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Winchester City Council

Central Winchester Regeneration

CWR Bus Provision (Working Draft)

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Issue (Working Draft)

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Executive summary

The CWR Bus Provision Study is a complementary piece of work to the Central Winchester Regeneration Framework. It sets out how on-street bus facilities can be provided to replace those currently within Winchester Bus Station, providing a passenger focused solution that facilitates development and provides longer term opportunities for bus expansion associated with proposed changes to the wider transport network.

The Central Winchester Development Framework covers an area in the centre of Winchester adjacent to Winchester Cathedral and the Guildhall. It proposes the redevelopment of a number of blocks within the centre, including Winchester Bus Station. Consideration has been given to a direct replacement of the bus station elsewhere in Winchester, but this Strategy had as its starting point the desire of Winchester City Council to better integrate buses into the city centre through an on-street solution.

This report considers the baseline situation for buses and coaches in Winchester, demonstrating that the current mixture of bus and coach services provides a good level of service but showing that bus operators rely on an informal area of bus standing within Winchester bus station in order to maintain current levels of service. However, the current timetable means that the peak requirement for standing only happens for short periods during the day, and that for much of the time fewer bus stands are required.

The Strategy then considers what can be learnt from current trends in the wider bus market, as well as lessons from elsewhere in the UK and Europe. It shows that bus operations are successful in many locations, including Bath, Ealing and Brighton, without needing to rely on a central bus station.

The Strategy considers in turn the locations where consideration has been given to provision of additional bus stops. These are:

- Friarsgate (east)
- Friarsgate (west)
- Upper Brook Street
- Tanner Street
- Silver Hill (east)
- Silver Hill (west)
- The Broadway

The proposed strategy identified in this document has been developed through extensive engagement with bus operators, National Express and Hampshire County Council.

On The Broadway, it is proposed to retain the current six stops / stands used by buses and coaches. Relocation of the pedestrian crossing further west to align with the future pedestrian desire line is proposed, and this facilitates the creation of two new stands. Furthermore two additional stands are proposed in the centre of The Broadway, created by the removal of short-term parking and the taxi rank. In total The Broadway will accommodate ten bus and coach stands with the final allocation of locations to be agreed with operators. In the longer term it is anticipated that some of these will transfer to other locations in the local area (Friarsgate, Upper Brook Street and St George's Street) as opportunities are created through the Winchester Movement Strategy being developed by Hampshire County Council.

On Friarsgate, three new stands are proposed for buses between Eastgate and Tanner Street. A fourth has also been identified as desirable in the longer term with this facilitated by stopping up of the existing bus station exit and access to St Clements Surgery car park.

On Tanner Street, it is proposed to change the operation of the highway to one way southbound only in order to provide sufficient space for one new stand. The eastern section of Silver Hill will be made one-way westbound, and the existing taxi rank relocated. This creates space for two additional bus stops.

On the western part of Silver Hill, no changes are proposed to the current bus stop arrangement. However, some minor alterations could be made as part of public realm works, and these would improve the efficiency of bus operations.

In developing the strategy, locations of new short-term bus stands has been identified, with these required to support construction phasing. These locations include a layby on the corner of Upper Brook Street and Friarsgate, adjacent to Iceland on Friarsgate and possibly a second stand on Tanner Street.

There has been extensive dialogue with Hampshire County Council and the Winchester Movement Strategy team. This proposes converting St George's Street from its current two-lane arrangement, to one-lane. This would potentially facilitate a number of new bus stands on St George's Street, as well as allowing Upper Brook Street to be reduced to one lane – with a new bus lane and/or laybys introduced.

As part of the Winchester Movement Strategy it may also be possible to transfer coach services to new dedicated facilities on Friarsgate – with this offering the possibility of dedicated coach waiting areas integrated into the ground floor of buildings.

Finally the proposals do not preclude any future opportunity for a bus station to be created elsewhere in the city, should this be desired.

Throughout development of the Strategy there has been significant engagement with Stagecoach and Bluestar, the two local bus operators, as well as with Hampshire County Council and their consultants. This Strategy has been agreed in principle as a workable solution for providing an on-street arrangement, and development of the Winchester Movement Strategy will be cognisant of this Strategy in developing plans and proposals.

Introduction

CWR Bus Provision Study

Ove Arup & Partners ('Arup') have been commissioned by Winchester City Council (WCC) to provide advice on future bus operations and infrastructure requirements in Winchester city centre. At present, current bus operations are concentrated on Winchester bus station, located between Friarsgate and The Broadway at the eastern end of the city centre. Bus services are operated by Stagecoach and Bluestar, and the bus station is used both for passenger drop-off and pick-up, as well as for standing services to provide drivers with rest breaks. The first section of this report provides further detail on current bus operations.

As part of a wider commission, Arup are developing a Central Winchester Regeneration Framework. This is a comprehensive development strategy for central Winchester that aims to transform the public realm and promote a greater mix of land uses within the city centre through the phased redevelopment of land broadly bounded by The Broadway, Friarsgate, Middle Brook Street and the River Itchen. This includes the redevelopment of the existing Winchester Bus Station.

In parallel, Hampshire County Council (HCC) adopted the Winchester Movement Strategy in 2019, which was endorsed by WCC. The Movement Strategy sets out an agreed vision and long-term priorities for travel and transport in Winchester over the next 20-30 years, with a focus on supporting the city's economy and improving quality of life for residents. The policy context for this study is set out in the second section.

Work continues on The Movement Strategy and the study team has had regular meetings with HCC and their consultants regarding how this work and the bus study can be integrated.

Work has previously been carried out by Atkins transport consultants, considering how bus services could operate within the city centre once the bus station site has been redeveloped. This considered two broad options; the provision of a new 'bus station'-type space, primarily for bus standing, on the site of the current Middle Brook Street car park, and an on-street solution. Scenarios that combined both these options were also considered. The Middle Brook Street car park option remains a long term consideration, but is dependent on a number of factors – including the final transport network implemented by The Movement Strategy. This study therefore considers a on-street proposals which are deliverable within the remit of the Winchester city centre regeneration project – but these do not preclude any longer term aspirations for a new bus station.

Following on from the work to understand baseline conditions and the policy context for the Bus Study, the second section of this report identifies trends in the wider bus market that could impact on how services are run in both the short and medium term. Understanding these trends is key to ensuring that any plans for buses within Winchester are future-proofed, and won't require additional facilities to be retro-fitted in the near future. Winchester can also learn lessons from elsewhere, and this section looks at other locations, both within the UK and abroad, that operate bus services in cities without a central bus station.

The third section of this report sets out the process that has been followed, and the engagement that has led to the preferred strategy for the medium term. The fourth section looks at different options for the provision of bus infrastructure within the Regeneration Framework, and identifies the steps that would need to be taken to ensure delivery. The recommendations of the study are incorporated into the final section.

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Central Winchester Regeneration Framework

Development Proposals

The Central Winchester Development Framework covers an area in the centre of Winchester adjacent to Winchester Cathedral and the Guildhall. The framework site is surrounded by high street shops, commercial activities, retail and housing. As part of the framework, it is proposed that the existing bus station on site will be relocated. Work has previously been undertaken to consider a wholesale relocation of the bus station onto a new bus hub site, but the purpose of the CWR Bus Provision Study is to consider whether an on-street bus solution would be appropriate.

The regeneration framework follows nine main objectives proposed in a Supplementary Planning Document put forward as a result of a public engagement process. These objectives include:

1. Vibrant mixed-use quarter: An active mixed-use environment that complements the city centre and links to creative industries.
2. *Winchesterness*: Staying true to local distinctiveness whilst providing for current needs of residents.
3. Exceptional public realm: Active public realm with high quality landscape design.
4. City experience: Creating a place of experience by offering a variety of activities such as food, leisure, retail and culture.
5. Sustainable transport: Encouraging active travel by providing a pedestrian and cycle friendly environment.
6. Incremental delivery: A flexible framework that enables phased delivery.
7. Housing for all: Diverse range of housing type that caters for a broad spectrum of affordability and needs.
8. Community: Ensuring community engagement and representing people of all groups.
9. Climate change and sustainability: Taking measures to mitigate climate change and plan for a sustainable and resilient development.

A demographic analysis of Winchester highlighted the fact that a large proportion of the younger population tend to leave the city upon completing university. Therefore, an additional goal is to fill in this gap and retain some of the younger generation.

As a step towards sustainable and zero carbon development, King's Walk (Plots D1, D2 and D4), The Nutshell theatre (Plot D2), and Woolstapler's Hall (Plot L1) were identified as buildings suitable for refurbishment. St Clements Surgery (Plot H1) and The Buffalo Order (Plot K1) were eliminated from the project scope.

The framework proposes a mixed-use development with commercial and retail uses concentrated in the west and the residential area in the east. The commercial side consists of various types of workspaces such as creative studios, co-working spaces and flexible offices. These spaces sit on an active ground floor with retail and food and beverage. The tallest building is the hotel on the north-west corner. Its height acts as a visual anchor and provides views to the cathedral.

There are a series of connecting squares and plazas that loop through the development. The main square is by the theatre and King's Walk. These key open spaces are focal points with active public realm but also connect with the existing built environment.

Another important feature in the project is the waterfront in the east. Parts of an existing culvert are exposed and redesigned to create a public, landscaped path that runs through the residential area. Small parks and open spaces can be found along this walk, providing residents access to outdoor spaces. The waterfront creates meaningful links with the existing urban surroundings. The layout provides ease of access to the nearby universities on the north and south of the site and presents opportunities for active travel and sustainable transport.

In addition to the retail, commercial and residential uses, there are opportunities for various heritage and cultural uses such as museums, cinemas and cultural centres. Covered markets and covered streets also feature in the framework adding another layer of activity to the open squares and plazas.

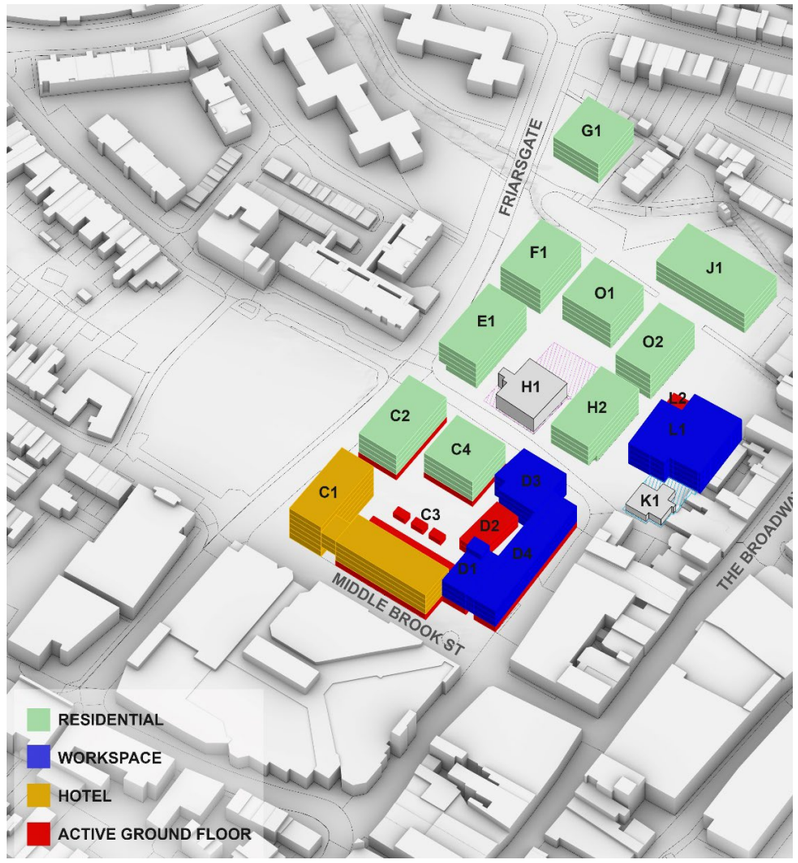

Figure 1 – Central Winchester Regeneration Proposals

Current Bus Operations

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Current Bus Operations

Bus Services in Winchester

There are two main bus operators in Winchester, Stagecoach and Bluestar. Stagecoach operate the majority of local routes, with Bluestar offering a longer distance service to Southampton via Chandlers Ford. In addition to these local bus services, National Express operate a coach service to London via Southampton. Stagecoach also operate Winchester's Park and Ride services from three Park and Ride sites on the south, east and west of the city.

Figure 2 shows the core 'King's City' routes and regular inter-urban routes serving the town. Routes 1 and 4 cross the city centre, stopping at the bus station on their way through. The remaining routes terminate in the city centre, standing at the bus station. However, these routes approach from the west, meaning that they penetrate across the city and provide access to a range of destinations.

Figure 3 then shows regular services to urban destinations outside the city, providing access to Southampton, Chandlers Ford, Romsey and Alton. The Bluestar 1 and 66 services approach from the south and west respectively before terminating at the bus station and therefore provide full penetration across the city centre. However, Route 64 from Alton approaches from the east before terminating on The Broadway, short of Winchester Bus Station.

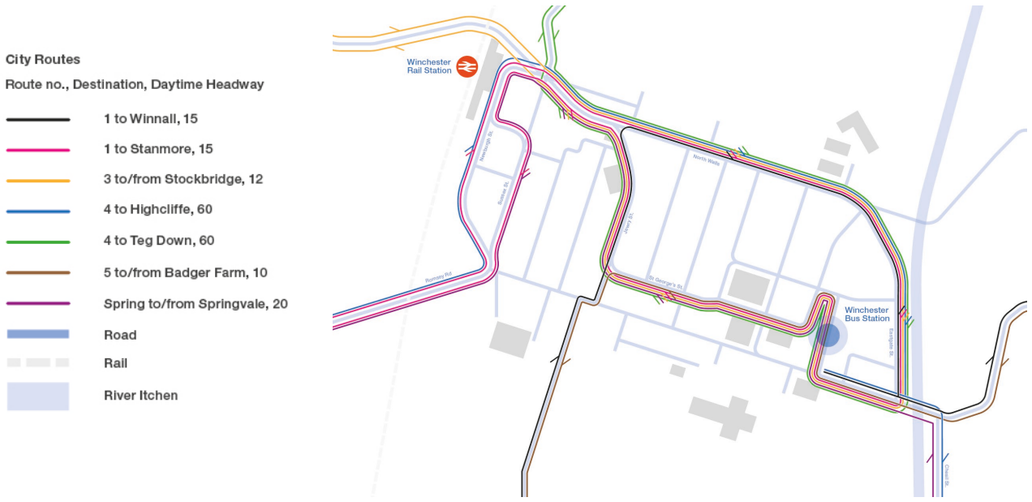

Figure 2 – City Routes Map

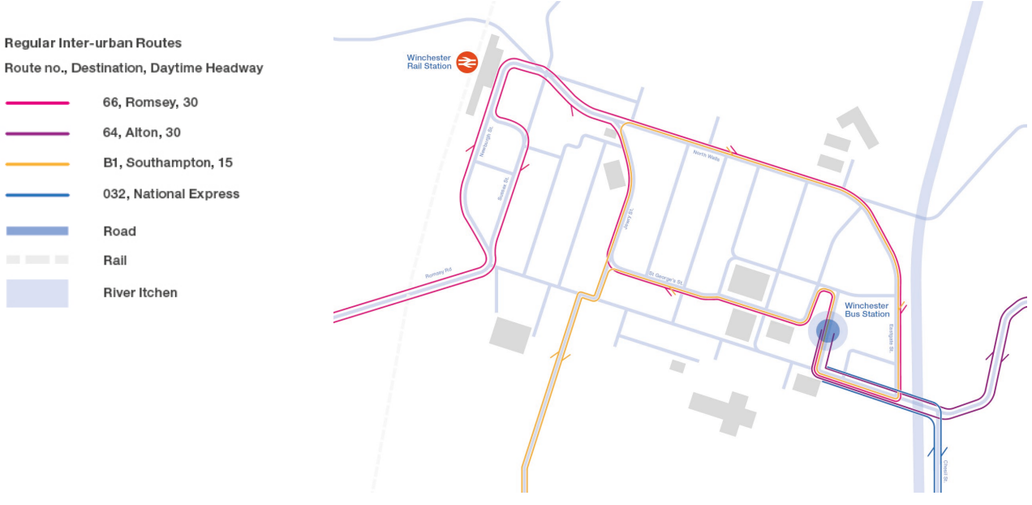

Figure 3 – Regular Inter-Urban Bus Map

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Current Bus Operations

Bus Services in Winchester

As well as the services shown on the previous page, Figure 4 shows a number of more irregular services to rural locations outside the city. These services all approach the city centre from the north, south or west and therefore provide access to stops across the city centre before terminating on the eastern side of the city centre.

Figure 5 then shows the current routing used by Stagecoach Park and Ride services. Buses travel from St Catherine's and Barfield Park and Ride sites on the east of the city before stopping on the Broadway and using the bus station to access the one-way system and the railway station before leaving to the west to access the Pitt and South Winchester Park and Ride sites. Buses then use a different routing in the opposite direction that does not require them to use the bus station to access the Broadway. The Park and Ride sites do not operate on Sundays.

Figure 4 – Irregular Rural Bus Route Map

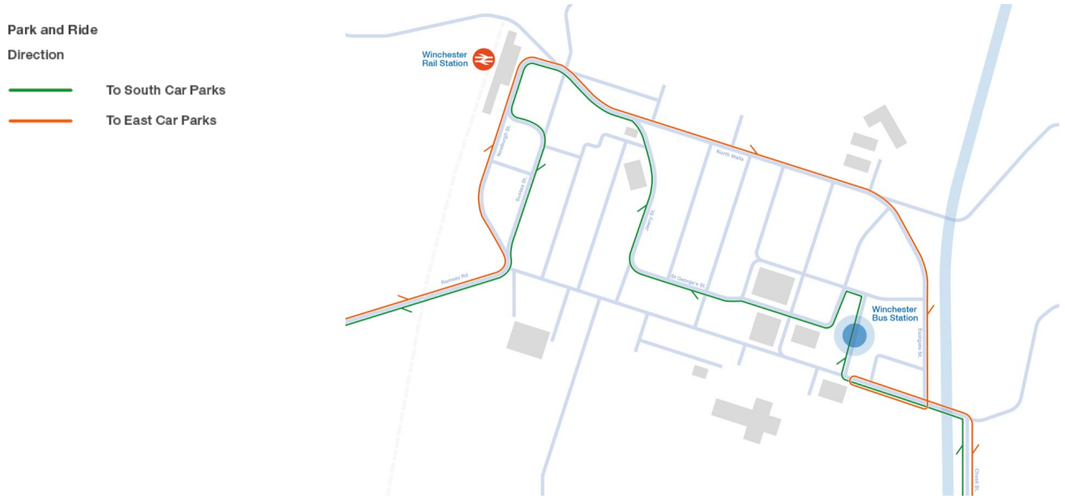

Figure 5 – Park and Ride Bus Route Map

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Current Bus Operations

Coach Services in Winchester

Coach trips to and from Winchester focus on The Broadway, where a number of coach stands are located. For the purposes of developing the CWR Bus Provision Study, coach trips have been divided into three categories.

The first of these are scheduled coach services. National Express operate coaches between Southampton and London Victoria, approximately every two hours. These services stop in Winchester and Basingstoke in both directions. Some Southampton-bound services also continue to Salisbury, and from London connecting services are available to destinations across the UK and Europe. National Express also operate a Heathrow Airport to Poole route four times a day, with coaches in both directions stopping at Winchester, Southampton and Bournemouth.

The second class of coach service is tourist coaches. These tend to be chartered services that operate on an ad hoc basis for visits to the city, particularly during the summer and at Christmas when tourism is at its peak. As these coaches are carrying people who are visiting the city, these tend to pick up and drop off on The Broadway, parking at the Worthy Lane coach park in-between, as waiting on The Broadway is limited to 20 minutes.

The final category of coach service are foreign coaches. It is understood that these are a mixture of foreign-registered chartered tourist services, which operate in the same way as UK tourist coaches, and semi-regular services to eastern Europe. The reason that these have been considered as a separate class of trip is because foreign coaches are left hand drive, with passengers boarding and alighting from the (UK) offside. At present there are no special arrangements for foreign coaches, which mean passengers get on and off coaches from the road rather than the footway.

Figure 6– National Express Coach Route Map

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Current Bus Operations

Winchester Bus Station and Bus Stops

On the eastern side of Winchester city centre there are three main groups of bus stops; within Winchester bus station, on The Broadway, and on Silver Hill. Winchester bus station is located between The Broadway and Friarsgate, with access from either end. This means that as well as being used as a traditional bus station, it also provides a north-south route for buses that means a section of Winchester's one-way system and the pedestrianised part of the High Street can be avoided. This means that buses can serve both Silver Hill and The Broadway without needing to u-turn on The Broadway, as would otherwise be the case.

The bus station has seven stands, labelled A to G, along its western side. These are used by services as shown in Figure 7. Buses drop passengers off at the bus station entrance, and drive onto these stands. Passengers are then picked up from this location, and buses reverse off the stand before departing the bus station. Buses also informally stand on the eastern side of the bus station, although it is understood that the bus station lease does not designate the area for this purpose.

As part of the work undertaken by Atkins on bus provision within the city centre, an analysis was carried out on the timetables of bus services using the bus station during the busiest hour of a typical weekday (please note that this analysis was carried out prior to changes to bus operations associated with COVID-19). The results of this analysis are shown in Figure 8, which demonstrates that for the vast majority of this hour, demand can be accommodated within the seven formal bus stands within the bus station. However, for a very short period there is a demand for additional bus standing, and the informal layover space on the eastern side of the bus station is utilised.

The bus station was modernised in 2017 and whilst it operates well as a transport interchange, the quality of environment for passengers is relatively poor, with narrow footways at the entrance, large amounts of hard surfacing and guardrailing, and no supporting facilities such as shops or cafes. From the bus station it is around a 180m walk (2 minutes 15 seconds) to the High Street, and around 400m-450m (5 to 6 minutes) to The Square and Winchester Cathedral.

