Sustainable Transport Midlands

Bringing railways back to town:

Improving Daventry's Sustainable Transport Connectivity

April 2022

Contents

Disclaimer

A significant amount of content in Section One of this document was reused from a joint report created by Harry Burr and Owen O'Neill, Board Director at Sustainable Transport Midlands.

No officers or members of West Northamptonshire Council have been authors of this report, but we must acknowledge their support in providing access to background information and their valuable feedback on component projects within the overall programme.

It's also important to note that most population statistics in this report were collected from the 2011 Census. In May 2022, the 2021 Census population statistics are expected to be released, at which point we will update any figures listed here unless specified otherwise.

Introduction

"Daventry Transport Development Group" grew out of the need identified by local resident Harry Burr (the founder and CEO of Sustainable Transport Midlands), which is that Daventry and the villages surrounding it have poor access to public transport. This was particularly apparent to Harry having recently moved to the area from the South East where accessibility to public transport is much higher.

The first iteration considered a heavy rail station located near Weedon. While assembling and considering the background evidence for the demand and deliverability of this option it became apparent that there were a broader set of transport needs and mechanisms for delivery that were worthy of consideration.

This document summarises the strategic national policy objectives that need to be considered when developing sustainable local transport options. We then highlight current county and regional policy on the subject, and then present high level technical options that could deliver these policy objectives as a starting point for consideration and refinement by the Daventry Transport Development Group Stakeholder Committee.

The key strategic spatial issue we aim to improve in West Northamptonshire, is the poor public transport connectivity experienced by Daventry (its sole sub-regional centre). While the significant population centre of Towcester and Brackley are identified in policy as rural service centres, hence their public transport connectivity needs are a tier below the needs of the sub-regional centre.

The relative importance of connecting Daventry to the public transport network in general, versus the quality of its connection to Northampton as West Northamptonshire's primary hub and a major national centre will need to be evaluated. The options presented differ in the balance of these requirements that they satisfy.

Daventry is one of the largest towns in the country without a nearby rail connection, meaning reliance on undependable buses is the only way to get around without a car to key regional economic centres, such as Coventry, Birmingham, Milton Keynes and London.

Sustainable Transport Midlands

Socioeconomic, Environment & Policy

Congestion and existing infrastructure

Nearly 6 billion miles of road was driven on within Northamptonshire in 2019 (source: DfT Road Traffic Statistics). That is a lot of miles. Enough to get around the Earth more than 225,000 times. For a country that wants to get to net-zero emissions by 2050, this is not a good sign. More sustainable transport methods are required if we want to meet that goal.

Different transport modes have drastically better safety levels. Just because we as a society have become accustomed to the casualty rates associated with our current usage of road transport does not mean we should continue to accept this status quo as inevitable.

1,784

people died while using cars throughout 2018.

Reported road casualties in Great Britain, annual report: 2018

rail is over

20x safer

safer than travelling the same distance by car

Rail Factsheet 2017

In many Northamptonshire towns, traffic levels are a problem. In Towcester, congestion is a common occurrence, as a result of it acting as a hub for many A-roads in Northamptonshire including the A5 and A43.

Roads are not the only problem, with bus connections to places such as Towcester and Brackley from Daventry being non-existent, requiring a long interchange at Northampton Northgate bus station.

Accessibility (for persons with reduced mobility) to several public transport nodes in West Northamptonshire is well below current standards. The three railway stations in West Northamptonshire are Long Buckby, Kings Sutton and of course, Northampton.

Northamptonshire as a whole has

just 7

railway stations.

Access to Kings Sutton's London-bound platform is restricted without using a footbridge with steps only, and neither platform at Long Buckby has step-free access - with the westbound platform also requiring the navigation of an intimidating tunnel. The ticket office is a port-a-cabin which does not generate a positive image for passengers.

Pictured above: Kings Sutton railway station

Pictured below: Long Buckby railway station

We need all services to be fully accessible, so this should be an important consideration when considering upgrading existing services/infrastructure versus building new infrastructure which is inclusive by design.

Environment

In 2017, the former South Northamptonshire Council launched a bid to find out their district's carbon footprint. The report detailed where carbon emissions originate from. The figure below displayed in the latter section of the document showed us that 68% of carbon emissions from within South Northamptonshire alone was from various transport modes.

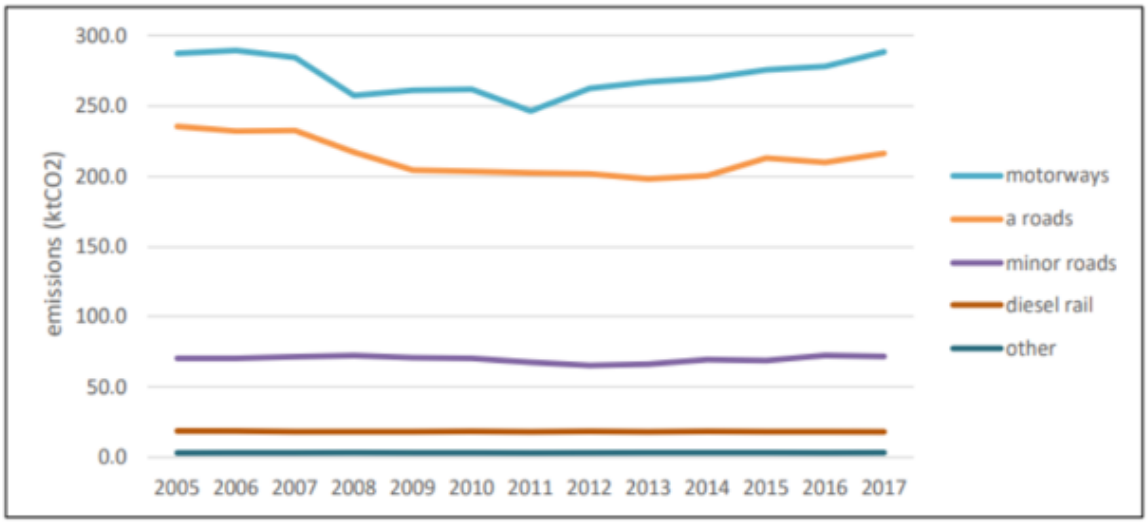


Figure 5: Emissions from transport in South Northamptonshire by road type[8]

The graph above also shows us that diesel rail plays a very minimal part in transport emissions in South Northamptonshire, although 3 different major railways pass through the former local authority:

- West Coast Main Line slow via Northampton (overhead electrification)
- West Coast Main Line fast via Weedon Bec (overhead electrification)
- Cherwell Valley Line via Kings Sutton (no electrification at all)

Motorways and A-roads emit the most transport carbon emissions into the atmosphere in South Northamptonshire.

81%

of people in the East Midlands have a car permanently available in their household and use it often.

Distribution of household car or van ownership in England in 2017/18, by region

We need to lower these figures, and to do that, more people need to adopt public transport as their primary way of travelling - whether that be to work, to hospital, or to be with family and friends, and more.

However, the people of West Northamptonshire are limited in doing that with the small number of railway stations in the council area (three) and limited non-rail public transport, especially in the more rural towns and villages.

Towcester has only one bus every two hours to the county town,

Northampton

Brackley has just

One

timetabled Northampton bound-bus per day.

If the UK wants to achieve net-zero by 2050, then investment needs to be made in public transport infrastructure, as we simply can't get people out of cars without a replacement.

We need to consider a range of new public transport services, evaluating the merits and appeal of various different modes and solutions. Cars are clearly bad for the environment, and not just due to carbon emissions, but unfortunately, most of the United Kingdom outside of Greater London rely on them for their daily travel needs.

National, regional, and local Government as well as public/private industry can change this by investing more in public transport infrastructure, to make our society and the way we live more sustainable.

Growth

In the Office for National Statistics 2018 growth estimates, it was found that the former Daventry Local Authority was within the estimated top ten for growth from 2018 to 2028, along with neighbouring Corby, also once the largest town in the UK without a rail link - although this has been resolved with a new railway station on the previously freight-only Oakham to Kettering line.

Corby receives a half-hourly electric service to St Pancras International, and a rarer Intercity service northbound, with limited services terminating at Melton Mowbray. David Horne, who was Managing Director at the former East Midlands Trains and now Managing Director at Government-owned London North Eastern Railway, said:

"We've been successfully operating our daily business service since 23 February, and we're now delighted to be announcing that our full service will start on 27 April. We know just how much excitement and enthusiasm there is for our new services between Corby and London, and we are extremely proud to bring train services back to Corby"

The former Daventry's Local Authority Area is expected to see a

15.2%

population increase from 2018 to 2028.

The above figure isn't far off Tewkesbury, a town with a parkway station, with a projected population increase of 16.2%

Table 3: Local authorities in England with the highest projected population growth between mid-2018 and mid-2028

Local Authority	Population in 2018	Population in 2028	Population change over 10 years	Percentage population change
Tewkesbury	92,600	107,800	15,200	16.4
Tower Hamlets	317,700	368,500	50,800	16.0
North West Leicestershire	102,100	118,400	16,300	15.9
Dartford	109,700	126,700	17,000	15.5
Daventry	84,500	97,300	12,800	15.2
South Derbyshire	104,500	120,300	15,800	15.2
South Norfolk	138,000	158,400	20,400	14.8
Corby	70,800	81,000	10,100	14.3
Blaby	100,400	114,600	14,100	14.1
Cotswold	89,000	101,500	12,500	14.0

Source: Office for National Statistics – Subnational population projections

The table to the left shows that the population of the (former) Daventry LAA is currently 84,500, but by 2028, it's estimated to grow to 97,300.

Daventry-sized towns with rail links

Towns such as Buxton, Alton, Stamford and Faversham in Kent have rail links. However, Daventry, a larger town than those mentioned, is stuck with unreliable buses - no rail of any sort. In this section, we will analyse these other areas rail links, and see how they have gained from it.

Let us focus on Faversham, on the Chatham Main Line.

Around

20k

people live in Faversham.

Around

1,500,000

Entries and exits are made from the station per year.

Office for Rail and Road

Meaning that's

4,500

Entries and exits on the average day.

You can just imagine how this station can benefit the local economy, allowing direct London Victoria and St Pancras International services, as well as southbound Dover Priory services, linking to some of the largest hubs in the country including interchanging services to mainland Europe and central London via Thameslink.

