

West Midlands Key Route Network

West of Birmingham



Transport for
West Midlands

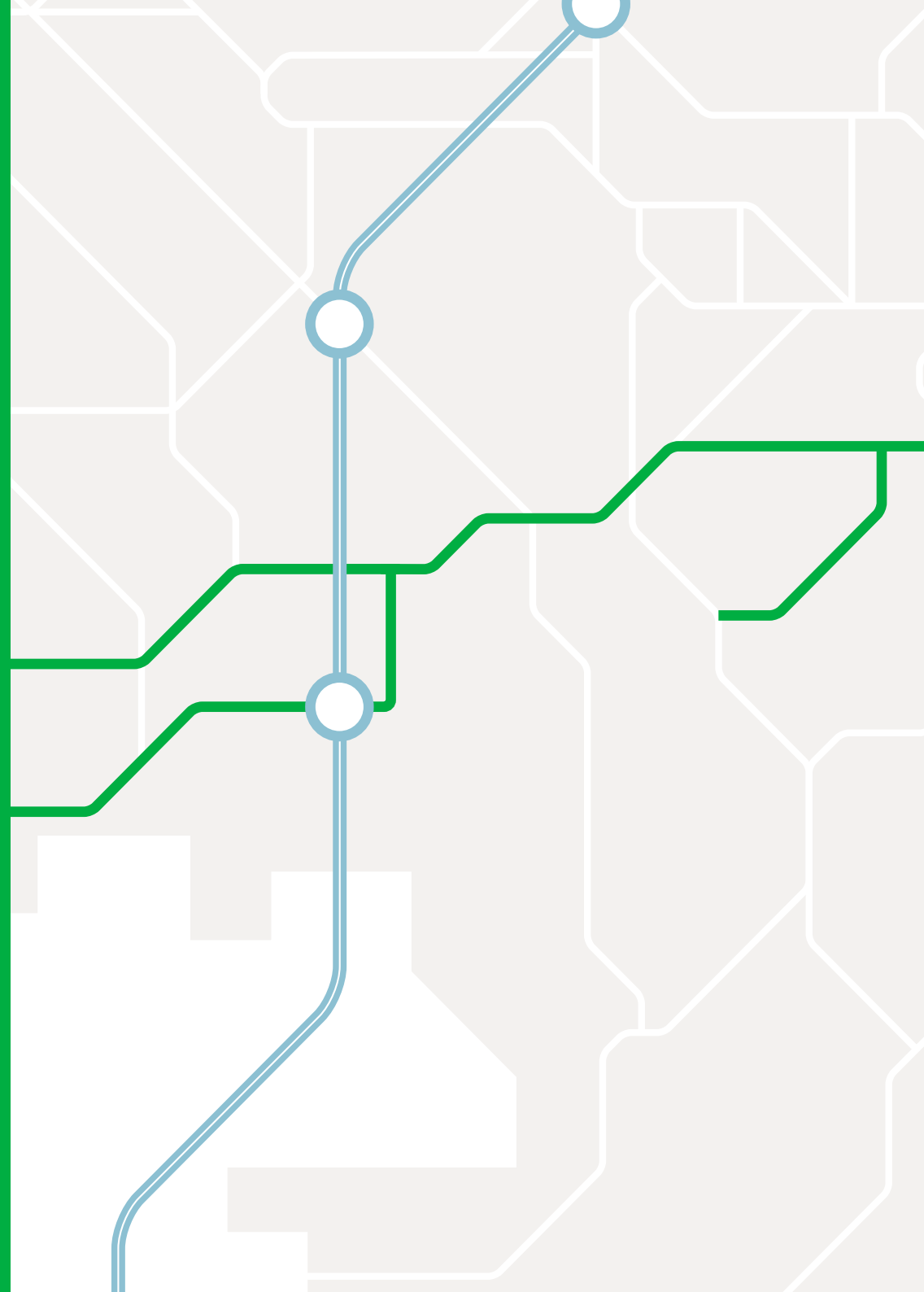
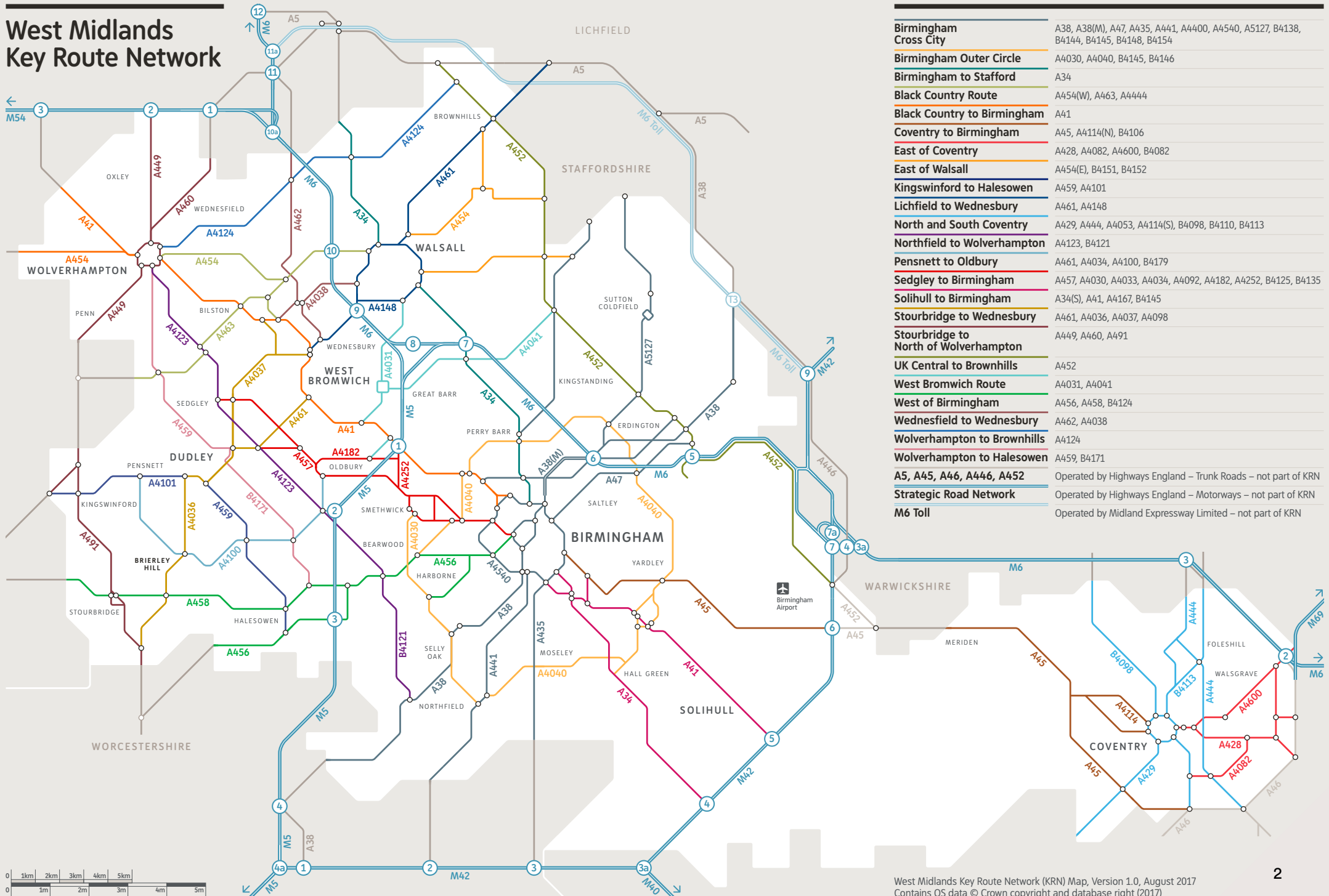