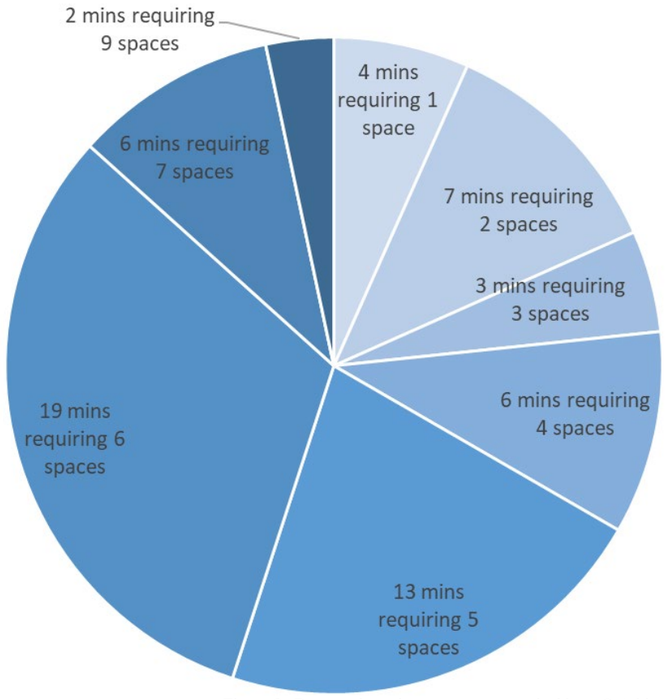

Figure 8– Bus stand requirement across a typical hour © Atkins

Figure 7– Winchester Bus Station stop / stand layout © Atkins

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Current Bus Operations

The Broadway and Silver Hill

In addition to the main bus station, there is an open-air 'bus station' at the eastern end of The Broadway. There are four bus stands on the southern side of the road (Stand B for Park and Ride services, Stand 5 for scheduled coach services and Stands 4 and 7 for local bus services) and a further two on the northern side (Stand 8 for Park and Ride services and an unnamed stand for tourist coaches). As the High Street is pedestrianised, buses or coaches using the stands on The Broadway all arrive from Eastgate Street / Bridge Street to the east, and either u-turn to leave to the east, or use the bus station to head north towards Friarsgate.

Bus operators have highlighted the u-turn on The Broadway as a safety concern for them, as the space available to perform the manoeuvre is limited, and when Stands 4 and 8 are occupied buses often have to perform a three-point turn instead. This means that buses and coaches are reversing towards pedestrians on the zebra crossing outside the entrance to Abbey Gardens.

The final set of bus stops within the scope of the study are three westbound stops on Silver Hill, between Middle Brook Street and St George's Street. Silver Hill is one-way westbound, and access is only permitted for buses, taxis, loading and permit holders, with no general vehicle access.

There are three bus stops on Silver Hill, which are used for pick-up ad set-down of passengers only, with no buses standing in this location. Although the Silver Hill stops are central and provide convenient access to the shops in the city centre, footways on Silver Hill are narrow and the presence of bus shelters narrows these even further. On the northern side of Silver Hill there is an obvious footway pinchpoint outside Primark. As a result, site observations show pedestrians walking in the carriageway during busy times.

Bus operators have also highlighted that servicing of the Marks and Spencer store on Silver Hill often takes place from the street, rather than from their off-street loading bay. This leads to HGVs blocking bus stops on Silver Hill.

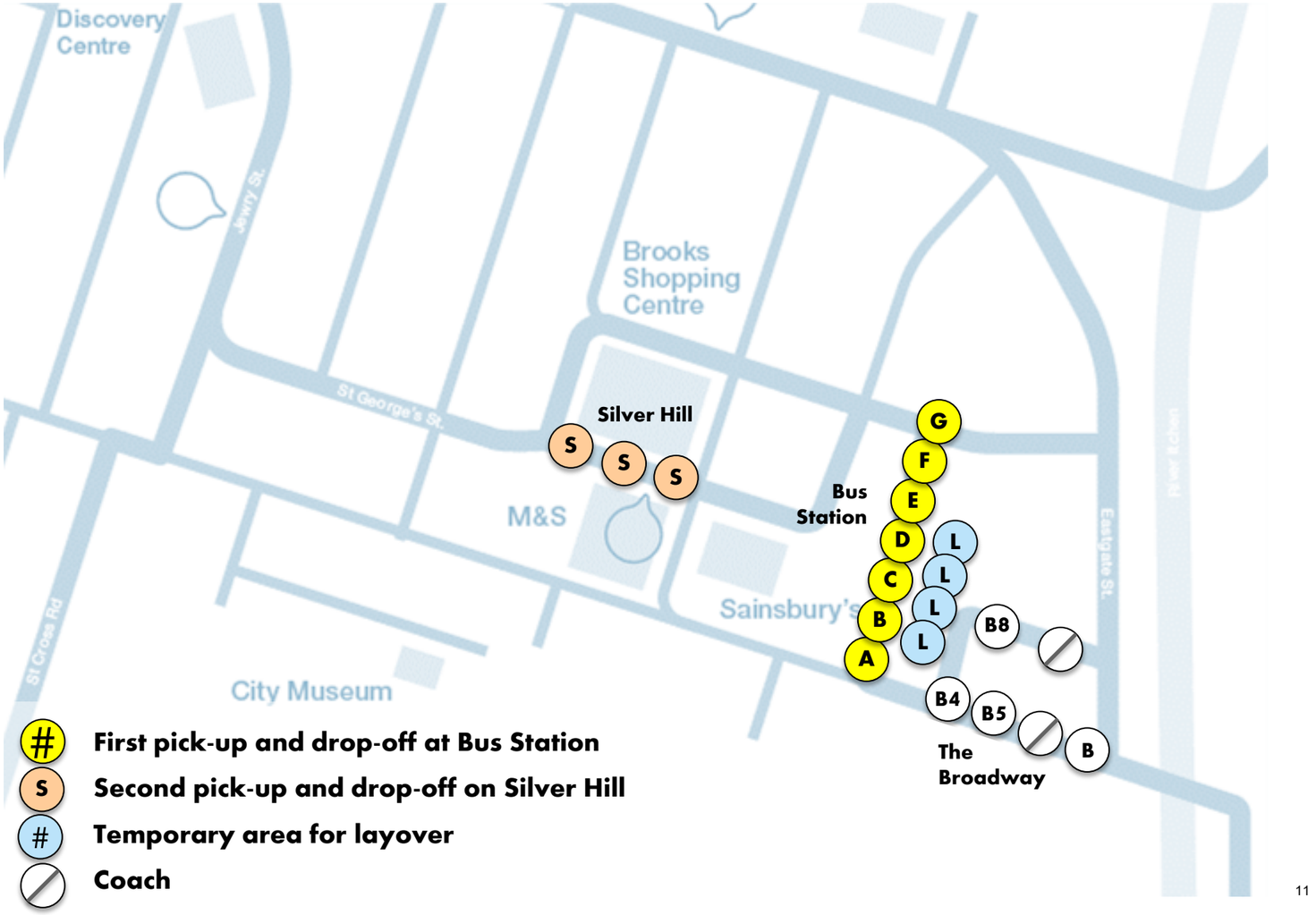

Figure 9– Current bus /coach stop and stand layout

Current Bus Operations

Requirements, Opportunities and Constraints

Requirements	Opportunities	Constraints
Winchester's current bus network provides a good range of services covering the diverse requirements of Winchester, including urban and rural services, park and ride and tourist coaches. Any strategy must deliver for this range of operators, all with their own requirements. Winchester's bus network has generally good penetration into the city centre, with reasonable walking distances from the bus station to the town centre. The strategy should not weaken these connections, and if possible improve them. The current bus network also serves multiple points in the city centre, with operators wishing to retain access to Silver Hill. The current bus station provides facilities for both alighting and boarding passengers, as well as standing for buses ending their route in the city centre. The strategy should make provision for both types of facility. The strategy must align with the requirements of the Winchester Movement Strategy, in terms of overall strategic approach, infrastructure changes and phasing. National Express coach services calling at Winchester are part of longer distance services between London and Southampton. Such services are sensitive to changes in journey time.	At present, the timing of services results in short periods where demand for standing exceeds formal capacity in the bus station, leading to informal bus standing on the bus station's eastern side. Through some minor retiming of services it may be possible to reduce the frequency of this informal bus standing, reducing the amount of bus stops and stands that are required around the city. One of the overall aims of the Winchester Movement Strategy is to reduce the dominance of vehicles in the city centre, and create additional space for sustainable modes of transport. One of the proposals is to reduce St George's Street to a single lane, which would create space for additional bus stops and stands. If St George's Street was changed in this way, there may also be further opportunities on Upper Brook Street. The proposals put forward as part of the Central Winchester Development Framework will improve the public realm in the city centre, which will improve the waiting environment for bus passengers. There are opportunities to create new dedicated coach waiting facilities which are integrated with building ground floors, should coaches be relocated to The Friary (dependent on Winchester Movement Strategy proposals for the wider city).	Winchester's medieval street pattern, one-way system and associated congestion mean that journey times into the city centre can be high, and contribute to journey time unreliability. This leads to increased bus stand requirements, as additional 'slack' has to be built into timetables. There is significant demand for kerb space within the city centre, in particular for public realm, servicing and taxi ranks. This reduces the space that is potentially available for bus stops and stands. The Winchester Movement Strategy is still evolving and there is uncertainty around the final arrangement of the city centre road network. Proposals must therefore provide flexibility and be deliverable within the project boundary. Safe entry and egress to/from foreign coaches needs to be considered.

Policy Background, Industry Trends and Case Studies

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Policy Background

Central Winchester Regeneration Supplementary Planning Document

A Supplementary Planning Document (SPD) for the Central Winchester Regeneration (CWR) area was adopted by Winchester City Council on June 20 2018. The CWR SPD supplements the policies within the adopted Local Plan (Parts 1 and 2) and sets out a vision, objectives and planning and urban design framework for the future development of the Central Winchester Regeneration area. The SPD also provides supplementary planning advice and guidance to prospective developers for regeneration within the city centre.

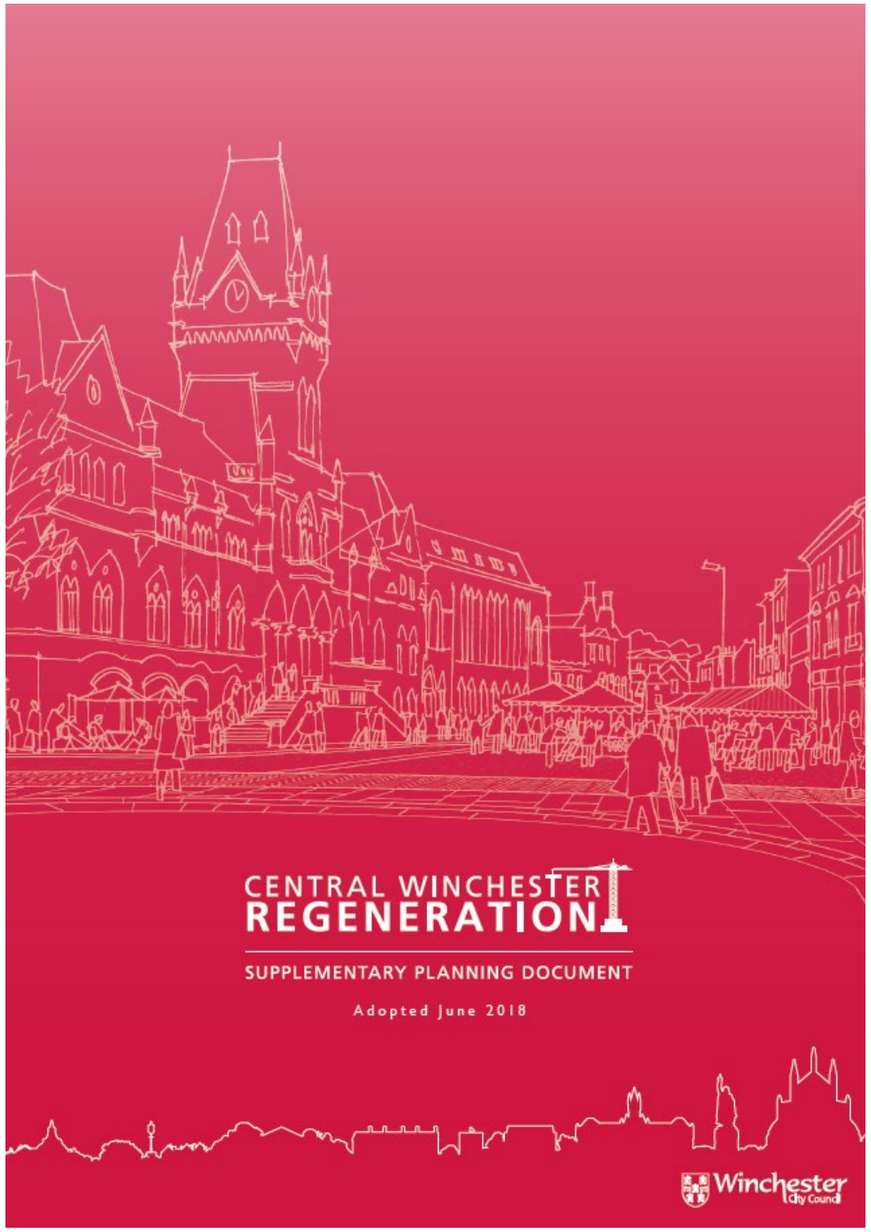
The SPD supports the creation of a mixed-use, pedestrian-friendly quarter in the city centre, with increased pedestrian permeability and accessibility. Suggested strategic improvements to city centre streets include reducing traffic flows across the area, rationalising bus and car movements, and rationalising and consolidating car parking in the city centre.

The SPD sets out a Public Realm Framework Plan, with guidance for specific streets and spaces within the town centre. This includes guidance for:

- The Broadway
- Lower High Street
- Tanner Street and Cross Keys
- Silver Hill
- Friarsgate

The SPD recognises the need to improve air quality in Winchester, and looks to achieve this through reducing reliance on car use. The SPD supports provision of better, more accessible bus services and facilities for users. The SPD supports the removal of the bus station to improve facilities for pedestrians and cyclists, but also recognises a preference in consultation feedback for bus stops to be removed from Tanner Street and Silver Hill if these are to otherwise have no access for traffic. It also recognises that for this to be possible, development sites elsewhere in the city centre will need to incorporate bus provision.

Finally, the SPD recognises that at the time of its publication, a Winchester Movement Strategy had not been brought forward. It recommends that the provisions of the SPD are reviewed in due course, following the publication of the Movement Strategy.



Policy Background

Winchester Movement Strategy

On 23rd April 2019 Hampshire County Council (HCC) adopted the City of Winchester Movement Strategy (WMS), endorsed by Winchester City Council (WCC). The WMS sets out an agreed vision and long-term priorities for travel and transport improvements in Winchester over the next 20-30 years. The overarching vision of the Strategy is to support economic prosperity for the city of Winchester, whilst at the same time enhancing it as a place where people can have an excellent quality of life.

During the development of the strategy, potential schemes were identified to help deliver the vision. Feasibility studies for some of these schemes, covering Park and Ride, walking and cycling, freight, buses and the public realm, are now being developed. Part of this work is the development of a Winchester City Centre Movement and Place Plan (MPP), seeking to reduce traffic levels in the city centre and reallocate road space to walking, cycling and public transport.

At the time of writing, three options had been put forward for the MPP, a base option and two more aspirational options. These are summarised overleaf.

All three options propose a reduction in carriageway width on St George's Street, which would be narrowed to a single lane. This would create opportunities for bus stops to be incorporated into an improved public realm, with greater space for walking and cycling. If taken forward, this could either supplement or replace some of the proposals for additional bus stops put forward as part of the CWR Bus Provision Study.

Although not explicitly considered in the MPP, if St George's Street is reduced to a single lane there is also no need for the southern part of Upper Brook Street (which forms part of the one-way system) to remain as two lanes. A reduction to a single lane for general traffic would allow either additional bus laybys along Upper Brook Street, or the creation of a bus lane containing bus stops.

All three options in the MPP also propose two-way working along Friarsgate. However, if this is taken forward the most westerly point from which drivers would want to travel eastbound is the exit from the Brooks Shopping Centre car park. As such, there may be potential to keep the part of Friarsgate west of this as a single lane and add one or more additional bus stops.

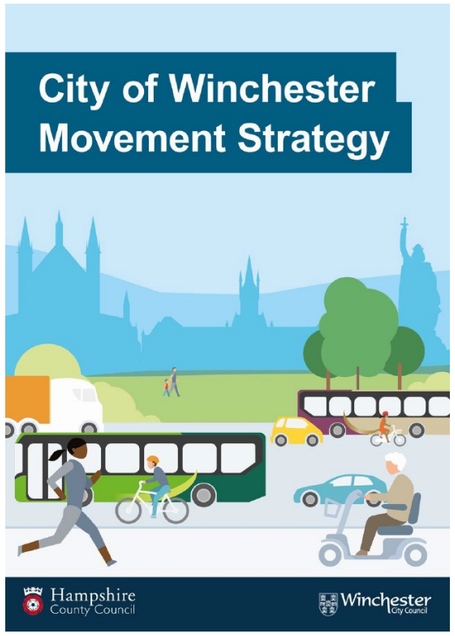
The change in the operation of Friarsgate to accommodate two-way traffic would not have a significant impact on bus operations. However, if this change is made there may be potential to accommodate one or more additional bus laybys on Friarsgate to the south of Middle Brook car park. This is however likely to be expensive due to the need to address levels differences in this location.

The MPP also proposes two-way movement on Eastgate Street. This would be a significant benefit to coach operations, as at present coaches entering the city centre from the south have to use the one-way system to exit to the north. If Eastgate Street was two-way, this would allow coaches to exit to the north along Eastgate Street therefore reducing coach mileage and associated impacts on air quality in the city centre.

There may be opportunities to relocate coach stops to The Friary and to provide waiting areas integrated into building footprints – thus enhancing the coach offer to/from Winchester. As National Express coach services calling at Winchester are part of longer distance Southampton-London services they are sensitive to journey time changes. Dialogue with operators suggests they would welcome new facilities if the journey tim impacts are minimised – however that cannot be confirmed at the current time as the MPP is still evolving.

From discussion with HCC and WCC, it is understood that the intention is to implement the outcomes of the final version of the MPP once a Highways England scheme for Junction 9 of the M3 is implemented. This scheme is anticipated to reduce congestion in the city centre, enabling the reduction in roadspace which can then be reallocated to other modes.

Highways England carried out statutory consultation on the scheme in summer 2019. A further consultation, on proposals that have been updated to take account of feedback received as part of that consultation is expected later this year. At present, Highways England state that work on the project will commence in 2023/24 and finish beyond 2025.



Policy Background

Winchester Movement Strategy

	Option 1 (base)	Option 2a (aspirational)	Option 2b (aspirational)
Jewry Street	Reduced to single lane	Reduced to single lane, bus access only	Reduced to single lane, bus access only
St George's Street	Reduced to single lane	Reduced to single lane	Reduced to single lane, bus access only
North Walls	Reduced to single lane	Reduced to single lane	Two-way movement
Friarsgate, Union Street and Eastgate Street	Two-way movement	Two-way movement	Two-way movement

Table 1 – Winchester Movement Strategy options

Industry Trends

Bus Market Trends – Bus Technology

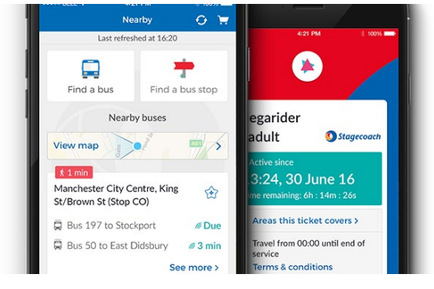
Low and Zero Emissions Vehicles

In recent years, a variety of low emission technologies and fuels have entered the bus market, including hybrid vehicles (that run on both diesel and electric), pure electric vehicles, biomethane buses and hydrogen-powered buses. All of these technologies offer the potential for lower Greenhouse Gas emissions and cleaner air in city centres.

Caerphilly in Wales is planning to be the country's first electric bus hub by the end of the year, after placing an order in conjunction with their operator, Stagecoach, for 16 fully electric single-decker buses. Caerphilly Council are anticipating that this will reduce CO2 emissions by 572 tonnes per year, in comparison with a traditional electric bus.

However, the move to electric buses requires careful planning. An example of a successful scheme is the introduction of electric buses on York's Park and Ride service, using Metrodecker vehicles with a 150 mile winter range. Services have been planned with a 145 mile maximum run length per day, meaning buses can be recharged at the depot overnight. York have however installed a single rapid charger for contingency use.

We understand there are no current plans to move to low or zero emission services in Winchester, but consideration should be given to the future proofing of infrastructure, with provision of ducting at bus layover areas so that charging can be introduced at a later date.



Mobile and integrated ticketing

The UK is moving towards being a cashless society, with cash use declining 14% over the last five years, according to the British Retail Consortium. This has been accelerated by Covid-19, with LINK reporting the ATM use dropped by 50% in the early stages of the pandemic.

Public transport operators are increasingly moving towards contactless and app based systems, with Transport for London stopping cash payments on buses in 2014. Digital payments also have the benefit of lowering overheads for operators, as well as reducing boarding time and therefore dwell times at stops.

Mobility as a Service (MaaS) is also a concept that is becoming more prominent, with Transport for Greater Manchester trialling an app that allows access to car hire, car clubs, trains, buses and trams and to pay for travel using a phone.

This move towards contactless and digital ticketing makes access to phones and data more important to ensure access to public transport, and as such new shelters should incorporate measures such as wifi and USB charging ports. It also reduces boarding times as ticket purchases are automated, and this in turn reduces stop dwell times.

Dual and multi-door bus boarding

Bus operators in the UK are moving towards vehicles with multi-door boarding, which ranges from vehicles with a central door for alighting passengers (leaving the front door for boarding) to vehicles with three doors, all of which can be used to board or alight.

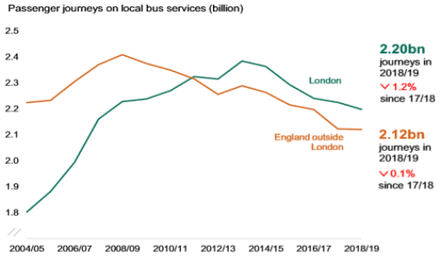
The primary benefit of multi-door boarding is that it reduces dwell time at bus stops, making services less prone to delay and more efficient. It can also help in maintaining social distancing on buses, as a one-way system can be implemented (to some extent0 on the bus.

A move to multi-door boarding can however require work to bus stops, to ensure that kerb heights are suitable for DDA compliant access. It also reduces seated capacity on buses, although overall capacity can be maintained by additional standing space.

It is understood that operators in Winchester have no plans at present to move to multi-door boarding due to impacts on seated capacity. However, when implementing new bus infrastructure, bus stops should be designed to allow multi-door boarding in future.

