



Free Electric City Centre Shuttle Bus Study

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Free Electric City Centre Shuttle Bus Study

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Executive Summary

INTRODUCTION

Glasgow City Council commissioned this study as an outcome of the City Centre Transport Plan to investigate an option of introducing a free electric City Centre circular bus service. The service would connect transport interchanges and key gateway locations and make it easier to switch between rail, bus, subway, taxi, cycle and walking routes, in addition to encouraging passenger interchange and improving integration between places.

This summary note provides national and local context regarding city centre shuttle services, sets out the case for such a service in Glasgow and then describes a number of route options for which high level indicative costs of operation have been estimated. The note also reviews delivery options for the service within the current regulatory framework and key risks.

UK CONTEXT

There are several city centre shuttle bus services operating in other major cities and towns in the UK and these have been reviewed to identify elements of best practice and consider lessons learned.

Probably the most successful scheme is the **Manchester Free Bus**, introduced in 2002, with two routes linking the city's key transport interchanges to main commercial, financial and cultural districts. The routes operate every 10 minutes and is funded by the city region transport authority, the city council, National Car Parks and the property developer Allied London. The service costs approximately £1.2m to operate per annum¹ with the city council's contribution funded from its Bus Lane Reserve.

Several town and city centre shuttles operate in West Yorkshire, the first was in Leeds, implemented in 2006. Initially free, a flat fare was introduced in 2011 and this is currently priced at £1.00.

The newest city centre shuttle in the UK is the Leicester Hop! inner orbital service, introduced in 2023 using electric midibuses.

LOCAL CONTEXT

In Glasgow, there is an existing and well established city centre shuttle service. The **Station Rail Link** is funded by ScotRail and connects Central and Queen Street rail stations and Buchanan Bus Station. Travel is free to holders of a valid rail ticket, SPT Zonocard or a Scottish Government National Entitlement Card - a fare applies to other users (£1.50 adult, £0.75 child).

CASE FOR A CITY CENTRE SHUTTLE

Analysis of the existing public transport network in Glasgow has been undertaken to assess accessibility, firstly, from radial bus corridors to city centre destinations and, secondly, between key

¹ Financial year 2022-23 budget. From Greater Manchester Combined Authority Transport Committee, Bus Services Sub Committee, Review of Subsidised Bus Services, 10 March 2023



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destinations within the city centre. Whilst overall connectivity to/from and within the city centre is good, there are gaps in some areas where cross-connectivity can be improved, particularly in relation to key destinations within the periphery of the city centre, for example the Royal Infirmary and Charing Cross rail station. Overall, there is a case to improve cross-city connectivity and enhance public transport provision.

SERVICE OPTIONS

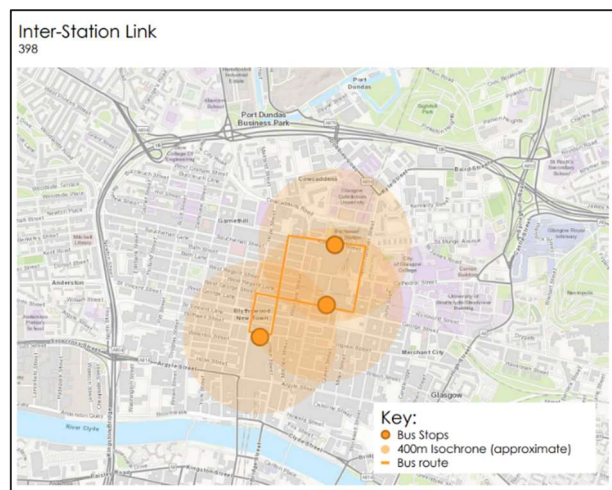
We have designed six options for a new city centre shuttle based on the connectivity analysis described above, and the legislative requirement not to compete with existing commercial bus services. The options are all based on the existing Station Rail Link as it would be more cost effective to build on the existing service rather than design a completely new one.

Option 0

Station Rail Link

Existing service 398 as currently operated but with transfer of responsibility from ScotRail to Glasgow City Council.

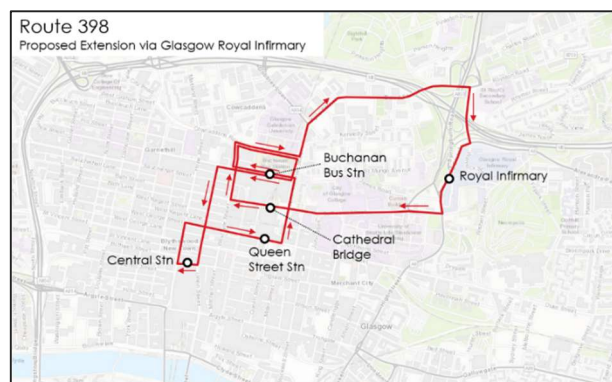
Figure shows current route and 400m catchment from bus stops.



Option 1

Royal Infirmary and Transport Hubs

Circular service serving Royal Infirmary, Strathclyde University, Queen Street station, Buchanan bus station and Central station.

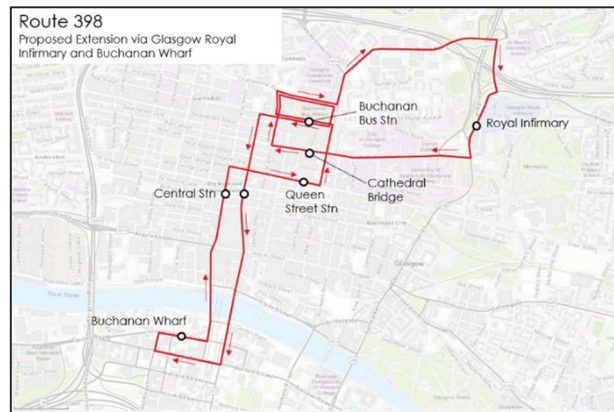


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Option 2

Royal Infirmary, Transport Hubs and Buchanan Wharf

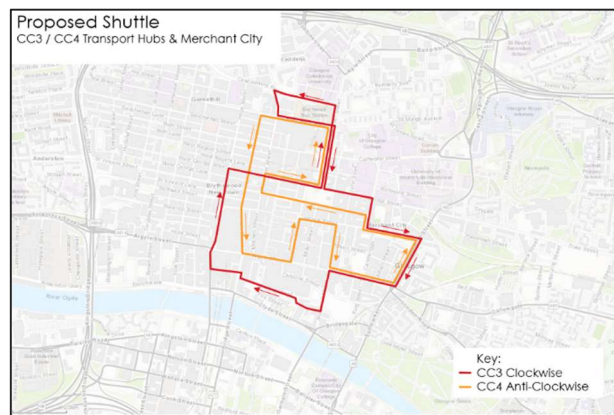
Circular service serving Royal Infirmary, Strathclyde University, Queen Street rail station, Buchanan bus station, Central Station and the Barclays campus at Buchanan Wharf.



Option 3

Royal Infirmary, Transport Hubs and Merchant City

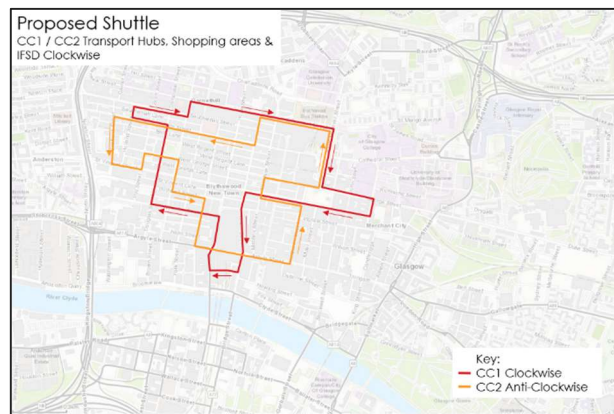
Circular service serving Royal Infirmary, Strathclyde University, Queen Street rail station, Buchanan bus station, Central station, the Merchant City and St Enoch Centre. This option would offer better connectivity between the main retail areas of the city centre and provide some unique links, although the walking distances between some are relatively modest.



Option 4

Transport Hubs and International Financial Services District

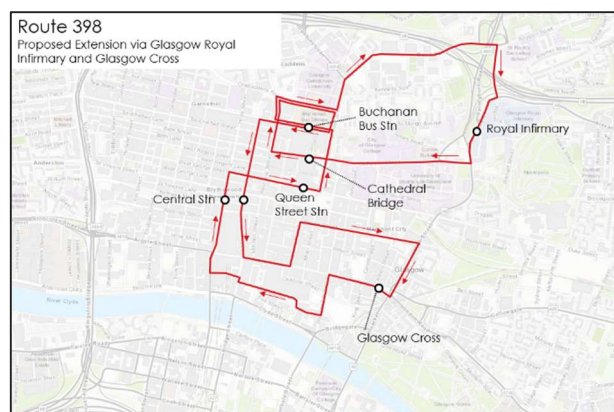
Circular services serving Buchanan bus station, Strathclyde University, Queen Street rail station, Central station, the Argyle Street and Sauchiehall Street shopping areas and the International Financial Services District. The service would operate as two routes, one clockwise and one anti-clockwise.



Option 5

Transport Hubs and Merchant City

Circular services serving Buchanan bus station, Queen Street rail station, the Merchant City, St Enoch Centre and Central station. The service would operate as two routes, one clockwise and one anti-clockwise.

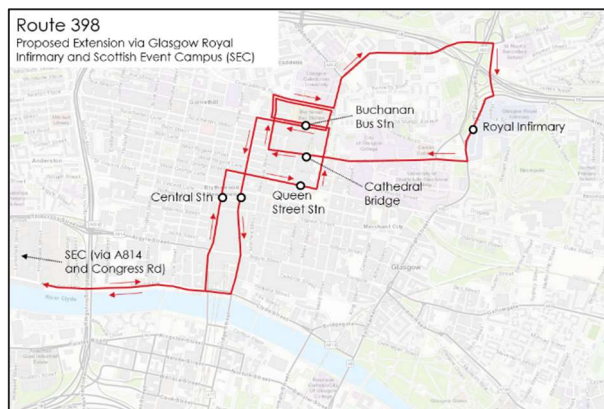


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Option 6

Royal Infirmary, Transport Hubs and SEC

Circular service serving Royal Infirmary, Strathclyde University, Queen Street rail station, Buchanan bus station, Central station and the Scottish Events Campus.



TIMETABLE

'Standard' schedules have been prepared for each of the service options based on the current Station Link timetable with buses every 12 minutes until 6pm and every 20 minutes from 6pm to 8pm. Service start time would be 8am Monday to Friday, 9am on Saturday and 10am on Sunday. 'Enhanced' schedules have also been prepared with buses running every 10 minutes until 6pm and every 20 minutes until 10pm.

OPERATING MODEL OPTIONS

The operating regime for local bus services in Scotland is largely determined by the Transport Act 1985 under which bus operators decide the services they wish to operate while local transport authorities (LTAs) such as SPT have the power to secure services for which they see a need, but which are not provided by the market. As the city centre shuttle would have no fares income it would not be a viable proposition for an operator to run commercially and the default position would therefore be for SPT to procure the service through the competitive tendering process.

However, the Transport (Scotland) Act 2019 provides two other options for service delivery. It gives an LTA the ability to "provide a service for the carriage of passengers by road using vehicles that require a Public Service Vehicle (PSV) operator's licence to do so", provided that the LTA is satisfied that this will contribute to the implementation of its relevant general policies. SPT already has these powers.

The 2019 Act also gives an LTA the power to set up a franchising framework where they assume responsibility for bus service design and procurement within all or part of their area. A franchise can only be set up on an area basis, meaning that all existing services need to be subsumed into the franchise, which makes it inappropriate for the city centre shuttle on its own. The wider merits of franchising are under consideration as part of the GCC Bus Governance Routemap and the Strathclyde Regional Bus Strategy being developed by SPT.

FINANCIAL ANALYSIS

The estimated annual cost of operation of each of the options is shown below, based on latest bus industry costing data. The costings assume that buses are bought by the operator and depreciated over their useful life; an alternative would be for the Council to procure the buses and supply them to



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the operator. Overall, the total life cost would be similar but there would be potential impacts on cash flow and the balance between revenue and capital budgets.

<i>Option</i>	<i>0</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
Standard Timetable	£306,000	£764,000	£1,066,000	£1,229,000	£663,000	£824,000	£1,078,000
Enhanced Timetable	£319,000	£956,000	£1,298,000	£1,575,000	£698,000	£975,000	£1,504,000

The costs shown are total costs for the full service but the actual cost to the Council could be lower, assuming agreement could be reached with ScotRail for a continuing contribution.

RISK

Key risks relate to potential legal challenge by bus operators on competition grounds; deliverability if agreement is not reached with ScotRail and SPT; costs if tender prices exceed available budget; and reputational risk if patronage does not meet expectations.

CONCLUSIONS

A decision on whether to progress the scheme and, if so, using which option will depend in part on consideration of the availability of budgets and funding, and determination of the defined purpose of the shuttle bus in line with Council ambitions.



1 Introduction

1.1 Context

As an outcome of the City Centre Transport Plan, Glasgow City Council has commissioned this study to investigate an option of introducing a free electric City Centre circular bus service to connect transport interchanges and key gateway locations. The service should link important trip generators and improve place/modes integration, making it easier to switch between rail, bus, subway, taxi, cycle and walking routes, in addition to encouraging passenger interchange.

1.2 Methodology

The methodology adopted for this study consists of several steps. Firstly, to research and review examples of free city centre shuttle buses operating in other major cities and towns in the UK, to identify elements of best practice and to take cognisance of lessons learned elsewhere.

Secondly, consideration of travel needs that are currently not met by the commercial bus network in the city centre. This is principally to identify any new links that such a service could provide and the added value that it would deliver, but additionally to ensure that the service did not significantly duplicate existing services. The latter situation would likely lead to abstraction of demand from commercial bus services and to a weakening of their financial performance. Importantly, it would also be a **breach of competition law** and **transport legislation**, putting the Council at risk of legal challenge.

From this needs analysis, gaps in current provision were identified and bus service options to address these developed. The option development also included investigation of **opportunities for the new service to complement or integrate with the existing Station Link service** that operates between Central and Queen Street rail stations and Buchanan Bus Station contracted by ScotRail.

Schedules for shortlisted options were drawn up and indicative timetables prepared, from which resource requirements (buses and drivers) were calculated and costings estimated.

1.3 Report Structure

The report is structured as follows:

- **Chapter 2:** provides a review of other free city centre shuttle bus services operating elsewhere in the UK.
- **Chapter 3:** Discusses the existing ScotRail Station Link service.
- **Chapter 4:** The case for the city centre shuttle service is investigated in this chapter by undertaking a needs and demand analysis assessment.
- **Chapters 5, 6 and 7:** Focus on service design elements, such as routes, frequency and operating model.



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- **Chapter 8:** Considers an alternative approach to option development with a look into a ticket based option.
- **Chapter 9:** Establishes the financial implications of introducing a shuttle bus.
- **Chapter 10:** Provides conclusions and next steps.



2 City Centre Shuttle Schemes

2.1 Introduction

For the purposes of this study, a free shuttle bus is defined as a service which:

- does not charge users any fares
- is operated by a local authority or private operator
- has a set schedule or frequency
- provides year-round service(s).

Table 2-1 displays a list of identified shuttle services from across the UK, detailing operating hours and service frequency.

