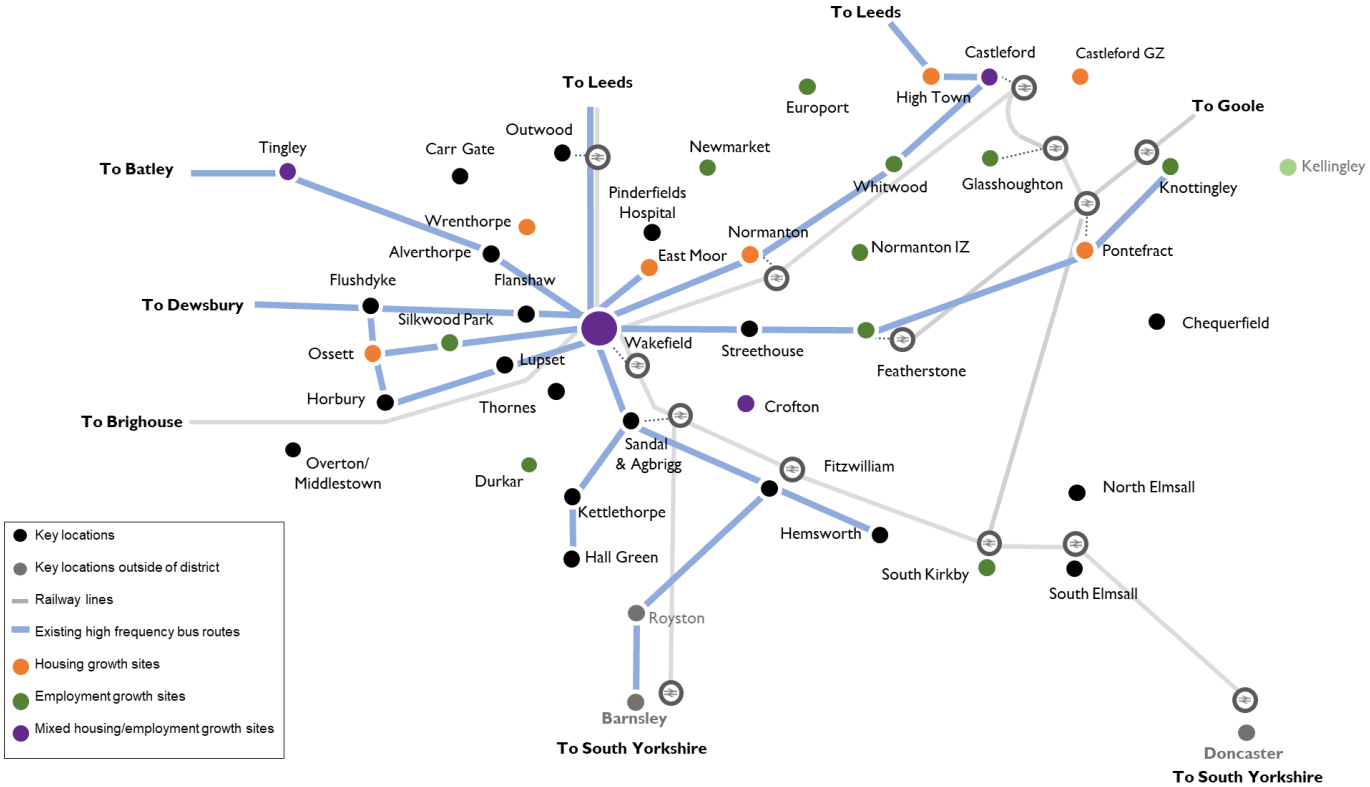
