

Annual Status and Options Report

Roads Infrastructure
November 2026

Executive Summary

The Annual Status and Options Report records the condition of our road assets and provides a means of identifying and prioritising the overall funding needs.

Investment in roads infrastructure is critical to achieving the outcomes and grand challenges set out in the Strategic Plan 2022 to 2027 as it supports the delivery of sustainable transport and travel, becoming a net zero carbon city and the creation of safe, clean and thriving neighbourhoods.

Asset Overview



Carriageways
1,938km



Footways
3,124km



Lighting
74,000 columns



Structures
407 structures



Traffic Signals
919 junctions



Cycleways
360km

Successes

- Glasgow continues to excel as one of the best performing Road Authorities in the country, with 69.2% of carriageways in acceptable condition, compared to the Scottish average of 65.6%. The ongoing three-year investment programme has delivered over 350 carriageway resurfacing schemes to date and by the end of 2026/27 we will have delivered over 200km of carriageway resurfacing.

- Significant capital investment has been made in footways and cycleways through City Deal projects and active travel schemes throughout the City. Key projects completed include Sauchiehall Street Pilot, Sauchiehall Street Precinct, Holland Street, Cambridge Street, Cowcaddens Road, Dobbies Loan, South Portland Street and Argyle Street West.

- Our neighbourhood gully programme has been successful and has been well received where it has been delivered. These neighbourhoods have seen a reduction in flood reports, supporting resident mobility, whilst also improving the look and cleanliness of the local environment.

- Significant investment in the street lighting network is progressing through the Lighting Network Renewal (LNR) programme. Approximately 1,600 columns have already been replaced on a one-for-one basis, with a further £3.2m programme to replace around 1,500 columns and a £14m programme to replace just over 3,000 additional columns underway. In parallel, around 15,000 of the 30,000 non-LED lamps have now been converted to LED.

Key Investment Priorities

- Investment in our carriageway asset has been continually below the required steady state value of £12.6m per annum, with 2025/26 being the first year since 2013/14 that allocated investment has been above this value. Sustained increased investment will provide greater network resilience and resistance to potholes. On conclusion of the current three-year investment programme, an investment of £10.8m per annum would maintain the percentage of carriageways requiring attention at 23% or less of the network. Notably, the overall cost of improvement plans is lower than that required to maintain the current steady state, making it a cost-effective solution for enhancing our road network.

- The rapid expansion of the cycle network and its associated infrastructure brings new challenges, particularly due to the bespoke maintenance and labour required. This new infrastructure requires increased inspection, maintenance and winter gritting along with specific plant and machinery to maintain it. The specialist routine and cyclic maintenance, including more frequent sweeping and gritting, along with the use of more expensive materials, places a significant strain on existing resources and revenue budgets. As the cycle network continues to grow, alongside the 17

schemes within the £115 million Avenues Project, it is essential to increase future revenue budgets to adequately address these maintenance needs.

- Approximately 51,000 lighting assets, representing 66% of Glasgow's lighting inventory, are beyond their 25-year Expected Service Life. This ageing profile presents an increasing risk to the resilience and condition of the network and reinforces the need for sustained risk-based investment. At 2026 prices, replacing the current population of assets beyond their Expected Service Life is estimated to require investment of approximately £230.6m. Allowing for assumed annual inflation of 3% over a 15-year replacement programme increases the estimated cash requirement to approximately £285.9m, equivalent to an average of around £19.1m per annum over the programme period. Sustained investment would substantially improve the age and condition profile of the network, reduce the risk associated with ageing infrastructure and move the service towards a more sustainable long-term replacement cycle.

- Approximately 46% of traffic signal installations have been identified as needing replacement. To mitigate the risk of traffic signal lamps becoming unavailable and to ensure all signalised junctions meet the current standards outlined in the Equality Act 2010, an investment of £6.3 million per annum for five years is necessary. This funding will enhance safety and accessibility at traffic junctions throughout the City.

- Historic investment in signs, lines, and street furniture has only allowed for reactive maintenance, addressing repairs solely to mitigate the risk to public safety. The current Capital investment of £1.5m over the next three years will allow for an identified backlog of repairs to be targeted on a risk basis, however, an increased annual revenue investment is required going forward to effectively manage this asset.

- Structures are in a poor condition. This condition factor does not indicate that the structures are unsafe; it indicates there is a potential for deterioration in condition of an element, or elements, of the structure if maintenance works are not carried out. Maintenance priorities are targeted to ensure structures are safe, but many structures cannot be fully refurbished due to lack of funding.

- The Clyde Tunnel and its approaches require significant investment to address necessary repairs to operational infrastructure and structural issues.

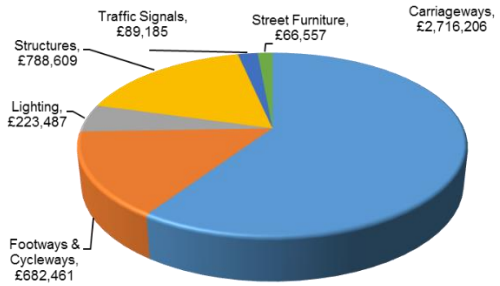
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1.0 Introduction

The Annual Status and Options Report is a product of our Road Asset Management Plan. This report discusses the status of our road assets in terms of extent, value and condition and presents the projected outcome of a number of investment options. The options and scenarios presented aim to assist with the budget setting process and identify where investment should be prioritised.

Latest figures indicate that the cost of replacing all road infrastructure assets is estimated at £4.57bn. The pie chart below details the value of the assets broken down by asset type.



Gross Replacement Cost per Asset (£'000)

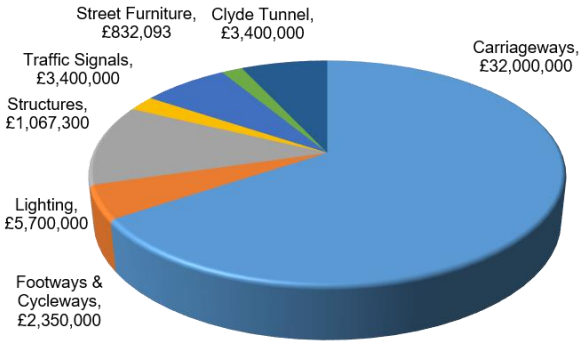
The level of investment required to maintain our roads infrastructure in its current condition (steady state) is estimated at £41.2m per year; this equates to an annual investment of 0.9% of the total asset value.

