



Campaigning for a bigger better railway

Midland Rail Hub TWAO consultation response - Railfuture West Midlands branch

About the respondent:

Railfuture is a completely independent individual membership based national NGO that advocates for improved rail transport across the country comprising local branches with national leadership and coordination. This response is from the West Midlands branch of Railfuture, with editorial input from East Midlands and North-West branches.

Executive Summary

Second only to HS2, Midlands Rail Hub is most significant opportunity in a generation to reshape Birmingham's rail network and the urban environment that surrounds it. We strongly support the scheme and recognise its importance in delivering a substantial increase in rail capacity into central Birmingham. In terms of additional train paths, its contribution to the city's connectivity is arguably even more significant than HS2's role in releasing capacity at Birmingham New Street. Given the exceptional concentration of employment within Birmingham city centre, as demonstrated by the Business Register and Employment Survey (BRES), improving access to the heart of the city is fundamental to the long-term economic success of both Birmingham and the wider West Midlands.

The scale and significance of the project also demand an equally ambitious approach to design. Great infrastructure should not simply solve transport problems; it should enrich the city through exemplary engineering, thoughtful architecture and lasting placemaking. Constructive challenge is therefore an essential part of the design process. Every aspect of the proposal should be rigorously tested to ensure it achieves the highest quality outcome while minimising its impact on surrounding communities.

The viaduct should embody a philosophy of engineering efficiency and contextual sensitivity. The promoter should clearly demonstrate and justify the structural width required throughout the route and seek every opportunity to minimise permanent and temporary land take, particularly where demolition is proposed, whilst maintaining the six essential running lines required to deliver the intended railway capacity.

The operational design should similarly be future-focused. We encourage a review of the scheme's flexibility and resilience, and believe the opportunity to deliver Platform 6 should be embraced while it remains a comparatively modest addition to the overall project. Infrastructure of this scale should be designed not only for today's railway but for the demands of future generations.

Architecturally, the viaduct should respond to the historic character of its surroundings without becoming constrained by imitation. Respect for context does not require replication. Instead, the project should express contemporary engineering in a manner that complements Birmingham's industrial heritage while embracing construction methods and materials that reduce environmental impact, minimise land requirements and simplify delivery. Solutions employing fewer, longer spans may provide both urban and engineering advantages over a greater number of conventional simply supported reinforced concrete spans.

Integration with the wider transport network must be seamless. The interchange between the West Midlands Metro and Moor Street should aspire to the same quality, convenience and legibility that is being delivered at HS2 Curzon Street. The railway should function as a connected element within Birmingham's public transport system rather than as an isolated destination.

Above all, we believe the scheme presents an extraordinary opportunity to redefine the spaces beneath and around the railway. The undercroft should not be regarded as residual infrastructure but as a civic asset capable of becoming one of Birmingham's most distinctive public spaces. Rather than creating a purely functional connecting bridge, the project has the potential to establish a memorable architectural destination—a vibrant, animated gateway that announces arrival into Digbeth and acts as a catalyst for its continuing regeneration.

Realising this vision may require a greater degree of road closure and highway rationalisation. Such changes would be entirely consistent with the transport strategies of Birmingham City Council and the West Midlands Combined Authority, both of which seek to reduce car dependency, lower vehicle mileage and reshape the city around sustainable movement and high-quality public realm.

Today, many of the streets surrounding Moor Street are characterised by inactive frontages and fragmented urban spaces. However, the combined investment represented by HS2 and Midlands Rail Hub will inevitably accelerate the transformation of Digbeth into a vibrant mixed-use district with growing residential, commercial and cultural activity. The spaces beneath the railway should therefore be designed from the outset as an integral part of that emerging neighbourhood—a welcoming street-level destination that stitches the station into the life of the city, rather than allowing it to remain elevated above it.

Successful precedents such as London Bridge and Waterloo demonstrate how railway infrastructure can define exceptional urban places rather than simply accommodate movement. Manchester Oxford Road also illustrates that alternative structural approaches may offer practical construction advantages by avoiding the concentration of significant point loads on existing masonry arch structures. Midlands Rail Hub has the opportunity to learn from these examples while establishing its own architectural identity for Birmingham.

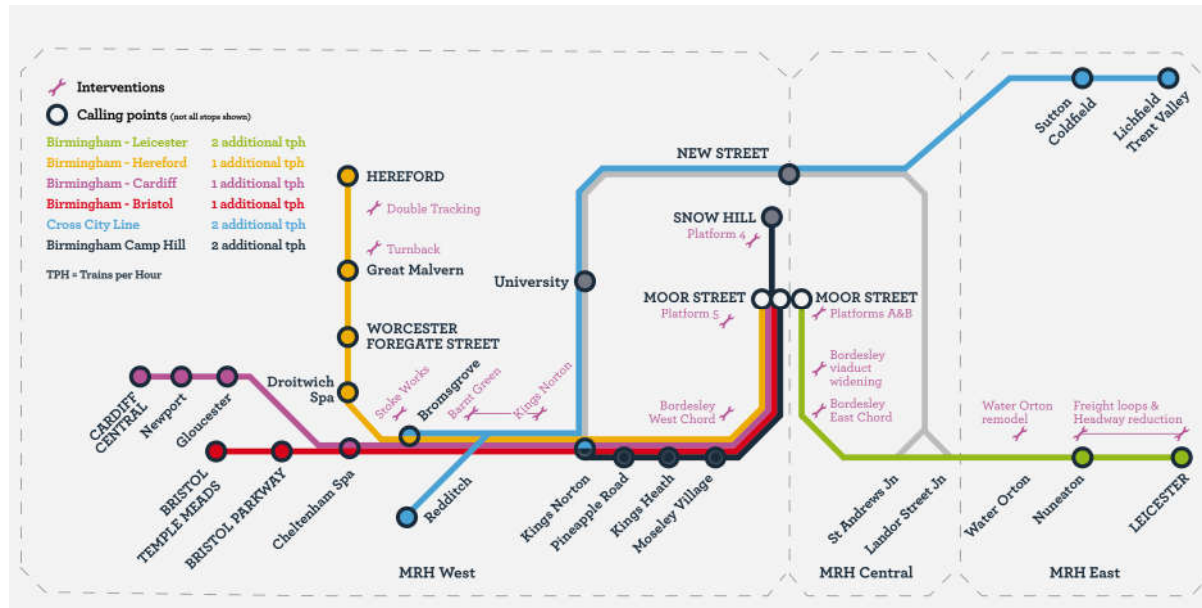
This project should ultimately be judged not only by the railway it delivers, but by the city it helps to create. With thoughtful design, careful engineering and a commitment to placemaking, Midlands Rail Hub can become far more than a capacity enhancement: it can become a defining piece of civic infrastructure that strengthens Birmingham's identity, supports sustainable growth and leaves a lasting architectural legacy.

Railfuture West Midlands would welcome the opportunity to contribute to this vision through continued stakeholder engagement as the design evolves.

The remainder of our response is split into four parts :-

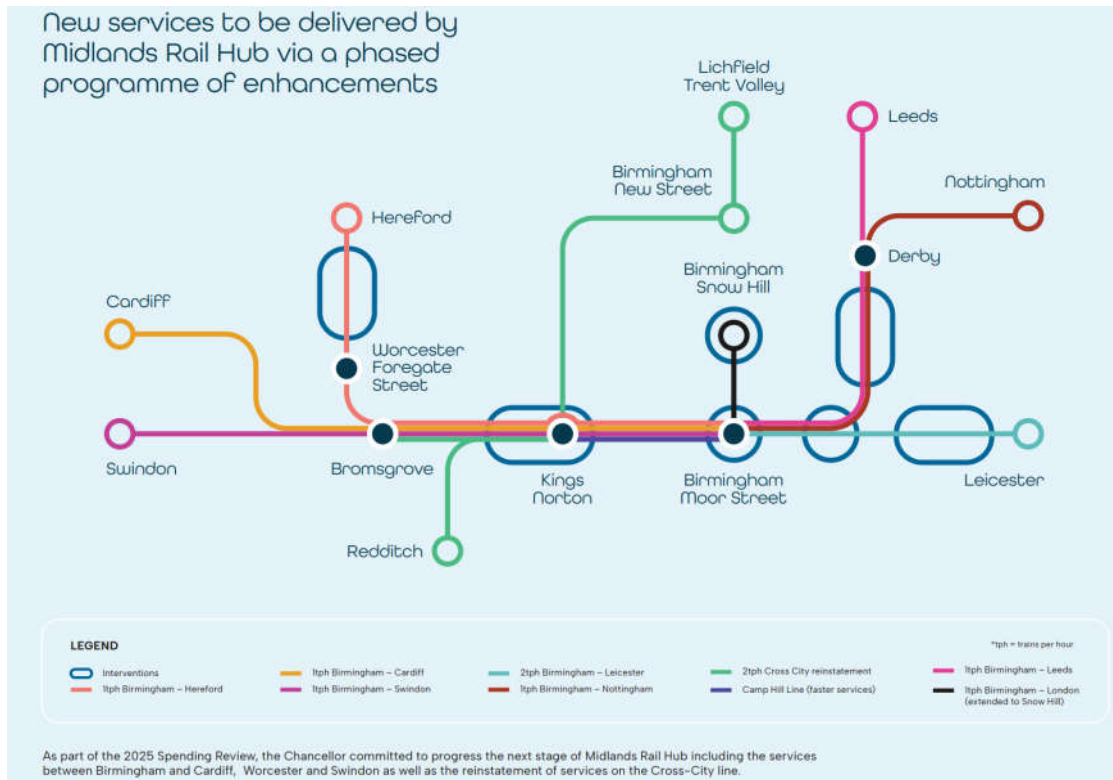
- Services - While the TWAO process is largely concerned with property boundaries and acquisition the service requirement is ultimately what drives all property matters
- Tram integration
- Built environment matters along proposed viaducts
- Design of the enhancements to Moor street station

Services – Moor Street



<https://www.midlandsconnect.uk/media/abgfuw4m/midlands-connect-mrh-report-accessibilitychecked.pdf>

The December 2022 SOBC executive summary indicated that Camp Hill line services would run through to Snow Hill, and Worcester / Hereford services would run into Moor Street.



<https://eu-west-2.graphassets.com/cmo70dr1j1mrj07mg8ki43nj0/cmr0qvmm15ehk07ml6begmuk6>

There is now a modification to that indicative service pattern, with Chiltern services to London being extended through to Snow Hill, but Camp Hill services terminating at Moor Street.

