Cribbs Patchway MetroBus Extension - Design and Access Statement

Prepared for

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Contents

Section Page

Document History ..... **iii**

1. Introduction **1**
1.1 Overview of the Scheme 1
1.2 Requirement for a Design and Access Statement 1
1.3 Content of this Report 2

2. Assessment **3**
2.1 Physical Environment 3
2.2 Planning Policy Context 4
2.3 Involvement 5

3. Evolution **6**
3.1 Design Development 6
3.2 Benefits of the CPME Scheme 6
3.3 Constraints 6
3.4 Alternative Options Considered 6
3.5 The Preferred Option 10

4. Matters to be Considered – PA1: San Andreas Roundabout **16**
4.1 Use 16
4.2 Amount and Scale 16
4.3 Layout 16
4.4 Landscaping 16
4.5 Appearance 17

5. Matters to be Considered – PA2: North Way and North Way Bus Link **18**
5.1 Use 18
5.2 Amount and Scale 18
5.3 Layout 18
5.4 Landscaping 19
5.5 Appearance 19

6. Matters to be Considered – PA3: Gipsy Patch Lane Railway Bridge and Associated Highway Work **20**
6.1 Use 20
6.2 Amount and Scale 20
6.3 Layout 21
6.4 Landscaping 21
6.5 Appearance 21

7. Matters to be Considered – PA4: Gipsy Patch Lane and Hatchet Road **23**
7.1 Use 23
7.2 Amount and Scale 23
7.3 Layout 23
7.4 Landscaping 23
7.5 Appearance 24

8. Access **25**

Figures

Figure 3.1: Visualisation of MetroBus stop in Bristol City Centre (Source: MetroBus iPoint Visual Identity Guidelines, Bristol Design Service) 11
Figure 4.1: San Andreas Roundabout visualisation 17
Figure 5.1: North Way visualisation 19
Figure 6.1: Example kiosk (for illustrative purposes only) 21
Figure 6.2: Gipsy Patch Lane Railway Bridge (East) visualisation (Note - the gantries positions/shapes are approximate and are for illustrative purposes only) 21
Figure 6.3: Gipsy Patch Lane Railway Bridge (West) visualisation (Note - the gantries positions/shapes are approximate and are for illustrative purposes only) 22
Figure 7.1: Gipsy Patch Lane visualisation 24

Document History

Cribbs Patchway MetroBus Extension (CPME) - Design and Access Statement

South Gloucestershire Council

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Acronyms and Abbreviations

CCTV	Closed-circuit television
CPME	**Cribbs Patchway MetroBus Extension**
CPNN	Cribbs Patchway New Neighbourhood
DAS	Design and Access Statement
HGV	Heavy Goods Vehicle
m	metre
NMU	Non-Motorised User
PA	Planning Application
PRoW	Public Right of Way
SCI	Statement of Community Involvement
SGC	South Gloucestershire Council
VIG	Visual Identity Guidelines

1. Introduction

1.1 Overview of the Scheme

This Design and Access Statement (DAS) has been prepared for works which form part of the proposed development of a new Metrobus route from Cribbs Causeway to Bristol Parkway Railway Station; known as the Cribbs Patchway MetroBus Extension (CPME), hereafter referred to as the 'CPME Scheme'.

The CPME Scheme utilises the existing highway infrastructure with some amendments to existing junctions and where necessary carriageway widening for bus lanes and improvement works. The CPME Scheme comprises the following elements, which will be considered as four separate applications for planning permission under the Town and Country Planning Act 1990:

- Planning Application (PA) 1: San Andreas Roundabout - Works to San Andreas Roundabout and construction of a new spur road.
- PA2: North Way and North Way Bus Link - Extension of the carriageway at North Way, provision of a new three-arm roundabout at the end of North Way; and a new access into the Horizon 38 Site.
- PA3: Gipsy Patch Lane Railway Bridge and associated highway work - Demolition and construction of a new railway bridge over Gipsy Patch Lane; and works to the highway as it passes underneath the railway bridge, and works to lower the highway beneath.
- PA4: Gipsy Patch Lane and Hatchet Road highway works, including widening on Gipsy Patch Lane between the junction with the Horizon 38 Site and the junction with Bush Avenue and bus stop upgrades on Hatchet Road.

This DAS has been submitted in support of all four planning applications.

The CPME Scheme falls within the area known as the *North Fringe of Bristol Urban Area* and will provide part of the strategic transport network within the area. The CPME Scheme will extend the North Fringe to Hengrove MetroBus network, providing a fast and direct route between Cribbs Causeway Bus Station and Bristol Parkway Railway Station and will serve existing and planned residential and commercial developments in the area.

1.2 Requirement for a Design and Access Statement

The requirement to submit a DAS is contained within the Town and Country Planning (Development Management Procedure) (England) (Amendment) Order 2015. Among others, this requirement applies to an application for planning permission for a major development. As per the Order, the DAS will seek to:

(a) Explain the design principles and concepts that have been applied to the development;

(b) Demonstrate the steps taken to appraise the context of the development and how the design of the development takes that context into account;

(c) Explain the policy adopted in regard to access, and how policies relating to access in relevant local development documents have been taken into account;

(d) State what, if any, consultation has been undertaken on issues relating to access to the development and what account has been taken of the outcome of any such consultation; and

(e) Explain how any specific issues which might affect access to the development have been addressed.

1.3 Content of this Report

This report contains the following information:

- An assessment of the CPME Scheme, including details of all four applications (Chapter 2);
- An evaluation of the proposals (Chapter 3);
- Details for the matters to be considered at San Andreas Roundabout (PA1) (Chapter 4);
- Details for the matters to be considered at North Way Bus Link (PA2) (Chapter 5);
- Details for the matters to be considered for a new railway bridge over Gipsy Patch Lane and associated the highway works (PA3) (Chapter 6);
- Details for the matters to be considered for works to widen Gipsy Patch Lane and upgrade two bus stops on Hatchet Road (PA4) (Chapter 7); and
- Information about access for the CPME Scheme (Chapter 8).