The Report contains a section for each road asset that outlines;

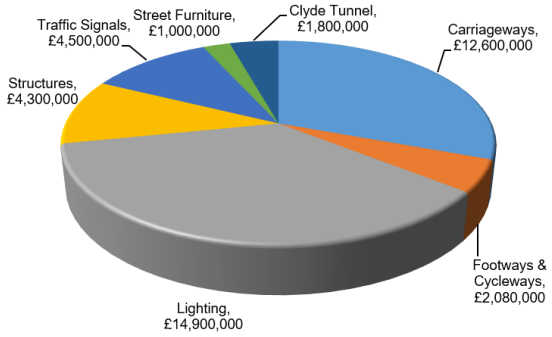
1. Asset Overview
2. Asset Condition
3. Investment Options

The pie charts below illustrate and compare the annual level of investment required to maintain the asset in its current condition against the current level of investment.

It's important to clarify that the current investment focuses solely on the additional budget allocation for the financial year aimed at enhancing the condition of the asset. This excludes cyclic or reactive revenue budgets, such as temporary pothole repairs, except for the budget related to street furniture.



Current Investment - £48.7m

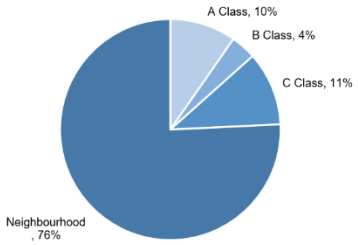


Steady State Investment - £41.2m

2.0 Carriageways

2.1 Asset Overview

Glasgow City Council is responsible for the management and maintenance of 1,938km of carriageways. Neighbourhood carriageways represent the majority of Glasgow's network (77%).



A Class	188km
B Class	72km
C Class	210km
Neighbourhood	1468km

Figure 1.0 – Carriageway Length

The latest condition data indicates that the condition of our carriageways slightly deteriorated to 69.2% of our carriageways in acceptable condition and improvements associated with the current investment programme have not yet been realised in the current reporting period. However, this means that 30.8% or 597km of carriageway should be considered for maintenance treatment. Despite this deterioration of 0.2%, Glasgow's proportion of carriageways in acceptable condition remains above the Scottish average of 65.6%.

Customer Satisfaction

There is a correlation between customer satisfaction and public pothole reports. Extreme winter weather and more frequent summer rain events have a detrimental impact on the number of public pothole reports received and, therefore, customer satisfaction.

The latest data indicates that satisfaction with roads maintenance, which is measured by an annual household survey, has increased slightly from 12% to 14%, despite there being an increase in public pothole reports to approximately 19,000 in 2025/26.

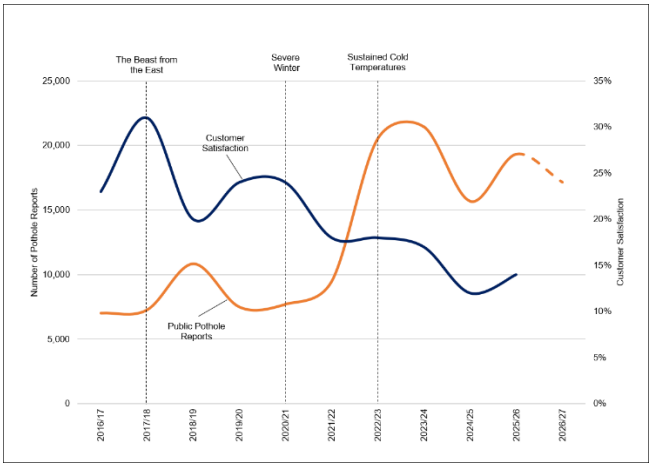


Figure 2.0 – Public Pothole Reports vs. Customer Satisfaction

Level of Investment

The primary cause for the increase in public pothole reports can be attributed to historical under investment in the carriageway asset.

The level of investment has historically been below the £12.6m per annum that is required to maintain the carriageways in their existing condition. The £22.85m allocated in 2025/26 was the first investment above this level since 2013/14 and was the beginning of a committed three-year investment programme. Sustained increased investment will provide greater network resilience and resistance to potholes.

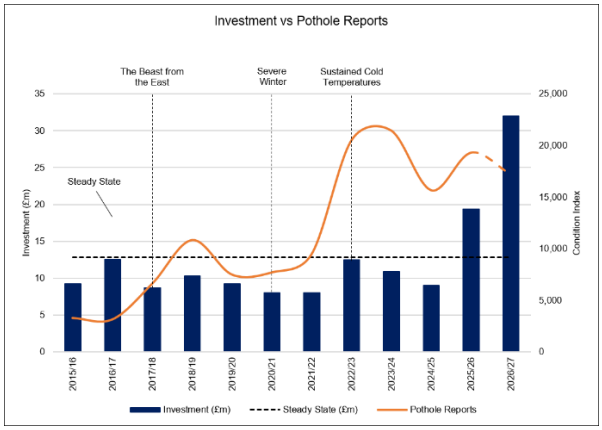


Figure 3.0 – Public Potholes Reports vs. Investment

Seasonal Risk

The historical impact of extreme winter and summer weather on the condition of our carriageways is clear. There remains a risk of structural deterioration, and, in the event of subsequent bad winters, the number of potholes will increase significantly.

Targeted investment strategies following severe winters previously improved customer satisfaction and reduced public pothole reports, however, subsequent severe winters in 2017/18 and 2020/21 negatively impacted the carriageway network.

It should be noted that the effects of a severe winter, or sustained frost and freezing temperatures, is not immediately apparent and an increase in public pothole reports should be expected approximately a year later.