We understand that that the extension of the Chiltern services through to Snow Hill is a pragmatic way to create temporary construction space for the other works to be carried out, but do not believe it is the correct medium-term, let alone long-term service configuration.

<https://www.wmre.org.uk/media/aryjxnga/wmre-investment-strategy-and-summary-final.pdf> p69

Stourbridge Corridor

December 2022 Service Pattern



2040 Indicative Service Pattern



Leamington Corridor

December 2022 Service Pattern

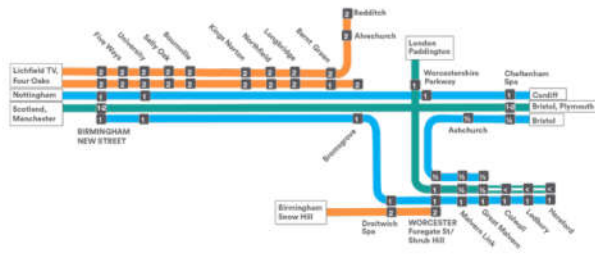


2040 Indicative Service Pattern

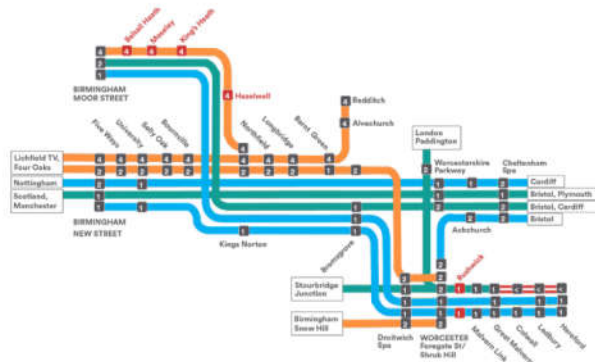


Cross City South Corridor

December 2022 Service Pattern

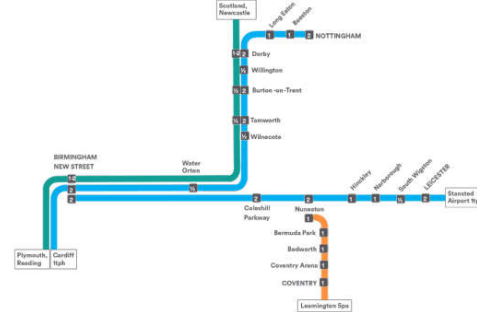


2040 Indicative Service Pattern

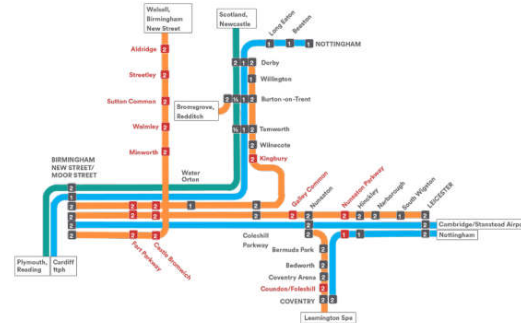


Water Orton Corridor

December 2022 Service Pattern



2040 Indicative Service Pattern



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Cross City North Corridor and Trent Valley

December 2022 Service Pattern



2040 Indicative Service Pattern



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This indicates an ambition to have 4TPH Camp Hill services and 2TPH Sutton Park local services terminating / turning at Snow Hill, plus 8TPH local services running through the Snow Hill tunnel, and that is before we consider the regional services.

In railway infrastructure delivery timescales, 2040 is the very next day after delivery into service of MRH, so it is essential to not only deliver capacity for the needs identified today, but also a reasonable degree of additional 'spare' capacity to accommodate the already identified future service ambitions.

It is well understood that terminating services in city centre termini eats capacity, so should be reserved for longer distance, longer dwell time services, with local metro style services running through city centres whenever possible, being turned at more distant locations on the network outside the built up part of the conurbation where it is easier and cheaper land to accommodate dwell time and appropriate sidings.

We should consider the route section comprising Snow Hill tunnel and Moor Street P1+P2 much like Thameslink core. The capacity constraint will be the dwell times of services calling at Moor Street platforms 1 / 2 so to maximise usage, these should be local metro services, with large doors and passengers less likely have luggage.

By comparison, Chiltern services to London are the polar opposite of this, likely to have the longest dwell times of any of the services calling at Moor Street, since passengers are more likely to be travelling end-to-end with luggage, and the rolling stock has single doors in vestibule ends increasing boarding times. With this mindset, the way to maximise overall capacity is to terminate Chiltern services to London in bay platforms at Moor Street, and run more local services through the tunnel to Snow Hill (or beyond where there are turnback opportunities).

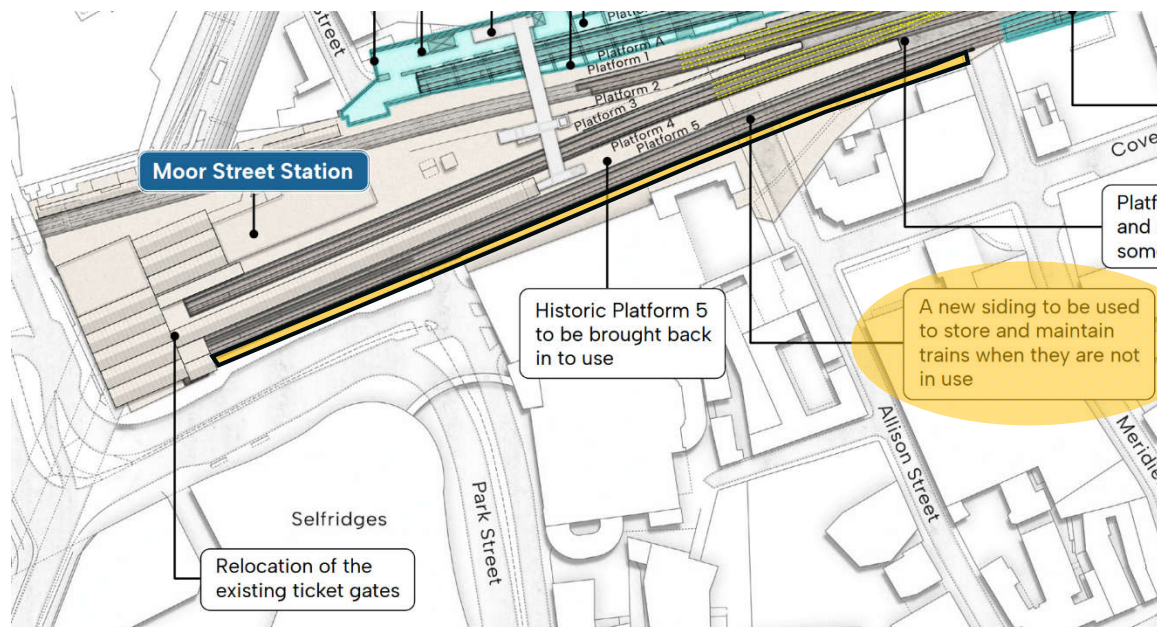
While MOIRA will likely see more farebox opportunity from taking a London service through to Snow Hill, the percentage of journey time saved is low. By comparison, taking Camp Hill, Sutton Park or Tamworth service through to Snow Hill (and beyond) will save a much larger percentage of journey time for regular commuters. It is also reasonable to expect there is a limit to the densification of central office space, so the extremely concentrated jobs 'halo' will over time extend further outwards from the city centre into areas such as Jewellery Quarter and Digbeth.

The 2017 NR route study notes that *"It is the view of Network Rail and Midlands Connect that Midlands Rail Hub is a medium term solution to enable growth into central Birmingham and the appropriate option to maximise the current network capability."*

<https://sacuksprodndigital0001.blob.core.windows.net/regional-long-term-planning/North.%20West%20and%20Central%20region%20-%20planning%20documents/West%20Midlands%20and%20Chilterns%20Route%20Study%20Final.pdf>

The NPPF changes to planning policy have promoted development within walking distance of railway stations that offer a sufficient level of service, which means that the level of local services detailed in WMRIS may not be sufficient to bring forward these development sites to maximise housebuilding. To this end we view it as **essential** that the additional marginal cost of creating not just an additional siding adjacent to Moor Street P5 but a full platform to create P6 is done now, rather than incurring the overhead of setting up a separate future project to create P6 and the associated access.

We also draw a comparison with the lost opportunity during the construction of the Bull Ring to improve rail access to the eastern end of New Street – an enhancement that could be a relatively low margin cost when carried out as part of a larger scheme is extremely expensive and disruptive to carry out on its own.



Our initial estimate indicates that the maximum usable platform length that could be created after allowing for buffers etc is 245m

This would be the same length as the two longest platforms at Marylebone (P2+P3), which would maximise train lengthening potential for those services (if coupled with SDO on rolling stock for intermediate calls)

Based on satellite image, there is no doubt that the viaduct is already wide enough to accommodate railway vehicles, so additional width that may be required would be limited to the platform on which passengers stand, which significantly reduces the scale of the civil engineering involved.

Whilst it is only from satellite image, it appears plausible to suggest that a platform compliant with the minimum width of 2.5 can be created within the existing viaduct, although this would narrow to a pinch point half way down the platform, before opening up to an area where a 5m deep platform can readily be accommodated. This may be acceptable if wayfinding can be used to direct primary passenger flow directly to the intermediate access to the platform via bridge etc, rather than directly from the concourse at the western end.

