

4 Network Opportunities

The Network Opportunities Summary presented in Table 4.1 identifies, at a strategic level, gaps where the current transport network may not currently align with DaSTS objectives (although a detailed DaSTS based analysis is still required) and summarises opportunities for the rail network to address these gaps in current transport provision.

The station, infrastructure, services and freight plans demonstrate the link between the rail opportunities identified in Table 4.1 and the potential schemes that have been identified by stakeholders. The schemes are summarised by control period based on the time frame in which the schemes could be delivered. The plans do not specifically cover development of the Midland Metro tram network, but highlight where such developments will have a direct impact on the current or future heavy rail network.

Appendix A provides further detail of the 21 rail corridors in the region including the current constraints, future growth drivers and potential solutions.



Table 4.1 Network Opportunities Summary

Route Description

The West Midlands rail network is centred on Birmingham and is comprised of largely segregated networks serving New Street and Snow Hill stations. The rail network provides good access to the regional centres outside Birmingham including Wolverhampton, Coventry, Hereford, Worcester, Telford, Shrewsbury, Stoke On Trent, Tamworth and Nuneaton. Birmingham International Airport and the National Exhibition Centre are also well connected to the rail network. The West Coast Main Line (WCML) passes through the region.

The network is primarily two-track and heavily used by a mixture of local, regional, inter-city and freight services to access key destinations including the Southampton Ports and Wales. Freight traffic through the region is primarily carried on the WCML but other routes also form key freight corridors to Southampton, Derby, South Wales and the West of England.

DaSTS has identified 14 'Strategic National Corridors' that are critical to the nation's transport network and economic development. Four of these corridors either originate or pass through the West Midlands region. The rail network in the West Midlands currently accommodates services on the national corridors in addition to local and regional services, which results in conflicting demands for capacity on some routes.

Key Growth Drivers

- » Planned housing growth across the region
- » Birmingham City Centre regeneration
- » Rail industry investment in Birmingham Gateway and West Coast Mainline
- » Franchise plan commitments by operators
- » Expansion of Birmingham Airport
- » Provision of strategic park and ride at various sites
- » Traffic congestion on key road corridors
- » Redevelopment and regeneration initiatives including High Technology Corridors
- » Regeneration of other key regional centres such as Walsall, Coventry and Wolverhampton
- » Increasing fuel and congestion costs for car drivers leading to greater modal shift
- » Growing environmental and carbon awareness.

DaSTS Objective	Transport Problem	Rail Opportunity
<p>To support national economic competitiveness and growth, by delivering reliable and efficient transport networks</p>	<p>Transport networks in the West Midlands Region are generally well used, particularly at peak times, which can lead to congestion and increased journey times</p> <p>The current transport network is not well aligned to support anticipated housing and economic growth in the region</p> <p>Investment in transport infrastructure may be necessary to kick start regeneration</p> <p>The rail network is largely two-track network requiring freight and differing types of passenger services to share the same tracks</p> <p>The different operational characteristics of services prevent optimum use of capacity</p> <p>Network in Central Birmingham and elsewhere in the region is operating at capacity during peak times, preventing the introduction of new services and creating a performance risk</p> <p>Platform lengths on many routes unable to accommodate longer trains</p> <p>Gaps in electrification limit operational flexibility and service development opportunities</p> <p>The loading gauge required to handle larger freight containers is not available on all routes. In order to cope with predicted future traffic levels loading gauge needs to be improved</p> <p>Speed limits, rolling stock and the timetable operated on some routes result in uncompetitive rail journey times</p>	<p>Infrastructure:</p> <p>Enhance infrastructure provision to enable operation of more services</p> <p>Electrification of network where practical</p> <p>Upgrade infrastructure to allow faster journey times</p> <p>Stations:</p> <p>Extend some station platforms to permit longer, higher capacity trains where necessary</p> <p>Services:</p> <p>Increase rolling stock fleet size and extend trains where possible including additional stabling points</p> <p>Further increase train lengths where platform length permits</p> <p>Review timetable and rolling stock used to deliver faster journey times between key locations</p> <p>Freight:</p> <p>Ensure that capacity for freight is retained as passenger capacity is increased</p> <p>Improve loading gauge where possible</p> <p>Introduce new terminal capacity to meet demand</p>

