*Final Report*

# Birmingham Eastern Fringe Rail Study

Prepared for

**Birmingham City Council**

June 2014

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# Contents



**Figures**

# Executive Summary

The proposed urban extension in Sutton Coldfield looks to deliver 5,500 dwellings and 80 hectares of employment land. The traffic impacts associated with the development are compounded by the limited radial road access and associated congestion.

Opportunities have been identified to reduce the traffic impacts of the development, by encouraging more sustainable transport choices, including bus and rail options. This study investigates the potential for new or enhanced rail services to support the delivery of the development by collating and updating previous work on rail in this area, enhancements explored include:

- Reopening of Sutton Park line (freight only) to passenger services on an hourly and half-hourly frequency;
- New station on Water Orton corridor, with existing services; and
- Cross-city (north) service and car parking capacity enhancement.

The review suggests the following:

- It is possible technically to re-open the Sutton Park Line to passengers. Required infrastructure works would include:
    - New stations on the Sutton park Line;
    - Improved junction capacity between the Sutton Park Line and the Water Orton rail corridor; and
    - Confirmation of terminal location in the City Centre:
        - New Street – possible post HS2, and requires prioritisation of Sutton Park Line services over other regional services in deciding how any spare rail capacity post HS2 should be allocated.
        - Moor Street – possible via construction of chord lines to link services from Bordesley. These could be provided as part of wider rail aspirations linking Tamworth and re-opening of the Camp Hill lines (a package approach, dependent on funding).
- A new station on the Water Orton corridor itself is possible. It will require retiming of existing services. A concern is the peak period passenger loads on these services, with a resolution requiring train lengthening.
- The Cross City North has the potential to support the rail offer in this area. Key current constraints revolve around parking capacity especially at Sutton Coldfield station. If a suitable site could be found, this would encourage mode shift to drivers on the A5127 and therefore free road capacity for new residents further to the east.

In conclusion, the rail industry has the potential to support developments in this area. There are inevitable obstacles to be overcome, but from a technical perspective these are not insurmountable. Wider rail industry developments should also provide the potential to allow the suggested rail scheme to progress in a more cost effective manner.