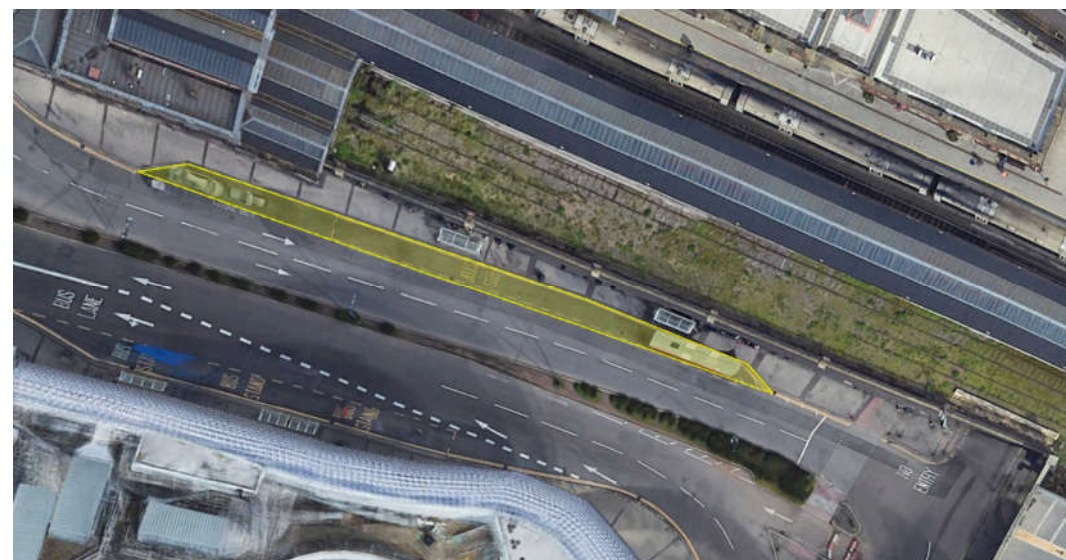


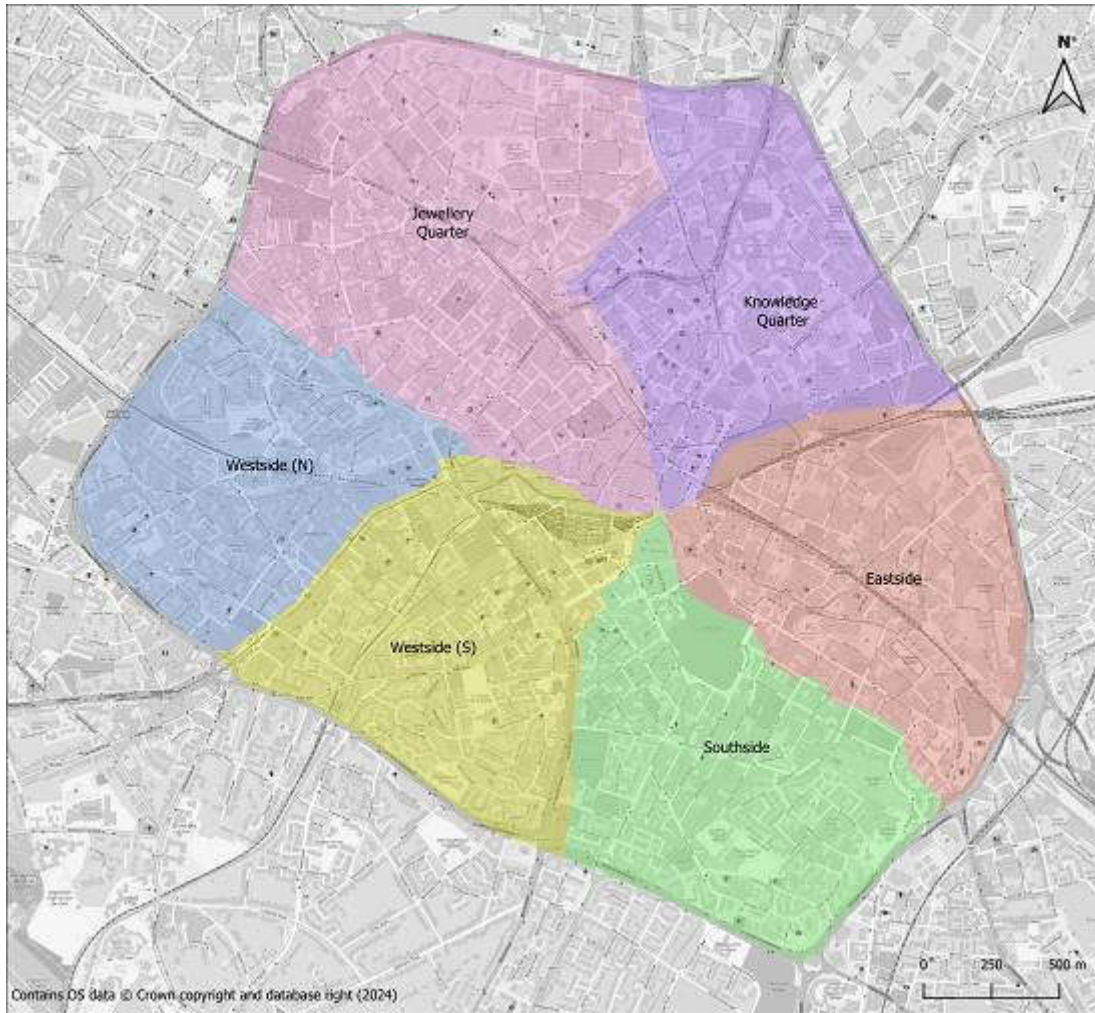
If a small amount of additional width is required then this can readily be accommodated.

The Moor Street gateway project

<https://www.birminghambeheard.org.uk/bcc/moorstgateway/> has very significantly reduced the general traffic volumes flowing south/west along Moor Street adjacent to the viaduct. DfT traffic counts at this location are out of date from 2001 prior to implementation of the Moor Street gateway project.

TfWM are removing a number of 'lay-by' style bus stops from the network, instead having bus stops within the carriageway so that bus stop operation is more efficient and buses do not need to pull out into traffic.





Furthermore the City Centre movement strategy will further restrict private motor vehicles so they cannot move between the traffic cells without returning to the middle ring road, so it should be expected that general traffic volumes along Moor Street will reduce further making it entirely practical to reduce the current 2 lane + bus lay-by arrangement to 2 lanes with bus stops inline, without creating any congestion issues, creating sufficient space required to build a passenger rail platform above.

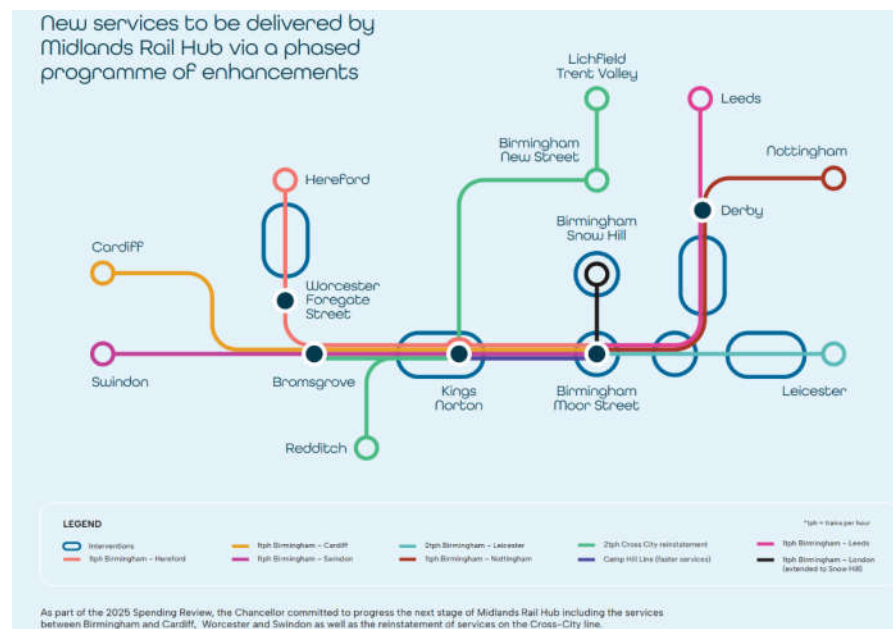
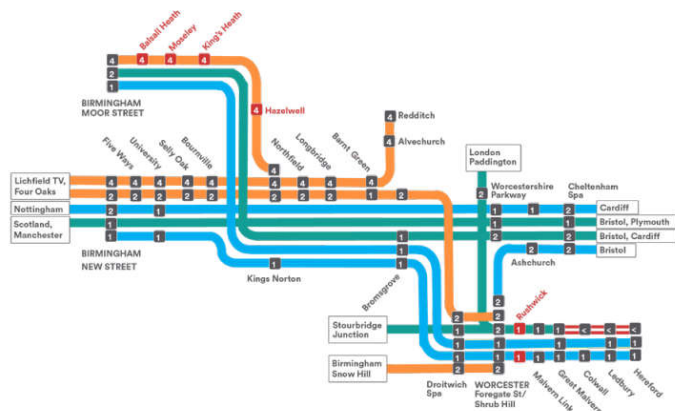
As the road slopes down towards the east, and the height become sufficient, it might be desirable to use the platform to create an overhang that offers enhanced protection from the weather for bus passengers.
(see Square Peg on Corporation Street and tram halt outside BHM)



https://www.birmingham.gov.uk/info/50344/central_birmingham/2379/city_centre_movement_and_access_strategy

Services – Worcester / Hereford

2040 Indicative Service Pattern



It is proposed that Worcester / Hereford services will be re-routed into Snow Hill instead of New Street. There is a non-trivial flow to University station of both students, but more importantly medical staff and patients attending QE hospital, which is both a major employment location plus patient trip generation. (fy 24-25 Worcester 23,517, Great Malvern 7,522 Hereford 5,555 – on average 140 per day). However the fare from these destinations to both BHM and University is the same, so based on anecdotal observation there may be some under-reporting of the number of passengers from these origins alighting at University station.

Demographic of this customer base is likely to be highly vocal about any perceived degradation to their service.

Requiring an interchange to complete this journey from Worcester / Hereford is not desirable, but in the round is a good compromise to deliver the other service benefits. However in order to minimise customer complaints and inconvenience it is essential that this new interchange is as painless as possible, both when the timetable is operating normally and also during disruption. Ensuring the two services to be interchanged between are as high a frequency as possible minimises interchange time in both good service conditions and during disruption. The increase in service frequency towards Worcester / Hereford is an essential quid-pro-quo for the imposition of an additional interchange to reduce GJT.

If interchange is directed to Kings Norton, passengers will very often be required to change platform, which will not be cross-platform across an island but require traversal by stairs and lifts. Considering that a hospital is being served, this is far from ideal. If interchange was directed to Bromsgrove, then the service frequency is lower, increasing interchange times, and platform change may still be required for some services.