Table 2-1 – Free Shuttle Bus Schemes

Location	Days of Operation	Hours of Operation	Frequency
Manchester <i>two services: Free Bus 1 and Free Bus 2</i>	Mon – Fri	0700 – 2315	10 min until 1900 30 min from 1915
	Sat	0700 – 2315	15 min until 0830 10 min 0830-1900 30 min from 1915
	Sun	1000 – 1830	10 min
Leeds <i>City Bus 5</i>	Mon – Fri	0615 – 1930	15 min
	Sat	0630 – 1845	15 min
Wakefield <i>Freecitybus</i>	Mon – Fri	0730 – 1830	10 – 12 min
	Sat	0830 – 1700	10 – 12 min
Huddersfield <i>Freetownbus</i>	Mon-Sat	0930 – 1450	20 min
Dewsbury <i>Freetownbus</i>	Mon – Sat	0905 – 1445	20 min
Leicester <i>Greenlines Hop!</i>	Mon – Sat	0800 – 1800	10 min

Details of the identified shuttle schemes are outlined within this section. Information on each case study is presented under the following themes, where information is available:

- Scale and scope of the scheme
- Objectives of the scheme
- Development (history) and implementation



- Promotion and engagement, including political
- Funding sources – taxation
- Impact on passenger demand, environment, economy, congestion
- Impact on supply side
- Governance, monitoring and evaluation
- Successes and failures, risks

2.2 Manchester

2.2.1 Scale and Scope

Transport for Greater Manchester (TfGM) introduced 'free bus' in the city centre of Manchester in 2002 to provide links between the city's major thoroughfares and stations with its main commercial, financial and cultural districts.

2.2.2 Scheme Objectives

The objective of the scheme is to provide a high-quality town centre bus service that links key public transport hubs and car parks with the main retail, commercials, leisure and cultural destinations across Manchester. This either provided directly or as part of an interchange using the service as part of the journey.

2.2.3 History of the Scheme

The peripheral location of Manchester's main railway stations (Piccadilly and Victoria) resulted in central Manchester suffering from poor north-south connections. In 1974 the then local transport authority implemented a circular bus service – the Centreline – to improve connectivity between the two stations. The service charged a flat fee of 2p for each journey (valued at 27p in 2023 £s).

The current (fare free) scheme was implemented in 2002, with two routes linking the city's major thoroughfares and stations with main commercial, financial and cultural districts. A third route was added in September 2005 – linking additional areas of the city to the existing network. However, due to declining passenger numbers the routes were rationalised back to two services and rebranded as 'free bus'.

2.2.4 Promotion and Engagement

During its initial launch, the scheme was promoted in local newspapers, with the introduction of the third route including public campaigns in addition to media engagement.

2.2.5 Funding Sources

The scheme is funded by TfGM, Manchester City Council, National Car Parks, and the property developer Allied London. The service costs approximately £1,242,000 to operate



per annum (financial year 2022-23 budget²). Advertising on the route's buses helps to offset some of this outlay and provide additional funding while Manchester City Council's contribution is funded by drawdown from the Bus Lane Reserve. It is estimated that each passenger costs the service £1.06.

2.2.6 Scheme Demand Impact

Overall patronage for the scheme in 2018/19 was 1,124,586. This was a reduction of 15.7% (209,040) from the 2017/18 figure (1,333,626). It is unknown how COVID-19 has since influenced patronage.

2.2.7 Scheme Supply Impacts

The routes were originally operated by 14 Optare diesel minibuses, however, these were replaced in November 2010 with electric hybrid Optare Versas. This fleet was further supplemented by three fully electric buses in 2014, while over the years additional fully electric vehicles have been added. In early 2023, TfGM announced a strategy to replace the entire bus fleet with fully electric vehicles.

2.2.8 Governance, Monitoring and Evaluation

The scheme is currently operated by Go North West which took over the service from First Greater Manchester when the latter sold its Manchester bus operations in 2019. The service is operated under a gross cost contract with TfGM.

2.2.9 Successes, Failures and Risk

There were initial concerns that the services could compete with the city's tram network, and subsequent abstraction of passengers. As such, routes were carefully assessed to ensure any routing would instead complement the tram network, whilst still serving key destinations and hubs. The service provides links within the city centre that are not available on the commercial bus network.

The service had a history of successful patronage, however, it has since seen a sharp decline in patronage of circa 16% in 2018, which was the stimulus for rationalising the service back to two specific services. Patronage, although still below pre-covid trends, has started to increase again and as such has seen the introduction of a pilot period of extended evening services and increased frequency on the weekends.

² Greater Manchester Combined Authority Transport Committee, Bus Services Sub Committee, Review of Subsidised Bus Services, 10 March 2023



2.3 Leeds

2.3.1 Scale and Scope

LeedsCityBus provides a subsidised route (£1 per journey) on a loop around Leeds City Centre. The scheme was previously the first zero-fare bus service in West Yorkshire.



Figure 2-1 – Leeds CityElectric Bus Route

2.3.2 Scheme Objectives

The scheme was designed to increase transport connectivity between Leeds Railway Station / Leeds Bus Station and key city centre destinations.

2.3.3 History of the Scheme

The FreeCityBus service began on 30 January 2006 and was the first zero-fare bus service in West Yorkshire. Faced with increasing running costs, a 50p charge was introduced in February 2011 to enable the service to continue.

However, the service continued to be free for those passengers who held a valid day or season ticket from Metro, First or other operators. Concessionary pass holders also continued to be able to use the service for free.

In 2016, the route became part of the existing Route 5. A new service (Route 15) would operate some components of the original Route 5 – however, the new Route 15 would charge full fares. The scheme was subsequently renamed Leeds City Bus, with it now providing connections along a similar route for a flat fare of £1. As with the previous

changes, Concessionary pass holders continued to be able to use the service free of charge.³

2.3.4 Promotion and Engagement

The scheme was advertised in local newspapers.

2.3.5 Funding Sources

The scheme is funded by the West Yorkshire Metro and Leeds City Council

2.3.6 Scheme Demand Impact

Over 7.5 million passengers used the scheme in the first five years of operation (2006-2011).

2.3.7 Scheme Supply Impacts

The scheme uses fully electric buses on all its services.

2.3.8 Governance, Monitoring and Evaluation

The scheme is managed by West Yorkshire Metro, with it being operated by First under contract.

2.3.9 Successes, Failures and Risk

The scheme had high ridership, but rising operating costs resulted in the reintroduction of a flat £1 fare to use the service to offset these spiralling costs.

2.4 Wakefield

2.4.1 Scale and Scope

Wakefield FreeCityBus links key locations within Wakefield city centre; including Westgate Rail Station, Wakefield One⁴, Kirkgate Rail Station, Wakefield Bus Station, and retail destinations.

2.4.2 Scheme Objectives

The scheme aims to reduce private car journeys by providing free public transport connections from Westgate and Kirkgate railway stations to key city centre destinations.

³ After 0930 on weekdays and all days on the weekends and Bank Holidays.

⁴ The region's council buildings.



2.4.3 History of the Scheme

Built upon the success of the Leeds City Bus Scheme, the first service was introduced in 2007.

2.4.4 Promotion and Engagement

The scheme was advertised in local newspapers.

2.4.5 Funding Sources

The scheme is funded by the West Yorkshire Metro and Wakefield City Council.

2.4.6 Scheme Demand Impact

Between 2007 and 2019 there have been 4 million journeys on the service.

2.4.7 Scheme Supply Impacts

The scheme introduced new Euro-6 compatible vehicles in 2019.

2.4.8 Governance, Monitoring and Evaluation

The scheme is managed by West Yorkshire Metro and is currently operated by Tetley's (under contract).

2.4.9 Successes, Failures and Risk

The scheme has high ridership but rising operating costs threaten the service's future.

2.5 Huddersfield

2.5.1 Scale and Scope

The service operates as a loop from Huddersfield bus station. The route runs every 20 minutes between 9:30am and 2:50pm (Monday – Saturday), with the scheme providing connections around Huddersfield town centre and delivering a link between the bus and railway stations.





Figure 2-2 – Huddersfield FreeTownBus Route

2.5.2 Scheme Objectives

The scheme aims to increase connectivity between the bus and railway stations, the town centre, and the University of Huddersfield.

2.5.3 History of the Scheme

Following the success of the nearby Leeds FreeCityBus service in 2006, the Huddersfield FreeTownBus scheme was first implemented in October of that year. The service was originally introduced as a trial with two buses, but following its success the service was tendered out to operators in both 2006 and 2011.

Although budget shortfalls have nearly resulted in the service being cancelled, additional funding from the West Yorkshire Combined Authority has prevented it from being withdrawn.

2.5.4 Promotion and Engagement

The service was promoted in local newspapers and received some publicity due to the success of the Leeds FreeCityBus scheme which was implemented prior to the introduction of the service.



2.5.5 Funding Sources

The scheme is funded by Kirklees Council with match funding from the West Yorkshire Integrated Transport Authority. The full cost of supporting the service is not publicly available.

2.5.6 Scheme Demand Impact

The scheme carried 100,000 passengers within the first six months of its launch.

2.5.7 Scheme Supply Impacts

No information could be found on this topic.

2.5.8 Governance, Monitoring and Evaluation

The scheme is currently operated by Team Pennine (TransDev) under contract from Kirklees Council. The scheme is part of the West Yorkshire Metro.

2.5.9 Successes, Failures and Risk

The scheme has come under significant funding pressure due to significant funding pressures from reduced Local Authority budgets. This has led to there being proposals to end the scheme.

2.6 Dewsbury

2.6.1 Scale and Scope

The bus operates as a loop through the city centre – stopping at key shopping points, Dewsbury Bus Station, and Dewsbury Railway Station. The scheme has a 10-minute frequency and operates between 7:30am and 6:30pm (Monday – Friday) and 8:30am – 5:00pm (Saturday).

2.6.2 Scheme Objectives

The service aims to increase accessibility to shops and services within the town and enhance connectivity to / from Dewsbury's main multi-modal interchanges.

2.6.3 History of the Scheme

The service was launched in 2009, with it being implemented as part of the wider FreeCityBus and FreeTownBus schemes introduced by West Yorkshire Metro⁵.

⁵ Routes within these schemes (including Huddersfield and Wakefield) were designed to connect bus and rail stations with shopping centres, hospitals, colleges and universities, and key business and leisure locations.



2.6.4 Promotion and Engagement

The scheme was promoted in local newspapers and received some publicity due to the success of the Leeds FreeCityBus scheme (which was implemented prior to the introduction of the service).

2.6.5 Funding Sources

The scheme is funded by West Yorkshire Integrated Transport Authority, Kirklees Council and Sainsbury's supermarket.

2.6.6 Scheme Demand Impact

Analysis of the three FreeCityBus services (Dewsbury, Huddersfield, and Wakefield) has shown there to be:

- A rise in the number of shopping trips within the region
- People with mobility problems, using buggies and / or supervising small children, and those transporting large packages being able to make journeys that they would not otherwise have been able to.

2.6.7 Scheme Supply Impacts

A new low emissions Euro-5 bus was included within the initial rollout of the service.

2.6.8 Governance, Monitoring and Evaluation

The scheme is managed by West Yorkshire Metro; with funding provided by the local council, West Yorkshire Metro and Sainsburys. The scheme functions under a tendering contract and is currently operated by Station Coaches.

2.6.9 Successes, Failures and Risk

The scheme was considered a success due to high usage – including an increased number of shopping trips being undertaken within the area.

2.7 Leicester

2.7.1 Scale and Scope

From April 2023 the Greenlines 'Hop!' line will operate a free, ticketless service which will provide a clockwise loop around Leicester Town Centre. Stops include the city's two bus stations, Leicester Market and Leicester Royal Infirmary. All services are operated with electric buses.



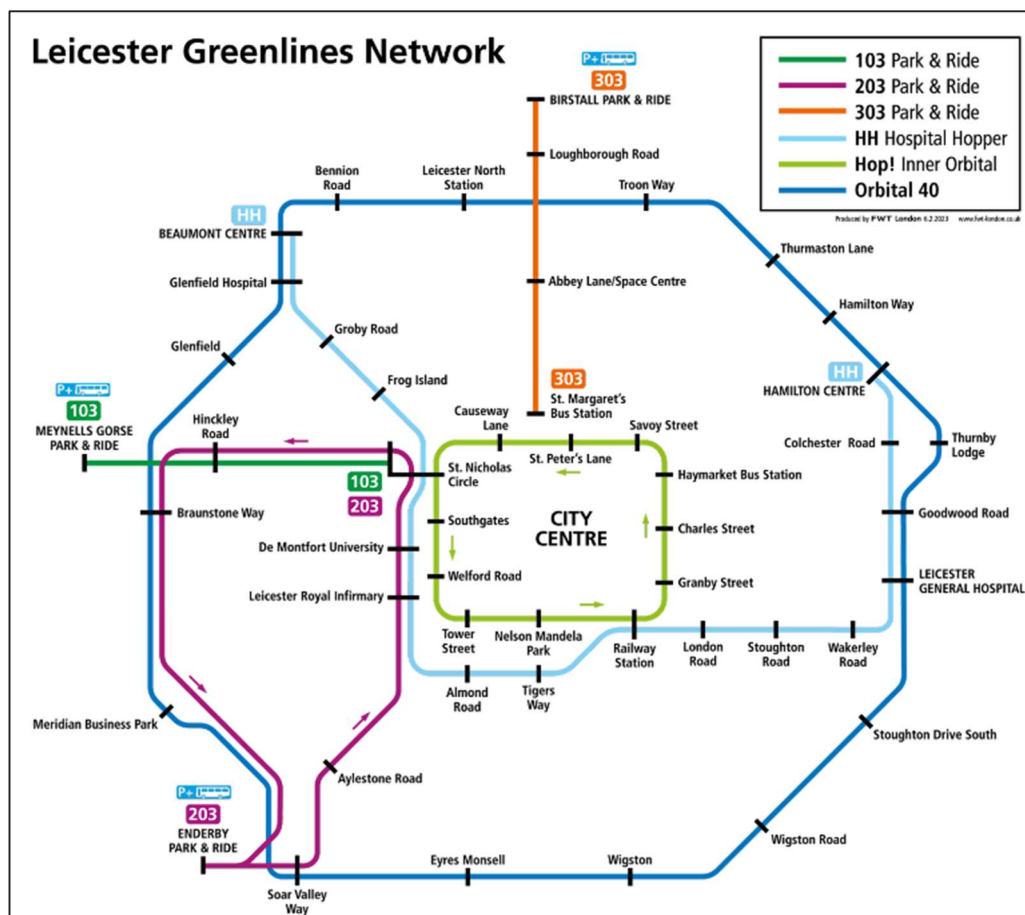


Figure 2-3 – Leicester Greenlines Network

2.7.2 Scheme Objectives

The scheme aims to make it easier for people to get around the city, with the service contributing to the Council’s wider mode shift⁶ and net-zero goals. The Hop! route also connects to a number of key transport interchanges within the city, aiming to better connect passengers to bus and rail services.

2.7.3 History of the Scheme

The Hop! service will form part of the integrated Greenlines electric network, which currently includes a Hospital Hopper service and three Park and Ride services. These operate at a frequency of every 15 minutes during peak times.

Although it should be noted that these services are not free, with passengers paying promotional fares on the three Park and Ride services.

⁶ The Council currently aim to increase bus travel in the city by 25% by 2025 and over 40% by 2030.



2.7.4 Promotion and Engagement

The scheme has been promoted by Leicester City Council and local newspapers. The vehicles are branded with distinctive green and yellow colours with the aim of promoting the free service and making the Hop! brand a familiar site within the city centre.

2.7.5 Funding Sources

The scheme was initially funded through the DfT's Transforming Cities bid – allowing for the purchase of electric buses. Three fully electric zero-emission buses, costing around £1 million were purchased for the Hop! scheme. Centrebus were contracted to operate the service, with the city council funding the scheme and its promotion with a budget of approximately £325,000.

The scheme was launched as part of the city's Greenlines electric bus programme and is running on an 18-month trial basis as one of its Leicester Buses Partnership commitments. Further plans are subject to additional funding through the Transforming Cities grant and could also be funded by a proposed Workplace Parking Levy.

2.7.6 Scheme Demand Impact

The Hop! service carried over 100,000 passenger journeys within the first five months of its launch, and figures as of November 2023 show an average of 1,500 journeys per day. A consultation survey was additionally launched in November 2023, running until December 2023 to understand the public's view of the service and whether it has impacted demand. The results of this survey have not yet been publicised.