Industry Trends

Bus Market Trends – Demand and Service Provision



Falling bus revenue

From a peak of over 2.4 billion passenger journeys in 2008/09, the number of bus passenger journeys made each year has been in steady decline across the UK. This reflects a fall in bus mileage across the same period, which may be in response to reduced amounts of council subsidy for services as funding is diverted elsewhere.

Falls in both patronage (and therefore ticket revenue) and subsidy have meant that in many areas services have been withdrawn or cut back, but we understand that Hampshire is outperforming the national average and that passenger journeys over recent years have been largely stable.

However, the impacts of Covid-19 on public transport patronage are yet to be fully understood, and the potential for further reductions in service will need to be considered as the CWR Bus Provision Study is taken forward.

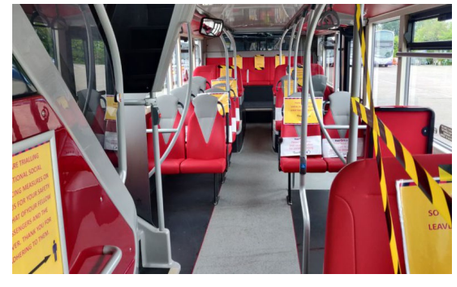
With regards to the study it has been assumed that bus demand will at a minimum, be maintained at existing levels, and future capacity has been considered based on discussions with operators and forecasts from the WMS. The timing of any such capacity improvements is unknown due to Covid-19 impacts.

Bus network integration

Historically, many bus services have operated on a ‘hub and spoke’ model, with services being run into and out of a city or town centre. This approach responds to typical travel demands, as our centres tend to be the places with the most jobs and greatest retail offer, meaning that these are key destinations for a public transport network.

However, having buses begin and end routes in city centres means there is a greater requirement for space for buses, particularly on highway. Buses need to stand between terminating and starting a new route, and drivers need facilities such as canteens and bathrooms. This model also means that passengers who have destinations beyond the city centre have to change services, leading to less direct journeys.

In response to competing demands for highway space in city centres, bus operators and local authorities are now increasingly moving towards an approach of cross-city services, meaning the buses can continue to serve both inner and outer areas, but standing services on the edges of towns where competition for space is lower. However, it is understood that there are currently no plans to adopt this approach in Winchester, in part due to concerns from operators over congestion in the city centre.



Social distancing

Covid-19 has led to rapid changes in the way that people are travelling in the UK. Lockdown, increased levels of home working and concerns over social distancing have led to sharp decreases in public transport use, and where people continue to travel there appears to be a greater prevalence of walking, cycling and car use.

Masks are currently compulsory on public transport in the UK, and social distancing means that the passenger capacity per bus has been significantly reduced, with most bus companies restricting the amount of seating available on services and preventing passengers from standing. This has led to reduced patronage and therefore income.

Even if restrictions begin to be eased in the near future, the long term implications for travel in the UK remain to be understood. Increased levels of home working and internet shopping may result in permanent changes in travel behavior, with a recent survey by the transport consultancy Systra suggesting that 20% of people who were previously regular public transport users will use it less in future. Press statements by operators, including Stage Coach, have commented on a likely long term reduced in demand.

Learning Lessons from Elsewhere

Case Studies: Bath, Somerset

The historic city of Bath has a population of around 90,000 people. It is similar to Winchester in that its historic centre attracts tourists from outside the area and provides the centre with a strong sense of character, whilst in transport terms acting as a constraint due to a historic street pattern and narrow road widths. The city also has strong inbound and outbound commuting patterns, as well as students from the two universities.

In 2007, the city demolished the old bus station at Manvers Street, and constructed a new bus interchange at Dorchester Street at the southern edge of the city centre nearer to the railway station. The new interchange consists of two parts that share a station concourse. The new bus station formed part of the wider SouthGate regeneration scheme, replacing a shopping centre on the southern side of the city as well as providing new homes and a car park.

The first part of the new bus station is a series of on-street bus stops along Dorchester Street. These serve local cross-city routes between suburban areas in Bath. Benches are provided for waiting passengers, who can also make use of the facilities in the adjacent bus station.

This off-street bus station has 16 stands for coaches and long-distance buses to areas outside of the city. The bus station is sheltered from the weather, and provided with benches and service information for passengers. The bus station is only open to scheduled services, with charter and tourist coaches required to pick up and set down on specific roads within the city centre before parking at either the Odd Down Park and Ride site or a depot the outskirts of the city centre.

Whilst Bath retains a bus station for longer distance services, it demonstrates how moving infrastructure for local services on street can reduce the dominance of bus infrastructure in the context of a historic city, freeing up city centre land for new homes and to strengthen the role of the city as a destination.

Figure 10 - View of bus interchange from Dorchester Street

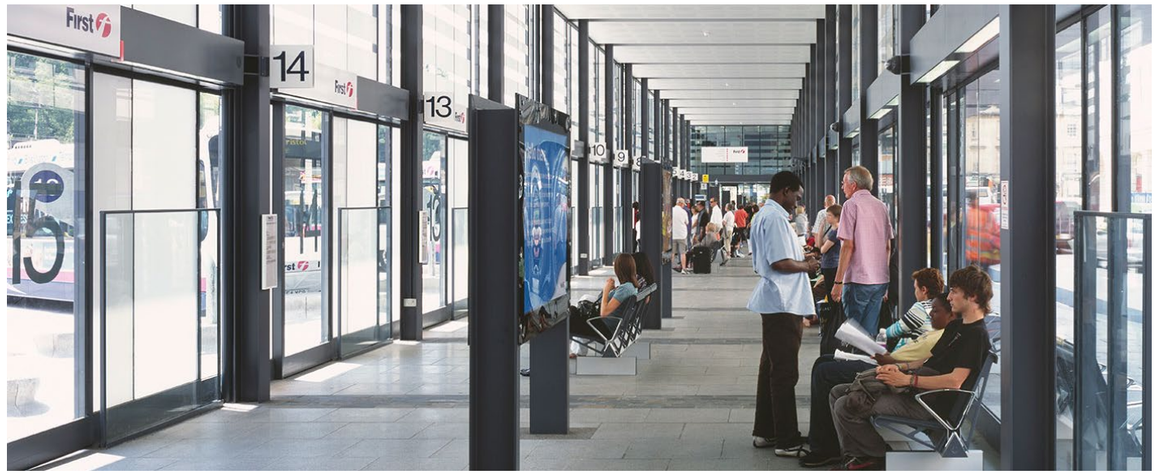


Figure 11 - Bath Bus Station Concourse © *Wilkinson Eyre*

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Bath, UK

Figure 12 - Bath: Old bus station and on-street bus stops

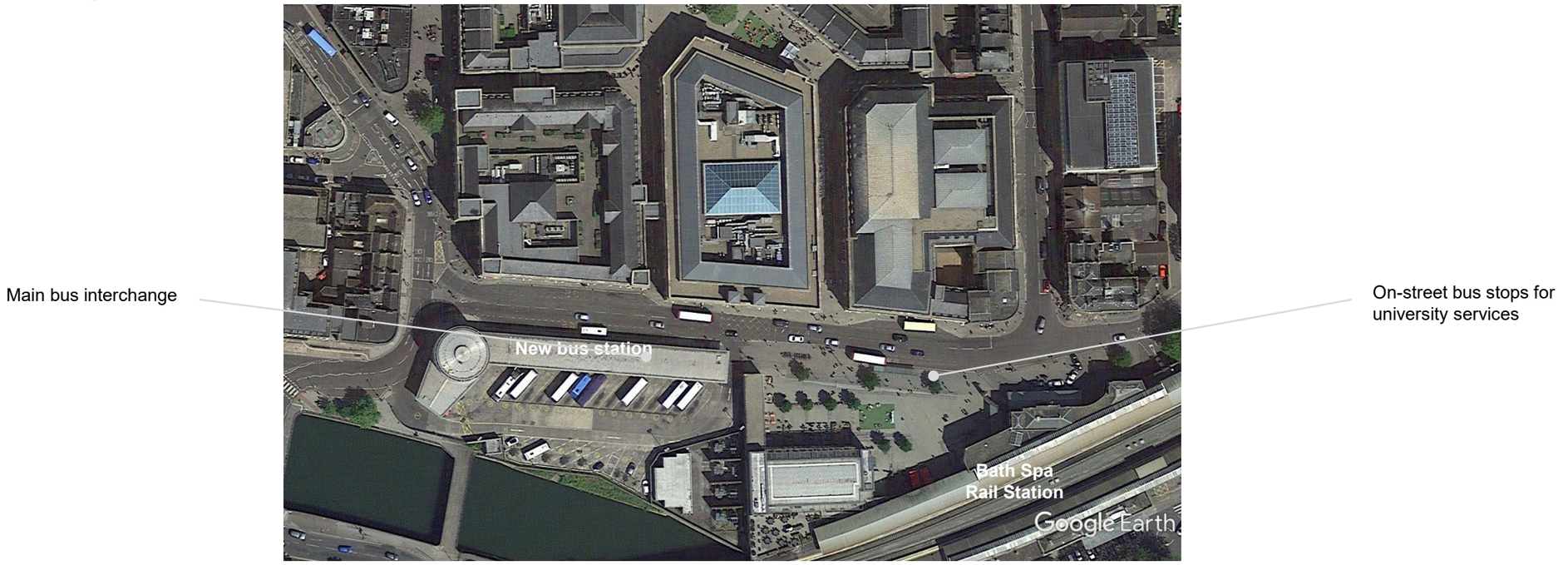

Figure 13 - Bath: New bus station and on-street bus stops

Learning Lessons from Elsewhere

Case Studies; Ealing Broadway, London

Ealing is a major west London town centre, with Ealing Broadway being its central rail and London Underground station, located adjacent to the main Broadway shopping area. At present the station is served by two underground lines, and more than 40,000 people enter and exit the station each day. The introduction of Crossrail services in 2021/22 is expected to further increase demand at the station. It was identified that more space for pedestrians was required outside the station, both for people arriving on foot and boarding and alighting buses, as well as by bike.

There is no central bus station within Ealing, with Ealing Broadway acting as the focal point for bus services. There are 13 routes serving the station from multiple directions, with stops and stands grouped in three clusters around the station depending on the direction of the destination of each service. Combined, the 13 routes serving Ealing Broadway carried more than 42m passengers in 2018/19., and a number of routes terminate here.

The public realm proposals for the station remove the existing drop-off loop immediately outside, moving bus stops onto roads around the station and town centre. This allows more space for pedestrian movements in and out of the station as well as a grater concentration of cycle parking. Signalised crossings are proposed on roads around the station to make it easier for passengers to access bus services and taxi ranks. Bus stops are also being moved out of laybys and into the carriageway to give bus services greater priority, as well as creating additional footway capacity and green space.

Ealing Broadway demonstrates how on-street bus infrastructure can be made to work in the context of a public realm scheme aimed at reducing the dominance of vehicles in a town centre, creating new spaces and places for people on foot.

Figure 14 - Ealing Broadway public realm masterplan © London Borough of Ealing

Figure 15 - Render of proposed public realm improvements © London Borough of Ealing

Learning Lessons from Elsewhere

Case Studies: Brighton, East Sussex

In the context of declining bus patronage and cuts in services across the UK over the last ten years, **Brighton and Hove** has been a success story. The city has the highest number of bus journeys per head of any other local authority outside London, and has increased the number of journeys made by 50% in the last ten years.

However, although services are run from three depots in the city, Brighton does not have a bus station – the Pool Valley 'bus station' is only used by National Express services and is a collection of open-air coach stands with no supporting passenger facilities.

Instead, buses run around the city and out to East and West Sussex. Bus stops in the city centre are concentrated on the two main shopping streets of North Street and Western Road, providing easy access to the main shopping centre, Churchill Square. Bus stands are provided on street, in a location on Dyke Road that is set back from the main shopping area and allows buses to loop using roads with fewer pedestrians before re-entering the central area.

However, Brighton's success in increasing bus patronage shows the importance of a holistic approach to provision of bus services. Brighton has invested heavily in bus priority, with 20km of bus lane in the city including continuous provision on many of the key arterial routes into the city centre and the first 'floating' bus stops in the UK. There has also been an emphasis on the passenger experience, with upgrades to bus shelters (including the provision of real time information) across the city and all three operators having agreed to sign up to an integrated smart ticketing scheme. Around 80% of passengers now use cashless ticketing on buses.

Brighton has also established an informal Quality Bus Partnership with the three bus operators, which has led to a number of successful joint bids for DfT and EU funding. It has also enabled the council to establish measures such as a city centre bus-based Clean Air Zone, with all bus companies now using Euro 6 vehicles. Big Lemon, one of the smaller operators, also introduced the UK's first solar bus in 2019; an all electric bus operating on Route 52 which is charged using solar panels mounted on the roof of Big Lemon's depot.

Figure 16 - On-street bus stops on Western Road, Brighton city centre © Southern England Bus Scene

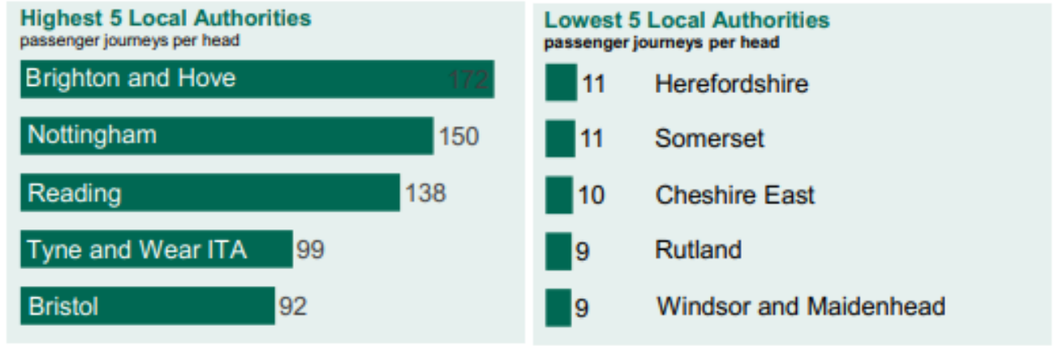

Figure 17 - DfT data on bus use per head in local authority areas across the UK

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Case Studies: Bus Network and Interchange

Valence, France

Valence is a historic town in the south of France with a population of around 60,000 people, although a total of 250,000 people live in the wider Valence region. In 2009, the local commune government introduced a new bus network called 'Citéa' to provide 3 frequent cross-city routes, replacing 6 separate radial services. The 3 routes are supported by a wider network of less frequent cross-city and orbital routes. Despite the consolidation of services, 85% of residents and 90% of jobs are located within 5 minutes walk of a stop.

Shortly after the introduction of the new network, the overall network received a 5% increase in ticketing revenue due to increased patronage. An increase in the number of season tickets being sold has also meant that Citea has been able to drop their prices, with the cost of season tickets falling on average by 30% over the last two years.

In Valence town centre, the 'Pôle Bus' (bus hub) is an on-street interchange, at which two sets of bus stops are provided on both side of the interchange street – providing passengers with a convenient and easy-to-understand bus to bus transfer point. This is supported by a two-floor ticket office, offering real time information on bus services throughout the wider Valence region. Additional services are being added through 2019 and 2020, including the introduction of the town's first Park and Ride site, incorporating a car club and cycle hire.

Valence demonstrates that consolidation of services and network integration can support changes to on-street bus stops and infrastructure, whilst remaining well used by passengers.

Figure 18 - Citéa bus in Valence

Figure 19 - On-street bus shelters in Valence

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Case Studies: Bus Network and Interchange

Cardiff, UK

Cardiff Central bus station, which had 34 stands, closed permanently in 2015. Partial demolition of the bus station began in 2008 to make way for a redevelopment, with the original intention that a replacement facility would be completed in 2014. However, work on the replacement bus station eventually started in December 2019 and is not anticipated to be complete before 2023.

To provide an interim solution, bus stops and stands were relocated to roads on the perimeter of the pedestrianised city centre, including Westgate Street and Churchill Way. However, this was done using existing infrastructure wherever possible as this was intended to be a low-cost temporary solution. As a result, many users consider the current arrangement to be a step backwards, with increased walking distances to destinations such as Cardiff Central station. The council-owned Cardiff Bus company has also posted losses in 2017/18 and 2018/19, and had to cut services as a result. It blames this on the loss of the central bus station.

Whilst the other case studies in this report show that bus services can operate very successfully without a central bus station, Cardiff shows the risks of moving to an on-street solution without proper planning. The location of bus stops needs to respond to passenger demands, and needs to be designed with high-quality infrastructure. Cardiff also shows the importance of considering phasing when developing a strategy, in order to ensure that new infrastructure is ready for use ahead of old infrastructure being decommissioned.

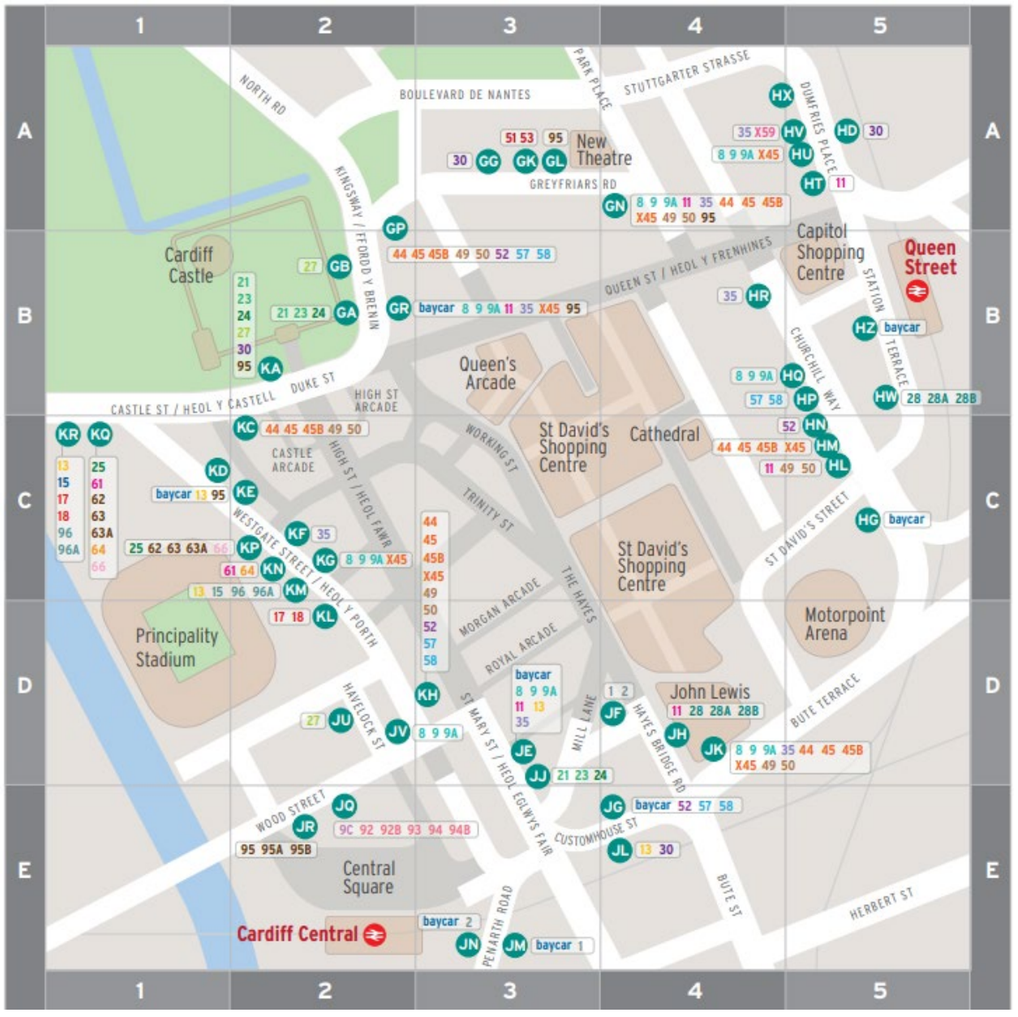

Figure 20 - Cardiff bus map

Process and Engagement

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CWR Bus Provision Study

Introduction to the Study

Having undertaken research to understand the current bus and movement network in Winchester, determine the policy context for the study, and learn lessons from elsewhere, the remainder of this report sets out the work done to develop the preferred approach to bus provision in the city centre. Firstly, the key roads in the city centre were assessed to determine the potential for additional bus stops or standing. Where options to provide additional bus laybys were identified, these were assessed in terms of their impact on bus operations, impact on other transport modes in Winchester, and feasibility.

Next, Arup undertook work to determine how many bus stands and stops would be required. Although the Winchester Movement Strategy had already considered current bus stop and stand requirements, we investigated the potential for minor changes to service provision to increase the efficiency of services, and where this was felt to be feasible it was discussed and agreed with operators.

Based on where bus stops and stands can be accommodated, and the number of them required, we have then put forward both a preferred and alternative strategy. These two strategies are consistent in respect of how provision for bus services will be made, but have different solutions for the coach services that currently use The Broadway. Further engagement with coach operators has been undertaken but analysis is required from the WMS to confirm journey times associated with any relocation of coach stands. It has therefore been assumed that coaches will remain in The Broadway for the foreseeable future.