We suggest that **interchange should instead be directed to Longbridge**, with a call inserted on Hereford services at Longbridge. This would require a modification to the timetable to put the Hereford services onto the running lines adjacent to the platforms at Longbridge. The passenger benefit this brings is simplicity, since a platform change is never required. Enhanced canopies, seating and station WIFI would further improve the interchange experience. Call at Kings Norton may then not be required,

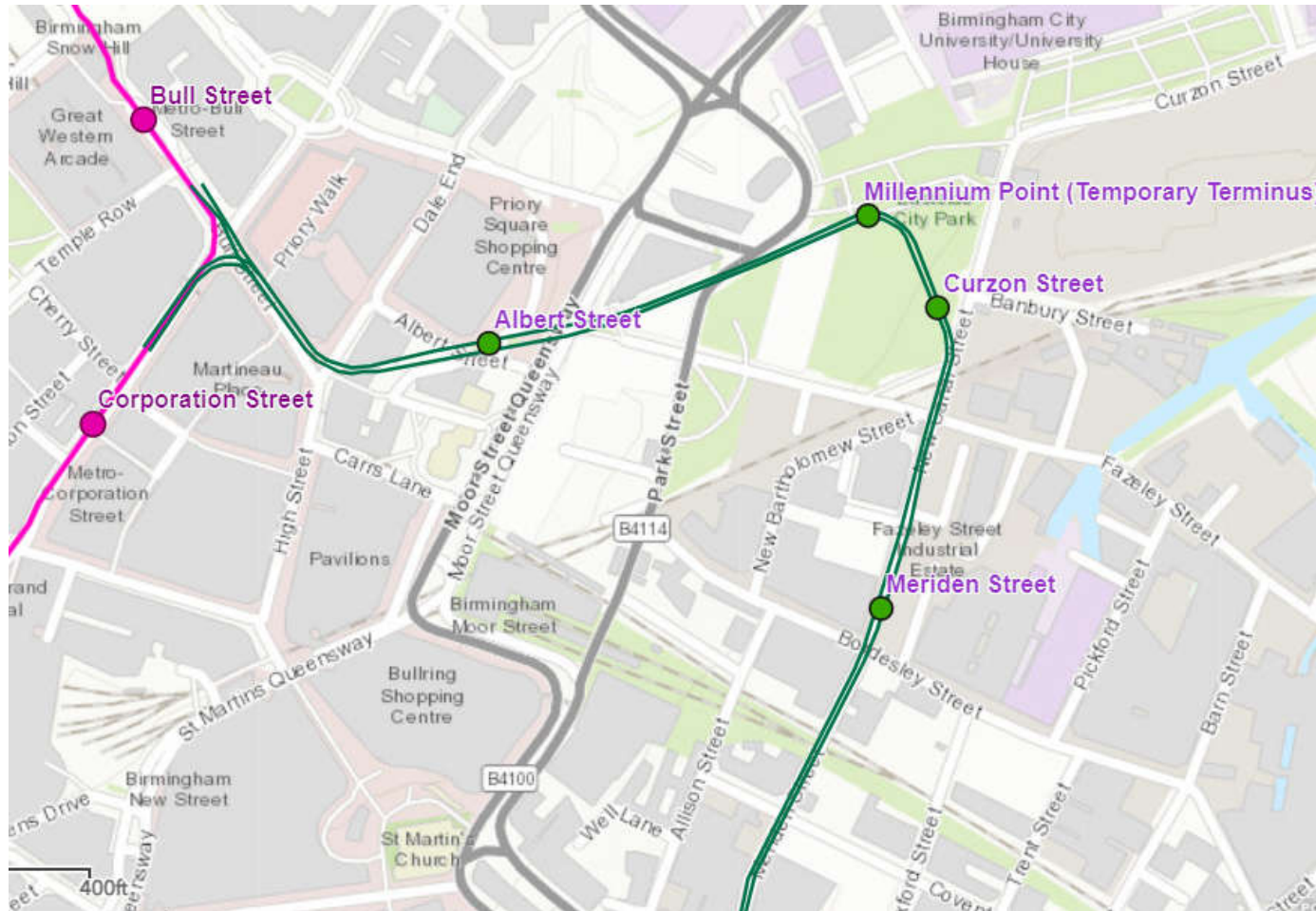
In addition, Longbridge offers a reasonable degree of retail close to the station if passengers choose to break their journey, plus this would boost the frequency of service between Bromsgrove (pop 35k) and Longbridge which are significant and adjacent local centres in their own right - from an uninspiring 2 TPH to a good 4 TPH.

A further variation on top of this could be extending Camp Hill services south to Longbridge using the existing turnback siding just south of Longbridge. However this is likely to only be justifiable if it significantly reduces scale of works required at Kings Norton, which is unlikely.

Tram Integration

The TfWM tram network is being extended through to Digbeth, with a halt planned at the new HS2 Curzon street station, and a further halt closer to Moor Street.

<https://metroalliance.co.uk/projects/birmingham-eastside-extension/>





The tram integration with HS2 at Curzon street is a tight one, with passengers able to descend from platform level to the tram halt which will be under the cover of the station podium.

The same degree of tram integration **must** be achieved at Moor Street.

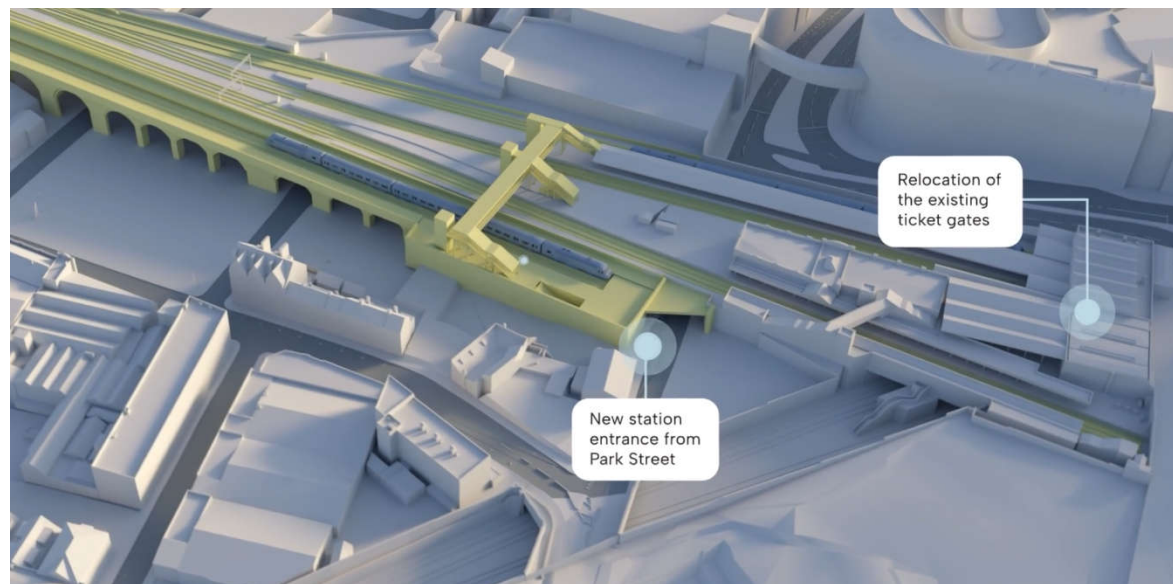


Slide 13 of 23: Visualisation looking towards the eastern entrance to the new Curzon Street station

Consider the current passenger experience for a wheelchair user arriving at platform 4 or 5 that needs to get on the tram.

- 1) Up 1st lift to bridge level
across the bridge
- 2) Down 2nd lift to platform level
across platform level towards exit
- 3) Down 3rd lift to street level on Park Street
Wheel 300m along street to Meriden Street tram halt.

This is an unacceptably poor level of integration with the tram network. We **MUST** do better.



Even for passengers without mobility impairments, this adds connection time, with 300m being 3.75 minutes of walking time. If public transport is to compete with the car, this extended journey time eats into any advantage the train can offer reducing the attractiveness of the overall public transport network.

We will make suggestions to improve this later in this document.

Viaduct expansion

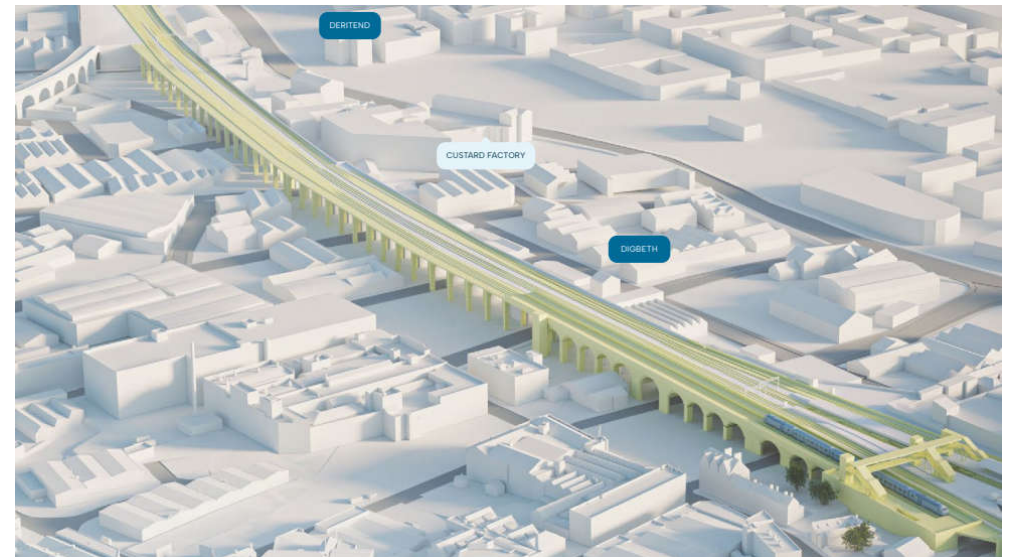
We are very strongly supportive of delivering a total of 6 running lines from the intersection with the Camp Hill line to provide 2 lines running through Moor Street P1+P2 and then through Snow Hill tunnel, plus 2 running lines north of this to new platforms at Moor Street to provide services to North / East, plus 2 running lines to the south to provide access to services to South / West.

Any reduction below 6 running lines would do serious harm to the project's ability to deliver its essential service outcomes.

However, historically most sections of the viaduct had between 5 and 6 running lines on it (OS 1:1250 maps), but the FAQ document mentions a figure of 15m of additional width being required.

The promoter must demonstrate why 15m of additional land is essential to deliver 1-2 additional tracks, for vehicles that are a maximum of 2820mm wide. Clearly, we are neglecting dynamic gauging and access requirements, but the local community and planning inspector will need a full explanation as to the need for land acquisition on this scale down the entire length of the viaduct.