2.7.7 Scheme Supply Impacts

The scheme provided new electric buses with on board electric screens, free Wi-Fi, and USB points at every seat. Infrastructure improvements being made within the city centre such as bus priority interventions and real-time information at all stops and new shelters, have complemented the Hop! service and assisted in delivering a high-quality and seamless user experience.

2.7.8 Governance, Monitoring and Evaluation

The scheme is supported by Leicester City and Leicestershire County, and operated by Centrebus.

2.7.9 Successes, Failures and Risk

It is too soon to comment on the scheme due to its recent implementation.

2.8 Conclusions

The table below compares the previously outlined schemes and their characteristics:



Free Electric City Centre Shuttle Bus Study

Table 2-2 – Case Study Comparison

Factor	Dewsbury	Huddersfield	Wakefield	Leeds	Leicester	Manchester
Scheme in Operation	Yes	Yes	Yes	No	Yes	Yes
Reason for Implementation	Increased connectivity from Bus / Railway Station to key sites	Increased connectivity from Bus / Railway Station to key sites	Increased connectivity from Railway Station to key sites	Increased connectivity from Bus / Railway Station to key sites	Increased connectivity from Bus / Railway Station to key sites	Increased connectivity from Bus / Railway Station to key sites
Funding	WYCA and Local Authority	WYCA and Local Authority	WYCA and Local Authority	WYCA and Local Authority	Transforming Cities Fund and Local Authority	TfGM and Local Authority
Scheme Operation	Contract	Contract	Contract	Contract	Contract	Contract

Excluding Leeds, all the studies remain fare free. All schemes followed similar implementation methods, with either a Local Authority or Combined Authority funding the scheme and tendering operational contract.

All schemes operate in a similar fashion, serving the city / town centre in a loop, with all the bus services being tendered. However, in larger towns, services tend to operate later in the day to serve the night-time economy.

Implementation of a free bus route in Glasgow would require careful consideration of how the service should operate, where it should serve, and the length of its operating hours.

Funding a scheme would be the Council's responsibility, with there being scope for potential commercial funding where applicable.



3 Existing Station Link Bus Service

3.1 The Service

The Station Link bus service is a ScotRail initiative, consisting of an inter-station rail link which connects Glasgow Central, Queen Street and Buchanan Bus Station. Numbered 398, the service runs as a circular route, taking approximately 17-minutes to complete a full loop. Figure 3-1 below outlines the route of the 398, and its accessibility to the city centre.

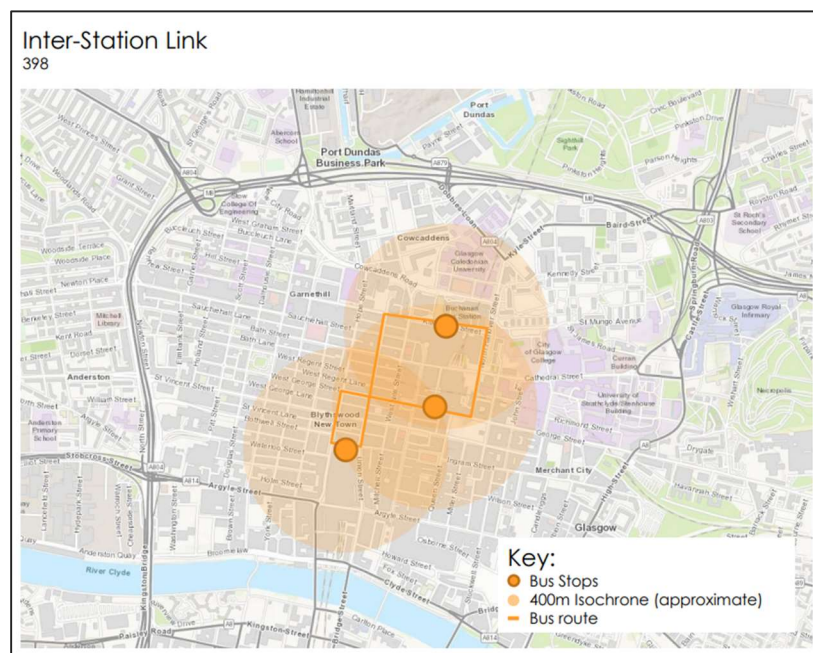


Figure 3-1 – Inter Station Rail Link Route

The service is free to use for passengers with a valid train ticket. The purpose of this is to improve interchange between Glasgow’s key city centre transport interchanges. The route runs from 0800 – 2000 Monday – Friday, 0900-2000 on Saturdays and 1200-2000 on Sundays. The service has a frequency of one bus every 12 minutes during the day, and every 20 minutes after 1800 and on Sundays. The service can be used by non-rail users although there is a **flat fee for this at £1.50**.

3.2 Operation

At the time of writing, the service is operated by West Coast Motors who have held the contract since April 2015, originally under their subsidiary brand of Glasgow Citybus. A tendering and procurement process has recently been completed which involves the upgrading of the vehicle specification to **zero emission** with electric propulsion and, as a result, First Glasgow will take over the service on 1st October 2023. The new contract is for four years with an option for ScotRail to extend the contract for a further two years.



3.3 Potential Option

There is clearly considerable synergy between the Council's aspirations and the Station Link service. The service already connects some of the main trip attractors in the city centre and the move to electric vehicles aligns with Council objectives for the new shuttle service.

Stantec held exploratory discussions with ScotRail about their willingness, in principle, to work in partnership with Glasgow City Council to **explore the potential for one integrated service that fulfils the functions of both the Station Link service and the City Centre Shuttle**. They have indicated an interest in participating in further discussions, subject to the proviso that the current service frequencies of the 398 service are maintained at the three main nodes of Central, Queen Street and Buchanan stations.

Stantec has, therefore, **developed options that build on the existing service 398 in the design of the city centre shuttle**, and these are reported in subsequent chapters of this report.



4 Demand for a Glasgow City Centre Shuttle Service

4.1 Introduction

The research set out in chapter 2 highlights that city centre shuttles have proven to be successful in locations where they meet a significant quantum of demand that is not met by existing services and where sufficient funding is available to secure the service. The first element of work to identify demand for a city centre shuttle in Glasgow is to assess the level of accessibility and connectivity afforded by the current network and identify any gaps in service provision or unmet need. This is especially important to ensure that any options do not conflict with current commercial services. In this chapter, we explore these factors and assess the evidence of latent demand for such a service in Glasgow city centre.

4.2 Accessibility Analysis

Public transport accessibility to/from and within the city centre was analysed using two methods:

- **Corridor Analysis** assessed the accessibility to city centre destinations **from** key bus corridors
- **Connectivity Analysis** assessed the public transport accessibility **between** key city centre destinations and interchanges

4.3 Corridor Analysis

Bus services travelling through or into the city centre were categorised into 15 key radial corridors and mapped to indicate accessibility to city centre destinations. The 15 corridors and their respective bus services are outlined in Table 4-1 and Figure 4-1 below.

Table 4-1 - Corridor Analysis Study Area

Number	Corridor	Associated Bus Routes
1.	Cumbernauld / Newmains via M80	X3, X11, X85, X87, X25, X25A
2.	Springburn	87, 88, 89, 89A, 89B
3.	Balornock	57, 57A
4.	Alexandra Parade	38, 38A, 38B, 38C, 38E
5.	Edinburgh Road / Easterhouse	41, X19
6.	Parkhead	60, 60A, 61, 240, 255, 2
7.	London Road	18, 64, 263
8.	Gorbals Street	4, 4A, 5, 6, 21, 267, 75, 31, 7, 7A
9.	Shawlands	3, 38, 38A, 38B, 38C, 38E, 57, 57A, 129
10.	Paisley Road / Govan Road	9, 9A, 10, 38, X19, 77
11.	Patrick / Dumbarton Road	1, 1A, 1B, 1C, 1D, 1E, 2, 3, X4, 100, 77
12.	Great Western Road / University	4, 4A, 15, 6, 6A



Free Electric City Centre Shuttle Bus Study

13.	Maryhill Road	17, 60, 60A, 61
14.	Possil	7, 7A, 75, 72
15.	Inter-station Link	398

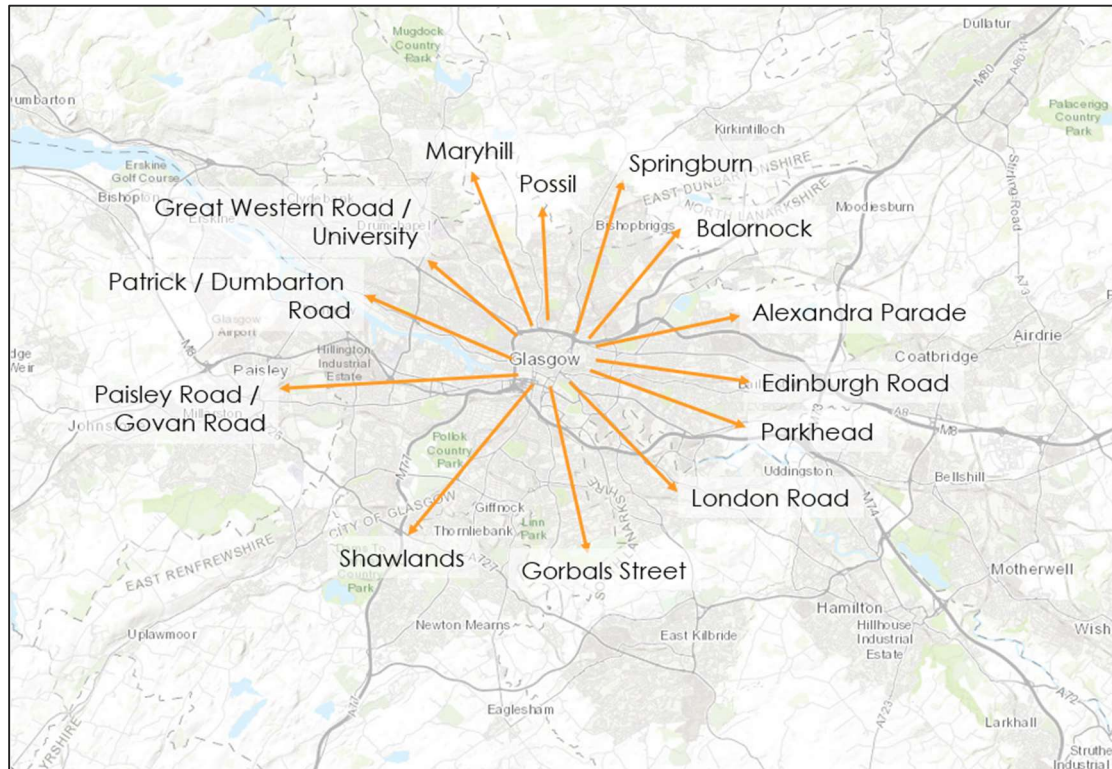


Figure 4-1 - Corridor Analysis Study Area (Indicative)

Each corridor was analysed by mapping bus routes into the city centre and their respective bus stops. A 400m isochrone (approximate) outlines the walkability to/from bus stops, indicating city centre accessibility from each corridor. As an example, Figure 4-2 below displays the map for the Alexandra Parade Corridor, showing the stops served in the city centre by buses operating on the corridor and the 400m walk isochrone around each. The map shows good accessibility to most of the city centre, apart from the westernmost area between Douglas Street and the M8. The full series of maps produced for the corridor analysis can be found in the Appendices.

Free Electric City Centre Shuttle Bus Study

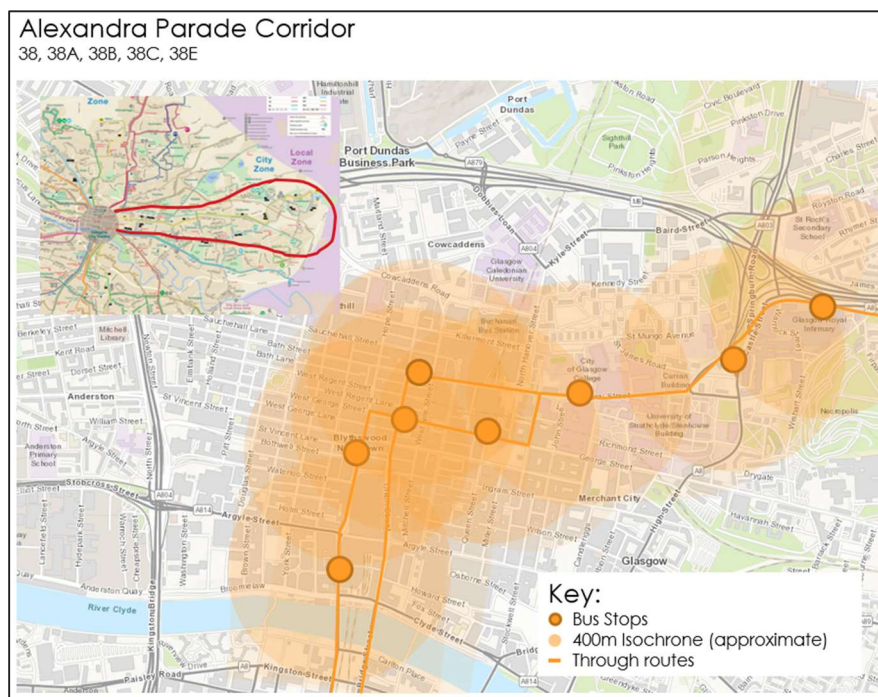


Figure 4-2 – Example Corridor Analysis Map

A summary of the accessibility of the 15 corridors is provided in Table 4-2 below which shows the number of services operating on each corridor and a commentary on city centre connectivity.

Table 4-2 - Summary of Corridor Analysis

Number	Corridor	No. of Routes	Notes
1.	Cumbernauld / Newmains via M80	6	<ul style="list-style-type: none"> Good connectivity to northern portions of city centre (i.e., Buchanan Bus Station, Glasgow Queen Street rail station, University of Strathclyde) Poorer accessibility to Glasgow Central rail station and southern portion of city centre
2.	Springburn	5	<ul style="list-style-type: none"> No cross-city through routes – all services terminate at Buchanan Bus Station Poor accessibility to city centre
3.	Balornock	2	<ul style="list-style-type: none"> Good connectivity to key transport interchanges in the city centre Poor access to north-western portion of city centre (i.e., Cowcaddens, Charing Cross)
4.	Alexandra Parade	5	<ul style="list-style-type: none"> Similar connectivity to Balornock corridor Poor access to north-western portion of city centre (i.e., Cowcaddens, Charing Cross)
5.	Edinburgh Road / Easterhouse	2	<ul style="list-style-type: none"> Good east to west connectivity Good connectivity to key transport interchanges Poor access to north-western portion of city centre (i.e., Cowcaddens, Charing Cross)



Free Electric City Centre Shuttle Bus Study

6.	Parkhead	6	<ul style="list-style-type: none"> ▪ Good connectivity to most portions of city centre and key transport interchanges ▪ Poor access to north-eastern portion of city centre including Glasgow Royal Infirmary and University of Strathclyde
7.	London Road	3	<ul style="list-style-type: none"> ▪ No cross-city through routes ▪ Poor access to north-eastern portion of city centre (i.e., Glasgow Royal Infirmary, University of Strathclyde, High Street rail station)
8.	Gorbals Street	10	<ul style="list-style-type: none"> ▪ Higher concentration of bus services ▪ Good north to south connectivity ▪ Poor access to north-eastern portion of the city centre including Glasgow Royal Infirmary and University of Strathclyde
9.	Shawlands	9	<ul style="list-style-type: none"> ▪ Higher concentration of bus services ▪ Good cross-city connectivity ▪ Overall good coverage to city centre destinations
10.	Paisley Road / Govan Road	6	<ul style="list-style-type: none"> ▪ Good connectivity to most portions of city centre and key transport interchanges ▪ Overall good coverage to city centre destinations excluding some south-eastern portions of the city centre
11.	Patrick / Dumbarton Road	11	<ul style="list-style-type: none"> ▪ High concentration of bus services ▪ Good east to west connectivity and access to key transport interchanges ▪ Poor connectivity to eastern portion of the city centre (i.e., Glasgow Royal Infirmary, University of Strathclyde, High Street rail station)
12.	Great Western Road / University	5	<ul style="list-style-type: none"> ▪ Good north-west to south-east connectivity ▪ Good access to key transport interchanges ▪ Poor connectivity to north-eastern portion of the city centre including Glasgow Royal Infirmary and University of Strathclyde
13.	Maryhill Road	4	<ul style="list-style-type: none"> ▪ Poorer connectivity to Buchanan Bus Station ▪ Poor connectivity to north-eastern portion of the city centre including Glasgow Royal Infirmary and University of Strathclyde
14.	Possil	4	<ul style="list-style-type: none"> ▪ Good connectivity to key transport interchanges ▪ Poorer connectivity to west and eastern portions of the city centre (i.e., Charing Cross to the west and University of Strathclyde to the east)
15.	Inter-station Link	1 (398)	<ul style="list-style-type: none"> ▪ Connectivity between Glasgow Queen Street rail station, Glasgow Central rail station and Buchanan Bus Station

Out of the 15 corridors identified, the Springburn Corridor (to the northeast) has the weakest connectivity to the city centre, with no through-routes and all services terminating at Buchanan Bus Station.