DaSTS Objective	Transport Problem	Rail Opportunity
<p>To reduce transport's emissions of carbon dioxide and other greenhouse gases, with the desired outcome of tackling climate change</p>	<p>Car usage and congestion in the region currently result in high levels of transport emissions</p> <p>Lack of multi modal strategy for station access is currently preventing many drivers from using rail for part of their journeys</p> <p>Significant demand for park and ride with many car parks full to capacity by 9am on weekdays preventing off peak usage</p> <p>Rail is unable to capture a greater modal share due to capacity constraints</p> <p>Poor cycle and pedestrian access at some stations prevents more sustainable access to the rail network</p> <p>Much of the rail network is not electrified resulting in many passenger and freight services being operated by diesel trains</p> <p>Reduced, or absent, early morning, evening, Saturday and Sunday service levels on some routes make car travel essential on some corridors</p> <p>Variability in charges at station car parks may result in passengers driving to illogical stations placing pressure on car parking facilities at some locations</p>	<p>Infrastructure:</p> <p>Expand electrification of the rail network</p> <p>Stations:</p> <p>Continue to invest in facilities that encourage walking and cycling to stations</p> <p>Increase provision of parking places and create park and ride opportunities being careful to minimise rail heading</p> <p>Services:</p> <p>Provision of modern electric rolling stock</p> <p>Lengthen services to reduce overcrowding and secure modal shift</p> <p>Improve service provision to secure modal shift, particularly improved late, early and weekend service patterns</p> <p>Increase attractiveness of railway through provision of new and refurbished rolling stock</p> <p>Improve off peak service provision</p> <p>Freight:</p> <p>Ensure that rail freight increases modal share</p> <p>Ensure that freight proposals improve the resiliency of the network</p>
<p>To contribute to better safety and health and longer life expectancy by reducing the risk of death, injury or illness arising from transport, and by promoting travel modes that are beneficial to health</p>	<p>Lack of opportunities for pedestrian and cycle access to some stations does not encourage use of these modes</p> <p>High levels of car use increases accident risk to both users and wider communities</p> <p>Perceptions of personal safety at some stations could be further improved</p>	<p>Stations:</p> <p>Continue to invest in facilities that encourage walking and cycling to stations</p> <p>Enhance personal safety provision at station including CCTV</p> <p>Services:</p> <p>Ensure rail becomes preferred mode of choice</p>
<p>To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society</p>	<p>Not all stations on the network meet Disability Discrimination Act (DDA) accessibility standards limiting attractiveness for those with reduced mobility</p> <p>Reduced, or absent, early morning, evening, Saturday and Sunday service levels on some routes make access to leisure and employment opportunities difficult for non car-drivers</p>	<p>Stations:</p> <p>Upgrade stations as appropriate to be fully DDA compliant</p> <p>Services:</p> <p>Improve off peak service provision</p>
<p>To improve quality of life for transport users and non-transport users, and to promote a healthy natural environment.</p>	<p>Not all stations offer a high quality waiting environment</p> <p>Some ageing rolling stock cannot match modern requirements</p> <p>Need to further improve passenger information</p>	<p>Stations:</p> <p>Undertake upgrades as required to improve station quality and information provision</p> <p>Services:</p> <p>Seek to enhance rail's modal share</p>

Station Plan

A fundamental factor in the success of the rail network is ensuring easy access to stations and high quality station facilities. In order to achieve this it is necessary to provide high quality stations located where people need them. The following opportunities for stations have been identified:

- » improve accessibility through new or relocated stations;
- » encourage modal shift from road to rail through providing better access (park and ride);
- » Increase the attractiveness of public transport by providing high quality interchange opportunities and network integration;
- » encourage cycling and walking to stations;
- » improving general station quality;
- » providing high quality and consistent passenger information; and
- » provide additional rail network capacity through longer platforms, allowing longer trains to serve stations.