2.2 Asset Condition

Road structural condition is measured by the Scottish Road Maintenance Condition Survey (SRMCS). The survey assesses parameters including; smoothness, rutting, surface texture and surface cracking, and is undertaken nationwide, allowing us to compare results against other Scottish Authorities. The parameters surveyed help to indicate the integrity of the unseen road structure and provide a measure of the percentage of carriageways that should be considered for future maintenance treatment. However, the survey does not indicate the condition of the road surface or the extent of potholes which means the results may differ from the public perception of our carriageways.

Figure 4.0 shows that the condition of the underlying road structure has changed little since 2015/16, with between 69% and 71% of carriageways in acceptable condition. However, the condition has never returned to the levels recorded before 2010 when more than 75% of carriageways were in acceptable condition, prior to consecutive severe winters. As above, long term investment under steady state has led to a managed decline in road condition.

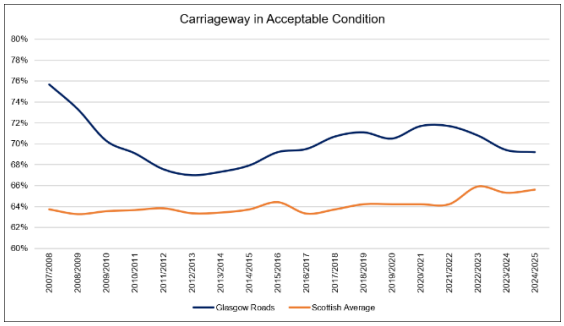
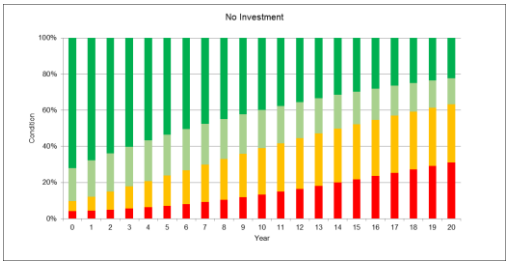


Figure 4.0 – Carriageway in Acceptable Condition

2.3 Carriageway Investment Options

Road infrastructure deterioration is slow. It is affected by external factors and is often unseen, meaning that any impact of investment usually cannot be assessed in the short term. The investment options presented below consider the projected impact over a 20 year life cycle helping us understand what each option would mean in the medium and long term.

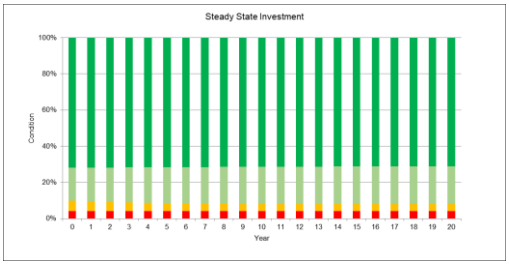
It is significant to note that the overall cost of the current Investment Programme and the Improvement Plan are less than the cost to preserve steady state. This is because repairing roads earlier, before they deteriorate further, costs less than waiting until more extensive repairs are needed. A relatively small increase in investment now would therefore save a substantial amount of money in the future.



Option 1 – No Investment

No investment in the carriageway asset would lead to severe deterioration, with 78% of carriageways in poor condition after 20 years. This scenario would see a dramatic increase in the number of potholes reported, the cost of temporary repairs and cause severe reputational and economic damage to the city.

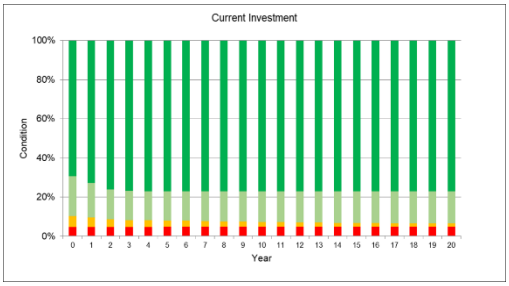
20 Year Investment - £0m



Option 2 – Steady State Investment

An annual investment of £12.6m is required to maintain the existing condition of our carriageways at 31% of carriageways requiring attention, with marginal improvement.

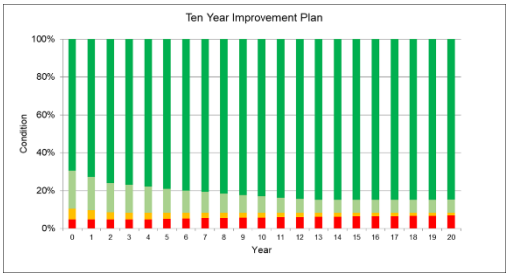
20 Year Investment - £252m



Option 3 – Current Investment Programme

It is estimated that the current 3-year investment programme will reduce the percentage of carriageway requiring attention to 23% of the network. The condition could then be maintained at this level for £10.8m per annum.

20 Year Investment - £216m



Option 4 – Ten-Year Improvement Plan

On conclusion of the current 3-year investment programme, an annual investment of £12.35m over 10 years would reduce the percentage of carriageway requiring attention to 15% of the network after 10 years – the best condition since 2006. This condition could then be maintained at this level for £10.8m per annum. It is key to note that both improvement plans offer better condition for less money than maintaining steady state.

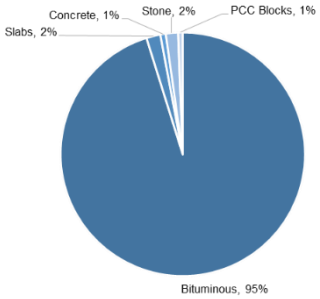
20 Year Investment - £232m

3.0 Active Travel Infrastructure

3.1 Footways Overview

3.11 Asset Overview

Glasgow City Council is responsible for the maintenance of 3,124km of footways.



Bituminous	2974km
PCC Slabs	58km
Concrete	22km
Stone	51km
PCC Blocks	19km

Figure 5.0 – Footway Length

Impact of Recent Investment

An investment of £1.95m was allocated to footway surfacing and patching for 2025/26. However, work did not begin until 2026 so that a Citywide assessment could identify the streets most in need of repair. We will see the impact of this investment shortly, in addition to an additional £1.95m allocated for similar work in 2026/27.