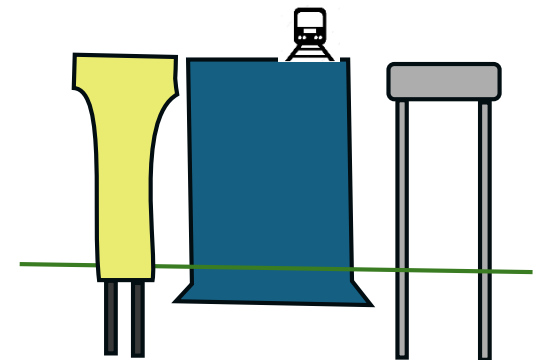
It is far easier to explain and understand this need at Moor Street Station itself arising from the size of platforms required in addition to the running lines, but will be far more difficult for the community to understand for the 500m or so of the viaduct east of the platform end towards Upper Trinity Street.



The Victorians created impressive structures, but their foundation depths were often surprisingly shallow. We note that some of the rendered images indicate two supporting pillars in a goalpost configuration (diagram right).

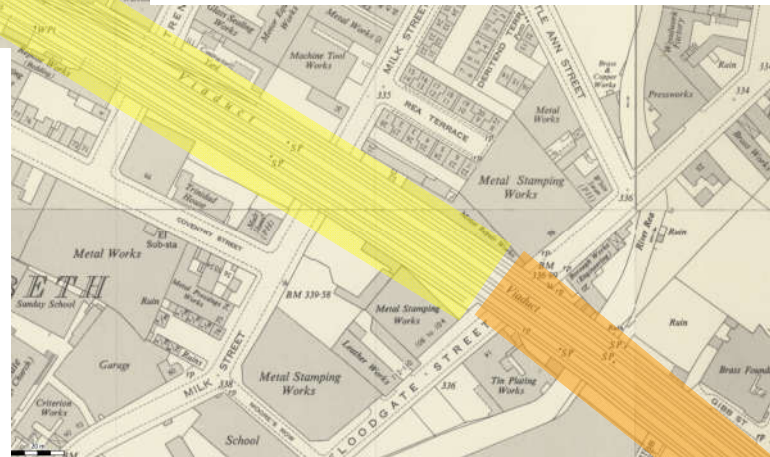
A single larger central support may allow the new structure to be positioned closer to the existing masonry structure without impacting the foundations of the existing viaduct or restricting access for maintenance.

We would encourage you to experiment with different forms that allow the new structure to be positioned closer to the existing structure to minimise land take, whilst minimising foundation risk.





SP0886SW - A, Surveyed: 1950, Published: 1951



Yellow – 6 historic running lines
Orange – 5 historic running lines

We have seen discussion suggesting it is important to replicate the construction method and materials (Staffordshire blue brick masonry construction) of the existing viaduct, in the expanded viaduct, but we strongly disagree that this is necessary from either a historic perspective, or providing the best built environment outcomes.

The existing viaduct, whilst mostly being of brick arch construction has a range of arch sizes, has itself been widened over time, has some simply supported spans, and has contrasting construction styles contained within its arches.



Due to the congested and heavily built up nature of this urban site it there are only a small number of locations where any sort of vista is available to give a wider view of the viaduct, and it is reasonable to expect other future developments would further obstruct any view.



ess

(google maps)



As we continue further east to Bordesley Middleway, we get further variations in form and materials.

Newer simply supported steel, devoid of any architectural merit or interest whatsoever, entirely utilitarian.

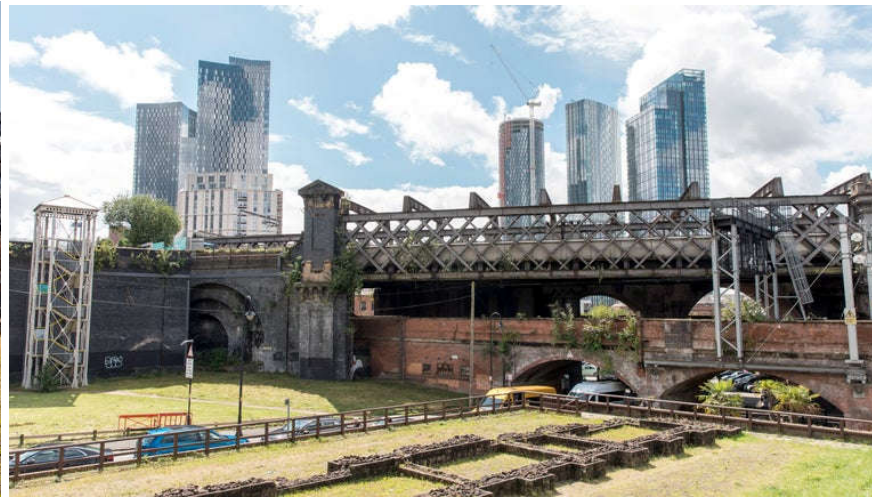


Older steel truss form, providing more visual interest and an attractive curved form, but due to painted surface requiring far higher levels of maintenance, which is not being kept on top of, and hence rusting, does add to the general feeling of neglect in the area – even if it does not impact the structural integrity in the medium term,.

This viaduct section is proposed for removal.

New chords in this location do need to provide some degree of visual interest and attractiveness, rather than being completely utilitarian.

Due to evolving over time, it is common to see a range of construction materials and forms in use adjacent to each other on railway viaducts, for example at Castlefield in Manchester there is a steel viaduct literally over the top of an earlier masonry viaduct, with a comedy element being that the earlier viaduct is the one that remains in use.



<https://nationalhighways.co.uk/our-work/historical-railways-estate/project-profiles/castlefield-viaduct/> <https://www.nationaltrust.org.uk/visit/cheshire-greater-manchester/castlefield-viaduct/visiting-castlefield-viaduct>

This also illustrates the changing and growing in height nature of an urban skyline surrounding a viaduct.

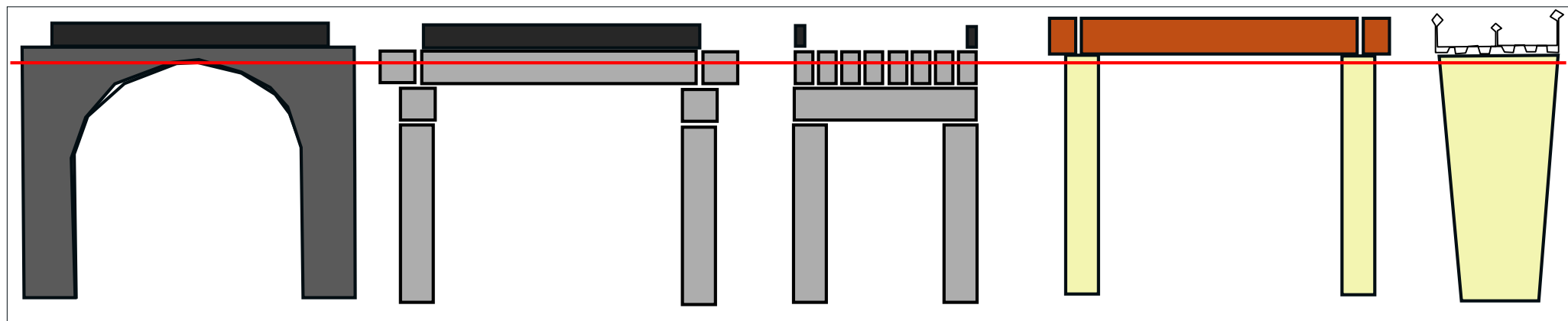


<https://theconversation.com/castlefield-viaduct-manchesters-new-park-in-the-sky-could-transform-the-city-but-who-will-benefit-188169>
<https://manchesterhistory.net/manchester/tours/tour1/area1page68.html>

https://commons.wikimedia.org/wiki/File:Castlefield_Viaducts_4689.JPG

For these reasons, our view is that replicating the existing construction is neither appropriate or economic, however it is essential that the new structure complements the existing structure, and tips its hat to the historical context, without necessarily copying it.

We view the defining architectural element of the existing structure as the silhouette of the arch. Therefore the construction methods should consider the height and depth of deck they require, and hence if that deck would impinge on the top of the silhouette of the arch.



Masonry structure, parapet not structural

simply supported RC beam, parapet not structural

steel trough, parapet can be structural

Relatively shallow depth at crown of arch

depth of beam likely to be larger than masonry crown

reducing depth below track level

A steel trough construction may permit a shallower deck thickness coupled with a longer span than a reinforced concrete beam construction so the relative merits of the materials should be considered with this factor in mind.

Existing masonry arch spans are very variable in size, but typically range from 10-14 m clear span along the route.

Interesting Australian rail projects which used U-shaped concrete trough with longest spans of 31m

Other projects using concrete U troughs have taken an entirely off-site approach to construction of trough sections.

https://na.eventcloud.com/file_uploads/27e6b26b9cd47fbb3ea0d80b94471f7f_DanielPang-DesignandConstructionofToorakRoadMult-spanRailBridge.pdf

https://na.eventcloud.com/file_uploads/6ddc1f95c97cfb94fb9455e6a7d3ffc2_DanielPang-DesignandConstructionofToorakRoadMulti-spanRailBridge-FINAL.pdf

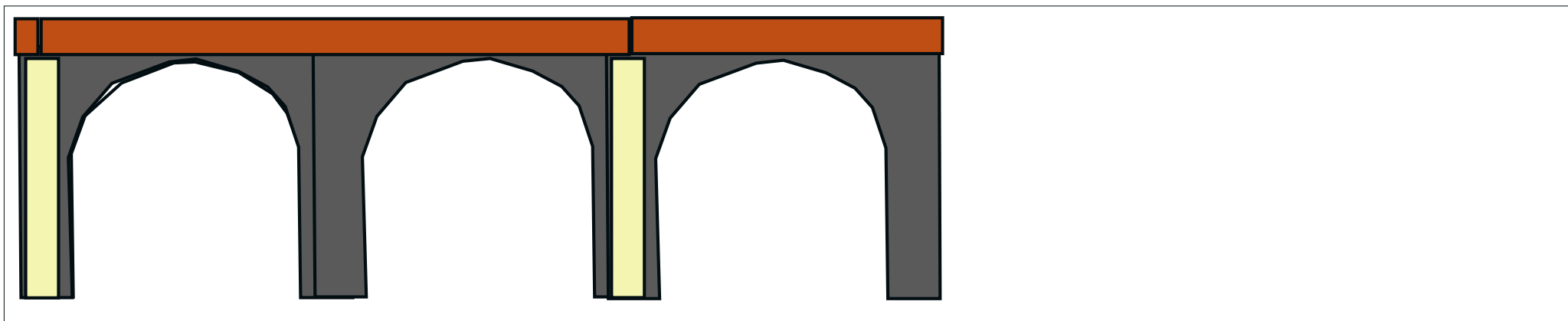
“Innovative Incrementally Launched U-Trough Girder Viaduct for Challenging Site” <https://austroads.gov.au/publications/bridges/abc2022-069-22>