Figure 1

West Midlands Key Route Network



Birmingham Cross City	A38, A38(M), A47, A435, A441, A4400, A4540, A5127, B4138, B4144, B4145, B4148, B4154
Birmingham Outer Circle	A4030, A4040, B4145, B4146
Birmingham to Stafford	A34
Black Country Route	A454(W), A463, A4444
Black Country to Birmingham	A41
Coventry to Birmingham	A45, A4114(N), B4106
East of Coventry	A428, A4082, A4600, B4082
East of Walsall	A454(E), B4151, B4152
Kingswinford to Halesowen	A459, A4101
Lichfield to Wednesbury	A461, A4148
North and South Coventry	A429, A444, A4053, A4114(S), B4098, B4110, B4113
Northfield to Wolverhampton	A4123, B4121
Pensnett to Oldbury	A461, A4034, A4100, B4179
Sedgley to Birmingham	A457, A4030, A4033, A4034, A4092, A4182, A4252, B4125, B4135
Solihull to Birmingham	A34(S), A41, A4167, B4145
Stourbridge to Wednesbury	A461, A4036, A4037, A4098
Stourbridge to North of Wolverhampton	A449, A460, A491
UK Central to Brownhills	A452
West Bromwich Route	A4031, A4041
West of Birmingham	A456, A458, B4124
Wednesfield to Wednesbury	A462, A4038
Wolverhampton to Brownhills	A4124
Wolverhampton to Halesowen	A459, B4171
A5, A45, A46, A446, A452	Operated by Highways England – Trunk Roads – not part of KRN
Strategic Road Network	Operated by Highways England – Motorways – not part of KRN
M6 Toll	Operated by Midland Expressway Limited – not part of KRN



ROUTE DESCRIPTION

The West of Birmingham route is a 18 mile/30km section of the West Midlands Key Route Network (KRN) that serves the communities; of:

- Birmingham City Centre
- Harborne
- Quinton
- Halesowen
- Hayley Green
- Cradley
- Stourbridge; and
- Hagley

The route provides a key connection to Birmingham City Centre, Harborne, Halesowen and Stourbridge. The A456 stretch of this route encompasses numerous office and leisure complexes, particularly along Broad Street and Brindley Place in Birmingham City Centre and at the Western end of Hagley Road. Along the A458 there is a mix of residential and industrial land use. As the road approaches Halesowen its surroundings become more industrial particularly around its junction with the A459.

The route begins on the A456 on Broad Street in Birmingham City Centre, becoming the Hagley Road as it crosses the A4540 Middleway by means of an underpass. Along this route the A456 is lined with numerous bars, restaurants and city hotels and crosses the B4532, B4124, B4125, B4129 and B4182. As the road reaches the boundary of the city it joins the A4030 and A4040 at Bearwood and later changes from single to dual carriageway continuing to Hagley through Quinton.

The A458 originates at a roundabout on the A456 in Quinton. As the A458 continues west it becomes a dual carriageway crossing Dudley Canal in Halesowen. From this point the road continues as a dual carriageway, past the junction with the A459, to a roundabout in Halesowen Town Centre where the road changes to single carriageway as it passes through predominantly residential areas through Lye and on to Stourbridge. The A458 then continues to Shrewsbury and on into Wales.

The route is formed of the A456 (Birmingham City Centre to Kidderminster), A458 (Quinton to Stourbridge) and B4124 (A456 to Harborne).

The B4124 connects Harborne to Ladywood (Birmingham) along a 3.2 km stretch of road. This road travels south from the A456 through Chad Valley to Harborne Town Centre.

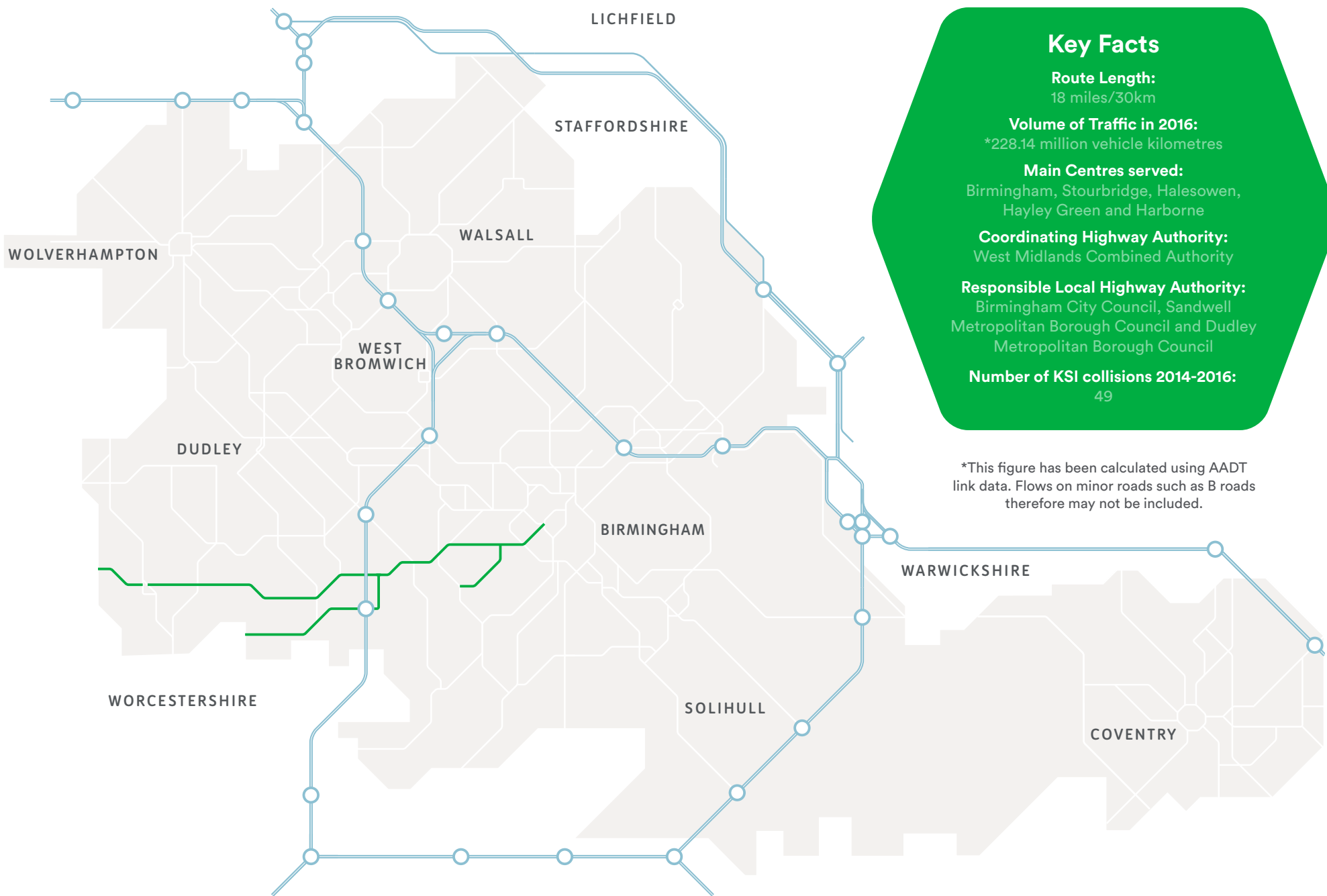
The route connects to the Strategic Road network (SRN) at the M5 Junction 3. Connection of the A456 with the M5 provides long distance connectivity to the South of the Midlands. The M5 provides a direct link to Worcester,