Corridors to the north-west generally have a greater coverage of destinations and through-routes within the city centre. Additionally, corridors to the north-east and east (such as the Alexandra Parade Corridor) have a lower coverage of destinations in the city centre, although this could also be attributed to the lower density of bus routes.



The majority of through-routes travel along Union Street and Hope Street, parallel to Glasgow Central Station. Other examples of key routes for through-route services include:

- Cathedral Street (inbound) / George Square (outbound) via Queen Street Station (for services to the East);
- Sauchiehall Street / Bath Street (for services to the west);
- St Vincent Street (for services to the west); and
- Argyle Street/Trongate (for services to the south east).

4.4 Connectivity Analysis

The Connectivity Analysis aims to assess the public transport accessibility between key destinations within the city centre. Nine locations were selected for the Connectivity Analysis, these were identified by their functions as key transport interchanges, and their geographical location within the city centre. The nine locations identified for the Connectivity Analysis are:

- Charing Cross rail station (west city centre);
- Cowcaddens subway station (north city centre);
- Glasgow Royal Infirmary (north-east city centre and major hospital);
- High Street rail station (east city centre);
- Stockwell Street (south-east city centre and key bus interchange);
- Anderston rail station (south-west city centre);
- Buchanan Bus Station (major bus and coach interchange);
- Glasgow Queen Street rail station (major bus and rail interchange); and
- Glasgow Central rail station (major bus and rail interchange).

A map was produced for each of the nine locations, an example map (at Charing Cross Railway Station) is displayed in Figure 4-3 below, the full Connectivity Analysis can be found in the appendices. The lines on the map represent the accessibility between the selected location, and the eight other locations.

- **A green line** indicates that one can travel between the two key locations using at least one direct public transport service, and that the service is within a five-minute walking distance to the key location
- **A red line** indicates that more than one public transport service is required to travel between the two key locations, or that the service is not within a five-minute walking distance to the key location



Free Electric City Centre Shuttle Bus Study

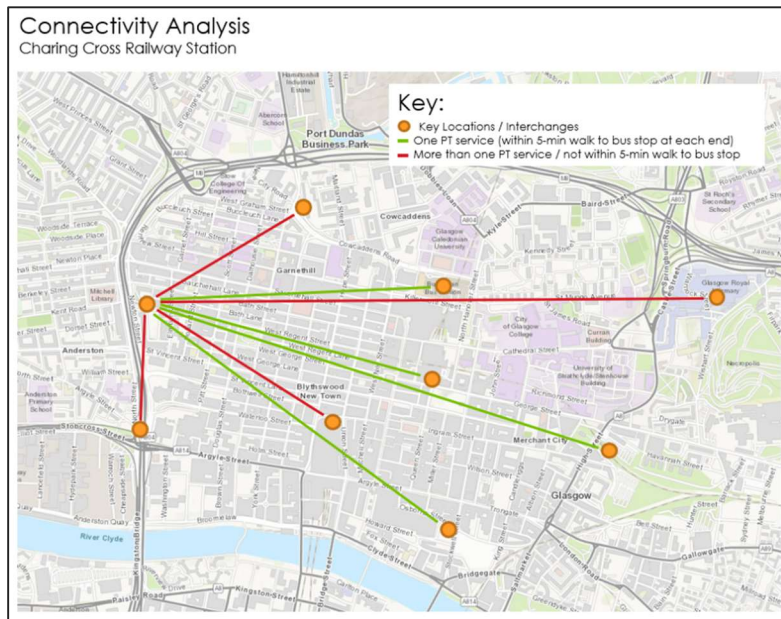


Figure 4-3 – Example Connectivity Analysis Map

The Connectivity Analysis was calculated using the public transport route-planner on Google Maps and provides an indicative overview of the connectivity within Glasgow's city centre. The route-planner includes all modes of public transport including rail, subway and bus. A summary of the Connectivity Analysis is shown in Figure 4-4 and Table 4-3 below.

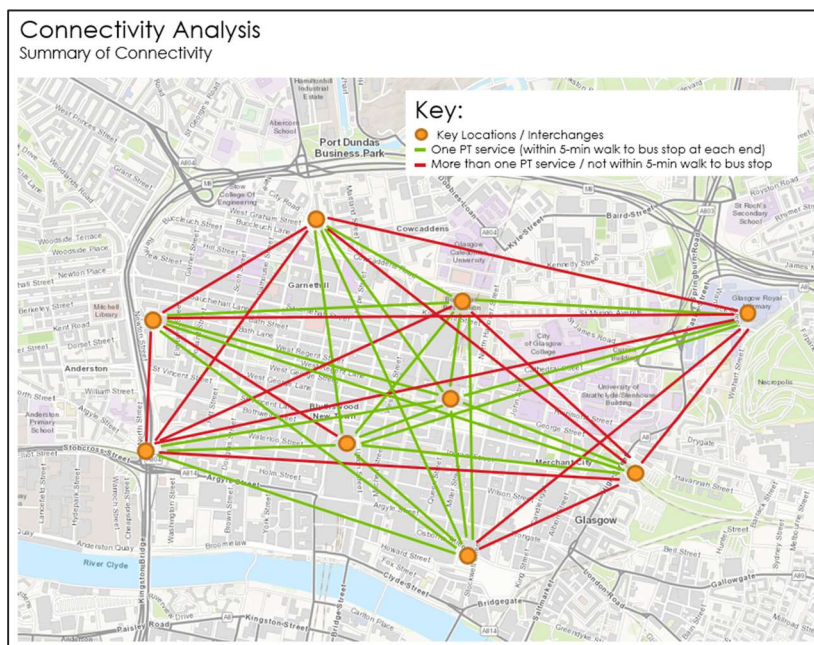


Figure 4-4 – Summary of Connectivity Analysis

Table 4-3 - Summary of Connectivity Analysis



Free Electric City Centre Shuttle Bus Study

Location	No. of Green Connections	Notes
Charing Cross rail station	4 / 8	<ul style="list-style-type: none"> ▪ Good east to west connectivity ▪ Poor north to south connectivity ▪ Poor access to Glasgow Royal Infirmary ▪ Moderate overall connectivity
Cowcaddens subway station	4 / 8	<ul style="list-style-type: none"> ▪ Good north to south connectivity and access to key transport interchanges (i.e., Glasgow Central rail station, Glasgow Queen Street rail station and Buchanan Bus Station) ▪ Poor east to west connectivity including access to Glasgow Royal Infirmary ▪ Moderate overall connectivity
Glasgow Royal Infirmary	3 / 8	<ul style="list-style-type: none"> ▪ Good connectivity to key transport interchanges (i.e., Glasgow Central rail station, Glasgow Queen Street rail station and Buchanan Bus Station) ▪ Poor accessibility to other city centre destinations ▪ Moderate overall connectivity
High Street rail station	3 / 8	<ul style="list-style-type: none"> ▪ Good east to west connectivity ▪ Poor access to northern and southern portions of the city centre ▪ Moderate overall connectivity
Stockwell Street	6 / 8	<ul style="list-style-type: none"> ▪ Poor connectivity north-eastwards towards Glasgow Royal Infirmary ▪ Good overall connectivity
Anderston rail station	3 / 8	<ul style="list-style-type: none"> ▪ Poor connectivity to north and eastern portions of the city centre ▪ Moderate overall connectivity
Buchanan Bus Station	6 / 8	<ul style="list-style-type: none"> ▪ Good connectivity to key transport interchanges (i.e., Glasgow Central rail station and Glasgow Queen Street rail station) ▪ Good overall connectivity
Glasgow Queen Street rail station	8 / 8	<ul style="list-style-type: none"> ▪ Good connectivity across city centre ▪ Excellent overall connectivity
Glasgow Central rail station	7 / 8	<ul style="list-style-type: none"> ▪ Good connectivity excluding western portion of city centre (Charing Cross rail station) ▪ Excellent overall connectivity

Figure 4-5 below represents the key locations' level of connectivity to other key city centre locations. The size of the circle indicates the number of 'red connections' (i.e. number of connections which require more than one public transport service, or the service is not within a five-minute walking distance to the key location).



Free Electric City Centre Shuttle Bus Study

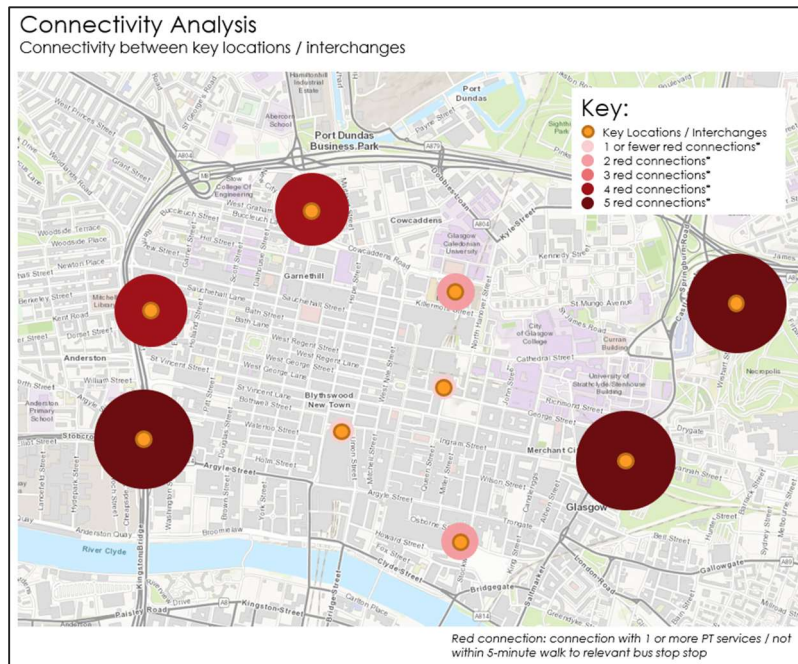


Figure 4-5 – City Centre Inter-Connectivity

As evidenced in the Connectivity Analysis, the more central locations and major multi-modal interchanges have better public transport connectivity to other city centre destinations. This includes Glasgow Central rail station and Buchanan Bus Station. Glasgow Queen Street rail station performed the best out of the nine locations, having zero red connections to other city centre destinations.

Key locations on the periphery of the city centre, such as Charing Cross Station to the west and the Royal Infirmary to the east, perform more poorly for connectivity to other key city centre destinations. While connections from peripheral locations to central interchanges (radial routes) are more available, there is a lack of direct connectivity around and between city centre destinations (orbital / circular routes).

4.5 Conclusions

The majority of through-routes and terminating services for buses in Glasgow city centre operate radially, resulting in poor inter-connectivity between key destinations within the periphery of the city centre. Destinations such as the Glasgow Royal Infirmary and areas surrounding Charing Cross Railway Station have good public transport access to central locations (such as Glasgow Queen Street and Glasgow Central), although lack in accessibility to other city centre destinations.

Key public transport interchanges such as Glasgow Queen Street, Glasgow Central, and Buchanan Bus Station have good accessibility to most areas of the city centre, although this is due to these destinations being located along through-route corridors or are the terminating location for bus / rail services.

Whilst overall connectivity to/from and within the city centre is good, there are gaps in some areas where cross-connectivity can be improved. As such, there is a reasonable case to improve cross-city connectivity and enhance public transport provision.



5 Route Design Options

5.1 Introduction

The Corridor and Connectivity Analysis in chapter 4 evidenced that there is potential to improve connectivity with a city centre shuttle bus, although the scope is constrained by the need to avoid competing with existing services that are provided commercially by the bus operators.

This chapter outlines the potential routeing options for a shuttle service in the city centre, and the key destinations and areas it could access. We consider that, to be effective in meeting travel needs efficiently, the service should be designed as an integrated operation with the ScotRail Station Link. The benefits of this approach are:

- This avoids duplicating, to at least some extent, an existing service
- It provides a core demand from day one
- It offers opportunities for cost sharing, thus reducing the budget demand on the City Council

The existing service 398 as currently operated has been included as a base option but with transfer of responsibility from ScotRail to Glasgow City Council. Six further route design options that build on service 398 have then been investigated and these are:

1. Royal Infirmary and transport hubs
2. Royal Infirmary, transport hubs and Buchanan Wharf
3. Royal Infirmary, transport hubs and Merchant City
4. Transport hubs, shopping areas and International Financial Services District
5. Transport hubs and Merchant City
6. Royal Infirmary, transport hubs and SEC

Options 4 and 5 were initially developed by SPT and were intended to also serve multi-storey car parks within the city centre. Each of the options is described further below.

5.2 Option 0: Station Rail Link

This option would replicate the existing Station Rail Link service 398 but with control transferred from ScotRail to the City Council. The route of the service is shown in chapter 3, in Figure 3.1.

5.3 Option 1: Royal Infirmary and Transport Hubs

Circular service serving Royal Infirmary, Strathclyde University, Queen Street rail station, Buchanan bus station and Central station, as shown in Figure 5-1.



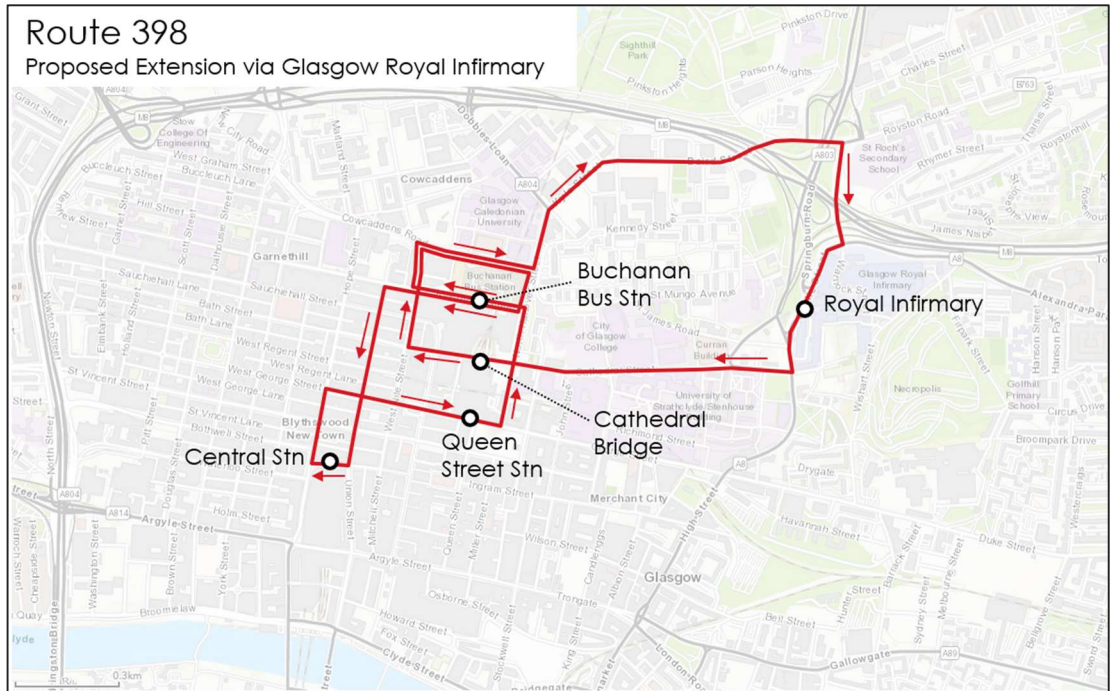


Figure 5-1 – Option 1 Route Extension to Royal Infirmary

5.4 Option 2: Royal Infirmary, Transport Hubs and Buchanan Wharf

Circular service serving Royal Infirmary, Strathclyde University, Queen Street rail station, Buchanan bus station, Central station and the Barclays campus at Buchanan Wharf, as shown in Figure 5-2.

