A4 Portway Park and Ride Access FBC

Full Business Case

SEPTEMBER 2023

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1 Introduction

Bristol City Council (BCC) commissioned Arcadis to develop the Full Business Case (FBC) for upgrading the access arrangements for buses between the A4 Portway dual carriageway and the Portway Park and Ride (P&R) site. The development of this FBC follows the Department for Transport's (DfT) Transport Appraisal Guidance (TAG).

1.1 Scheme Background

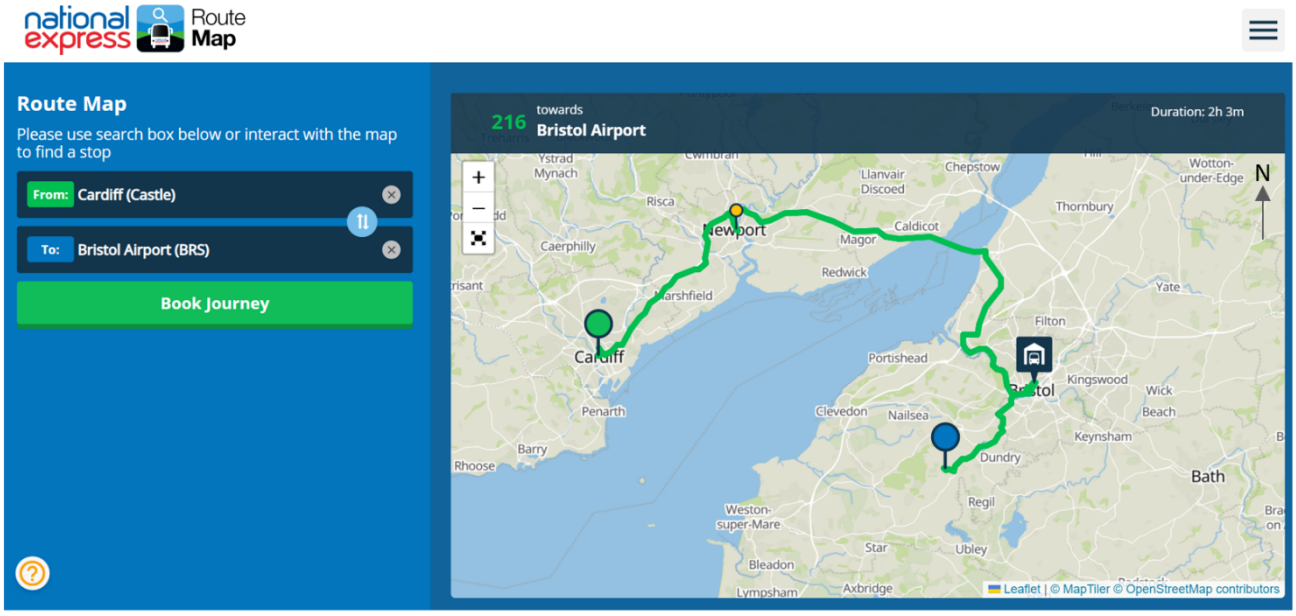
The Portway P&R site is located along the A4 Portway, a key route connecting Bristol City Centre with Avonmouth and the M5. The A4 Portway corridor already benefits from some bus priority on the inbound side of the carriageway as do parts of A4 Hotwell Road and A4 Anchor Road. This project looks to allow provisions for bus services to access and egress the site from the North and West of the city of Bristol.

The Portway P&R is the main location providing bus service along the A4 Portway linking Bristol City Centre with Avonmouth and the wider strategic network with links to the M5 and M49. The service is operated by Stagecoach West and runs seven days a week. The first bus to depart the site is at 06:15 and the last bus to depart the site is at 20:40 Monday to Friday, 06:15 to 20:40 on Saturdays and 09:30 to 17:45 on Sundays and public holidays. The service departs the Portway P&R site every 15 minutes, 7 days a week (including bank holidays) and takes 48 minutes to travel to the Brislington Park and Ride site where it terminates before travelling back through the City Centre and along the A4 Portway to the Portway P&R site (see Figure 1-1).

[1]Figure 1-1: Portway Park and Ride Bus Route

There has been an increase in the use of the A4 Portway by coach services in the last 15 years. This includes the establishment of the hourly national express service from South Wales to Bristol Airport (BRS). This route is shown in Figure 1-2.

[1] Source: https://www.firstbus.co.uk/bristol-bath-and-west/routes-and-maps/bristol-park-ride



[2]Figure 1-2: National Express Route Cardiff to Bristol Airport

The A4 Portway has also had an increase in the number of inter-urban bus services using it in recent years. In September 2020, the X5 from Clevedon and Portishead was running hourly throughout the day and achieving a journey time of 31 minutes between Portishead and Bristol City Centre. This is compared to a 51-minute journey time, off-peak, on the traditional route using the A369. However, this route has since been shortened so it does not use the A4 Portway and only travels between Weston Super Mare and Portishead.

Currently, the access arrangements at the P&R site do not allow the buses, travelling from Northwest towards the city of Bristol, to enter the P&R site. Therefore, it is essential to develop a scheme which allows buses to make a right turn from A4 Portway to the P&R site so that the full potential of the Portway P&R site can be achieved.

Over the past few years there has been significant investment in the Portway Park and Ride site, including a new rail station and expanded parking provision. The new park and ride access will build on this investment by providing better access to and from the station and Park and Ride site by bus. The investment in the site is over £8m which includes the park and ride access, parking expansion and new rail station.

The park and ride bus access was originally included as part of the P&R expansion project but was de-scoped from this project as the bus access works were not seen to be deliverable within the Transforming Cities Fund (TCF) funding deadline.

If the access arrangements are not updated at the P&R site, there will be future problems for:

- Event shuttle buses travelling from the site to the YTL Arena (currently under construction at the Brabazon Hangar, Filton)
- Rail replacement services to cater for the new rail platform (opens by summer 2023)
- The sites' future use by new, or existing services

The proposed project will deliver infrastructure changes to the Portway P&R site that allows bus services to access and egress the site from the North and West. The scheme is an integral part of the A4 Portway Corridor CRSTS proposals as there are further plans to deliver bus priority improvements along the A4 Portway. However, this Park and Ride bus access needs to be delivered ahead of these plans to enable implementation before the YTL arena opening in 2025/26 and to support rail replacement services when the station opens in Summer 2023.

The details of the preferred option are provided within the Economic Case section of this report.

[2] Source: https://routemap.nationalexpress.com/search/between/cardiff_castle/bristol_airport_brs

The Portway P&R improvements form an integral part of many regional, local transport and development plans and policies which are described in the Strategic Case section of this report. There are issues identified during the early engagement such as low bus occupancy resulting from the lack of access arrangements at the P&R site which is preventing the P&R site from fulfilling these policies and plans.

The current access arrangement at the P&R site does not support connectivity to local bus networks, particularly from the Avonmouth direction, and the nearby port. Currently, journey times to Avonmouth and Bristol City Centre are slow which does not promote bus travel along the A4 corridor.

Furthermore, the current arrangement also prohibits services travelling from or to Portbury, Severnside, and North Somerset to connect to the rail network. The connection of the P&R site with the Portway P&R train station is of great importance. As the P&R site is located on a strategic route, there will be an increased demand of travellers willing to use the Portway P&R train station. However, in the absence of an upgraded access design at the P&R site, there will be implications on the number of rail passengers in future. The Portway P&R train station is likely to open in 2023 and aiming to provide a sustainable choice of travel to the city centre, destinations along the Severn Beach line and connections to the wider rail network.

2 The Strategic Case

The Strategic Case is one of the five cases required as per the DfT's TAG to develop an FBC comprising of the following main sections:

1. Strategic context
2. The case for change

2.1 Strategic Context

The access arrangements to the Portway P&R from A4 Portway are of prime importance due to its strategic location. As such, there is a compelling case to upgrade the existing access at the Portway P&R site to accommodate future growth of the public transport provision for those travelling to and from Bristol City Centre. However, due to the level of scheme, it was decided that the FBC will need to be proportionate.

The following sections provide details on the strategic context of this study.

2.1.1 Organisational Overview

The development of the proposed A4 Portway P&R access scheme is the responsibility of BCC with the West of England Combined Authority acting as the assurance body.

The BCC aim for the Portway Park and Ride Access project is to:

'Create a new access and egress for bus services travelling to and from the North and the West of the Portway Park and Ride site that make public transport people's natural choice in mode of travel to enhance social, wellbeing, economic and environmental outcomes.'

2.1.2 Strategy and Aims

The details of the relevant policy and strategy guidelines for this scheme are provided in the following sections including the proposed stakeholder engagement plan.

The Joint Local Transport Plan (JLTP4)

The plan details the vision for transport in the West of England up to 2036. It discusses the transport challenges in the West of England such as increased travel demand, poor air quality and strain on road and rail networks.

The JLTP4 plan includes specific policies relating to the A4 Portway including:

- Building on the extensive bus priority measures already in place along the A4 Portway to cater for a future metrobus route from Bristol City Centre to Severnside.
- Expanding the Portway P&R site

The report highlights the delays on the already congested M5 junctions which are likely to result in a diversion of trips on to the other routes, including the A4 Portway leading to increased congestion along the A4 Portway corridor, Avonmouth direction, and the nearby port.

West of England Bus Service Improvement Plan (BSIP)

The plan specifically mentions the A4 Portway with the following vision:

- Upgrade the existing P&R site to a transport hub and align with the new railway station, providing segregated bus infrastructure and LTN 1/20 compliant cycle infrastructure to improve existing links.

The Park and Ride access is specifically mentioned as a scheme within the BSIP including:

'Avonmouth to Bristol city centre along the A4. Upgrade 4 junctions plus change Park & Ride access arrangements to enable buses to move both north and south.'

The A4 was also added as a priority Corridor within the BSIP to expand the existing Park & Ride site to incorporate links to the new rail station and develop it as a Transport Hub. Therefore, this new access will help develop the Park and Ride as a transport hub by providing the opportunity for a greater number of services, which will also complement the expansion of the Park and Ride site and rail station.

West of England Bus Strategy

Regarding P&R services, the strategy says:

- Bus based Park and Ride are described to be the core of the Park and Ride provision, with a high frequency offer on key radial routes into our towns and cities.
- Existing sites will be expanded, and new sites provided. These sites will be designed to fit the emerging strategic network and operate as transfer locations for connecting bus services and key interchanges between other transport modes.
- Local services could operate to and from Park and Ride sites on the edge of Bristol or Bath – allowing these services to operate at higher frequencies than they could if they travelled into the central area, and also allowing passengers to be the able to take advantage of frequent 'bus priority' Park & Ride services into the city centre.

The strategy seeks to achieve the creation of a '*bus network that people want, and are able to use, so that, as we emerge from the Covid-19 pandemic, we see a doubling of bus passenger journeys by 2036."*

City Region Sustainable Transport Settlement (CRSTS) SOBC

The A4 Portway has been identified as a high priority public transport corridor in phase one of the City Region Sustainable Transport Settlement (CRSTS) and the West of England Combined Authority (WECA) Bus Infrastructure Programme.

West of England Transport Delivery Plan

The plan hopes to achieve the following at the P&R site:

- Provide P&R and transport hubs in the right places around our region to offer reliable transport interchange, cross regional bus services and sustainable access to our urban centres for those where the car from home is the only option.

Bristol Transport Strategy

The Bristol Transport Strategy (2019) sets out planned improvements to the transport network throughout the city by 2036. The report makes specific reference to enhancing bus routes by connecting Portway P&R with Severnside.

The objectives of the Bristol Transport Strategy reflect the more localised issues and opportunities along the A4 Portway corridor project, aiming to increase frequency and journey time reliability of the public transport network, improve air quality and reduce congestion.

The City Centre Framework

Bristol's City Centre Framework (CCF) sets out proposals to improve movement, public realm and the approach to regeneration and development in the city centre.

Within the framework are 23 aims, most of which can be traced back to the needed changes to transport infrastructure facilities and 6 of which specifically mention changes to the highway network, in particular. *Aim 6: New and expanded P&R Services under CCF Public Transport aims*.

The corridor has the capacity to deliver infrastructure changes that prioritise public transport and other modes of sustainable transport over general traffic.

Local Cycling and Walking Infrastructure Plan

The West of England Local Cycling and Walking Infrastructure Plan (LCWIP) sets out to provide high quality infrastructure to ensure the West of England is a region where cycling and walking are the preferred choice for shorter trips.

The corridor has the capacity to deliver infrastructure changes that prioritise active travel and other modes of sustainable transport over general traffic.

Bristol Net Zero by 2030

This suggests the following to achieve net zero by 2030:

- A maximum of 20% of journeys by car
- A suggested 25% of journeys by public transport
- A suggested 55% of journeys by active travel

2.2 The Case for Change

In order to establish the strategic narrative for the proposed A4 Portway P&R scheme, it is essential to initially identify:

1. Other schemes which are likely to impact the proposed P&R access scheme.
2. Existing arrangements and impacts of not changing anything
3. Business needs and service gaps
4. Spending objectives
5. Potential scope
6. Main benefits and risks
7. Stakeholder engagement
8. Constraints and dependencies

2.2.1 Emerging Schemes and Development Plans

It is essential to identify other schemes which are likely to impact the proposed P&R access scheme. As such, the other relevant schemes are described in the following sections.