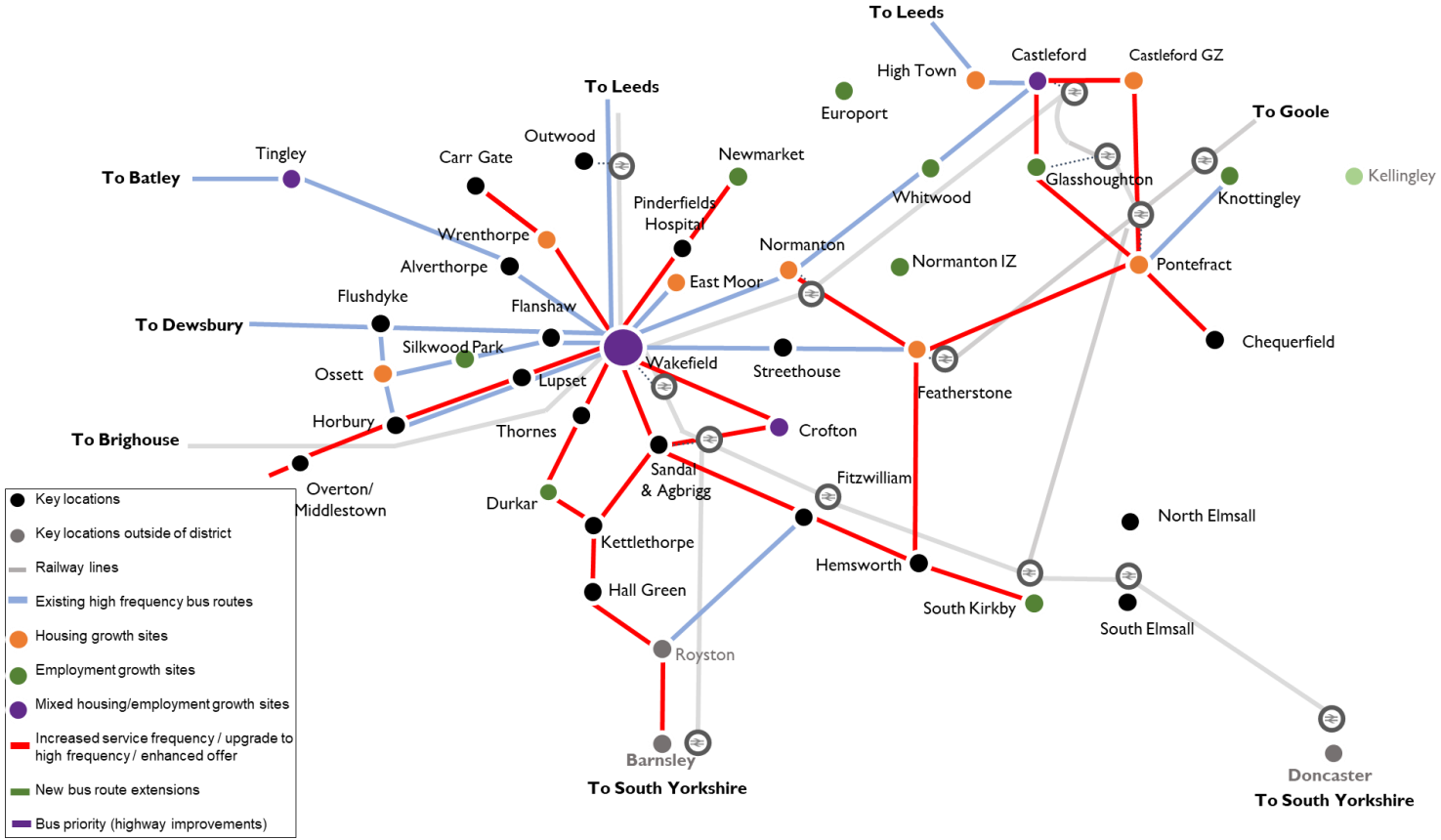
# Opportunities to grow the Demand