The value of the Swale Borough visitor economy grew by

3.9%

in 2017 and is now worth

£237m

In 2017, the entirety of Kent's visitor economy stood at a hefty

£3.8bn

Visit Kent reveals Kent's tourism industry worth £3.8bn in 2017

Rail is not the only transport link in Faversham. Bus companies including Arriva Southern Counties, which runs service 333 to Sittingbourne and Stagecoach in East Kent operate routes 3, 3X, 3A, 3B to Canterbury, and route 666 to Ashford. However, Swale Borough Council have expressed concern over the lack of bus and cycle facilities in the town and greater borough when compared to road and rail, and there is a particular lack of public transport to nearby rural areas.

National, regional and local policy

National policy

This statement is front and centre of the ministerial foreword in the national transport decarbonisation strategy:

- Public transport and active travel will be the natural first choice for our daily activities.
- We will use our cars less and be able to rely on a convenient, cost-effective and coherent public transport network.

Regional policy

After consultation during 2020, EEH have released their transport strategy "Connecting People, Transforming Journeys".

England's Economic Heartland is a strategic collaborative partnership between 11 local transport authorities and four local enterprise partnerships. It provides strategic leadership in the long-term planning of the region's strategic infrastructure and services, in order to realise the region's economic potential in a way which improves accessibility and inclusivity, quality of life and the environment. England's Economic Heartland is co-funded by its partners and the Department for Transport.

The Strategic Transport Forum is the Sub-national Transport Body for the region and is responsible for preparing and producing the regional transport strategy. It consists of elected politicians from England's Economic Heartland's member authorities, alongside representatives from local enterprise partnerships, growth boards, the Department for Transport and other public (e.g. Network Rail, National Highways, Connected Places Catapult) and private sector (e.g. transport operators) organisations.

The Forum meets regularly, in public, with its agenda, minutes and reports available online. Members of the public are able to address the Forum.

If you take one thing away from this document, it should be the importance of making sure that the transport needs of Daventry are well represented to EEH, and to keep a close eye on the direction that EEH's policy and infrastructure proposals are developed.

Local policy

Taken from West Northamptonshire Joint Core Strategy Local Plan (Part 1) Adopted (December 2014)

We have annexed this section. We plan to add snippets of the annex to this document in the future, but for now, please download Annex A to read this section.

EEH Strategy Analysis

As part of its evidence gathering process EEH commissioned Network Rail to carry out a rail passenger connectivity study, to determine where rail journeys are good and bad within the region measuring generalised journey time (GJT). This wraps up both individual journey leg times, interconnect times and the frequency of service to give an average journey duration that a passenger would experience if they 'turn up and go'.

Predictably this study concluded that travelling by rail on the axis to/from London performs well – public transport tangential to the London axis is awful, so people drive when crossing the region.

It went on to identify some extremely broad areas that should be further studied for their potential to plug those connectivity gaps. While this is a baselining study of the existing rail network – note that Daventry doesn't even make it onto the map of 'key nodes' – since it's not on the current rail network.

Further down the draft report were hints at what form this connectivity could take (page 82) Northern Arc: that provides connectivity in a corridor that links North Oxfordshire Banbury with Northampton, North Northamptonshire and Peterborough

(page 83) Potential benefits of such a northern arc: More direct connectivity across the northern Heartland reducing reliance on travel via the West and East Midlands.

- Provide a rail alternative to the A43 corridor
- Ability to provide services to high growth sites that are currently not on the rail network such as Daventry.
- Provide options for services other than southwards from Corby.
- There is potential for an additional route into the West Midlands via Leamington Spa by avoiding the Leicester area.
- This could be provided by additional services to locations off the core East West Main line or by extending the proposed Oxford-Cambridge services to destinations further afield…..

While Daventry does get a single mention on page 83 of the report, a more direct Banbury - Northampton link would lie closer to the centre of the EEH region.

Phase two of the study examined the economic potential of various different heavy rail connectivity options. The study considered both farebox and wider economic benefits, but the examination of wider benefits was by nature of the number of flows considered a lightweight analysis, with farebox analysis being more in-depth and sophisticated by virtue of using a well-established model (MOIRA).

EEH acknowledges that this approach "does not perform well when there is a very low base demand and is less well suited to measure the impact of transformational change (e.g., a new railway line)."

The passenger market opportunity was considered very much through a pre-covid lens since it only evaluated business user demand (p37) rather than incorporating leisure demand and wider social connectivity considerations. Both the general untapped potential of individual population centres - and flows between pairs of population centres was considered to suggest prioritisation of investment to yield the greatest economic benefit.

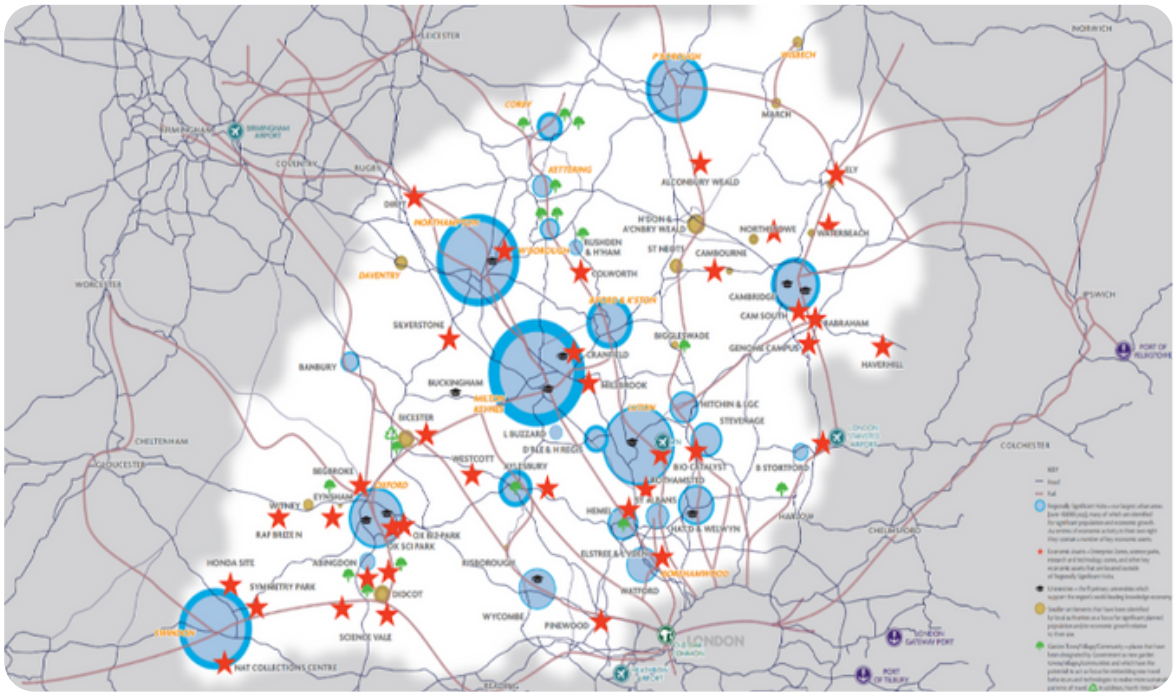
Even with these limitations in mind, that the analysis methodology is tilted towards recommending incremental improvements on existing routes, rather than transformational change to connect population centres that are not currently on the public transport network, it is informative that Northampton is ranked #2 in terms of population centres with rail growth opportunities through improved service levels (page 40).

A small number of flows further south within the EEH region are suggested as having sufficient growth potential to warrant significant new infrastructure,those being St Albans - Stevenage and Aylesbury - Luton.

We suggest that now is an ideal time for Daventry itself to look at its future transport needs, raising up the agenda awareness of potential benefits. If this is not done early, then - particularly since Daventry lies on the outermost edge of the EEH region - it risks falling down the cracks between the two neighbouring sub-regional transport bodies that might otherwise look more towards the centre of their respective regions.

It would be particularly smart to coordinate such a move with next-door neighbours at Rugby and Lutterworth, who also lie on the edge of their respective transport body's region. Such coordination to ensure that the neighbouring 'asks', mesh, complement and enhance each other could lead to improved outcomes for both – instead getting crumbs that fall down the gap between the two sub-national transport bodies.

The final version of the strategy has now been released, so it is important to observe the small (but important to Daventry) changes in wording and presentation. Firstly and most importantly, consider the map below, of 'regionally significant areas' according to EEH.



The population threshold for regionally significant hubs has been selected as

40,000

This results in Banbury being classed a significant hub, but Daventry is classified as "Smaller settlements that have been identified by local authorities as a focus for significant planned population and/or economic growth relative to their size."

Silverstone is classified as an "Economic Assets – Enterprise Zones, science parks, research and technology zones, and other key economic assets that are located outside of Regionally Significant Hubs."

If the population of Daventry is forecast to exceed or near 40k in the 2040s this would be a compelling reason to promote its connectivity needs further up the regional spatial hierarchy.

Population overview

This bubble chart illustrates the concentration of population across the region. Based solely on population it indicates that Peterborough & Northampton are essential population centres to connect. The concentration of population at Wellingborough-Kettering-Corby makes these important secondary centres.

South/West of Northampton there is no single currently disconnected standout destination based purely on population. Leicester-Northampton is an important identified connectivity gap which the 'northern corridor' does not on its own solve.

EEH are currently undertaking connectivity studies on:

- Peterborough - Northampton - Oxford
- Oxford - Milton Keynes

The results of which are currently anticipated to be published in Spring 2022.

Sustainable Transport Midlands

Transport Modes and Technology

Land use

In this section of the document, we examine the land use of High Speed One versus the Lower Thames Crossing motorway. The two-track railway has the same maximum passenger carrying capacity as the 8 lane motorway beside it.

According to National Highways, the organisation building the Lower Thames Crossing:

"Our forecasts predict that … in its opening year in 2025 it will carry 78,500 vehicles per day". The two Lower Thames Crossing tunnels will each be 16 metres in diameter, being the third largest bored tunnels in the world." - National Highways website

HS1 carries

26 million

passengers per year in total

This equates to

75,000

people per day

Of which

41,000

are domestic Southeastern users

Arup - High Speed 1: Laying the tracks for transformation

To London?

≈ 80% of car journeys are under 10 miles, so to drive modal shift the focus needs to broadly be on local and regional journeys rather than national journeys.

Existing rail passengers from Daventry may predominantly head to London, however adding direct services to London would exacerbate the above issues. (and who knows what COVID-19 will do for London commuting)

Frame your thinking around all the people who currently don't use rail at all.

Origin	Destination	Number of journeys per day
Daventry	Northampton	6306
Northampton	Daventry	4117

Existing London-bound rail passengers will still have a more convenient and less car intensive journey option.

Feeding Daventry passengers into Rugby/Northampton for onward journeys increases the range of destinations on offer – potential for frequency uplift on those onward services and adds local journey options.