There has also been continued Capital investment in footways through City Deal projects and improvements made in conjunction with active travel schemes on key thoroughfares and transport links throughout the City.

Significant public realm improvements have been delivered as part of the Avenues Programme with several projects now complete, including; Sauchiehall Street Pilot, Sauchiehall Street Precinct, Holland Street, Cambridge Street, Cowcaddens Road, Dobbies Loan, South Portland Street and Argyle Street West.

Currently works are taking place on George Square, North Hanover Street, Duke Street, John Knox Street, Stockwell Street and Argyle Street East. The table in Appendix 1 gives an overview of the ongoing Avenues Programme as of Summer 2026.

Customer Satisfaction

Customer satisfaction with the footway network, which is measured by a household survey, has generally ranged between 42% and 52% over the last ten years. This is attributed to previously sustained investment to maintain the condition of our neighbourhood footways, including value for money treatments to extend footway life by sealing the surface and removing minor defects.

The latest data indicates that satisfaction has fallen to 39%, below the previous range. This low satisfaction level is attributed to continued under investment in the asset. The current investment programme includes £5.9m for footways over the 3 year period, alongside significant active travel and Avenues Project schemes. This investment is expected to improve satisfaction in the near future, however, to achieve significant improvement, continued investment above steady state is required.

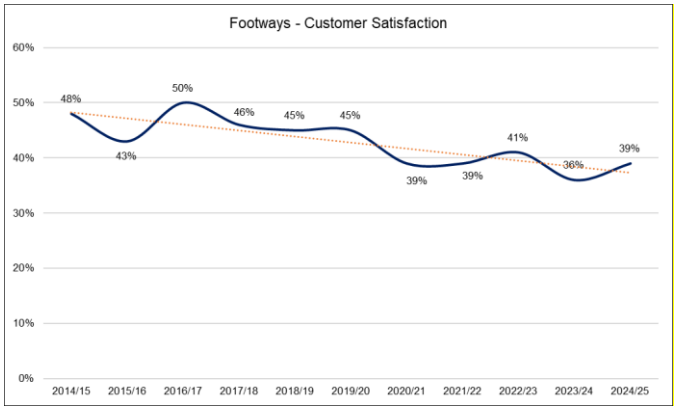


Figure 6.0 – Customer Satisfaction

3.12 Asset Condition

The latest footway condition data indicates that 87% of our footways are in good or fair condition. A further 0.4% (approximately 13km) of our footways exhibit major or structural deterioration and 12.6% (approximately 393km) exhibit minor deterioration such as cracking and oxidisation.

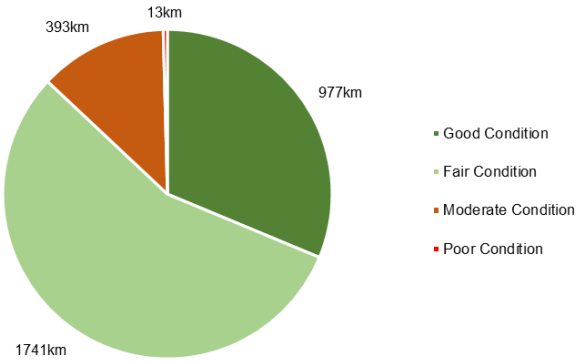


Figure 7.0 – Footway Condition

The above data is derived from a recent survey of two multi-member wards, which has been upscaled to represent the entire footway asset. Further sample surveys are planned to update these estimates.

Footway condition is the most significant factor in the number of public injury claims and 2025/26 saw the highest number of footway claims settled since 2015/16.

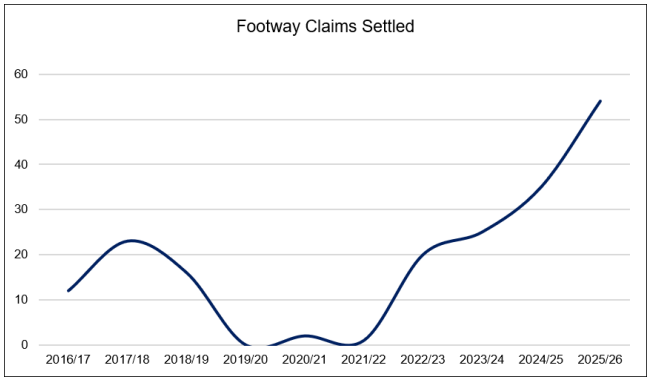


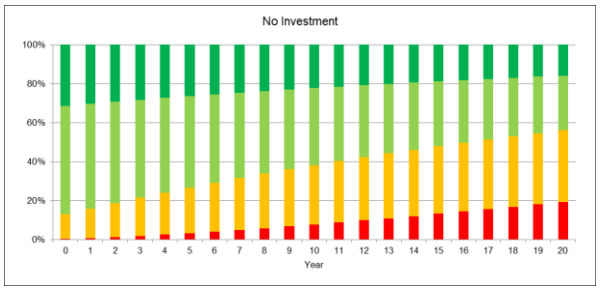
Figure 8.0 – Footway Claims Settled

3.13 Footway Investment Options

As our latest condition data indicates that 0.4% of our footways are in poor condition, the investment options below highlight the sustained level of investment required to maintain the condition of our footways.

Additionally, public realm footways create high quality public spaces that, in addition to having a natural stone surface, include certain features, such as rain gardens and cycleways. These areas have a more aesthetically pleasing appearance as well as assisting with climate adaptation through the use of new drainage techniques.

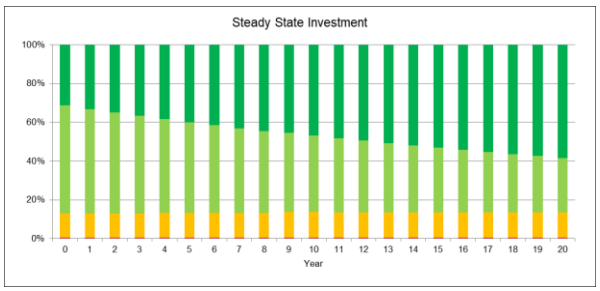
It is imperative that existing revenue investment, such as the £350k public realm budget to repair loose and damaged slabs, is increased in line with the continued expansion and creation of these high-quality public spaces.