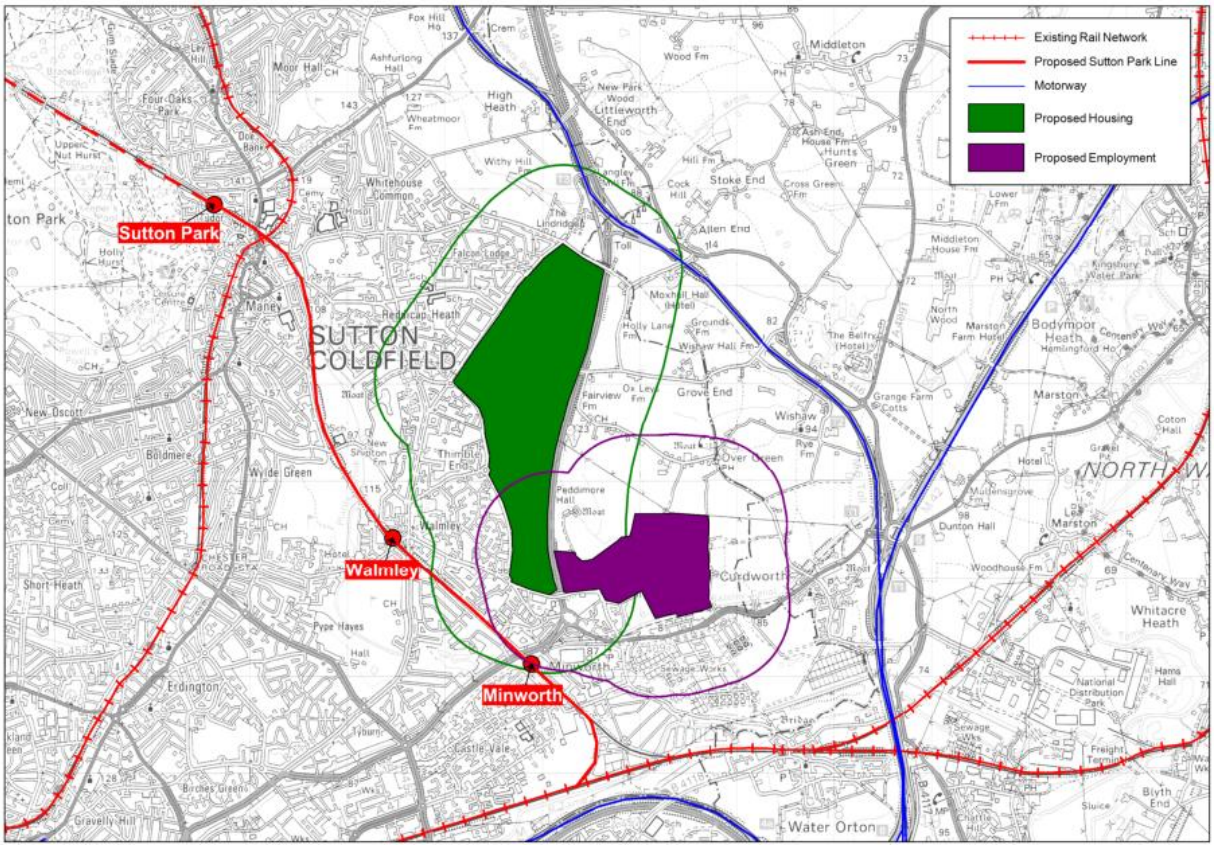
SECTION 1

# Introduction

## 1.1 Brief

Birmingham City Council (BCC), as part of its Draft Development Plan (published in 2013), is proposing an urban extension at Langley, Sutton Coldfield, in order to meet expected increasing demand for housing and employment sites. Development in this location would potentially comprise residential sites to the north and the centre of the zone (provision of approximately 5,500 dwellings), with additional employment to the south close to the existing Minworth and Castle Vale employment areas (80 hectares of employment land). Figure 1-1 illustrates the proposed development area, in context with local transport infrastructure.

*Figure 1-1: Proposed development area*




In preparation for the upcoming consultation on the Draft Development Plan (early 2014), CH2M HILL have been commissioned by BCC to investigate the feasibility of potential rail opportunities to facilitate access to the proposed urban extension and alleviate current transport issues in the area.

In order to provide improved transport links to/from this area of the conurbation, it has been suggested that passenger services could be reintroduced to the currently freight-only Sutton Park Line. This line, in its entirety, runs from Ryecroft junction (on Walsall to Rugeley line), via Aldridge, through Sutton Park, Walmley and Minworth to Castle Bromwich junction (on the main Birmingham to Derby line).

Considerations include other schemes that might be prerequisites for introducing new passenger services, such as infrastructure investment like the Camp Hill Chords and Stourbridge-Walsall freight line and in parallel a review on the case for any prerequisites as part of the overall package of investments.

Additional rail opportunities have also been considered at a high-level, including:

- potential provision of additional stop of existing services along the Water Orton corridor; and

- the enhancement of the cross-city line (north) - to encourage mode shift and reduce congestion along A5127 and local roads, as well as to enable improved road-based public transport access.

The opportunities to enhance rail provision in North Birmingham identified in this report, would likely also benefit the proposed regeneration of Sutton Coldfield Town Centre, outlined in Draft Birmingham Development Plan (early 2014).

This report will consider the previous work on the feasibility of running new local passenger services along the Sutton Line; updating it to reflect subsequent investment in the rail network, both along the Birmingham-Water Orton corridor and more widely across the West Midlands, where these schemes have had a relevant impact on the area of interest.

Consultation has been conducted with representatives from the local rail industry (Network Rail, Train Operating Company and Centro ITA) to explore committed and proposed schemes that may impact on the reintroduction of passenger services on the Sutton Park Line.

This report will focus on issues identified that may impact on the feasibility of reinstating the passenger service, including cost risks for new infrastructure, capacity for train paths to run additional services and to stop services at new stations, rolling stock, likely timescales for delivery, an identification of the required processes to delivering such infrastructure and a review of the previous value for money work.

SECTION 2

# Background

## 2.1 Previous Study (2009)

In 2009 CH2M HILL (as Halcrow) undertook a study for Centro on the Tamworth and Sutton Park Lines, which aimed to establish the feasibility of new local rail services between Birmingham and new and existing stations on these lines. Its high level scope of work encompassed:

- service option identification;
- operating assessments;
- operations costing;
- infrastructure assessments and costings;
- an initial demand assessment; and
- an outline economic appraisal.

The study continued to scope an operationally robust plan for local passenger services on both corridors, especially given future freight service forecasts, notably growth to/from Hams Hall and Birch Coppice, and reflected key demands on the routes fitting with local, regional and national policies for their development.

Figure 2-1 below outlines the proposals identified within the 2009 study, as part of the recent Centro Prospectus for long-term passenger rail lines within the West Midlands.

*Figure 2-1: West Midlands Long Term Passenger Rail and Rapid Transit Network- Rail Lines with West Midlands Suburban/Regional Rail Services (excerpt of Figure 3.1 in the Centro Prospectus April 2013)*

The key assumptions considered for the 2009 study included:

- Water Orton area resignalling occurs (2010) – full scheme implemented;
- Walsall and Sutton Park line resignalling occurs (2012);
- Assessment based on assumed level of freight for 2019;
- Leicester services diverted to Moor Street station;
- Wilnecote and Water Orton stops removed from 2009 Cross Country services; and,
- Walsall – Stourbridge freight line re-opening.

Key findings of the 2009 study:

- Due to the lack of capacity at New Street Station to accommodate new services, Moor Street Station was identified as the potential terminus station. However this required significant construction of new infrastructure (capital cost of £120m-2008 prices) to connect the Water Orton Corridor with Moor Street station (Camp Hill and Bordesley Chords).
- The main benefits of the proposed scenarios are derived from the Tamworth line services.
- The Sutton Park line scenarios weakened the business case for the overall scheme (both Tamworth and Sutton Park lines), with demand for the potential service at SP line stations not sufficient to offset capital and operational costs of scheme.
- All proposals require the increase in capacity on Water Orton corridor and Camp Hill chord infrastructure enhancements.
- Demand at stations more pronounced at locations closer to city centre, where journey times are more competitive against private car. Demand reduces along the Sutton Park line, the further from city centre, due to competition from already established Cross-City line (speed and frequency of service) and the extended journey times compared to private car.