Critically, it allows Daventry to stand fully behind the county level policy of seeking more & faster services to London from Northampton – whereas direct London services from Daventry would compete for slots against this policy.

Rail systems comparison

	Heavy Rail			Light Rail		
Sub-type	**Long Distance High Speed**	**Regional**	**Urban**	**Tram-train**	**Light Rail**	**Very Light Rail**
Passengers per unit	1000 (varies dependant on length)	500	300	300 (couple to lengthen)	300 (including standing)	20-50 (including standing)
Top Speed (kph)	200kph	150kph	100kph	100kph	70pkh	50-70kph
Acceleration (m/s2)	0.6m/s2	0.8m/s2	1.0m/s2	1.2m/s2	1.4m/s2	1.4m/s2
Max. gradient (%)	2.5% (<1% mixed-use with freight)			10%	10-12%	10-12%
Min. curve radius (m)	200m (requires slowing to 20-30mph			20m (requires slowing to 5-10mph		
Accessibility	PRM-TSI (no level boarding)			RVAR 2010 (level boarding)		
Crash-worthiness	High				Medium	Low
New level crossings	No			Yes		
Control	Signalled (TPWS - GSM-R etc)			Both	Line-of-sight	
Notes				Dual signalling systems increase vehicle cost		Under development for Coventry. Vehicle weight ≈1T m length Concept is that low axle weight removes the need to relocate utilities under the road.

The above is not a hard and fast definition. It is simply indicative of typical characteristics.

References:

- https://uktram.com/wp-content/uploads/2018/07/Advice_Ultra_lr.pdf
- http://www.verylightrail.com/
- https://en.wikipedia.org/wiki/Rail_Vehicle_Accessibility_Regulations
- https://www.railwaygazette.com/safetram-addresses-crashworthiness-of-trams-and-light-rail-vehicles/27923.article
- https://en.wikipedia.org/wiki/British_Rail_Class_399

Efficient interchange and new modes

Linking light to heavy rail

Since light rail can never allow direct services everywhere, we have to bear in mind how the two can interconnect with each other, whether that is creating light rail platforms at a heavy rail station, or allowing light rail to run on heavy rail ("tram-trains"), as this is important for commuters going further away to work.

Case Study 1: Wimbledon Station

Wimbledon station in South London allows efficient interconnections between Croydon TramLink and South Western Railway/Thameslink National Rail services, by having separate TramLink and separate National Rail platforms present at the same station.

Pictured above: Elmers End railway station

Case Study 2: Meadowhall Interchange

Meadowhall Interchange station in Sheffield serves Supertram and heavy rail services, but on separate tracks. The yellow line of the Supertram operates on light rail infrastructure, while the TransPennine Express and Northern National Rail services use heavy rail infrastructure. The only exception is the tram-train service, which can switch between light and heavy rail tracks at Rotherham Central.

Case Study 3: Stourbridge Shuttle

The shuttle is the only service serving Stourbridge Town which saw 559k entries/exits (2019/20). High frequency and high reliability service. 6tph delivered by a single unit. 99.8% PPM. At ¾ mile long, journey time is 3 minutes long. The railcars make 214 trips every weekday.

Seamless interchange

It is not only other types of rail we must worry about, but also bus interchanges throughout the network.

Case Study 4: Addington Village Interchange

Addington Village Interchange, just outside Croydon in London, where TramLink operates, has bus and light rail connections just a few seconds walk from each other. This eliminates time being wasted walking to a bus stop to access more rural areas. This is also the same case for heavy rail at certain stations. Seamless bus interchange is one of the most important things to enable passengers to complete the final mile of their journey by sustainable transport instead of falling back onto the private car.

Tram-trains

Tram-trains currently operate in the UK as part of the Stagecoach Supertram network in Sheffield and Rotherham. Tram-trains allow light rail vehicles to travel on heavy rail infrastructure, and then switch back onto light rail infrastructure as required, providing greater flexibility in the location of lines and stations/halts.

This combines the tram's flexibility and accessibility with a train's greater speed and bridges the distance between main railway stations and a city centre.

The pilot for tram-trains have been running in Sheffield on the Supertram network for two years. During that time, the Passenger Transport Executive in the region has been closely monitoring customer satisfaction, passenger numbers, and reliability.

The results of this learning and monitoring have been published into an award-winning 'learning hub' that other authorities can leverage experience from.

Bus Rapid Transit (BRT)

In evaluating the technologies available it is important to critically evaluate the merits of a variety of mature technologies. The recently-launched WYCA mass transport vision is considering a variety of BRT/light/heavy rail options for different routes within its proposed network.

The benefits of BRT systems flow from them running mostly on dedicated bus lanes, and stopping at less frequent bus stops that operate more like railway stations. Some systems have technologies like "platform"-edge doors. BRT may also offer integrated and smart ticketing to increase its attractiveness and offer a more metro-like service.

Examples of BRT in the UK include the Transport for Greater Manchester service between Leigh, Salford, and Central Manchester. This service runs on a dedicated guided busway for most of the route, but sometimes switches on to standard roads. All the stops on the guided busway have level boarding, which (like light rail) improves the accessibility compared to a standard bus. The stops also have passenger information displays, similar to many rail services.

BRT improves reliability and capacity compared to a standard bus service, by re-allocating road space specifically to public transport, and providing stops, to allow efficient interchanges, entries, and exits on the network. BRT has until now had lower capital costs than light rail, but this differential will be reduced if very light rail systems (e.g. Coventry) deliver on their promise, allowing track to be installed without requiring relocation of services in the roadway.

BRT is more flexible compared to rail. Timetables can be modified easily, and services can be rerouted, however it is more prone to salami-slicing that erodes the delivered benefits – particularly reduction of dedicated road space in heavily congested locations (which is where dedicated road space is most valuable to improving public transport journey times and reliability.)

Rail-based solutions in the UK have achieved higher levels of modal shift than BRT. This may as much be due to customer's experience and stereotypes of buses in general than the quality of the specific service.

Sustainable Transport Midlands

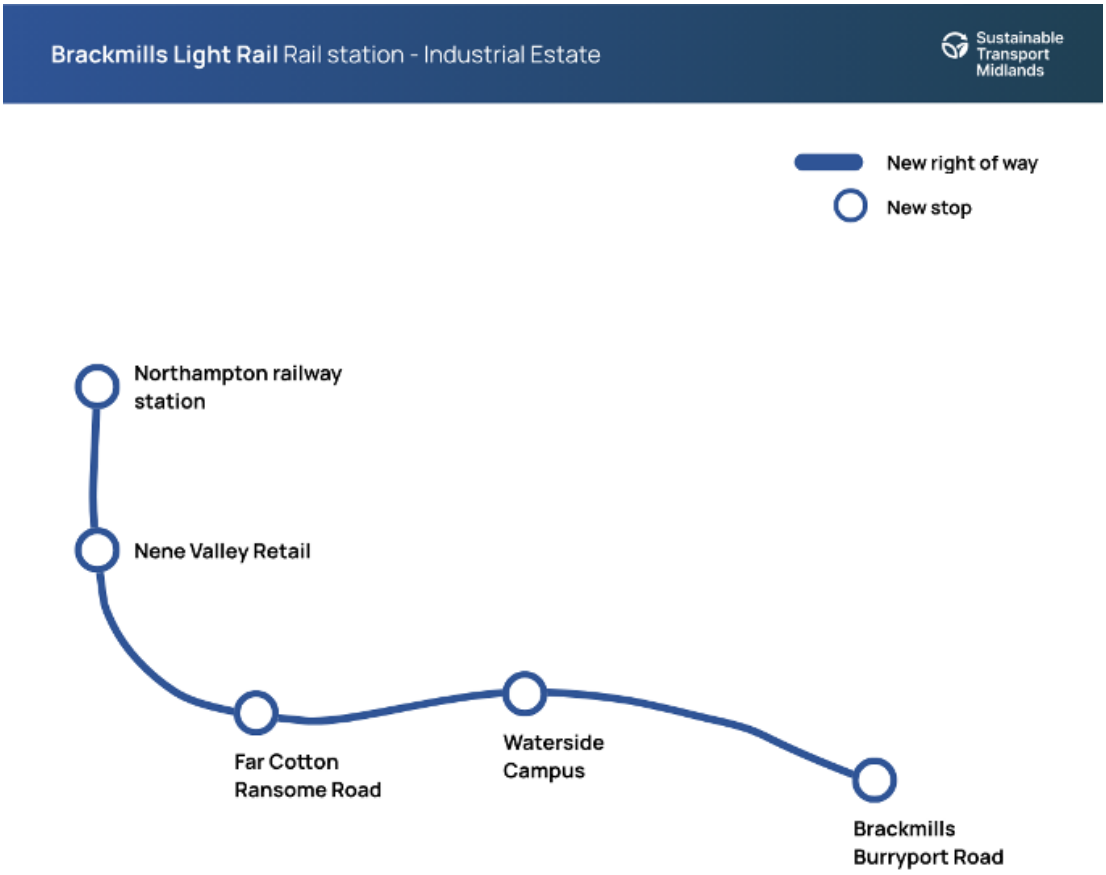
Other schemes and opportunities in West Northants

Brackmills Light Rail/Northampton Tram

Sara Homer, CEO of Brackmills Business Improvement District, is leading development of a scheme to utilise the alignment of the former line between Northampton railway station and Brackmills Industrial Estate.

This could potentially serve a number of trip generators along the route, such as the Waterside Campus, Nene Valley Retail Park, Brackmills Industrial Estate, and potentially the community of Great Houghton just beyond Brackmills.

West Northamptonshire Council has been briefed on the scheme, but it's unknown whether they've pledged their support for it to go ahead. STM supports this proposal and would also support other tram routes being introduced across Greater Northampton and the nearby villages to places such as Sixfields, Weston Favell, the town centre, Duston, and Moulton via Kingsthorpe.



Northampton to Market Harborough rail route

Northampton - Market Harborough has been promoted by various groups and authorities. It would introduce the first modern-day Northampton to Midland Main Line link. This would allow fast, direct services from the significant regional economic and population centres of Leicester, Derby and Nottingham.

Along the line of route, outside the centres of Northampton and Market Harborough there is currently a minimal population. The sole population centre of note is Brixworth + Spratton with a combined current population of 6k.

Depending on the future definition of the West Northamptonshire spatial strategy, if there was to be significant residential development at Boughton & Brampton then the transport sustainability of such development would be significantly enhanced by provision of a station. Likewise if a major new settlement near the intersection with the A14 was to be considered, its transport sustainability would be significantly enhanced by the provision of a local/regional rail service.