Option 1 – No Investment

No further investment in the asset would lead to severe deterioration, with over half of footways in poor condition after 20 years. This option would result in significant risk to public safety and dramatically increase the number of slips trips and falls and the cost of reactive repairs.

20 Year Investment - £0m



Option 2 – Steady State Investment

An annual investment of £2.08m is required to maintain the existing condition of our footway network. This is comparable to the current investment of £1.95m for 2025/26.

20 Year Investment - £41.6m

3.2 Cycleways

3.21 Asset Overview Cycleways

Glasgow's active travel network consists of approximately 360km of cycle infrastructure, grouped into five types.

Glasgow's Cycle Route Map has been updated to include the latest cycling infrastructure development and presenting intuitive route descriptions, using the following terms;

- Segregated Cycle Lane: A lane physically separated from motor traffic, either on-road, on the footway, or remote, using hard or soft segregation.
- Cycle Lane: A lane marked on the carriageway with a painted line, which may be advisory (dashed line) or mandatory (solid line).
- Shared Footway: A footway adjacent to a road with no segregation or demarcation between cyclists and pedestrians.
- Shared Path: A footpath remote or detached from the road with no segregation or demarcation between cyclists and pedestrians.
- Mixed Traffic Street: A low-speed, low-traffic environment where cycles and motor traffic share the road.

Segregated	66.1km
Cycle Lane	28.7km
Shared Footway	25.5km
Shared Path	196.6km
Mixed Traffic Street	43.3km

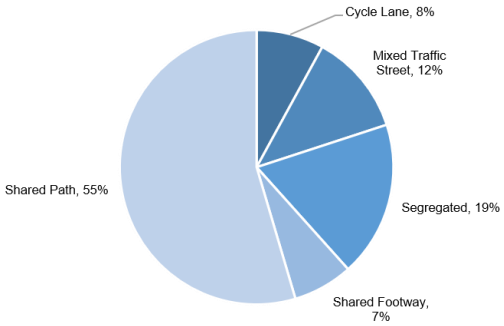


Figure 9.0 –Cycle Network Length

Impact of Recent Investment

The "Connecting Glasgow" policy, adopted by the City Administration Committee in June 2026, represents Glasgow's commitment to create a safe Citywide cycling network. Council Officers are progressing a range of projects to deliver this commitment

The following projects have recently been completed, are ongoing or are due to commence during 2026/27.

- Connecting Woodside St Georges Road, works to install cycle segregation at St Georges Road/Charing Cross
- Connecting Battlefield Phase 2 works to install cycle segregation on strategic routes within Langside
- East City Way Phases 5-6 to upgrade Spaces for People infrastructure on London Road.
- Flourishing Molendinar works to improve walking, wheeling and cycling connections on Provanmill Road
- Connecting Yorkhill and Kelvingrove Phase 1, works to install fully segregated infrastructure on Gilbert Street/Haugh Road and Radnor Street

For Secure on Street Cycle Parking

In November 2024, Cyclehoop was appointed as the sole supplier for Phase 4 of the secure on street cycle parking programme including supply, install, management and maintenance. This phase will deliver up to 500 new units over the next 5 years, in addition to the existing 205 units already in place.

As of September 2026, 120 new units have been installed under the new contract. The current proposal is to install a further 120 units per year for the next two years.

3.22 Asset Condition

As the cycle network continues to expand and improve, we are continuing to collect data to assist and inform future maintenance requirements.

Current condition data only covers the 61km primary cycle network maintained by Glasgow City Council. This data indicates that 94% of the asset is in good or fair condition. This reflects the fact that much of this infrastructure is relatively new.

Sustrans Scotland's Walking and Cycling Index 2021 indicated that 42% of the public feel that their local area is a good place to cycle, while 38% of the public stated that they feel safe cycling in their local area. Whilst these figures may appear low, in 2020, 23.5million cycling trips were made across Glasgow totalling 103.1 million miles. "Connecting Glasgow" is an essential component for Glasgow in reducing carbon and promoting health and wellbeing.

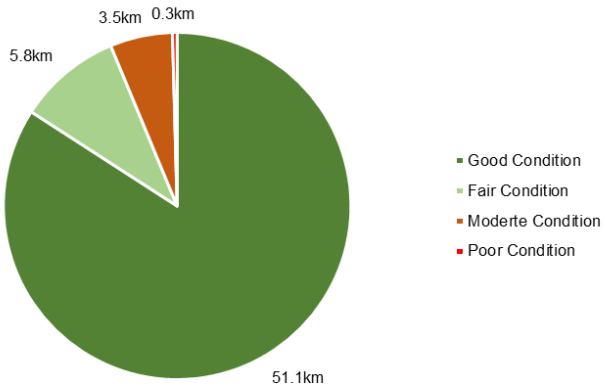


Figure 10.0 – Primary Cycle Network Condition

3.23 Cycleways Investment Options

The rapid expansion of the cycle network and the installation of associated infrastructure present new challenges, particularly due to the bespoke maintenance and labour needed. The use of various materials to create a more aesthetically pleasing environment and provide a smoother ride has led to higher maintenance costs compared to standard bituminous surfaces. Public concern is evident. During public engagement and consultations carried out in 2026 on several projects, routine maintenance was amongst the top 3 concerns from residents with the others being loss of parking and maintenance of green spaces.

This new infrastructure requires increased inspection, maintenance and winter gritting as well as different plant and machinery to maintain it. The specialist routine and cyclic maintenance, including more frequent sweeping and gritting, along with the use of more expensive materials, adds a significant burden to existing resources and revenue budgets.

As the cycle network continues to grow, alongside the 17 schemes within the £115 million Avenues Project and the expansion of public realm areas, it is essential to increase future revenue budgets to meet maintenance requirements.

Cycle Network Investment Option – New Infrastructure Maintenance Requirements

To effectively maintain the expanding cycle network, it’s essential to explore different maintenance techniques.