In some corridors it will be necessary to increase available passenger capacity in order to accommodate future growth in rail demand. This can be achieved by operating longer trains, although longer platforms may be required to facilitate this.

Encouraging car users to rail for their main journey will have a positive impact on the DaSTS objectives. There is also a significant opportunity to reduce car usage to access the rail network, and make the rail network more attractive to those without a car, by improving facilities for bus, pedestrian and cycle access.

To meet the DaSTS objectives it is essential to maximise the connectivity between areas of housing, employment, leisure and civic opportunities. To make this connection through the rail network it is important to offer passengers the opportunity to access the rail network. Table 4.1 identifies an opportunity to maximise connectivity through provision of new or relocated station that better serve the catchment area. The opportunity to deliver new stations is closely aligned to other rail opportunities. The consideration of a new station site may be made as part of the identification of strategic park and ride sites that seeks to improve access for car users. Some station relocations may be considered for operational reasons, such as the inability to lengthen platforms at the current location.

Table 4.2 summarises the strategically important station schemes that have been identified.



Table 4.2 Stations Plan - Network Summary

2009-2014 (Control Period 4)	2014-2019 (Control Period 5)
<p>Birmingham Gateway project to rebuild Birmingham New Street station</p> <p>Moor Street station upgrade and additional bay platforms</p> <p>Connecting Coventry - station upgrade in association with new platforms, platform renewal and redevelopment scheme around station</p> <p>Nuneaton – Coventry – Kenilworth – Leamington Enhancements (NUCKLE) Phase 1, Nuneaton – Coventry including new stations Coventry Arena and Bermuda Park</p> <p>New station at Kenilworth</p> <p>New station at Stratford Parkway</p> <p>Relocated Bromsgrove station</p> <p>Kidderminster station upgrade and integration with bus services</p> <p>Major new Park and Ride site and station upgrade at Longbridge</p> <p>Wolverhampton Interchange</p> <p>Telford station parking and station improvements</p> <p>Platform extensions and station upgrades across network</p> <p>Station access improvements across network including car park expansions, cycle and pedestrian access and bus integration</p>	<p>High quality Moor Street – New Street station linkage to create a ‘one station’ concept for the city centre</p> <p>Further platform extensions and station upgrades</p> <p>Further car park expansion</p> <p>Further upgrade of Moor Street in connection with Camp Hill chords</p> <p>New stations across network including:</p> <ul style="list-style-type: none"> » Walsall – Wolverhampton line » Camp Hill line » Tamworth line » Sutton Park line » Worcester Parkway » Shrewsbury Parkway » Brinsford
<p>Schemes highlighted in bold have funding identified</p>	

Other potential future schemes include:

- » Telford Park and Ride
- » central Birmingham station changes resulting from potential high speed line; and
- » other additional local and strategic park and ride stations.

Infrastructure Plan

It is essential the network develops to accommodate rail demand growth, maximise the connectivity between new centres of housing, employment, leisure and civic opportunities and improve reliability. The following opportunities for developing rail infrastructure have been identified:

- » increased capacity and improve performance on the rail network through resignalling schemes, improved junction and station layouts and reinstatement of passing loops and double track sections;
- » encouraging modal shift to rail by increasing line speeds and reducing journey times;
- » enable the railway to handle freight more efficiently by increasing loading gauge (the height and width of vehicles the network can accommodate) where necessary;
- » reinstatement of former routes and construction of new lines to improve connectivity, capacity and performance; and
- » support the reduction in pollution through route electrification, allowing more electric services to operate.