“The design of asymmetric continuous twin U-trough rail viaduct with hybrid pre-stressing” <https://austroads.gov.au/publications/bridges/abc2022-042-22>

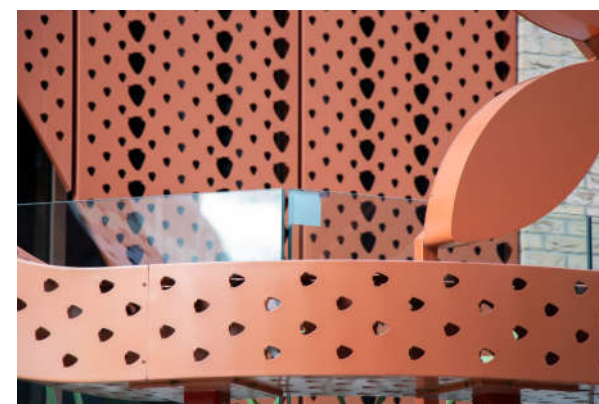
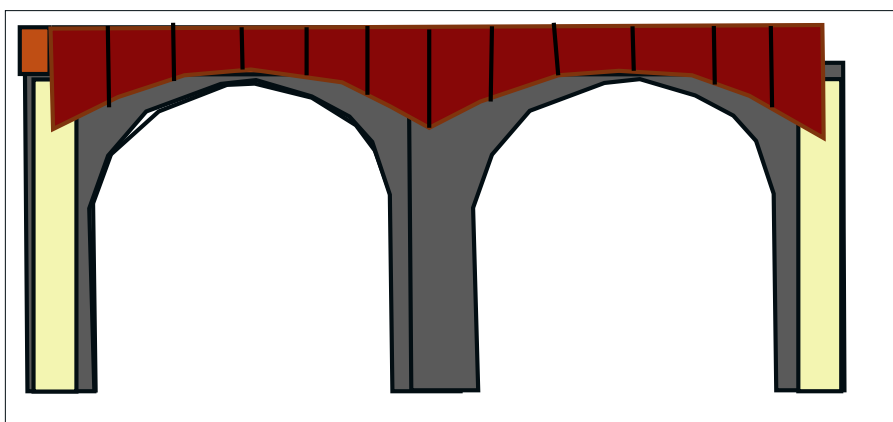
“3D Reinforcement Modelling of Precast Trough Girder and Crosshead” <https://austroads.gov.au/publications/bridges/abc2022-108-22>

“LXRP - Train Derailment on Elevated U-Trough Structures” <https://austroads.gov.au/publications/bridges/abc2022-083-22>

In terms of the severance created at ground level, the critical factor is that the new pillars align with the existing so that maximum community utilisation of the space under the arches can be retained. The use of modern materials would permit longer spans, it would be ideal if this material selection allowed new spans to be twice as long as the masonry spans so that pillars still aligned, but there were only half the number of pillars in the new structure compared to the existing, which would maximise the ability to utilise space under the viaduct.



While we would not suggest painting or other surface coating of the structural elements, it would be entirely practical to clad the structure with decorative cladding such as powder coated aluminium rainscreen, which could also have shapes, cutouts and patterns rolled into it to create mock rivets etc to give an appearance of a cast iron structure, which could be shaped to form complementary ‘eyebrows’ over the existing brick arches. <https://sotech-optima.co.uk/perforated-rainscreen-cladding/>



For the new chords, maximising span length to minimise the number of supporting elements may result in a more economic construction than more closely spaced pillars – and not have the same cosmetic concerns as the viaduct section immediately adjacent to the current viaduct.

Colour Palette

Recent large railway structures built as part of HS2 have largely been formed of natural concrete and weathering steel. This concrete and rust colour sits well adjacent to a completely contemporary structure such as Curzon Street HS2 station, but does not sit so harmoniously in a much busier urban environment with a wider age range of constructions, and itself may in short order become associated with a particular phase of HS2, rather than having suitable historical contextual nods that lend something of a more timeless quality.

Given the scale of HS2 construction within HS2, central Birmingham may have reached the limit of concrete and rust coloured railway structures it can tolerate before demanding something more varied. I.e. concrete and rust is already getting a bit boring.

We do not feel that the viaduct needs to attempt to disappear or hide itself. It will be threading its way through a visually busy, jumbled and complex urban environment, where much of it will be concealed from view by existing buildings, and likely more concealed in the future as building heights grow.

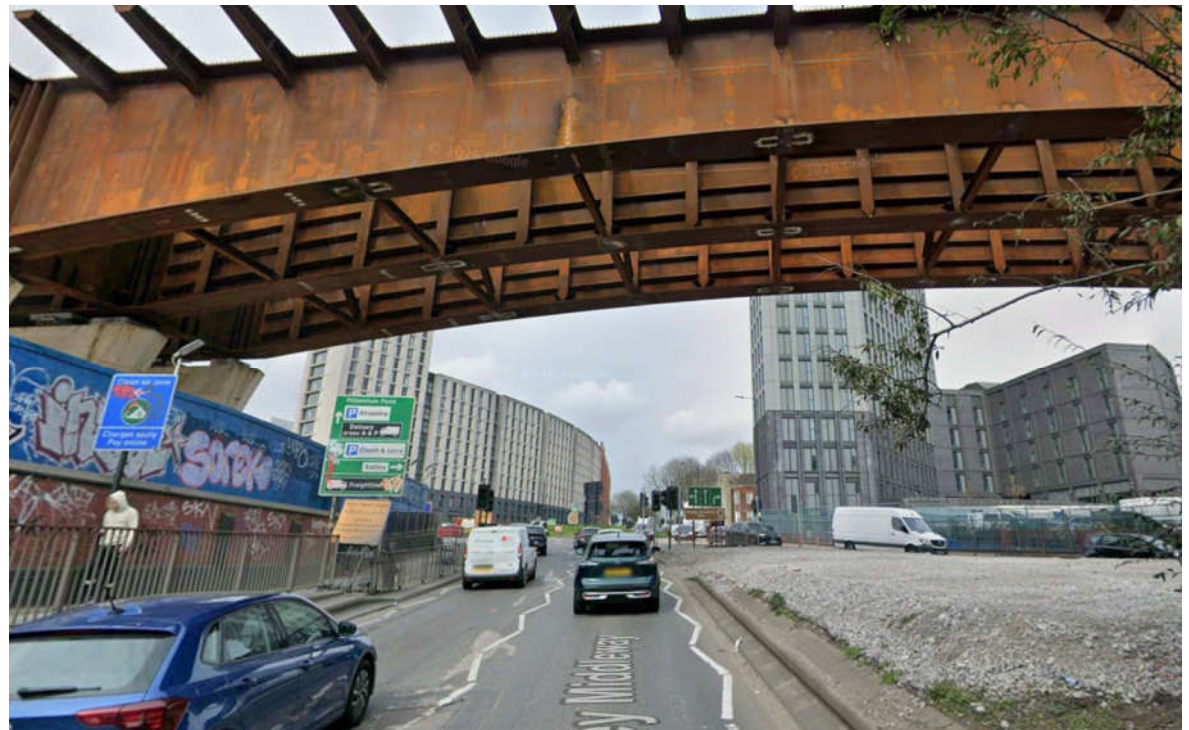
Hence the colour palette can be somewhat bold.

We recognise that applying surface coatings such as paint to structural elements creates unacceptable lifetime maintenance costs, so would only suggest colours that we could expect can be created by through dyeing concrete, or applying easily replaced decorative cladding over structural elements.

The ease or difficulty of graffiti removal must also be considered. The prolific gang / tagger Lupoca will find the viaduct an extremely tempting target.

<https://www.birminghammail.co.uk/news/news-opinion/truth-behind-lupoca-graffiti-seen-33725554>

https://www.youtube.com/watch?v=a4CQ_fGmK-M



If we consider potential colour palettes, we can look at both railway history and the local built environment for inspiration.

Corporation Street is typical of the local building style that did not fall victim to the 1960s planners.



<https://maps.app.goo.gl/ZngAgx1SGSwfNRyAA>



A very dark brick red – contrasted with cream coloured elements or adjacent buildings is very common in local buildings of the era.

<https://maps.app.goo.gl/CEPzgcaHGMo2YTHR9>

The 1980s replica buildings on the Moor Street Station platform continue this red / cream theme



<https://maps.app.goo.gl/jR2Ltewiq3HdsrhF8>

As do a number of other buildings in the immediate vicinity to the site.

If we consider railway heritage colours, the local Midland Railway, which later became LMS, featured a dark red / maroon with straw as its livery for a significant duration, with the name “*Midland Red*”, also becoming the name of a popular local bus company.

https://en.wikipedia.org/wiki/Midland_Railway

https://en.wikipedia.org/wiki/London,_Midland_and_Scottish_Railway

They also featured a horrible poo brown colour as part of their corporate identity, so it wasn't all good.



[https://commons.wikimedia.org/wiki/File:London_Midland_%26_Scottish_Railway_Company_\(6156567103\).jpg](https://commons.wikimedia.org/wiki/File:London_Midland_%26_Scottish_Railway_Company_(6156567103).jpg)

https://commons.wikimedia.org/wiki/File:LMS_saloon_45021_at_Aviemore.JPG

<http://www.stationcolours.info/london-midland-scottish-railway/>

<https://www.rmweb.co.uk/topic/46657-midland-railway-paint-change-from-green-to-red/>

This colour combination became colloquially known as ‘blood and custard’ (amongst other names) <https://www.bloodandcustard.org/>, so while the ‘*Custard Factory*’ does not appear to have ever been painted a distinctive yellow custard colour, a palette incorporating hint of that colour would be a humorous nod in that direction.