As the cycle network grows, an increase in the annual revenue budget is necessary. A dedicated annual investment of £100,000 is required for gritting, sweeping, rain garden maintenance, and surface upkeep. Insufficient funding could compromise the network's condition, impact the Council’s net zero ambitions and limit the ability to perform cost-effective planned maintenance on its unique features.

Additional Revenue Investment - £100k per Annum

4.0 Road Drainage

4.1 Asset Overview

Our road drainage network includes approximately 74,000 gullies (stanks), 2,500km of road drains, countless manholes, pumps, kerb drains and a variety of Sustainable Drainage Systems (SUDS). These assets form an integral part of the public road and are a vital component in preventing costly damage to our road network, ensuring public safety on our roads and preventing property damage due to flooding.

Much of our drainage network was designed and installed in the late 19th and mid-20th centuries to cope with expected weather patterns of the time. Climate change and the predicted change to warmer, wetter weather in Scotland is putting pressure on this asset group as we experience more frequent and intense rainfall. During heavy rain, many reports of flooding or apparently blocked gullies arise due to a lack of capacity in the sewer system to cope with the rainfall intensity being experienced.

It is recognised that flood risk and climate change continue to present a significant environmental risk to the City. Glasgow City Council is proactively working in partnership with key stakeholders in the Metropolitan Glasgow Strategic Drainage Partnership (MGSDP) to deliver a programme of drainage schemes targeting areas of the City where rainfall adversely impacts communities. These schemes will reduce flood risks and impacts on homes, businesses and travel corridors, improve water quality, bring greenspace improvements and increase drainage capacity.

Impact of Recent Investment

Neighbourhood Gully Programme

The Council's neighbourhood gully programme has seen a positive impact, with good customer satisfaction in the areas where it has been delivered. These neighbourhoods have had fewer flood reports supporting resident mobility and the look and cleanliness of the local environment is much better.



The increase in the annual revenue drainage budget to £2.15m per year for 2026/27 allowed a new neighbourhood gully programme cycle to commence during May 2026 that will deliver;

- cyclic maintenance of our flood and arterial gully routes to be carried out at the existing frequency
- neighbourhood gully cleaning on an annual cycle

These frequencies of cleaning comply with the most widely accepted levels of service considered to reduce the risk of blockages and flooding. Maintaining this level of investment will allow silt and detritus to be removed regularly which will reduce the risk of flooding, injury, property damage, and costly damage to the fabric and serviceability of our road network.

During planned cleaning, a dedicated drainage Inspector uses a digital collector app to record gullies cleaned, parked cars, damaged gullies, damaged underground pipe work and other information which is used to monitor performance and inform follow up repair programmes. Lessons from the first cycle of the programme have been applied to improve service delivery.

There are three permanent mounted gully vehicles and during periods of adverse weather, such as heavy rain and/or thunderstorms, additional plant and equipment can be hired based on risk-based engagement with our Flood Management Team.

The Council plans to purchase three new replacement permanent gully vehicles over the next two years. One of the vehicles will have a higher rated jetting unit which will allow the team to clear more underground blockages during the cyclic programme, reduce the amount of follow up repairs and reduce the reliance on supply chain contractors.

Investment has also increased drainage capacity at known flood locations such as Summerhill Road, Drumchapel.

Sustainable Drainage Systems (SUDS)

SUDS manage rainwater in an environmentally friendly way. They help control the flow, volume and frequency of surface water and prevent pollution by intercepting silt and runoff.

New SUDS infrastructure, such as; rain gardens, swales, basins, ponds or tree pits, have been installed as part of the expansion of the cycle network and the ongoing City Deal programme. This programme will continue to install SUDS across the City Centre as projects progress.

This infrastructure helps to reduce the impact of more intense rainfall. However, increased revenue funding is required to maintain its effectiveness.

We are monitoring the maintenance costs of early schemes to more accurately quantify future funding needs and we expect to report these findings in a future ASOR. Increased costs have been partially mitigated in the early years of the life of these projects by incorporating extended maintenance agreements into some contracts, but as these contracts end, additional revenue budget will be needed to fill the funding gap.

4.2 Asset Condition

Glasgow’s road drainage system is a historic asset with some infrastructure within Glasgow dating from the Victorian era. We maintain records of the infrastructure which is visible on the surface, but for below ground infrastructure, such as pipes, records are limited. There is no practicable method of retrospectively mapping below ground structure and condition is therefore assessed on a pass/fail basis. We test and clean all gullies on our network at a pre-determined target frequency which will identify any that are not working or have sustained physical damage.

Performance indicators are regularly reviewed to help us to monitor the effectiveness of our cleaning regime and identify any hot spots that may require attention.

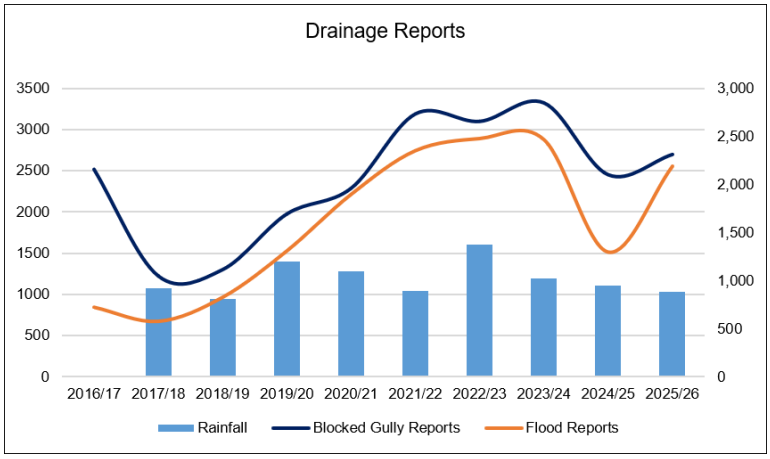


Figure 11.0 – Blocked Gully & Flood Reports

Figure 11.0 compares rainfall with the number of blocked gully and flood reports received. Recent intense rainfall has led to more flood reports, but reports of blocked gullies have not risen to the same extent. This may suggest that the neighbourhood gully programme is helping to improve the resilience of the drainage network.