The viability of provision of this rail service would be closely intertwined with spatial planning of future large-scale residential development.

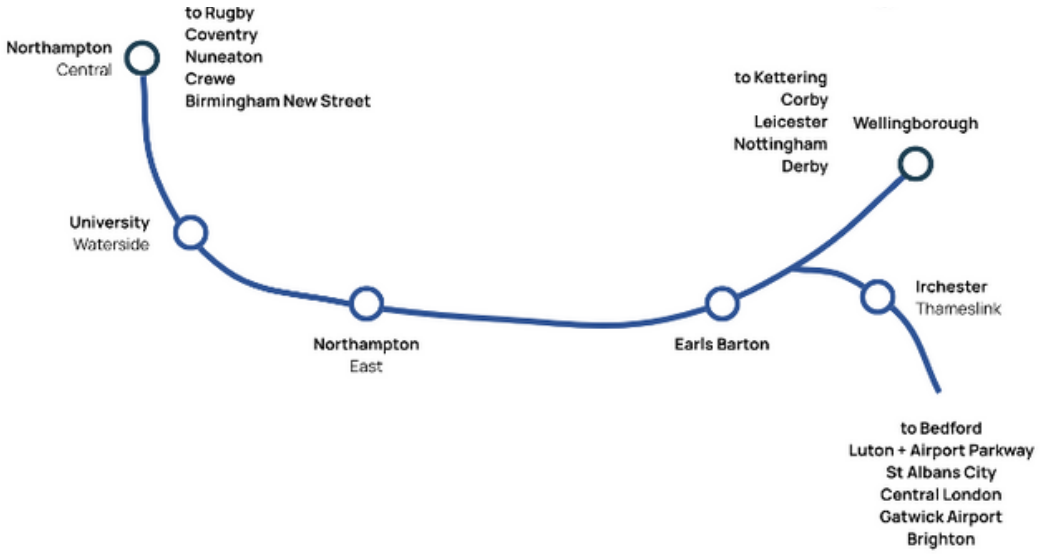
Brixworth isn't just growing with new housing - it's also growing with new industry and business. Existing industry is mostly composed of automotive firms, including Mercedes AMG (High Performance Powertrains). It's likely workers commute to firms like this from Northampton and Leicester, and the only reliable travel mode is by car.

As a result, if a line like this were to go ahead, it wouldn't only potentially benefit existing industry in Brixworth and allow them to access a new workforce given new intercity links to the growing large village, but it would also attract new firms to the area from different industries. However, it's right to wait until a business case has been carried out to confirm if this is a real opportunity or not.

Northampton to Wellingborough rail route

If the EEH Peterborough - Northampton - Oxford connectivity study finds there is sufficient passenger travel demand along this corridor, then a renewed Northampton - Wellingborough heavy rail route, could, in combination with other interventions, allow for the direct connection of the significant population centres of Wellingborough, Kettering, Corby and Peterborough.

Combined with Northampton, the total population of these centres is nearly 600k. The A43 and A45 routes between these centres experience high levels of road traffic demand, with the A43 in particular operating over capacity. Dualling of the A43 is current North Northamptonshire policy.

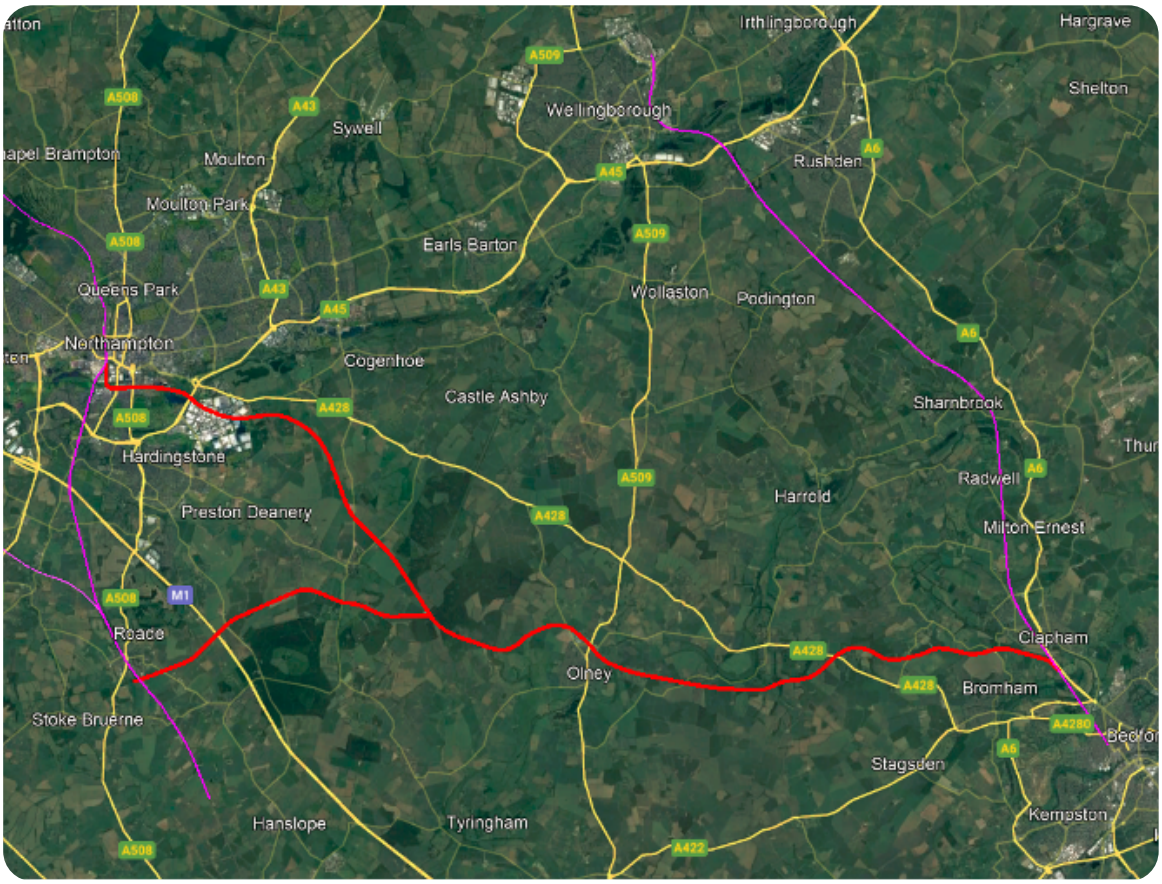


Northampton to Bedford rail route

Bedford Borough Council promoted the reinstatement of this route and made an entry into round 3 of the 'restoring your railway' programme, but was not successful in securing funding for a feasibility study.
While not being fully car-competitive, rail journey times from Northampton - Bedford via Bletchley will be significantly improved by East-West rail. The sole significant centre along this route at Olney has a population of 6.5k, and road traffic demand along this axis is around 10k vehicles/day.

This combination of these factors makes us pessimistic about the restoration of this route in the short-medium term, without significant additional population demand along the line of route arising from new residential development.

The map below shows, in purple, existing rail routes, with red being former routes to Bedford from West Northamptonshire which were shut during the Beeching cuts



East West Rail

West Northamptonshire Council fully supports the aspiration of local authorities in the Buckinghamshire area in securing the delivery of the "Aylesbury Spur".

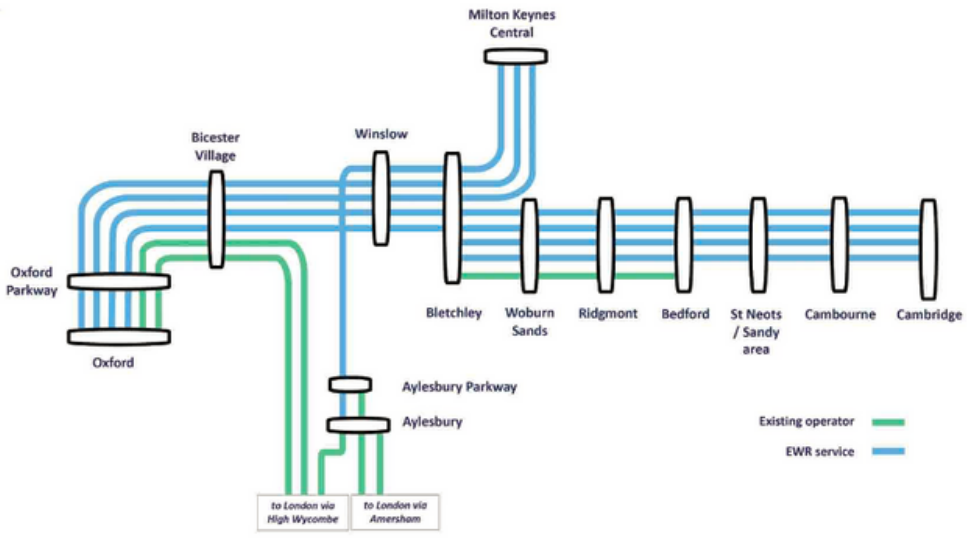
This would permit the operation of Milton Keynes Central - Aylesbury - High Wycombe - London Marylebone services, the operation of which could be extended northwards to Northampton.

East West Rail proposes 2tph from Oxford to Milton Keynes Central via Bletchley. These could be extended northwards to Northampton and southwards to Reading.