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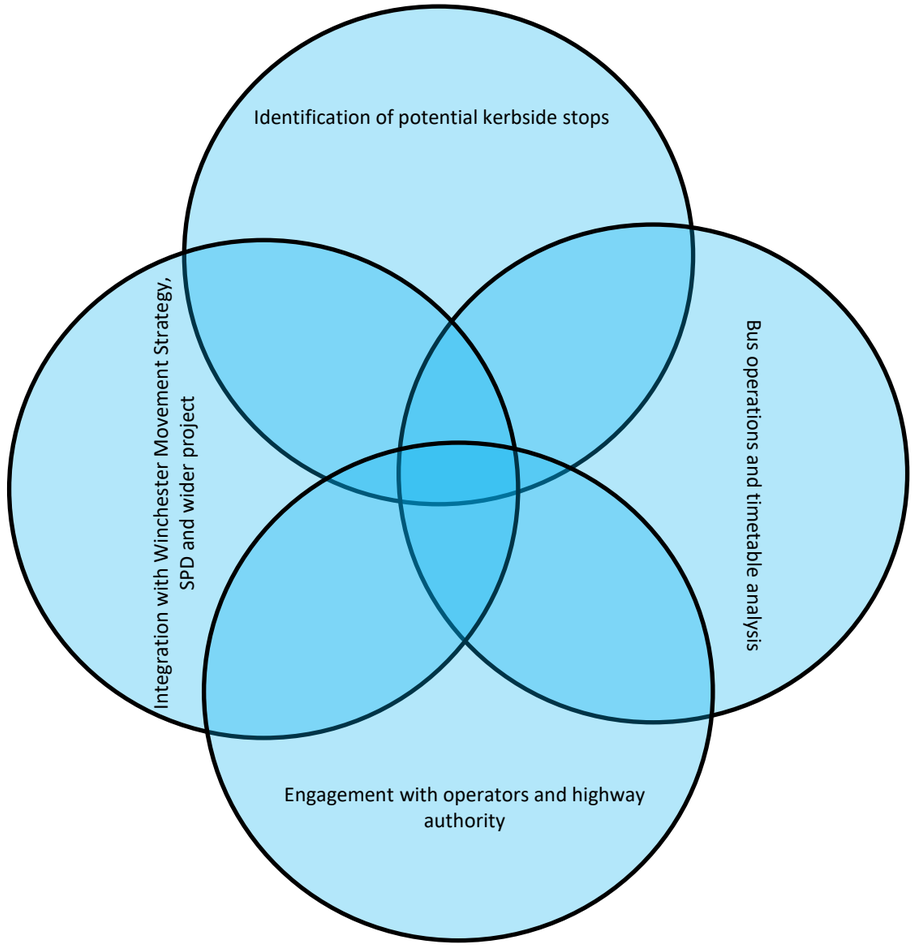

Figure 21– Strategy Approach

Engagement

The development of the CWR Bus Provision Study has been subject to extensive engagement, including a number of meetings with Winchester City Council, Hampshire County Council, National express and both bus operators for the area. Table 2 sets out the meetings that have taken place that have been used to inform and develop the strategy.

Title	Date	Attendees
Initial call with Winchester bus operators	18/05/2020	Stagecoach, BlueStar, Arup, WCC Client Team
Initial bus workshop with operators	05/06/2020	Stagecoach, BlueStar, Arup, WCC Client Team
Follow-up bus workshop with operators	11/06/2020	Stagecoach, BlueStar, Arup, WCC Client Team
Follow-up bus workshop with operators	11/06/2020	Stagecoach, BlueStar, Arup, WCC Client Team
Bus timetable session with Stagecoach	11/06/2020	Stagecoach, Arup
Bus workshop with operators and HCC	29/06/2020	Stagecoach, BlueStar, Arup, WCC Client Team, HCC, Atkins
Follow-up bus workshop with operators and HCC	20/07/2020	Stagecoach, BlueStar, Arup, WCC Client Team, HCC, Atkins
Winchester Movement Strategy Integration call	31/07/2020	Arup, WCC Client Team, HCC, Atkins
Winchester City Council Cabinet Briefing	25/08/2020	Arup, WCC Client Team, WCC Cabinet
Winchester Movement Strategy Integration call	27/08/2020	Arup, WCC Client Team, HCC, Atkins
Winchester Movement Strategy Integration call	08/10/2020	Arup, WCC Client Team, HCC, Atkins
Coach Operator Engagement Session	15/10/2020	Arup, WCC Client Team, HCC, Atkins, National Express
Winchester Movement Strategy Integration call	15/10/2020	Arup, WCC Client Team, HCC, Atkins

Table 2 – CWR Bus Provision Study engagement

Potential Stop Locations

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CWR Bus Provision Study

Friarsgate (east of Tanner Street)

The redevelopment of the area to the south of Friarsgate, and the subsequent removal of the exit from the bus station and Coitbury House, means that there are opportunities to introduce new bus laybys on the southern side of the carriageway, providing that any new building plots are sufficiently set back to provide sufficient width.

To the east of Tanner Street, there is around 115m of continuous kerb space that could be utilised for bus stops, with access to a small car park on the Friarsgate/Eastgate corner maintained. There is a culvert over the River Itchen towards the western extent and widening of the culvert to provide a stop (shown as 16 on Figure 22) has been ruled out based on engineering, cost and placemaking grounds. A general arrangement has therefore been developed for four laybys along Friarsgate (Stops 6-9 on Figure 22). This is shown in Appendix A and has been tested using swept path analysis to show that it can be used independently by four buses (i.e. all four buses can enter or leave the layby with stationary buses in front or behind). Buses would then be able to leave the stop and turn left onto Tanner Street to continue towards the town centre.

During engagement with bus operators, concerns were raised with regard to the distance of stops on Friarsgate from the town centre. As such, a comparison has been carried out against the existing bus station, detailed in Figure 23 (overleaf). This shows an additional walk of around 70 seconds through the relocation of stops to Friarsgate. However, through the development proposals the walking environment would be significantly improved, with a better public realm, greater pedestrian permeability and more activity, including new shops and cafes. As such, the impact of a slight increase in walking distance to the city centre is considered negligible. There are also decreases in walking distance where stops are re-provided along Silverhill or Tanner Street. It should also be noted that buses will continue to stop at Silverhill (three existing stops).

Footway widths would need to be taken into consideration, both from the perspective of construction phasing and the design of any new development. With the current building line in place, there would not be sufficient space to provide a bus layby, a bus shelter and maintain sufficient footway space to meet DfT minimum requirements (which state that 2m should be provided to allow two wheelchair users or pushchairs to pass each other).

When overlaid with the initial development proposals, there is also a pinchpoint between one of the proposed bus stops (Stop 9) and Block G, where it would not be possible to maintain sufficient footway width. However, this would only require relatively minor changes to the block to be able to accommodate a wider footway.

As discussed later in this report, construction phasing would also need to be taken into account as it is likely that closure of the bus station, and subsequent removal of the existing bus station egress onto Friarsgate, would be required to deliver stops in this location. It should also be noted that the bus station egress provides access to the St Clement's Surgery car park, and discussions would need to be held with the surgery over access if this is to be retained. If an access into the surgery car park from Friarsgate is required, then even with the closure of the bus station it is likely that Stop 8 could not be provided (it therefore is identified as a long term aspiration only). Further design work would be needed to determine whether an access could be retained safely with Stops 7 and 9 in place.

Figure 24 shows indicative cross-sections of the proposed bus infrastructure in the context of the proposed development, demonstrating that sufficient footway width can be made available.

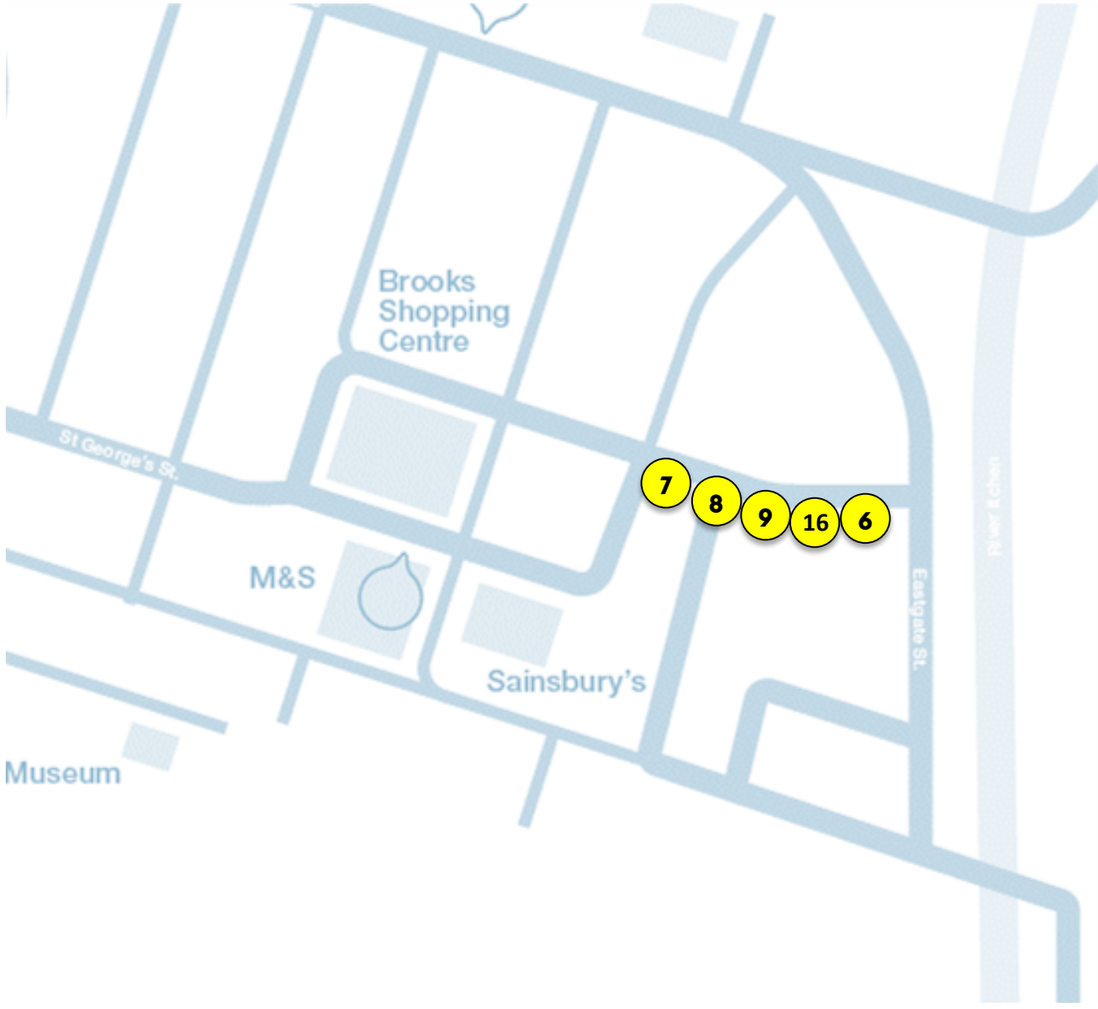

Figure 22– Potential bus stop locations on Friarsgate (east)

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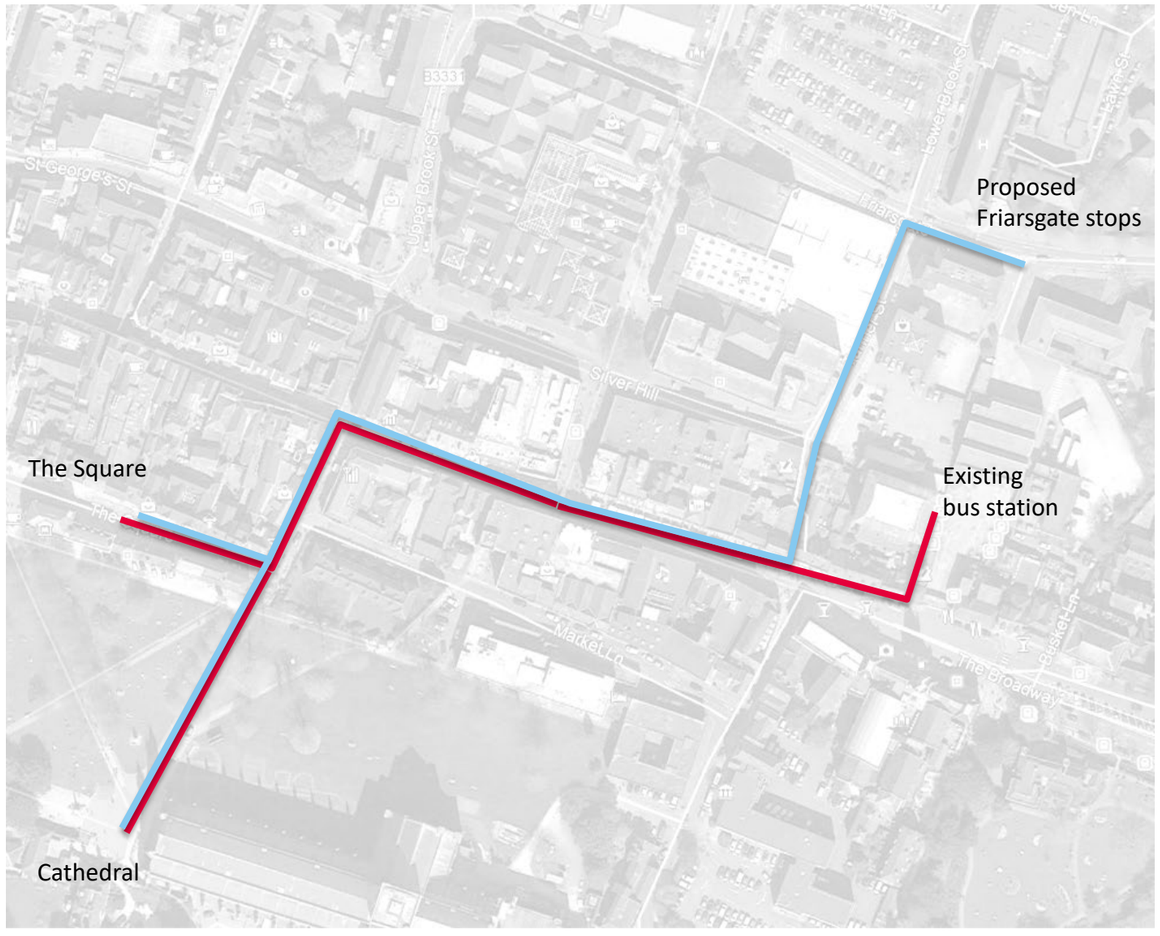
CWR Bus Provision Study

Friarsgate (east)



Destination	Existing Bus Station	Proposed Friarsgate Stops	Difference
High Street	180m (2:15)	275m (3:25)	+95 (+70 secs)
The Square	400m (5:00)	495m (6:10)	+95m (+70 secs)
Cathedral	450m (5:40)	545m (6:50)	+95m (+70 secs)

*Typical walking distance 80m per minute.
Average position of Friarsgate stops assumed (other stops are within 45m of this location).

Figure 23– Changes in walking distance between bus stops and town centre with relocation from bus station to Friarsgate, plus images of potential public realm

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CWR Bus Provision Study

Friarsgate (east)

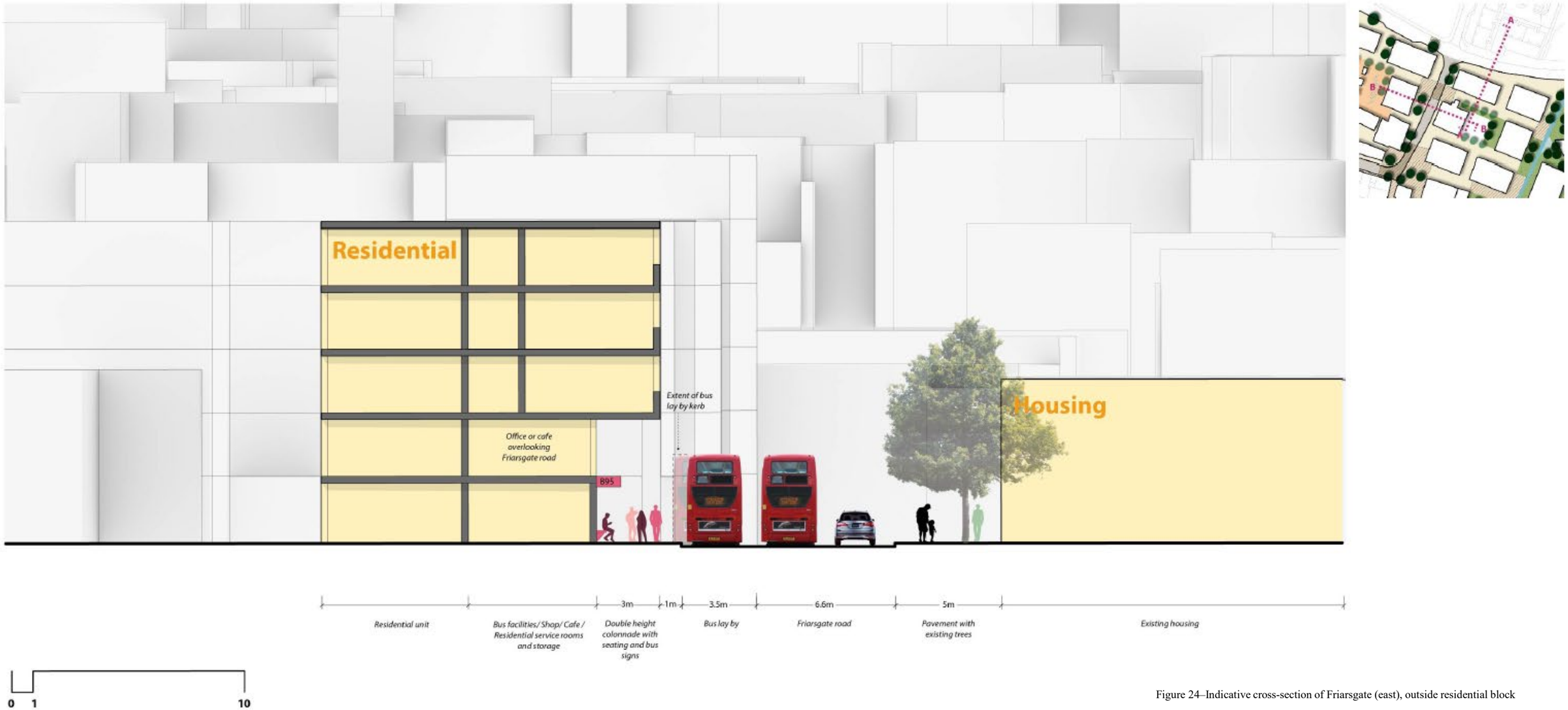

Figure 24–Indicative cross-section of Friarsgate (east), outside residential block

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CWR Bus Provision Study

Friarsgate (west of Tanner Street)

To the west of Tanner Street, a layby accommodating two bus stops could be provided, outside the current Iceland store. Appendix A shows a layout that has been developed and tested to demonstrate that these two stops can operate independently of one another. However, because of the nature of the one-way system in the city centre, any buses that use this stop would not be able to subsequently use the bus stops on Silver Hill. As such, it is considered that stops in this location are better suited to coach use than bus use. As such, they have also been tracked to ensure that they are suitable for use by coaches.

At present, the location for these laybys also conflicts with an existing layby used by Iceland for servicing. Discussion with Iceland would be required if it was proposed to introduced this layby while the store is operating. If a standalone layby for servicing is required then it would only be possible to provide a single bus/coach stop in this location. Alternatively, it may be possible to provide a shared use bay, potentially allowing use by coaches during the day and for servicing early in the morning or later in the evening when demand for use by coach services is lower.

At this location there would be an opportunity to provide high quality coach passenger facilities, potentially incorporating these into building frontages. Overall the opportunity exists to provide coach users with a step change improvement in facilities at a new location closer to key destination. However this will be dependent on the final road network adopted in Winchester and the associated coach journey times.

For the purposes of this study, these stops are considered only suitable for short term use by coaches or buses as part of phasing construction works. In the longer term there remains options for bus or coach stands at this location with this to be considered as part of ongoing engagement with the WMS project.

Figure 26 - Iceland loading bay on Friarsgate (image from Google Streetview)

Figure 25– Potential bus stop locations on Friarsgate (west)

CWR Bus Provision Study

Upper Brook Street

There is potential for two bus stops with laybys on Upper Brook Street, whilst maintaining two lanes of general traffic.

A general arrangement, showing that these can operate independently, is included in Appendix A. As with the bus stops on the western part of Friarsgate, buses using these stops would not be able to access Silver Hill, although given that these would be located further east and closer to the main destinations in the city centre, this is considered less of an issue. A stop at the southern end of Upper Brook Street is considered favourable by bus operators due to the proximity to Silver Hill.

However, cost may be an issue which would make provision of these stops less attractive. Site observations show drainage gullies in the carriageway on the eastern side of Upper Brook Street as well as covers for statutory undertaker's plant in the footway. Further analysis would need to be undertaken if these stops were to be brought forward, but the relocation of drainage and utilities could add considerably to the cost of provision in this location.

Also of note is the potential for this part of Upper Brook Street to be reduced to a single lane as part of the Winchester City Centre Movement and Place Plan. As outlined on page 16, this could follow on from proposals to reduce carriageway width on St George's Street to a single lane, in order to create additional space for pedestrians and cyclists. This would subsequently allow a similar reduction in carriageway space on Upper Brook Street and the potential for multiple stands (approximately four stands) within a bus only lane, or additional laybys beyond the two identified here. However, it is understood that this could only happen once improvement to Junction 9 of the M3 are carried out, which will not be complete until post-2025.

For the purpose of this study it has been assumed that Stop 14 could be constructed – and used as a short term measure to facilitate construction phasing elsewhere in the project.

Once longer term plans relating to St George's Street and Upper Brook Street are understood, additional space for bus stops / stands can be incorporated into proposals for Stop 15 rather than this stop being brought forward, at considerable expense, as a standalone scheme that may subsequently be superseded.