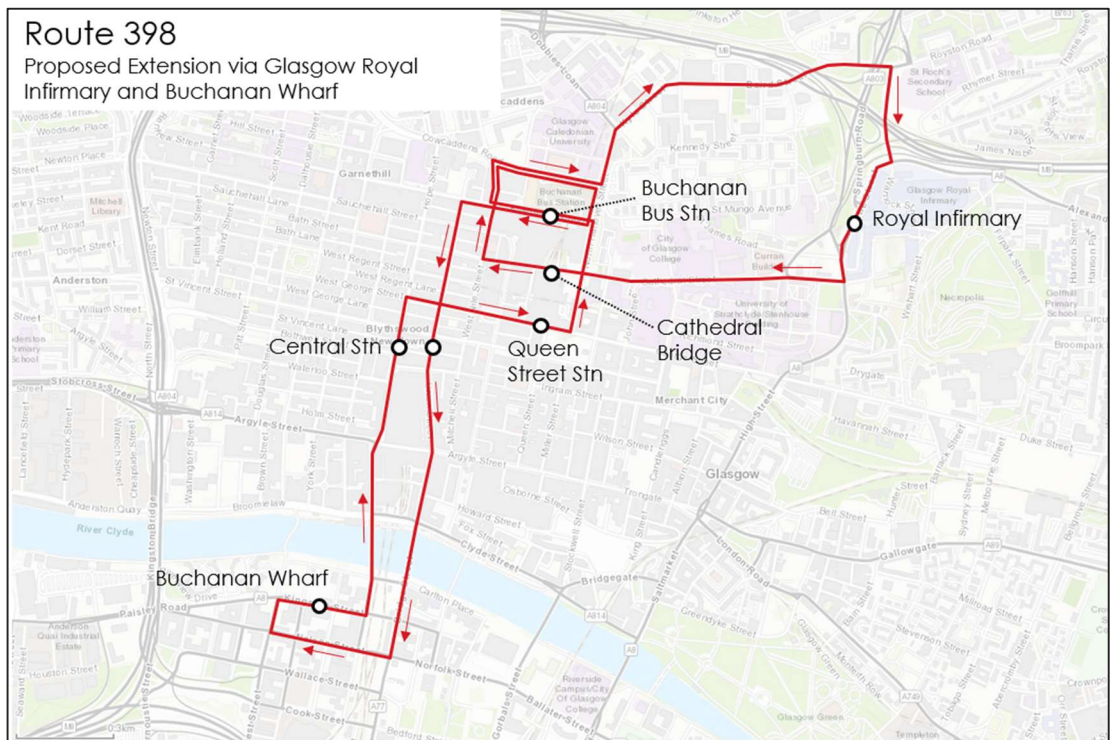


Figure 5-2 – Option 2 Route Extensions to Royal Infirmary and Buchanan Wharf

5.5 Option 3: Royal Infirmary, Transport Hubs and Merchant City

Circular service serving Royal Infirmary, Strathclyde University, Queen Street rail station, Buchanan bus station, Central station, the Merchant City and St Enoch Centre. This option would offer better connectivity between the main retail areas of the city centre and provide some unique links, although the walking distances between some of them are relatively modest.

The route is shown in Figure 5-3.

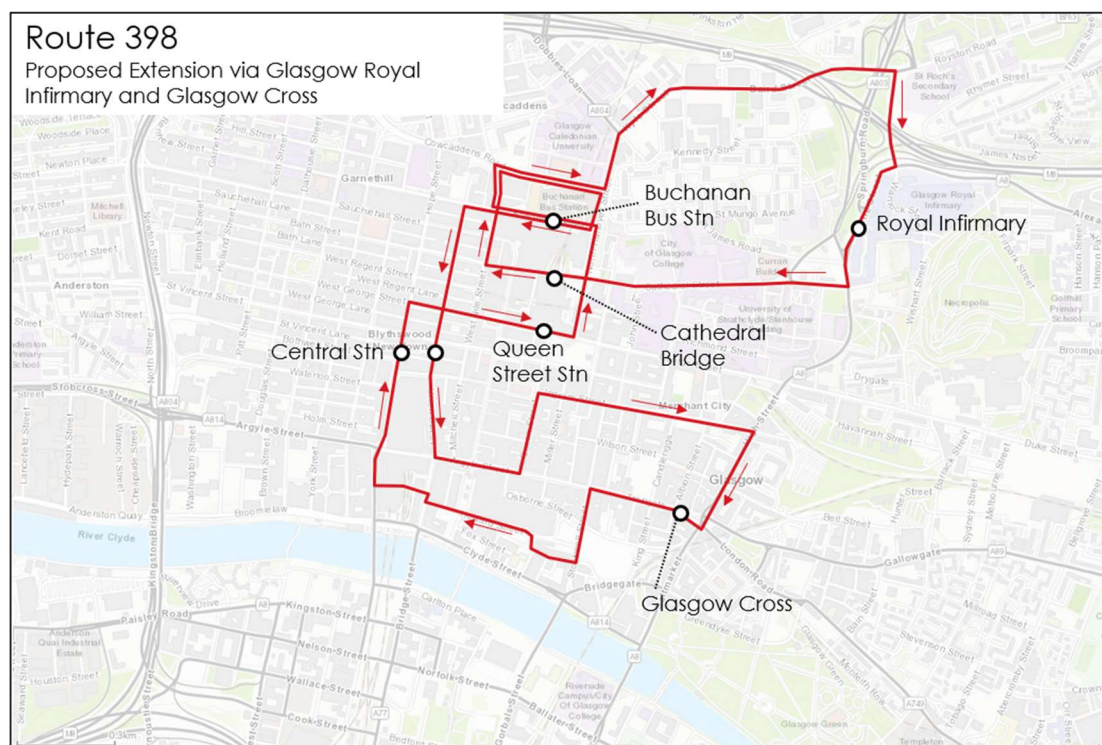


Figure 5-3 – Option 3 Route Extensions to Royal Infirmary and Merchant City

5.6 Option 4: Transport Hubs and International Financial Services District

Circular services serving Buchanan bus station, Strathclyde University, Queen Street rail station, Central station, the Argyle Street and Sauchiehall Street shopping areas and the International Financial Services District. The service would operate as two routes, one clockwise and one anti-clockwise.



Free Electric City Centre Shuttle Bus Study

The route is shown in

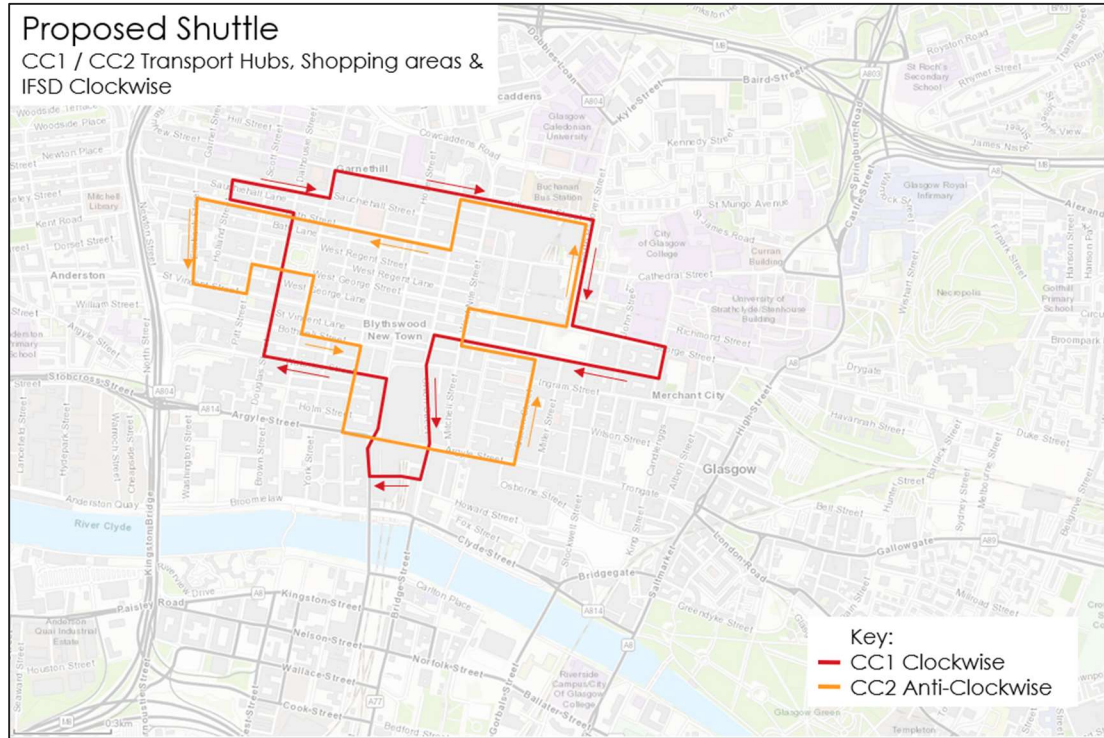


Figure 5-4.

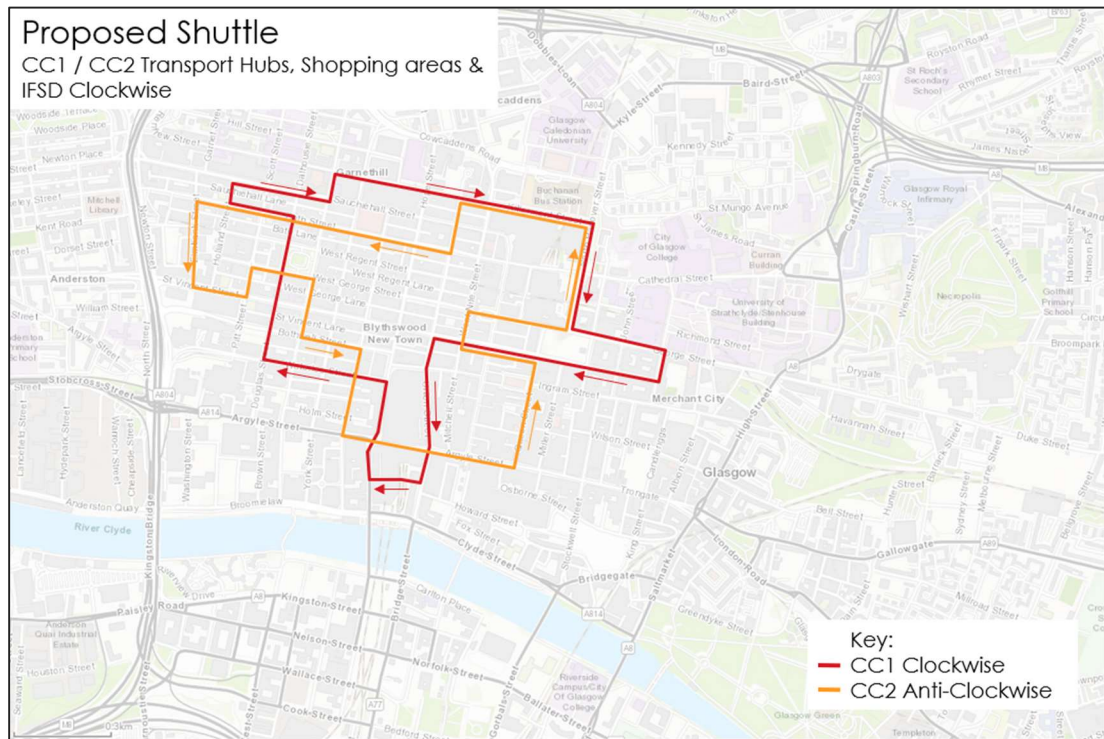


Figure 5-4 – Option 4 Route Extension to Shopping Areas and IFSD



5.7 Option 5: Transport Hubs and Merchant City

Circular services serving Buchanan bus station, Queen Street rail station, the Merchant City, St Enoch Centre and Central station. The service would operate as two routes, one clockwise and one anti-clockwise.

The route is shown in Figure 5-5.

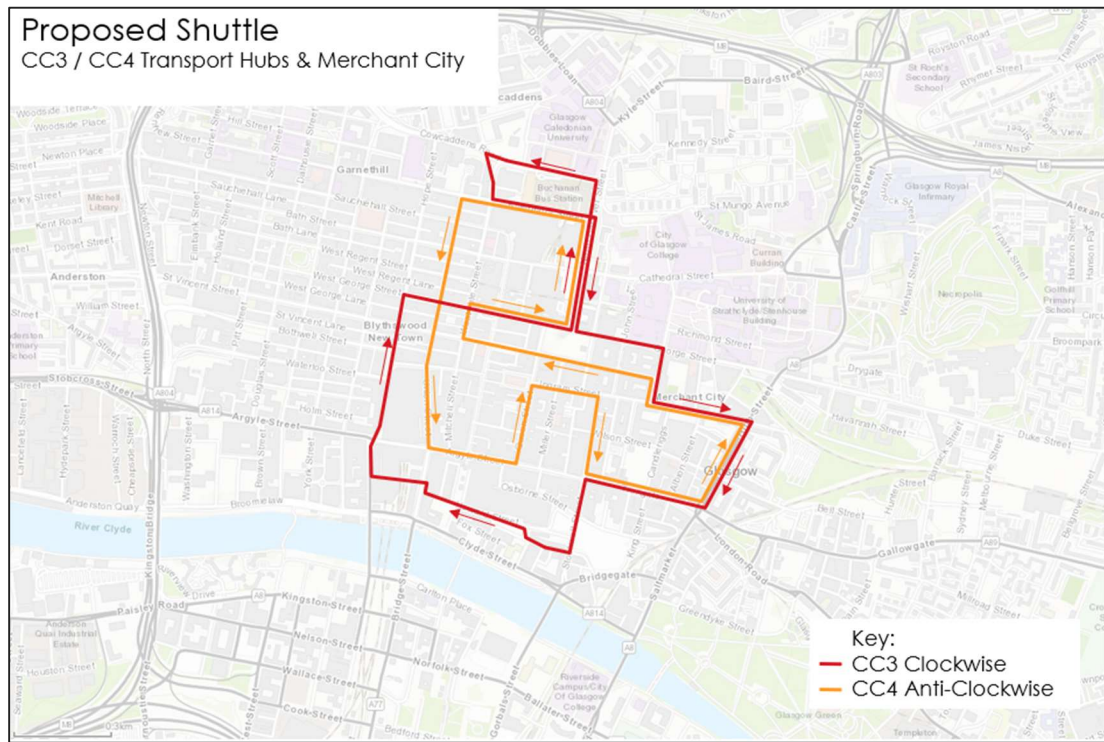


Figure 5-5 – Option 5 Route Extension to Merchant City

5.8 Option 6: Royal Infirmary, Transport Hubs and SEC

Circular service serving Royal Infirmary, Strathclyde University, Queen Street rail station, Buchanan bus station, Central station and the Scottish Events Campus.