However, the resignalling works have not occurred in these timescales, with the Water Orton resignalling original works de-scoped. Due to this, the service assumptions were no longer feasible. Investment in the Water Orton corridor is now being carried out, but only replacing existing life-expired signalling assets, not resignalling the section to provide more capacity along the corridor.

## 2.2 Centro Committee Paper (2009)

Following the 2009 study, Centro produced a Paper (23.11.2009, Doc# 356773) summarising the findings of the original study to Transport Strategy Committee. The key conclusions included:

- The provision of new local services on the Tamworth and Sutton Park lines would require the construction of the chord lines in the Camp Hill area and new lines into Moor Street Station.
- Sufficient demand to support the provision of new stations and services on the Tamworth line (two trains per hour), with basic two trains per hour service pattern having a strong business case (4.60 BCR).
- The case for providing new station and services on the Sutton Park line is weaker due to lower demand levels (reduces BCR when combined with Tamworth services to 3.67, based on two trains per hour on Sutton Park line).
- The decongestion of New Street station by the diversion of services into Moor Street delivers considerable performance benefits and would be a key element in justifying the construction of Camp Hill chords.
- The Camp Hill chords would be a complex project, costing in excess of £120m and require significant land take. Although this project would deliver wider benefits both for national and local rail network, by providing additional platform capacity in central Birmingham.

## 2.3 Birmingham City Council – Development Plan 2031

The Draft Development Plan 2031 proposes an urban extension at Langley of approximately 5,500 dwellings (Policy GA5 - Langley) and 80 hectares of employment land (Policy GA6 - Peddimore). The Pre-Submission Draft Document was approved by Full Council in December 2013, prior to consultation period (January to March 2013).

Policy GA5 also outlines the potential for improvements to connectivity, including:

*"New and improved bus connections will be needed to directly link the site with Sutton Coldfield Town Centre, Birmingham City Centre and other key employment destinations. The enhancement of rail services could significantly improve accessibility to North Birmingham, including longer term projects such as new commuter stations at Castle Vale, The Fort, Walmley and Sutton Coldfield".*

Policy GA6 outlines improvements to connectivity which focus on sustainable modes including walking, cycling and bus links for employees, rather than rail provision, as well as road-based connectivity enhancements.

## 2.4 Birmingham City Council – Birmingham Mobility Action Plan (Green Paper, 2013)

Birmingham City Council has recently launched their mobility strategy for wider Birmingham area. Their vision for Birmingham's future rail network include:

1. The **opening of the Camp Hill, Tamworth and Sutton Park lines, facilitated by construction of the Camp Hill Chords connecting lines for passenger services into Moor Street station**, with potential for new stations at Hazelwell, Kings Heath, Moseley, Fort Parkway, Castle Bromwich, Minworth, Walmley, Sutton Coldfield and Streetly. This will not only provide improved access to the city centre for these locations, but is also a key piece of infrastructure which links the wider City together and provides opportunities to interchange into the rest of the mass transit network. More specifically:
    - Camp Hill Line – Network Rail recognises the congested nature of the A435 through Moseley and Kings Heath, and the opportunity for rail to provide some relief to road congestion;
    - Tamworth Line – this corridor forms a large proportion of the city's Core Employment areas, and Network Rail recognises there is demand for rail travel at Castle Vale; and
    - Sutton Park - the options contained in the draft Birmingham Development Plan for development in the Green Belt in the vicinity of the Sutton Park Line, which could produce a step change in demand for rail travel in this area.
2. Opening these **connections into Birmingham Moor Street** will also allow some long distance passenger services to route away from Birmingham New Street and thus improving service reliability/punctuality for many other services.

## 2.5 Centro – Towards A World Class Integrated Transport Network (2013)

Centro set out their long term vision and strategy framework in "Towards A World Class Integrated Transport Network" which aims to transform the transport system serving the West Midlands. Within this framework, rail and rapid transits proposals are outlined. These include the following suburban rail preferred mode corridors:

- Birmingham – Kings Heath – Kings Norton (Camp Hill line);
- Walsall – Sutton Coldfield – Castle Bromwich – Birmingham (Sutton Park line); and
- Birmingham – Tamworth.

The vision sees rail network coverage extended with new stations associated with strategic park and ride facilities and enhanced or new passenger service provision for the Tamworth Line, Sutton Park Line, and the Camp Hill line in South Birmingham.

SECTION 3

# Considerations

## 3.1 Operational issues

### 3.1.1 Infrastructure

Moor Street Station has been considered as a terminus for these potential passenger services, due to capacity constraints at New Street Station (discussed in sub-section 3.1.2 below). Moor Street Station has the potential to be able to accommodate passenger services, if access can be gained to the station from the Water Orton corridor. However if further enhancement of current levels of service or introduction of additional services occurs, there may also be a requirement for a fifth platform to cope with demand. Implications of capacity at Moor Street Station are outlined in section 4.

As mentioned above, to be able to access Moor Street Station as a terminus, significant infrastructure is required to link the Water Orton corridor to the station. Proposals have been identified, known as the Camp Hill chords, which permit access from Kings Norton along the Camp Hill lines to Moor Street Station. A further double-track chord line (at Bordesley) would be required to link the Water Orton corridor to the station. The Bordesley Chord is unlikely to be implemented without the wider Camp Hill Chords, as the complexity of the junction with regards to conflicting movement requires rationalisation and potentially a grade-separated link. Costs for this infrastructure are summarised in sections 4 and 4.3. The cost of this major infrastructure could be prohibitive to the delivery of the Sutton Park line services, if taken in isolation of a wider rail scheme.