In some corridors it will be necessary to increase the passenger capacity available to accommodate future rail demand. It is also necessary to make the rail offer more attractive to encourage modal shift from car to rail and realise the benefits to health, safety and the environment.

An important opportunity to increase capacity and encourage modal shift is through increasing the frequency of services. Service frequency is an important factor when passengers make a decision to travel and provision of frequent services is crucial in attracting more car users to rail.

Many of the rail corridors, key stations and junctions on the rail network are already operating at or close to capacity. It will therefore be necessary to consider opportunities to provide new and improved infrastructure to allow a more frequent train service to operate. The opportunities available to enhance capacity range from smaller local enhancements such as new passing loops or reinstated double track, to large scale resignalling schemes and new or reinstated former routes.



An important factor in a passenger's journey experience, which directly affects their decision to use a specific mode, is the perceived reliability of that mode. Reliability is also a key consideration of many freight operators, especially in moving intermodal freight traffic where road competes strongly. Improved infrastructure to facilitate more frequent trains will also improve the reliability of services. Freight and passenger operations have very different operating characteristics and infrastructure requirements and opportunities to segregate these two users of the network should be considered.

To secure modal shift and support economic development it is essential to provide quick links between key locations. Many of the routes in the West Midlands region have speed limits that have been set based on historical rolling stock types and timetables. There may be relatively simple opportunities to increase speed limits on existing routes. This will bring important benefits by allowing journey times to be reduced.

Much of the passenger and freight network in the West Midlands region is operated by diesel trains. Diesel services, when well used, are less environmentally damaging than road based alternatives. However, there remains an opportunity to further improve the environmental credentials of the rail network and support the DaSTS objectives by electrifying further routes and operating electric services.

Table 4.3 summarises the strategically important schemes.

Table 4.3 Infrastructure Plan - Network Summary

2009-2014 (Control Period 4)	2014-2019 (Control Period 5)
Resignalling schemes for: » Stratford Line » Water Orton/Camp Hill corridors » Kidderminster corridor » Walsall and Cannock Lines Bromsgrove electrification Redditch branch upgrade Redoubling of track between Kenilworth and Coventry 4 tracking between Longbridge and Barnt Green Gauge and capacity enhancements on the strategic freight network Barnt Green to Westerleigh speed improvements Redoubling parts of the Cotswold line Loading gauge enhancements between Southampton and the West Coast Main Line and between Felixstowe and Nuneaton	Stafford area remodelling Camp Hill chord lines and provision of four terminal platforms at Moor Street Resignalling schemes for: » Birmingham New St area » Worcester area » Wolverhampton area Electrification of key infill lines e.g. Walsall – Rugeley, Nuneaton – Birmingham, Wolverhampton – Shrewsbury, Coventry – Nuneaton Stourbridge – Walsall freight line reinstatement Remodelling at Dorridge and Leamington Spa NUCKLE Phase 2, Kenilworth to Leamington redoubling Tram Train technology on the Stourbridge – Walsall corridor Additional depot and stabling facilities
Schemes highlighted in bold have funding identified	

Other potential future schemes include:

- » high speed line and associated improvements to the current rail network including capacity on the Birmingham – Coventry corridor;
- » further resignalling, electrification and redoubling schemes;
- » reopening of Walsall to Lichfield line; and
- » loading gauge enhancements north of Water Orton.