The route is shown in Figure 5-6.

Free Electric City Centre Shuttle Bus Study

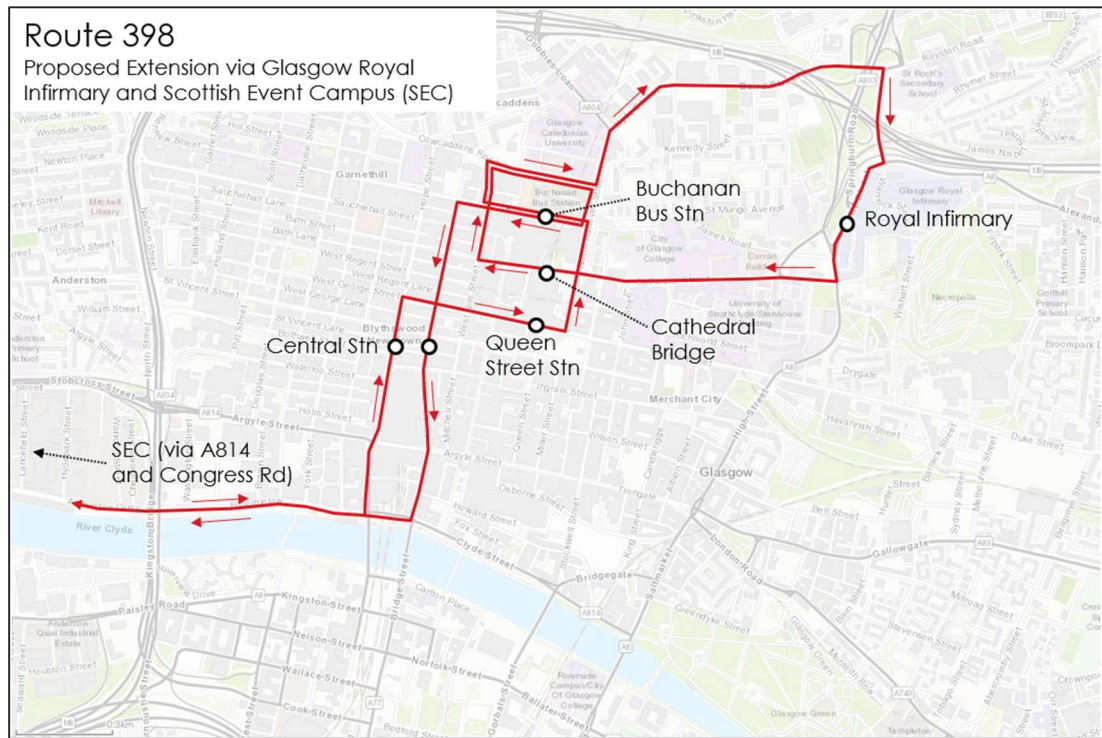


Figure 5-6 – Option 6 Route Extensions to Royal Infirmary and SEC



6 Frequency and Timetable Options

6.1 Introduction

In this chapter, the route design options described in chapter 5 have been taken forward to indicative timetable design. For each route proposal, two timetable scenarios have been developed and, broadly speaking, these are:

1. **Standard** – operating hours and frequency are based on the current Station Link operation. This means buses operating on Monday to Friday every 12 minutes from circa 0800 to 1800 and then every 20 minutes until 2000. On Saturdays, the service starts at circa 0900 and on Sundays at 1000, and then follows the weekday pattern until 2000.

For options 4 and 5 that operate on a circular basis both clockwise and anticlockwise, a 20-minute frequency has been proposed for each direction, from the start of service until circa 2000. This gives a combined 10 minute frequency which is slightly higher than the 12 minute frequency for options 1 to 3 but enables a consistent clockface timetable to be operated; a combined 12 minute frequency would result in services operating every 24 minutes in each direction with different departure times on alternate hours.

2. **Enhanced** – frequency enhanced to every 10 minutes until circa 1800 and the 20-minute evening service extended until circa 2200. The circular services (options 4 and 5) are scheduled as the Standard scenario on a 20-minute frequency in each direction but continuing until circa 2200.

Indicative timetables for each option and scenario are presented below. Timings have been calculated based on the current average speed of the Station Link service and with a similar allowance for recovery time at terminus points. A baseline option based on the current service 398 is also included.

6.2 Option 0: Station Rail Link

Glasgow City Centre Shuttle	Option 0: Buchanan Bus Station <-> Central Station												STANDARD SCENARIO		
	Monday to Friday						Saturday						Sunday		
CENTRAL STATION, Gordon St	08:00	&	18:00	&	20:00	09:00	&	18:00	&	20:00	10:00	&	20:00		
QUEEN STREET STATION, Before George Sq	08:06	every	18:06	every	20:06	09:06	every	18:06	every	20:06	10:06	every	20:06		
KILLERMONT ST, opp Buchanan Bus Station	08:10	12	18:10	20	20:10	09:10	12	18:10	20	20:10	10:10	20	20:10		
CENTRAL STATION, Gordon St	08:17	minutes	18:17	minutes	20:17	09:17	minutes	18:17	minutes	20:17	10:17	minutes	20:17		

Figure 6-1 – Option 0 Standard Timetable



Free Electric City Centre Shuttle Bus Study

Glasgow City Centre Shuttle		Option 0: Buchanan Bus Station <-> Central Station										ENHANCED SCENARIO		
		Monday to Friday					Saturday					Sunday		
CENTRAL STATION, Gordon St	08:00	&	18:00	&	22:00	09:00	&	18:00	&	22:00	10:00	&	22:00	
QUEEN STREET STATION, Before George Sq	08:06	every	18:06	every	22:06	09:06	every	18:06	every	22:06	10:06	every	22:06	
KILLERMONT ST, opp Buchanan Bus Station	08:10	10	18:10	20	22:10	09:10	10	18:10	20	22:10	10:10	20	22:10	
CENTRAL STATION, Gordon St	08:17	minutes	18:17	minutes	22:17	09:17	minutes	18:17	minutes	22:17	10:17	minutes	22:17	

Figure 6-2 – Option 0 Enhanced Timetable

Option 0 has a round trip journey time of 17 minutes each way and requires two buses to operate the standard 12-minute timetable or three to operate the enhanced 10-minute timetable.

6.3 Option 1: Royal Infirmary and Transport Hubs

		Monday to Friday					Saturday					Sunday		
CENTRAL STATION, Gordon St	08:00	&	18:00	&	20:00	09:00	&	18:00	&	20:00	10:00	&	20:00	
QUEEN STREET STATION, North Hanover St	08:05	every	18:05	every	20:05	09:05	every	18:05	every	20:05	10:05	every	20:05	
BUCHANAN BUS STATION, Killermont St arr	08:11	12	18:11	20	20:11	09:11	12	18:11	20	20:11	10:11	20	20:11	
BUCHANAN BUS STATION, Killermont St dep	08:13	minutes	18:13	minutes	20:13	09:13	minutes	18:13	minutes	20:13	10:13	minutes	20:13	
ROYAL INFIRMARY, Castle St	08:25	until	18:25	until	20:25	09:25	until	18:25	until	20:25	10:25	until	20:25	
ROYAL INFIRMARY, Castle St	08:27	&	18:27	&	20:27	09:27	&	18:27	&	20:27	10:27	&	20:27	
STRATHCLYDE UNIVERSITY, Cathedral St	08:32	every	18:32	every	20:32	09:32	every	18:32	every	20:32	10:32	every	20:32	
QUEEN STREET STATION, Cathedral St	08:35	12	18:35	20	20:35	09:35	12	18:35	20	20:35	10:35	20	20:35	
BUCHANAN BUS STATION, Killermont St arr	08:44	minutes	18:44	minutes	20:44	09:44	minutes	18:44	minutes	20:44	10:44	minutes	20:44	
BUCHANAN BUS STATION, Killermont St dep	08:46	until	18:46	until	20:46	09:46	until	18:46	until	20:46	10:46	until	20:46	
CENTRAL STATION, Gordon St	08:52		18:52		20:52	09:52		18:52		20:52	10:52		20:52	

Figure 6-3 – Option 1 Standard Timetable

		Monday to Friday					Saturday					Sunday		
CENTRAL STATION, Gordon St	08:00	&	18:00	&	22:00	09:00	&	18:00	&	22:00	10:00	&	22:00	
QUEEN STREET STATION, North Hanover St	08:05	every	18:05	every	22:05	09:05	every	18:05	every	22:05	10:05	every	22:05	
BUCHANAN BUS STATION, Killermont St arr	08:11	10	18:11	20	22:11	09:11	10	18:11	20	22:11	10:11	20	22:11	
BUCHANAN BUS STATION, Killermont St dep	08:13	minutes	18:13	minutes	22:13	09:13	minutes	18:13	minutes	22:13	10:13	minutes	22:13	
ROYAL INFIRMARY, Castle St	08:25	until	18:25	until	22:25	09:25	until	18:25	until	22:25	10:25	until	22:25	
ROYAL INFIRMARY, Castle St	08:27	&	18:27	&	22:27	09:27	&	18:27	&	22:27	10:27	&	22:27	
STRATHCLYDE UNIVERSITY, Cathedral St	08:32	every	18:32	every	22:32	09:32	every	18:32	every	22:32	10:32	every	22:32	
QUEEN STREET STATION, Cathedral St	08:35	10	18:35	20	22:35	09:35	10	18:35	20	22:35	10:35	20	22:35	
BUCHANAN BUS STATION, Killermont St arr	08:44	minutes	18:44	minutes	22:44	09:44	minutes	18:44	minutes	22:44	10:44	minutes	22:44	
BUCHANAN BUS STATION, Killermont St dep	08:46	until	18:46	until	22:46	09:46	until	18:46	until	22:46	10:46	until	22:46	
CENTRAL STATION, Gordon St	08:52		18:52		22:52	09:52		18:52		22:52	10:52		22:52	

Figure 6-4 – Option 1 Enhanced Timetable

Option 1 has a journey time of 25 minutes each way and would require five buses to operate the standard 12-minute timetable or six to operate the enhanced 10-minute timetable. Further scheduling and financial analysis is set out in chapter 9.



6.4 Option 2: Royal Infirmary, Transport Hubs and Buchanan Wharf

	Monday to Friday					Saturday					Sunday		
BUCHANAN WHARF, Kingston St	08:00	&	18:00	&	20:00	09:00	&	18:00	&	20:00	10:00	&	20:00
CENTRAL STATION, Hope St	08:07	every	18:07	every	20:07	09:07	every	18:07	every	20:07	10:07	every	20:07
QUEEN STREET STATION, North Hanover St	08:12	12	18:12	20	20:12	09:12	12	18:12	20	20:12	10:12	20	20:12
BUCHANAN BUS STATION, Killermont St arr	08:18	minutes	18:18	minutes	20:18	09:18	minutes	18:18	minutes	20:18	10:18	minutes	20:18
BUCHANAN BUS STATION, Killermont St dep	08:20	until	18:20	until	20:20	09:20	until	18:20	until	20:20	10:20	until	20:20
ROYAL INFIRMARY, Castle St	08:32		18:32		20:32	09:32		18:32		20:32	10:32		20:32
ROYAL INFIRMARY, Castle St	08:34	&	18:34	&	20:34	09:34	&	18:34	&	20:34	10:34	&	20:34
STRATHCLYDE UNIVERSITY, Cathedral St	08:39	every	18:39	every	20:39	09:39	every	18:39	every	20:39	10:39	every	20:39
QUEEN STREET STATION, Cathedral St	08:42	12	18:42	20	20:42	09:42	12	18:42	20	20:42	10:42	20	20:42
BUCHANAN BUS STATION, Killermont St arr	08:51	minutes	18:51	minutes	20:51	09:51	minutes	18:51	minutes	20:51	10:51	minutes	20:51
BUCHANAN BUS STATION, Killermont St dep	08:53	until	18:53	until	20:53	09:53	until	18:53	until	20:53	10:53	until	20:53
CENTRAL STATION, Union St	08:59		18:59		20:59	09:59		18:59		20:59	10:59		20:59
BUCHANAN WHARF, Kingston St	09:08		19:08		21:08	10:08		19:08		21:08	11:08		21:08

Figure 6-5 – Option 2 Standard Timetable

	Monday to Friday					Saturday					Sunday		
BUCHANAN WHARF, Kingston St	08:00	&	18:00	&	22:00	09:00	&	18:00	&	22:00	10:00	&	22:00
CENTRAL STATION, Hope St	08:07	every	18:07	every	22:07	09:07	every	18:07	every	22:07	10:07	every	22:07
QUEEN STREET STATION, North Hanover St	08:12	10	18:12	20	22:12	09:12	10	18:12	20	22:12	10:12	20	22:12
BUCHANAN BUS STATION, Killermont St arr	08:18	minutes	18:18	minutes	22:18	09:18	minutes	18:18	minutes	22:18	10:18	minutes	22:18
BUCHANAN BUS STATION, Killermont St dep	08:20	until	18:20	until	22:20	09:20	until	18:20	until	22:20	10:20	until	22:20
ROYAL INFIRMARY, Castle St	08:32		18:32		22:32	09:32		18:32		22:32	10:32		22:32
ROYAL INFIRMARY, Castle St	08:34	&	18:34	&	22:34	09:34	&	18:34	&	22:34	10:34	&	22:34
STRATHCLYDE UNIVERSITY, Cathedral St	08:39	every	18:39	every	22:39	09:39	every	18:39	every	22:39	10:39	every	22:39
QUEEN STREET STATION, Cathedral St	08:42	10	18:42	20	22:42	09:42	10	18:42	20	22:42	10:42	20	22:42
BUCHANAN BUS STATION, Killermont St arr	08:51	minutes	18:51	minutes	22:51	09:51	minutes	18:51	minutes	22:51	10:51	minutes	22:51
BUCHANAN BUS STATION, Killermont St dep	08:53	until	18:53	until	22:53	09:53	until	18:53	until	22:53	10:53	until	22:53
CENTRAL STATION, Union St	08:59		18:59		22:59	09:59		18:59		22:59	10:59		22:59
BUCHANAN WHARF, Kingston St	09:08		19:08		23:08	10:08		19:08		23:08	11:08		23:08

Figure 6-6 – Option 2 Enhanced Timetable

Option 2 has a journey time of 32 minutes northbound and 34 minutes southbound and would require seven buses to operate the standard 12-minute timetable or nine to operate the enhanced 10-minute timetable.