It should also be noted that flooding is not always caused by blocked gullies. During periods of intense rainfall, the underlying capacity of the sewer network may be insufficient to cope with the volume of water and sewers may back up through the gullies. Seasonal leaf fall is also a common source of complaints when leaves clog up gully grates preventing floodwater from draining. This is an issue which can be greatly reduced with the assistance of the residents themselves by clearing leaves in the vicinity of their property. We are pleased to offer advice, assistance and even basic equipment to any residents wishing to do this.

The neighbourhood gully programme has been well received by communities as its holistic approach to maintenance which includes gully cleaning and street sweeping results in an improvement to local street scenes.





4.3 Road Drainage Investment Options

Metropolitan Glasgow Strategic Drainage Partnership (MGSDP)

The forward work programme to reduce the risk of road flooding includes;

- Flood storage basin benefiting the Rotherwood Avenue and Trinley Road area

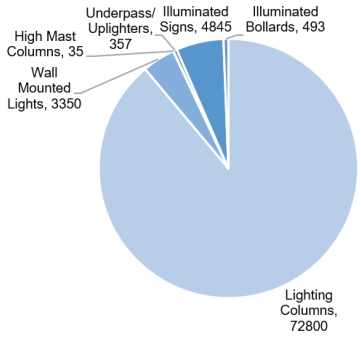
- Working in partnership with Scottish Water to construct flood storage on the Camlachie Burn downstream of Barlanark Park to benefit the Wellhouse and Cockenzie Street areas
- Camlachie Burn Phase 3B to desilt a section of culvert between Shettleston Road and Biggar Street
- Drumchapel SWMP Phase 2B to form a new flood storage basin at Pitmilly Road
- Construction of raingardens at Wykeham Road
- New drainage infrastructure at Waldemar Road
- Development of the South of Glasgow Surface Water Management Plan

This work is already funded.

5.0 Lighting

5.1 Asset Overview

Glasgow City Council manages an extensive street lighting network comprising;



Lighting Columns	72,800
Wall Mounted Lights	3,350
High Mast Columns	35
Underpass/Uplighters	357
Illuminated Signs	4,485
Illuminated Bollards	493

Figure 12.0 – Lighting Asset

Impact of Recent Investment

Significant investment has been secured to continue the renewal and modernisation of Glasgow's street lighting network.

Investment is in place through the Lighting Network Renewal (LNR) programme to replace over 3,000 ageing lighting columns. A separate programme will replace approximately 1,500 individual lighting assets on a one-for-one basis.

The LED conversion programme has also made significant progress, with approximately 15,000 non-LED lamps now remaining across the network. Investment is in place to convert the remaining lamps to LED.

The current programmes aim to finish by the end of 2028, alongside other priority work to replace ageing equipment. The investment will improve the condition and resilience of the network, reduce energy consumption and maintenance requirements and address some of the highest-risk ageing assets. Further sustained investment will be required beyond the current programmes to address the wider structural, electrical and cable condition of the network.

Energy Costs

Energy costs have stabilised following the significant volatility experienced in recent years. However, electricity remains a significant operating cost for the street lighting service.

The continued conversion of the remaining 15,000 non-LED lamps will further reduce electricity consumption and associated energy costs. This will also reduce the Council's exposure to future increases in electricity prices, providing greater resilience against potential energy market volatility.

Environmental Issues

Continued LED conversion is reducing energy consumption and associated carbon emissions.

The next stage of improving energy efficiency will include greater use of dynamic lighting controls. Lighting levels can be reduced at appropriate times and locations, taking account of the use of the road or public space and the lighting requirements for that location.

Energy Efficiency

Further efficiencies can be achieved by managing lighting levels to better reflect the time of day, location and level of use. Where appropriate, lighting levels can be reduced during periods of lower demand while continuing to provide the appropriate level of lighting for the location.

Illuminated traffic signs, sign overlights and illuminated bollards also offer opportunities to save energy. Where lighting is still needed, fittings can gradually be replaced with LEDs. Where current requirements allow, overlights can be removed rather than replaced, avoiding electricity and maintenance costs. Illuminated bollards can also be replaced with suitable unlit alternatives where appropriate.

5.2 Asset Condition

Structural Columns

Glasgow's lighting infrastructure consists of a wide range of column and support types and has a significant ageing asset profile. Current records indicate that approximately 51,100 lighting assets, representing 66% of the recorded inventory, are beyond their 25 year Expected Service Life. This represents a significant long term asset management and public safety challenge.

In recent years there have been a number of lighting column failures, most notably a failure in 2023 which resulted in injury to a member of the public. The subsequent investigation and enforcement action reinforced the importance of maintaining an effective programme of inspection, risk assessment and prioritised replacement.

The Council's Risk Management Strategy prioritises those assets presenting the greatest risk. There are currently 9,616 columns identified as Type 4/high risk condition. Investment is in place to replace approximately 4,500 of these over the next two years. This would leave approximately 5,116 Type 4 columns requiring further intervention, before taking account of any additional high risk assets identified through ongoing inspection and structural testing.

Risks are not limited to Type 4 columns. The network also contains ageing non-galvanised steel columns, concrete columns and other asset types that require consideration within the renewal programme. The Council intends to structurally test assets that have exceeded their Expected Service Life to establish their current structural integrity and allow future intervention to be prioritised according to risk.

Street lighting replacement costs have risen considerably since the current funding was approved. As a result, the approved funding will not deliver the number of column replacements originally anticipated.

The photographs below show examples of assets in urgent need of replacement/repair.





Severe Deterioration of Type 4 Overhead Lighting Columns and Obsolete Luminaires



Type 4 Sign and Obsolete Overlight


Illuminated Bollards – Missing, Damaged and Non-Operational

Electrical Condition

Electrical condition represents a separate, but closely linked risk to the structural condition of the lighting infrastructure.