Gloucester, Bristol, Exeter and to the Northwest of England via the M6.

This route is also connected to other KRN Routes at numerous locations:

- Birmingham Outer Circle (A4040)
- Birmingham Cross City (A4540)
- Sedgley to Birmingham (A457)
- Northfield to Wolverhampton (A4123)
- Wolverhampton to Halesowen (B4171)
- Kingswinford to Halesowen (A459)
- Stourbridge to Wednesbury (A4036)
- Stourbridge to North of Wolverhampton (A491)

These routes provide connectivity to Wolverhampton City Centre, Northfield, Dudley, Stourbridge, Worcestershire and South Staffordshire.



Key Facts

Route Length:
18 miles/30km

Volume of Traffic in 2016:
*228.14 million vehicle kilometres

Main Centres served:
Birmingham, Stourbridge, Halesowen, Hayley Green and Harborne

Coordinating Highway Authority:
West Midlands Combined Authority

Responsible Local Highway Authority:
Birmingham City Council, Sandwell Metropolitan Borough Council and Dudley Metropolitan Borough Council

Number of KSI collisions 2014-2016:
49

*This figure has been calculated using AADT link data. Flows on minor roads such as B roads therefore may not be included.

Figure 2

Congestion, Delay, Reliability

This route represents 5% of the total length of the West Midlands Key Route Network. According to the latest data available from 2016, this route had a minimum annual average daily flow (AADF) of 9,400 vehicles, a maximum of 39,500 with an average of 23,300 AADF. The average number of Heavy Goods Vehicles using the route on a daily basis was 488, which represents 2% of all vehicular traffic.

The route experiences large volumes of traffic, particularly on:

- The A456 between Paradise Circus and its junction with the A4123 Wolverhampton Road;
- The A458 between its junctions with the A459 Dudley Road and the A4036; and
- The A458, where it approaches Stourbridge town centre.

The locations of the most significant congestion-related delays (>60 sec/km) are set out in Tables 1 and 2:

Table 1: AM Peak Congestion Related Delays

Road	Location	Direction
B4124	High Street/Harborne Road, A4040 Lordswood Road, Harborne, to A456 Hagley road	Inbound to City
B4124	Harborne Road, Westbourne Road to Somerset Road, Chad Valley	Outbound from City
B4124	High Street, Vivian Road to A4040 Harborne Park Road, Harborne	Outbound from City
A456	Hagley Road, Five Ways Roundabout to B4125 Portland Road	Outbound from City
A456	Hagley Road West/Hagley Road, Woodgreen Road, Quinton, to Five Ways Roundabout	Inbound to City
A456	Quinton Expressway, approach to M5 Junction 3	Outbound from City
A456	Manor Way, approach to M5 Junction 3	Inbound to City
A456	Manor Way, approach to B4551 Grange Hill, Halesowen	Outbound from City
A456	Manor Way, Uffmoor Lane to A459 Grange Road, Halesowen	Inbound to City
A458	Hagley Road West, approach to A456 Quinton Expressway	Inbound to City
A458	Hagley Road West, Rosafield Avenue to Kent Road, Quinton	Outbound from City
A458	Park Road/Windmill Hill/Stourbridge Road, B4174 Park Lane to Furnace lane Island, Halesowen	Inbound to City
A458	Stourbridge Road, Furnace Lane Island to Alexandra Road, Halesowen	Outbound from City
A458	Windmill Hill, Huntingtree Road to Colley Lane Belleville	Outbound from City
A458	Birmingham Street, A491 St Johns Road to Hungary Hill, Stourbridge	Inbound to City

Peak hour journey time on the sections of the route experiencing the highest delays has been found to be 150% higher than (i.e. 2½ times) the equivalent free flow time, which is based on the average journey time between 22:00 – 06:00.

A particular impact of the congestion is to create problems with access to Stourbridge Junction Station, Birmingham New Street and Snow Hill Stations, Birmingham Children’s Hospital, Birmingham City Hospital, Queen Elizabeth Hospital and industrial areas at Halesowen and Cradley, Providence Industrial Estate and Hays Trading Estate at Lye, Woodgate Business Park, where businesses may supply or rely on just-in-time deliveries.

Table 2: PM Peak Congestion-Related Delays

Road	Location	Direction
B4124	High Street/Harborne Road, A4040 Lordswood Road, Harborne, to Kingscote Road, Harborne	Inbound to city and Outbound from City
A456	Hagley Road, Five Ways Roundabout to A4030 Lordswood Road, Bearwood	Outbound from City
A456	Hagley Road, B4125 Portland Road to Five Ways Roundabout	Inbound to City
A456	Hagley Road West, Lightswood Road to A4030 Lordswood Road, Bearwood	Inbound to City
A456	Quinton Expressway, approach to M5 Junction 3	Outbound from City
A456	Manor Way, M5 Junction 3 to B4551 Grange Hill, Halesowen	Outbound from City
A458	Hagley Road West, approach to A456 Quinton Expressway	Inbound to City
A458	Hagley Road West, Rosafield Avenue to Kent Road, Quinton	Outbound from City
A458	High Street, Talbot Street to A4036 Pedmore Road, Lye	Outbound from City
A458	Birmingham Street, Stepping Stones to Hungary Hill, Stourbridge	Inbound to City

Average Speeds

The average speed for this route in the AM peak is between 10-20 mph throughout its busiest sections. The areas approaching Stourbridge, Bearwood and Birmingham City Centre are particularly slow during the morning and evening peaks and speed can be as low as less than 10 mph. The particular sections on this route where average speeds in the peak periods are below 10 mph are as follows:

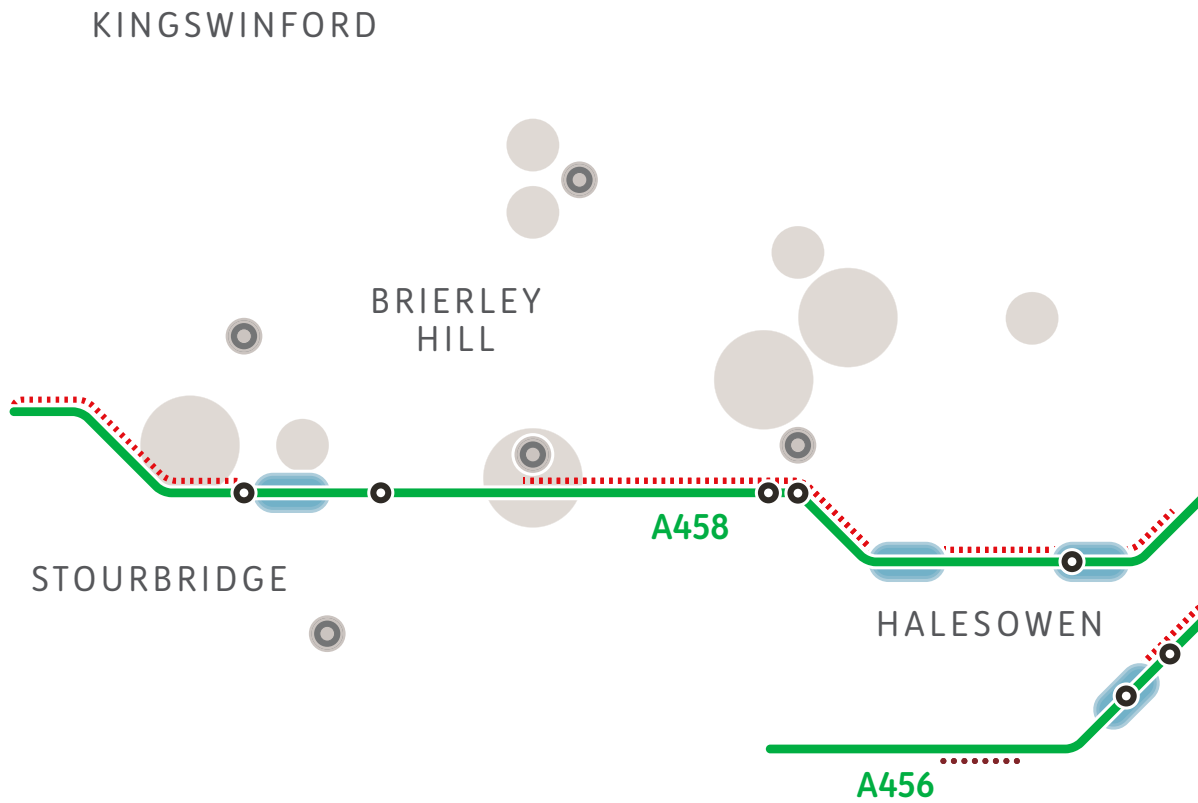
- Broad Street
- Five Ways Roundabout to B4532
- A456 Sandon Road to A4030 Bearwood Road/A4040 Lordswood Road
- A456 Hagley Road West/Quinton Expressway Roundabout to Kent Road/Long Lane
- A456 Manor Way: Carters Lane to Grange Road/Grange Hill

Junction Capacity Issues

There are currently six junctions along the route where the evidence suggest there are capacity issues restricting the free flow of traffic in peak hours; these are:-

- A456 Hagley Road/A4540 Ladywood Middleway
- A456 Hagley Road West/A4040 Lordswood Road
- A456 Hagley Road West/A4123 Wolverhampton Road
- A458 Halesowen Road/Long Lane
- A458 The Hays/Hayes Lane
- A458 Enville Street/Bath Road

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Key

Roads	The Route
Environment, Flows and Junction Capacity	Flooding area
	Congestion area
	Junction capacity issue
Route Safety	KSI hotspot zone – high number of serious or fatal incidents
Key Considerations	Housing development area
	Named site of strategic importance
	District and local centres

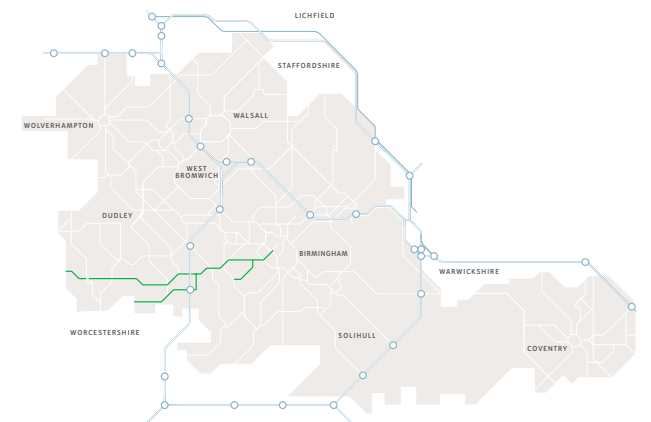
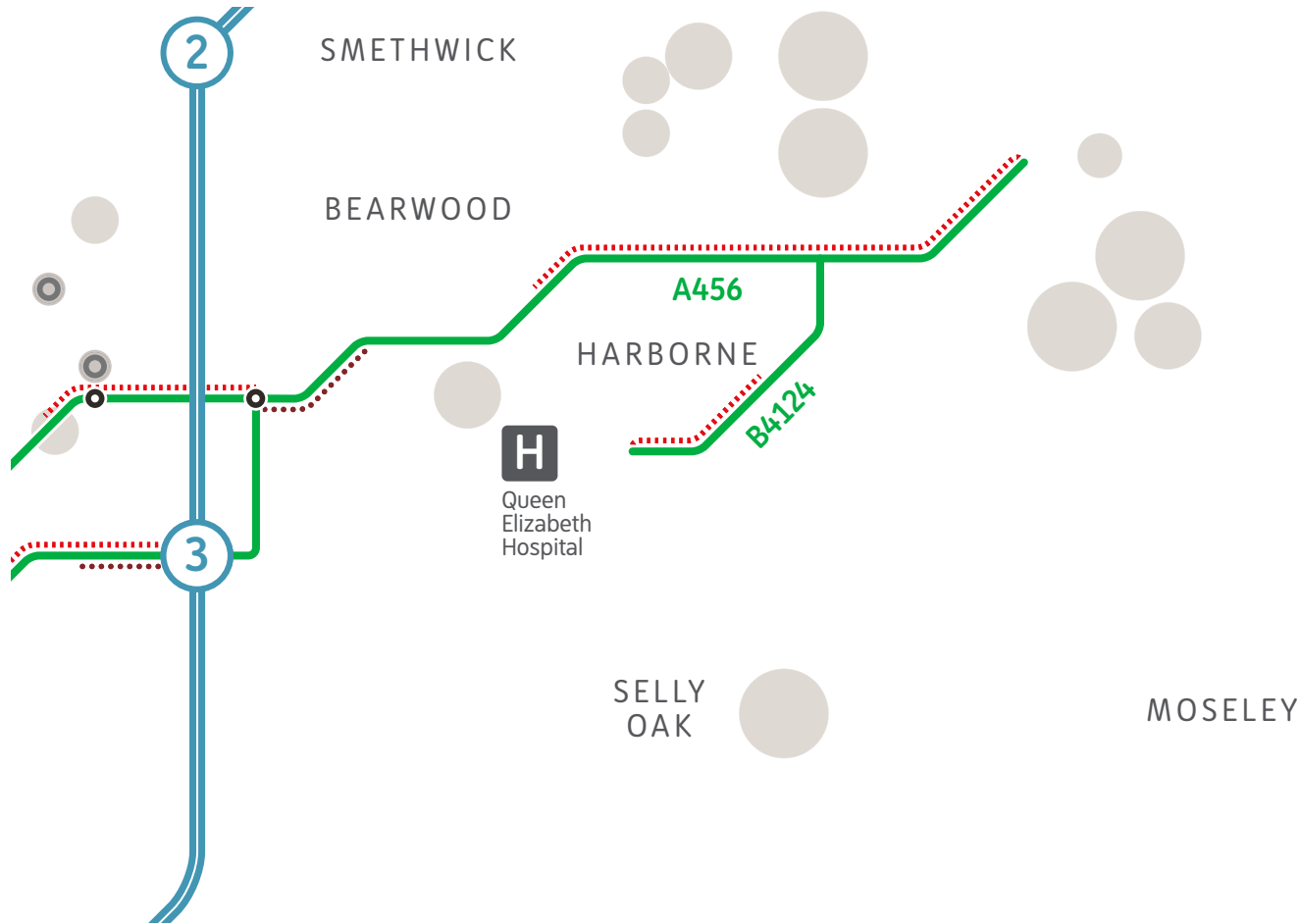