6.5 Option 3: Royal Infirmary, Transport Hubs and Merchant City

	Monday to Friday					Saturday					Sunday		
MERCHANT CITY, High St	07:45	&	17:45	&	19:45	08:45	&	17:45	&	19:45	09:45	&	19:45
St ENOCH CENTRE, Howard St	07:55	every	17:55	every	19:55	08:55	every	17:55	every	19:55	09:55	every	19:55
CENTRAL STATION, Hope St	08:01	12	18:01	20	20:01	09:01	12	18:01	20	20:01	10:01	20	20:01
QUEEN STREET STATION, North Hanover St	08:06	minutes	18:06	minutes	20:06	09:06	minutes	18:06	minutes	20:06	10:06	minutes	20:06
BUCHANAN BUS STATION, Killermont St arr	08:12	until	18:12	until	20:12	09:12	until	18:12	until	20:12	10:12	until	20:12
BUCHANAN BUS STATION, Killermont St dep	08:17		18:17		20:17	09:17		18:17		20:17	10:17		20:17
ROYAL INFIRMARY, Castle St	08:29		18:29		20:29	09:29		18:29		20:29	10:29		20:29
ROYAL INFIRMARY, Castle St	08:31	&	18:31	&	20:31	09:31	&	18:31	&	20:31	10:31	&	20:31
STRATHCLYDE UNIVERSITY, Cathedral St	08:36	every	18:36	every	20:36	09:36	every	18:36	every	20:36	10:36	every	20:36
QUEEN STREET STATION, Cathedral St	08:39	12	18:39	20	20:39	09:39	12	18:39	20	20:39	10:39	20	20:39
BUCHANAN BUS STATION, Killermont St arr	08:48	minutes	18:48	minutes	20:48	09:48	minutes	18:48	minutes	20:48	10:48	minutes	20:48
BUCHANAN BUS STATION, Killermont St dep	08:53	until	18:53	until	20:53	09:53	until	18:53	until	20:53	10:53	until	20:53
CENTRAL STATION, Union St	08:59		18:59		20:59	09:59		18:59		20:59	10:59		20:59
St ENOCH CENTRE, Argyle St	09:04		19:04		21:04	10:04		19:04		21:04	11:04		21:04
MERCHANT CITY, High St	09:13		19:13		21:13	10:13		19:13		21:13	11:13		21:13

Figure 6-7 – Option 3 Standard Timetable

	Monday to Friday					Saturday					Sunday		
MERCHANT CITY, High St	07:45	&	17:45	&	21:45	08:45	&	17:45	&	21:45	09:45	&	21:45
St ENOCH CENTRE, Howard St	07:55	every	17:55	every	21:55	08:55	every	17:55	every	21:55	09:55	every	21:55
CENTRAL STATION, Hope St	08:01	10	18:01	20	22:01	09:01	10	18:01	20	22:01	10:01	20	22:01
QUEEN STREET STATION, North Hanover St	08:06	minutes	18:06	minutes	22:06	09:06	minutes	18:06	minutes	22:06	10:06	minutes	22:06
BUCHANAN BUS STATION, Killermont St arr	08:12	until	18:12	until	22:12	09:12	until	18:12	until	22:12	10:12	until	22:12
BUCHANAN BUS STATION, Killermont St dep	08:17		18:17		22:17	09:17		18:17		22:17	10:17		22:17
ROYAL INFIRMARY, Castle St	08:29		18:29		22:29	09:29		18:29		22:29	10:29		22:29
ROYAL INFIRMARY, Castle St	08:31	&	18:31	&	22:11	09:31	&	18:31	&	22:11	10:31	&	22:11
STRATHCLYDE UNIVERSITY, Cathedral St	08:36	every	18:36	every	22:16	09:36	every	18:36	every	22:16	10:36	every	22:16
QUEEN STREET STATION, Cathedral St	08:39	10	18:39	20	22:19	09:39	10	18:39	20	22:19	10:39	20	22:19
BUCHANAN BUS STATION, Killermont St arr	08:48	minutes	18:48	minutes	22:28	09:48	minutes	18:48	minutes	22:28	10:48	minutes	22:28
BUCHANAN BUS STATION, Killermont St dep	08:53	until	18:53	until	22:33	09:53	until	18:53	until	22:33	10:53	until	22:33
CENTRAL STATION, Union St	08:59		18:59		22:39	09:59		18:59		22:39	10:59		22:39
St ENOCH CENTRE, Argyle St	09:04		19:04		22:44	10:04		19:04		22:44	11:04		22:44
MERCHANT CITY, High St	09:13		19:13		22:53	10:13		19:13		22:53	11:13		22:53

Figure 6-8 – Option 3 Enhanced Timetable

Option 3 has a journey time of 44 minutes northbound and 42 minutes southbound and would require eight buses to operate the standard 12-minute timetable or ten to operate the enhanced 10-minute timetable.



6.6 Option 4: Transport Hubs and International Financial Services District

	Monday to Friday			Saturday			Sunday		
BUCHANAN BUS STATION, Killermont St	08:00	&	20:00	09:00	&	20:00	10:00	&	20:00
QUEEN STREET STATION, North Hanover St	08:04	every	20:04	09:04	every	20:04	10:04	every	20:04
STRATHCLYDE UNIVERSITY, George St	08:06	20	20:06	09:06	20	20:06	10:06	20	20:06
CENTRAL STATION, Union Street	08:13	minutes	20:13	09:13	minutes	20:13	10:13	minutes	20:13
IFSD, Douglas St	08:21	until	20:21	09:21	until	20:21	10:21	until	20:21
BUCHANAN BUS STATION, Killermont St	08:34		20:34	09:34		20:34	10:34		20:34
<i>Anti Clockwise</i>									
BUCHANAN BUS STATION, Killermont St	08:10	&	20:10	09:10	&	20:10	10:10	&	20:10
IFSD, Elmbank St	08:20	every	20:20	09:20	every	20:20	10:20	every	20:20
CENTRAL STATION, Argyle Street	08:29	20	20:29	09:29	20	20:29	10:29	20	20:29
QUEEN STREET STATION, West George St	08:37	minutes	20:37	09:37	minutes	20:37	10:37	minutes	20:37
BUCHANAN BUS STATION, Killermont St	08:43	until	20:43	09:43	until	20:43	10:43	until	20:43

Figure 6-9 – Option 4 Standard Timetable

	Monday to Friday			Saturday			Sunday		
BUCHANAN BUS STATION, Killermont St	08:00	&	22:00	09:00	&	22:00	10:00	&	22:00
QUEEN STREET STATION, North Hanover St	08:04	every	22:04	09:04	every	22:04	10:04	every	22:04
STRATHCLYDE UNIVERSITY, George St	08:06	20	22:06	09:06	20	22:06	10:06	20	22:06
CENTRAL STATION, Union Street	08:13	minutes	22:13	09:13	minutes	22:13	10:13	minutes	22:13
IFSD, Douglas St	08:21	until	22:21	09:21	until	22:21	10:21	until	22:21
BUCHANAN BUS STATION, Killermont St	08:34		22:34	09:34		22:34	10:34		22:34
<i>Anti Clockwise</i>									
BUCHANAN BUS STATION, Killermont St	08:10	&	22:10	09:10	&	22:10	10:10	&	22:10
IFSD, Elmbank St	08:20	every	22:20	09:20	every	22:20	10:20	every	22:20
CENTRAL STATION, Argyle Street	08:29	20	22:29	09:29	20	22:29	10:29	20	22:29
QUEEN STREET STATION, West George St	08:37	minutes	22:37	09:37	minutes	22:37	10:37	minutes	22:37
BUCHANAN BUS STATION, Killermont St	08:43	until	22:43	09:43	until	22:43	10:43	until	22:43

Figure 6-10 – Option 4 Enhanced Timetable

Option 4 has a round trip journey time of 34 minutes clockwise and 33 minutes anti-clockwise and would require four buses to operate both the standard and enhanced timetables.



6.7 Option 5: Transport Hubs and Merchant City

	Monday to Friday			Saturday			Sunday		
BUCHANAN BUS STATION, Killermont St	08:00	&	20:00	09:00	&	20:00	10:00	&	20:00
QUEEN STREET STATION, North Hanover St	08:04	every	20:04	09:04	every	20:04	10:04	every	20:04
STRATHCLYDE UNIVERSITY, George St	08:06	20	20:06	09:06	20	20:06	10:06	20	20:06
MERCHANT CITY, High St	08:14	minutes	20:14	09:14	minutes	20:14	10:14	minutes	20:14
St ENOCH CENTRE, Howard St	08:24	until	20:24	09:24	until	20:24	10:24	until	20:24
CENTRAL STATION, Hope Street	08:30		20:30	09:30		20:30	10:30		20:30
QUEEN STREET STATION, West George St	08:35		20:35	09:35		20:35	10:35		20:35
BUCHANAN BUS STATION, Killermont St	08:41		20:41	09:41		20:41	10:41		20:41
<i>Anti Clockwise</i>									
BUCHANAN BUS STATION, Killermont St	08:10	&	20:10	09:10	&	20:10	10:10	&	20:10
CENTRAL STATION, Union Street	08:16	every	20:16	09:16	every	20:16	10:16	every	20:16
MERCHANT CITY, High St	08:29	20	20:29	09:29	20	20:29	10:29	20	20:29
QUEEN STREET STATION, West George St	08:41	minutes	20:41	09:41	minutes	20:41	10:41	minutes	20:41
BUCHANAN BUS STATION, Killermont St	08:47	until	20:47	09:47	until	20:47	10:47	until	20:47

Figure 6-11 – Option 5 Standard Timetable

	Monday to Friday			Saturday			Sunday		
BUCHANAN BUS STATION, Killermont St	08:00	&	22:00	09:00	&	22:00	10:00	&	22:00
QUEEN STREET STATION, North Hanover St	08:04	every	22:04	09:04	every	22:04	10:04	every	22:04
STRATHCLYDE UNIVERSITY, George St	08:06	20	22:06	09:06	20	22:06	10:06	20	22:06
MERCHANT CITY, High St	08:14	minutes	22:14	09:14	minutes	22:14	10:14	minutes	22:14
St ENOCH CENTRE, Howard St	08:24	until	22:24	09:24	until	22:24	10:24	until	22:24
CENTRAL STATION, Hope Street	08:30		22:30	09:30		22:30	10:30		22:30
QUEEN STREET STATION, West George St	08:35		22:35	09:35		22:35	10:35		22:35
BUCHANAN BUS STATION, Killermont St	08:41		22:41	09:41		22:41	10:41		22:41
<i>Anti Clockwise</i>									
BUCHANAN BUS STATION, Killermont St	08:10	&	22:10	09:10	&	22:10	10:10	&	22:10
CENTRAL STATION, Union Street	08:16	every	22:16	09:16	every	22:16	10:16	every	22:16
MERCHANT CITY, High St	08:29	20	22:29	09:29	20	22:29	10:29	20	22:29
QUEEN STREET STATION, West George St	08:41	minutes	22:41	09:41	minutes	22:41	10:41	minutes	22:41
BUCHANAN BUS STATION, Killermont St	08:47	until	22:47	09:47	until	22:47	10:47	until	22:47

Figure 6-12 – Option 5 Enhanced Timetable

Option 5 has a round trip journey time of 41 minutes clockwise and 36 minutes anti-clockwise and would require five buses to operate both the standard and enhanced timetables.



6.8 Option 6: Royal Infirmary, Transport Hubs and SEC

	Monday to Friday					Saturday					Sunday		
SEC, Congress Road	07:49	&	17:49	&	19:49	08:49	&	17:49	&	19:49	09:49	&	19:49
CENTRAL STATION, Hope Street	07:57	every	17:57	every	19:57	08:57	every	17:57	every	19:57	09:57	every	19:57
QUEEN STREET STATION, West George St	08:02	12	18:02	20	20:02	09:02	12	18:02	20	20:02	10:02	20	20:02
BUCHANAN BUS STATION, Killermont St arr	08:08	minutes	18:08	minutes	20:08	09:08	minutes	18:08	minutes	20:08	10:08	minutes	20:08
BUCHANAN BUS STATION, Killermont St dep	08:10	until	18:10	until	20:10	09:10	until	18:10	until	20:10	10:10	until	20:10
ROYAL INFIRMARY, Castle St	08:22		18:22		20:22	09:22		18:22		20:22	10:22		20:22
ROYAL INFIRMARY, Castle St	08:24	&	18:24	&	20:24	09:24	&	18:24	&	20:24	10:24	&	20:24
STRATHCLYDE UNIVERSITY, Cathedral St	08:29	every	18:29	every	20:29	09:29	every	18:29	every	20:29	10:29	every	20:29
QUEEN STREET STATION, Cathedral St	08:32	12	18:32	20	20:32	09:32	12	18:32	20	20:32	10:32	20	20:32
BUCHANAN BUS STATION, Killermont St arr	08:41	minutes	18:41	minutes	20:41	09:41	minutes	18:41	minutes	20:41	10:41	minutes	20:41
BUCHANAN BUS STATION, Killermont St dep	08:43	until	18:47	until	20:47	09:47	until	18:47	until	20:47	10:47	until	20:47
CENTRAL STATION, Union Street	08:49		18:53		20:53	09:53		18:53		20:53	10:53		20:53
SEC, Congress Road	08:59		19:03		21:03	10:03		19:03		21:03	11:03		21:03

Figure 6-13 – Option 6 Standard Timetable

	Monday to Friday					Saturday					Sunday		
SEC, Congress Road	07:49	&	17:49	&	21:49	08:49	&	17:49	&	21:49	09:49	&	21:49
CENTRAL STATION, Hope Street	07:57	every	17:57	every	21:57	08:57	every	17:57	every	21:57	09:57	every	21:57
QUEEN STREET STATION, West George St	08:02	10	18:02	20	22:02	09:02	10	18:02	20	22:02	10:02	20	22:02
BUCHANAN BUS STATION, Killermont St arr	08:08	minutes	18:08	minutes	22:08	09:08	minutes	18:08	minutes	22:08	10:08	minutes	22:08
BUCHANAN BUS STATION, Killermont St dep	08:10	until	18:10	until	22:10	09:10	until	18:10	until	22:10	10:10	until	22:10
ROYAL INFIRMARY, Castle St	08:22		18:22		22:22	09:22		18:22		22:22	10:22		22:22
ROYAL INFIRMARY, Castle St	08:24	&	18:24	&	22:24	09:24	&	18:24	&	22:24	10:24	&	22:24
STRATHCLYDE UNIVERSITY, Cathedral St	08:29	every	18:29	every	22:29	09:29	every	18:29	every	22:29	10:29	every	22:29
QUEEN STREET STATION, Cathedral St	08:32	10	18:32	20	22:32	09:32	10	18:32	20	22:32	10:32	20	22:32
BUCHANAN BUS STATION, Killermont St arr	08:41	minutes	18:41	minutes	22:41	09:41	minutes	18:41	minutes	22:41	10:41	minutes	22:41
BUCHANAN BUS STATION, Killermont St dep	08:43	until	18:47	until	22:47	09:47	until	18:47	until	22:47	10:47	until	22:47
CENTRAL STATION, Union Street	08:49		18:53		22:53	09:53		18:53		22:53	10:53		22:53
SEC, Congress Road	08:59		19:03		23:03	10:03		19:03		23:03	11:03		23:03

Figure 6-14 – Option 6 Enhanced Timetable

Option 6 has a journey time of 33 minutes eastbound and 35 minutes westbound and would require seven buses to operate the standard 12-minute timetable or nine to operate the enhanced 10-minute timetable.



7 Operating Options

7.1 Introduction

The operating regime for local bus services in Scotland is largely determined by the Transport Act 1985 which gives bus operators full commercial freedom to choose which services they operate, at what times and at what fares. This free market is complemented by local transport authorities (LTAs) such as SPT having the power to secure services for which they see a need, but which are not provided commercially by the market. The contracts to operate these services are awarded through a process of competitive tendering.

The Transport Scotland Act 2019 has introduced some new opportunities for delivering bus services differently and in this chapter, we set out the options now available and discuss the relative merits of each.

7.2 Tendered Service

As noted above, contracts for local bus services are generally competitively tendered by SPT from an approved pool of operators, with awards usually made based on lowest cost. The requirement to tender was introduced by the 1985 Act and is now consolidated in the Local Government (Scotland) Act 2003.

Several bus operators and SPT were consulted with as part of this study to understand their thoughts on the need for a city centre shuttle and early level of interest in such a scheme. Feedback highlighted that operators felt, the majority of the market within the city centre is already being served, however, if such a proposal was to come forward, they would be interested in holding further discussions with SPT as the tendering authority. Until such a situation arises, they noted they would need further information on the purpose of the shuttle and areas of coverage.

7.3 Public Sector Operation

The 2019 Act gives an LTA the ability to “*provide a service for the carriage of passengers by road using vehicles that require a Public Service Vehicle (PSV) operator's licence to do so*”, provided that the LTA is satisfied that this will contribute to the implementation of its relevant general policies. SPT already has these powers.

In the Glasgow context, it would be feasible for either Glasgow City Council or Strathclyde Partnership for Transport (SPT) to directly operate bus services in their own right. To do so, however, they would need to apply to the Traffic Commissioner for a PSV Operator's Licence in the same way as any other bus operator. The Traffic Commissioner is obliged to consider whether the applicant:

1. is of good repute – consideration of any relevant convictions, fixed penalty notices or serious infringements incurred by the applicant or its officers and employees.