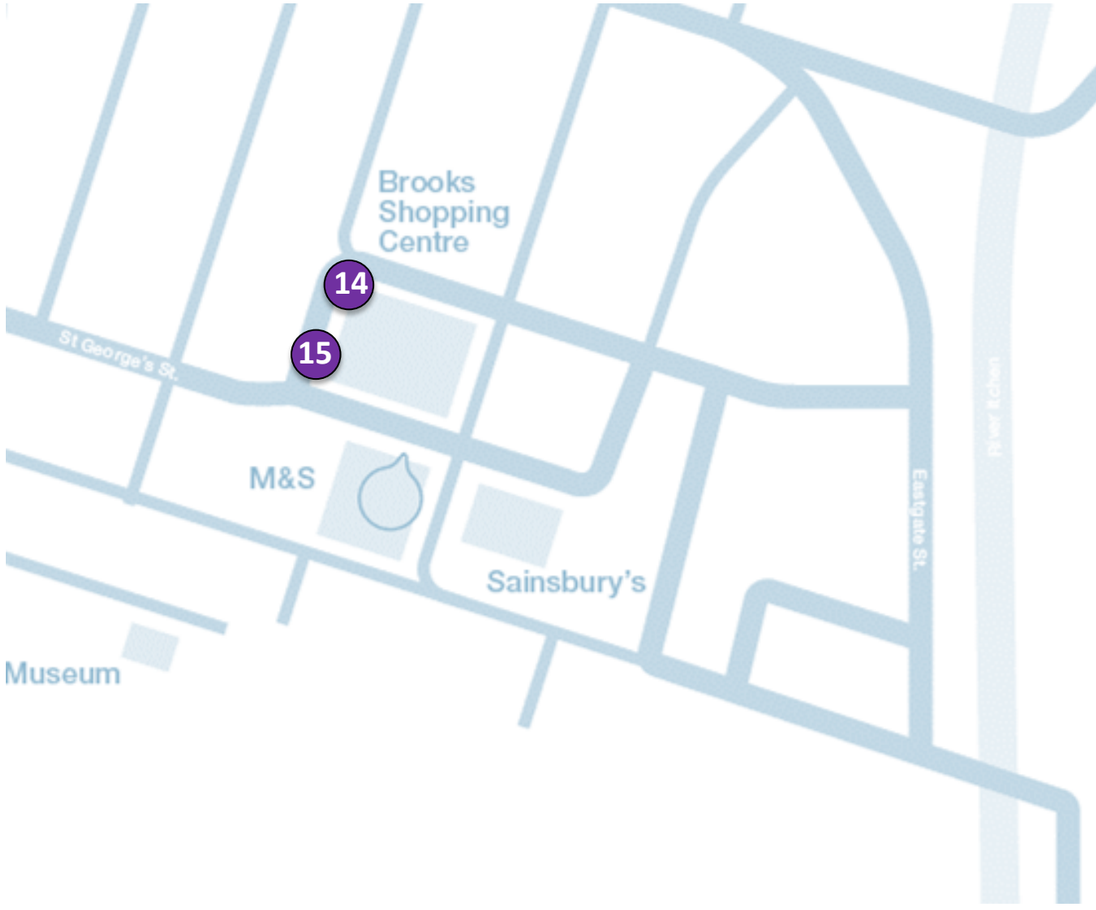

Figure 27– Potential bus stop locations on Upper Brook Street

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CWR Bus Provision Study

Tanner Street

The redevelopment of the land to the east of Tanner Street also provides opportunities for new facilities for buses to stop and stand. At present, Tanner Street operates as a two-way road, but connects to Silver Hill, which (west of Middle Brook Street) operates as one-way westbound. As such, the only northbound traffic on Tanner Street is traffic leaving the existing private car parks to the east of Tanner Street, or other private premises along Tanner Street or the eastern part of Silver Street. As such, Tanner Street could be made one-way southbound without a significant impact on city centre traffic.

If Tanner Street were to be made one-way southbound, the existing southbound carriageway could be used for bus standing / stopping. Two bus stops can be accommodated, with large vehicles still able to pass stationary buses. Consideration has been given to accommodating bus stops whilst retaining two-way operation, but vehicle tracking and consideration of visibility splays and vehicle speeds has demonstrated that this cannot be achieved safely (included in Appendix A).

If bus stops are to be provided on Tanner Street, consideration would need to be given to pedestrian desire lines crossing between the eastern and western parts of the development to ensure that crossing points can be catered for away from bus stops. In the short term, it is also noted that Plot H1 is proposed on the site of the current St Clement's GP Surgery, and it is understood that this may be a longer term development aspiration. As such, in the short term consideration would need to be given to the design and layout of any new bus stops to ensure that sufficient footway space is available for pedestrians walking past the surgery.

Proposals for the strategy are therefore for Tanner Street to be southbound only and for a bus stop to be accommodated next to St Clements Surgery (through realignment of the carriageway to the west). A temporary second bus stand may also be provided as part of short term phasing works – this would not facilitate independent operation (buses in location 10 would need buses in space 11 to clear in order to pull out and continue down Tanner Street).

In the longer term there may be opportunities to create a second permanent and independent stop on Tanner Street depending on factors outside the control of this study.

An cross-section of Tanner Street with indicative proposed bus infrastructure and development in place is shown in Figure 30.

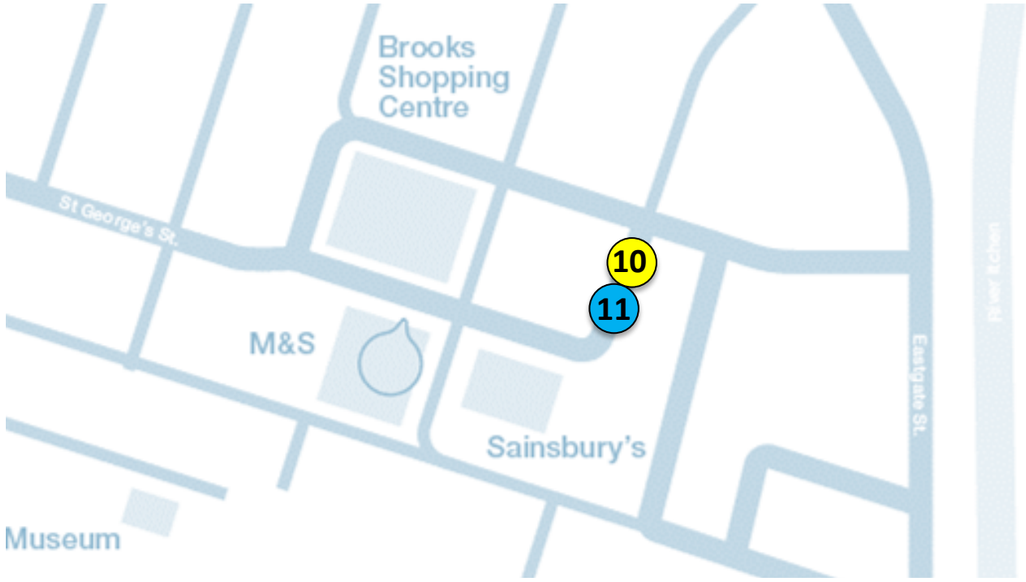

Figure 28– Potential bus stop locations on Tanner Street

Figure 29 - Narrow footway on Tanner Street adjacent to GP Surgery (image from Google Streetview)

CWR Bus Provision Study

Tanner Street (View looking southbound with road realigned and new development to west)

Figure 30– Indicative cross-section on Tanner Street

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Silver Hill (east)

The part of Silver Hill east of Middle Brook Street has two distinct parts. The eastern part of the road is constructed as traditional highway, with a two-way carriageway and footways on either side. Whilst the northern footway is relatively generous, the southern footway is narrow. This part of Silver Hill provides access to two service yards for properties fronting onto the High Street.

To the west, this part of Silver Hill is one-way westbound only and has been constructed as more of a shared space. This part of the road has no kerbs, but contrasting materials have been used to delineate a carriageway space from footways on either side. On the southern side, outside Sainsburys, a taxi rank is provided. There is a double-width phone box on the northern side which restricts footway space considerably.

If Silver Hill is made one-way westbound along its length (in conjunction with making Tanner Street one-way southbound), this could create an opportunity for additional bus stops in this location. To avoid impacting on access to the existing service yards, the location for the new stops should be adjacent to Sainsburys, prior to the junction with Middle Brook Street. This will necessitate the relocation of the existing taxi rank outside Sainsburys to an alternative location.

Designs for stops in this location have been drawn up and tested using swept path analysis to ensure that a full size rigid HGV can enter and exit the Sainsburys service yard with buses stationary at the stops. Proposals originally retained the Kings Walk façade to the north, but with the reconstruction of the building line further north there will be more space than originally envisaged – allowing wider footways and enhanced public realm.

To accommodate the turning movement of an HGV leaving the Sainsburys service yard, some changes to the highway layout would be required. The northern 'kerb line' (where the use of materials changes colour to mark out pedestrian space rather than carriageway space) would need to be moved north, and some street furniture, including the double phone box, may need to be relocated.

A cross-section of Silver Hill (east) with indicative proposed bus infrastructure and proposed northside development is shown in Figure 33.

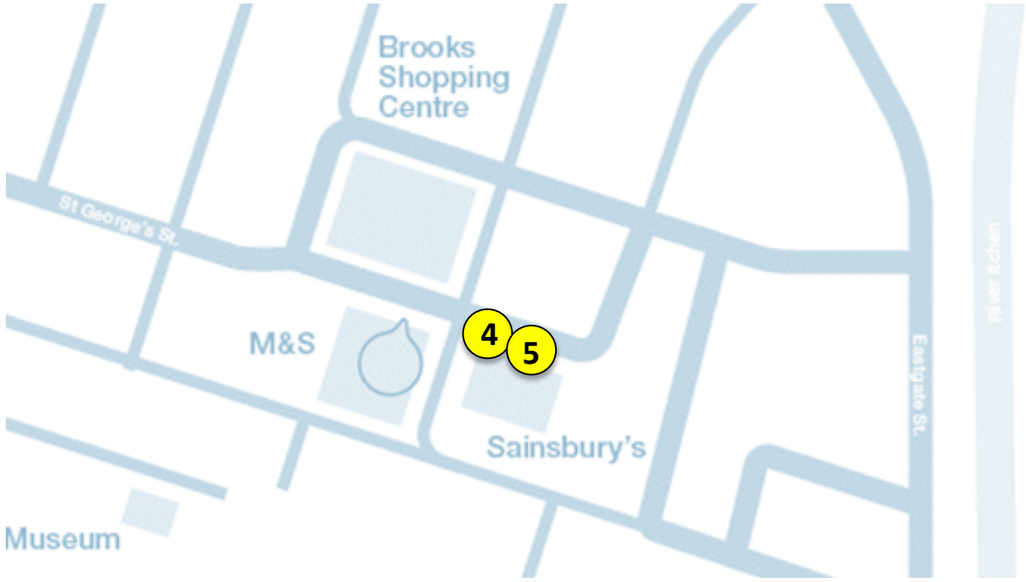

Figure 31– Potential bus stop locations on Silver Hill (east)

Figure 32 - Potential location for bus stops to replace taxi rank on Silver Hill (east), showing Sainsburys service yard in foreground (image from Google Streetview)

CWR Bus Provision Study

Silver Hill (east) – view looking east

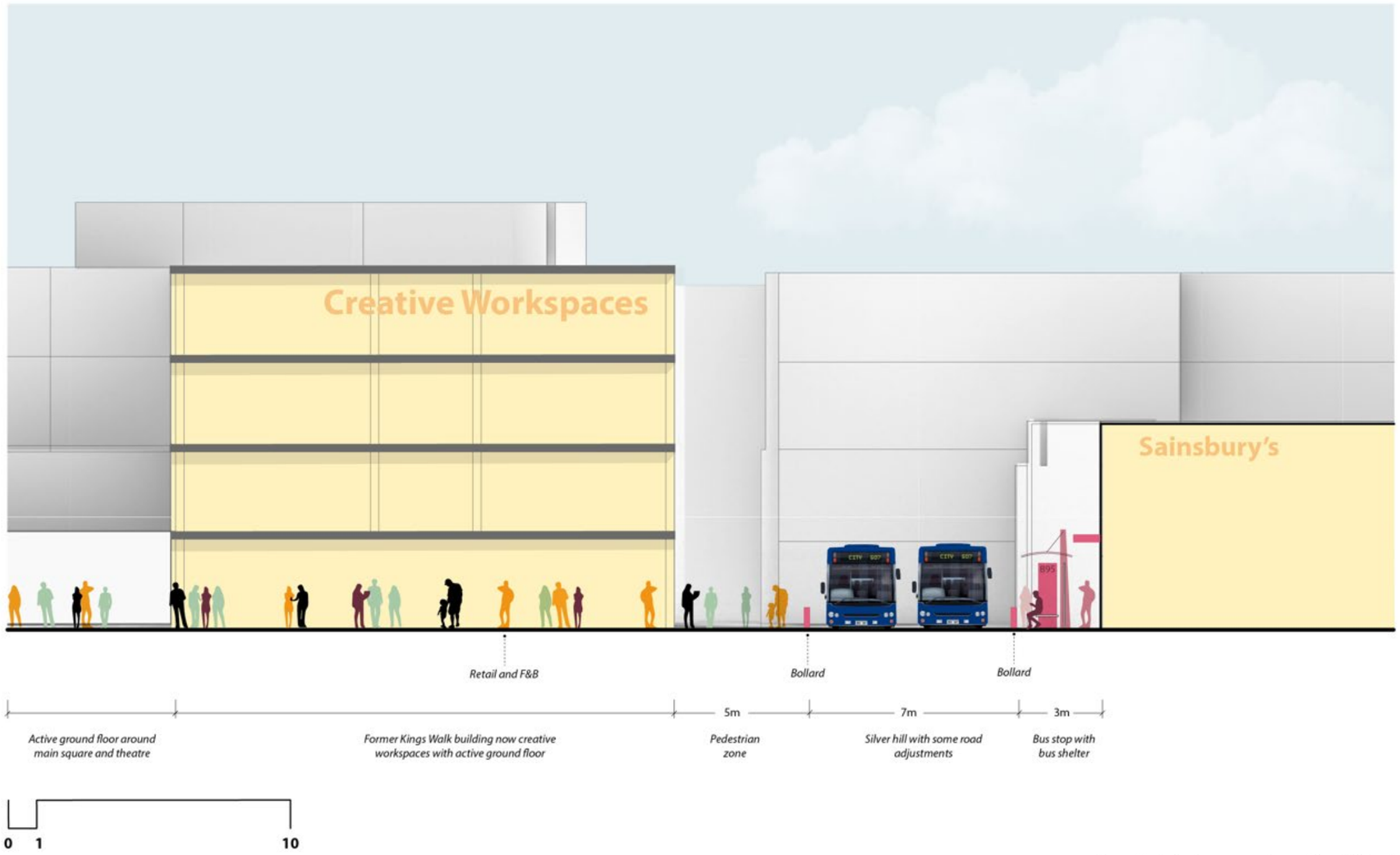

Figure 33– Indicative cross-section on Silver Hill (east)

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Silver Hill (west)

To the west of Middle Brook Street, there are three existing bus stops on Silver Hill. From site observations and discussions with bus operators, we would note that the footways on this part of Silver Hill are narrow, leaving little space for shelters at the bus stops (the existing shelters are cantilevered and have no end panels, bus pedestrians often walk in the carriageway to bypass crowds of passengers waiting at the stops). Whilst the northern footway is generally wider, there is a significant pinch point outside the entrance to Primark, where footway width narrows considerably. We are also aware that whilst Marks and Spencer (at the eastern end of this part of Silver Hill) have an off-street loading bay, service vehicles often unload on-street, blocking access to two of the existing stops.

Whilst measures can be brought forward to improve the layout and efficiency of Silver Hill, including localised footway widening and better enforcement of waiting restrictions, there is no scope for additional bus stands and stops in this location. However, the three existing bus stops perform an important role in Winchester's bus operations and should be retained, and where possible enhanced.

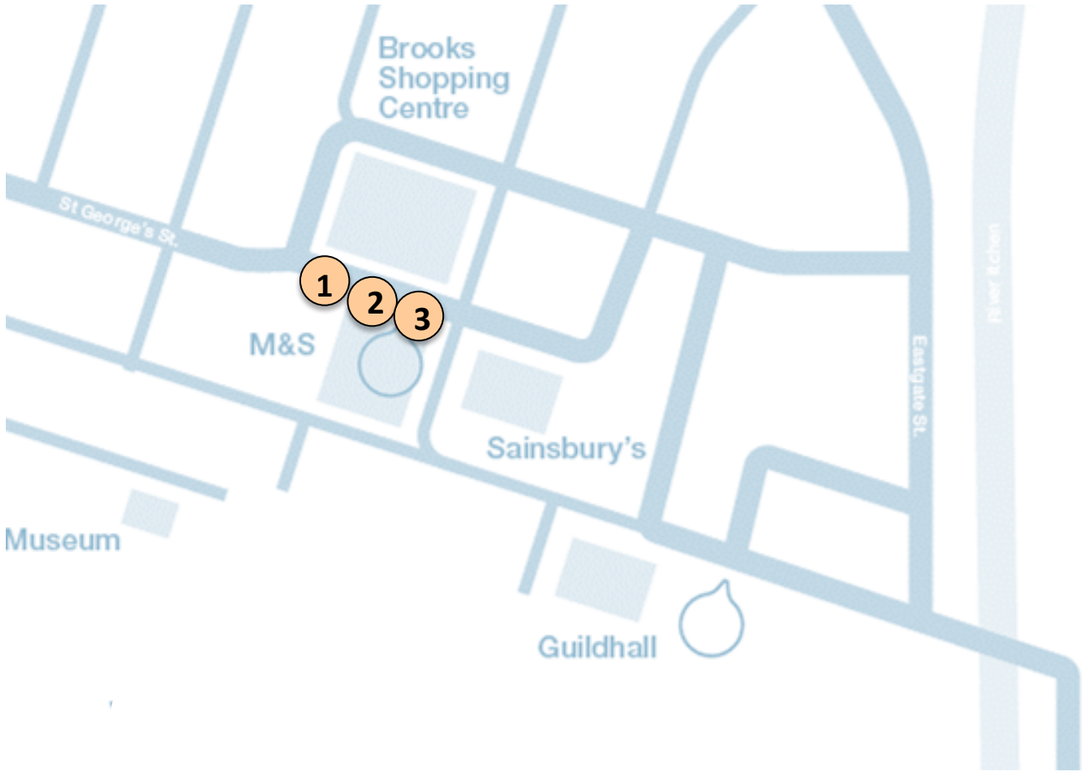

Figure 34– Stop locations on Silver Hill (west)

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CWR Bus Provision Study

The Broadway

The Broadway has stops serving P&R services and coaches. It is also used by all buses accessing the bus station. The Broadway is therefore well used by buses and coaches throughout the day. There is no onward movement along High Street so to exit Broadway vehicles either travel through the bus station or perform a U-turn. As set out on page 12, this has been highlighted as a safety concern by operators with vehicles undertaking this manoeuvre close to a pedestrian crossing. We have identified a potential solution to this issue as part of our study.

To re-provide active stops or layover facilities there is a need for additional stands beyond those which can be provided along Friarsgate, Tanner Street and Silver Hill. Due to the one-way system and the lack of kerb space along Eastgate Street, The Broadway is considered the most appropriate location for passenger drop-off and bus layover. Vehicles can then use Eastgate Street and Friarsgate to access stops on Silver Hill.

In the longer term the preferred strategy is therefore for the relocation of UK coaches (scheduled and tourist) to new stops on Friarsgate, and following a reorganisation of stops, two bus stands could subsequently be provided on the north of Broadway. However in the short to medium term coach stands may need to be retained on Broadway and thus options for additional stands have been identified.

Arup have developed a design concept that removes the existing car parking and taxi rank from the centre of The Broadway. This creates space for two bus or coach stands (19 and 20 in Figure 35), most suitable for layover.

It is also proposed to relocate the existing zebra crossing to the west with new bus stands created to the north and south (17 and 18 in Figure 35). The pedestrian crossing relocation will reduce the risk of conflicts between vehicles and pedestrians and is closer aligned go the future pedestrian desire lines.

While proposals will increase the number of bus and coach stands in The Broadway closure of the bus station will result in a considerable reduction in bus movements through the area. In the longer term there may be opportunities to transfer buses or coaches to stands on Friarsgate (outside of Iceland) or onto Upper Brook Street or St Georges Street – with such opportunities being considered by the WMS team.

The proposals for The Broadway therefore facilitate closure of the bus station but do not preclude longer term relocation or bus and coach stands elsewhere in the city as part of wider road network changes.

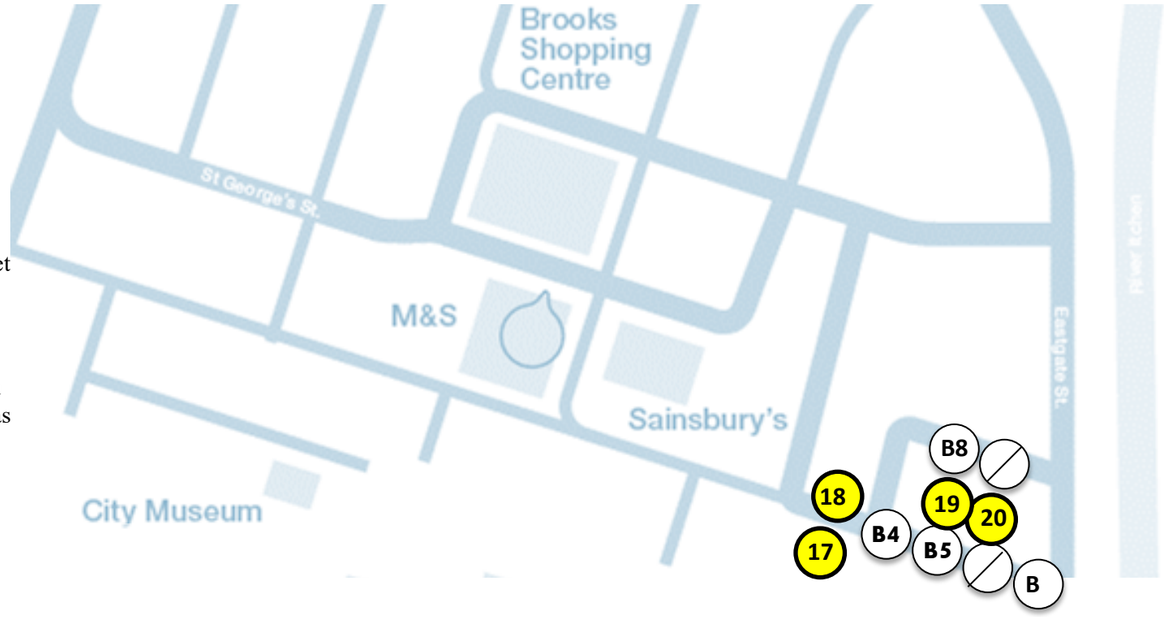

Figure 35– Possible layout of bus stops on The Broadway

Figure 36 - View of The Broadway showing parking in the centre, and bus on Stand 8 blocking other buses from making u-turn (image from Google Streetview)

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CWR Bus Provision Study

Summary

ID	Summary Comments
1-3	Existing stands on Silver Hill.
4-5	Two new stops proposed on Silver Hill.
6-9	Proposed stops on Friarsgate with laybys to maintain two traffic lanes. Stop 7 will be implemented as part of the phasing of Coitbury House. Stop 8 is a longer term aspiration as it requires stopping up of the bus station exit highway and associated changes to local accesses.
10	New stop proposed on Tanner Street
11	Possible temporary stop on Tanner Street (to be considered in more detail as part of phasing plans).
12-13	Potential for new bus or coach layby to be implemented (either replacing Iceland loading area, or could be implemented retaining a modified loading area). Longer term this area could be utilised by buses or coaches, but for the purposes of tis study these stops are considered most suitable as short term usage to facilitate construction. Discussions with Iceland to be undertaken at the next stage.
14	Layby to be created for use as a temporary measure during phasing.
15	Possible layby which can be created while maintaining two lanes of traffic but requires significant kerb realignment which will be costly and disruptive. Best delivered alongside WMS proposals for reduction in carriageway from two to one lane. Discounted for purposes of study.
16	This location is discounted due to cost, complexity and lack of “design fit”.
17-18	New stops introduced on Broadway. Pedestrian crossing to be relocated west.
19-20	Opportunity for two central stops accommodating buses. Coaches could utilise this space existing coach stands transferred to bus use. Central island presents opportunity for EU coach drop-off onto an island (design tbc).