Bristol City Centre to Avonmouth and Severnside Metrobus

The Bristol City Centre to Avonmouth and Severnside metrobus extension will stop at the P&R site providing improved commuting options and connectivity for employees at businesses in Severnside and Avonmouth. The scheme builds on the existing bus priority on the A4 Portway, with the extended bus priority, enhanced stops and upgraded services that go beyond the standards that are set by metrobus. The scheme also builds on the extensive existing bus priority on the A4 Portway, with extended bus priority, enhanced stops and upgraded metrobus services. Further bus priorities including potential bus-only links would be needed into Severnside but this route would not be expected until 2036. The Portway Park and Ride site will be pivotal in the delivery of these ambitions, acting as a hub linking the A4 Portway with the A403 St Andrews Road.

To effectively implement a metrobus route there is a prerequisite for quality bus infrastructure. Alongside infrastructure delivery there will be the development of an operational work stream to secure service provision.

Portway P&R Site Expansion

A new railway station platform adjacent to the existing Portway P&R site on the Severn Beach Line (SBL) is set to open by summer 2023. Parallel to the opening of the rail platform, the existing Portway P&R site will be expanded, unlocking provision for a further 270 car parking spaces, increasing usage of the railway station. The improved P&R site will support the new station with rail replacement services when necessary.

Mixed Use Development

The Access 18 Development is a mixed-use development located northeast of the P&R site. The location is presented in Figure 2-1.

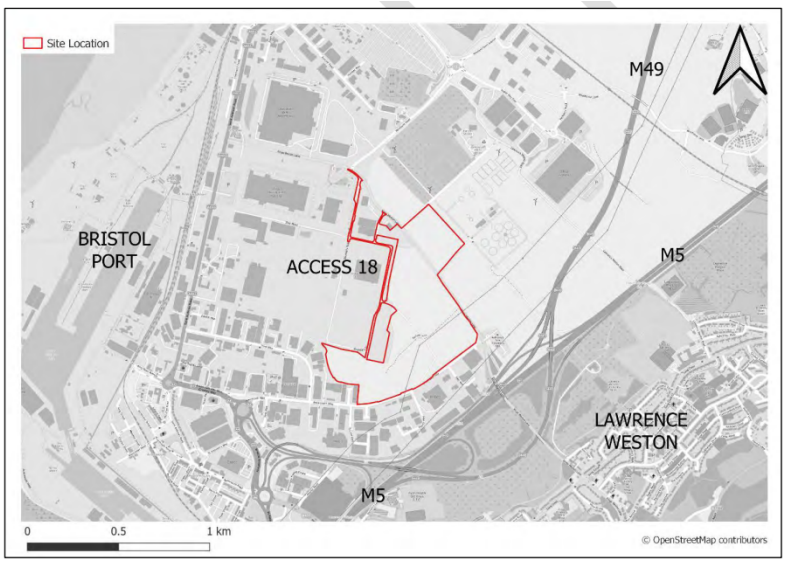


Figure 2-1 Site Location (Source: Access 18 Transport Statement)

The development is expected to attract many trips as people commute to various industrial, commercial and employment sites nearby. The current infrastructure of the P&R site does not allow bus services to serve Access 18 and therefore does not support sustainable travel to the development. Bus Service route 3 passes by Access 18, there has already been a S106 agreement between St Modwen and BCC to provide accessible bus stops outside Access 18 and within Access 18. As recorded within the transport statement liaison is currently ongoing for the best option of delivery of bus stops.

Yeoh Tiong Lay (YTL) Arena

The new YTL Arena Complex will be a multi-use entertainment and leisure venue located at the existing Brabazon Hangers, North of Bristol City Centre. At maximum capacity the arena will hold up to 17,000 people for music events as well as offices, food retail, non-food retail and leisure and training centre. The target opening year for the development is 2025/2026. The development can provide a maximum of 2,334 car parking spaces, as per the Site Allocations and Development Management Policies 2014[3], for both staff and visitors, of which, a multi-storey car park with 1,700 car parking spaces is committed. It is proposed that during busy events, the Portway P&R will provide shuttle bus services to the arena.

2.2.2 Existing arrangements and impact of not changing anything

Currently, there is only one bus service using the P&R site, the Portway P&R Bus. As it stands this service would not be impacted by the improved access arrangements, however, work is being completed to develop the Park and Ride service route further north, towards Avonmouth. An extended route with fast journey times between Avonmouth and Bristol City Centre is not possible unless an upgraded access at the Park and Ride site allows buses to turn in and out from the Avonmouth direction.

With the existing arrangement, bus services travelling south east on the A4 Portway, passing the P&R site would have to divert out of their way to turn into the site. Currently, this would involve starting from the Portway Roundabout, travelling via B4054 Shirehampton Road, turning right on to A4162 Sylvan Way and then right on the A4 Portway travelling northwest. This route is approximately 13 minutes and over 6km, (from

[3] https://www.bristol.gov.uk/files/documents/5718-cd5-2-brislington-meadows-site-allocations-and-development-management-policies/file

the Portway roundabout) whereas with a new access this would take approximately 3 minutes and be only 1km in distance. Therefore, this scheme will allow direct access to the P&R for these passing services and allow the current P&R bus to extend the route to Avonmouth.

Accessibility

The existing access into the P&R is currently accessible for buses travelling northwest, out of Bristol. The current access point allows for a left turn into the site from Bristol and a right turn out of the site towards Bristol. Based on the current accessibility arrangements for the P&R site, the buses from northwest cannot turn right into the site which is impacting the enhancement of bus services to accommodate future growth of the bus operation at this site.

Sustainability towards carbon net-zero

Not implementing significant changes to the P&R facility will provide limitations on the number of services operating, reducing service reliability and increase private car ownership. The impact of this will magnify the CO_2 emissions and the level of air pollution around the facility even more than current levels, which is set out to resolve as an objective within the project and government policies for Net-Zero. The following figures showcase the current carbon emission grade around the P&R consisting of Total emission grade, Car emission grade and travel to work by car emission grade.

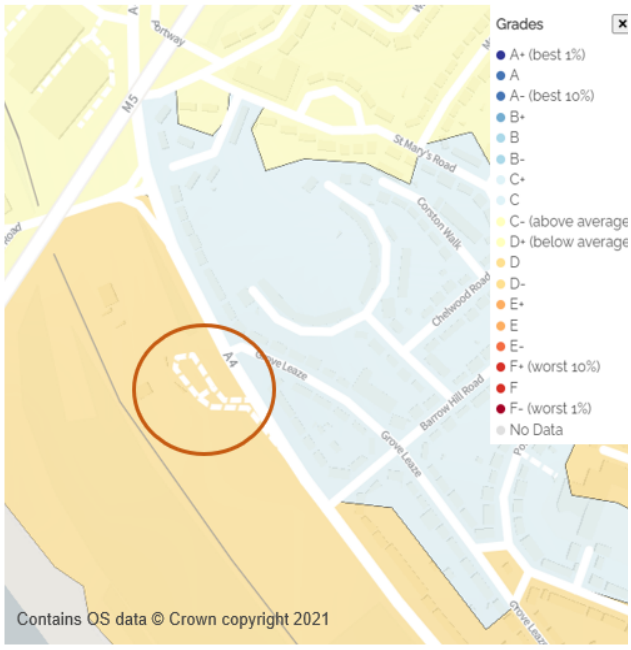


Figure 2-2: Car Emission Grade

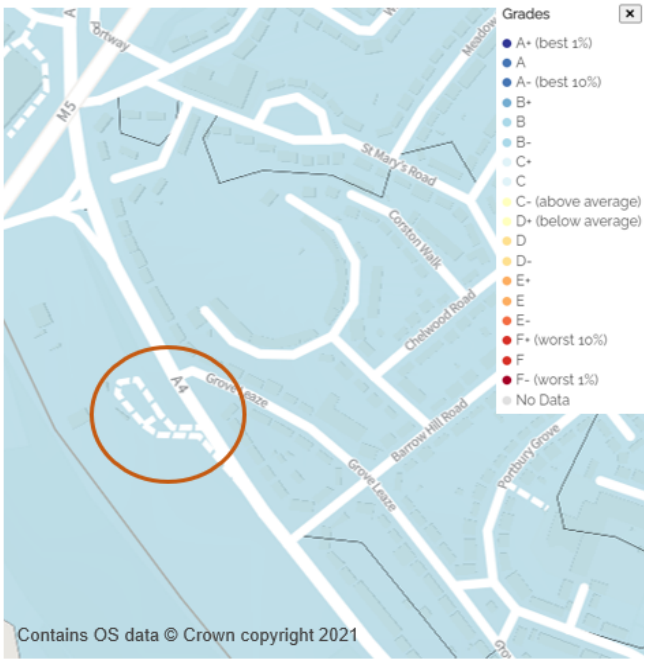


Figure 2-3: Travel to Work by Bus

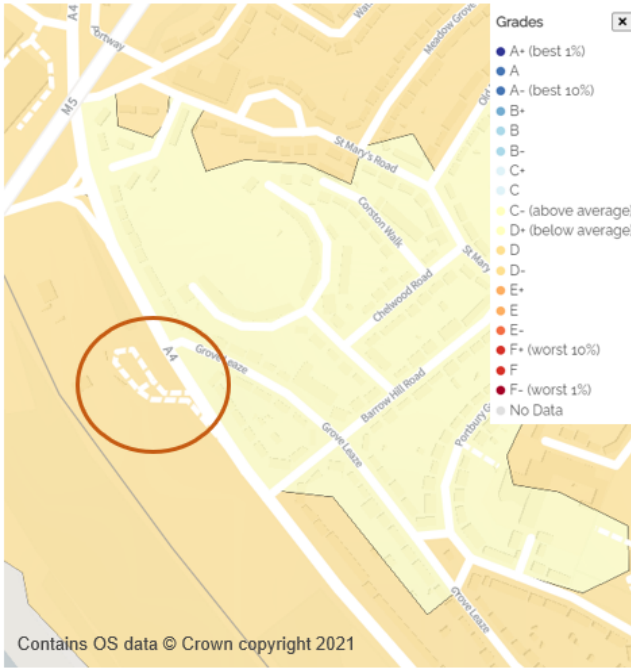


Figure 2-4: Travel to Work by Car Emission Grade

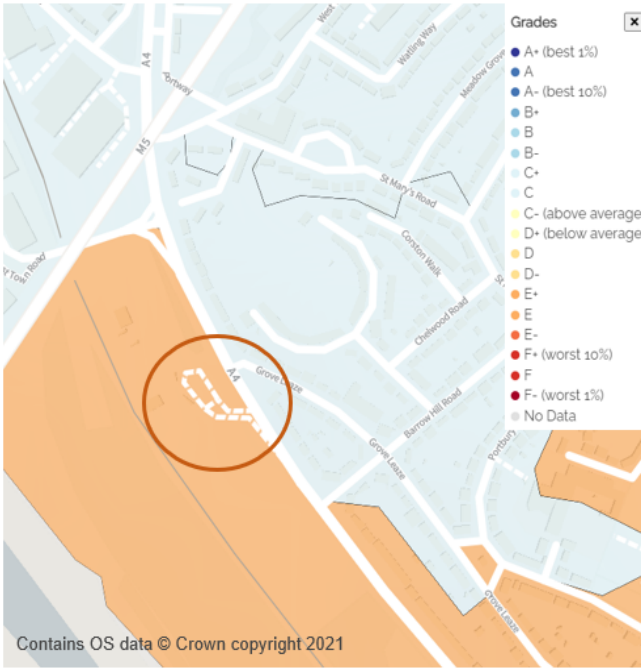


Figure 2-5: Total Emission Grade

Although travel to work by bus is above the average as shown in Figure 2-3, car emission grades are still very high indicating greater private car usage resulting in serious environmental and health concerns in the long-term.

If nothing changes and buses are not able to access and egress the site from the northwest:

- Journey times will remain slow by bus compared to car between Avonmouth and Bristol City Centre which could lead to Bristol failing to meet targets to reduce car journeys.
- Rail replacement services will not be supported which may impact on usage of the new rail station.
- YTL arena services will not be supported meaning the YTL arena will not be able to achieve the mitigation measure provided in their transport assessment.

- There would be no opportunity to promote sustainable travel further and achieve long-term aspirations to develop Dynamic Demand Responsive Transport (DDRT) and a transport hub at the Park and Ride site.

2.2.3 Business needs and service gaps

This scheme takes into account the regional goals set out to enhance the current infrastructure for the provision of public transport and improved connectivity addressing the global concerns of air pollution as well as air quality. To further unlock this potential, improvements are required on the current public transport network to facilitate accessible transport options whilst mitigating private car usage.

Currently, the A4 Portway dual carriageway is dominated by the private car usage, specifically in and around the Avonmouth region, with limitations restricting change due to the reliability and accessibility of the surrounding public transport provisions. With the provision of the Clean Air Zone (CAZ) within central Bristol, this will help unlock newer and quicker routes into and out of Bristol driving change towards more public transport usage and encouraging modal shift. The development of this scheme will allow for more bus services to stop at the A4 Portway P&R site, providing more frequent and regular services reducing on-road cars, reducing congestion and mitigating carbon emissions.

The planned developments such as the new railway station and the YTL Arena will lack the connectivity of services and a resilient transport network to drive change. Implementation of this scheme will help to build on the opportunity to provide rail replacements for the stations during unexpected periods as well as connectivity across different transport modes across the wider region. During major shows and events, shuttle buses can accommodate services to the YTL Arena to reduce private car travel, providing effective and reliable services and reducing parking concerns.