As the Sutton Park line has been used for heavy freight since its closure to passenger services in the 1960s, the track infrastructure needs minimal upgrades, with improvements to signalling and the construction of stations being the key requirements. The key constraint on the Sutton Park line is the single track link between Park Lane Junction and Castle Bromwich Junction, which is sufficient for the current level of freight use, but would be of concern if passenger services were reintroduced. The implications of this constraint are discussed in section 4.

### 3.1.2 Capacity constraints

The Water Orton corridor is a major route in the West Midlands hosting a 2tph Cross Country service between the south-west and north-east, plus a further 2tph on the Birmingham to Nuneaton line for Cross Country services towards Leicester, Cambridge and Stansted Airport, as well as 2tph on the route to Nottingham. There are 6tph through most hours in each direction crossing Castle Bromwich Junction plus a regular flow of freight traffic in each direction. A previous study demonstrated how there were opportunities to path Sutton Park line passenger trains over the junction but this was based on the revised infrastructure and signalling layouts for the original Water Orton Corridor resignalling scheme which was subsequently de-scoped.

The current alignment of Water Orton corridor runs to New Street Station via Landor Street Junction, Grand Junction and Proof House Junction. New Street Station accommodates both through and terminating services, with limited availability to facilitate additional services due to high levels of platform occupancy and the limited number of approach tracks into the station (four in each direction). Further discussion of New Street Station operational capacity and implication to the Sutton Park line are outlined in section 4.2.2.3 below.

### 3.1.3 Freight

The Sutton Park line is a key freight corridor for access to Hams Hall and Kingsbury terminals, as well as Bescot freight yard and Landor Street freightliner terminal. The Water Orton corridor is the key bottleneck for freight in the West Midlands. Future growth expectation of rail freight traffic across the UK is significant. The Network Rail Market Study for freight (Dec 2013) suggests growth for intermodal

freight of between 6.2 and 7.9% pa between 2011 and 2033, whilst total rail freight demand is expected to grow by 1.1% pa to 2023 achieving 2% pa by 2043. On either measure the additional volumes in future years will be significant, and pressure to maintain existing freight access rights will be strong. These would need to be resolved before any Sutton Park (and/or Tamworth) services are implemented.

Proposals have been identified for the reopening and upgrade of the Stourbridge to Walsall line for freight services. Although not a prerequisite for the operation of Sutton Park (and Tamworth) services, the previous study states that these upgrades to infrastructure and signalling would alleviate some of the pressure on the city centre to Castle Bromwich corridor by diverting freight along the Stourbridge to Walsall line, along the Sutton Park line to access Hams Hall/Kingsbury.

There are additional aspirations to reopen the Walsall to Lichfield line which would further reduce the constraints on this corridor. Neither proposal has been scheduled for delivery, as more stakeholder support is required; although the route has been identified by the DfT as part of a national Strategic Freight network. Proposals could result in the requirement of more freight paths on the Sutton Park line, but subsequent capacity issues due to increased demand at Ryecroft Junction could also limit this.

SECTION 4

# Operational feasibility

## 4.1 Infrastructure

The Sutton Park line runs from a junction with the Walsall to Rugeley line at Ryecroft Junction to the north west of Birmingham to a junction with the main Derby to Birmingham line at Castle Bromwich Junction, about 1.5 miles west of Water Orton station. The line is largely double track throughout except for the final section from Park Lane Junction where it forms a triangular junction with the Derby route so trains can travel to or from the west or east by single track chords.

## 4.2 Passenger service options

### 4.2.1 Current operation

The line has been used as an important freight avoiding route to the north and east of the Birmingham city centre stations since its passenger services were withdrawn in the 1960s. The map below shows the route with respect to the West Midlands rail network.

*Figure 4-1: Sutton Line in context of wider West Midlands rail network (taken from Network Rail)*


The line has recently been resignalled and has a ruling headway (minimum planned interval between successive trains) of five minutes giving it a theoretical maximum capacity of 12 trains per hour (tph) per direction.

The 2013 working timetable[1] shows that typically up to 4tph are scheduled in the long-term plan to use the route in each direction during potential passenger train operating hours. This means that theoretically there is capacity on the line to accommodate a new passenger service. However, in addition to the long-term planned freights[2], there are many short-term plan and spot-bids, which will

[1] the published detailed timetable used by rail staff, not the public timetable that shows only passenger trains and their times at stations

[2] those planned in the previous year's timetable planning process

make use of the available capacity, but are not shown in the timetable prepared some months in advance of its use.

### 4.2.2 Passenger service introduction

The reintroduction of a passenger service on the Sutton Park line would require that new stations were provided at appropriate locations on the route, based upon the forecast demand for the services and likely catchment areas.

There is likely to be capacity on the line itself to accommodate one or two trains per hour in each direction, but there are two significant capacity issues on the main line west of Castle Bromwich Junction. These are:

1. the ability to cross Castle Bromwich Junction and the availability of paths along the Water Orton Corridor (Water Orton to Landor Street Junction – see map above); and
2. the destination station in Birmingham.