Figure 3 – 1 of 2

West Midlands Key Route Network West of Birmingham



Key

Roads	The Route
	Strategic Road Network operated by Highways England
Environment, Flows and Junction Capacity	Flooding area
	Congestion area
	Junction capacity issue
Route Safety	KSI hotspot zone – high number of serious or fatal incidents
Key Considerations	Housing development area
	Named site of strategic importance
	District and local centres

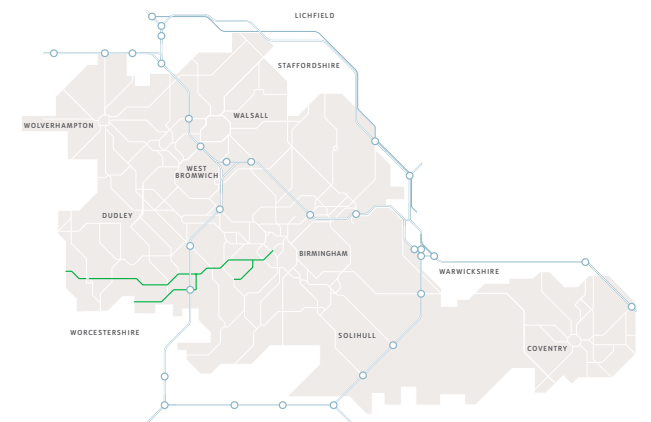


Figure 3 – 2 of 2

Improving Road Safety is critical to the overall vision of the West Midlands Strategic Transport Plan – Movement for Growth. The development of a new West Midlands Road Safety Strategy and Action Plan will make reference to the current West Midlands forecasts to achieve a 40% reduction in fatalities and serious injury casualties by 2020, from the 2015 baseline.

During the 2016 calendar year, we noted the following key statistics on this route:

Collisions

- 125 collisions, involving 233 vehicles
- Main contributory factor: Failed to look properly (pedestrian) (19% of all collisions)
 - The Killed and Seriously Injured (KSI) ratio for this group is 8% with 12% of all serious collisions being attributed to this group.
- Main contributory factors
 - Poor turn or manoeuvre (8% of all collisions)
 - Failed to look properly (driver) (6% of all collisions)

Casualties

- Total casualties: 173
- Killed and Seriously Injured: 19
(11% of all casualties, down 1% when compared to 2015 figure of 21 of 175)
 - Killed: 3 (2% of all casualties, up by 1%)
 - Seriously injured: 16 (9% of all casualties, down by 2%)
- Slight: 154 (89% of all casualties)

Casualty Types

We noted the following key statistics in relation to casualties falling into specific groups:

- Pedestrians: 30 (a reduction of 0.8% compared to 2015)
- Powered Two wheel vehicles: 10 (a reduction of 2% compared to 2015)
- Pedal cyclists: 5 (a reduction of 3% compared to 2015)
- Car occupants: 127 (an increase of 6% compared to 2015)

KSI Clusters

There is a large KSI cluster on the A456 Hagley Rd West, which includes four fatal collisions, between Quinton Roundabout and Sandon Road. This section is an urban dual carriageway in a built-up residential area.

There is another large KSI cluster on the A456 Broad St, between A4540 and the A4400. This section is an urban 2+1 carriageway in a built-up residential/high street environment.

CYCLING

Along the A456 Halesowen Bypass, Junction 3 of the M5 and Grange Road Island both present barriers to active travel. Access to the canal towpath is restricted due to limited provision at Mucklow Hill. There are no provisions for cycling along the remainder of the A458 on this route.

The section of the A456 between Dudley and Sandwell does not have provision for cycling. The remainder of Hagley Road is a mixture of single and dual carriage way and a main route into Birmingham City Centre, it is also on the Strategic Cycle Network. There is a toucan crossing at Five Ways to help cyclists cross safely and subway passages for cycling and walking under Five Ways. Broad Street does not have provision for cycling neither does the B4124 section of the route.

The Sustainable Transport Delivery Excellence Programme (STDEP) for the West Midlands has identified a number of 'priority corridors' for a strategic cycle network in the region. The A456 from the City Centre to the M5 is one of these corridors.



Most of the route is well served by a number of high frequency bus services operating every 10-30 minutes with increasing density on the approaches to the Birmingham City Centre. These services provide access to Birmingham City Centre, Five Ways, Halesowen Town Centre, the local centres at Bearwood and Harborne, retail facilities, leisure destinations including Broad Street, Symphony Hall and Birmingham Botanical Gardens, employment sites and the surrounding communities.

The average bus speed along this route is 12.3mph (data taken from the 9 bus route).

The average total number of daily bus trips is 70,330.

There are bus lanes on Broad Street and Hagley Road inbound between Birch Rd and Lordswood Road.

The routes are identified in the Core Bus Network in the West Midlands Strategic Transport Plan – Movement for Growth and identified for Sprint investment. The Hagley Road route is identified in the HS2 Connectivity Package with a substantial section already committed.

There are no railway lines within the route corridor but there are stations at Five Ways (on the Cross City Line, South Birmingham to Redditch line) and at Lye which has park and ride facilities (on the Snow Hill to Kidderminster line). There are plans to extend the Midland Metro from New Street Station to Edgbaston (West of Five Ways via Broad Street).