In summary, the new Portway Park and Ride access/egress is needed to enable:

- Improved services and journey times to and from Avonmouth and the city centre
- Complement the Park and Ride Station by providing rail replacement services
- Provide shuttle bus services to the new YTL arena development which has been provided as part of the transport mitigation for the site
- Encourage a range of journeys between Bristol City Centre and the Park and Ride to be by Bus instead of car
- Demand Responsive Transport, a Future Mobility Zone and the increase frequency of services at the park and ride, all of which are aspirations for the site.
- The promotion of the Park and Ride to active travel users

The scheme, as well as the wider A4 Portway network, is specifically mentioned within the BSIP. This scheme will complement schemes already completed, under construction and planned to ensure the whole corridor delivers policy and strategy ambitions.

2.2.4 Spending objectives

The proposed A4 Portway P&R site access scheme will be funded under the City Region Sustainable Transport Settlement (CRSTS) funding. The CRSTS funding is a new approach to investing in local transport networks, consolidating existing funding streams and allowing city regions to develop and invest in long term strategies. **Error! Reference source not found.** demonstrates the alignment between the DfT's CRSTS objectives and the scheme.

Table 1: CRSTS Objectives and Scheme Alignment

CRSTS Objectives	Scheme Alignment
Driving growth and productivity through infrastructure investment	Enhanced connectivity will harness the full potential of the A4 Portway corridor - maximising the benefits of regeneration, enhanced skills initiatives, and new job and education opportunities. Better connecting the corridor to key destinations supports the levelling up agenda and aligns with the inclusive growth agenda.
Levelling up services towards the standards of the best	The project is likely to have an overall positive effect, especially on key groups that suffer the effects of congestion and associated pollution. Improved access from strategic public transport to deprived areas will increase the reach of public transport, and also improve access to local facilities and amenities, enabling local people to fully benefit from the investment.
Decarbonising transport, especially promoting modal shift from cars to public transport, walking and cycling	The proposed scheme seeks to decarbonise transport by shifting trips away from private cars to sustainable modes such as bus and train.

The scheme specific objectives for providing the Portway P&R access are summarised as follows:

1. Improving the journey time for those travelling between Avonmouth and Bristol City Centre by delivering enhanced access to/from Portway P&R site post opening.
2. To deliver a P&R facility that has the capacity to accommodate event shuttle buses for the YTL Arena in time for the Arena opening in 2025/ 2026
3. Safeguard the possibility of running new or additional services from the Portway P&R site northbound to serve Avonmouth, Weston Super Mare, Portbury, Portishead, Severnside, South Gloucestershire, North Somerset, South Wales etc
4. Increase the proportion of trips that are made by bus, particularly from the Avonmouth area, to contribute to a doubling of bus passengers by 2036
5. Reduce levels of air pollution and CO_2 emissions along the A4 Portway through mode shift from private car to public transport to support Bristol Net Zero by 2030
6. Improve pedestrian experience and increase active travel around the Park and Ride site and in Avonmouth

These objectives have been developed to address the problems that have been identified within the previous sections of the business case in terms of traffic congestion and carbon emissions. The objectives have also been developed with consideration to future proofing the site to provide rail replacement services and allow services from Portway Park and Ride to the YTL arena. Furthermore, Bristol and the West of England has set ambitious targets with regards to increasing bus passengers and reducing car emissions/promoting mode shift. Therefore, these objectives have been developed in order to help this scheme achieve various policy and strategy targets mentioned in the policy section for the particular movements it will serve.

2.2.5 Potential scope

The potential scope of this scheme is to provide new access for bus services travelling from North / West of A4 Portway to the Portway P&R site and a new egress for bus services from the Portway P&R site to A4 Portway North / West. As described in the previous sections, there is a significant opportunity to enhance the use of public transport through the proposed P&R site. This new access arrangement will not only allow more buses to access the P&R site, but also provide an alternative to the private car users to avoid driving towards the city centre and assist in achieving the goal of a city with the increased public transport usage.

The desire to deliver this piece of work on an accelerated timescale is a result of the transport mitigations imposed by the YTL Arena Development. As part of the development's transport mitigations, they plan to use the A4 Portway P&R site for shuttle buses, running them up the M5 motorway to the development site at the Brabazon Hangar on the old Filton Airfield. To achieve this, a new access / egress to the P&R site will be needed for buses travelling to and from the North and West of the P&R site. There are additional benefits to implementing this measure such as the opportunity for new and/or additional services at the P&R site, and rail replacement services will be able to serve the new A4 Portway P&R train station. Furthermore, by providing the new access this will deliver improved and faster services between Avonmouth and Bristol City Centre. This aligns with the Joint Local Transport Plan 4, which mentions building on bus priority on the A4 corridor to cater for a future metrobus route between Severnside and Bristol City Centre.

The scope of the pedestrians and cycling improvements includes the following:

- Wayfinding on the A4 Portway, St Mary's Road and West Town Road to provide directional signage for cyclists and pedestrians to the Park and Ride, A4 Portway, Lawrence Weston, Shirehampton and the City Centre. This will help encourage people to walk to various sites within the vicinity of the Park and Ride.

- Flush kerbs and cycle boxes have been incorporated into the design to ensure sufficient provision for cyclists. Any cyclist provision conforms with the core design principles as set out in Section 4.2 of LTN 1/20.

2.2.6 Main benefits

Figure 2-6 shows the logic map and the main benefits that will be achieved through the development of this scheme, providing enhanced accessibility, reduced private car usage and increase in the number of bus services.

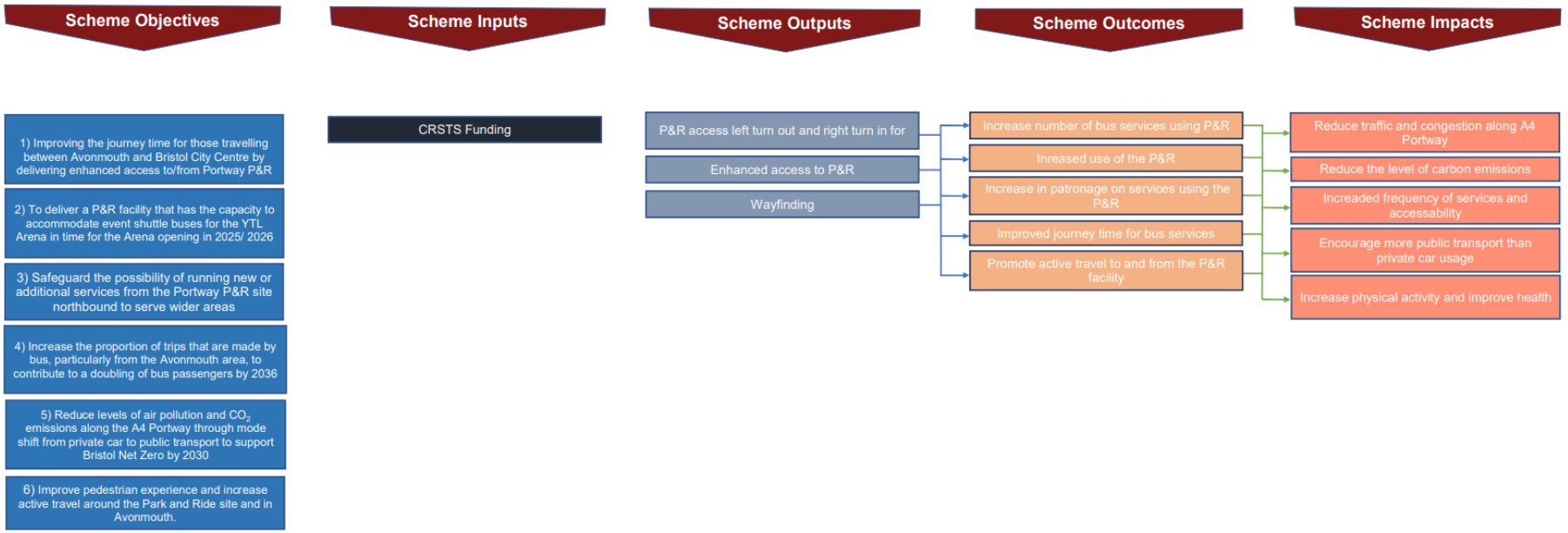


Figure 2-6: Logic Map

The main outcomes of the Park and Ride and how they link to the benefits provided in the economic case are as follows:

- Increase the number of bus services using the Park and Ride – Currently only Service 9 stops at the Park and Ride. Therefore by providing access to the Park and Ride site from Avonmouth area, this allows services to use this as a bus stop including the 3, 4, 10 and 11 and YTL arena services.
- Increased use of the Park and Ride – By providing the new access this will enable more opportunity for services to use the Park and Ride site. Therefore, the bus provision from the Park and Ride will be enhanced and more people will park at the site before carrying on their onward journeys. The service 10/11 stopping at the Park and Ride will create the opportunity for people travelling to Southmead from North Somerset to use the Park and Ride service.
- Increased patronage on services using the Park and Ride – The opportunity to extend the Portway Park and Ride number 9 service into Avonmouth will increase patronage on the number 9, as the fast service will attract users from the Avonmouth area.
- Improve journey times for bus services – By extending the service number 9 to Avonmouth this provides those living and working in the area a faster journey time by bus into central Bristol. It will also improve journey times for those currently using the Bus Service 3 and 4 between Avonmouth and Bristol as the service could use the A4 Portway for the journey into Bristol.
- Promote active travel to and from the Park and Ride facility – The provision of cycle infrastructure and wayfinding will promote people walking and cycling to and from the Park and Ride site as well as other destinations. Furthermore, by providing the access there is the opportunity to establish a Future Mobility Zone which will encourage more people to travel via active travel to and from the site.

The scheme impacts are as follows:

- Reduced traffic and congestion along the A4 Portway – By providing improved and faster services between Avonmouth and Bristol City Centre, this will encourage those who drive to use the bus and will reduce those travelling by car along the A4 Portway.
- Reduce the level of carbon emissions – Similar to the above, providing more services from the park and ride site and faster services between Avonmouth and the City Centre will encourage people to use public transport instead of driving into the City Centre, therefore, reducing carbon emissions.
- Increase frequency of services and accessibility – By extending the Portway Park and Ride service 9 into Avonmouth it will improve the frequency of services between Avonmouth and the City Centre and also provide enhanced accessibility for people working and living there by public transport.
- Encourage more public transport than private car usage – By providing a more attractive and faster bus services e.g. Service 9,10,11, 3 and 4 between the Park and Ride and Bristol this will encourage people to use public transport for some or all of their journey, in turn promoting public transport use rather than private car.
- Increase physical activity and improve health – By providing wayfinding it will help increase walking to and from locations such as Avonmouth and the Park and Ride site in turn increase physical activity which provides health benefits.

2.2.7 Risks

Table 2 below shows some additional risks associated with the project to those in the Management Case in Appendix F. These risks can be found in the risk register.

Table 2: Risks associated with the project, level of impact and mitigation measures.

Risk	Impact	Risk Rating	Mitigation Plan
Increase in costs	Cost increases or delays in construction schedule may result in scheme exceeding the cost estimate	High	Working closely with the contractor to ensure there are no delays within the initial programme. Early identification of expected delays can help avoid unnecessary delays.
Market inflation	Nationwide unpredictability of material costs and uplifts due to current high inflation levels.	High	Appropriate inflation has been accounted for in the financial case.
No services use the P&R	Bus service operators do not use the new access.	High	Early engagement with bus operators to understand their willingness for using the new P&R access. Discuss requirements for BSIP or funding to encourage operators to use the site. Ongoing engagement as part of the West of England Enhanced Partnership (legally binding agreement with bus operators in the region to provide better ticketing and passenger information, lower fares, investment in bus priority measures and new and improved services).
No increase in patronage	The scheme does not result in increased use of buses.	Medium	Working with bus operators, BCC teams and other stakeholders on the behavioural change and modal shift.
COVID-19	Uncertainty over future demand for public transport.	Medium	Ongoing review of changing demand, relating to public transport.

2.2.8 Stakeholder Engagement

BCC produced different products and a webpage to understand public views about their travel issues along the route. The products included a survey with a freepost envelope, postcards and posters. The survey was available from the 29th of June until the 17th of August 2022. In addition to the public consultation, BCC consulted key stakeholders such as Stagecoach, First Bus and Bristol Walking Alliance for their thoughts and comments.

Virtual key stakeholder workshops were conducted which involved a short presentation about the A4 Portway corridor and what the council was trying to achieve, followed by a discussion looking at the challenges and opportunities along the route from a transport perspective. The views from the public and key stakeholders were summarised in an early engagement report and aided the development of the project plan.

Whilst the Stakeholder engagement was for the whole A4 Portway corridor, there was a specific section dedicated to the Park and Ride access. Public consultation will also be held with local residents and stakeholders in January 2024. A statutory consultation will also take plan as part of the Traffic Regulation Order (TRO) process in October 2023.

2.2.9 Constraints and dependencies

The delivery of the project will be considered in line with future developments that are planned around the A4 Portway P&R site, as well as in the context of local, regional and national policy. The main dependencies of the scheme are summarised below.

Dependencies

The development of the new station later in 2023 adjacent to the existing A4 Portway P&R site will provide rail replacement services from the site into Bristol City Centre increasing the usage of the P&R site and unlocking the provision for a further 270 car parking spaces. Therefore, this expansion of the existing site is dependent on the railway station development.