"A very good operating and business case exists for [a "base case" for a] 2 trains per hour passenger service between Oxford and Milton Keynes, and an operating case also exists for the Aylesbury spur which would bring further economic and strategic advantages to the subregion."
- East West Rail website

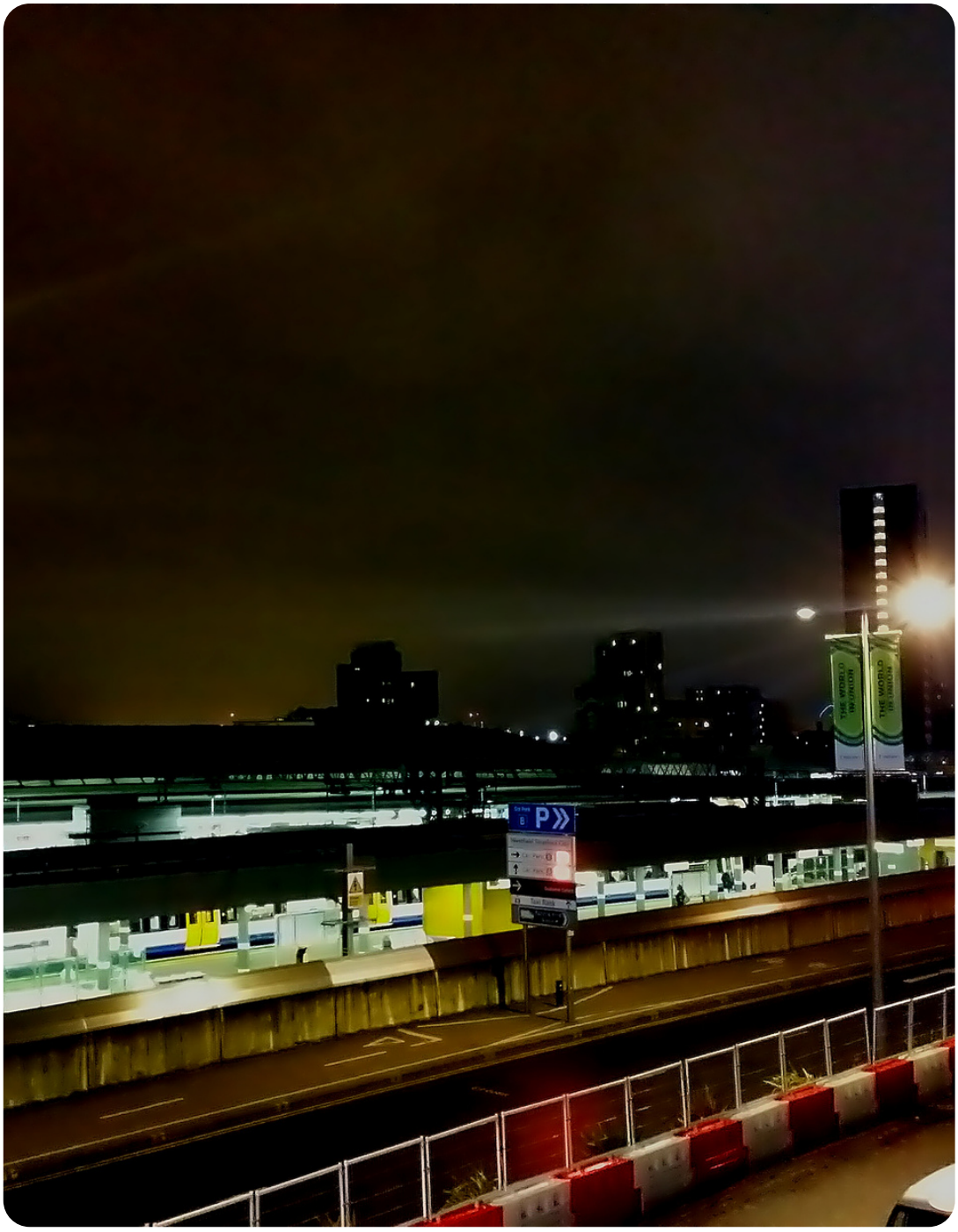
Through interchange at Bletchley, East West Rail will provide 4tph to destinations eastward such as Bedford and Cambridge. There is potential for these services to be extended further eastward beyond Cambridge.

All extensions of East West Rail services are dependent on such extensions operating reliably and not importing delays into East West Rail operations. The proposed EWR service pattern is shown in Figure 4.5 below, each line representing one train per hour (tph)



There has been discussion of a North-to-East chord at Bletchley. If this was to be implemented (and the new route around Bedford constructed with suitable gradients and facilities for freight) it would provide additional freight capacity from Felixstowe to logistics in West Northamptonshire and the rest of the Golden Triangle.

This could either boost overall freight capacity or allow re-routing of existing freight traffic to provide further passenger capacity on London Overground, notably around Stratford and the North London Line.



Northampton Metro/suburban Northampton stations

STM have had outline conversations about the concept of a “Cross-Northampton Metro” running between Rugby and Bletchley and agree that it is a concept that deserves further investigation, and could potentially integrate with and be a part of a solution to addressing Daventry’s transport needs, especially around Long Buckby.

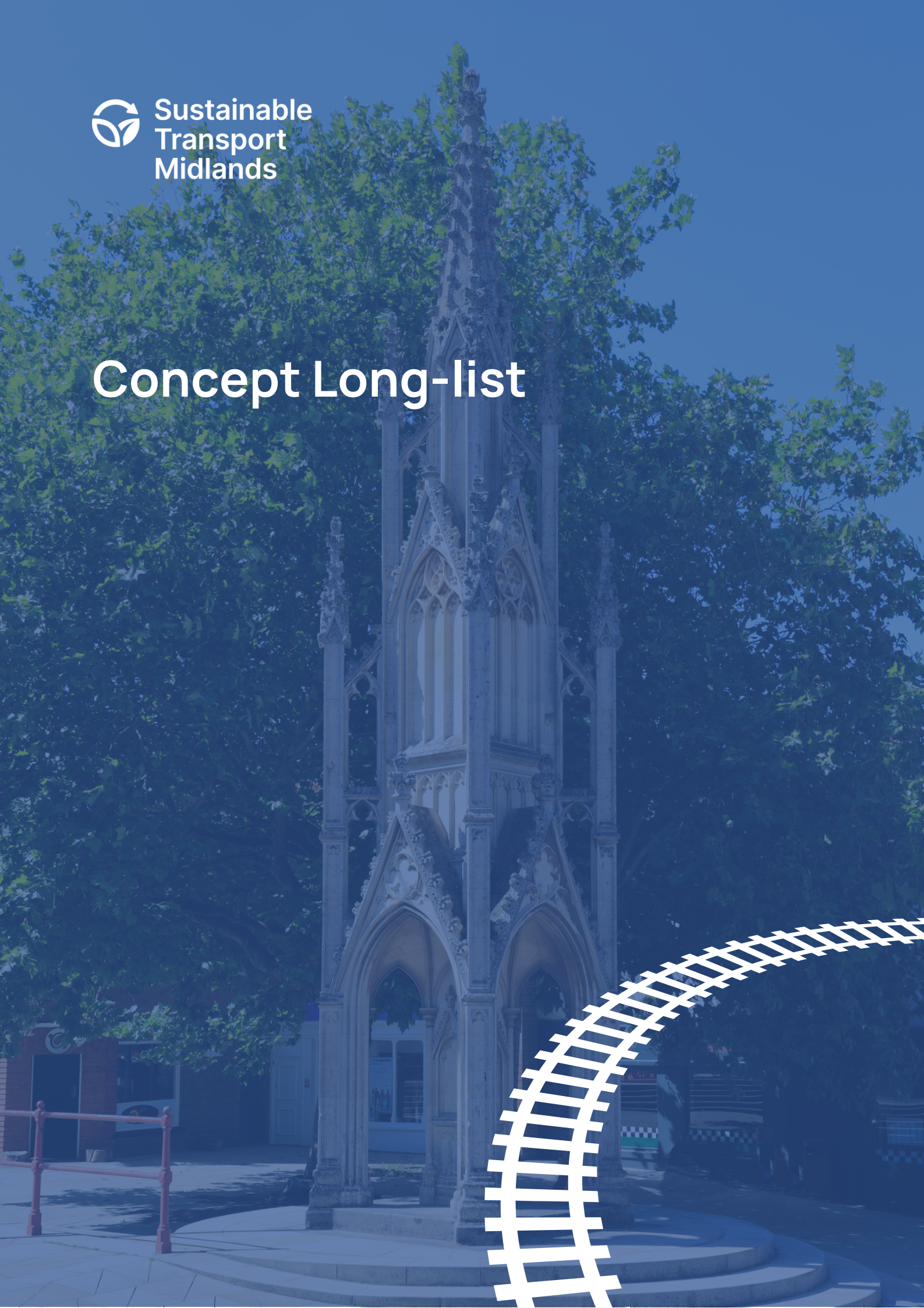
New stations could include:

- Kingsthorpe & Queens Park
- Hunsbury
- Roade

Other stations have also been proposed in the Northampton area in the past, such as in Milton Malsor. However, our current opinion is that the population within the catchment area for a station at Milton Malsor does not yet warrant a station.

Sustainable Transport Midlands

Concept Long-list



Daventry Parkway

Daventry Parkway was STM's initial concept to reconnect Daventry to the national rail network. The proposal would see a station located in Weedon Bec, just off the A45, with London Euston - Crewe services and select Avanti West Coast services calling. Due to existing capacity constraints, services could not commence until HS2 Phase 2a began operations.

The initial concept has been further refined and now comprises:

Location:

Road traffic generated is less intrusive on the village of Weedon Bec

Platform layout:

Subject to operational analysis our expectation of infrastructure requirement is two platforms located on platform loops to cater for stopping services without restricting through services.

Service provision:

- London Euston - Crewe services will call at Daventry Parkway, possibly replacing another existing call to maintain capacity.
- A new Tamworth - Daventry Parkway shuttle service could begin operation on a half-hourly basis to provide intercity and regional links at Rugby, Nuneaton and Tamworth, as well as to serve the proposed Rugby Parkway station in Houlton.

Daventry Gateway

The 'Daventry Gateway' concept is to recognise and maintain the current Long Buckby station usage as a railhead for Daventry but rename and substantially enhance it.

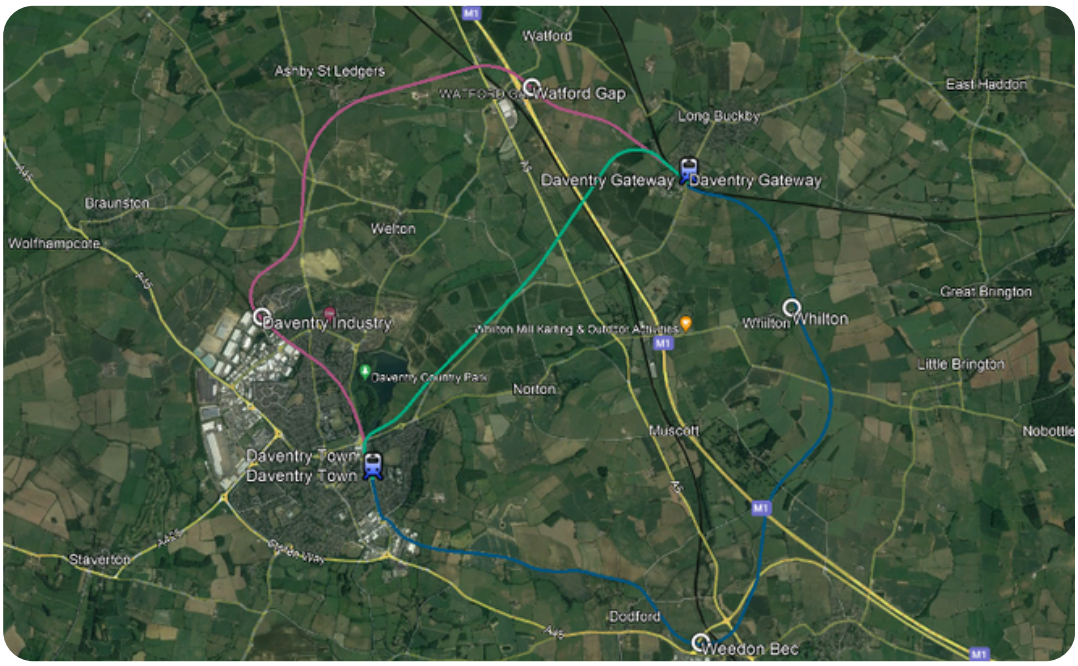
It involves a number of major upgrades at Long Buckby railway station, including:

- Step-free access provision
- Appropriate car park charging to encourage use of shuttle relative to driving. EV chargers introduced in the station car park to encourage sustainable travel.
- A new station building being erected with toilets, a cafe, ticket office with longer opening hours, a number of ticket machines, and waiting areas.
- Service extensions to minimise need for Daventry passengers to change twice at both Daventry Gateway and Northampton/Rugby.