Table 3 – Summary of potential bus stop locations

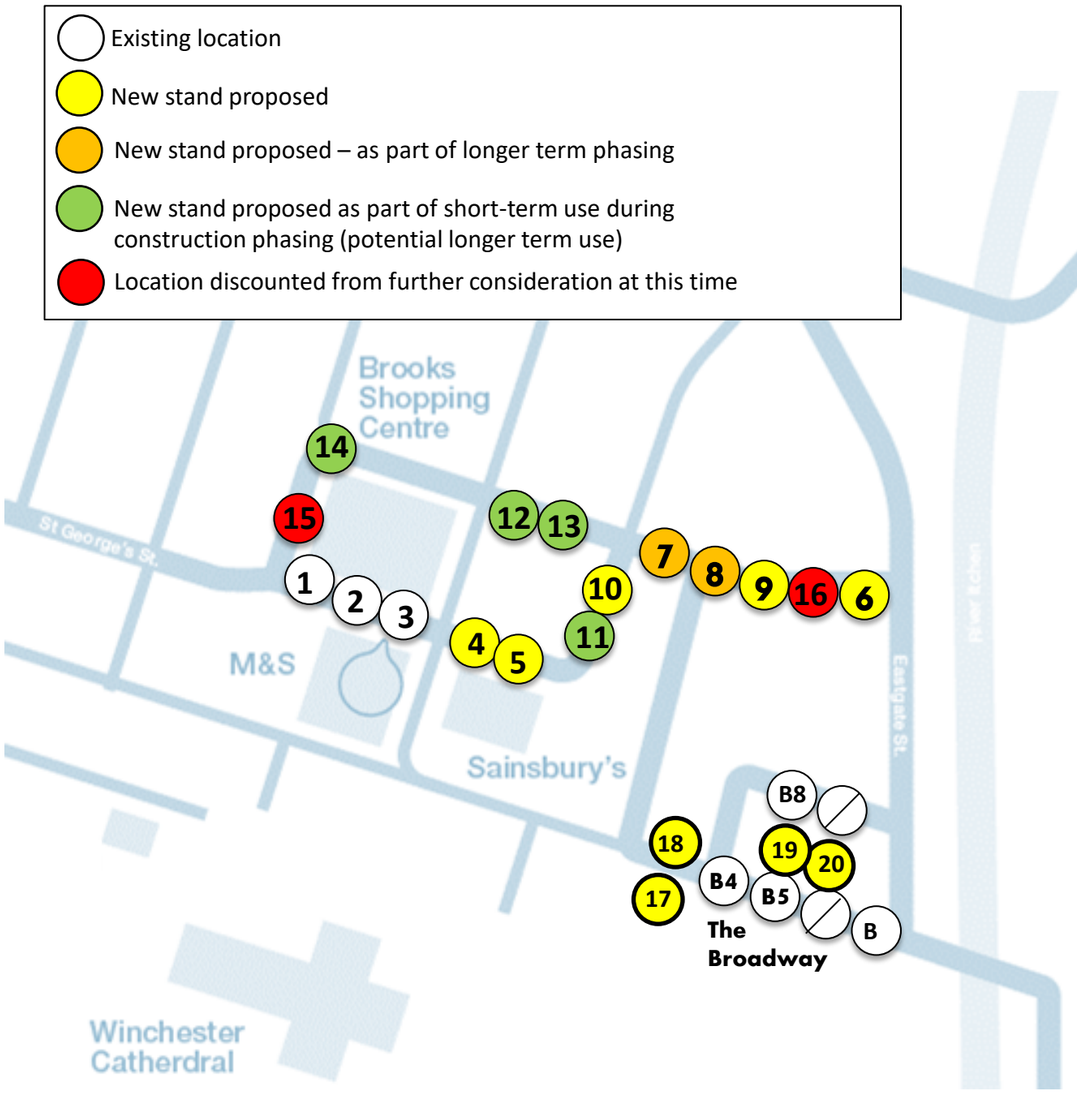

Figure 36– Potential bus stop locations

Timetabling and Operations

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CWR Bus Provision Study

Existing Timetable

The existing timetable and operational patterns used by Stagecoach and Bluestar have been reviewed using Spring 2020 timetable information provided by the operators. These timetables reflect the latest information on bus patterns pre-Covid-19.

As discussed on page 11 and is shown indicatively on Figure 37 overleaf, if a like for like replacement was required, this would necessitate the provision of seven stands and four layover spaces.

Bus timetables are typically updated on a seasonal basis to reflect changes in routes and service frequency – which can be triggered by new opportunities, changes to funding for supported services and new infrastructure, amongst other factors.

In developing the timetables operators in Winchester have to account for a high level of congestion which can create journey time uncertainty, and a number of services have substantial layover periods in the city centre. The timetable also reflects the amount of space currently available within the bus station (seven stands plus additional layover areas). There are no benefits to the operators of not utilising all available space in the bus station, and thus all space is used to operate services as efficiently as possible.

Figure 37 overleaf summarises the existing operational pattern within the bus station for the busiest period of the day which is 3pm to 5pm, accounting for the end of the school day and the beginning of the evening rush hour. The vertical access shows each minute within this time period.

Each vertical column represents a stand (A-G) within the bus station. Each stand is assigned a service, or mixture of services as per the timetable.

On the right of the diagram there are four layovers, representing the four spaces within the bus station used by the operators.

For each stand the pattern of arrivals, layover, loading and departure is shown. Where a second bus arrives to use that stand an additional column is added. For example the timetable shows Stand A (Blue Star 1) has four buses an hour. However, the bus departing at 1646 arrives at the bus station at 1625, and the 1630 bus is still on the stand with passengers loading. This means the 1646 bus cannot use the stand, and it is then assigned one of the layover spaces (Space 3). A further clash occurs when the next BlueStar 1 arrives at 1640 (the 1655 departure) and the stand is then occupied by the 1645 departure (this vehicle having moved from layover 3 when the stand became free when the 1630 departed).

The King City 3 on Stand C is the only service group which does not require some layover.

The Stop F group is formed by the King City 7, Service 67 and Service 86. Each of these services only has one call per hour, but all three arrive and depart within the same 11 minute window, leading to a short period of pressure on stop and stand infrastructure. By slightly retiming these services so that they arrive sequentially, the stop requirement could be significantly.

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CWR Bus Provision Study

Existing Peak Hour Operational Pattern

Diagram withdrawn at request of operators as commercially sensitive.

Figure 37 – Current bus scheduling during peak period

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CWR Bus Provision Study

Suggested Modifications to Operational Patterns

A review of the existing operational pattern identifies opportunities to reduce the total number of stands required through small changes to the timing of certain services to avoid clashes within the peak hour.

Assessment work shows that with some minor retiming of services, the requirement can be reduced to six stand and two layover areas.

To accomplish this the following minor modifications are identified to five services – with these changes representing no more than a 10-minute change to the scheduled departure of any service. These changes have been agreed as workable with the relevant operators.

It should be emphasised that the study has assumed no changes to bus routing or servicing beyond some minor retiming of services to reduce peak stop and stand requirements. Requirements have also been assessed on the pre-covid 19 timetables and demand. Future expansion of bus services has not been considered as it has not been possible to quantify these requirements – particularly as covid-19 and the associated changes to working patterns could result in significant long term changes to demand patterns. It is however acknowledged that both WCC and HCC have long term aspirations for increased bus and P&R use as a means of facilitating more sustainable travel and future development – within a city with a medieval road network.

A more comprehensive review of bus, coach and P&R services is being examined as part of the WMS and by operators and the study team has been in regular dialogue with the WMS team to stay abreast of the latest strategies and information. In developing proposals for the strategy flexibility and potential additional stand locations have been identified, so that responses can be made to accommodate future changes in bus demands.

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CWR Bus Provision Study

Preferred Peak Hour Operational Pattern (Reducing Requirement to Six Stands and Two Layover)

Diagram withdrawn at request of operators as commercially sensitive.

Figure 38 –Potential changes to bus scheduling to reduce peak stand requirements

CWR Bus Provision Study

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Recommended Approach

The recommended approach is shown in Figure 39.

This proposes the retention of the four bus and coach stands on the southern side of The Broadway with these all allocated to bus services. The two stands on the north side of The Broadway would also be allocated to buses. Two further bus stands are created through the relocation of the pedestrian crossing further west.

Following discussions with HCC and National Express it is proposed that a central island is created in Broadway which incorporates two coach stands. In total Broadway will accommodate eight bus stands and two coach stands.

In the longer term the two coach stands could be relocated to Friarsgate depending on the wider WMS project.

On the eastern part of Friarsgate, three bus laybys are created, the easternmost assigned to layover (passengers would alight but would not board). A fourth is identified as a longer term aspiration.

A further three stops are proposed along Tanner Street and the eastern part of Silver Hill, with the existing three stops on the western part of Silver Hill retained.

This proposal results in six bus stands (in addition to the three retained stops on Silver Hill) as well as four laybys providing layover in locations "upstream" of the stands. The exact allocation of bus areas between active stands and laybys will be agreed with operators through future dialogue – however the proposed accolades the requirements stated by operators, plus one additional stands.

Also shown are two additional laybys which are recommended to facilitate construction phasing. These would be suitable for short-term use to facilitate construction of stops elsewhere.

Stands have been labelled as per the timetable diagram provided in the previous section.

Figure 39 –Recommended Approach (stands have been labelled as per timetable groups from previous section)

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CWR Bus Provision Study

Recommended Strategy: Future Expansion

The Winchester Movement Strategy has the potential to unlock additional stops on St George's Street and Upper Brook Street (indicatively six locations are shown).

Independent of the Movement Strategy two stops, both on Upper Brook Street, could be created while maintaining two lanes of traffic flow. Furthermore two stops could be created on Friarsgate (by the existing Iceland store).

Two further stops may be possible as part of longer term aspirations for the area, with one on Tanner Street and one on Friarsgate.

The locations shown could facilitate expansion in the bus network and/or additional services to existing destinations. They could also be used to transfer buses away from Broadway or other locations in the longer term.

Finally the proposals do not impinge on any future, longer term option for a dedicated bus station on Middlebrook car park, or elsewhere in the city – should this be desired.

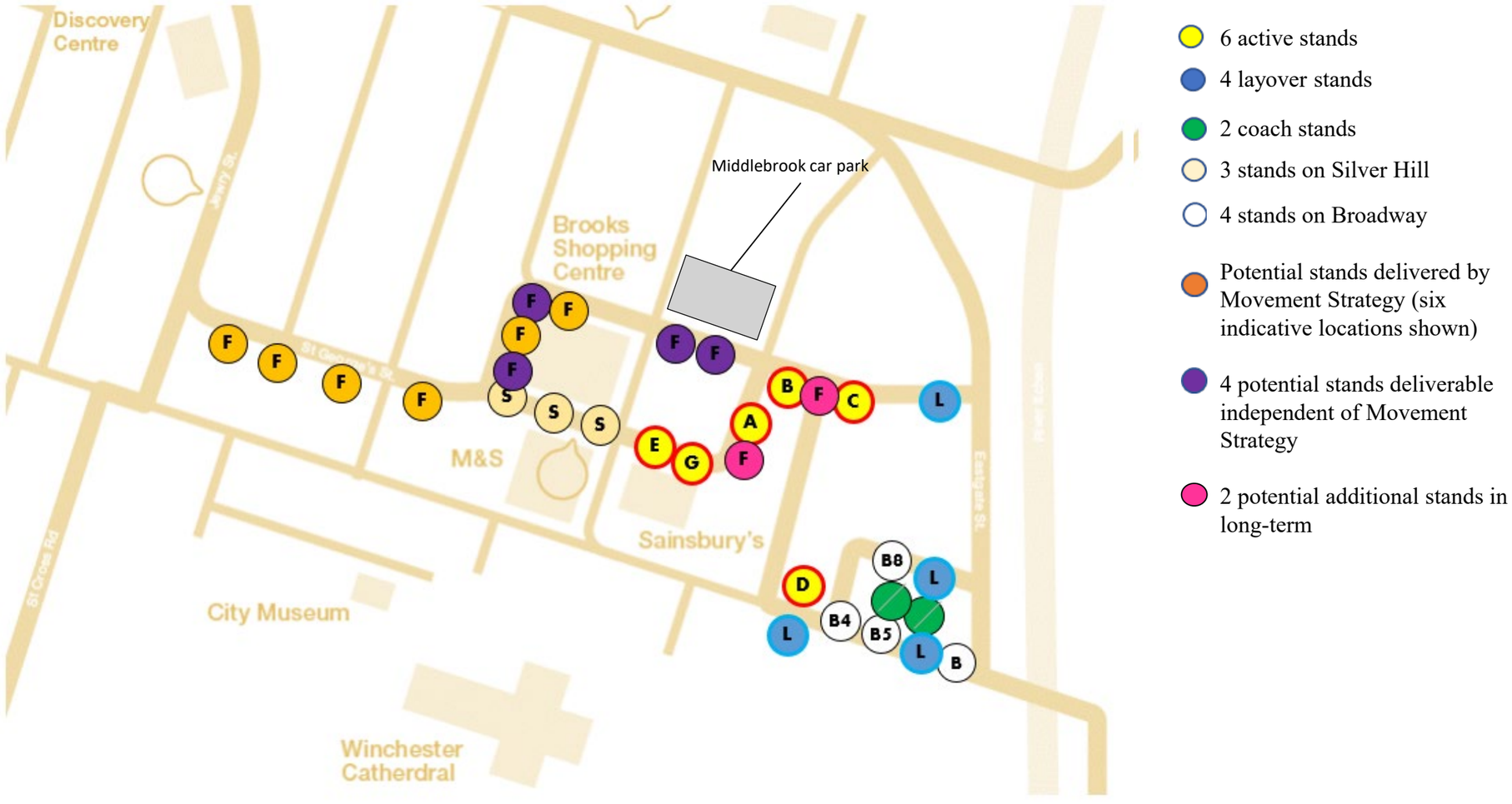

Figure 40 –Potential for expansion with recommended Approach

Phasing Considerations

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CWR Bus Provision Study

Phasing Considerations

In order to redevelop the bus station it is necessary to create sufficient on-street stands in advance of any closure. Phasing considerations for the stops identified in this Strategy are discussed in this section.

Friarsgate (E)

The strategy proposes four new stands along Friarsgate, east of Tanner Street:

The easternmost stop (L1) can be provided within footway and public realm, with the design and delivery needing to be coordinated with the Saxongate development on the site of the former Friarsgate Medical Centre.

The next layby (B) can be created within the highway and public realm.

The westernmost of these four stands (C) requires the frontage of Coitbury House along Friarsgate to be demolished in order to provide sufficient footway width.

Between stops B and C, stop D is proposed. This location currently accommodates the exit from the bus station and access to car parking for the St Clements Surgery and a new access to the Coitbury House car park. This stop is therefore a longer term aspiration as there are no proposals to alter the car park access at this time. Furthermore bus "U-turns" within the bus station will not be possible.

Friarsgate (W)

Stops on Friarsgate to the west of Tanner Street have been identified within the Strategy as a location for coaches, or as a temporary location buses while other new stops are created. These stops occupy the area currently marked as a loading bay for the adjacent Iceland store. There are a number of options available:

1) If Iceland's lease is ended then the bay can be converted into two bus/coach stands.
2) If Iceland are retained, but do not use the layby then it could be converted into two bus/coach bays.
3) If Iceland are retained and use the layby infrequently then it should be possible to provide a shared facility which accommodates one or two buses and loading (particularly if loading is overnight when there are no bus operations, or evening when bus operations are relatively infrequent).
4) If Iceland are retained and use the layby frequently then it will be possible to reconfigure the on-street arrangement to maintain a loading bay and create a single independent bus/coach layby.

Tanner Street

In order to safely accommodate stops on Tanner Street signage and regulation changes will be required to make it one-way southbound only.

Temporary stops, with no shelter facilities, could be accommodated along Tanner street adjacent to St Clements Surgery and at the taxi layby. These would be substandard and only suitable as a temporary overlay.

In the longer term the delivery of a new stop along Tanner Street requires the realignment of the highway to create sufficient footway on the eastern side so as to provide shelters and a suitable width next to St Clements surgery. This would need to be phased as part of wider public realm improvements along Tanner Street. The Strategy currently proposes one stop along Tanner Street. A second stop could be temporarily provided behind the first stop – but this will not allow independent operation. If, at a later date, there are opportunities to widen the public right of way along Tanner Street a second permanent and independent stop may be possible.

Silver Hill (E)

To create sufficient manoeuvring space for buses and also vehicles exiting the Sainsbury's loading area there is a need to declutter the area – including removal of a double phone box. Footway modifications will also be required.

Signage and regulation changes will be required to make this section one-way westbound only.

Temporary stops could be provided at this location, provided supporting works are undertaken to ensure pedestrian safety where Middle Brooke Street crosses Silver Hill, as this the main pedestrian route from The Broadway and the High Street to The Brooks Shopping Centre. In the longer term the stops would need to be provided as part of a comprehensive public realm enhancement.

Upper Brook Street

The northernmost stop on Upper Brook Street can be accommodated through footway modifications. The works are relatively minor and this stop could be created to provide short term flexibility and phasing options.

The southern stop close to Silver Hill requires significant modifications to the carriageway, including drainage and potentially buried services, so as to create a wider footway on the western side. Delivery of these works will cause disruption to the one-way system and will also be costly. It is therefore recommended that these stops are delivered alongside a reduction to one-lane and public realm works proposed along St George's Street as part of the Winchester Movement Strategy. The timing of the WMS work will be governed by factors such as funding and the delivery of improvement works to M3 Junction 9, while demand for bus facilities will be governed by Covid-recovery and future bus expansion plans.

Other Considerations

In engineering terms:

Consideration will need to be given to construction methodology, and the location of any hoardings or temporary construction accesses that may be necessary.

Consideration will be required for the impact on changes in kerb lines on buried services and highway drainage.

Consideration will be required on the impact on temporary traffic restrictions or controls introduced in order to facilitate kerb line changes.

There will also be a need to consider how the Strategy aligns with phasing of the proposed development, especially where building lines need to be modified to create space for buses and/or passenger facilities. The programme for the overall development is not known at the current time and is likely to be determined by financial and market considerations.

Next Steps

Next Steps

Towards implementing the Strategy

The current iteration of the CWR Bus Provision Study has been developed through extensive engagement with Winchester City Council, Hampshire County Council, National Express and both local bus operators. Further and ongoing dialogue with these stakehodlers will be required throughout implementation of the strategy so that all parties are kept informed and the strategy can account for the latest information. This is particularly relevant given the significant disruption to bus and coach patterns and potential future demands caused by Covid and Brexit.

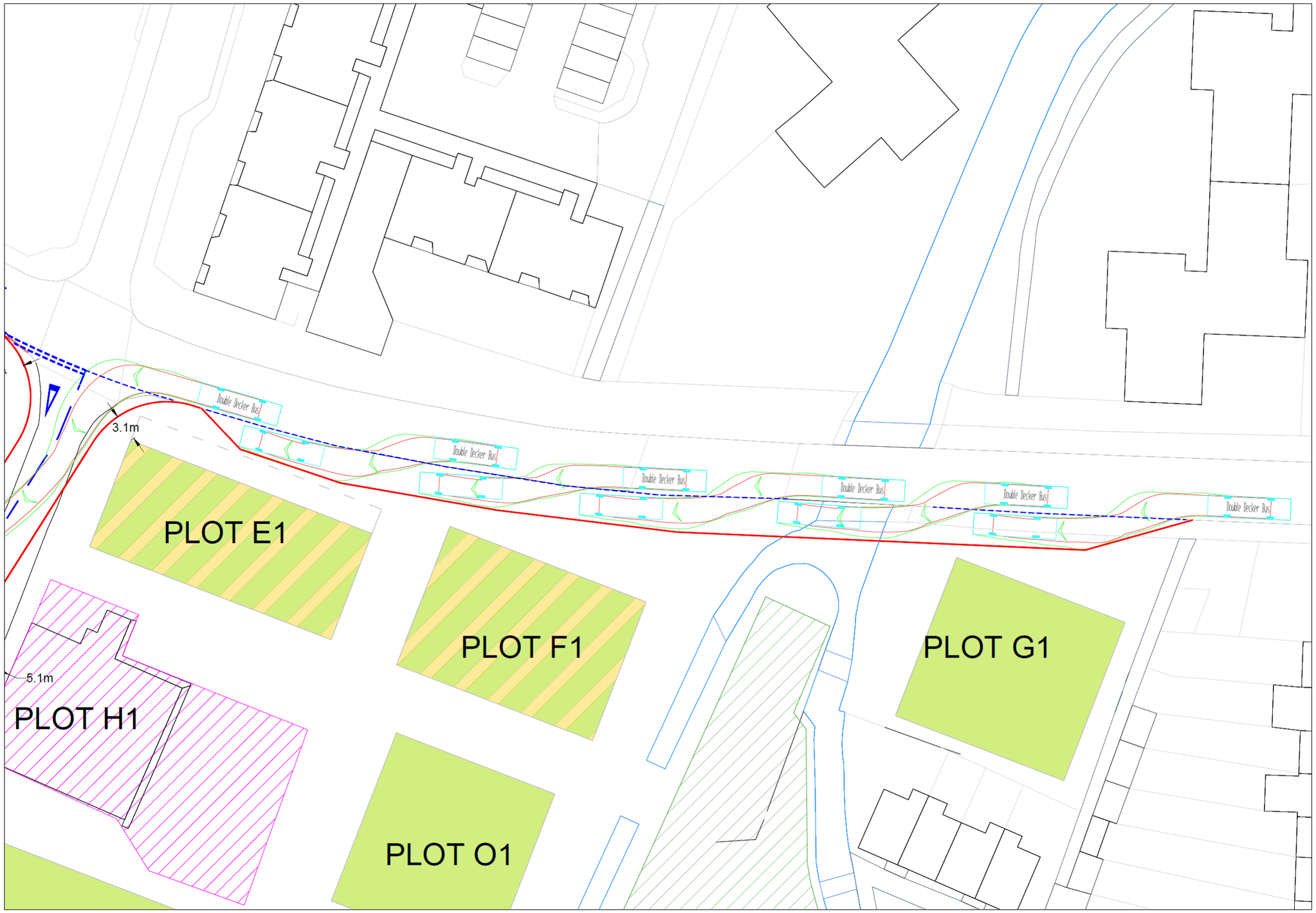
Other engagement will also need to take place to deliver the preferred Strategy. This includes engagement with Iceland, Marks and Spencer and Sainsbury's over their servicing arrangements on Friarsgate and Silver Hill so that loading does not impact on bus operations.