# Future growth

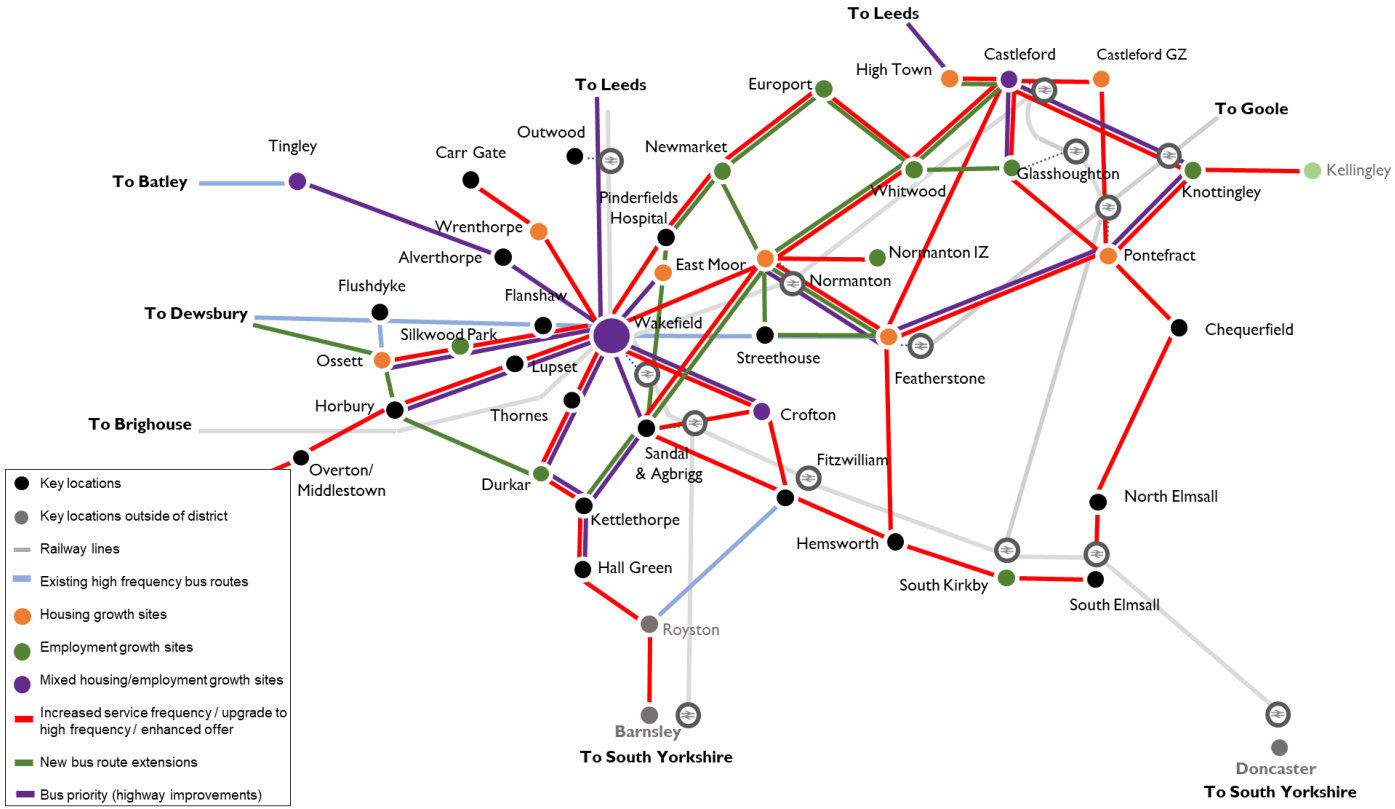
## There is growth in places currently not on the high frequency network