Table 3: Main Bus Routes

Road(s) Served	Frequency	Route No.
A456 Birmingham - Ridgacre	Every 10 mins	126
A456 Birmingham - Quinton - Lapal - Halesowen	Every 10 mins	9
A456 Birmingham - Bearwood	Every 10 -20 mins	120/120A
B4124 Birmingham - Harborne	Every 10 mins	24
B4124 Birmingham - Harborne	Every 15-30 mins	29
B4124 Birmingham - Harborne	Every 15 mins	22
B4124 Birmingham - Harborne	Every 15 mins	23
A456/A458 Birmingham - Quinton - Halesowen	Every 20 mins	X10
A456/A458 Birmingham - Quinton - Leasowes	Every 30 mins	140
A456 Lapal - Halesowen	Every 15 mins	2
A458 Leasowes - Halesowen	Every 30 mins	244
A456 Lapal - Halesowen	Every 30 mins	241
A458 Leasowes - Halesowen	Every 30 mins	4
A456 Ridgacre - Brandhall	Every 30 mins	54/54A
A458 Leasowes - Halesowen	Every 60 mins	202
B4124 Birmingham - Harborne	Every 30 mins	10H
A458 Leasowes - Halesowen	Every 60 mins	231

*Note- All daily averages have been obtained by analysing 15 days data (Mon-Fri) during the month of March 2017.

FREIGHT AND LOGISTICS

The AADF data for 2016 has been used to analyse HGV flows on each respective route. This particular route is mostly of little significance to freight, with HGV flows along the Hagley Road between Birmingham and Quinton between 500 and 750 per day. However, on the A456 between M5 J3 and Hayley Green (the end of the route), HGV flows are significantly higher, in excess of 1000 per day.

This link to the M5 is of national significance; the M5 is used in particular to transport goods to the South West. The M5 corridor within the West Midlands is also the location of choice for many road haulage companies due to ease of access to the SRN (UKTI data analysed for Midlands Connect). Congestion is also prevalent at this location, which may affect just in time deliveries and will impact upon the efficiency of freight operations.

Around the A458/A459 junction at Halesowen, there are a large number of industrial sites including distribution centres and the Co-operative Food Supply Chain Primary Logistics centre. Although these are not accessed directly from the A458, the route would be used to access the A459/A4099 and subsequently these sites. In addition, Shenstone and Belfort Trading estates are in the same area south of the A458 on the A458/A459 junction.



Resilience

The route contains parallel strategic roads, converging at Quinton and Birmingham City Centre. There is a degree of resilience contained within the Birmingham and Black Country networks for radial journeys. However, certain critical sections can cause gridlock, including the motorway network, particularly at M5 Junction 3 and where roads converge in Birmingham and Stourbridge.

There is a lack of intermodal network resilience due to a lack of rail based transport in the Birmingham section of the route. The Birmingham Snow Hill to Kidderminster rail line with stations at Stourbridge, Lye and Cradley Heath provides a measure of intermodal network resilience for longer journeys on the route.

Given the existing capacity constraints in the peaks in the Birmingham and Black Country highway network, a restriction on any of the roads will have considerable adverse implications for journey times on the remainder of this route and surrounding routes.

Diversion Route

In conjunction with the Northfield to Wolverhampton KRN route (A4123), the Western section of the A456 is used as an Emergency Diversion Route by Highways England when there are closures or incidents between junction 2 and 3 of the M5 motorway.

Flooding

Flooding on this route impacts overall performance, safety of road users and affects the lives of those living in the vicinity. The evidence gathered indicates that there are some areas on this route that pose a flooding risk:

- B4124 Harborne Rd
- A458 Halesowen in close proximity to the A459
- A458 near Belle Vale
- A458 Bridgnorth Road, West of Stourbridge
- A456 Manor Way near Bromsgrove Road

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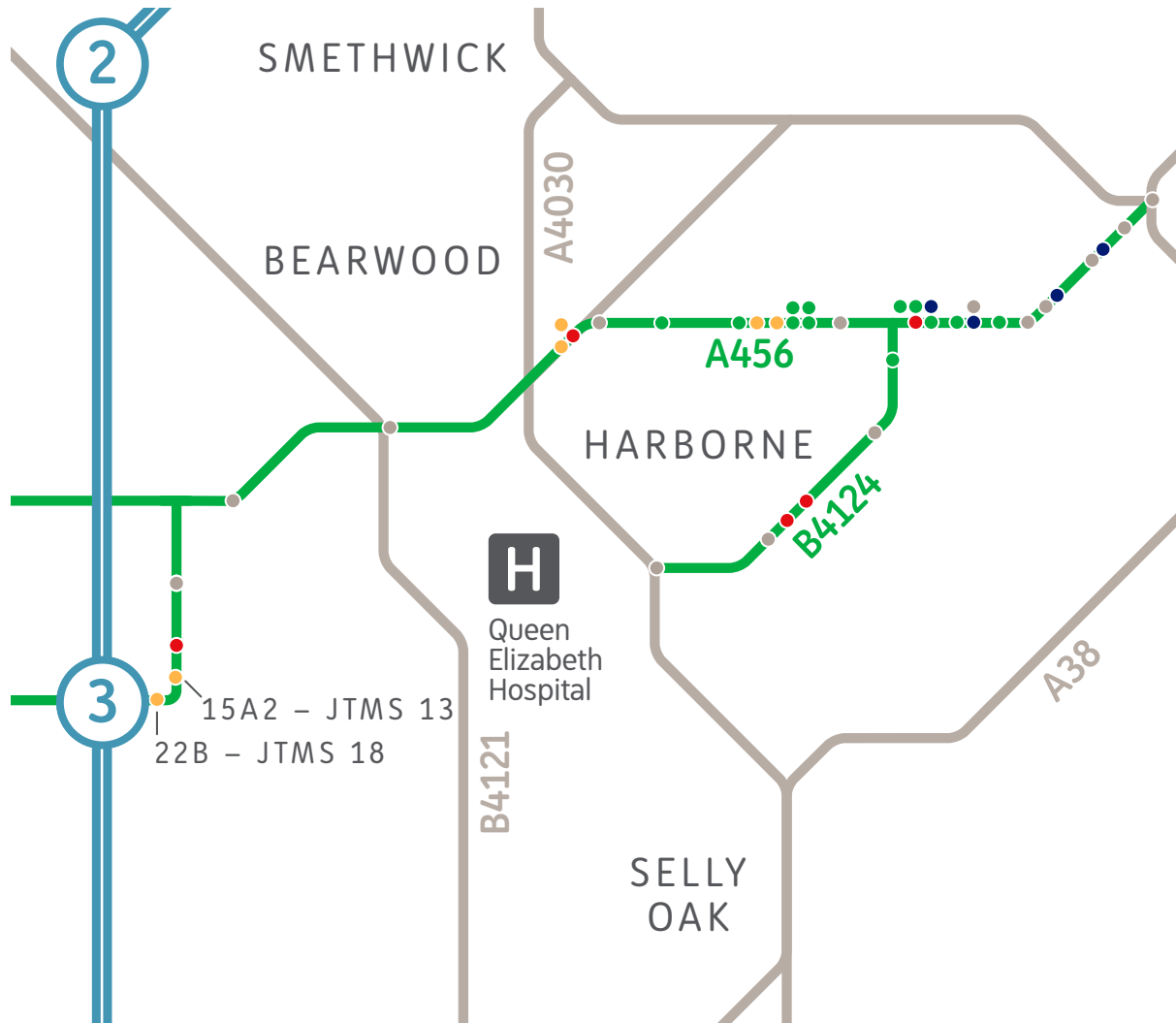
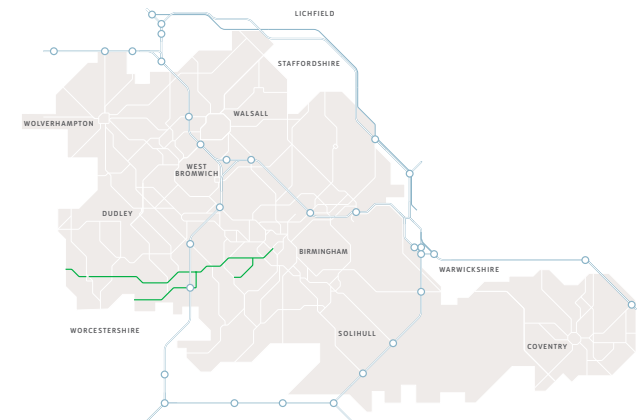