2. Assessment

2.1 Physical Environment

2.1.1 The Site

The CPME Scheme lies within the urban areas of Cribbs Causeway, Patchway, Filton, Little Stoke, Stoke Gifford and Bradley Stoke, approximately seven kilometres to the north of Bristol City Centre. The CPME Scheme complements the North Fringe to Hengrove Package of the wider MetroBus Network that is scheduled to commence operation in 2018.

MetroBus is a joint project between South Gloucestershire Council (SGC), North Somerset Council and Bristol City Council (MetroBus is described in more detail in Chapter 3 'Description of the CPME Scheme'). However, the CPME Scheme is being promoted by SGC and will provide a direct Metrobus route between The Mall at Cribbs Causeway and Bristol Parkway Railway Station, via the Cribbs Patchway New Neighbourhood (CPNN).

2.1.2 Existing Land Use

The CPME Scheme includes works within the existing highway, land adjacent to existing highway, and previously undeveloped land (land to the south of the Horizon 38 Site).

At the western extent of the CPME Scheme lies a large out-of-town shopping centre which includes a large indoor shopping area (known as The Mall), Cribbs Causeway Retail Park; and Centaurus Retail Park. The M5, Junction 17 lies immediately to the west of The Mall and the retail parks, and flows in a broadly north south direction as it passes the shopping area. Immediately to the north of The Mall lies Cribbs Causeway Bus Station, the western terminus for the CPME Scheme.

To the north of the Bus Station, beyond the northern parts of the Cribbs Causeway Retail Park, lies Patchway, a residential area including a primary school as well as a local community centre and library. Further north, beyond the urban areas of Patchway and Cribbs Causeway lies open countryside in green belt with only a scattering of development.

To the east of The Mall on the opposite side of Highwood Road which runs in a north east to south west direction, there is a caravan park known as Highwood Park. This is a SGC owned gypsy and traveller site providing approximately 20 pitches.

In the central part of the CPME Scheme, the route runs through Filton Airfield, which closed in 2012. This area, to the west of the A38 is allocated in the South Gloucestershire Local Plan Core Strategy 2006 – 2027 (December 2013) for redevelopment as part of the CPNN. The CPNN site also includes a development site immediately to the north of Filton Airfield, known as the Charlton Hayes development area, which is already under construction.

The North Way application site (PA2) includes an area of grassed greenfield land, currently set out as but not used as a sports pitch. On the western boundary, there is a club house (wooden hut) and changing facility (mobile welfare unit) which will be relocated within the site. Along its northern boundary, the pitch area is surrounded by areas of scrub, and an existing hedgerow which has a ditch running along its base. Beyond which lies the development site known as the Horizon 38 Site.

The Horizon 38 Site lies to the north of the North Way application site, east of the A38 and south of Gipsy Patch Lane. This site is the former location of a Rolls Royce factory – production having moved to a new purpose-built facility in late 2008. The site is a 'safeguarded employment site' and has planning consent to deliver a mixed-use development including offices, light industrial, car

dealerships, leisure and food and associated infrastructure. Construction on this site is on-going. Along the southern edge of the Horizon 38 Site there is a small area of species rich improved grassland. It is understood this is not planned for redevelopment as part of the site's extant planning consent.

To the north of Gipsy Patch Lane and between the A38 to the west and the mainline railway to the east, the land use includes industrial units, some Rolls Royce buildings and a hire car company premises. At the eastern end of the Horizon 38 Site, Gipsy Patch Lane goes underneath Gipsy Patch Lane Railway Bridge which carries railway infrastructure including mainlines to Bristol, London Paddington and South Wales. Gipsy Patch Lane continues through the residential area known as Little Stoke, with residential properties lying immediately to the north and south. Further south lie Bush Avenue Allotments and the large open area of 40 Acres.

At the Hatchet Road Roundabout at the eastern end of Gipsy Patch Lane, the CPME Scheme route turns in a southerly direction onto Hatchet Road which forms the western boundary of Mead Park in a broadly north south alignment. Bristol Parkway Railway Station is accessed by a left-hand turn into the station forecourt, immediately north of a railway underbridge. At the eastern terminus of the CPME Scheme, the land surrounding Bristol Parkway Railway Station is the residential area of Stoke Gifford. This large residential suburb of Bristol includes local shops, a medical centre and primary school.

2.1.3 Social and Economic Context

The CPME Scheme will serve the CPNN development. The CPNN Site will accommodate approximately 5,700 dwellings, around 50 hectares of employment land, open spaces, schools and community facilities. It will develop over the next 10-15 years.

The CPME Scheme will help to reduce the expected increased traffic levels as a result of new houses and businesses built as a result of other committed developments in the area such as the Horizon 38 Site and those associated with the CPNN. The CPME Scheme will further improve the public transport network by providing an alternative fast and direct route between Bristol Parkway Railway Station and Cribbs Causeway Bus Station, which would extend other MetroBus services to Bristol City Centre and Emerson Green.

2.2 Planning Policy Context

The following strategies, policies and plans are considered to be of relevance to the CPME Scheme and reflect the current direction of Government objectives for integrated transport and land use issues in the area, in particular:

- National Planning Policy Framework (March 2012);
- Planning Practice Guidance (March 2014);
- South Gloucestershire Local Plan Core Strategy 2006 – 2027 (December 2013);
- Emerging South Gloucestershire Local Plan (2018 – 2036);
- South Gloucestershire Local Plan: Policies, Sites and Places Plan (November 2017);
- SGC's Statement of Community Involvement (2015);
- Cribbs Patchway New Neighbourhood Supplementary Planning Document (March 2014);
- South Gloucestershire Landscape Character Assessment, Supplementary Planning Document (revised document, November 2014);

- South Gloucestershire Planning Guidance: Biodiversity and the planning process (November 2006);
- South Gloucestershire Planning Guidance: Trees on Development Sites (November 2005);
- The South Gloucestershire Design Checklist, Supplementary Planning Document (August 2007);
- West of England Joint Local Transport Plan 3 2011 – 2026 (March 2011);
- West of England Strategic Economic Plan 2015-2030;
- West of England Joint Spatial Plan: Towards the Emerging Spatial Strategy Document (November 2016); and
- West of England Joint Transport Study: Emerging Transport Vision (November 2016).