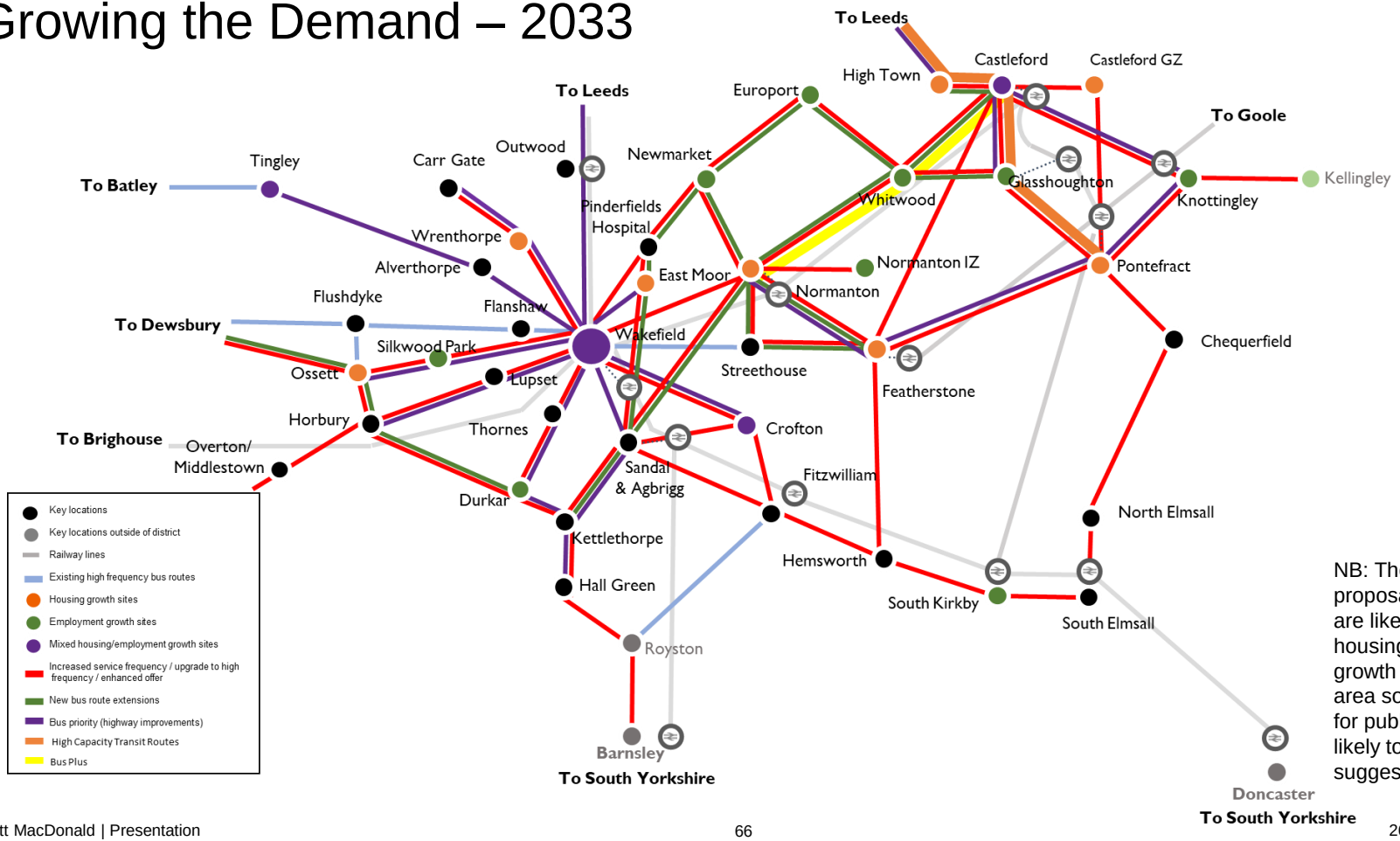
# Growing the Demand – 2021 opportunities