Daventry Shuttle

A new Very Light Rail link between Daventry Town and Daventry Gateway - this would require a separate platform.

The operation of this would be analogous to the very popular "Stourbridge Shuttle". Extremely good ease and timing of interchange would be essential for this to succeed. This would require either (or both) timetabling of the shuttle to coincide and wait for key services, or high enough frequency of shuttle services for interchange time to be insignificant.

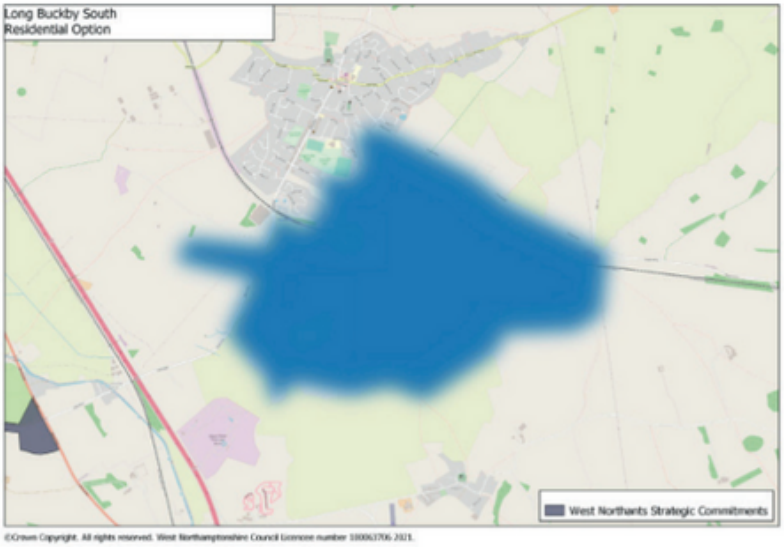


Station location

Another potential change would be moving the station slightly east to serve new housing developments more efficiently. Moving the station could also reduce the gap between the train and the platform and make the step down safer. At the moment, staff also cannot see down the train as easily, given that the station is also on a cant/slope.

Dependant on the options taken forward from the draft West Northamptonshire Strategic Plan, Long Buckby itself may see significant residential development centred around the current station site, shown below.

Land to South of Long Buckby - Residential



An area of land to the south of Long Buckby with a potential capacity of between 1280 to 5000 dwellings. The option would be accessed off Three Bridges Road however improvements would be needed to bridges under the M1, West Coast Mainline and Northampton loop line at Long Buckby Wharf. Further along the Three Bridges Road there might be improvements needed to the A5 junction. Within Long Buckby, due to the historic street pattern further traffic management measures might be needed however this will need to be informed by transport assessment work.

Northampton to Daventry routes

We have put together two different proposals for a Northampton - Daventry route, the key differentiator between the routes being whether they enter Northampton station from the north or south, which influences the operational practicality of providing through services to onward locations.

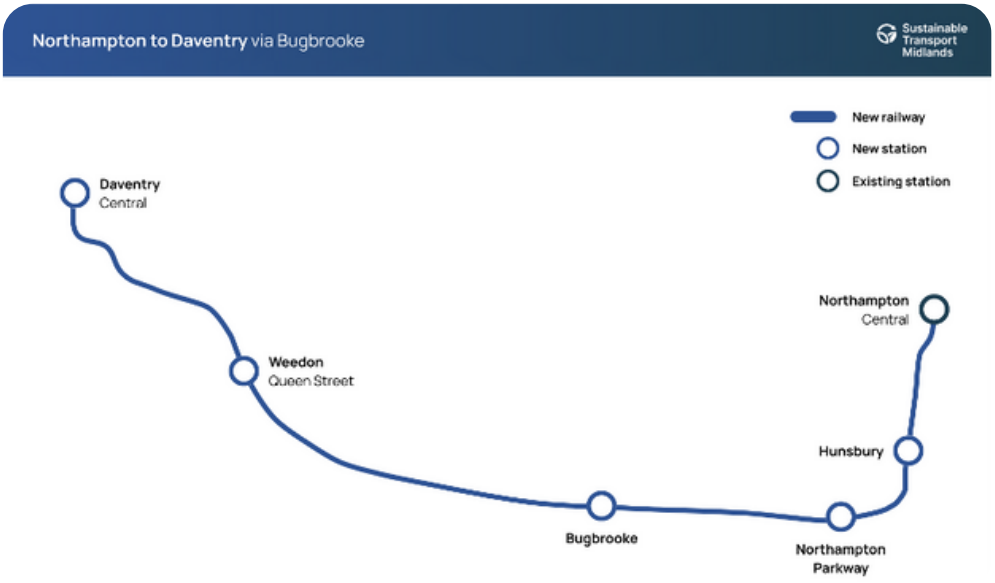
Both concepts provide the opportunity for a 'Park and Ride' station serving Northampton, located close to existing M1 junctions. In addition to the key service locations of Northampton, Daventry and a 'Park and Ride' location, the routes provide opportunity to service smaller settlements en-route.

From an operational and climate change policy agenda it would be vastly preferable for any such route to be electrified from day one. A more operationally complex option requiring specific rolling stock would be OLE/Battery hybrid vehicles.

Both of these would be a high-cost option, but that needs to be set against the substantial existing population of Daventry, future growth of Daventry SUEs and the dramatic growth of the villages surrounding Daventry, such as Weedon Bec.

Southern approach to Daventry

There are a variety of potential services on offer here. A stopping service could operate between Northampton Central and Daventry Central, calling at all stations, while the existing Birmingham New Street - Northampton regional service could extend to Daventry Central, calling at Northampton Parkway and Weedon Queen Street only.

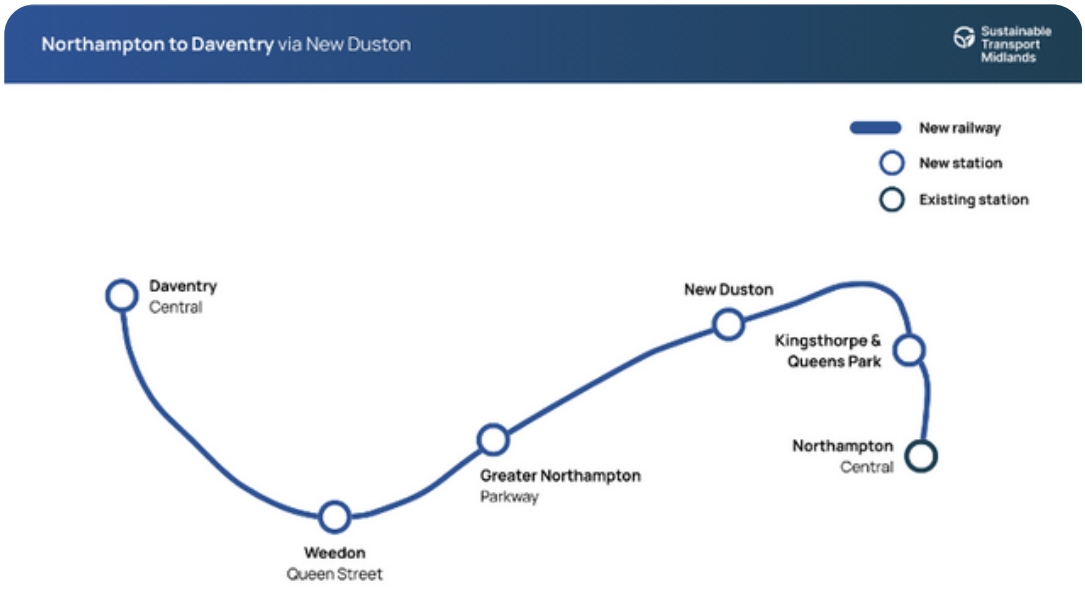


This option has potential to perform extremely well for the primary Daventry - Northampton and P&R - Northampton flows but would require further examination as to its performance for secondary flows to Birmingham/London for Daventry passengers compared to the current option of railheading at Long Buckby.

Northern approach to Daventry

This configuration would readily allow existing London Euston services which originate from Northampton to be extended to a Northampton P&R location and Daventry. If those services call at Bletchley it would facilitate interchange onto East West Rail for access to the knowledge economies of Oxford/Cambridge.

Ideally, in addition to this national service we would like to see a local service calling at a number of smaller settlements en-route as indicated. This local service and stations could be a secondary phase of delivery provided that passive provision was made for them in the initial design.