Service Plan

The services operated, their reliability and the quality of the journey experience are central to people's decision to travel by rail. In order for rail to generate modal shift and accommodate additional demand it is essential that high quality rail services are provided. The following opportunities for service improvements have been identified:

- » provide additional rail network capacity through operation of longer trains;
- » provide additional capacity and encourage modal shift from road to rail through more frequent rail services;
- » facilitate economic development and encourage modal shift through new services that better connect areas of housing, employment, leisure and civic opportunities;
- » increase the attractiveness of rail for leisure journeys by improving early morning, evening, and weekend service provision;
- » encourage modal shift and improve perceived security of the rail network by providing new and refurbished rolling stock;
- » encourage modal shift and increased connectivity between key locations by reducing journey times; and
- » reduce pollution impacts through provision of more electric trains

In some corridors it will be necessary to increase passenger capacity in order to accommodate future demand growth. Crowding is a key factor in passengers' perception of the quality of rail journey. A crowded journey, where the passenger is forced to stand for a long distance, will deter potential rail users. In order to increase capacity additional rolling stock will be required and can be deployed in a number of ways. Lengthening trains allows capacity to be increased within the existing track capacity, although it may be necessary to lengthen platforms as referenced in the Station Plan. Alternatively new rolling stock can be used to increase capacity by operating an increased frequency service, though this may require additional infrastructure as summarised in the Infrastructure Plan.

Increasing the frequency of service also brings other advantages in helping meet the DaSTS objectives. The frequency of service is a key deciding factor in a potential passengers' decision to travel by rail. Therefore opportunities

to increase the frequency of service will bring benefits by encouraging modal shift from car to rail and realising the environmental, health and safety benefits that this can bring.

The quality of the rail journey experience is a key factor in potential passengers' decision to use rail or an alternative mode. The impact that crowding can have has already been summarised. The quality of the rolling stock used can also impact on the passengers' perception of the rail offer. Several new rolling stock fleets have been introduced in the West Midlands region over recent years, including Voyagers on Cross Country services, Pendolinos on West Coast Main Line services and Turbostars and Desiros on local and regional services. However, many routes are operated using stock dating from the mid 1980s which do not include contemporary facilities such as fully accessible toilets and real time information. This rolling stock will be due for refurbishment or replacement within the period of this Rail Development Plan. Improving the quality of rail stock used on the network, through either refurbishment or replacement, can help secure modal shift from car to rail and the benefits that this brings to the environment, health and safety.

Actual end to end journey time, together with the frequency offered by rail, are arguably the primary deciding factors when potential passengers make a decision to use rail. Therefore, improving journey times between key locations and frequency of services will improve the attractiveness of rail, supporting a number of the DaSTS objectives. Bringing areas of housing, employment, leisure and civic opportunities closer together will encourage people to take up these opportunities supporting economic growth in the region. Quicker journey times will also encourage modal shift and the associated benefits this brings. Quicker journey times can be realised through new rolling stock with better performance capabilities, increased line speeds as summarised in the Infrastructure Plan or through revisions to the timetable to provide optimum stopping patterns.

Operating more services using electric rolling stock (in connection with electrifying additional routes) will further improve the environmental credentials of the rail network and support the DaSTS objectives.

Table 4.4 summarises strategically important service improvement schemes.



Table 4.4 Service Plan - Network Summary

2009-2014 (Control Period 4)	2014-2019 (Control Period 5)
<p>New Class 172 diesel trains to replace Class 150s</p> <p>New Class 350 electric trains to replace Class 321s</p> <p>Pendolinos lengthened to 11 cars</p> <p>Train lengthening on Cross City and Snow Hill lines</p> <p>Improved early morning, evening, Saturday and Sunday services</p> <p>Improved timetable on the Snow Hill Lines</p> <p>Enhanced Coventry – Nuneaton line service (NUCKLE Phase 1)</p> <p>New Aberystwyth/Shrewsbury to London services</p> <p>Increased Cross City services to Redditch and Bromsgrove</p> <p>Faster Chiltern Railways journey times to London</p>	<p>Birmingham Central Area Rail Capacity Improvements including new services on Camp Hill line and Tamworth line</p> <p>New local services on:</p> <p>» Sutton Park Line</p> <p>» Hereford – Shrewsbury</p> <p>Enhanced services between Coventry and Leamington (NUCKLE Phase 2)</p> <p>Further train lengthening</p> <p>New inter city rolling stock on Cotswold line</p>
<p>Schemes highlighted in bold have funding identified</p>	

Other potential future schemes include:

- » review service patterns in light of new high speed line potentially releasing capacity for development of freight, local and regional services;
- » new Nuneaton to Birmingham local service;
- » improved inter regional links, e.g. to the East Midlands;
- » optimise use of station capacity in Birmingham city centre; and
- » reopening of Walsall to Lichfield line.