#### 4.2.2.1 Junction capacity

The chord between Park Lane Junction and Castle Bromwich Junction is currently single track as this is sufficient for the level of freight traffic using it. The junction is also subject to a junction margin of five minutes before and three minutes after according to the current Network Rail Timetable Planning Rules[3]. This margin means that for example, a train from the Sutton Park line must pass Castle Bromwich Junction at least five minutes before a main line train heading east or three minutes after the eastbound train. Therefore, there needs to be an eight-minute gap between successive eastbound trains (and there are two lines approaching Castle Bromwich Junction from Landor Street) for a Sutton Park line train to use. Pathing trains across this relatively low speed junction can constrain capacity.

The Water Orton corridor is a major route in the West Midlands with 6tph through most hours in each direction crossing Castle Bromwich Junction plus a regular flow of freight traffic in each direction (2tph Cross Country service, 2tph on the Birmingham to Nuneaton line for services towards Leicester, Cambridge and Stansted Airport and 2tph on the route to Nottingham). As mentioned in section 3.1.2 above, a previous study assumed proposals for revised infrastructure and signalling layouts for the original Water Orton Corridor resignalling scheme had been implemented to facilitate opportunities to path Sutton Park line passenger trains over the junction. This scheme has not been delivered in the intervening time and has been de-scoped in the longer-term delivery plans for the corridor.

Running a train from the Water Orton Corridor towards Sutton is not as much of an issue as the line diverges to the left at Castle Bromwich Junction and apart from interaction on the single line chord, the routeing is straightforward. The problems arise in the opposing direction as outlined. The potential conflicts at the junction could be removed through infrastructure works ranging from faster crossovers (maximum speed currently 25mph) through to total grade separation so trains do not cross on the level.

#### 4.2.2.2 General capacity considerations

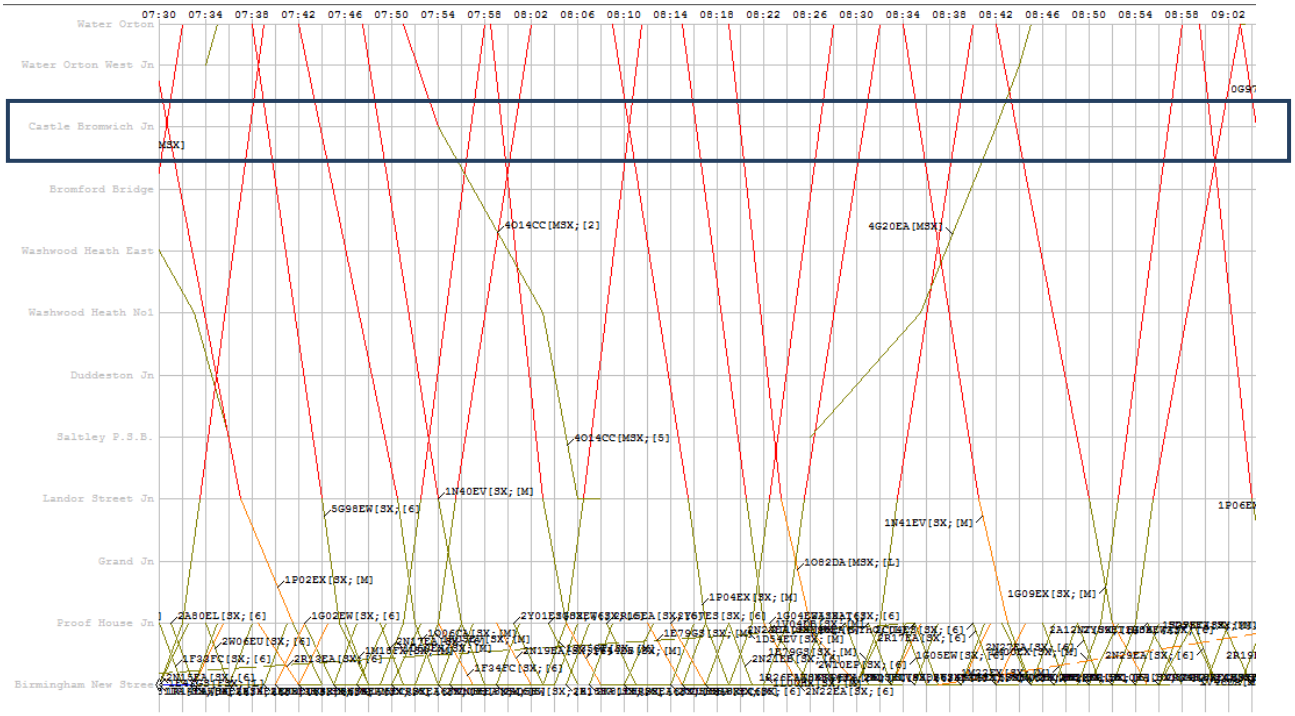
Water Orton Corridor accommodates six scheduled passenger movements per hour per direction plus a regular flow of freight traffic between Water Orton West Junction and the Camp Hill line which paths most freight traffic away from the congested environment of New Street station. The arrangement of the junctions at each end of the core section dictate the interval of trains along the line and although the planning headway is four minutes, the availability of paths is restricted by the current traffic flows and it is understood that freight traffic on the corridor is forecast to increase. These constraints influence the feasibility of reintroducing a regular, commercially viable passenger service on the line.