The other changes that would be required to deliver the approach are changes to taxi ranks within the city centre. Further consideration of taxi operations and engagement with the taxi trade would also be required to implement the Strategy.

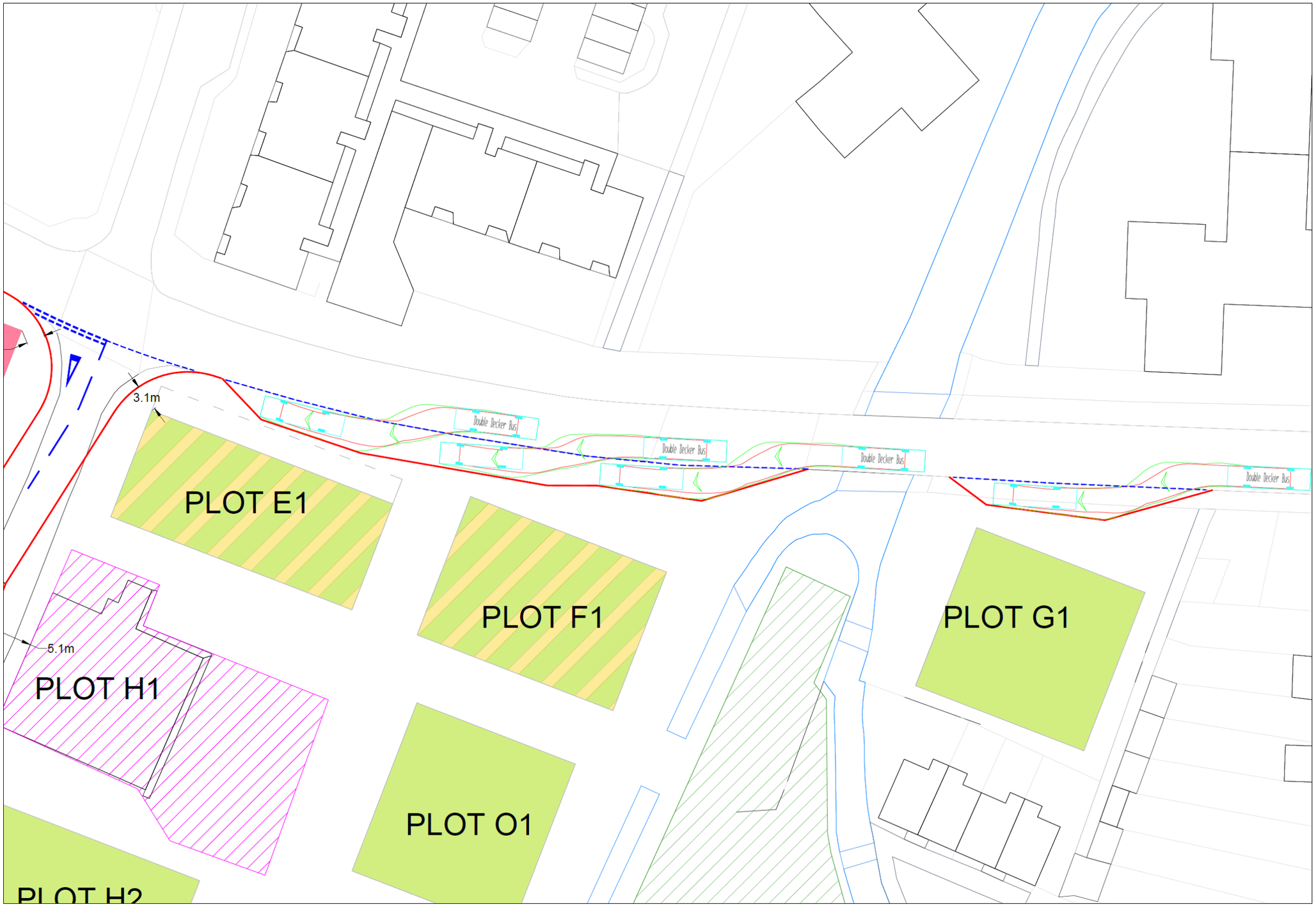
In parallel, we would recommend that the development proposed as part of the Regeneration Framework is masterplanned in greater detail. This would need to consider where points of access into the masterplan are by different modes, and this would need to include consideration of car parking levels and servicing arrangements for the scheme. Block layouts and pedestrian flows and desire lines will also need detailed consideration. The areas of the masterplan where bus stops and stands are proposed will require more detailed public realm designs, and some civil engineering challenges will need to be understood.

Finally, once the regeneration masterplan is understood, additional consideration will need to be given to phasing. This may require interim versions of the strategy to be drawn up, once constraints are well known.

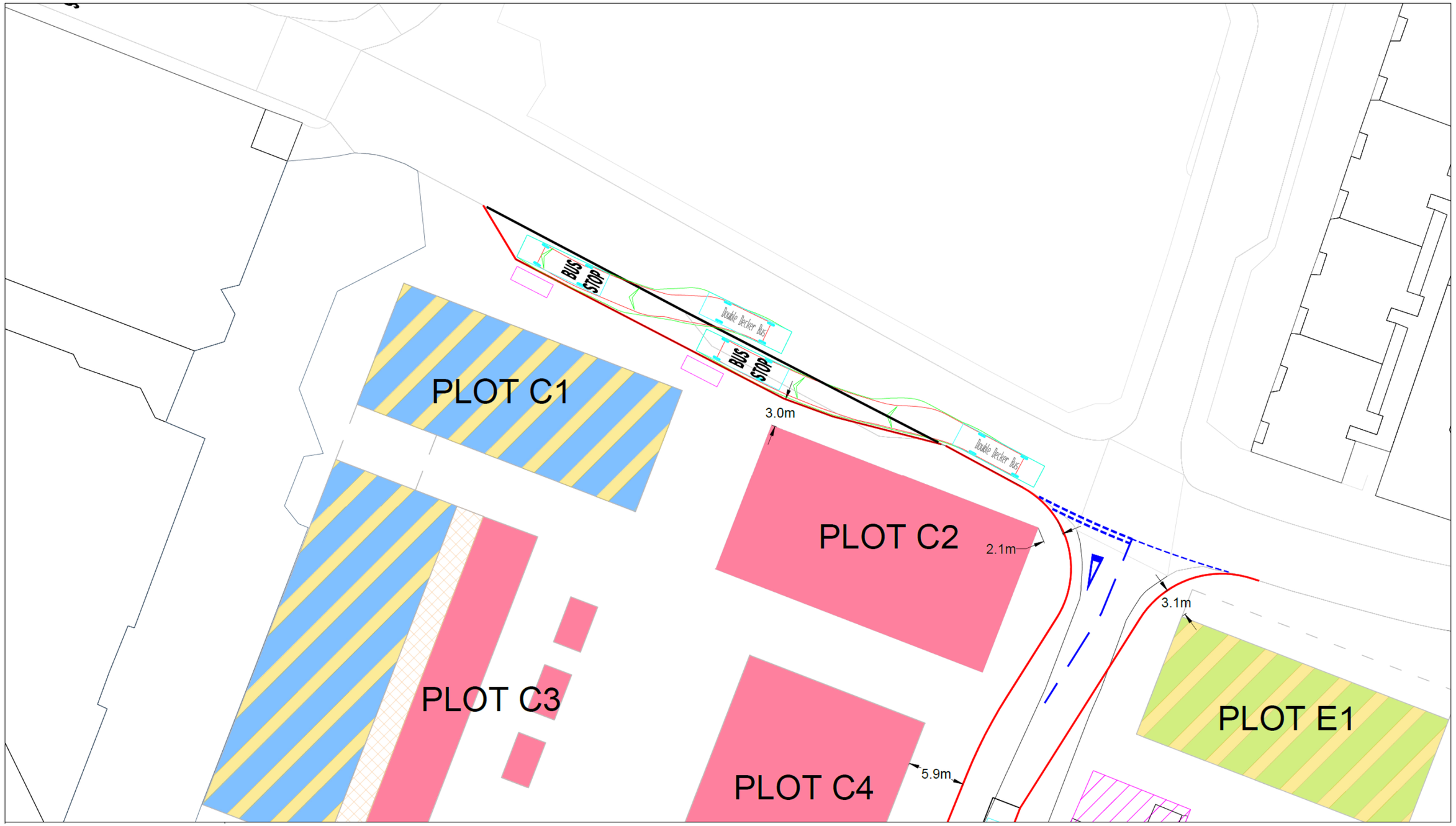
Appendix A – Design Drawings and Swept Path Analysis



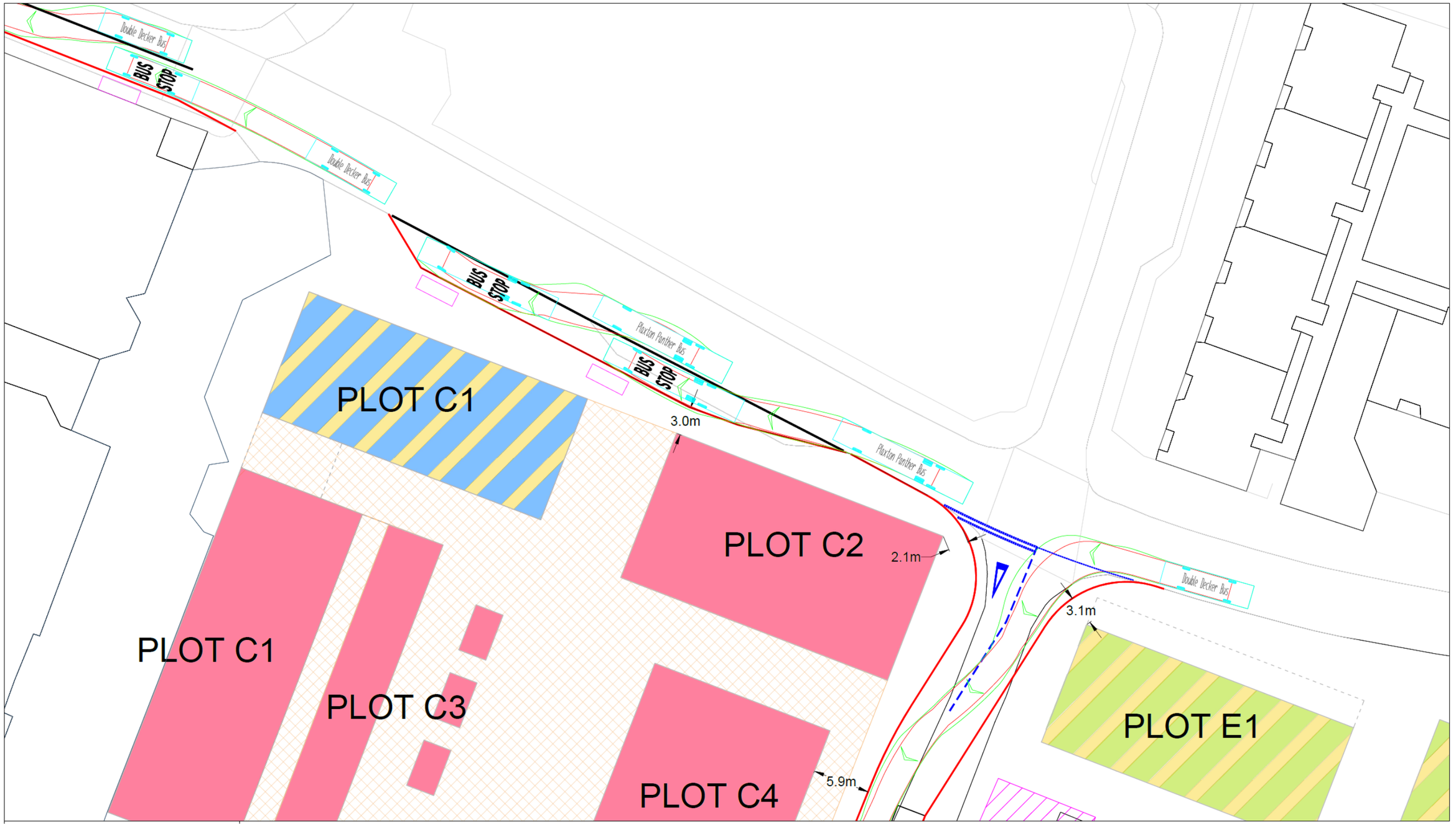
Friarsgate (east) – Extent of potential bus layby showing independent use by 5x buses. This includes a stop above the culvert.



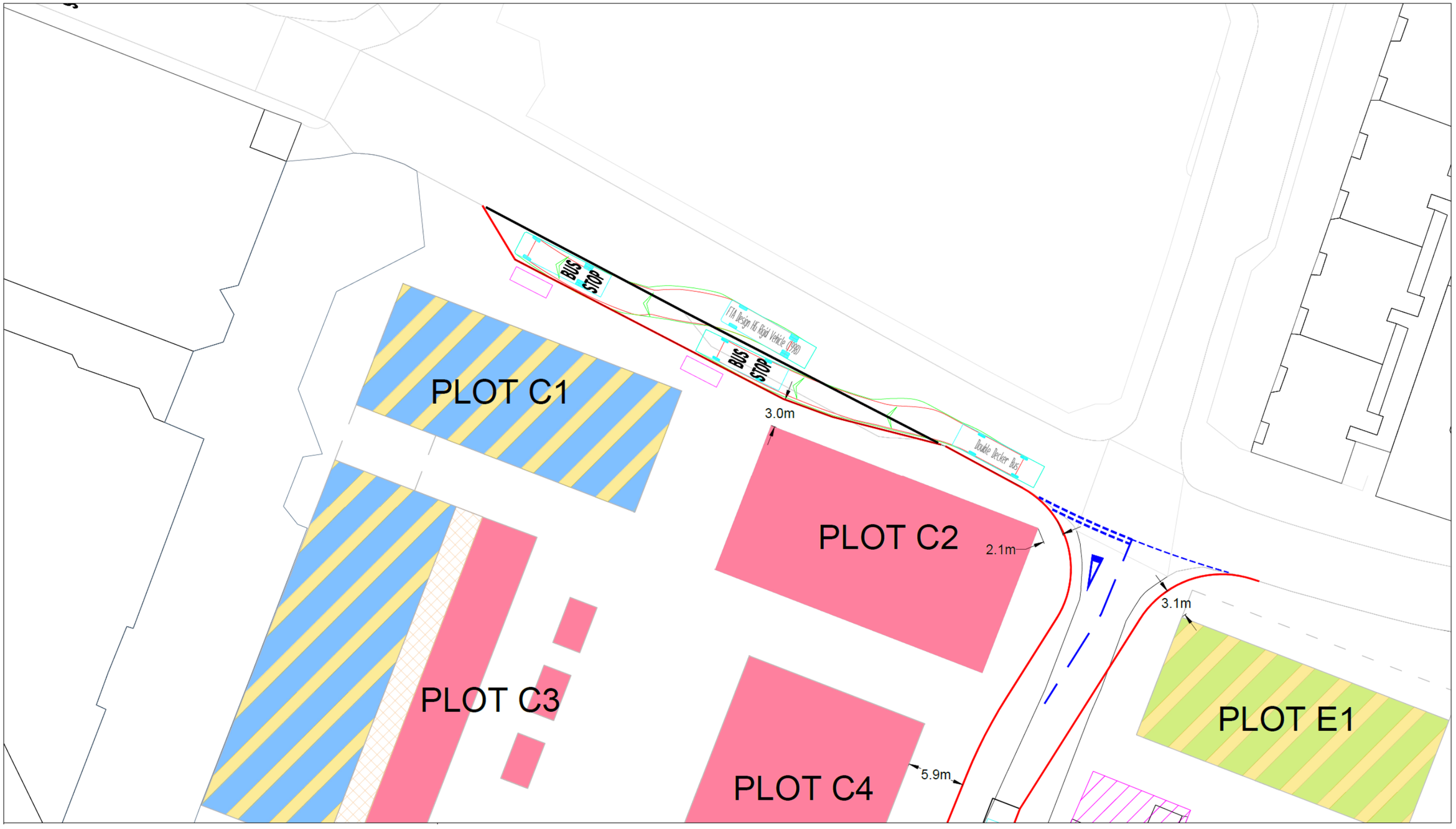
Friarsgate (east) – Extent of potential bus layby showing independent use by 4x buses (excluding stop that would require works to culvert)



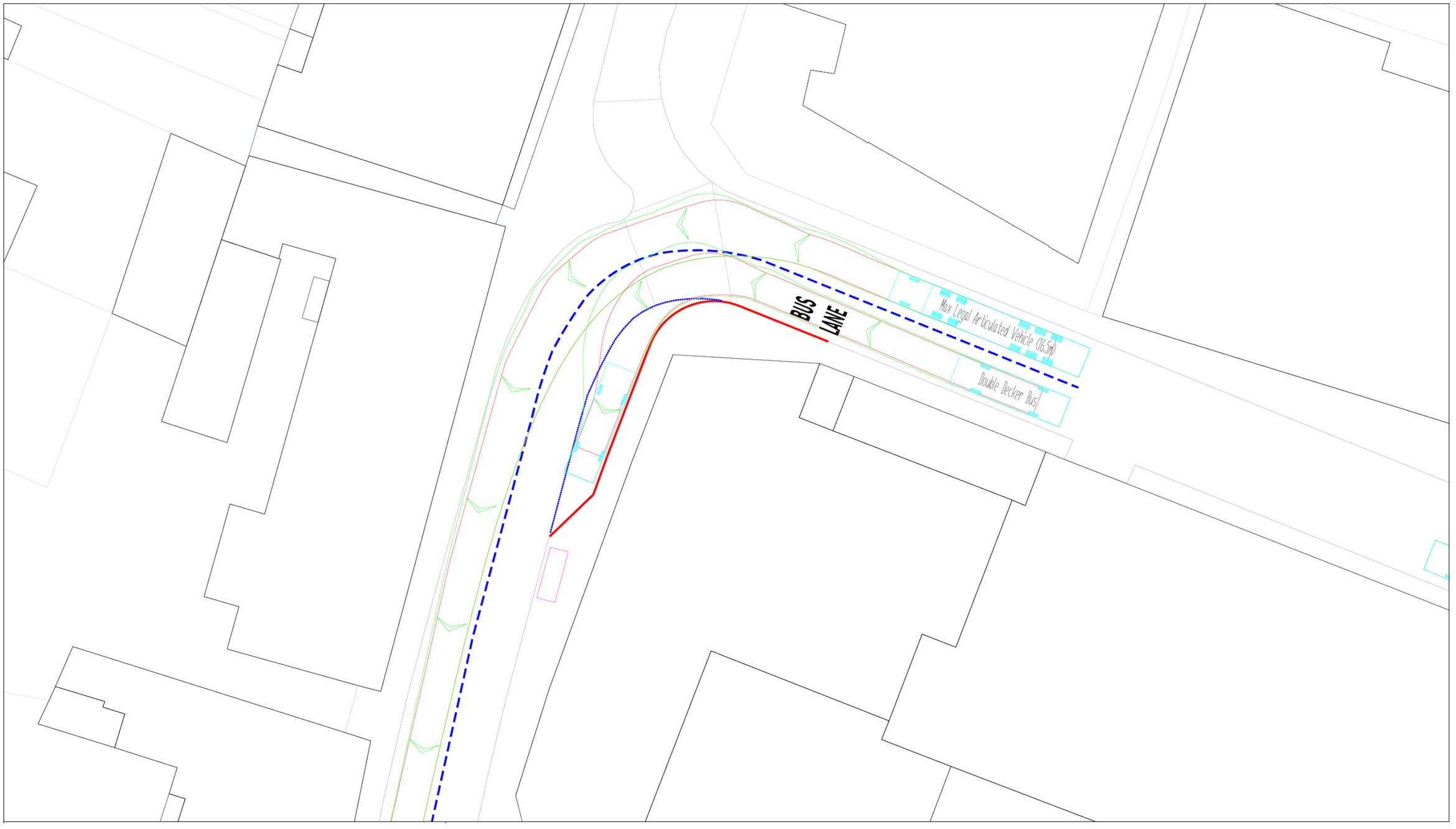
Friarsgate (west) – Extent of potential bus layby showing independent use by 2x buses