# Growing the Demand – 2024



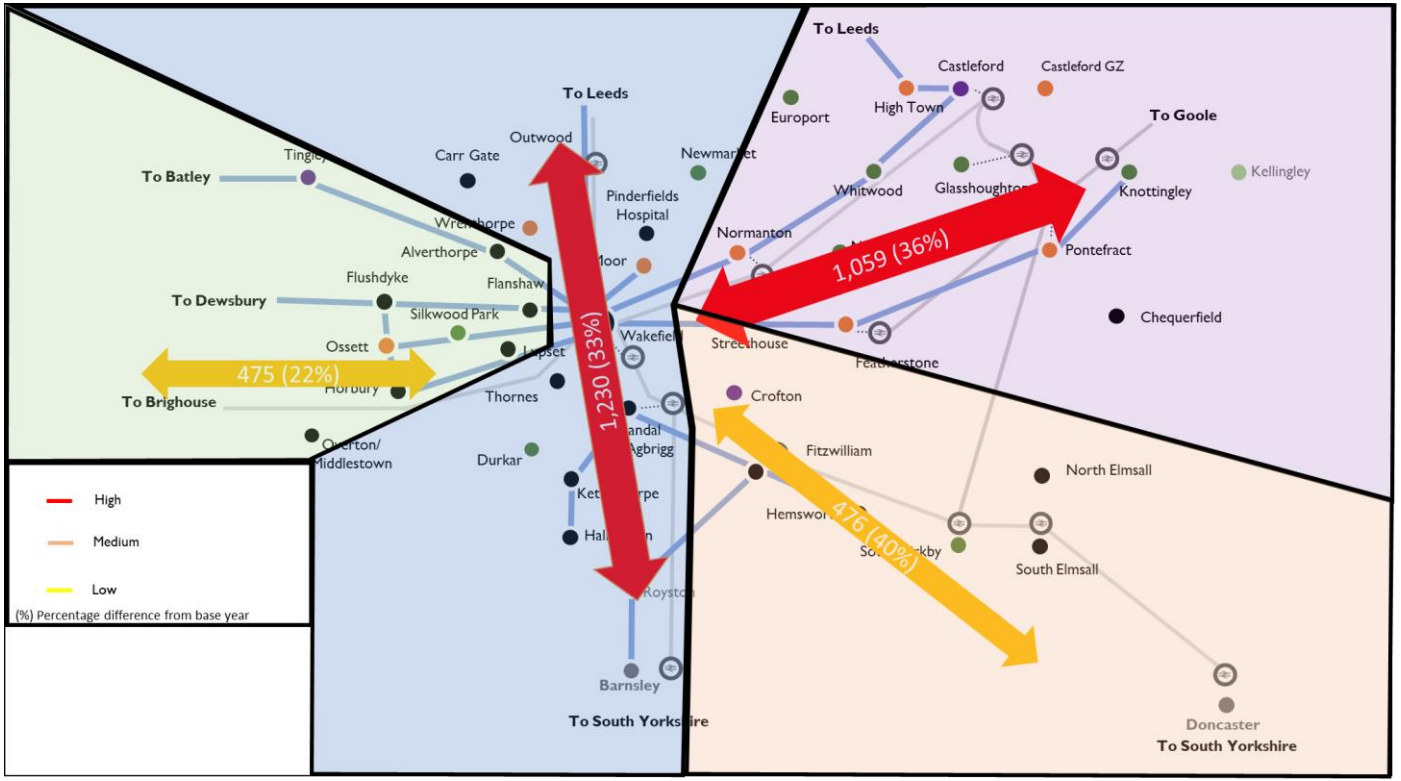
# Growing the Demand – 2033




NB: The new Local Plan proposals for Wakefield are likely to increase housing and employment growth in the Knottingley area so the requirement for public transport is likely to be greater than suggested in this review