The YTL Arena development to the North of Bristol City Centre is to be finished during the 2025/2026 year, providing an arena that can hold up to 17,000 people at maximum capacity. The P&R scheme will provide shuttle bus services to and from the arena when the arena is at full capacity and the parking at the site is not able to accommodate. Therefore, the P&R site would be utilised to not only accommodate the overflow car parking from the arena, but also provide a sustainable mode of transport through buses to reduce congestion and air pollution.

Constraints

The design of the proposed right turn lane into the existing P&R site will be delivered within the BCC owned highway boundary. Therefore, the Highway boundary is a physical constraint as works will need to be contained within this boundary area.

The availability of funding is a constraint, if the CRSTS funding required to deliver this scheme is not available then the park and ride access cannot be delivered.

3 Economic Case

3.1 Introduction

The economic case section identifies the proposals that deliver the best public value to society, including wider social and environmental effects. The long list of options has been appraised in terms of how well they meet the spending objectives and critical success factors for the scheme and the short list is examined in further detail to select the preferred option. The preferred option then undergoes an economic appraisal to determine the value for money.

3.2 Critical Success Factors (CSFs)

Critical Success Factors are defined as the factors considered during the options assessment process that indicate key performance criteria which scheme options are compared against, as a method of determining the highest performing options.

A tailored set of CFSs have been developed in accordance with the strategic objectives of the study. These are outlined in Table 3.

Table 3: Critical Success Factors

#	Critical Success Factor (CSF)	Alignment to Project Objectives
1	Increase/change in bus services which use the Park and Ride site	This links to a number of the objectives, especially objective number 4, increasing the number of services using the Park and Ride will increase the proportion of trips which are made by bus. This will also reduce levels of air pollution and CO_2 emissions through increased bus patronage and reduced car use.
2	The scheme must result in the ability for buses to access/egress the site from the north west.	The links to objectives 1,2 and 3. By upgrading the access, this provides a facility that can accommodate event shuttle buses and safeguards the P&R to be able to accommodate rail replacement services to service the new station. It also helps improve journey time for buses, contributing to journey time targets in the Bus Service Improvement Plan.
3	Maximising Value for Money	This links to objectives 1, 4 and 5, reducing bus journey times, increasing bus patronage and modal shift away from cars all provide monetisable benefits which can be used to maximise the return on investment.
4	Successful delivery of the scheme by 2025	The construction is to be completed successfully to accommodate rail replacement services and the YTL arena buses by 2026.

#	Critical Success Factor (CSF)	Alignment to Project Objectives
5	Scheme cost within budget allocated	The scheme costs will be within the allocated budget and CRSTS funding. The original budget was for the Portway Transport Corridor and 'Hub' and the allocated budget is [Please note that this information has been redacted for commercially sensitive reasons].. This bus access is considered as part of the 'Hub', so this still deliverable within the total scheme budget.

3.3 Long-listed Options

A proportionate longlisting process has been undertaken to outline opportunities to resolve the identified issues in the study area and fulfil the project scope. A preliminary 'intervention appraisal' was undertaken to explore interventions that would be suitable for the project. The interventions considered and the outcomes are presented in Table 4. A full description of the options and optioneering process can be found in the Options Assessment Report included in Appendix A.

Table 4: Longlist options

#	Intervention Description	Advantages/Disadvantages	Alignment to CSF and Objectives?	Appraisal Outcome
0	Do Nothing		No	Carried forward to the shortlist to provide comparison for other options
1	All bus movements at the existing junction	Increased queuing times for outbound traffic Loss of trees on the north side of the carriageway Increased diversions of utilities Shifted main carriageway location closer to residential properties leading to loss of the verge	Yes	Carried forward to the shortlist
2	Left turn out and right turn in at the new T-Junction	Buses caught in traffic due to exiting with all vehicles Possibility of cars accessing new bus lane and taking	Yes	Carried forward to the shortlist

#	Intervention Description	Advantages/Disadvantages	Alignment to CSF and Objectives?	Appraisal Outcome
		advantage of it as a right turn out of the existing junction Difficulty maintaining P&R operations while work is in progress		
3	New junction at the western end and left turn out at existing junction	A reverse camber of 7%, creating a turn too severe for buses to make Major loss of trees on south side of carriageway	Yes	Carried forward to the shortlist
4	Left turn out for buses and right turn in for buses	Unsafe pedestrian movements Stop line for buses increasing intergreen time for west running lanes	Yes	Not carried forward to the shortlist
5	Left turn out, right turn in for buses with the addition of a triangular island	Does not directly affect car park exit road during construction Less impact on the P&R operations during construction Tree removal extensive (20+ required for removal)	Yes	Not carried forward to the shortlist
6	This option adds a triangular island to Option 4 and additional lane in and out of the P&R site	Stop line for exiting buses is set so far back into the P&R site that waiting buses will block the sites' internal informal pedestrian crossing	Yes	Not carried forward to the shortlist
7	Separate bus lane and car exit lane	Safety concerns about the multiple exit lanes Difficulties for vehicles to manoeuvre to the correct lane for the next junction	Yes	Not carried forward to the shortlist

#	Intervention Description	Advantages/Disadvantages	Alignment to CSF and Objectives?	Appraisal Outcome
8	Additional exit lane for the existing car park	Loss of vegetation / trees and car parking bays Difficulties with the traffic merging over a short distance Difficulties keeping car park in operation while work is in progress	Yes	Not carried forward to the shortlist

Consistent with HMT Guidance on business case development, the high level strengths, weaknesses, opportunities and threats (SWOT) appraisal in the table above enabled rejection and sifting of options deemed either too costly or too technically challenging for delivery within the scope of the scheme. Several of the long-list options were discounted based on their impact (as described in the table above). Intervention option 1, 2 and 3 were highlighted for further detailed appraisal to identify the most effective solutions with the best value for money.

3.4 Shortlisted Options

The shortlist contains the Do Nothing, Options 1, 2 and 3 from the longlist in Table 4. Option 2 was split into two variations. All options were further developed, modelled, and appraised for the purpose of the short-list.

A proportionate sifting exercise was undertaken and a ‘light touch’ multi-criteria sifting process was established to determine a preferred option. This is described in more detail in the Options Assessment Report.

The Do Nothing option has been carried forward to provide comparison for other options (as described in Table 5).

Table 5 below appraises each of the shortlist options.

Table 5: Shortlist Options

#	Option Description	Score	Sifting	Justification
0	Do Nothing		FAIL	This is required to be taken forwards to provide a comparison against other options.
1-011	Buses travelling to and from Avonmouth / M5 direction can access and egress the P&R site using single entry/exit point.	20	FAIL	Not likely to be affordable and publicly acceptable
2-012	This is a T-Junction arrangement including a flipped staggered crossing to make small space for right turn area for buses. This includes a straight across crossing for pedestrians and new wayfinding signage.	29	CARRY FORWARD	Fits well with local, regional and national policy objectives. Option is likely to be affordable and deliverable.
2A-013	This is a variation of Option 2-012 (T-Junction arrangement). This includes moving the staggered crossing towards junction with Grove Leaze. Grove Leaze to be closed in one way for general traffic. By doing this, it creates a larger space for buses turning right.	22	FAIL	Not likely to be affordable, deliverable and publicly acceptable
3-014	This includes a new right turn lane for buses entering the site. The pedestrian crossing is moved to the eastern side of the current bus access / egress junction.	20	FAIL	Not likely to be affordable and publicly acceptable

Option 2-012 is carried forward as the preferred option for further appraisal in this economic case. Option 2-012 scored the highest of all the short-listed options. This was due to the option fitting better with local, regional and national policy objectives, being more affordable and more deliverable than the other options. Option 2A -013 has the second highest score, however, this is not as publicly acceptable, deliverable or affordable than Option 2-012. Options 1-011 and 3-014 scored the lowest of all the short-listed options, this is because they are not likely to be affordable and publicly acceptable respectively.

Preferred Option

The preferred option drawing is presented in Appendix B. This option widens the current bus egress to include a new left turn lane for buses exiting P&R towards Avonmouth. The existing corner horizontal alignment radius is increased to enable larger buses to access P&R. The gates at the bus entrance to the site will remain in their current position, but will be replaced with new, wider gates and a new, signalised, straight through pedestrian crossing will be constructed here.

The staggered pedestrian crossing on the A4 Portway will be flipped, moving the crossing over the westbound carriageway further west, which will allow the central reservation to be reduced to provide room for a waiting area for buses turning right into the Park and Ride site. The splitter island at the current bus access / egress will be re-aligned to allow buses approaching from the west to make the right turn into the site.

The old footway and the bus stop layby on the A4 westbound carriageway will be broken out and re-seeded. A section of grass verge will be made into an extended hard standing area, with flush kerbs installed for cycle access. New wayfinding signage will be installed including new cycle and pedestrian signs.

3.5 Economic Appraisal Methodology

A proportionate approach to the economic appraisal has been undertaken, this has taken into account the scale of intervention alongside likely costs and benefits of the scheme. As such, a bespoke spreadsheet methodology has been used to predict the potential bus impact. No public transport modelling has been undertaken as part of this approach.

To calculate impacts for the economic appraisal, a Transport Analysis Guidance (TAG) compliant bespoke spreadsheet tool based on the Small Scheme Appraisal Toolkit (SSAT) has been used. The SSAT is considered an appropriate methodology as small bus infrastructure schemes are specifically referenced in the SSAT guidance[4].

The bespoke tool calculates two types of benefits:

- Marginal External Costs (MEC)s from mode shift away from car to bus travel
- Journey time savings for bus

Marginal External Costs

The following monetised MECs savings were calculated through increased bus use and the resulting decrease in highway kilometres travelled:

- Congestion
- Air quality
- Greenhouse Gases

[4] Small scheme appraisal toolkit user guide - GOV.UK (www.gov.uk)

- Indirect tax

The bespoke spreadsheet tool allows for a ramp up in demand for the new services between the opening year and 2030. The change in person bus trips between the DM and DS in the opening year and each consecutive year until 2030 is calculated. This number is converted to a change in the number of highway trips using a diversion factor and an average vehicle occupancy.

Journey Time Savings

The bespoke spreadsheet calculates bus journey time savings. The difference in travel time per user is calculated using the opening year demand and time inputs. The annual journey time benefits are calculated using the rule of a half to account for new users. The benefits are monetised using the opening year values of time weighted by journey purpose.

Assumptions

There are assumptions in line with TAG made within the bespoke tool which have utilised:

- Base Year - 2010
- Opening year - 2025
- Appraisal period –30 years except YTL arena which is 60 years
- Discount rate - 3.5% for the first 30 years and then 3% after that
- Annualisation Factor – 253 (apart from YTL services – see below)
- Journey purpose - split based on person trips from TAG Data Book v1.20.2, January 2023 (apart from YTL services)
- Values of Time - TAG Data Book v1.20.2, January 2023
- TAG External costs TAG - Data Book v1.20.2, January 2023
- Occupancy Rates - Occupancy per vehicle kilometre travelled TAG Data Book v1.20.2, January 2023
- Diversion Factors – Car 24%, Taxi 12% TAG Data Book v1.20.2, January 2023 (apart from YTL services see below)

Scheme Economic Impacts

In order to understand the impacts with the scheme in place, a proportionate approach has been undertaken using available data in the absence of public transport modelling. Therefore, as provided in the Appraisal Specification Report (ASR) the economic benefits and consequent BCR is presented as a range based on the following two scenarios:

- Committed Demand Scenario
- Aspirational Demand Scenario

The services and assumptions included within each of the scenarios are displayed in Table 6. The inputs and outputs of the calculations are provided in Appendix H.

Table 6: Bus services included in appraisal scenarios

Bus Services Likely to Use the Portway Park and Ride Site	Committed Demand Scenario	Aspirational Demand Scenario	Approach
YTL Arena Buses	1,350 Passengers peak hour demand per event (from YTL Transport Assessment)	N/A for YTL Arena as it is an event-based service	Bus journey time savings calculated based on the Arena Infrastructure Package FBC indicating 17 ‘Grade A’ event days per year.

Bus Services Likely to Use the Portway Park and Ride Site	Committed Demand Scenario	Aspirational Demand Scenario	Approach
Extending Stagecoach number 9 (Previously First Bus Portway P&R) Bus Service to Avonmouth/Severnside	Based on increased passenger demand for those that travel to and from Avonmouth and Bristol	Increase in passenger demand from the committed demand scenario	Journey time and MECs calculated using the bespoke tool
Run orbital services, including Stagecoach service 10 and 11 into the P&R site	Based on new passenger demand for those that travel between Somerset and Southmead	Increase in passenger demand from the committed demand scenario	MECs calculated using the bespoke tool
Services 3x / 4x (Peak period First Bus 3 and 4 services to divert onto A4 due to Portway P&R)	Based on diverting peak period (07:00 -10:00 and 15:30 – 18:30) services on the A4 Portway between West Town Road and Sylvan Way	New services 3x and 4x divert on the A4 Portway between Avonmouth and Bristol City Centre	Qualitative only so not to double count with Service 9 benefits.
Wayfinding journey quality and health impacts	Based on the number of people walking close to the wayfinding locations	Same as the committed demand	Journey quality benefits for pedestrians using the Active Mode Appraisal Toolkit
Rail Replacement	No committed demand figure - qualitative only	No committed demand figure - qualitative only	Qualitative only
Increase the frequency of the current Stagecoach number 9 (Previously First Bus Portway P&R) bus service	No committed demand figure - qualitative only	No committed demand figure - qualitative only	Qualitative only
Demand Responsive Transport (DRT)	No committed demand figure - qualitative only	No committed demand figure - qualitative only	Qualitative only
Future Transport Zone (FTZ) Dynamic Demand Responsive Transport (DDRT)	No committed demand figure - qualitative only	No committed demand figure - qualitative only	Qualitative only

3.5.1.1 Monetised Impacts

YTL Arena Buses

A review of YTL Arena Transport Assessment helped inform the calculation of benefits. According to the YTL Transport Assessment, the estimated journey time between the Portway P&R with its current access arrangements and the new YTL arena is 25 minutes. Google maps was utilised to calculate the distance between the two locations and speed limits along the route were taken into consideration to calculate the Do-something journey time. The resulting journey times, are shown in Table 7 below:

Table 7: YTL and Portway P&R Journey Times

Route	Journey Time
P&R to YTL (without scheme) and vice versa	25 minutes
P&R to YTL (with scheme) and vice versa	23 minutes

The timings show that using the scheme results in faster journeys between the YTL arena development and the P&R site and therefore, there are journey time benefits for trips between the YTL arena and Portway Park and Ride.