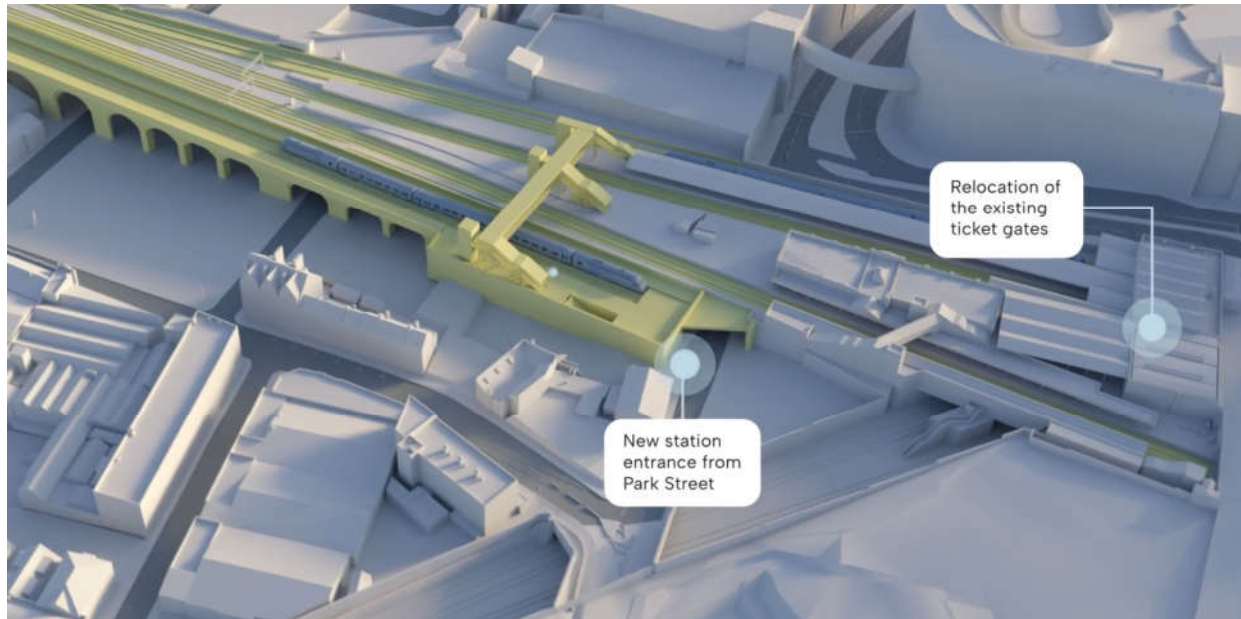
A colour palette of yellow / cream concrete pillars achieved using colour dye – with maroon horizontal elements could be an interesting blend of nods towards heritage (both local built environment and local railway heritage), whilst using modern materials and construction techniques.



We've been unable to convince an AI to create two viaducts parallel and close to each other at the same height, but this does illustrate the broad point we are attempting to make, which is that a new viaduct can relate to the context of the historic masonry viaduct, and use heritage colours to tip its hat to various heritage elements – without slavishly replicating a blue brick masonry construction.

We are not suggesting a painted cast iron construction, and would envisage a weathering steel or concrete structure clad over in decorative rainscreen panels to mimic traditional colours and materials.

Moor Street Rebuild



If we compare the most recent images for the Moor Street rebuild and new passenger bridge, with those in the 2022 SOBC, the current images have a diminished architectural quality, however these are birds eye views that no-one will ever see, so images of what a passenger would actually see would be more informative as to what passengers would experience from both build proposals.

The 2022 image features a large passenger transfer deck, whereas the latest images show a greatly reduced utilitarian footbridge + lifts.

After careful consideration, we view both options as missing a fantastic place-making opportunity, with the most recent images being particularly utilitarian, not creating a fitting gateway to the city that the combination of Moor Street and Curzon Street will become.

Placemaking

If we consider the London Bridge and Waterloo undercrofts, these spaces have contributed to award winning placemaking opportunities.



https://commons.wikimedia.org/wiki/File:Arches,_London_Bridge_Station_-_geograph.org.uk_-_6530712.jpg

<https://www.architectsjournal.co.uk/buildings/riba-stirling-prize-2019-london-bridge-station-by-grimshaw> <https://love.lambeth.gov.uk/waterloo-station-vision-launched/>

An undercroft can be cool, both figuratively meaning a trendy place, and also physically in terms of temperature, which the recent heat-waves have illustrated must be a consideration going forwards.

We recently contributed to Manchester Oxford Road consultation, where we highlighted that an overbridge imposed significant extra walking time for passengers, compared to creating additional access down to the undercroft / street level. A large bridge + lift structure is a significant point load on a historic arched structure. Arched structures are excellent for distributing uniform loads, but bad for point loads, and while the masonry itself may be relatively easily surveyed, the infill above arches can be highly variable and was rarely controlled or graded during Victorian construction, so may consist of extremely variable material and unexpected voids. (we note the 2022 image showed the large passenger transfer deck built over the simply supported viaduct section over Park Street, rather than over an arched part of viaduct.)

Our North-West Railfuture branch colleagues assisted with facilitating visits for the Manchester Oxford Road design team to London Bridge, and we understand that design has now been revised to go down to street level instead of up in the air.

Descending into the undercroft may be lower risk construction since it imposes fewer point loads onto the existing masonry arch construction, as well as being a greater placemaking opportunity.

While we understand the MRH alliance is charged with the delivery of the project within the immediate surrounds of Moor Street etc, it is vital that the enhancements around Moor Street etc are seen in the context of the broader city centre regeneration and the three station transport hub, and gateway to the city, that Moor Street, Curzon Street and New Street station will become.

With the current amputated state of HS2, New Street station will remain a vital connection location for journeys north / west, so there will be an increased inter-station interchange for passengers from south / east to destinations north / west. Our colleagues from the East Midlands branch - who have reviewed this document- have reminded us that the change in service patterns will likely result in more passengers from the East Midlands having to interchange between Moor Street and Birmingham New Street.

Since New Street station is large, this might not result in a huge increase in interchange time for people with full mobility, but the, psychological impact is large, the wayfinding if you don't already know your way is not great, there are large number of highways to cross, and in bad weather you will get wet and cold. For the increasing number of people without full mobility it is a much larger increase in the time and difficulty of interchange, so thought must be given to how this will be delivered – potentially a golf-cart type shuttle is needed between all 3 stations, although other solutions such as an enclosed travelator might bring benefits to all passengers.

The quality and legibility of the connection between Moor Street and New Street is currently poor. After crossing a busy road requiring the pressing of a pedestrian crossing beg button twice and waiting twice, passengers are confronted with a choice of a dirty, dingy urine smelling tunnel with very poor perceptions of personal safety (and a further 2-stage highway crossing) – or a large number of steps / ramp up to the street that is New Street, which then has poor legibility of how to get to New Street station from New Street itself.

We again refer to our Manchester colleagues where all public transport modes are now being considered in the round, and how they connect and interact with each other, both from a physical connection perspective and ticketing friction, with bus franchising being a key enabler of greater modal integration.

If we are to get the very best return from the considerable infrastructure investments of both HS2 and MRH, we must not neglect all the other parts of the customer experience before they get to a station – or from a station to their ultimate destination – we are competing with the car which for many offers a comfortable and convenient alternative so we must consider and enhance all elements of the public transport experience.

If we are to extend more inter-city services through to Snow Hill, then its dingy car-park basement passenger experience also needs significant enhancement, as does its lack of access to the adjacent St Chads tram halt, due to the failure to complete the addition of an eastern entrance near the Livery Street entrance. (was failure to complete due to land acquisition, if so could that land be included in this TWAO ?)

<https://www.westmidlandsrailway.co.uk/about-us/news-desk/new-snow-hill-station-entrance-will-give-passengers-direct-link-between-trains> (December 2018)

We appreciate much of this falls outside the scope of the MRH alliance delivery team, but highlight the overall importance of MRH sitting within a wider set of multi-modal public transport and active travel improvements and integrations, that are not restricted purely to infrastructure.

Moor Street Undercroft



Imagine the potential of the Moor Street undercroft, the area outlined in red. This has a gross area of 1 hectare.

Park Street under the viaduct is stopped up and becomes part of the undercroft space, but still allows pedestrians to flow through.

The section of Park Street to the north (pink) becomes pedestrianised + access only, providing broad flowing access through to HS2 Curzon Street.

Alison Street under the viaduct is stopped up and becomes part of the undercroft space.

This allows the undercroft space to extend to adjacent Meriden Street. Re-locating the tram halt 100m south to the position shown would allow direct access from the undercroft space to the tram halt platforms.

Meriden Street under the viaduct should be made tram only to encourage cars to use another parallel street, to provide a calmer / active travel orientated street in the station surroundings.

There will be an increasing amount of residential accommodation in Digbeth, so providing permeability into the undercroft from a variety of directions would be important. Would require careful consideration of gateline locations from undercroft space up to platform level.



Park Street (undercroft)



Park Street towards Curzon Street (pedestrianise + access only)



undercroft between Park Street & Allison Street.

This is a fabulous space, with the arches running in two directions – utterly wasted as a car park (and barricaded off so these sections not being used for car parking on day of visit)



Allison Street.

Existing large arches through structure

Note cobbled street providing further heritage texture.

Completely wasted as car storage.

Note Victorian urinals (may be listed)



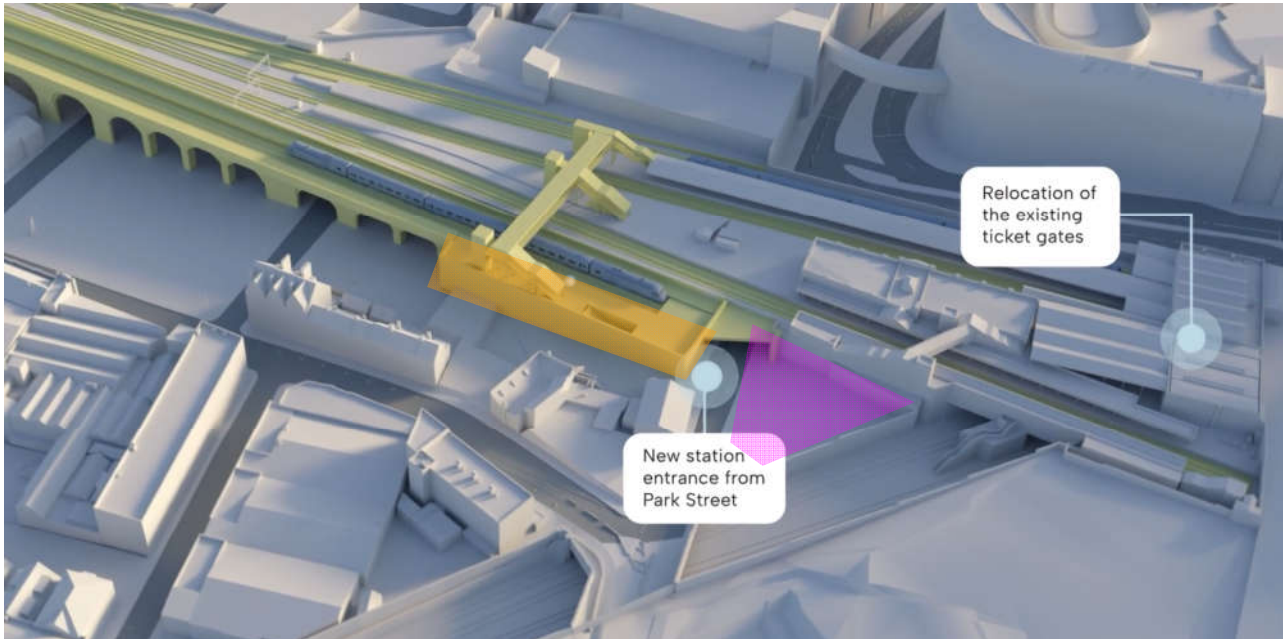
Meriden Street

Showing apertures in viaduct west towards Allison Street.