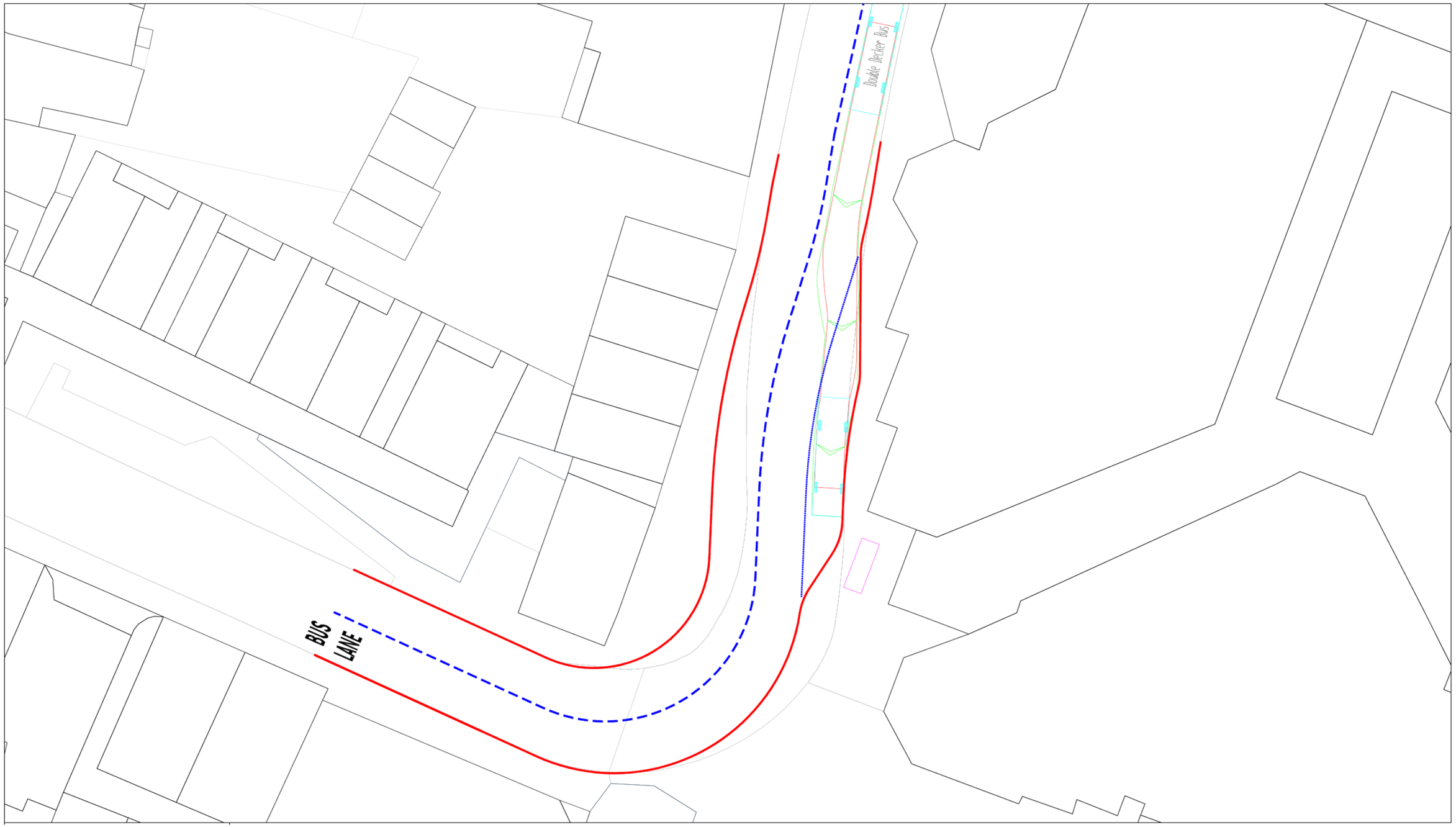
Friarsgate (west) – Extent of potential coach layby showing independent use by 2x triple-axle coaches



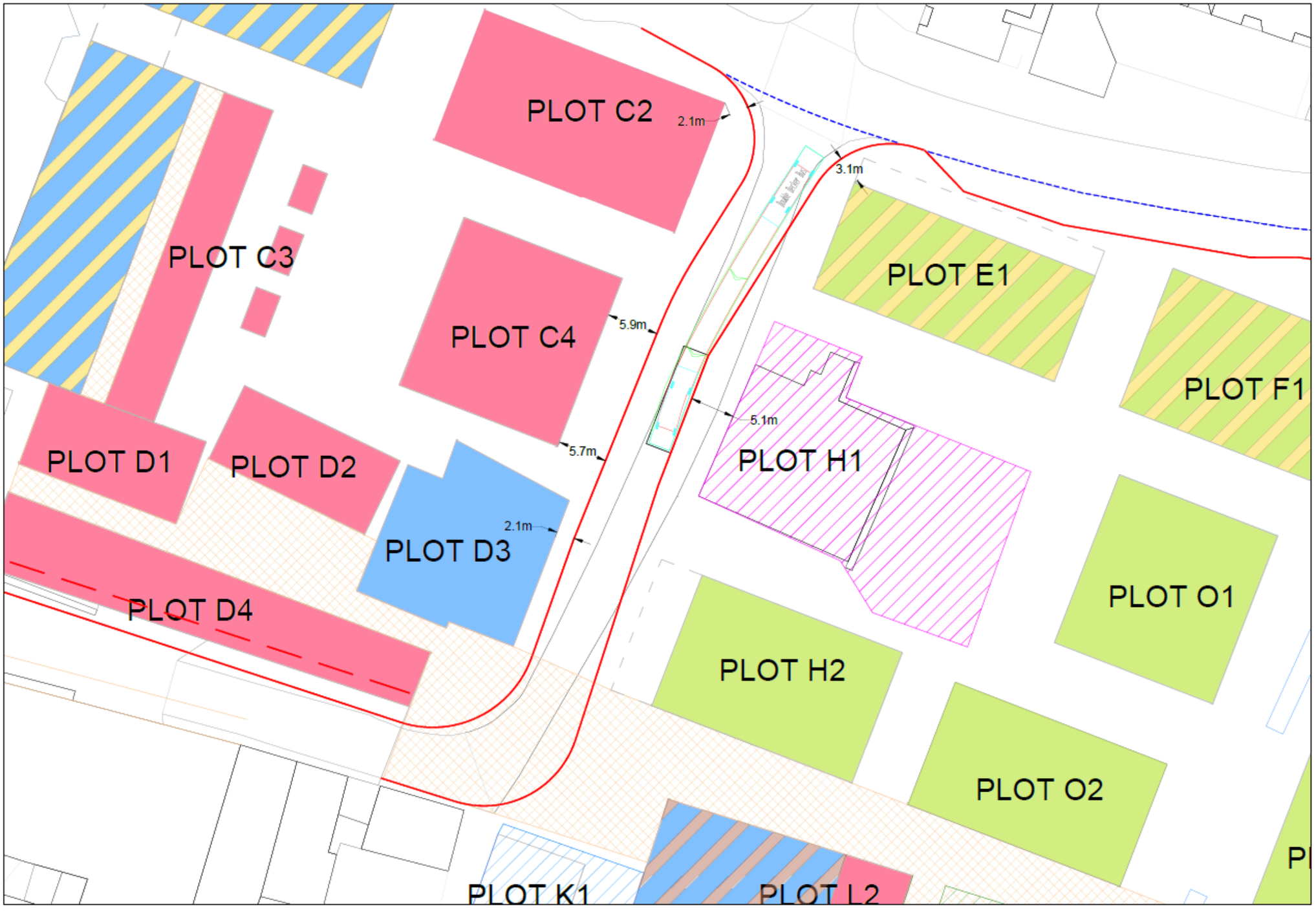
Friarsgate (west) – Testing to show independent use of single bus stop / stand with amended Iceland loading bay



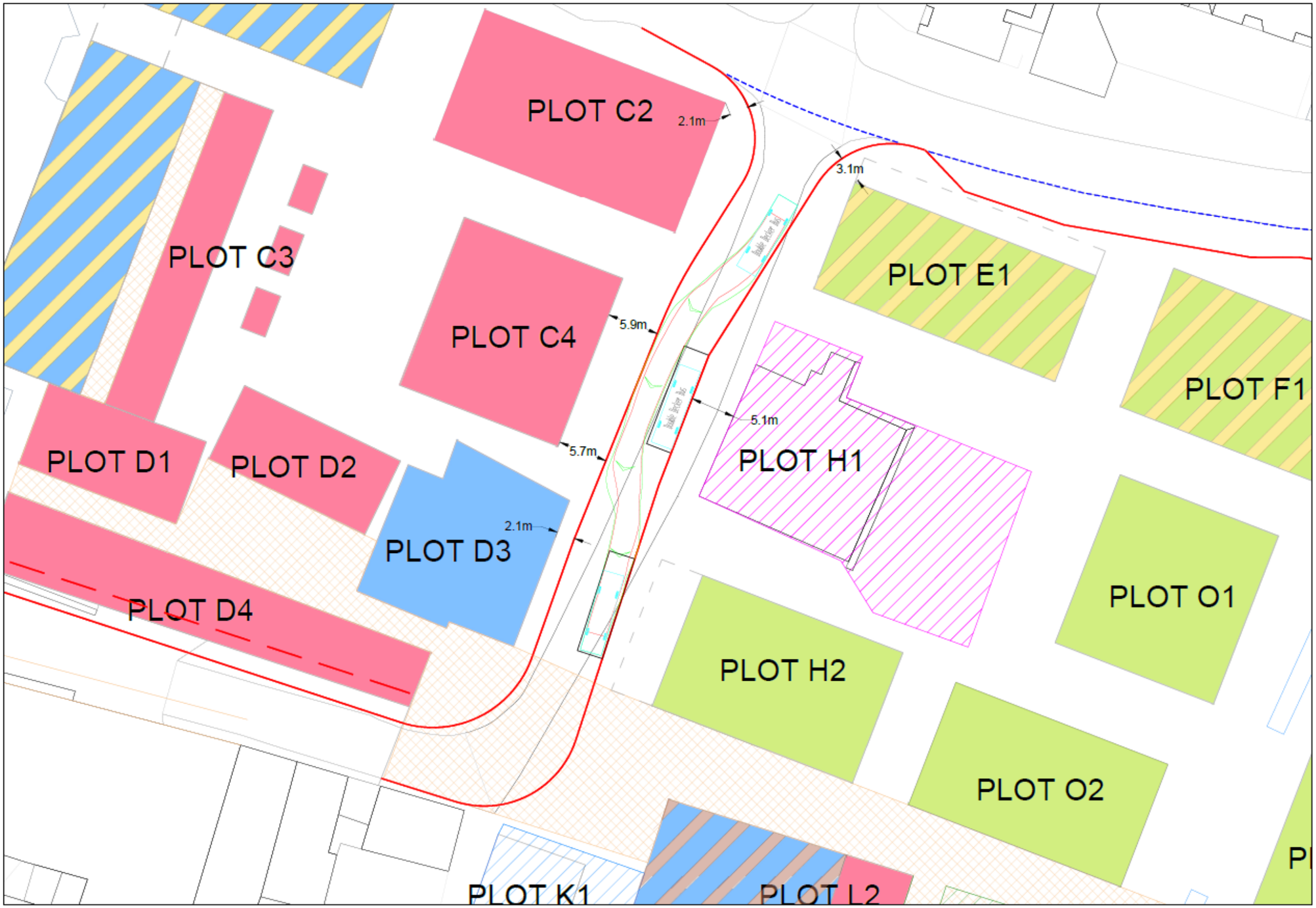
Friarsgate (west) / Upper Brook Street – Tracking showing potential bus stop arrangement and continued use by west / southbound general traffic (tracking Is for a 16.5m articulated HGV)



Upper Brook Street – Tracking showing potential bus stop arrangement and continued use by southbound general traffic

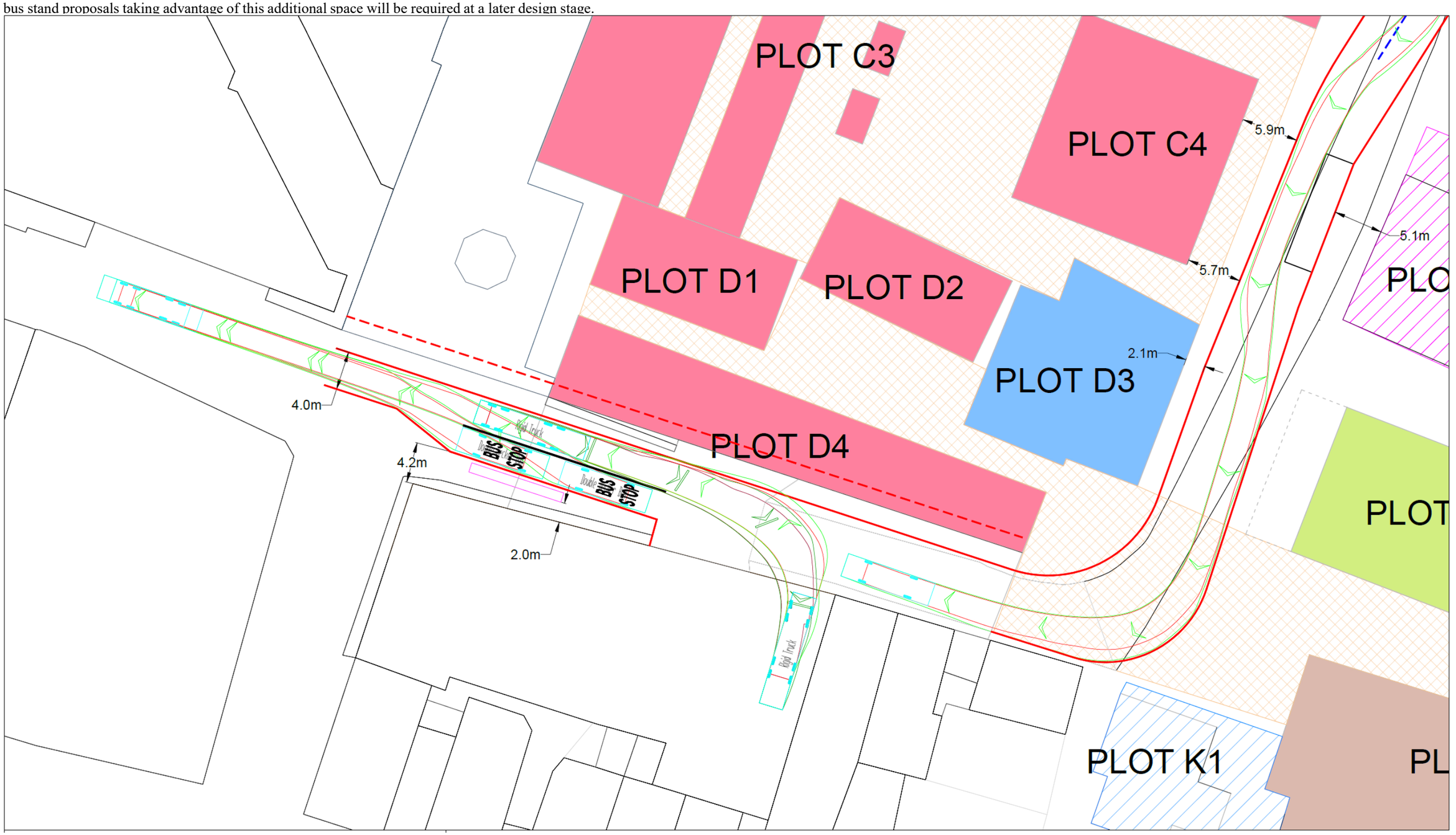


Tanner Street – single bus stand with the carriageway made one-way southbound and realigned



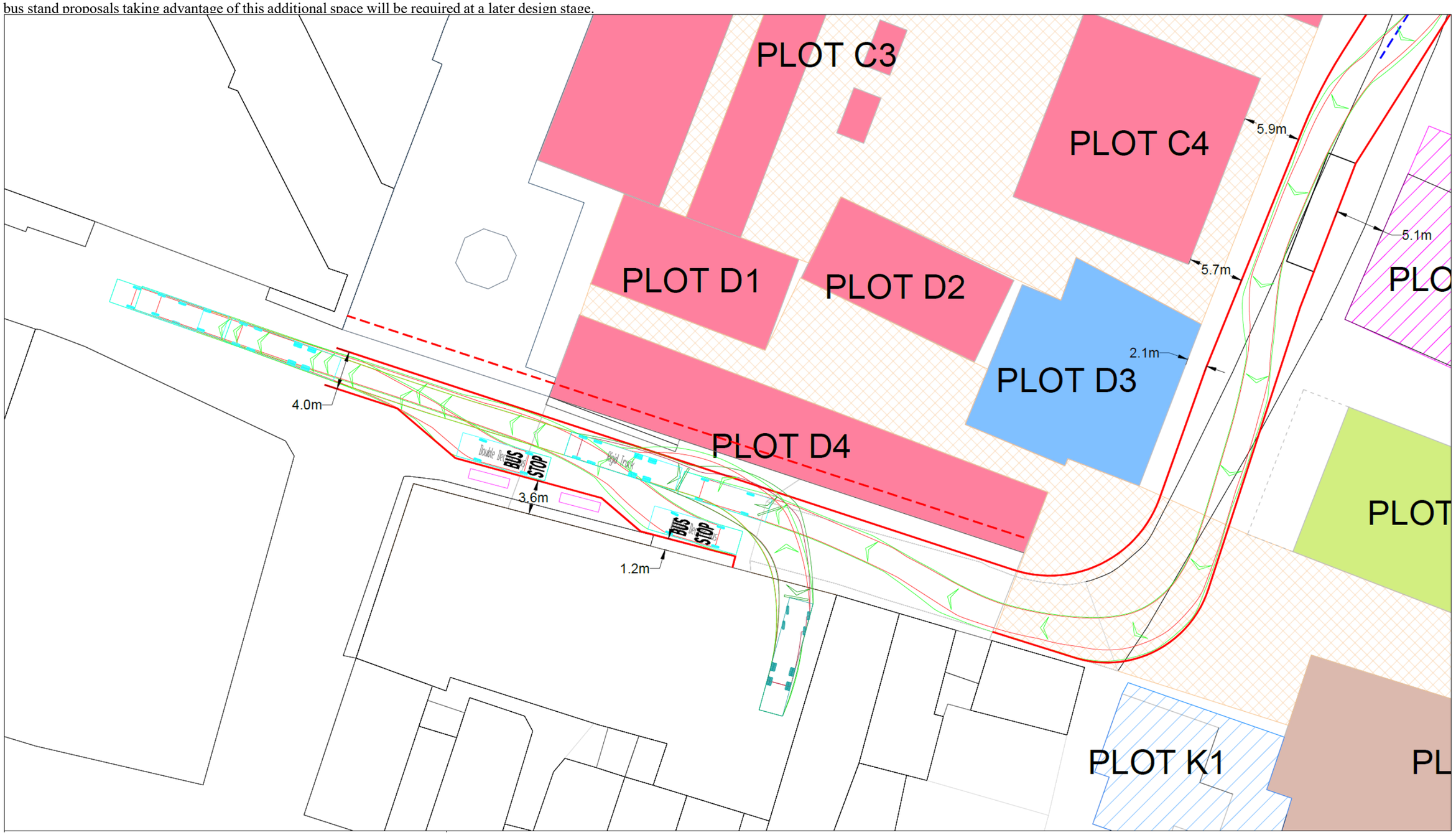
Tanner Street – two single bus stands with the carriageway made one-way southbound and realigned – note this requires realignment o the carriageway at the south of Tanner Street further east – which is not currently in scope but is a future option.

Please note that the concept masterplan has been updated and Plot D4 is not located further north than shown in these drawings. This affords more space for footway, bus/HGV manoeuvres and enhanced public realm. Further evolution of bus stand proposals taking advantage of this additional space will be required at a later design stage.

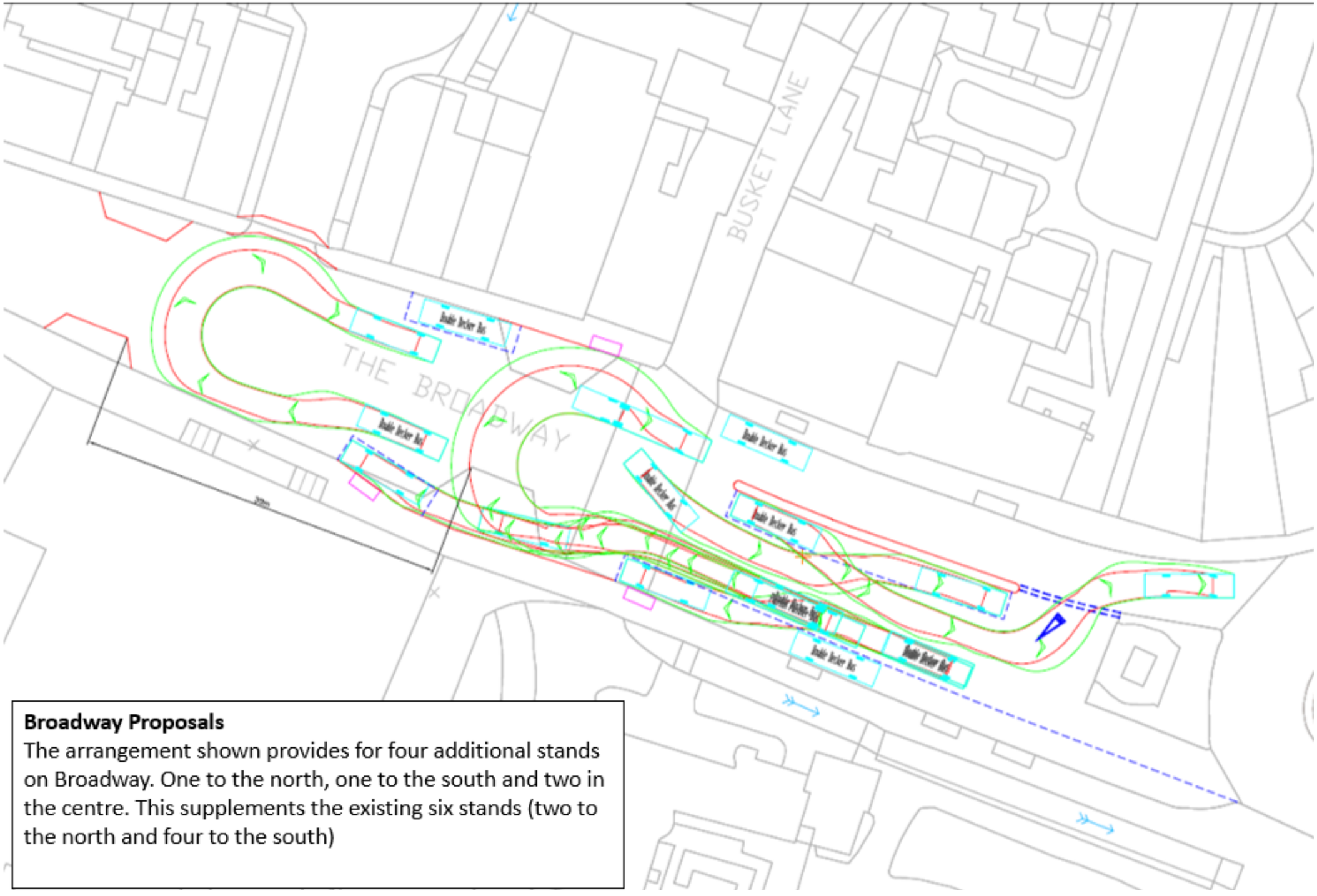


Silver Hill (east) – Option 1 for provision of bus stop, showing continued use of Sainsburys service yard

Please note that the concept masterplan has been updated and Plot D4 is not located further north than shown in these drawings. This affords more space for footway, bus/HGV manoeuvres and enhanced public realm. Further evolution of bus stand proposals taking advantage of this additional space will be required at a later design stage.



Silver Hill (east) – Option 2 for provision of bus stop, showing continued use of Sainsburys service yard



The Broadway – Concept layout