Freight Plan

Rail freight has a vital role to play in supporting the ongoing economic growth in the region and across the country, while reducing the negative environmental impacts of freight transport. Of specific importance is rail's ability to handle intermodal freight traffic. Improvements to the freight network will benefit the regional and national economies. The following opportunities to support the development of rail freight have been identified:

- » allow larger intermodal containers to be moved across the network by increasing loading gauge on key routes;
- » ensure there is sufficient capacity for rail freight growth on the network; and
- » minimise rail freight journey times by providing:
 - » more longer and faster passing loops to reduce the impact of freight trains stopping to allow passenger services to pass, and
 - » easy rail access to freight terminals.

Over recent years intermodal containers have increased in size. The loading gauge on many routes is not sufficient to handle these containers when carried on conventional rail wagons. It is possible to move these containers using 'well' wagons (where the container sits in a well between the wheels). However, well wagons can not hold as many containers and therefore the payload and viability of the rail freight services is compromised. Road provides significant competition for movement of these loads and it is important to maximise the payload on rail freight services to reduce costs and maintain rail's attractiveness. Moving freight by rail is essential in meeting a number of the DaSTS objectives; in particular reducing lorry miles will bring significant benefits in reducing pollution.



It is essential that future developments of infrastructure and passenger services make provision for continuing growth in the freight market. Where opportunities for expanding infrastructure to provide additional passenger services are being developed there may be additional benefits to be gained by making specific provision for freight services.

To maximise the attractiveness of rail freight it is important to provide competitive and reliable journey times. On many routes in the region it is difficult to accommodate both passenger and freight services on the same infrastructure. As long as the final destination can be reached the route that freight services take is flexible. Therefore opportunities to provide additional freight routes to access the region will allow freight services to be more competitive while bringing benefits for passenger services on the existing routes.

Similarly improving the access from the rail network to freight terminals will help reduce journey times. To access some freight terminals services are required to 'set back' (reverse) into the terminal. This can occupy the main running lines of a route for several minutes preventing other services from passing. Alternatively the freight service may need to run to a convenient location to reverse, which is time consuming. Providing improved access to freight terminals can not only reduce the freight journey time but also free capacity for other services to use.

More competitive freight services will help ensure that rail can move freight that would otherwise move by road. This will bring benefits in achieving a number of DaSTS objectives, in particular reducing pollution.

Table 4.5 below summarise the strategically important schemes.

Table 4.5 Freight Plan - Network Summary

2009-2014 (Control Period 4)	2014-2019 (Control Period 5)
<p>Loading gauge enhancements between Southampton and the West Coast Main Line and between Felixstowe and Nuneaton</p> <p>4 tracking between Longbridge and Barnet Green</p> <p>Gauge and capacity enhancements on the strategic freight network including north of Walsall and between Water Orton and Derby</p> <p>Chord line (with the West Coast Main Line) at Nuneaton to improve freight handling capacity</p> <p>Improved freight terminal at Murco Petroleum, Hawksbury Lane</p> <p>South Coast to West Coast Main Line container traffic growth</p>	<p>Stourbridge – Walsall freight line reinstatement</p> <p>New freight terminals at Wednesbury and Hilltop</p> <p>Stafford to Bushbury Junction freight loops</p> <p>Direct access from Derby direction to Kingsbury freight terminal IN45</p>
<p>Schemes highlighted in bold have funding identified</p>	

Other potential future schemes include:

- » reopening of Walsall to Lichfield line; and
- » loading gauge enhancements north of Water Orton.