The CPME Scheme has been assessed against planning policies and other material considerations in Section 6 of each of the four Planning Statements. In summary, there is strong support for the proposed CPME Scheme in adopted planning policy and emerging policy. In particular, the CPME Scheme supports the sustainable transport offering, and improves access to the CPNN Site and the Horizon 38 Site.

2.3 Involvement

In line with SGC's Statement of Community Involvement (adopted 2015), a number of different methods of consultation and engagement were employed during the CPME Scheme's preparation. This included a 'soft launch' to raise awareness, a formal public consultation and smaller bespoke consultation exercises for landowners, specific organisations and sections of the community. More information on consultation methods is given in the CPME Statement of Community Involvement (CPME SCI), submitted with this application.

Public consultation on the CPME Scheme was undertaken between November 2015 and January 2016. A total of 140 responses to the consultation were received from members of the public and organisations, and these are outlined in the CPME SCI. A number of changes and refinements have been made to the CPME Scheme as a result of consultation and engagement as detailed in the CPME SCI.

3. Evolution

3.1 Design Development

During the development of the CPME Scheme, a number of alternative proposals were considered and rejected. A 'do nothing' option was considered, but running MetroBus services on the existing network would mean slower services considering the existing bottlenecks and the expected level of traffic in the area in the coming years. In addition to the benefits to MetroBus, the CPME Scheme brings benefits for cyclists and pedestrians along the CPME Scheme route, without reducing current provisions for general traffic.

As the project has developed, a specific objective for the CPME Scheme has been identified. This is:

> ***"To improve bus journey times between the Cribbs Patchway New Neighbourhood (CPNN) and Filton Enterprise Area and Bristol Parkway train station".***

3.2 Benefits of the CPME Scheme

The principle benefits of the CPME Scheme are closely linked to the scheme objective, and include:

- Extend choice of transport modes for all, in particular for private car drivers, to encourage a shift to public transport;
- Promote sustainable development by providing high quality public transport links;
- Improve access to public transport for areas that currently have poor provision;
- Improve integration of the public transport network;
- Promote social inclusion by improving access to employment, retail, community, leisure and educational facilities; and
- Improve safety along the corridors by reducing use of private cars.

3.3 Constraints

The CPME Scheme is within an urban environment, largely routed within existing highway land, interconnecting with existing carriageways at specific locations along the route and is subject to constraints from existing infrastructure. The existing narrow Gipsy Patch Lane Railway Bridge acts as a pinch point and as such will be demolished and replaced as part of the CPME Scheme.

3.4 Alternative Options Considered

3.4.1 PA1: San Andreas Roundabout

Initial designs of the San Andreas Roundabout tested a mix of elongation of the roundabout and different alignments to the spur arm (new MetroBus link) into the CPNN Site, all without signalisation. All early designs were tested and showed they could not provide a safe movement of MetroBus vehicles on and off the new MetroBus link without signals. During the project, there has been further refinements to the roundabout arrangement, specifically to the alignment of the MetroBus link into the CPNN Site.

3.4.2 PA2: North Way and North Way Bus Link

Several alternatives to the North Way and North Way Bus Link have been considered in the development of the CPME Scheme, these include an alternative CPME Scheme route which uses the A38. This alternative route was discounted for several reasons, including that MetroBus vehicles would be stuck on the already congested A38 corridor, which would affect the speed and reliability of services.

As part of the scheme, the existing North Way is to be extended by a new section of single carriageway road connecting to the Horizon 38 site. The proposed carriageway alignment crosses an existing watercourse that forms a boundary between North Bristol Business Park and the Horizon 38 Site.

A new bridge structure is required to carry the carriageway over the watercourse. The new structure will be designed for a 120 year design life and will be owned and maintained by SGC.

A preliminary option selection process has been undertaken to consider different options for the structural arrangement. Options included variations of single span integral and semi integral prestressed concrete decks, and the use of precast reinforced concrete box culvert units.

The new road will cover a large area of the flood plain potentially impacting the flood zone extent. One of the principal concerns in evaluating the structural options was that the risk of flooding to the adjacent NHS Blood and Transplant building should not be exacerbated.

The construction of a precast concrete box culvert bridge structure would require the temporary diversion of the watercourse. The only route available for the diversion would be into the flood plain directly to the north of the NHS Blood and Transplant building. The increased risk of flooding to the building was considered to be unacceptable and therefore the box culvert option was discounted on this basis.

The recommended solution is to provide a 17 m single span bridge set skew at an angle of 15° to the main line of the proposed highway. The deck is simply supported semi-integral, formed from precast prestressed concrete Y3 and YE3 beams with a 200mm reinforced concrete deck slab, and a reinforced concrete diaphragm and end screen at each abutment. The deck is supported on elastomeric bearings on top of a full height reinforced concrete abutment stem wall and spread footing arrangement. The splayed wing walls comprise full height reinforced concrete stem walls and integral spread footings.

The recommended solution provides a good balance between cost and acceptable maintenance liability. The construction will not require the temporary diversion of watercourse and therefore the risk of flooding to the NHS Blood and Transplant building will not be exacerbated. The current flood protection provided by the berm immediately to the south of the watercourse will be unaffected.

As the design has developed, the alignment of the North Way bus link has been carefully considered to tie in with the existing development at Horizon 38 Site.

A roundabout has also been incorporated into scheme design, following consultation with the local community who raised the issue of HGV U-turns at the entrance to properties.