[3] Document used by timetable planners to provide them with key information about locations and sections of route over which train service timetables are planned.

Figure 4-2 shows an extract of the train graph for the period between 07:30 and 09.00. The vertical axis represents the stations and locations between Water Orton (top) and Birmingham New Street (bottom) and the horizontal axis shows the time. Each vertical line is two minutes apart. The lines on the graph indicate the passage of trains in each direction with red lines showing trains on the main lines as far as Landor Street Junction. Between Water Orton and Landor Street any other coloured lines show trains on the Up Derby Slow or the Down Derby Goods lines, which are to the outside of the main lines in the corridor.

Castle Bromwich Junction is the third location from the top (blue box) and this is where the Sutton Park line joins the main route towards New Street Station.

*Figure 4-2: Extract of train graph between Water Orton and Birmingham New Street (07:30 – 09:00)*




As stated, the planning headway on the corridor is four minutes. It illustrates how few eight-minute gaps exist between the current trains in either direction. Figure 4-2 represents the morning peak and it is evident that there are more trains approaching Birmingham (top left to bottom right direction) than there are in the contra-peak direction, but the proposed service needs to be balanced so there must be provision for a two-way flow. The bottom section of the graph shows Proof House Junction to New Street and this includes the trains approaching from the Coventry line. Although the local headway to this section of the route is three minutes, the density of the lines show just how few paths there are leading to or from New Street.

#### 4.2.2.3 Terminal stations

The line currently ends up in Birmingham New Street via Landor Street Junction, Grand Junction and Proof House Junction. New Street Station has limited scope for accommodating more services as a result of the number of trains already using it plus the limited number of approach tracks from each end, effectively four per direction. As well as being a through station, it is also a terminal station for trains such as Virgin Pendolino services from London, London Midland services from London via Northampton plus Manchester (Cross Country) and Scotland (Virgin) services. Where a through train occupies a platform for approximately two or three minutes, a longer distance terminating train needs at least ten minutes (sometimes 20 minutes) for train preparation duties. These duties take place in the platform, thus using much of the available platform capacity.

HS2 has the potential to alleviate some of the capacity constraints at New Street station through the re-organisation of services between London and Birmingham and use of the new HS2 terminal. However,

there are already a considerable number of demands on that capacity for inter-regional services, and the feelings in discussion with the industry are that it is not clear that new local services such as the Sutton proposals would have a strong call on the terminal slots.

The capacity constraints of New Street Station have led to the consideration of Birmingham Moor Street as an alternative origin/destination for the proposed service. Although Moor Street Station (which is provided with two through- and two bay-platforms) is close to New Street, there is no convenient rail access between the Water Orton Corridor and the station (which is situated on the former Great Western route to Birmingham Snow Hill and Wolverhampton). Therefore, to gain access to this station, a new double track chord line is required, possibly in conjunction with the Camp Hill Chords (which would permit access to and from Moor Street from the Camp Hill line from Kings Norton) and the cost of the combined infrastructure at 2008 prices was estimated to be £120m (closer to £150m at 2013 prices).

It is apparent that if it was possible, particularly with further infrastructure enhancements to identify an hourly or half hourly path on the Water Orton corridor, the significant constraint is where the trains terminate. It is widely recognised that New Street is working at capacity already and any disruption can already cause significant problems at this location, so this leaves the option of a new route to Moor Street. Moor Street terminal bay platforms currently host an approximate hourly service from Chiltern Railways so this is likely to leave one platform free. However, if the potential Camp Hill service is introduced, it would utilise the remaining bay platform, which could create difficulties at Moor Street in terms of capacity, unless additional platforms are brought into use at this location.

Significant developments to the local network infrastructure can enable these new services to be provided but the cost of the infrastructure needs to be weighed up against the frequency of service which could ultimately be offered to determine the benefit to cost ratio.

### 4.2.3 Alternative approach – stopping existing services at new station on Water Orton corridor

Given that there is limited scope for a variety of reasons, to introduce a new passenger service on the Water Orton corridor, consideration could be given to introducing a stop at a new station on the corridor between Water Orton and New Street. As outlined, this route is used by six passenger trains per hour per direction plus some empty coaching stock and a number of freights. Therefore, if a new parkway type station was to be provided in the vicinity of Castle Bromwich or the Fort, it is necessary to review the potential impacts to the local operation of introducing a new station stop.

The mandatory timing points (the principal timing locations in a timetable or graph) for this section of the route are at Water Orton and Landor Street Junction. The run time for a train passing Water Orton to passing Landor Street is six and a half minutes. Adding a stop at a new intermediate station would extend this running time by the additional time taken to decelerate to rest, the allocated dwell time (either half a minute or a minute) plus the time taken to accelerate back to line speed. Typically, a train braking to rest will take about half a minute longer than the time it takes to pass at speed (depending on prevailing line speed and other factors) and for acceleration, a further half to one minute is required. Therefore, the additional time resulting from a half minute stop is about two minutes, so the Water Orton to Landor Street time becomes eight and a half minutes (and equivalent in the opposite direction) which means that many of the carefully planned movements across key junctions and on core line sections will no longer be achievable.