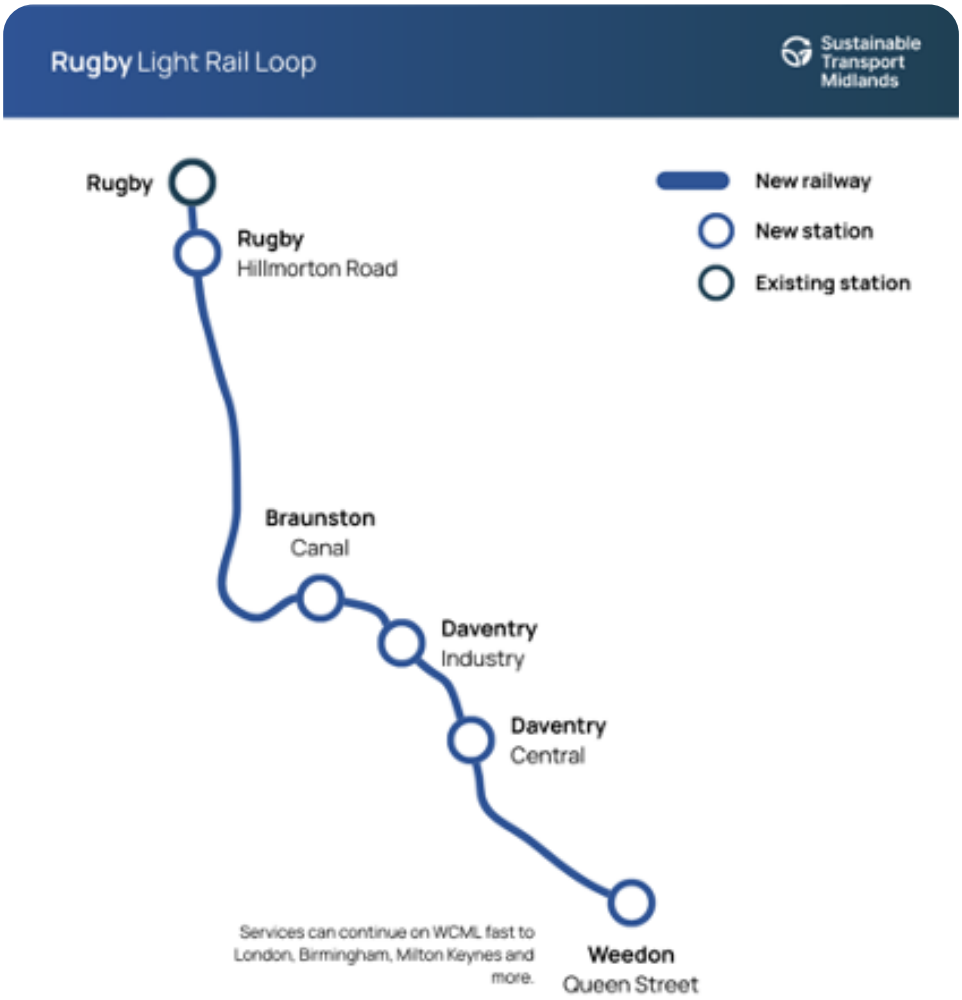


Rugby to Weedon tram-train

The concept sees a light-rail route between Rugby and Weedon Bec (WCML Fast), acting as a light "Daventry Loop" of sorts. This means light rail services could run between Rugby railway station and Daventry, as well as tram-train services between Rugby and Milton Keynes Central via Daventry.

This is another proposal which benefits places outside Daventry too, including Braunston and Weedon Bec which we covered earlier. It's likely, as this is a light-rail route, there could be additional halts within Rugby and Daventry.

This route lacks direct links to Northampton without additional line infrastructure being introduced - which would increase the potential cost of the alignment being built.



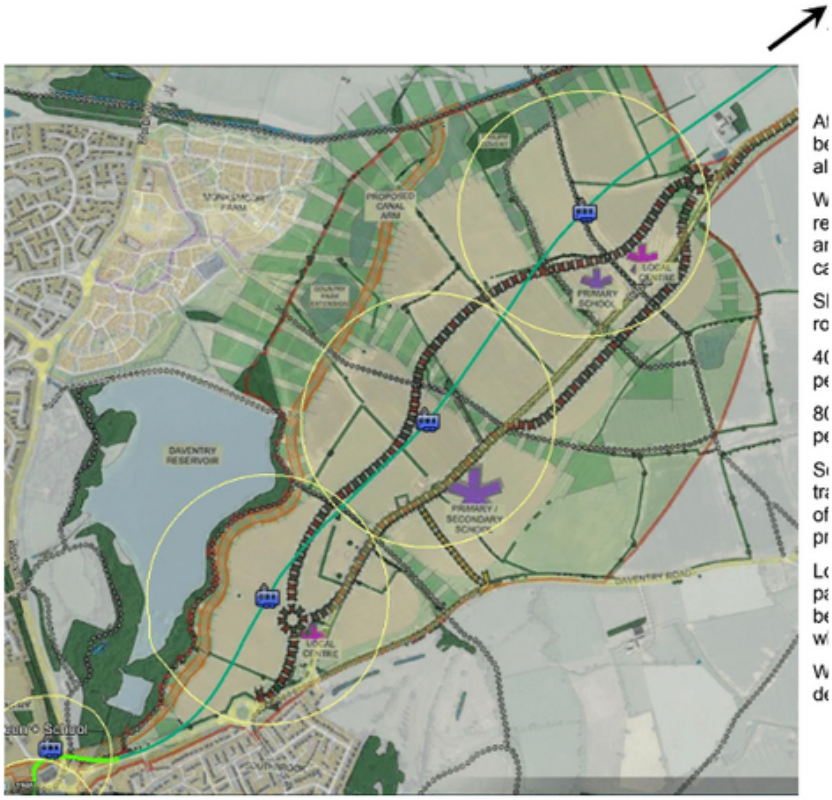
Daventry TramLink

Daventry TramLink is a proposal for one new tram route serving the Daventry town centre, Daventry North East SUE, and Long Buckby railway station - offering a more sustainable route to a better railway station, and the Daventry town centre from the new North East SUE without having to introduce brand new bus services.

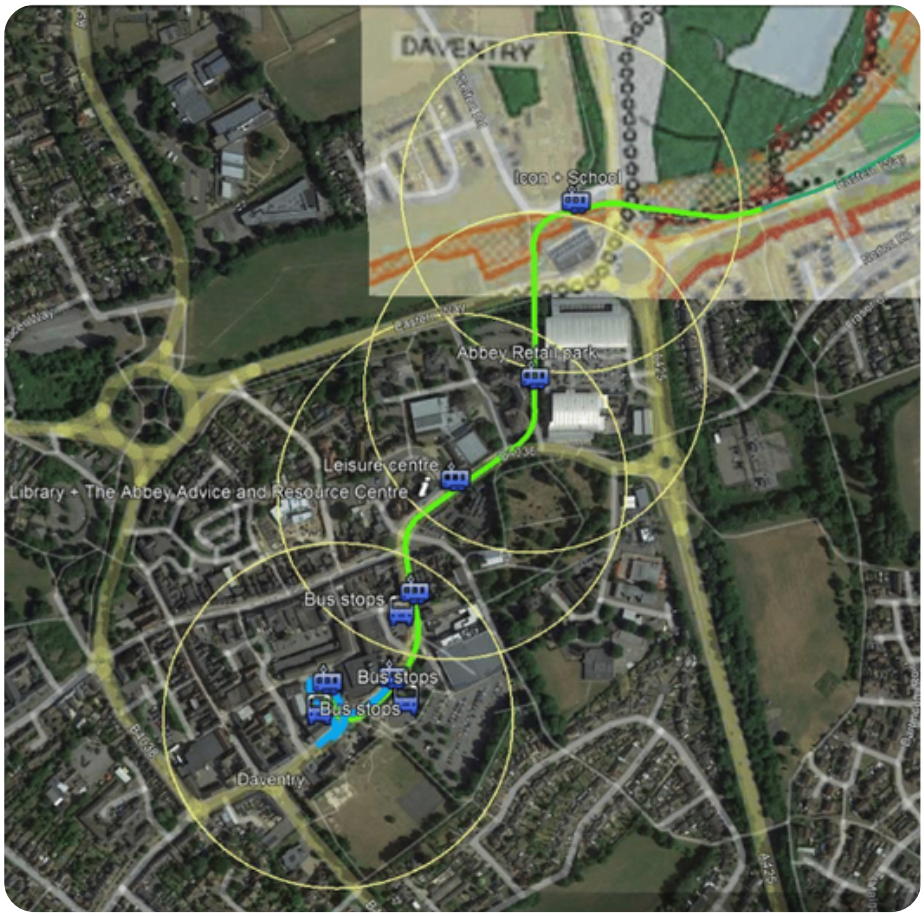
The current outline planning application for the Daventry North East SUE contains (as is the norm), detailed modelling of traffic flows on the roads to ensure that the road network will cope with the additional population. As is also the current norm, it does not appear to contain any kind of modelling off the suggested level of active and public transport provision that has any prospect of delivering the required reduction in car journeys.

At the origin of the journey a tram stop needs to be conveniently located to both the homes and also the two local centres within the SUE. We have outlined a route that appears reasonably constructible and tweaked the route and location of tram stops along it to maximise the catchment area.

Shown below in green is a potential tram route, with the yellow circles being 400m radius. 400m is generally regarded as the distance people will walk in an urban area to catch a bus. 800m is generally regarded as the distance people will walk to catch a train. The arrow points in the direction of Long Buckby.



To be truly attractive local connectivity, a tram would need to come right into the town centre of Daventry, connecting with local buses offering a level of convenience such that you would have to be “out of your mind” to bother driving into the centre.



At the shopping heart of Daventry there appear to be **three** reasonable alternative candidate locations for a tram terminus. (shown left)

Is it vitally important that the tram terminus is co-located with the bus station.

Relocation of the existing bus station is discussed in the 2035 vision.

The most exciting location from a public transport provision perspective would be out the front of Waitrose, since it would discharge passengers directly into the pedestrianised shopping area, offering a car-free experience for public transport users.

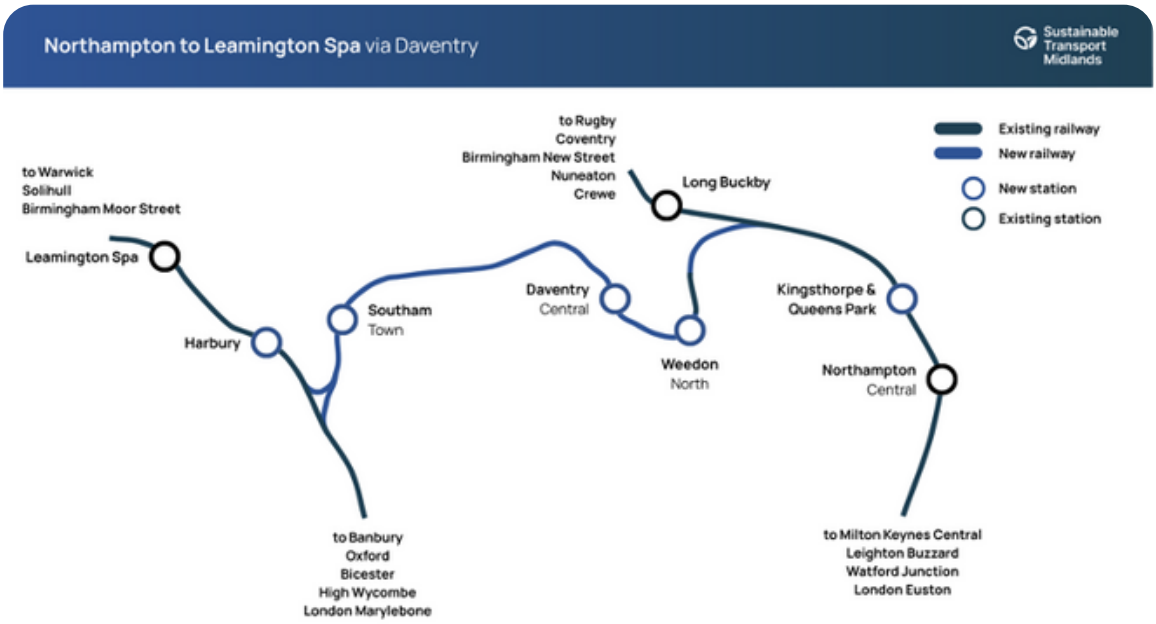
Buses could circulate around a central tram stop (path of buses shown mid-blue), with existing bus station location providing replacement parking.