3.4.3 PA3: Gipsy Patch Lane Railway Bridge and Associated Highway Works

The key principles for the design of the bridge include the following:

1. Extend the span of the bridge in order to accommodate the wider carriageway below.
2. Deck should be in the same width and position in order to maintain the current track alignment.
3. Minimise the requirement for the road level reduction in order to accommodate higher vehicles.
4. Ensure the bridge can be built within the 12 day possession (closure of the railway).
5. Consider maintenance and how it will be looked after.

A number of options for the replacement bridge were considered and discounted for various reasons. The discounted options include:

- No Bus Lanes (new bridge skewed to tracks);
- Single Bus Lane (skewed to tracks);
- No Bus Lane (square to the track);
- Single Bus Lane (square to the track); and
- Dual Bus Lane (square to the track).

The option included in the CPME Scheme was chosen because it:

1. Enables consistent headroom across the full span of the bridge – large/high commercial vehicles will be able to use the road beneath the new bridge alongside double-decker buses.
2. Minimises realignment of the road – i.e. the road would need to be even lower to allow large/high commercial vehicles as well as double-decker buses to use e.g. double-decker buses could use the lane alongside [should repairs need to be undertaken to the bus lane].
3. Requires thinner abutments than an arch design which would require thicker ones [to resist the thrust forces], thereby adding to weight.
4. Allows for a more straightforward construction:
    - Evenly supporting and rolling-in an arched design is compromised (requiring bespoke support) and would require even more Self-Propelled Modular Transporters [because of the higher weight].
    - Reduces the time to construct (i.e. less material to remove) and install (i.e. it is lighter and less complicated to backfill) thus reducing associated disruption.

The potential for different appearances of the replacement railway bridge has been substantially investigated. A smooth concrete finish has been found to be the only viable option for a number of reasons:

- A smooth concrete finish allows easy structural inspection and quick and efficient graffiti removal.
- It offers the simplest maintenance which helps to keep the whole life maintenance costs to a minimum.

The review of alternative finishes for bridge resulted in changes to the bridge's design to include a coping lip and drainage channels. The coping will improve the aesthetic appearance of the bridge by

adding a shadow band across the top of the bridge. The coping, in combination with drainage channels, will also help to ensure that the bridge remains clean looking due to reducing the potential for water staining/weathering.

3.4.4 PA4: Gipsy Patch Lane and Hatchet Road

3.4.4.1 Gipsy Patch Lane

Along Gipsy Patch Lane consideration has been given to the number of MetroBus stops provided. Several options were developed at an early stage of the scheme design; the final design provides a balanced solution that prioritises MetroBuses in the most appropriate locations, without reducing existing provisions for general traffic.

3.4.4.2 Hatchet Road Roundabout and Hatchet Road

Several options have been considered in the development of the CPME Scheme, these include the following.

1. An alternative CPME Scheme route which uses Winterbourne Road instead of Hatchet Road. This alternative route was discounted because the additional length of the route (approximately 1.7 kilometres longer), resulting in increased journey times. The alternative route would therefore not be in line with the objective of MetroBus being as fast and direct as possible.
2. At the northern end of Hatchet Road consideration was given to widening to provide a southbound bus lane on:
   - 40 Acres side of Hatchet Road - A high level ecological and landscape review of this option was undertaken and this concluded there were no significant overall differences between widening on 40 Acres side and widening on Mead Park side in terms of the likely impacts.

     This option was discounted due to significantly more utilities being present on the 40 Acres side of the road, which would result in more and longer disruption during construction if that side were widened into.
   - Mead Park side of Hatchet Road - Following objections and petitions submitted by members of the public, a debate about the proposed Hatchet Road bus lane was held at a Full Council meeting in July 2017. A review of the bus lane was then undertaken by the council and this resulted in the bus lane being removed from the CPME Scheme in December 2017. Walking and cycling infrastructure improvements and bus priority on the Hatchet Road Roundabout were also removed as a result.
3. Other more localised design options were considered, but were discounted or modified due to physical constraints.

3.4.5 The 'Do-Nothing' Alternative

Running MetroBus services on the existing network would mean slower services considering the existing bottlenecks and the expected level of traffic in the area after committed developments are built. In addition to benefits to MetroBus, the scheme brings benefits for background bus services, cyclists and pedestrian along the scheme route, the 'Do Nothing' alternative would not offer potential for improvements to cyclists and pedestrians.

The CPME is part of the required transport package included in the South Gloucestershire Core Strategy for the CPNN. Therefore, it must be progressed in order to mitigate the traffic impacts of the new neighbourhood.

3.4.6 Alternative Temporary Routes

The CPME Scheme includes elements that are to be designed and developed by third parties, these elements include the route as it passes through the CPNN Site and the Horizon 38 Site. Two alternative temporary routes have therefore been developed, as follows:

3.4.6.1 Alternative Temporary Route 1

Alternative Temporary Route 1 is considered to facilitate a scheme option should the CPME Scheme route through the CPNN Site not be developed within a programme compatible with delivery of the CPME Scheme. Alternative Route 1 is very similar to the CPME Scheme with the exception that instead of traveling along Highwood Road and entering the CPNN Site via the modified San Andreas Roundabout, it will go along Hayes Way before running south along the A38, Gloucester Road to the Combination Roundabout.

Once at the Combination Roundabout, the route is as per the CPME Scheme; it runs along North Way, via the Horizon 38 Site, before turning right onto Gipsy Patch Lane and heading east to the Hatchet Road Roundabout. The route then heads south on Hatchet Road to Bristol Parkway Railway Station. MetroBuses would run in both directions on this route.

3.4.6.2 Alternative Temporary Route 2

Alternative Temporary Route 2 is considered to facilitate a scheme option should CPME Scheme routes through both the CPNN Site and the Horizon 38 Site not be developed within a programme compatible with delivery of the CPME Scheme. Alternative Route 2 runs along Hayes Way before running south along the A38, Gloucester Road to the junction with Gipsy Patch Lane. The buses would turn left into Gipsy Patch Lane. Once at Gipsy Patch Lane, the route is as per the CPME Scheme; it runs east along Gipsy Patch Lane to Hatchet Road Roundabout, before heading south on Hatchet Road to Bristol Parkway Railway Station. MetroBuses would run in both directions on this route.