The journey times, shown in Table 7, were input into the bespoke tool to calculate the benefits. The number of trips for the Do Minimum and Do Something scenarios were the same, at 1,350 total peak hour demand from the YTL opening year of 2026. It is assumed the journey time savings will be for a total 3-hour period while the event is happening to allow for journey time savings from people travelling to and from the arena.

It is noted that the Portway Park and Ride will only be used to serve events 17 times per year and therefore, the annualisation factor is set to 17. Furthermore, all users will be leisure users so the trip purpose is set 100% ‘other’. A table of key assumptions is provided in Table 8.

Table 8: Key assumptions YTL arena

Assumptions	
YTL Arena opening year (first year benefits)	2026
Total peak hour demand	1,350
Journey time saving	2 minutes
Annualisation factor	17
Period analysed	3 hours
Trip purpose	100% other

The total benefits from journey time improvements to the YTL arena shuttle are £176,692 (2010 prices and values) discounted over a 60 year appraisal period.

Extending Stagecoach number 9 services (previously Portway Park and Ride service) to Avonmouth/Severnside

Extending the Stagecoach Number 9 bus service to Avonmouth/Severnside from the current terminus at Portway Park and Ride will provide a faster and more reliable service for all people travelling between Avonmouth and the City Centre by bus. This will also promote more trips by car to shift to bus. It is noted that the Portway Park and Ride Service was awarded to Stagecoach in April 2023 and the route will be slightly different to that of the previous (Portway Park and Ride bus) service within Bristol. However, this should not have any significant impact on the benefits calculated as part of this assessment.

Journey time and Marginal External Costs (MECs) benefits have been calculated using the bespoke spreadsheet tool. 2021 BCC Census Data Profiles at LSOA level have been used to determine the number of people that travel by bus from Avonmouth (Avonmouth Village and Avonmouth Docks LSOA). This analysis shows there are 95 people commuting by bus. By multiplying by two to get single daily commuting bus trips and utilising National Travel Survey data presenting in Table 9 (NTS 0409 average number of trips by purpose for bus (trips per person per year)), from 2021, this has been converted into all-purpose trips. There are a total of 826 daily trips.

Table 9 NTS 0409

Commuting	23%
Business	3%
Education	12%
Shopping	27%
Other escort	4%
Personal Business	8%
Leisure	23%

Using Google Maps and Bus timetables it is noted that currently travelling between Avonmouth and Bristol City Centre by bus, the quickest way is to walk to Portway Park and Ride and get the service number 9. From the Avonmouth Road/Collins Street Junction on google maps this is a 15 minute walk and then 19 minute bus trip. With the scheme (from the same junction), the average walk to a bus stop is 5 minutes and the bus between Avonmouth and Bristol City Centre is expected to be 25 minutes. This is approximately a 4 minute saving in overall time. Therefore the generalised journey time (GJT) for the Do-Nothing and Do-Something are as follows:

Table 10 Generalised Journey Time (GJT)

Do Nothing	In Vehicle Time	Access Time	Wait Time	Egress Time	Total
Mins	19	15	5	5	44
GJT	19	22.5	7.5	7.5	56.5

Do Something	In Vehicle Time	Access Time	Wait Time	Egress Time	Total
Mins	25	5	5	5	40
GJT	25	7.5	7.5	7.5	47.5

*The value of walk time and wait time are 1.5 times in vehicle time as per TAG M3.2

To calculate the demand for the service, RAND 'Bus fare and journey time elasticities and diversion factors for all modes'[5] Generalised Journey Time elasticities were used, for commute -1.15, and leisure -1.05. RAND did not determine elasticity for business users so -0.7 was used to represent a slightly lower value. Using these values and applying them to the generalised journey time, the total new passenger trips are 510. It is assumed that these additional passengers will not be realised in the first year but linearly distributed between 2025 and 2030.

In the bespoke tool, diversion factors (RAND Table 26 – 30% car drivers and 12% taxi) have been used in order to ensure there is a realistic reduction in car km. The distance travelled was also altered within the bespoke spreadsheet to be 13.70km, the approximate distance between Avonmouth and Bristol.

For the aspirational scenario we have assumed that the walk time is longer for those living in Avonmouth (20 minutes) in the Do-Nothing and the in vehicle time is a bit longer in the Do-Something (27 minutes).

The total benefits from the committed demand scenario are £1,926,477 and for the aspirational demand scenario £3,557,605 (2010 prices and values) discounted over a 30-year appraisal period.

Run Stagecoach service 10 and 11 into the P&R site

Running services 10 and 11 into the Park and Ride site is likely to encourage those who work at the hospital or surrounding area in Southmead and live to the south of the City (i.e. North Somerset) to park at the Park and Ride site and continue the journey by bus.

This is likely to result in reducing traffic between the Park and Ride site and Southmead providing associated benefits. Given this will provide a new bus service for people that travel by car into Southmead the existing passenger numbers are classed as zero. To understand the demand for the new service, this is taken from those travelling between North Somerset and Southmead (2011 Census origin destination data) as these trips will likely use the P&R to travel to work.

In the committed scenario, a total of 15% of the people travelling between North Somerset and Southmead (2011 Census data) by car have been assumed to, in the 'with scheme' scenario,

[5] https://www.rand.org/content/dam/rand/pubs/research_reports/RR2300/RR2367/RAND_RR2367.pdf

commute by the 10 /11 service. This is represented in the calculations as a linear increase of 2.5% of trips per year from 2025 to 2030. This assumption has been based on Bristol Net Zero targets to maintain proportionality for this assessment. The absolute numbers shifting are assumed to be quite small.

Bristol Net Zero by 2030, suggests that a maximum of 20% of journeys should be by car. Currently between North Somerset and Southmead approximately 94% of journeys are made by car. Stopping the service 10/11 at the Park and Ride will enable people to park there before carrying on their ongoing journey to Southmead, resulting in a mode shift to bus from car. The assumptions made in this economic case results in a 15% reduction in the amount of people using a car to travel to work.

For the aspirational demand scenario the percentage shifting to the 10/11 service is 24%. This has been represented as a linear 4% shift per year between the opening year (2025) and 2030. The key mode shift assumptions are presented in. Table 11

Table 11: Key assumptions services 10 and 11

	2025	2026	2027	2028	2029	2030	Total Uplift
Committed Scenario %shift per year	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	17.5%
Cumulative number of increased bus trips per day	5	10	15	19	24	29	34
Aspirational Scenario %shift	4%	4%	4%	4%	4%	4%	28%
Cumulative number of increased bus trips per day	8	16	23	31	39	47	54

The total benefits from the committed demand scenario are £87,247 and for the aspirational demand scenario £141,257 (2010 prices and values) discounted over a 30-year appraisal period.

Services 3x/4x (peak period First Bus 3 and 4 services to divert onto A4 due to Portway P&R upgraded access)

The new access allows Firstbus 3 and 4 to divert or add some services along the A4 Portway which improves journey times for those travelling between Avonmouth and the City Centre. These benefits have been captured in the service 9 improvements. Therefore, these won't be monetised to avoid double counting.

Wayfinding Benefits

Providing additional infrastructure for pedestrians will likely lead to physical activity and journey quality benefits. The journey quality and health benefits for pedestrians from the improved signage and

wayfinding infrastructure have been calculated using the Active Mode Appraisal Toolkit. The wayfinding is being provided at key junctions near the Portway Park and Ride site and is therefore, likely to be used by people living in the area and walking along the Portway or Barrow Hill Road.

To ascertain benefits of the scheme, in the absence of pedestrian count data, 2021 Census Method of Travel to Work data has been used to calculate a baseline of trips per day around the Park and Ride site. This has been attained from people walking to work within the Lower Super Output Areas (LSOAs) containing the wayfinding improvements and people who take the bus to work as these people will likely use the wayfinding improvements. Table 12 shows the data obtained from the Census, showing the number of walking trips around the P&R site.

Table 12: Census 2021 Method of Travel to Work data

LSOA	People who walk to work	People who take the bus to work
Bristol 008 B	44	68
Bristol 008 C	47	65
Bristol 008 F	41	93

Census outputs are in number of people and need to be converted into daily trips for input into AMAT. To achieve this, people who walk and get the bus to work were multiplied by 2. This represents a conservative estimate given that all-purpose trips have not been accounted for. The percentage of the trip using the scheme was set at 10%, as it is likely a small proportion of their trip will encounter the wayfinding. Furthermore, the journey quality improvements selected were information panels and directional signage.

Improving the public realm, through additional wayfinding and signage is likely to increase the number of pedestrians. Comparative studies presented in *Making the Case for Investment in the Walking Environment* showed that public realm improvements within Nottingham and Exeter had between a 30% and 56% uplift in pedestrians. The improvements on the Portway are lower scale compared to these studies and therefore, a 10% uplift has been considered to represent a conservative estimate.

The total health and journey quality benefits from the improved wayfinding are £279,558 (2010 prices and values) discounted over a 30-year appraisal period.

3.5.1.2 Qualitative Impacts

There are numerous benefits which cannot be quantified or monetised. Therefore, these are described qualitatively below.

Rail replacement

With the opening of the new rail station, improved access to the P&R site will support the new station with rail replacement services when necessary. Implementation of this scheme will help to provide multi-modal service options, connecting users to different transport modes across the wider region during unexpected periods when train services are unavailable. This will help reduce the need for driving along the A4 Portway corridor when the trainline is out of action and support Bristol and West of England targets for a shift to public transport from car.

Increase the frequency of the current Service 9 Portway P&R bus

Providing a new access and extending the Portway Park and Ride service to Avonmouth may create greater demand for the Service 9. This will help enable an increased frequency of P&R services which will create a greater demand for bus and shift users away from private car to public transport. This will help improve congestion and air quality on journeys between the Park and Ride and Bristol.

Demand Responsive Transport (DRT)

The Portway Park and Ride Access will provide enhanced access to the Park and Ride site, this will make the Park and Ride site more attractive to new services such as a DRT. DRT is a flexible door-to-door service that plays a role in community transport, ensuring people have access to key services. It provides shared transport to users who specify their desired location and time of pick-up and drop-off. DRT can complement the Portway P&R public transport services and improve mobility in the area at low-demand times of the day by offering flexible bus services and supporting the use of community transport minibuses. This is likely to provide benefits for people who live within the vicinity of the area (especially those without access to a car) and those that travel into the Park and Ride site to ensure there is sufficient access to public transport for journeys within and around Bristol.

Future Transport Zone (FTZ) Dynamic Demand Responsive Transport (DDRT)

Providing a new access encourages more bus services and therefore, people to the site, this will help enable a FTZ at the park and Ride site, providing DDRT and other micromobility options for those without cars to access wider employment opportunities through small capacity and highly flexible bus services. The FTZ is WECA's programme that trials new transport interventions in the region that could be incorporated into future transport plans to improve current transport infrastructure when future funding becomes available. The FTZ interventions include e-scooters, mobility hubs, a next generation app, sustainable urban freight and dynamic demand responsive travel.

Social and Distributional Impacts

Social Impacts have been assessed qualitatively in the Appraisal Summary Table (AST) which is provided in Appendix C, given the nature of the scheme the social impacts are very small or neutral. Distributional Impacts have not been assessed to maintain a proportionate assessment as it is not envisaged the new access will have any notable impact on vulnerable groups. However, the scheme may have some beneficial impacts on the following:

- Accessibility – Providing the upgraded access will enable faster services to and from Avonmouth via public transport which will improve accessibility to jobs, health care and education for those living within Avonmouth.
- User Benefits – The upgraded access will lead to improved journey times between Avonmouth and Bristol City Centre. This is particularly beneficial for some areas of Avonmouth which are in the most deprived income quintile. This helps improve access to jobs and education by public transport.

Highway Impacts

LinSig modelling has been undertaken to understand the impacts on the highway network with and without scheme. A Do Nothing scenario has been modelled for the existing junction with growth to 2036. Two Do Something scenarios have been modelled to understand the impacts when services use the new Portway Park and Ride access. The two scenarios modelled include:

1. Do Something Scenario 1: The signals for the right hand turn into the Park and Ride running once in a 15 minute cycle
2. Do Something Scenario 2: The signals for the right hand turn into the Park and Ride running twice in a 15 minute cycle.

The left turn in, left turn out and right turn out operate twice every 15 minutes in both Do Something scenarios.

The headline results are as follows for the 2036 worst case scenario.