It is not critical to stop all trains at a new station but if a half hourly service was required (for example) then two of the six trains would need to call and retiming two could have implications for key junctions, platform occupation and stopping a train amongst through fast trains means the fast trains need to run further apart, so even without a stop in their schedules, journey times are affected.

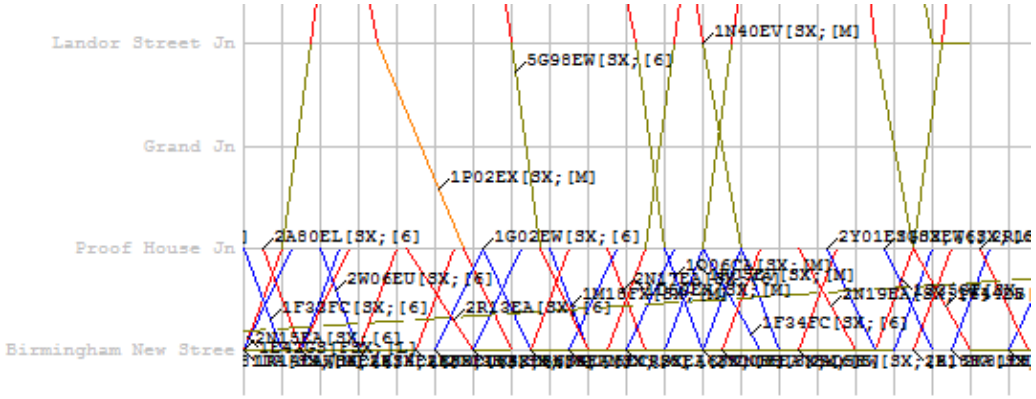
The train graph extract shown in Figure 4-3 shows the approach routes to and from New Street in two different colours:

- the red lines show trains on the “Derby lines” and;

- the blue lines show trains on the “Stour lines” (approach from Coventry).

Moving some of the Derby line trains by two minutes or more introduces a number of conflicts just between Proof House Junction and New Street which could only be removed by retiming the relevant Derby line trains (starting them earlier and affecting their paths over the whole of their routes) or moving some of the other service using the Derby lines but with similar implications to their schedules.

*Figure 4-3: Extract of approach routes to and from New Street Station*




It is possible to retime trains to accommodate new services or altered timings, this will require a detailed timetabling exercise, and is likely to impact on other services.. A further element to take into account is the loadings of the trains already on the corridor. Anecdotal evidence suggests that the trains are already well loaded as they approach New Street, prior to Water Orton Station, with the typical train type of two- or three-car class 170 (on the Nottingham, Leicester and Stansted services), so there might also be a requirement to strengthen the trains to longer formations if a new outer Birmingham commuter stop was to be offered.

### 4.2.4 Alternative approach – enhancing existing Cross-City services

Another potential option for increasing the rail capacity within the Sutton Coldfield area could include enhancing capacity on Cross-City North services by running six-car (class 323) trains throughout the day. Although demand on the northern section of the Cross City has stabilised, demand on the southern section is increasing due to developments at Longbridge and University, as well as the proposed extensions to Bromsgrove and frequency enhancements to Redditch (from 2tph to 3tph). Future franchise negotiations would have to consider these enhancements, especially as sourcing the additional units may prove problematic due to the limited availability of spare units in the market.

Although the Cross City trains do not serve the proposed development directly, the congestion issues on key arterial routes (A5127, A38 and A47) to Birmingham could make rail a more attractive travel option to residents. The increase in spare capacity on services could also encourage mode shift to the rail services for local population within a kilometre of the stations who currently drive. This mode shift would free up capacity on the local road network, which could then accommodate an increase in trips as a result of the proposed development.

This ‘trip-banking’ would not only require the enhanced train capacity, but parking availability at stations would also have to be strengthened. Currently those stations located on the Cross City North line are a mixture of park & ride and non-parking stations, the limit of car parking provision is causing a constraint on the demand at stations (evidenced by the level of on-street, informal parking surrounding the stations). The provision of additional parking at Four Oaks and Sutton Coldfield in particular is something Centro have been looking at for a number of years, with a planning application recently submitted for decking of the car park at Four Oaks. Given the location of the stations, and density of development around them, there are no easy fixes, and more radical solutions are likely to be required if additional parking is to be realised.

# 4.3 Costs

## 4.3.1 Infrastructure

The previous study identified the capital costs (in 2008 prices) for the Camp Hill Chords as £120million, this includes for grade-separated chords and allied Moor Street Station works. Additional costs were outlined for all stations, including Sutton Park (£2.85m), Walmley (£2.5m) and Minworth (£3.85m).

As briefly discussed earlier, capital costs have risen due to general trends in construction costs and land-take costs. It is estimated that the Camp Hill Chords and associated costs will more likely be around £150million. Capital costs of stations have also increased, with a two-platform station costing approximately £5million.

## 4.3.2 Rolling Stock and Operational costs

As the proposed Sutton Line service that has been identified in this study would operate between Moor Street and Sutton Park stations, rather than Moor Street to Aldridge/Walsall in the previous study, an hourly frequency would require one train unit (class 170 or 172). This allows for the 20-minute running time of the service, along with a seven-minute turn around at each end of the route and an additional three-minutes in each directions to allow for operational resilience. The annual operating cost of running an hourly service (18-hour operation) amounts to between £750,000 and £900,000 per annum. A half-hourly service would require two train units, which would incur an operating cost of between £1.5million and £1.8million per annum.