3.5 The Preferred Option

Visual Identity Guidelines (VIG) have been prepared for the CPME Scheme, in line with similar guidelines followed for the other MetroBus schemes. The VIG outline the key design principles and design parameters of the service. General stop types and designs are specified, with further detail then also given on the siting of individual CPME Scheme stops.

3.5.1 MetroBus Service

It is proposed that the vehicles servicing the CPME Scheme would follow the overall MetroBus network design principles and would be bus-based with low floors, offering high levels of passenger comfort and security. Boarding at stops will ensure gap free access from platform to vehicle.

The quality of the wider bus services using the CPME Scheme would be controlled by setting the vehicle and service quality standards for operators to gain access to the CPME Scheme. All MetroBus services would have distinctive branding to ensure passengers identify with the system.

3.5.2 MetroBus Stops

The CPME Scheme adopts two out of the three main types of stop environment that have been developed for the wider MetroBus network: District (Stop Type B) and Neighbourhood (Stop Type C). The Type B stop is 23 metres long and Type C stop is 16 metres long. Both stop types include shelter, seating, cycle stands, CCTV, in addition to a passenger information and ticketing point (‘iPoint’) with the following elements:

- Smartcard reader;
- Real time information and service information;
- Interchange directions and local area wayfinding; and
- Brand identity.

Stops will have raised kerbs along the whole length to ensure full accessibility of the vehicles by enabling easy boarding and alighting and a common and distinctive surface treatment will be used in the waiting area alongside the vehicle stopping point. Detailed designs and colour schemes will have regard to existing treatments along the route. Figure 3.1 shows a visualisation of a MetroBus stop in Bristol City Centre.

Figure 3.1: Visualisation of MetroBus stop in Bristol City Centre (Source: MetroBus iPoint Visual Identity Guidelines, Bristol Design Service)

3.5.3 The CPME Scheme

The proposed CPME Scheme comprises a new MetroBus route to connect Cribbs Causeway Bus Station in the west, to Bristol Parkway Railway Station in the east, via the CPNN and Filton Enterprise Area. It passes through the CPNN Site and the Horizon 38 Site.

Starting at Cribbs Causeway Bus Station, the CPME Scheme runs along runs along Highwood Lane and Pegasus Road, it turns south onto Highwood Road to the San Andreas Roundabout. At San Andreas Roundabout, the CPME Scheme enters and passes through the Filton Airfield part of the CPNN Site, via a dedicated bus only link. The CPME Scheme route will pass under the A38 at the Combination Roundabout before entering the south of the Horizon 38 Site, via a dedicated bus only link (taxis, cyclists and emergency vehicles will be allowed to use the two bus only links). The CPME Scheme route then passes through the Horizon 38 Site before turning east onto Gipsy Patch Lane. The CPME Scheme runs east along Gipsy Patch Lane under a larger, replacement railway bridge (Gipsy Patch Lane Railway Bridge) to Hatchet Road Roundabout, where it heads south on Hatchet Road. The CPME Scheme route follows Hatchet Road to Bristol Parkway Railway Station. MetroBuses will operate in both directions along this route.

3.5.3.1 PA1: San Andreas Roundabout

The San Andreas Roundabout will be re-configured as part of the CPME Scheme. Re-configuration will include the extension / elongation of the existing roundabout, the signalisation of the roundabout, with construction of a new spur road between the existing connections to Brabazon Roundabout and Merlin Road. The spur will be for buses / MetroBuses, pedestrians, cyclists, taxis and emergency vehicles only, subject to future consultation.

3.5.3.2 PA2: North Way and North Way Bus Link

The CPME Scheme route will travel along North Way and into the Horizon 38 Site, which requires North Way to be connected to the internal road layout of the Horizon 38 Site. Therefore, the existing North Way carriageway is to be extended by approximately 220 m and will include a new mini roundabout, which will be used as a Heavy Goods Vehicle (HGV) turning facility before the bus only link. Two new MetroBus style bus stops will be provided along with a new shared use path on either side.

A new bridge structure will also be provided here to enable the carriageway to cross the existing ditch which runs along the southern boundary of the Horizon 38 Site.

It is proposed that only buses, emergency vehicles, taxis, cyclists and pedestrians will be permitted to use this link, subject to future consultation.

The existing changing facility and club house are proposed to be relocated within the application site boundary; and two parking spaces are provided.

3.5.3.3 PA3: Gipsy Patch Lane Railway Bridge and Associated Highway Works

The existing Gipsy Patch Lane Railway Bridge will be demolished and replaced with a longer span bridge. It will be designed to accommodate two bus lanes, two lanes for general traffic, and shared use cycle/footways on both sides of the road beneath the railway line. The new bridge would span approximately 24m.

The carriageway will be lowered by an approximate depth of 1.69 m as it passes under Gipsy Patch Lane Railway Bridge; the highway beneath the bridge is proposed to be approximately 14m wider than it is currently.

The scheme also involves the demolition of a Second World War pillbox.

3.5.3.4 PA4: Gipsy Patch Lane and Hatchet Road highway works

Works to Gipsy Patch Lane include carriageway widening to both the west and east of Gipsy Patch Lane Railway Bridge. To the west of Gipsy Patch Lane Railway Bridge, the proposed widening would result in an added bus lane in each direction. To the east of Gipsy Patch Lane Railway Bridge a bus lane will be created in the eastbound direction. To facilitate the provision of the new bus lanes, the existing carriageway is to be widened by between 7 m and 9 m. Works to widen the carriageway would all be within the existing adopted highway boundary, however would entail the removal of approximately 22 trees along Gipsy Patch Lane.

Two sets of MetroBus stops would also be provided along Gipsy Patch Lane between the junction with the Horizon 38 Site and Hatchet Road Roundabout.