Table 13: LinSig modelling results

Scenario	PRC AM (%)	PRC PM (%)	Deg Sat AM (%)*	Deg Sat PM (%)*	Total Delays** AM (PCUhr)	Total Delays** PM (PCUhr)
Do Nothing	22.6	22.5	73.5	73.5	6.18	6.71
Do Something Scenario 1	27.3	22.7	70.7	73.4	8.10	8.90
Do Something Scenario 2	25.9	18.7	71.5	75.8	8.55	9.41

*Maximum Degree Sat at a particular arm within the junction

**Total delay over all lanes

The modelling shows that the junction still operates within capacity with the new access and the delays at the junction are very similar between the Do Nothing and Do Something. Therefore, it has been concluded that the new access (Do Something) has no meaningful impact on journey times and journey time impacts will not be appraised in the economic case.

Construction Impacts

The current bus turning area will be closed for the duration of the construction of the improvements (up to 6 months). Temporary bus stops to be installed outside the site (near the junction with Barrow Hill Road) for the duration of the works so the construction will not have a significant impact on bus operations.

Environmental Impacts

The environmental assessment has been undertaken in in line with TAG Unit A3**.** The results of the assessment are presented in Appendix D Environmental Impact Assessment.

Noise

During construction, the construction activities may increase noise levels within the vicinity of the site. However, it is considered that noise impacts during construction would be intermittent, localised and temporary in nature. Appropriate construction site management practices would be implemented through a Construction Environmental Management Plan (CEMP) to minimise noise and vibration impacts including timings of works to minimise disturbance during anti-social hours.

The Scheme may generate noise during the operation phase; however, the size of the Scheme and nature of the changes means noise during operation will be minor to neutral. The Scheme will not lead to significant changes to traffic flows or traffic speed. Therefore, impacts on NIAs and receptors identified will be minor to neutral during the operation phase. Any changes to noise levels have been monetised through MECs.

Air Quality

Dust impacts may occur as a result of construction activities. However, potential impacts will be reduced as far as reasonably practicable with the implementation of suitable mitigation measures, set out in a CEMP. A dust risk assessment may be required to determine appropriate mitigation measures.

Traffic levels and traffic speed are not expected to change significantly as a result of the Scheme. Any changes have been monetised through MECs.

Greenhouse Gases

Traffic levels and traffic speed are not expected to change significantly as a result of the Scheme. Any changes to emissions have been monetised through MECs.

Other impacts

The following has been scoped out of the environmental assessment:

- **Landscape** - the Scheme is in a townscape and therefore, landscape has not been assessed.
- **Townscape -** this access improvement is minor and will not result in permanent realignment and is located in an urban area near major roads.
- **Historic Environment** - there is a distinct lack of historic designations present, and therefore the Historic Environment will not be impacted.
- **Biodiversity** - There is a distinct lack of environmental designations within the area of the Scheme and the designations which do exist will not be impacted. Therefore, biodiversity will not be impacted.
- **Water environment** - Due to the small nature of the Scheme, there is not a permanent realignment to the highway, meaning that there is not a change to the amount of hardstanding, therefore the floodplain will not be impacted.

The full Environmental Impact Assessment is included in Appendix D and the Environmental Constraint Plan is available in Appendix D.

Costs

The economic costs have been calculated by taking the costs provided in the Financial Case and undertaking the following as per TAG A1.2:

- Costs deflated and discounted to 2010
- Costs multiplied by 1.19 to account for indirect taxation (not present in costings)
- QCRA allowance included at [This information has been redacted for commercial sensitivity reasons] of scheme costs.

As the QCRA is higher than optimism bias, the QCRA costs have been used instead of optimism bias for this FBC as the worst case scenario. The total economic costs are [This information has been redacted for commercial sensitivity reasons] (2010 prices and values).

3.6 NPSC/NPSV Findings

The total benefits, costs and BCR for the Park and Ride is provided in Table 14. This shows the benefits split down by services, showing how much each service contributes to the overall benefits of the scheme.

Table 14: Total Benefits (2010 Prices and Values)

[Please note: Table 14 has been redacted from this document for commercially sensitive reasons]

The benefits by category are presented in Table 15.

Table 15: Analysis of Monetised Costs and Benefits (2010 Prices and Values)

[Please note: Table 15 has been redacted from this document for commercially sensitive reasons]

The results show the core BCR is between 2.26 and 3.80.

3.7 Sensitivity Analysis

Four sensitivity tests have been carried out including the following:

- Halving benefits from Service 9 and excluding benefits from 10/11
- Removing health benefits from the active mode assessment
- Costs including optimism bias but not QCRA
- Increase in costs – this is the core cost including optimism bias and QCRA
- We have undertaken a sensitivity test to test extending the service number 9 into Avonmouth at a gross revenue cost of [Please note that this information has been redacted for commercially sensitive reasons] over the appraisal period. This is the cost of an additional double decker bus per year.

The results of the sensitivity tests, summarised in Table 16, show that the largest impact on the BCR is the addition of the revenue cost across the appraisal period, which reduces the BCR to below 1. At the point of development of the business case a bus was serving the P&R site every 15 minutes. It is not anticipated that revenue support funding will be required, given that the current frequency of the stagecoach number 9 service is one every 12 minutes in the peak hours. It is assumed that Stagecoach will be able to extend the service number 9 into Avonmouth at a frequency of every 15 minutes with the current fleet available to them, and that no revenue funding will be required to provide an additional bus to extend the route.

The other sensitivity test which has an impact on the BCR is the halving of the service 9 benefits and excluding 10/11 benefits, this reduces the BCR to 1.30 in the committed scenario.

Table 16: Sensitivity Testing Results (2010 prices and values)

[Please note: Table 16 has been redacted from this document for commercially sensitive reasons]

3.8 Value for Money Summary

The results show that the BCR ranges between 2.26 for the committed scenario and 3.80 for the aspirational scenario. This shows that the value for money is likely to be 'high'.

The majority of the benefits are due to the 4 (9 minutes GJT) minute journey time improvements between Avonmouth and Bristol City Centre for current passengers and the mode shift benefits for the new passengers attracted to the service due to the improvement in journey time.

The sensitivity testing shows that in most scenarios the Value for Money Category remains 'high'. In the committed scenario if only half the benefits are realised from Service 9 and the service 10/11 benefits are not realised the value for money drops to 'low', however, it is unlikely this scenario will materialise. Furthermore, if the Service 9 extension has a revenue cost of [Please note that this information has been redacted for commercially sensitive reasons] over the appraisal period, this reduced the value for money to 'poor'. However, it is unlikely this extra support will be needed.

QCRA and Optimism bias are [This information has been redacted for commercial sensitivity reasons] and 20% of the costs respectively, this indicates either estimate can be used with the costs and the value for money category stays the same. A sensitivity test has been provided to include both optimism bias and QCRA to indicate what happens to the value for money with increased costs.

This shows that overall, the value for money is likely to be 'high' if the services come forward.

4 The Financial Case

4.1 Introduction

This section presents the financial case of the A4 Portway Park and Ride access scheme. The purpose of the financial case of the business case is to demonstrate the affordability and funding of the preferred option, including the support of stakeholders and customers, as required.

4.1 Capital and revenue requirements

The Combined Authority is the promoting body of the scheme and has financial signoff which will be required from the Combined Authority. BCC has the responsibility for delivery of the scheme.

The sunk cost occurred before the submission of the FBC is outlined below in Table 17.

Table 17: Sunk costs

Cost	Amount
Total Sunk Cost	£154,891.07

[Please note that a full breakdown of the total sunk costs has been redacted for commercial sensitivity reasons]

A breakdown of the costs that yet to occur (excluding sunk costs) is provided below in Table 18.

The forecasted scheme costs over the financial years are outlined below in Table 18. These are based on C3 utility searches and as such may change subject to the outcomes of the C4 and C5 utility searches. Inflation has been added at a rate of [This information has been redacted for commercial sensitivity reasons] derived from BCC Engineers professional experience based on recent projects and works starting in the next financial year. Additionally, traffic management fees are included within the civil works sum.

Table 18: Spend Forecasting of scheme (2023 Prices)

[Please note: Table 18 has been redacted from this document for commercially sensitive reasons]

The total estimated scheme outturn cost is **£2,006,889**. The full cost breakdown is provided in Appendix G.

Revenue Support Costs

Revenue funding streams that will support the benefits realisation of this project include the existing BCC Highways Maintenance budgets, which will support the ongoing maintenance of the new highway assets. The West of England Bus Service Improvement Plan sets out delivery plans for improving bus services (Delivery Plan A) and improving bus priority (Delivery Plan B). Delivery Plan B BSIP makes specific reference to improving the Portway Park and Ride as a transport hub (pg. 67) and direct reference to improving the bus junction at the site (pg. 125)

OPEX costs (Operational, maintenance and renewal costs) are not included in the table above. Costs are currently unknown as once the infrastructure is delivered WECA will negotiate with the operators to deliver the services set out in the network plan and add them to the Enhanced Partnership as a formal arrangement.

Within the economic case we have run a sensitivity test with the assumption the extension of the service number 9 into Avonmouth will be at a gross revenue cost of [Please note: This information has been redacted for commercially sensitive reasons] per year. However, the terminus of both services 10 and 11 from Avonmouth Mclaren Road to the Portway Park and Ride site could be changed at no extra revenue cost to the 10 and 11. The [Please note: This information has been redacted for commercially sensitive reasons] will be sourced from BSIP and other revenue funding streams to be agreed within the WECA bus services team. Although it is not anticipated at this stage the revenue support funding will be needed.

Overall affordability and funding

The spend profile for the scheme is presented in the Table 19. It is noted that this includes a nominal allowance for monitoring and evaluation.

The funding source for scheme delivery is CRSTS. The scheme opening is assumed to be 2025.

Table 19: Spend Profile

[Please note: Table 19 has been redacted from this document for commercially sensitive reasons]

4.2 Chief Financial Officer Sign Off

Although BCC is responsible for the delivery of the proposed intervention, the Combined Authority is the promoting body of the scheme and therefore the financial signoff will be required from the Combined Authority.

The BCC S151 Officer gave support for the submission of the Full Business Case to the Combined Authority and the BCC Cabinet at the BCC Capital Investment Board on the 19th September 2023. The BCC S151 Officer will need to approve the spend upon the approval of the Business Case at WECA Directors and BCC Cabinet.

5 The Commercial Case

5.1 Introduction

This section presents the commercial case for the A4 Portway Park and Ride access. The purpose of the commercial case of the business case is to demonstrate that the preferred option will result in a viable procurement and a well-structured deal between the public sector and its service providers. The commercial case describes the proposed procurement approach, risk allocation and contract management processes.

5.2 Procurement strategy and route

Tender Process

The general arrangement of the completed detailed design is shown in Appendix B. This is an illustration of the design that will inform the tender process.

It is anticipated that BCC will procure the works contract via a tender involving the four suppliers on the council's 'Bristol Highways Asset Management and Associated Works Framework 2021-25'. The value of the works is likely to fall under 'Lot 6' which applied to works of value exceeding £150k.

BCC will manage this procurement process internally, with support from their Procurement team. The current programme for procurement is as follows:

- Tender preparation: 27/12/2023 – 20/02/2024
- Tender issue: 21/02/2024
- Tender period: 21/02/2024 – 28/05/2024 (14 weeks)
- Tender return: 29/05/2024
- Tender risk allowance: 29/05/2024 – 11/06/2024

This programme allows for 3 months / 12 weeks for tender evaluation, financial approvals, contract sealing and contractor mobilisation in order to commence construction on 4th September 2024. This tender evaluation period includes around one month tolerance to allow for any potential delays in achieving all of the necessary internal approvals to proceed.

Changes to Bus Services

WECA is currently developing a strategic bus network plan for the region and this will include service on the Portway. Any changes to the scheduled bus services along the Portway / Avonmouth will need to be agreed by the WECA and the bus operator, in conversations with Bristol City Council.

Once the Portway Park and Ride access is delivered along the corridor WECA will negotiate with the operators to deliver the services set out in the network plan and add them to the Enhanced Partnership as a formal arrangement.

The exact commercial basis for the proposal will be determined through the negotiation process. Service development conversations will also be incentivised by the A4 Strategic Corridor project.

Risk allocation

BCC will adopt a similar approach to its previous highway construction schemes with regards to risk allocation. Within the tender process BCC will set out that all bids submitted will be for a 're-measure' contract with regards to risk. Essentially this means that BCC accepts most of the risk, for example if the contractor comes across utilities that were not mapped out in the utility process, there will be a requirement for BCC Engineering Design to re-measure the works and cost of mitigating these utilities.

5.3 Charging mechanism

Payments will be paid in line with existing agreements between the Combined Authority and BCC. Once the business case has been approved the sum required to deliver the scheme will be made available by WECA as a grant. BCC will submit grant claim forms to WECA on a quarterly basis for the spend during that quarter, with the total of the grant claim forms not exceeding the maximum total for the scheme. Along with monitoring the cumulative totals of invoicing for the scheme, the Combined Authority will monitor the invoicing against the detailed cost estimates for each element to ensure payments remain on track to avoid overspend. The Combined Authority will require evidence of invoices to release the funding to BCC.

5.4 Accountancy treatment

The West of England Outline and Full Business Case Guidance Note (20th April 2020), states that at Full Business Case (FBC) stage schemes are either required to identify the source of funding required for ongoing operation or confirm self-sustaining by providing the likely revenue projections along with measures which could be taken if these revenue targets are not met.