(tram line being installed)



The large size of the undercroft should provide a greater degree of flexibility where to bring stairwells and lifts up to platform level than being constrained to them all being in a line if an overbridge was constructed.



This additional flexibility, coupled with additional stopping up of Park Street, could allow the stairs and lifts highlighted in Orange, to instead be located on the already cleared site highlighted in Pink.

This could decrease the land take at a particularly sensitive location for the community.

Summary

Railfuture are very supportive of the overall Midlands Rail Hub project.

We encourage review of the degree of service flexibility and capacity that the project provides, and believe that the opportunity to create a platform 6 should be seized.

The promoter must transparently justify the construction width required down the length of the viaduct and seek to minimise this (especially land temporarily required if demolition is involved) whilst still retaining the required number of running lines to deliver the services.

The built form of the viaduct must consider the historical context it sits within, but we do not feel that it needs to replicate the existing form, especially if this increases the land required both permanently, and to provide access for construction.

Selection of materials and construction techniques should seek to minimise the amount of land required – so a smaller number of larger steel spans may be more desirable than a larger number of simply supported reinforced concrete spans.

It is essential that tram integration at Moor Street is as high quality, and convenient as the tram integration at HS2 Curzon Street.

Above all, we urge you to embrace and explore the immense placemaking opportunity that the undercroft presents, which would transform what will otherwise be a utilitarian connecting bridge into a fabulously cool architectural space, and a fitting catalyst and street level entry point to the wider regeneration of Digbeth.

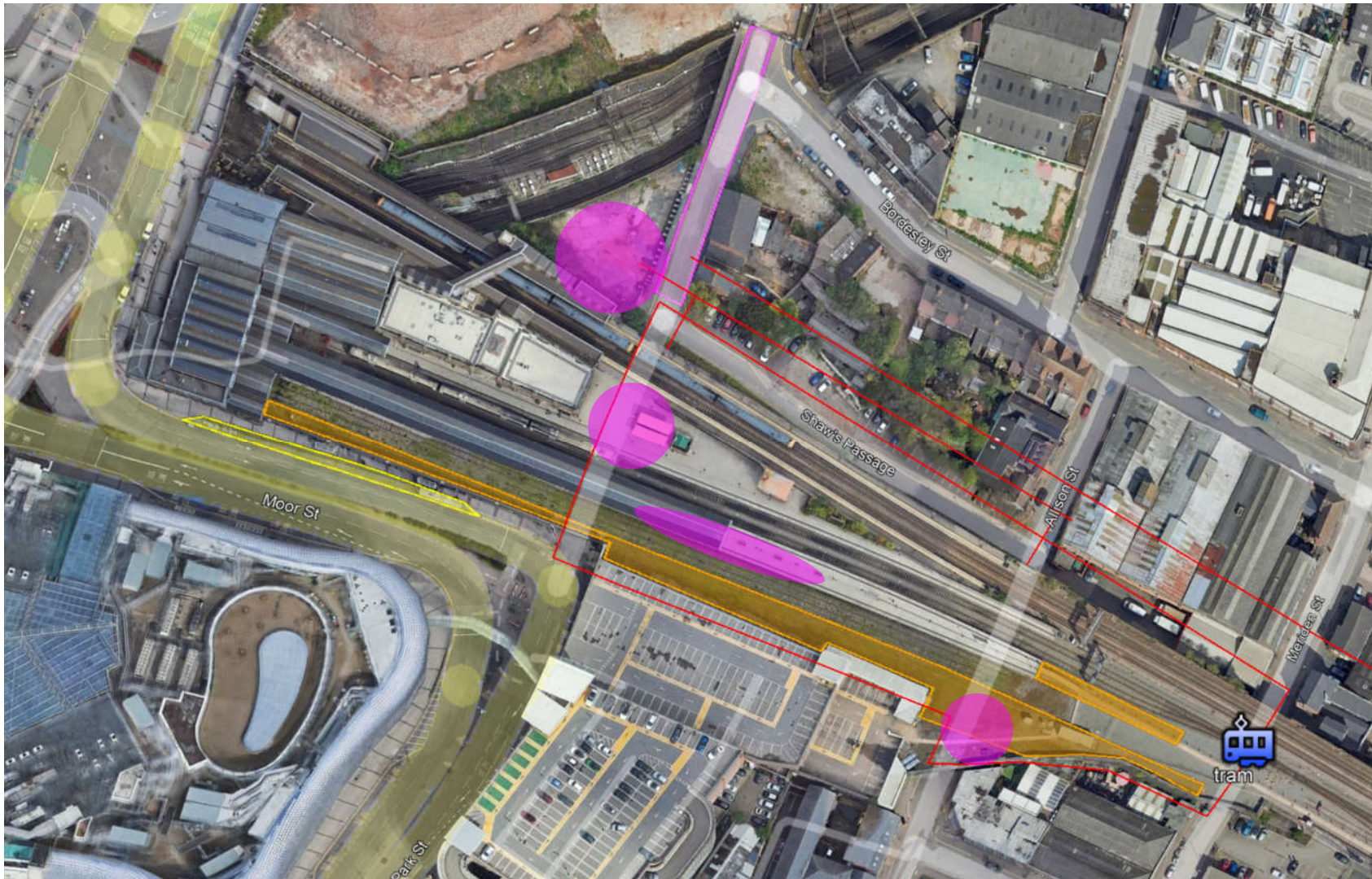
This does require a greater degree of stopping up of roads, but this would be entirely consistent with the local transport plans of Birmingham City Council and WMCA, which seek to reduce car dependence, reduce car miles travelled, and see control of availability of parking spaces as a part of this policy delivery.

There are currently a large number of low quality spaces at street level surrounding Moor Street, lacking activation at street level, but with the combination of HS2 and MRH we should expect to see a rapid improvement in land use around Digbeth with increasing amounts of residential and leisure usage. The Moor Street undercroft space could become a fantastic, integral street-level gateway into this enhanced and regenerated area of the city, rather than the station being isolated from it floating above.

The examples of London Bridge and Waterloo show us the potential on offer, and Manchester Oxford Road illustrates that there may also be construction advantages not attempting to place large point loads onto existing masonry arched structures.

Railfuture West Midlands would be very happy to participate in future stakeholder engagement in this transformative project.

Appendix: platform notes



A+B+1: good space to create wide stairs, but from far end of A back to tram is long 500m walk – requires intermediate small stairs + lift

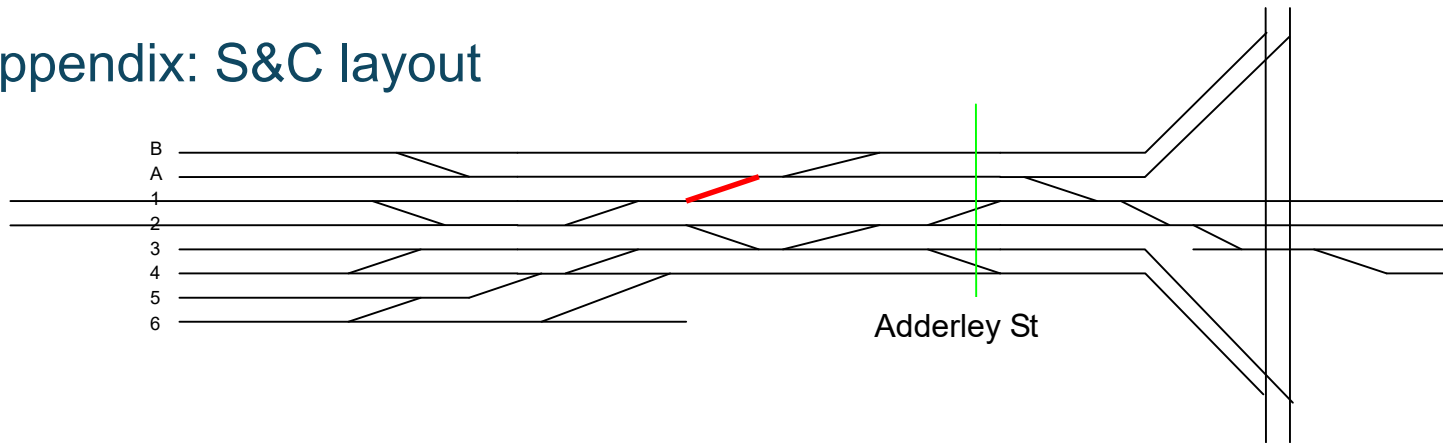
2+3: good space to create wide straight stairs- good flow from existing concourse (near historic location of wagon lift, hole may exist ?)

(consider later removal of existing 1980s bridge to improve flow)

4+5: Narrow, likely require two narrow staircases so flow can be separated into one-way up and down passenger flow.

6: Good space for stairs and lifts

Appendix: S&C layout



The S&C layout permits a wide range of movements, which is excellent, but we highlight the S&C unit in red on the diagram. The location of that S&C unit requires a train to travel at an oblique angle off the old masonry structure onto the new viaduct structure. This may impose a range of loadings onto the old masonry structure that it has not experienced before, and drive a requirement for a very high degree of stiffness compatibility between the old and new structures, which in turn may restrict the range of design choices available for the new structure.

If it was possible to move that S&C unit to the east (diagram below), and move some of the other S&C associated with the scheme further east onto the site of Bordesley Station, where all running lines are on the same type of retained earth embankment and hence all the same stiffness – might that free up a number of design constraints on the new structure permitting a wider range of designs and construction techniques to be considered ? If it is practical to minimise the number of S&C units on the new part of the structure, that might simplify the range of loading scenarios on the structure, permitting a lighter weight and shallower deck construction technique to be considered ? The eastern chord towards Derby will be comparatively slow speed due to its tight approx 200m radius, so S&C located close to this chord can also be low speed and hence shorter.