Bus stop upgrades would also be provided to two bus stops on Hatchet Road.

3.5.4 Footways and Cycleways

3.5.4.1 PA1: San Andreas Roundabout

The main Non-Motorised User (NMU) related features of the proposals to the San Andreas Roundabout are:

- Replacement of uncontrolled crossing points on Hayes Way and Highwood Road with new signal controlled crossing points;
- Additional signal controlled crossing points on the other arms and the provision of shared use paths to link all new crossing points; and
- Provision of a new spur and a new pedestrian and cyclist link along the new bus route to the CPNN development.

3.5.4.2 PA2: North Way and North Way Bus Link

The main NMU related aspects of the CPME Scheme at this location are:

- A new pedestrian and cycle link that will reduce the distance between Little Stoke and Filton (currently the most direct route is via Gipsy Patch Lane to the A38 Gloucester Road west of the Rolls Royce site); and
- A shared use path along the new link.

3.5.4.3 PA3: Gipsy Patch Lane Railway Bridge and Associated Highway Works

The existing walking and cycling environment through Gipsy Patch Lane Railway Bridge is sub-standard with a narrow footway on the north side only. Cyclists are expected to dismount or use the busy carriageway which deters less confident cyclists.

The main improvements to NMU provision are as follows:

- The construction of a shared use cycle/footway on both sides of the carriageway and
- Ensuring the new shared use paths are connected with adjoining footways and cycle ways to facilitate continuous routes.

3.5.4.4 PA4: Gipsy Patch Lane and Hatchet Road

The CPME Scheme will involve a number of improvements to walking and cycling infrastructure along Gipsy Patch Lane:

- Shared use cycle/footway on both sides of the carriageway to the west and east of Gipsy Patch Lane; and
- Little Stoke signalised crossing to be upgraded.

3.5.5 Parking

3.5.5.1 PA1: San Andreas Roundabout

The proposed CPME Scheme will have no impact to parking arrangements at the junction. The existing junction currently has parking controls and these will remain and be extended to cover the larger roundabout under the CPME Scheme.

3.5.5.2 PA2: North Way and North Way Bus Link

Two parking spaces will be created for the relocated sports facilities.

3.5.5.3 PA3: Gipsy Patch Lane Roundabout and Associated Highway Works

Given the physical constraints of the current bridge structure, the narrow width of the carriageway and the substandard footway; parking is currently prohibited in and around the Gipsy Patch Lane Railway Bridge.

Under the CPME Scheme, there will be no changes to parking restrictions despite the bridge being replaced and the carriageway and cycle/footway being significantly widened and improved. On this basis, there will be no parking impacts arising from the CPME Scheme.

3.5.5.4 PA4: Gipsy Patch Lane and Hatchet Road

On-street parking in the vicinity of Gipsy Patch Lane occurs along the parallel side roads rather on the main carriageway itself. The CPME Scheme will therefore not change the parking provision on these side roads and the proposed changes to the main carriageway will not result in displaced on-street parking.

3.5.6 Road Markings and Signs

Appropriate warning and regulatory traffic signs and road markings will be provided as part of the CPME Scheme in accordance with the *'The Traffic Signs Regulations and General Directions 2002'* and subsequent amendments at detailed design. Directional signage requirements shall be developed in conjunction with the roads authority.

A consistent colour palette will be used for MetroBus signage, publicity, stop furniture and vehicle livery in order to identify the MetroBus system.

3.5.7 Street Lighting

The proposed new lighting will be designed in accordance with BS5489:2013 – Code of practice for the design of road lighting Part 1: Lighting of roads and public amenity areas, and shall meet the requirements set out within BS EN 13201 – Road lighting, BS EN 7671 and SGC's Street Light Policy.

To meet with the requirements of SGC's street light policy, all new lanterns will meet the all-night operation criteria.

All MetroBus shelters installed as part of the CPME Scheme will include lighting.

3.5.8 Drainage

The Drainage Strategy which has been prepared for the CPME Scheme determines that the existing route generally comprises a positive drainage network, served by kerbs and gullies, kerb inlets and combined kerb drainage systems, discharging to public sewers and watercourses at various locations along the route.

For significant sections of the CPME Scheme, it is not proposed to make any alterations to the existing carriageway or adjacent footpaths over and above amendments to existing road markings and the installation of new signs. As such, no alterations are proposed to the existing drainage arrangements as they are assumed to be adequate. Where the existing drainage network is deemed to be inadequate, as identified in discussions with SGC, the design will attempt to address the current issues.

The proposals are based on design criteria from discussions with SGC, as well as from the West of England Partnership Flood Risk Working Group's document *'West of England Sustainable Drainage Developer Guide'* (Preliminary Draft, 2014). Where criteria are not covered in the aforementioned document, guidance will be taken from nationally recognised standards such as the Design Manual for Roads and Bridges, and Sewers for Adoption, 7th Edition.

The Drainage Strategy gives more information about sections of the highway to be altered.

4. Matters to be Considered – PA1: San Andreas Roundabout

4.1 Use

Reconfiguration of the San Andreas Roundabout will include the extension / elongation of the existing roundabout, the signalisation of the roundabout; with construction of a new spur road between the existing connections to Brabazon Roundabout and Merlin Road. The spur will be for buses, MetroBuses, pedestrians, cyclists, taxis and emergency vehicles only, subject to future consultation.

There is one small section of PRoW within the study area for PA1: San Andreas Roundabout (reference OAY/84), which is partially within the application site boundary. PRoW OAY/84 runs east west to the south of Merlin Road, ending just to the south of San Andreas Roundabout.

4.2 Amount and Scale

The site area for PA1: San Andreas Roundabout (red line boundary) comprises an area of 1.77 ha, with a site compound area of 0.7 ha.

The new spur road to the south of San Andreas Roundabout will have a 7 m single carriageway, and 4 m wide shared use cycle and footways either side. The proposed shared use cycle and footway will be 4 m around the roundabout, between Hayes Way and Highwood Road. Between Merlin Road and the Cribbs Causeway access roundabout, the shared use path will be 3 m.