2. is of appropriate financial standing – i.e. there is enough money to run the business properly. The current rates are to have available capital and reserves of £8,000 for the first vehicle on the licence and £4,500 for each additional vehicle.
3. has satisfactory vehicle maintenance arrangements, vehicle safety being one of the prime objectives of the operator licensing system.
4. is capable of ensuring that both the organisation and its staff comply with all relevant legislation.
5. meets the requirements of professional competence by employing a transport manager who holds a Certificate of Professional Competence in passenger transport operations or equivalent qualification. This person is responsible for continuously and effectively managing the passenger transport operations.

A reputable organisation such as Glasgow City Council could be expected to satisfy these requirements without undue difficulty. However, the officer time and resources involved, particularly the commitment to employ a transport manager, may be deemed excessive if the only direct operation was the city centre shuttle.

It should be acknowledged that a Glasgow City Council bus operation would be subject to the same market pressures as existing operators, including for example the currently difficult issues of recruitment of drivers and qualified maintenance staff and input cost inflation. Direct operation would involve the transfer of these business risks from the commercial market to Glasgow City Council who would also incur the set-up costs of the new company.

The counterarguments are that direct operation would give the City Council greater control over the performance of the service and its presence in the market could be expected to moderate tender prices to some extent. GCC has also recently produced a Bus Governance Routemap which outlines steps for exploring bus governance options by investigating the powers of the Transport Act such as municipal bus operations, franchising, and outlines GCC's commitment to develop and deliver a Bus Service Improvement Partnership (BSIP).

Other issues to consider are:

- **Timescales** – for corporate approvals, Companies House legalities; the Operator Licence application process; recruitment of management and staff; identifying, obtaining and equipping depot; procuring vehicles and mobilisation. These could amount to 18 to 24 months in total.
- **Legal challenge** – there is a risk of legal challenge by bus operators. While it is difficult to see grounds for such a challenge, given the only caveat in the legislation is that the LTA must be satisfied that the proposal will contribute to implementation of its policies, the procedure can be time consuming and expensive.
- **Funding** – the project would require substantial funding for procurement of buses, securing premises, investment in depot and workshop equipment and supporting systems such as electronic ticketing system, AVL and bus communications.



7.4 Franchising

The 2019 Act also gives LTAs the power to set up a franchising framework where they assume responsibility for service design, timetables, routes and fares within all or part of their area. This would not be appropriate for the city centre shuttle on its own, as a franchise can only be set up on an area basis, meaning that all existing services would also need to be subsumed into the franchise. The merits of franchising are the subject of current debate more generally but are not relevant to the city centre shuttle; the service could be delivered either under Transport Act 1985 rules or within an area franchise framework. In either case, a contract would be let on the basis that there would be no income from passenger fares, i.e. a gross cost contract. Again, this is an area under consideration as part of the GCC Bus Governance Routemap.

7.5 Conclusions

While the Transport Scotland Act 2019 has introduced new models for the delivery of bus services which have merits in a number of circumstances, we consider that the resources required to implement any of these for the city centre shuttle alone would be disproportionate to the benefit that could be obtained. That is not to say that they do not warrant consideration as part of a wider evaluation of delivery options for areas within Glasgow or for the whole city. Indeed, the city centre shuttle could be delivered by a public sector bus company and/or under a franchising framework as well as through the current deregulated model. However, we do not believe the service would require – or benefit from – a delivery model that differed from other services in the city.



8 Financial Analysis

8.1 Resource Requirements

The resources (buses and driver operating hours) required to deliver each of the route and timetable options have been calculated, as shown in Table 8-1.

Table 8-1 – Resource Requirements

Option	Timetable	Number of Buses	Weekly Driver Operating Hours
0	Standard	2	141
	Enhanced	3	212
1	Standard	5	359
	Enhanced	6	464
2	Standard	7	499
	Enhanced	9	580
3	Standard	8	579
	Enhanced	10	425
4	Standard	4	330
	Enhanced	4	360
5	Standard	5	409
	Enhanced	7	52
6	Standard	7	508
	Enhanced	9	792

8.2 Cost Estimation

Costing rates have been applied to the resources shown in Table 8.1. These were estimated using our bus industry costing model which identifies and allocates costs as follows:

- Driver costs – including driver pay and all associated employment on-costs including Employer's National Insurance contributions, Employer's pension contributions, holidays, sickness and training. These costs change in direct proportion to the scale of operation and are allocated on the basis of operating hours.
- Fuel costs – estimated cost of electricity consumption using fully electric zero emission buses, net of Government incentives and rebates, primarily Network Support Grant. These costs also vary in direct proportion to the scale of operation and are allocated on the basis of mileage operated.
- Bus costs – costs associated with ownership and upkeep of the bus fleet, including licensing, depreciation, maintenance and servicing. These have been allocated based on the number of buses required to operate the service.
- Overhead costs – contribution to items such as depot and premises costs, administrative support, management and finance. These have also been allocated based on the number of buses required to operate the service.



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The model includes a database of cost rates which take account of factors such as vehicle type and specification; local staff costs and driver wage rates; and target contribution margin.

Table 8.2 presents the estimated annual cost of operation for each of the service options. The following rates have been used in this analysis:

- Bus capital cost of £360,000 based on fully electric zero emission 33-seat Yutong E10 with an assumed operating life of 15 years. This translates into an annual depreciation cost of £23,500 per bus.
- Bus operating cost of £29,500 per vehicle per year covering maintenance, servicing, licensing, insurance and cleaning etc
- Payroll operating hour cost of £17.85 based on current typical bus driver wage rates in Glasgow of £13.00 and including employment on costs such as employer's National Insurance contributions, pensions, holidays and training
- Direct operating cost of £0.04 per km covering tyres and electricity consumption, net of government grants
- Overheads and contribution rates of 10% and 15% respectively.

Calculations also include government subsidies for which the service would be eligible, primarily Network Support Grant, but not challenge fund competitions that the Scottish Government runs from time to time, such as the ScotZEB transport decarbonisation incentive.

It should be noted that costs have been extremely volatile in the last two to three years due to a combination of factors including global economic instability, post pandemic impacts on supply chains, persistent driver shortages and domestic inflation. Consequently, the costs quoted below should be regularly reviewed and, if necessary, updated.

Table 8-2 – Annual Cost of Operation of Bus Service Options

Option	Timetable	Annual operator incurred costs				
		Buses	Drivers	Fuel	Overheads	Total
0	Standard	£108,000	£131,000	£4,000	£61,000	£304,000
	Enhanced	£108,000	£144,000	£3,000	£64,000	£319,000
1	Standard	£269,000	£333,000	£9,000	£153,000	£764,000
	Enhanced	£323,000	£430,000	£12,000	£191,000	£956,000
2	Standard	£377,000	£463,000	£13,000	£213,000	£1,066,000
	Enhanced	£485,000	£538,000	£15,000	£260,000	£1,298,000
3	Standard	£431,000	£537,000	£15,000	£246,000	£1,229,000
	Enhanced	£538,000	£395,000	£11,000	£236,000	£1,180,000
4	Standard	£215,000	£307,000	£8,000	£133,000	£663,000
	Enhanced	£215,000	£334,000	£9,000	£140,000	£698,000
5	Standard	£269,000	£380,000	£10,000	£165,000	£824,000
	Enhanced	£377,000	£49,000	£1,000	£107,000	£534,000
6	Standard	£377,000	£472,000	£13,000	£216,000	£1,078,000
	Enhanced	£485,000	£735,000	£20,000	£310,000	£1,550,000



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These calculations assume that the buses are bought by the operator and depreciated over the vehicle life. An alternative model would be for the Council to purchase the vehicles itself and make them available to the successful tenderer at no charge. This is similar to the methodology used by SPT for some of its more specialist contracts. This option benefits the bus operator by no longer incurring finance charges to buy the bus fleet nor does it need to fund deposits from cash flow. The corollary of course is that there is a cash flow impact for the Council in year 1. This is summarised in Table 8-3.

Table 8-3 – Cost of Operation of Bus Service Options (Buses Procured by Glasgow City Council)

Option	Timetable	Annual operator incurred costs					GCC incurred costs (Year 1)		Grand Total Costs
		Buses	Drivers	Fuel	Overheads	Total	Buses	Total	
0	Standard	£49,000	£131,000	£4,000	£61,000	£245,000	£730,000	£730,000	£4,405,000
	Enhanced	£49,000	£144,000	£3,000	£64,000	£260,000	£730,000	£730,000	£4,630,000
1	Standard	£123,000	£333,000	£9,000	£153,000	£618,000	£1,825,000	£1,825,000	£11,095,000
	Enhanced	£148,000	£430,000	£12,000	£191,000	£781,000	£2,190,000	£2,190,000	£13,905,000
2	Standard	£172,000	£463,000	£13,000	£213,000	£861,000	£2,555,000	£2,555,000	£15,470,000
	Enhanced	£221,000	£538,000	£15,000	£260,000	£1,034,000	£3,285,000	£3,285,000	£18,795,000
3	Standard	£197,000	£537,000	£15,000	£246,000	£995,000	£2,920,000	£2,920,000	£17,845,000
	Enhanced	£246,000	£395,000	£11,000	£236,000	£888,000	£3,650,000	£3,650,000	£16,970,000
4	Standard	£98,000	£307,000	£8,000	£133,000	£546,000	£1,460,000	£1,460,000	£9,650,000
	Enhanced	£98,000	£334,000	£9,000	£140,000	£581,000	£1,460,000	£1,460,000	£10,175,000
5	Standard	£123,000	£380,000	£10,000	£165,000	£678,000	£1,825,000	£1,825,000	£11,995,000
	Enhanced	£172,000	£49,000	£1,000	£107,000	£329,000	£2,555,000	£2,555,000	£7,490,000
6	Standard	£172,000	£472,000	£13,000	£216,000	£873,000	£2,555,000	£2,555,000	£15,650,000
	Enhanced	£221,000	£735,000	£20,000	£310,000	£1,286,000	£3,285,000	£3,285,000	£22,575,000

Table 9-3 shows a saving of circa 20% on bus costs incurred by the operator year by year and a consequent reduction in the total revenue subsidy required from the Council but balanced by a new Council capital spend in year 1.

The costs shown are the full costs of service provision but the actual cost to the City Council would potentially be less, on the basis that a negotiation could be concluded with ScotRail to share the costs.

Furthermore, a discussion would be required with ScotRail on revenue. The current 398 service charges a flat rate of £1.50 for non-rail users, and thus currently generates a level of revenue. We do not have access to this information at this stage, so are not able to determine implications on the cost / revenue of removing this fare to provide a free service. Additionally, without a demand forecasting exercise and specified option, it is difficult to forecast any future revenue / cost implications at this stage of removing the fare as part of any option.

8.3 Funding

8.3.1 National Entitlement Card

As a registered local bus service, the city centre shuttle would be eligible to participate in the National Entitlement Card concessionary fares schemes for persons aged 60 and over or under 22 or disabled people. These schemes reimburse bus operators for the revenue foregone by carrying these groups free of charge. The reimbursement is based on the fare



that would have been paid without the scheme (the 'shadow fare') adjusted by a generation factor to reflect the extra trips generated by the ability to travel free.

In the case of the City Centre Shuttle, the service is proposed to be free to all users. As such, the shadow fare is £0.00 and there is no reimbursement payable. This means that, unlike the current arrangements on service 398, there would be no income stream from the Transport Scotland Concessionary Travel Scheme for those passengers aged under 22 or over 60.

8.3.2 Challenge Funds

Transport Scotland run challenge fund competitions from time to time and has had several schemes to incentivise bus operators to move to low and zero emission buses in recent years. These typically provide a grant to cover a proportion of the difference in capital cost between a low or zero emission bus and a comparable conventional Euro VI diesel powered one. They also usually cover a proportion of the extra infrastructure costs associated with zero tailpipe emission fuel sources, typically electricity recharging and hydrogen refuelling.

The latest scheme is the Scottish Zero Emission Bus Challenge Fund (ScotZEB) which is focussed on supporting innovative business models designed around zero-emission buses and associated charging or refuelling infrastructure. The scheme closed for applications on 15 September 2023, and it is not known, at present, if further phases or successor schemes will be announced.



9 Risks

We have considered the risks associated with the city centre shuttle scheme, strategies to minimise the likelihood of their occurrence and actions to minimise their impact. The analysis is summarised in Table 9-1.

Table 9-1 – Risk Analysis

Risk	Description	Probability	Impact	Mitigation	RAG
Cost	Tender quotations exceed the available budget	Low – given officer/SPT knowledge of Glasgow bus market	High – risk of being unable to deliver the scheme to the desired specification	1. Market engagement – to alert operators of forthcoming opportunity, including potential new or unconventional enterprises 2. Draft alternative service specification to reduce resource requirements	Yellow
	Lack of income from Concessionary Travel Scheme due to no shadow fare	High	Medium to high	1. Robust investigation of funding opportunities to mitigate lack of a significant revenue stream 2. Consider whether a token fare is required to raise revenue base and reduce net cost	Red
Cost inflation	Unexpected supply cost increases	Low – although uncertain	Medium to high – may require downgrading of service specification or re-tendering	1. Draft alternative service specification to reduce resource requirements	Yellow
Demand	Patronage is significantly below expectations	Uncertain	Low – service is not dependent on passenger income High reputational risk if scheme is seen as poor value for money	1. Survey research to gauge potential uptake of service 2. Engagement with city centre businesses to raise awareness 3. High profile marketing campaign to stimulate public awareness	Green
Operational failure	Selected operator is unable to deliver the service	Very low	High – would require emergency award to maintain service at possibly higher cost	1. Include business review of tenderers prior to award to ensure financial and operational robustness	Green
Legal	Risk of legal challenge by bus operators on competition grounds	Medium	High	1. Full early engagement with bus operators to highlight potential benefits to them, e.g. resource saving by shortening routes in city centre 2. Technical analysis to demonstrate unmet demand	Red
Deliverability	SPT may be unwilling to tender and procure the service	Low	High	Early engagement with SPT on scheme principles and need for agreement on funding	Yellow
	It may not be possible to reach agreement with ScotRail on an integrated service	Low	Medium	Early engagement with ScotRail to understand 'red lines' and organisational policy/objectives for service	Yellow

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Reliability	Traffic delays and increased congestion impact service reliability	Low	Medium	1.. Schedule service with high allowance for recovery time 2. Require tenderers to demonstrate contingency arrangements	
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10 Conclusions

This study has researched free town and city centre bus service schemes operating around the UK, to inform the development of options for a Glasgow city centre free shuttle service. The research shows that Manchester has the most successful scheme which is funded by the City Council and the local transport authority. There are a number of other schemes operating in the Midlands and North of England, but many have seen service reductions in the face of budgetary pressures.

We have investigated the demand for travel within Glasgow city centre by conducting two accessibility analyses: one looking at connectivity by bus within the city centre, and one addressing connectivity to key city centre areas from radial corridors. We also reviewed the Station Link service funded by ScotRail that connects Central and Queen Street rail stations and Buchanan bus station.

From this analysis and wider discussions, we have developed a series of options for a city centre shuttle, all of which build on the Station Link service. We have devised six route options, each of which has two timetable sub-options: a 'standard' timetable which matches the frequency and hours of operation of the Station Link service and an 'enhanced' option with higher frequency of service and longer evening operating hours.

The options provide new links between different parts of the city centre that are not currently well-connected including the Royal Infirmary, Merchant City, International Financial Services District, SEC and Buchanan Wharf. Indicative costings have been prepared for each option, based on use of fully-electric zero emission buses.

An option to set up a free travel zone using existing bus services has also been investigated, but there are a number of hurdles to overcome before this could be implemented.

A decision on whether to progress the scheme and, if so, using which option will depend in part on consideration of the availability of budgets and funding, and determination of the defined purpose of the shuttle bus in line with Council ambitions.