This means that you have to walk past the public transport offering to get to the car park – providing a ‘nudge’ that public transport is the mode you should be selecting to get into the centre of Daventry.

Daventry Town Centre Vision 2035

Northampton to Leamington Spa - rail

This is the most ambitious concept presented - a new rail link connecting Northampton to the Chiltern Main Line/Leamington Spa via new stations at Daventry and Southam. It largely utilises the historic route from Weedon to Marton Junction, however, towards Leamington Spa, the route goes via Southam (pop 7.3k), connecting another isolated town to the public transport network.



While it is a very long-term ambition, it is obliquely suggested in the EEH phase 1 study, so we feel there is merit in consideration of the concept, even if only whether the other concepts facilitate or hinder this long-term ambition. EEH: "There is potential for an additional route into the West Midlands via Leamington Spa by avoiding the Leicester area."

This infrastructure could facilitate direct services between Northampton, Daventry, Banbury, Oxford and Reading, plus Daventry - Birmingham Moor Street/Snow Hill services connecting through Leamington Spa. In addition to being a knowledge economy centre, Oxford provides onward connections to many further destinations further South and West.

The route passes nearby a number of other existing settlements which subject to future population growth could become additional station locations:

- Harbury and Bishop's Itchington (on the Chiltern Main Line) - Catchment: 7,500
- Weedon Bec - Catchment: 2,700

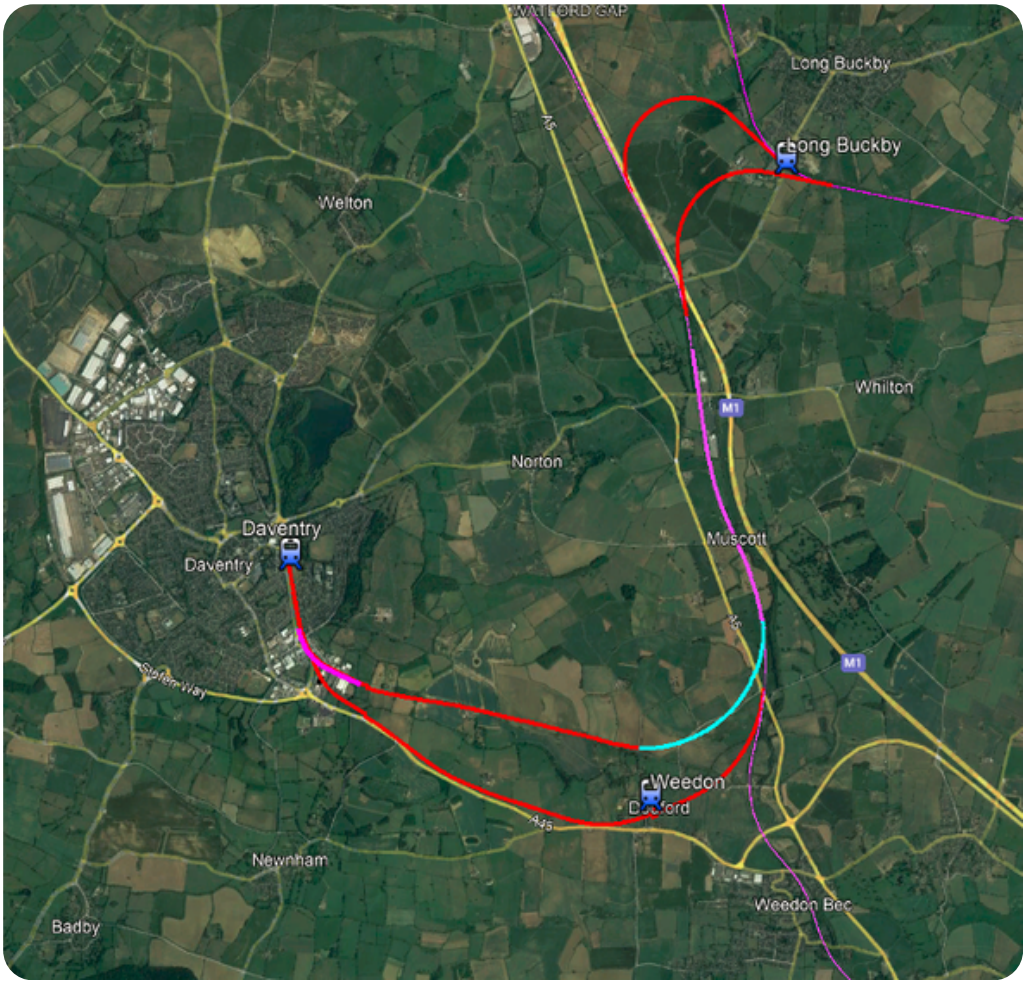
DaventryLink

This concept closely shadows existing transport corridors to minimise environmental impact.

The figure shows a new line connecting Daventry Town station to the West Coast Main Line via the hamlet Dodford (which is close enough to serve Weedon Bec).

The route would be single-track electrified, similar to the route between Barnt Green and Redditch in the West Midlands. Where the route runs parallel to WCML, due to capacity constraints, a single additional track would be required. This concept could either be a light rail shuttle interchanging at Long Buckby or a range of heavy rail services similar to concepts discussed previously (including a Daventry Town - Coventry metro service).

It's important to note that this concept does not offer a good opportunity for a P&R location serving Northampton.



Express bus service to Northampton

Maybe the lowest capital cost option would be a new limited-stop express bus route to Northampton railway station and Northampton Northgate - the only stops being Daventry bus station, Northampton railway station approach road, and Northampton Northgate bus station.

In order to approach car-competitive journey times a bus route would require dedicated bus lanes in areas of congestion, likely requiring road-space reallocation in both Northampton and Daventry centres. Depending on the degree of modal shift achieved this could have a negative effect on the levels of road congestion.

There are clear downsides and upsides to this proposal. Most notably, buses attract fewer passengers away from the car than rail modes (see Section One of this document). Buses also cost more to maintain and operate in the medium-long term (for the same passenger/hour/direction capacity), even though initial capital costs are lower.

This service would compete with existing stopping Stagecoach services from Daventry bus station to Northampton Bus Interchange reducing the patronage on existing services. If the new limited-stop service does not attract sufficient completely new bus users, then there is a risk to the financial viability of both the new and existing bus services. This could pose challenges when attempting to attract an operator to provide the service.

Unless electric buses are used for this bus route (meaning brand new vehicles will need to be purchased), it's unlikely to meet national and regional climate change aims for net-zero carbon emissions by 2050.

The buses would need to run on a frequent basis - perhaps every 20 minutes during peak times - to be used in addition to the existing (half-hourly) Stagecoach offering to Northampton via Weedon Bec.

Seated passenger capacity can be up to 72 (2 axle) up to 100 (3 axle), at 3 BPH providing 216-300 PPHPD.

<u>This compares with, for example:</u>
2-car Class 155 carrying 160 seated + 60 standing
3-car Class 158 carrying 207 seated + 122 standing

At 2tph the example rail vehicles can provide seated capacity of 320-414 PPHPD, total capacity 440-658 PPHPD.

Rail based options have potential to scale up to much larger carrying capacities without increasing staffing costs, and at peak time passengers are more willing to stand for up to 20 minutes on rail services which passengers would neither tolerate, or an operator consider safe, on a bus service.

Improving active travel provision

Although this may be the cheapest option of those we have proposed, it will bring the least benefit for regional journeys. Investing in active travel across West Northamptonshire would involve new pedestrian walkways and cycleways, as well as improved surfacing on existing pavements.

We would suggest basing this new active travel network around Daventry, with walking and cycling routes leading to nearby villages and railheads.

Investing in e-Bike and e-Scooter schemes for the Greater Daventry area, including in the surrounding villages is an option worthy of consideration - delivering high quality segregated cycling infrastructure is essential to drive usage. In Milton Keynes, the Spin e-Scooter scheme reached over 56,000 users in six months, while navigating two national lockdowns due to COVID-19.

Provided to Sustainable Transport Midlands by SEMLEP, Spin has produced a report into the insights gathered for their Milton Keynes area trial. Of this survey:

- 93% of people felt confident they understood parking and riding rules
- 90% felt safe or somewhat safe when riding
- 63% said they had used an e-Scooter in place of a solo car trip

Spin also said that the relationship with the local authority (Milton Keynes Council) has been key to the success of the trial. It's also been vital to incentivise riding. For example, riders get 50p off their next ride if they park at an optimum location within the city – such as at Milton Keynes Central

It's important to note that if an alternative concept for improving public transport connectivity to Daventry is selected, we would highly suggest that similar active travel measures to those proposed in this page are taken forward. It's unlikely this option would fix Daventry's public transport problems alone.

Rugby Parkway

Rugby Parkway is a more developed proposal to introduce a heavy rail station on the Northampton Loop in between Rugby and Long Buckby.

The proposal has been spearheaded by Warwickshire County Council, who are proposing a two-platform station initially on the Northampton Loop, with 2tph operating between Birmingham New Street and London Euston. The station will be located on land adjacent to the A428 Crick Road, to the South East of Rugby and on the Northampton loop of the West Coast Mainline between Rugby and Long Buckby stations.

The proposal has gained initial funding and is worth further evaluating as part of this programme, given it may be a station that is easier to access that Long Buckby (both from a transport and mobility perspective). With the right bus routes in place, it might be the right option for the town.

As of early-2023, the proposal is currently in consultation with the public after local and regional bodies authorised initial funding. SLC Rail is the primary consultant on the project, and West Midlands Rail Executive (one of our main partners) are also supporting the scheme.

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