Controlled crossings will be 4m wide, with the reservation between the carriageway being between 3 m and 4 m wide.

4.3 Layout

The layout of the scheme is dictated by the location of the existing San Andreas Roundabout and the CPNN Site, and the need to accommodate the CPME Scheme.

San Andreas Roundabout will become a five-arm roundabout, with signal controlled crossings proposed on the four existing arms, and an uncontrolled crossing point provided on the new spur arm (access to the CPNN Site). The roundabout will be elongated to accommodate the new spur road.

A shared use cycle/footway will be sited on all arms of the roundabout, to accommodate the safe movement of pedestrians and cyclists.

Construction works at San Andreas Roundabout will impact a section of PRoW OAY/84 within the application site boundary (although the impacted PRoW is effectively a dead end). During the construction works, any users of the PRoW can be diverted to nearby footways on Merlin Road.

4.4 Landscaping

Landscaping at San Andreas Roundabout will include new planting and trees in the centre of the roundabout, which will mimic the existing provision. Ornamental planting on each roundabout arm will also be consistent with the existing provision.

An area of dense vegetation including trees will be removed to the south of the roundabout, in order to accommodate the new spur arm. Approximately 35 new trees will be planted on the southern arm of the roundabout (proposed new link road), to provide a gateway into the CPNN Site.

More detail on landscaping has been provided on Drawing CPME-CH-PR-DR 121.

4.5 Appearance

Detailed designs and colour schemes will have regard to existing treatments.

All materials will comply with SGC's standards, and be consistent with the wider MetroBus network. Figure 4.1 shows a visualisation for San Andreas Roundabout.

Figure 4.1: San Andreas Roundabout visualisation

5. Matters to be Considered – PA2: North Way and North Way Bus Link

5.1 Use

The CPME Scheme will travel along North Way and into the Horizon 38 Site, which requires North Way to be connected to the internal road layout of the Horizon 38 Site. Therefore, the existing North Way carriageway is to be extended and will include bus stops and a new shared use path on either side and a new bridge will be provided over the ditch. The land on which this short section of highway would be built is currently greenfield land not adopted highway.

It is proposed that only buses, MetroBuses, emergency vehicles, taxis, cyclists and pedestrians will be permitted to use this link, subject to future consultation.

The existing club house (wooden hut) and changing facility (mobile welfare unit) within the sports pitch area will be relocated as part of the works, and two parking spaces will be constructed for these facilities. The greenfield land area is currently not in use.

5.2 Amount and Scale

The site area for PA2: North Way and North Way Bus Link (red line boundary) comprises an area of 1.37 ha, with a site compound area of 0.6 ha.

The North Way carriageway will be extended by approximately 220 m, into the Horizon 38 development site. The single carriageway will generally be 7.3 m wide, but this will increase to a width of 10 m at the corner between the two proposed stops, and in the location of the proposed uncontrolled crossing.

A new bridge will be constructed across the unnamed ordinary watercourse within the site. The bridge will measure 17 m (width), with a 10 m wide carriageway and 3 m wide foot/cycleways on each side, and 1.4 m high parapets. Further details for the bridge are shown on Drawing SGC-SC&T-SBR-68294-DR-S-0001.

The two bus stops provided adjacent to the new carriageway will be 16 m long. The proposed footway will be 2 m wide, either side of the carriageway and will bypass the bus stops.

5.3 Layout

The layout of the scheme is dictated by the location of the existing road (North Way) and the newly provided infrastructure within the Horizon 38 Site, and the need to accommodate the CPME Scheme.

The North Way Bus link will consist of a two way single carriageway, with adjacent new footways. A three-arm roundabout will be provided to facilitate HGV turning, with the southern arm of the roundabout providing access to the sports pitch area where there is a new turning head.

To the south of the new spur arm, provision is made for the relocation of the club house and changing facility. PA2: North Way and North Way Bus Link also results in the loss of part of the sports pitch area.

The location for a bus gate to control access for MetroBus and authorised vehicles is still to be determined.

5.4 Landscaping

PA2: North Way and North Way Bus Link will include planting of new trees either side of the new carriageway. Two new large trees will be placed at the end of the hedgerow, either side of the new ditch crossing; and areas of removed vegetation will be replaced with grass, tying into existing open, grassed area.

More detail on landscaping is provided on Drawing CPME-CH-PR-DR 122.

5.5 Appearance

Detailed designs and colour schemes will have regard to existing treatments.

All materials will comply with SGC's standards, and be consistent with the wider MetroBus network. Figure 5.1 shows a visualisation for North Way.

Figure 5.1: North Way visualisation

6. Matters to be Considered – PA3: Gipsy Patch Lane Railway Bridge and Associated Highway Work

6.1 Use

Gipsy Patch Lane Railway Bridge is a brick arch structure which crosses Gipsy Patch Lane. The bridge carries the main railway line out of Bristol heading north. As it passes underneath the bridge the highway is single carriageway and it has a single narrow footpath (approximately 1 m wide) on the northern side of the carriageway.

To the immediate north west of the railway bridge, and included within the application site boundary for PA3: Gipsy Patch Lane Railway Bridge, there is a brick built pillbox. This feature is to be demolished as part of the development proposals.

6.2 Amount and Scale

PA3: Gipsy Patch Lane Railway Bridge and Associated Highway Work (red line boundary) comprises an area of 4.15 ha, with a site compound area of 1.70 ha.

The new bridge will span approximately 24 m.

The carriageway will be lowered by approximately 1.69 m as it passes under Gipsy Patch Lane Railway Bridge. At either side of the bridge the width of the highway will be approximately 14 m wider than the current width of 10 m; and will include a 5 m shared use path on the southern side and a 3.5 m shared use path on the northern side. There will be a bus lane in each direction, each being 4.2 m wide, and a general traffic lane in each direction, each being 3.65 m wide.