SECTION 5

# Industry Delivery Process

Delivering rail projects is not straight forward for Local Authorities. The Rail industry has its' own governance and approvals systems that need to be adhered to, regardless of who is paying any capital and operating costs associated with rail scheme developments.

There are three key actors in the rail industry; Network Rail, Department for Transport and the train operators (TOCs) with two supporting organisations looking into safety (RSSB) and regulation (ORR). To get a new scheme developed (new station, new passenger line) requires the support of the three key actors. There are different means with which such support could be given, formally through the various planning processes (HLOS / franchise specification / Route utilisation Strategies (RUS)) which would feed through to infrastructure spending plans in the five-yearly spending reviews (Control Periods).

The Case Study set out below, highlights an ongoing project and the hoops that have had to be jumped through in order to get industry buy in to the project, and also the local commitments that have been necessary to support.

**Case Study Bristol Metro**

CH2M have recently worked on a project for the Bristol area authorities to develop commuter rail services to serve the Bristol area. The preferred option from the LA perspective was to open a new rail line to Portishead, then run services from here through Bristol Temple Meads and on to either Bath or Severn Beach, this would give half hourly commuter services on three lines into Bristol City Centre.

To facilitate support from the rail industry a number of processes were used:

- Launch of Local Rail forum to develop key issues for the region – thus showing proper planning processes – ensure DfT/NR/TOCs in attendance;
- Development of high level business case to show a number of things:
    - Scheme works operationally and does not impinge on the efficient and safe operation of the existing railway – Network rail primary concern;
    - Socio economic case for the scheme (BCR) – to show scheme benefits outweigh costs (DfT concern);
    - Revenue or financial case for the scheme (revenue vs operating cost coverage) – illustration of the cost/revenue trade off – (DfT and TOC concern).
- With the business case developed the scheme results were presented to the DfT with a request that the scheme be included in the emerging franchise specification for the region. DfT agreed with a number of provisions:
    - Scheme capital costs to be sourced locally;
    - Scheme included as a priced option in the franchise;
    - Any identified additional operating costs for the scheme to be underwritten by the LA's.

The scheme is now progressing, with Network Rail including it in the CP6 specification, making provision for the operations in their timetable development for the Great West line electrification. The LA's have allocated regional funds for the capital elements and the service option remains in the franchise specification as a priced option (needing local underwriting) for when the franchise process restarts next year.

The above Case Study provides an illustration of the processes required. For the Sutton Park line development I would envisage something similar would be required. In summary the process would be:

- **Develop rail industry support for the project.** This needs to include DfT, Network Rail and TOCs. Some link for the scheme within a wider regional plan for transport in general and the rail industry in particular would demonstrate good planning practice and illustrate regional support.
- **Undertake high level business case assessment.** This needs to play to each stakeholder in a different way:
    - **Network Rail** – primarily operational concerns – though if they were to be promoter then full business case issues would be required;
    - **Department for Transport** – socio economic case (BCR), revenue case (operating cost vs revenue trade-off). Revenue case can be secured if locally underwritten;
    - **Train Operating Companies** – typically act through the franchise specification process (they do what is asked of them) in reality though support from TOCs is seen as important for DfT and NR.
    - It should be noted that support is typically required from all three parties.

With the Industry support secured any business case work developed locally can be progressed (locally or by the industry) to begin the process of including the scheme within industry plans:

- High Level Output Statement (HLOS);
- Franchise Specification;
- Control Period Planning; and
- Route Utilisation Strategies.

SECTION 6

# Conclusions

This report gives a brief overview of the considerations to offering rail services to support developments in the Birmingham Eastern Fringe.

- A new passenger service between the Sutton Park line and a central Birmingham station. There are a number of constraints to the straightforward introduction of a passenger service, which to be commercially attractive would really need to be of at least 2tph frequency. The Water Orton corridor could theoretically accommodate more trains if other services were to be retimed. Access to the City Centre via New St is currently capacity constrained. HS2 provides the potential for this capacity in the future. The alternative terminal of Moor Street has the platform capacity or the space available for additional platforms. Access could only be reached by the construction of new chord lines from the vicinity of Bordesley Junction. Wider rail schemes via Tamworth and Camp Hill require these chords and offer a potential connection should they come to fruition.
- Stopping existing services at a potential new station on the Water Orton corridor could be an alternative solution. This could only be achieved with a timetable re-write. It will have timing implications for existing services, but is technically considered feasible at this stage.

The Sutton Park Line has clear potential to support the proposed development site. The available options for introducing a reliable and regular passenger service are limited given the current infrastructure provision.

However with major investment in infrastructure, opportunities for delivering rail services are available in the medium term, particularly when combined with other rail schemes in the metropolitan area (Tamworth line, Bordesley Curves and Camp Hill line) and national schemes (HS2) to enable the realisation of wider regional benefits.

DfT and Network Rail would require more of a regional case to be put forward to see this as an attractive proposition. With additional detailed studies required, along with the NR/DfT processes, into the business case for this scheme (and any combination of schemes), including detailed infrastructure requirements and plans, demand and revenue forecasting, as well as operational scheduling.