5.5 Key contractual arrangements

Social Value Act

The Combined Authority and BCC understand the importance of the Social Value Act. They commit to the principles of the Act and to achieving the top 10 priorities listed below:

1. Promote the local economy through the use of local suppliers and the voluntary and community sector in order to create and sustain new local jobs and apprenticeships.
2. Contribute to carbon reduction targets and use resources wisely.
3. Conserve and enhance the environment, supporting biodiversity, minimising pollution and waste and making best use of the environmental opportunities of work undertaken by our suppliers.
4. Promote the personal and physical health and the mental and emotional well-being of people within Bristol and the rest of West of England.
5. Support schools and colleges e.g., through new work placement schemes, providing mentors or assisting in mock interviews.
6. Increase participation in the Children's 6. Commissioner Takeover Challenge, find details here: https://www.childrenscommissioner.gov.uk/takeover-challenge/
7. Provide training, workplace experience and/or employment opportunities for:
    - People with Disabilities,
    - People with Learning Difficulties,
    - Care Leavers,
    - Young People who are not in Education, Employment or Training, or Others who may find access to employment more challenging or who may be under-represented in the workforce e.g., ex-offenders.
8. Support schools through the provision of business support services.
9. Reduce health and social care inequalities across the Bristol area.
10. Achieving a service delivery model which uses, engages, or supports the local community and voluntary sector including ideas such as adopting a local voluntary organisation as the provider's 'charity of the year'.

Any framework sourced contractors will:

- Continue to achieve priority 1 through its procurement framework - any commissions or purchases for this project will contribute to priority 1, however these could not be easily quantified.
- Continue to achieve priority 2 through its day-to-day operations – meaning that activities under this project will contribute to this priority, however these could not be easily quantified.
- Continue to achieve priority 3 through its day-to-day operations - so activities under this project will contribute to priority 3, however these could not be easily quantified.

The Supply, installation and maintenance of equipment and infrastructure for the control and management of traffic and related services (WoEITS2)

WoEITS2 has been used to provide the schedule of rates for the supply and installation of traffic signal infrastructure for this scheme. Should this FBC be approved the WoEITS2 will be used to procure the traffic signals infrastructure and arrange the services for their installation.

BSH/HGW/ Highways Asset Management and Associated Works Framework 2021-2025:

The framework will be in place for four years with 12 lots as follows:

- Lot 1: Machine Laid Surfacing
- Lot 2: Surface Dressing and Micro Asphalts
- Lot 3: Slurry Seal and Preventative Treatments
- Lot 4: Road Markings and High Friction and Coloured Surfacing
- Lot 5: Highways and Associated Works up to £150,000
- Lot 6: Highways and Associated Works over £150,000
- Lot 7: Minor Bridge Repairs & Retaining Wall Works to Highway Structures, Value: < £150K
- Lot 8: Structural Maintenance Repairs and Reconstruction Works to Bridges & Highway Retaining Walls Structures, Works Value: > £150K
- Lot 9: Maintenance Painting Works Bridges and associated Highway Structures
- Lot 10: Structural Steel Repairs and Replacement Works to Highway Structures
- Lot 11: Geotechnical and Soil Investigation Works on or adjacent to the Highway
- Lot 12: Traffic Management

The works required to deliver the proposals presented in this business case will fall under Lot 6 of the contract as they are in excess of £150,000, meaning that the works will be subjected to a competitive tender process.

Street Lighting Contract:

The services within this contract include the maintenance and installation of road lighting and illuminated traffic signs. The contract duration is four years between 2021 and 2025.

6 The Management Case

6.1 Introduction

This section presents the management case of the Portway Park and Ride Full Business Case. The purpose of the management case of the business case is to demonstrate that robust arrangements are in place for the delivery, monitoring and evaluation of the scheme, including feedback into the organisation's strategic planning cycle.

6.2 Programme management governance arrangements

WECA CRSTS governance structure as outlined in the CRSTS SOBC is presented in Figure 6-1.

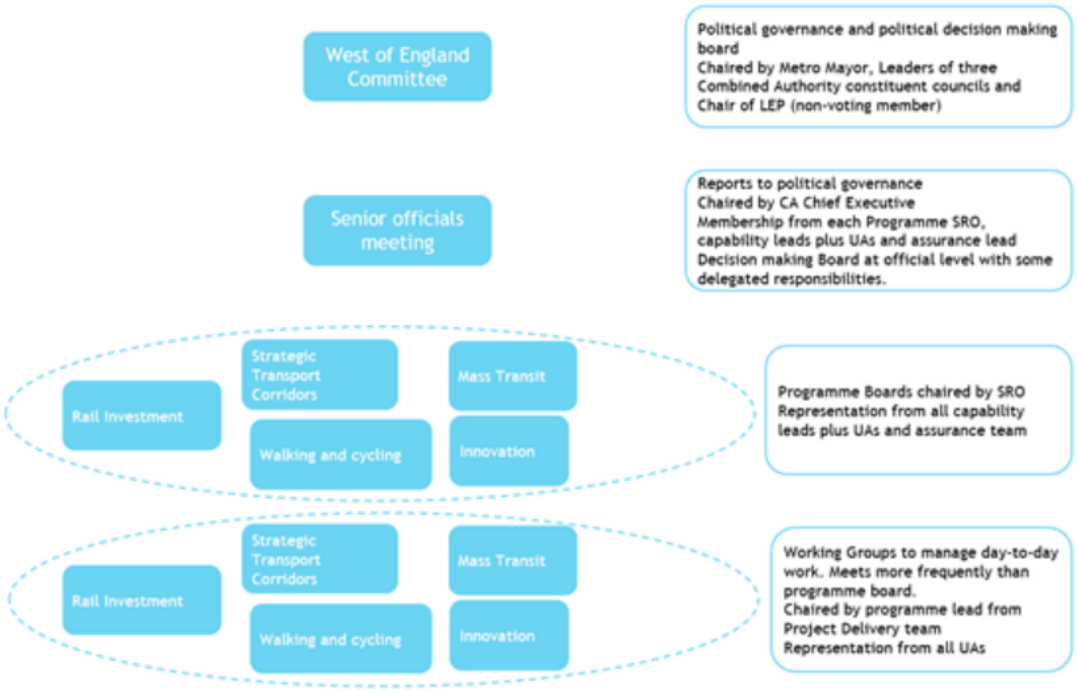


Figure 6-1: WECA CRSTS Governance Process

6.3 Project management governance arrangements

Governance

The governance approach to delivering the scheme involves a multi-disciplinary team of representatives from BCC. BCC is responsible for the delivery of the scheme itself, through a team of BCC Designers and their team of contractors. Senior Public Transport Officer and Project Manager Toby Clayton will be the BCC lead reporting to the Transport Strategy Manager and BCC Programme Manager Pete Woodhouse and CRSTS Programme Manager Nick Bouboussis (WECA).

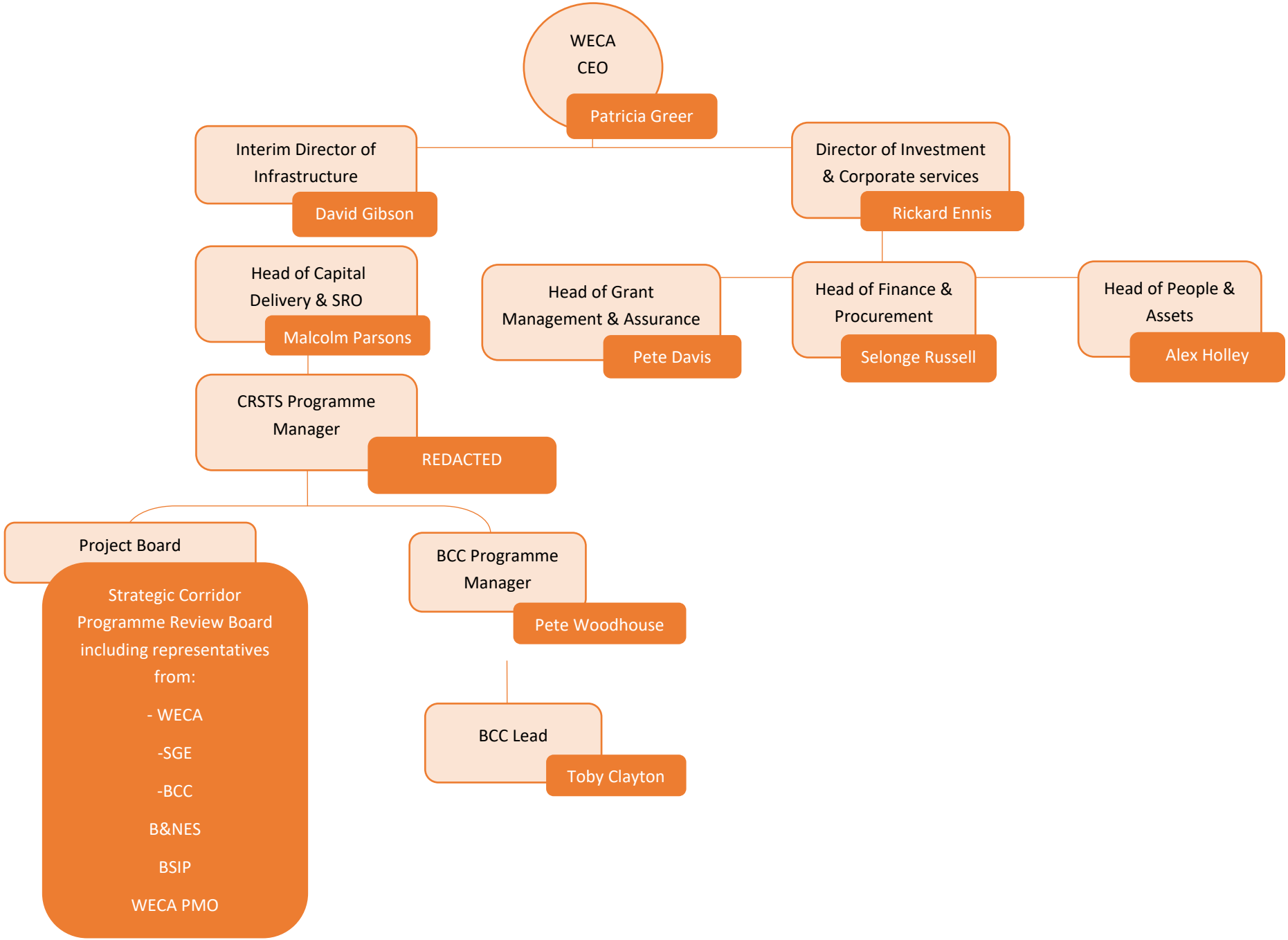
The Combined Authority will provide the funding for the scheme through CRSTS subject to a decision in its Joint Committee meeting, after the FBC is reviewed by the assurance team led by the Head of Grant Management & Assurance, Pete Davis.

Malcom Parsons, the Combined Authority's Head of Capital Delivery will be the SRO for this project. Nick Bouboussis, CRSTS Programme Manager, reports into Malcolm and also leads the Strategic Corridor Programme Review Board, consisting of representatives from the Combined Authority and the other Unitary Authority's within the Combined Authority, including BCC Programme Manager Pete Woodhouse.

The project team currently meet on a weekly basis to discuss project progress and it is recommended that this continues when construction commences, revising frequency accordingly.

As the project progresses through the construction stages, any changes to scope, programme, cost or risks etc will be captured by the BCC PM and escalated to the CRSTS Programme Manager and the Strategic Corridor Programme Review Board.

An organisation chart is included on the following page.


WECA
CEO
Patricia Greer
Interim Director of Infrastructure
David Gibson
Director of Investment & Corporate services
Rickard Ennis
Head of Capital Delivery & SRO
Malcolm Parsons
Head of Grant Management & Assurance
Pete Davis
Head of Finance & Procurement
Selonge Russell
Head of People & Assets
Alex Holley
CRSTS Programme Manager
REDACTED
Project Board
Strategic Corridor Programme Review Board including representatives from:
- WECA
-SGE
-BCC
B&NES
BSIP
WECA PMO
BCC Programme Manager
Pete Woodhouse
BCC Lead
Toby Clayton

6.4 Risk management arrangements

The project risk register has identified the main risks, mitigation measures and owners. The risk register was reviewed by BCC's design and costing. The management strategy will enforce a systematic approach to responding to the various risks during the project lifecycle and will continuously look to avoid, mitigate, transfer, or accept risks. In many cases, additional technical work or surveys, or early discussions with partners, will reduce or mitigate risks.

Risk control measures, such as preventive, corrective, directive or detective measures will be in place to treat risks. Delivery and contractor teams will be responsible for managing their risks and reporting any newly identified risks to the PM.

Risks escalated to Medium or High which could impact on the progress or financial position of the project will be referred by the BCC PM to the Combined Authority PM. The top risks are presented in Table 20 and a risk register is presented in Appendix G.