The new kiosk to house pumping equipment will measure approximately 0.75 m x 0.74 m x 0.40 m. The details for the kiosk have not yet been finalised; however, Figure 6.1 shows an example kiosk for illustrative purposes.

Figure 6.1: Example kiosk (for illustrative purposes only)

6.3 Layout

The new railway bridge will be constructed in the same location as the existing bridge and the alignment of Gipsy Patch Lane will not change as a result of the CPME Scheme. The proposed kiosk will be located to the south of Gipsy Patch Lane, east of the bridge.

6.4 Landscaping

Replacement planting of native scrub will be provided on the new railway bridge embankments. Furthermore, to the east side of Gipsy Patch Lane Railway Bridge there is proposed tree planting at the base of the embankment slope, to replace removed vegetation and screen views of the bridge for high sensitivity residential visual receptors. A row of trees will be planted along the northern boundary of the Horizon 38 site (to the west of the new bridge) to replace the trees removed during construction.

More detail on landscaping is provided on Drawing CPME-CH-PR-DR-123.

6.5 Appearance

Detailed designs and colour schemes will have regard to existing treatments along Gipsy Patch Lane.

Materials will comply with Network Rail requirements, SGC's standards, and be consistent with the wider MetroBus network. Figures 6.2 and 6.3 show visualisations for the Gipsy Patch Lane Railway Bridge (Note - electrification cables and gantries have been built as part of a separate an unrelated project, along with the necessary vegetation clearance).

Figure 6.2: Gipsy Patch Lane Railway Bridge (East) visualisation (Note - the gantries positions/shapes are approximate and are for illustrative purposes only)

Figure 6.3: Gipsy Patch Lane Railway Bridge (West) visualisation (Note - the gantries positions/shapes are approximate and are for illustrative purposes only)

7. Matters to be Considered – PA4: Gipsy Patch Lane and Hatchet Road

7.1 Use

Gipsy Patch Lane is an existing highway, which provides one of the principal routes from the Stoke Gifford area towards the A38 Gloucester Road corridor and is the main access route for Little Stoke. Widening of Gipsy Patch Lane will provide a bus lane, and proposals include a shared use cycleway/footpath either side of the carriageway. Hatchet Road is a single carriageway road and the application site includes existing bus stops.

There is a PRoW which runs south of Hatchet Road Roundabout to the east of the application site boundary (reference: LSG/11). There is also a PRoW which runs along the eastern side of Hatchet Road (reference LSG/141/10), with another PRoW off Bush Avenue (LSG/16). All the aforementioned PRoWs are outside of the application site boundary.

7.2 Amount and Scale

The site area for PA4: Gipsy Patch Lane and Hatchet Road (red line boundary) comprises an area of 2.29 ha, with a site compound area of 0.70 ha.

Works to Gipsy Patch Lane include carriageway widening to both the west and east of Gipsy Patch Lane Railway Bridge.

To the west of Gipsy Patch Lane Railway Bridge, the proposed widening (along a 107 m length) would result in an added bus lane in each direction (both 4.2 m wide). The carriageway widening will be to the north and varies from 2 m to 7 m wide. The current width of the road is generally 7.3 m wide. A turning circle to the north of Gipsy Patch Lane will be removed.

To the east of Gipsy Patch Lane Railway Bridge an additional bus lane will be created in the eastbound direction (4.2 m wide). To facilitate the provision of the new bus lane, the existing carriageway is to be widened (along a 340 m length in the east). The carriageway widening will be to the south and varies from 0 m to 4.5 m wide.

The two sets of MetroBus stops provided along Gipsy Patch Lane between the junction with Horizon 38 Site and Hatchet Road Roundabout will be 23 m in length; and will incorporate block paving, bus shelter, flag and Real Time Information and necessary electrical and telecommunications connections.

The new MetroBus stop on the northbound carriageway of Hatchet Road will be 23 m long, with the MetroBus stop on the southbound carriageway (provided to the south of Sandringham Road Roundabout) being 16 m long.

7.3 Layout

The layout of the CPME Scheme is dictated by the highway boundary of the existing roads (Gipsy Patch Lane and Hatchet Road), and the need to accommodate the proposals.

7.4 Landscaping

The opportunities to propose new trees along Gipsy Patch Lane are restricted by utilities. However, a number of new trees will be planted along the Gipsy Patch Lane alignment, with grassed verges

under the trees. The grassed areas under trees will be managed as spring flowering meadow to add seasonal interest. Planting areas will be provided along Gipsy Patch Lane, these areas will be consistent, with high visual impact to add interest to the wide road corridor.

No existing trees or vegetation will be removed along Hatchet Road, and the design does not propose for any new trees or hedgerows to be planted along the stretches of Hatchet Road where the bus stop upgrades are proposed.

More detail on landscaping has been provided on Drawings CPME-CH-PR-DR 124, CPME-CH-PR-DR 125 and CPME-CH-PR-DR 126.

7.5 Appearance

Detailed designs will have regard to existing treatments.

All materials will comply with SGC's standards, and be consistent with the wider MetroBus network. Figure 7.1 provides a visualisation for Gipsy Patch Lane.

Figure 7.1: Gipsy Patch Lane visualisation

8. Access

The CPME Scheme will extend the North Fringe to Hengrove MetroBus network, providing a fast and direct route between Cribbs Causeway and Bristol Parkway Railway Station and will serve existing and planned residential and commercial developments in the area.

Access will be provided into the CPNN Site via San Andreas Roundabout and to the Horizon 38 Site via North Way. The public will be able to access MetroBus services using some new and some upgraded stops throughout the CPME Scheme route.

The CPME Scheme will be compliant with the Equality Act 2010. For disabled users, crossings have tactiles in accordance with the document *'Guidance on the use of Tactile Paving Surfaces'* and will have dropped kerbs. The signalised crossings design incorporates features for disabled users as part of the design standards / specifications as a matter of course. Further, vertical gradients will be no greater than 5%, and that for only short distances where applicable.