# Future network demands

## 2033 bus journey ‘productions’ by segment (average hour)



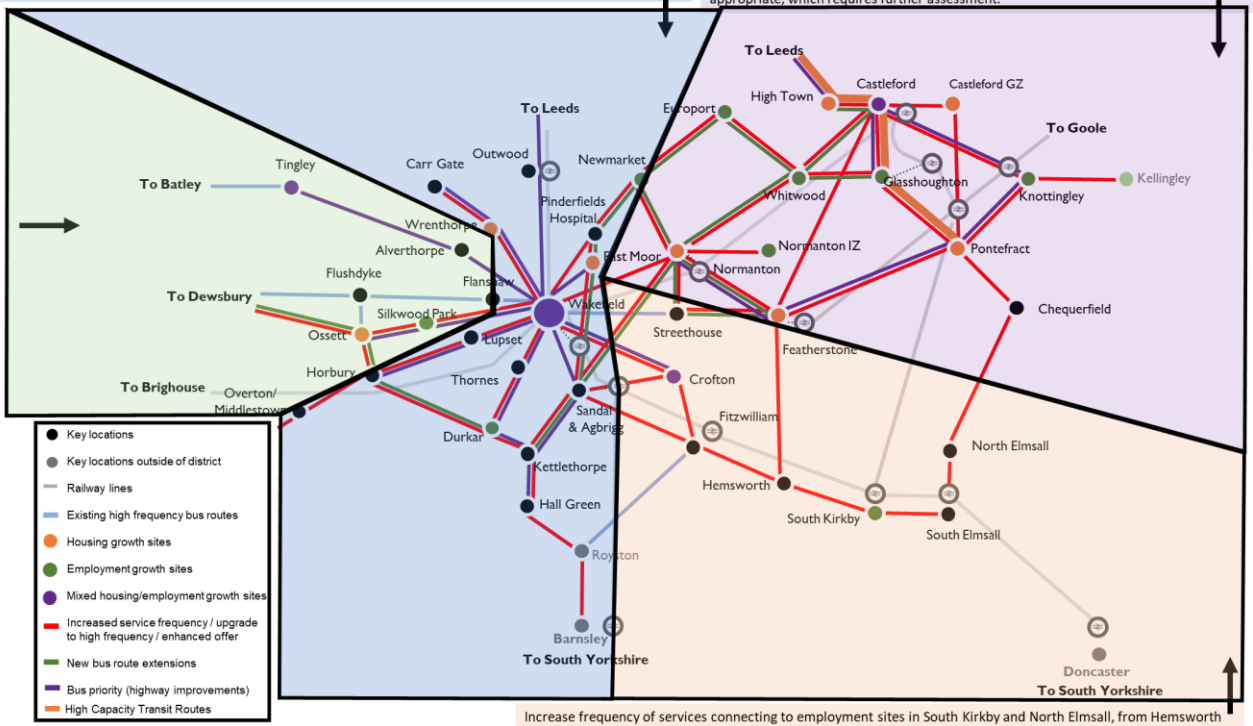

To note: the assessment does not include future development data for South Yorkshire so it is likely that a conservative estimate on future demand is being presented

Increase frequency of services connecting to new employment and housing sites in the corridor such as Newmarket and Durkar as well as Pinderfields hospital
Highway network improvements along A650 Bradford Road and between Kettlethorpe and Sandal & Agbrigg as well as between Ossett and Wakefield.
New orbital service connection areas from the north to the south

Increase frequency of services between the Five Towns and connect new housing and employment sites including Castleford Growth Zone, Europort and Normanton Industrial Zone and around Featherstone.
Highway network improvements between Knottingley and Featherstone.
Many of the employment opportunities in this area will operate shift patterns which may not lend themselves to the provision of conventional bus services in the immediate term - a more demand responsive solution might be more appropriate, which requires further assessment.

Introduce a new orbital service with an enhanced offer between Dewsbury, Ossett and Durkar to connect new employment sites

Increase frequency of services to Overton and Middlestown




Increase frequency of services connecting to employment sites in South Kirkby and North Elmsall, from Hemsworth to Wakefield and Featherstone and from Wakefield to Crofton

Extend bus services from Hemsworth to connect to new employment sites in South Kirkby

# Wakefield Key Conclusions

- 97% of addresses in Wakefield are within 400 m of a bus stop; 61% are within 400m of a bus stop served by 4 buses or more during the morning peak (7-9.30am)
- The competition against existing rail services means demand for operating longer distances is not there
- Background growth with no interventions sees demand increase by 24%. It is estimated that the network will require 7% more buses to maintain existing levels of service by 2033, if no enhancements are made.
- There is opportunity boost demand by an additional 5 million trips by improving frequencies, providing new links to growth areas and capital investment in bus priority, it is estimated that these interventions will require 70 more buses by 2033. The bus connections to future development sites need to be improved to enhance longer term sustainability of the network. There is also likely to be greater cross-boundary demand to South Yorkshire than presented in the review –due to limited inclusion of data from South Yorkshire.
- The social value of the bus network is significant, with very high forecast demand increases

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# Next steps

# Next Steps for the Bus Alliance

**To note, since completing this study COVID-19 has had a significant impact on the commercial bus network patronage and the offer to customers. This study will be used to understand how the bus network should be re-instated to maximise the offer to the customers going forward**

- To understand funding opportunities to ensure the core bus network can be delivered by the commercial operators and how the public sector can further supplement the supported bus network
- To work with the operators to understand the routes and services that are commercially vulnerable
- To work with the operators to better integrate public transport offer into future development opportunities
- To delve deeper into some key areas of the bus network, particularly where key changes are likely to happen and undertake further work to understand priorities and local need
- To understand and develop different models for delivering public transport to serve communities that don't have good access to the higher frequency network, but which generate some demand and where public transport can meet community needs

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# Thank you