Table 20: Top Risks

Description	RAG Status	Mitigation	RAG Post Mitigation	Impact (Cost / Delay)	Open/Closed
Scope of work increases due to unforeseen issues with utilities and/or other services under the surface of the site.	Red	Prior to the tender period the design will have been subjected to C4 utility searches to understand whether any diversionary works will be needed. These searches should improve our knowledge of the utilities that are affected by the works and reduce the risk finding 'unknown' utilities when the project moves to the construction phase	Amber	Likely cost = [This information has been redacted for commercial sensitivity reasons] Likely delay = 1 week	Open
The submission of a late FBC could mean that the project misses the target date for BCC Cabinet, and WECA directors meeting. This risk would cause delay in the programme of the current FBC stage, and also the construction stage. Delays in the programme also have the potential to incur cost implications.	Red	Programme for the project, and the current stage, has been developed. PM to deploy strict programme adherence techniques. Regular review of the programme to identify programme risks and opportunity to accelerate tasks. The programme includes a time contingency to allow for delays in the political approval process.	Green	Likely cost = [This information has been redacted for commercial sensitivity reasons] Likely delay = 2 weeks	Open
Tender returns are priced higher than anticipated cost estimates	Red	Detailed design to be costed up including the costs for the civils, street lighting, signal infrastructure, Bill of Quantities based on the Highways framework prices. Contingency and risk allowance included in the funding request to cover increases in tender returns	Amber	Likely cost = [This information has been redacted for commercial sensitivity reasons]	Open

Description	RAG Status	Mitigation	RAG Post Mitigation	Impact (Cost / Delay)	Open/Closed
Programme of works is longer than the funding window for the project (March 2027). This could be a risk to the funding of the project if there are elements left to be delivered post-funding window	Red	BCC PM has developed a programme for the duration of the project, through to delivery and beyond to include monitoring and evaluation. The programme will be updated regularly to ensure accuracy. The BCC PM will flag opportunities to accelerate tasks, and risks that could cause delay to tasks at bi-weekly meetings with the WECA programme manager. Programme to be updated at key gateways, and the construction programme will be superimposed on to the programme once it has been received.	Green	Likely cost = [This information has been redacted for commercial sensitivity reasons]	Open
The construction methodology may require the closure of the bus access junction into the Portway Park and Ride site. This will impact on the performance of the park and ride site for the duration of the works as the bus stop and passengers will have to be moved to a temporary location.	Amber	Work with BCC design team to understand whether there are alternative options to the construction methodology. BCC design team to provide further information about construction phasing, and the task durations within the construction. Early engagement to be held with WECA Bus Services team and Stagecoach	Amber		Open

6.5 Constraints and Dependencies

There are several dependencies that need to be acknowledged in the delivery of the proposed intervention (the key ones are set out in the strategic case) These are as follows:

- Portway Park and Ride Station: new station later in 2023 adjacent to the existing A4 Portway P&R site will provide rail replacement services from the site increasing the usage of the P&R site and unlocking the provision for a further 270 car parking spaces. Therefore, this expansion of the existing site is dependent on the railway station development.
- A4 Portway scheme is implementing a series of bus priority interventions along the entirety of the A4 Portway which will provide access to the P&R as well as more efficient and reliable bus services towards Bristol City Centre. The scheme will encourage more people to utilise the buses towards Bristol City Centre, therefore the P&R access scheme is dependent upon the A4 Portway scheme. The A4 Portway Corridor scheme will also be looking to make improvements to the walking and cycling infrastructure along the route.
- The YTL Arena development to the North of Bristol City Centre is to be finished during the 2025/26 financial year, providing an arena that can hold up to 17,000 people at maximum capacity. The P&R scheme will provide shuttle bus services to and from the arena when the arena is at full capacity and the parking at the site is not able to accommodate. Therefore, the P&R site would be utilised to accommodate the overflow car parking from the arena.
- BCC cabinet or delegated approval of the scheme is required (i.e. any schemes with a construction cost in excess of £500,000 is a key decision that needs cabinet approval). This is anticipated in 25/09/2023 before the funding decision to be made by the Combined Authority Directors on 28/09/2023
- The completion of the procurement process in June 2024 (post Combined Authority decision)

6.6 Land acquisition, planning and other consents

As changes are within the Highway boundary and/or BCC owned land so no land acquisition is required. TROs will be required and the process is currently ongoing with the drafting being undertaken until the end of September followed by the statutory consultation in October. The following are plans for the TRO:

- Westbound (outbound) traffic will have a prescribed straight ahead movement to prevent them making the left turn into the site
- Eastbound (inbound) traffic will have a prescribed straight ahead movement except buses and cycles
- At the Park and Ride entrance there will be a “no entry except buses and cycles”
- The right turn area for buses making the turn into the P&R site will have a TRO with wording that deems it a bus lane
- Existing TRO for the existing outbound bus lane is to be amended to allow cyclists to use the bus lane

6.7 Benefits realisation arrangements

The anticipated outcomes of the scheme, as set out in the logic map (in the strategic case Figure 2-6) and benefits set out in the Economic Case are:

- Decongestion benefits
- Bus journey time improvements
- Journey quality benefits for pedestrians
- Increased bus patronage

To ensure the benefits have been realised a post scheme opening monitoring and evaluation will be carried out. This evaluation will allow the identification of the extent to which the scheme objectives have been met. Once infrastructure is delivered along a corridor WECA will negotiate with the operators to deliver the services set out in the network plan and add them to the Enhanced Partnership as a formal arrangement

The monitoring and evaluation will assess the scheme impacts on, but not limited to:

- Public transport patronage (bus)
- Park and Ride usage
- Bus journey times

6.8 Monitoring and Evaluation arrangements

The monitoring and evaluation plan is informed by the benefit realisation plan and the logic map. A copy of the logic map is presented in the strategic case in Figure 2-6. The aim of the project monitoring and evaluation is to capture, analyse and present data evidencing the impact. The monitoring and evaluation plan is presented in Table 21.

As part of the programme of monitoring, data will be collected (before and after scheme construction), to assess how the impacts of the scheme are progressing in relation to predictions. This data will be analysed to better understand the consequences and causality of the scheme measures.

Delivery Plan

Three reports are proposed:

- Baseline report (due 2023/24): This report will present data recorded before the scheme is opened to the public.
- ‘One year after’ report (due 2026): This report will be completed approximately 1 year after the scheme is opened.
- Final report (due 2028): This report will be completed approximately 3 years after the scheme is opened. It will build upon the “One Year After” report.

Table 21: Monitoring and Evaluation Plan

Item	Project Input/Output/Outcome	Measurement	Data Collection Report	Frequency	Data source
Outturn costs	Output	Monetary	1 year after 3 years after	Annual	BCC
Number of bus services using the Park and Ride	Outcome	Number of bus services using the bus stop and number of bus services using the new access/egress Patronage on associated bus services	1 year after 3 years after	Annual	BCC/ Bus operators
Park and Ride usage	Outcome	Number of people / cars in the Park and Ride site	1 year after 3 years after	Annual	BCC
Improved journey time by bus for users	Outcome	Realtime information for bus services Passenger surveys	1 year after	Quarterly	Bus operators
Increase bus patronage	Outcome	Bus patronage data Passenger Surveys	1 year after 3 years after	Quarterly	Bus operators

Improved active travel to and from the P&R facility	Outcome	Pedestrian and cyclist counts	3 years after	Annual	BCC

There is the opportunity to draw on data collected as part of the P&R car park expansion monitoring and evaluation including Park and ride usage, bus patronage, bus user experience, and travel time. However, currently the proposed monitoring dates do not match up, so further discussions will need to be undertaken to understand how they can overlap and what data can be utilised.

6.9 Delivery

BCC has a proven track record of delivering major transport infrastructure alongside considerable experience in:

- Delivering major transport schemes
- Successfully obtaining consents for major infrastructure schemes
- Developing and maintaining good working relationship with key partners and stakeholders
- Internal resourcing and governance requirements for major schemes

A few examples of BCC's successes in delivery transport infrastructure schemes are outlined in Table 22.

Table 22: Successful schemes delivered by BCC

Scheme	Summary
Ashton Vale to Temple Meads (AVTM) MetroBus	BCC assisted in the delivery of the metrobus project, which delivered three rapid bus transit routes in the West of England region. £250 million was allocated to the region's authorities, including BCC, SGC and North Somerset Council to deliver the scheme. AVTM is the route of the m2, connecting people in the southwest of the city, and North Somerset with employment centres and transport interchanges in the city centre. AVTM is unique in comparison to the other metrobus routes (m1 and m3), as the route required the installation of bus only roads and bus guideways (under the Transport and Works Act 1992).
North Fringe to Hengrove Park (NFHP) MetroBus	NFHP is also part of the metrobus project, the route of the m1 runs from Cribbs Causeway in South Gloucestershire to Hengrove Park in Bristol, via the City Centre. BCC helped to deliver the project including the installation of metrobus standard stops, bus only roads, and bus lanes. NFHP has been successful in connecting people in residential areas such as Hengrove with employment centres to the North of the city.
Bus Shelter Replacement Project (SRP)	Bus Shelter Replacement Project (SRP) – The overall objectives for the Bus Shelter Replacement Project were: (i) To provide and install circa 300 high quality replacement bus shelters for all current life-expired bus shelters in the City and to upgrade each stop platform simultaneously to the current accessible standard (raised kerb platform, safe haven paving). (ii) To improve public transport facilities in order to provide a more viable and accessible alternative to the private car. The project has delivered upgrades to 220 shelter sites within the BCC area utilising a contract with the shelter supplier Clear Channel UK ltd. Some sites were left out (approximately 40 sites) due to developer contributions ear marked to pay to upgrade those sites in the future and thus save the funding

pot (prudential borrowing facility). Other sites where services no longer served the stops were also not upgraded. The project will conclude at the end of FY 20/21.

The key project milestones are shown in Table 23.

Table 23: Key project milestones

Milestones	Timeline
Submission of FBC to the Combined Authority	June 2023
Tender Issued	February 2024
BCC cabinet or delegated approval	September 2023
Expected funding decision	September 2023
Tender awarded	June 2024 (inclusive of 2 week risk period)
Contractor mobilisation	June 2024
Completion	February 2025 (inclusive of 3 week risk period)

6.10 Project Assurance

The project board will provide project assurance for the whole project. The project will be subject to BCC's own internal audit processes as well as the Combined Authority's audit processes in accordance with the funding requirements. Regular reviews of the risk register will be undertaken, and lessons learnt sessions are held from other similar projects and the information from these is disseminated to the project team.

Resourcing and governance

A BCC Officer will be appointed to carry out the reports, with potential consultant support. Pre-scheme data should be collected once Full Scheme Approval has been granted. BCC will provide the contact details of the nominated officer once the project has received funding approval. BCC will be responsible for risk management and quality assurance.

Dissemination

Report will be shared with stakeholders and decision-makers via email, meetings, and briefings.

6.11 Contingency Plans

The chosen contractor will have been subjected to a competitive tender process whereby their application to complete the works would have been assessed by BCC. As part of the assessment the contractor's capacity to complete the works will be examined, including resources, supplies, and materials.

If for any reason the contractor chosen to complete the work through the tender process is no longer able to fulfil the requirement of the contract within the 90-day period where quotes from the other tender applicants are still valid, the second placed tender applicant will be offered the works. If the tender winner is unable to fulfil the requirements of the contract outside of the period where other tender applications are valid, then the works may be subject to re-tendering.

As an NEC4 contract, the Bristol Highways Asset Management and Associated Works Framework 2021-25 (HAAWF) allows BCC to ask contractors to include a performance bond within the tender submissions. A performance bond is a way of ensuring a contractors performance and the guarantor would take on the responsibility of payment to the client (BCC) should the contractor breach the contract. Typically would cost the project between 1 – 3% of the construction value.

7 Conclusion

The new Portway Park and Ride access will help cater for services to and from the YTL arena, rail replacement services for the new railway station whilst also encouraging more services to stop at the Park and Ride and use the A4 Portway as a public transport route into Bristol. Based on the current accessibility arrangements for the P&R site, the buses from the northwest cannot turn right into the site which is impacting the ability of the Portway Park and Ride to accommodate future growth.

There are a range of benefits which could be realised if the new access is constructed allowing buses to turn right in and left out of the Park and Ride. One of the main benefits is that a number of services from the Avonmouth or North Somerset direction will be able to stop at the Park and Ride, increasing bus patronage. Furthermore, the current Portway Park and Ride services (Stagecoach number 9) will be able to extend the services to Avonmouth. This will provide faster journey times by bus into Bristol from Avonmouth. There are also benefits due to the wayfinding improvements around the Park and Ride site.

The main benefits include:

- Reduction in car kilometres due to mode shift
- Journey time benefits for current bus users
- Health benefits from active travel
- Journey quality benefits for pedestrians

The overall BCR of the Scheme is between 2.26 and 3.80, with the value for money category being ‘high’. There are also a number of benefits which have not been monetised which include the ability to provide rail replacement services, the opportunity to develop a Future Transport Zone and Demand Responsive Transport services.

The outturn scheme costs are ~£2.0 million with the majority of the spend being in the 2024/25 financial year. It is anticipated that BCC will procure the works contract via a tender involving the four suppliers on the council’s ‘Bristol Highways Asset Management and Associated Works Framework 2021-25’

There are several dependencies which need to be considered including the YTL arena development.

Overall, the scheme provides a vital access to ensure that the Portway Park and Ride can cater for many services and help provide options for travel into and out of Bristol by bus.

Appendix A – Options Assessment Report

Please see full appendices in separate PDF document submitted alongside this business case.

Appendix B – Preferred Option Design

Please see full appendices in separate PDF document submitted alongside this business case.

Appendix C – Appraisal Summary Table

Please see full appendices in separate PDF document submitted alongside this business case.

Appendix D – Environmental Impact Assessment

Please see full appendices in separate PDF document submitted alongside this business case.

Appendix E – Risk Register

Please see full appendices in separate PDF document submitted alongside this business case.

Appendix F – Cost Breakdown

Please see full appendices in separate PDF document submitted alongside this business case.

Appendix G – Economics Inputs and Outputs

Please see full appendices in separate PDF document submitted alongside this business case.