Figure 4 – 1 of 2

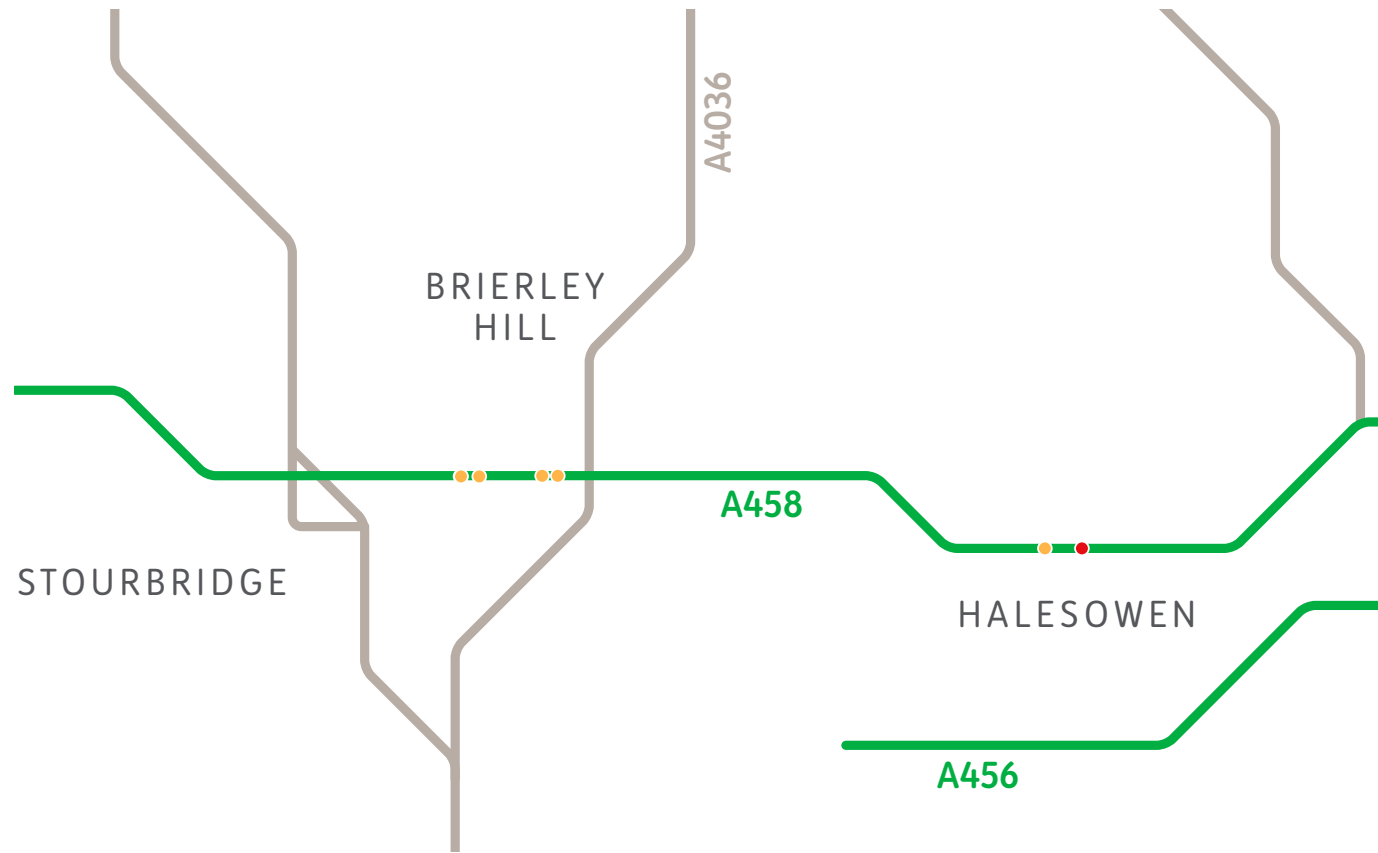
Key

- Roads**
- The Route
 - Strategic Road Network operated by Highways England
- Asset Location & Conditions (where known & information available)**
- CCTV
 - Split Cycle Offset Optimisation Technique (SCOOT) locations
 - Variable Message Signs (VMS) locations
 - Automatic Number Plate Recognition (ANPR) / Journey Time Monitoring System (JTMS) locations
 - Traffic Camera locations



KRN 20 – West of Birmingham

West Midlands Key Route Network West of Birmingham



Key

Roads

— The Route

● CCTV

● Automatic Number Plate Recognition (ANPR) / Journey Time Monitoring System (JTMS) locations

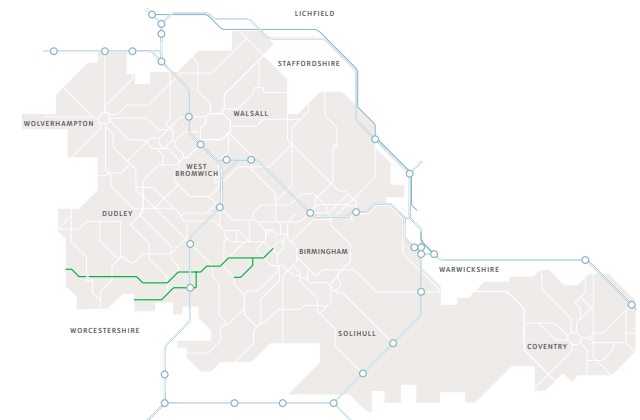


Figure 4 – 2 of 2

There are inequalities in health between the local authorities within the West Midlands – at local authority level the lowest healthy life expectancy at birth for men is 56.4 years, and the highest is 63.8 years. Amongst women the lowest is 59 years and highest 67.9 years. Similarly there are inequalities in healthy life expectancies within each local authority. Closing this gap in health inequalities and increasing the healthy life expectancy by 2030 is an objective of the WMCA's Strategic Economic Plan.

This route passes through a relatively deprived community on the junction between the A458 and A4036. Around this junction there are a higher proportion of adults out of work and households where one person is living with a disability. Closer to Halesowen, particularly near the junction between this route and the A459 a high proportion of residents provide unpaid care.

This route falls within Dudley Air Quality Management Area (AQMA), declared for Nitrogen Oxide (NO₂), and Birmingham AQMA which is declared for both NO₂ and Particulate Matter (PM₁₀).

The West Midlands has significant air quality problems. Every year there are between 2,000 and 2,400 deaths caused by air pollution. This is a huge health issue for people in the region, increasing the risk of lung disease and heart disease. There are parts of our region where considerable action such as the introduction of Clean Air Zones (CAZs) is required by Government to improve air quality.



Across the West Midlands the local authorities have a statutory duty to maintain its highway network in a safe condition. This also includes carrying out routine maintenance of highway assets which could include up to 12 specific groups. An Asset Management Plan is produced which aims to ensure that any future issues with the assets could be address in a proactive way.

Carriageway Condition

The carriageway across this route is in a good and safe condition. Over the past five years there has been a systematic planned programme of capital maintenance carried out across the route.

Footway Condition

The footway across the West of Birmingham route is in a poor but safe condition. There is no systematic planned programme of capital maintenance carried out on the route.

Refer to the Technical Annex for further details on asset condition.



Development proposals directly affecting this route

Housing

- Wider Lye Area 230 dwellings (2017–20)
- Wider Lye Area 300 dwellings (2020–25)
- Arena Central 320 dwellings (2017–20)

Employment

- Arena Central 1,000 jobs (2017–20)
- Paradise Circus 2,000 jobs (2017–20)
- Arena Central 2,000 jobs (2020–25)
- Paradise Circus 2,000 jobs (2020–25)
- Arena Central 1,500 jobs (2025–30)

Development proposals indirectly affecting this route

Housing

- Woods Lane 210 dwellings (2017–20)
- Icknield Port Loop 300 dwellings (2017–20)
- Icknield Port Loop / Heath Street / City Hospital 900 dwellings (2020–25)
- Icknield Port Loop / Heath Street / City Hospital 1,150 dwellings (2025–30)

Employment

- Eastside Locks 3,500 jobs (2017–20)
- Kettleworks 2,000 jobs (2020–25)
- Wider Digbeth Area 5,000 jobs (2020–25)
- Wider Digbeth Area 2,000 jobs (2025–30)
- Masshouse Circus 8,500 jobs (2025–30)

Committed Transport Improvements (as outlined in Movement for Growth - 2026 Delivery Plan for Transport)

- SPRINT: Dudley to Birmingham (via Hagley Road)
- Snow Hill Lines (Platform 4 Reinstatement and Signalling Works & Rowley Regis Turn back local enhancement)
- SPRINT: Hagley Road (Phase 1)
- SPRINT: Hagley Road (Phase 2)
- SPRINT: Hagley Road (Halesowen Extension)
- Birmingham Cycle Revolution (A34)
- Metro: Centenary Square/Edgbaston/Five Ways extension

GLOSSARY

- AADF** – Annual average daily flow
- AQMA** – Air Quality Management Areas
- DfT** – Department for Transport
- EDR** – Emergency Diversion Route
- HGV** – Heavy Goods Vehicles
- HLE** – Healthy life expectancy
- HS2** – High Speed Rail Two
- JTMS** – Journey Time Measurement Systems
- KRN** – Key Route Network
- KSI** – Killed or seriously injured
- LE** – Life expectancy
- LEP** – Local Enterprise Partnership
- LSOA** – Lower Layer Super Output Areas
- MDST** – MDS Transmodal
- MSOA** – Middle Layer Super Output Areas
- PIA** – Personal injury accidents
- SRN** – Strategic Road Network
- STDEP** – Sustainable Transport Delivery Excellence Programme
- TfWM** – Transport for the West Midlands
- TCG** – Tactical Co-ordination Group
- UKTI** – UK Trade and Investment
- UTMC** – Urban Traffic Management Control
- VMS** – Variable Message Sign
- WM** – West Midlands
- WMCA** – West Midlands Combined Authority

AADF Data:

AADF counts for A roads on each route:
<https://bit.ly/2fbapuc>

Route Safety:

Reported casualty and accident rates by urban and rural roads, road class, road user type, severity and pedestrian involvement, Great Britain, 2015.

Committed Schemes:

West Midlands Combined Authority. Movement for Growth: The West Midlands Strategic Transport plan.

West Midlands Strategic Cycle

Network:

West Midlands Combined Authority Board Report, 20 January 2017, item 4.3 - Strategic Cycle Network
<https://bit.ly/2hrrCAi>

Freight Information:

MDS Transmodal Data. Provided in Confidence for Midlands Connect Freight Study.

Enterprise Zones:

<https://bit.ly/2uZLDTe>
<https://bit.ly/2u7DCN1>

Road Haulage Companies:

UK Trade & Investment Road Haulage Industry, Midlands Hauliers. Provided in Confidence for Midlands Connect Freight Study.

National Cycle Routes, Sustrans:

<https://bit.ly/18FFBsT>

HS2 Connectivity Package:

HS2 Growth Strategy, Connectivity Programme. GBSLEP. <https://bit.ly/2woBqxp>

Average Speeds and Congestion Data:

West Midlands Strategic Highways Phase 2: Key Route Network Definition and Outline Performance. Produced by Mott Macdonald for West Midlands Integrated Transport Authority. March 2016.

Route Safety:

Department for Transport. Reported Road Casualties Great Britain, annual report: 2015.
<https://bit.ly/2hrcldb>

Air Quality Management Areas:

Department for Environment, Food and Rural Affairs, March 2017 AQMA Dataset.
<https://bit.ly/2fEduLf>

Male and Female Healthy Life

Expectancy:

Office for National Statistics. Life Expectancy (LE) and Healthy Life Expectancy (HLE) at birth for males by Middle Layer Super Output Areas (MSOAs) in England, 2009 to 2013. Published 2015. <https://bit.ly/2vwtxd1>

Childhood Obesity:

Public Health England. National Child Measurement Programme data from 2012/13 to 2014/15, aggregated by MSOA. Published 2016
<https://bit.ly/2p3ocVV>

Younger Population:

ONS: 2011 Census aggregate data. Population aged 0-17, as a percentage of total population by LSOA.

Older Population:

ONS: 2011 Census aggregate data. Population aged 65+, as a percentage of total population by LSOA.

Living with a Disability:

ONS: 2011 Census aggregate data. Households with at least one person living with a disability, as a percentage of all households by LSOA.

Unemployment:

ONS: 2011 Census aggregate data. No adults in employment in household, as a percentage of all households by LSOA.

West Midlands Cycling Charter:

<https://bit.ly/2xbg4oK>