Managing Structural and Electrical Risk

The planned increase in structural and electrical testing will provide a more comprehensive understanding of asset condition and allow resources to be targeted towards the areas of greatest risk. It will also inevitably identify additional repair and replacement requirements.

Public safety must remain the first priority. Unsafe equipment may need its power disconnected, urgent repair, replacement or removal. An unsafe column may need to be cut down to a safe stump.

Without additional funding specifically to respond to defects identified through inspection and testing, resources may need to be redirected from planned renewal programmes to address immediate safety risks. This could reduce the number of planned column replacements delivered and result in some lighting assets remaining out of operation until funding becomes available.

A sustained investment strategy needs to cover planned column and cable renewal, the existing high-risk Type 4 backlog, ageing non-galvanised and concrete columns, Type 4 signs, bollard replacement, structural and electrical testing, identified remedial works and sufficient contingency to respond to newly identified safety critical defects.

5.3 Lighting Investment Options

The investment options below consider the long term renewal of Glasgow's ageing lighting infrastructure and the additional requirements arising from structural and electrical inspection and testing.

Investment Option 1: Current Level of Investment

The Council has committed £17.2m to street lighting asset renewal, comprising £14m for the Lighting Network Renewal programme and £3.2m for the replacement of individual lighting assets.

This funding will allow the Council to continue targeting priority ageing and high-risk assets. However, the level of funding remains significantly below that required to address the scale of the existing asset backlog.

Committed Investment - £17.2m

Investment Option 2: Steady State Investment

A steady state investment would seek to replace lighting assets at approximately the same rate as they reach the end of their service life. This would prevent the overall age profile and replacement backlog from continuing to deteriorate.

The Council's lighting asset comprises approximately 82,490 assets and based on an assumed 25 year lifecycle, approximately 3,300 assets would require renewal, replacement or rationalisation each year to maintain steady state.

Applying an indicative replacement cost of £4,515 per asset would equate to an investment requirement of approximately £14.9m per annum at 2026 prices.

This level of investment would help stabilise the overall age profile of the lighting asset, however, it would not substantially reduce the existing backlog.

This option does not make separate provision for additional structural or electrical remedial works identified through testing.

Steady State Investment - £14.9m per Annum

Investment Option 3: Preferred Asset Recovery Programme

The preferred option is an accelerated, risk-based Asset Recovery Programme with an annual investment of approximately £20m, targeting the highest risks first and gradually reducing the backlog of ageing and high-risk equipment.

We estimate that we can replace 4,000 items a year. At the 2026 indicative replacement allowance of £4,515 per asset, this represents approximately £18.1m per annum for the core replacement programme.

The remaining programme provision, approximately £1.9m per annum, would support the renewal and rationalisation of other lighting assets, including illuminated signs and bollards, together with priority works identified through the Council's structural and electrical inspection programmes.

Preferred Asset Recovery Investment - £20m per Annum

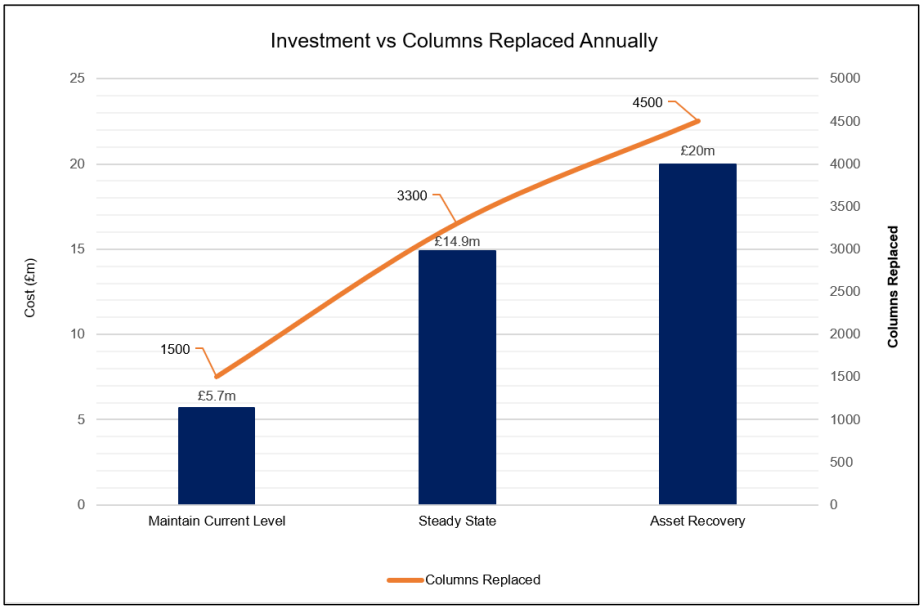


Figure 13.0 – Investment vs Columns Replaced

6.0 Traffic Signals

6.1 Asset Overview

Traffcom is the Council's Traffic Control Centre and is responsible for the operation and management of the city's Intelligent Transport Systems (ITS). These systems are critical to the safe and efficient operation of Glasgow's road network, supporting traffic management, public transport priority, incident response and the ongoing monitoring and maintenance of traffic signal infrastructure. The ITS asset includes;

- 919 traffic signal controlled junctions and pedestrian crossings including signal poles, underground cabling, signal lanterns, pedestrian push buttons, vehicle detection equipment, cycling facilities and traffic signal controllers.
- The Urban Traffic Management and Control (UTMC) system which provides centralised monitoring and management of the traffic signal network and includes;
    - Bus Priority at more than 130 locations, allowing late running buses to be detected and, where appropriate, signal timings adjusted to assist services in returning to schedule.
    - Split Cycle Offset Optimisation Technique (SCOOT) provides real time adaptive traffic control to respond to changing traffic conditions, manage congestion and coordinate traffic flow between junctions.
    - Remote traffic signal management allowing Traffcom staff to intervene and adjust signal operation in response to major events, emergencies, incidents and other pressures on the road network.
    - The Council's traffic signal fault management and reporting system, supporting the identification, recording and management of faults across the traffic signal network.
- 5 strategic Variable Message Signs (VMS) on arterial routes into the City. These provide the ability to communicate important travel information to motorists, including information relating to planned events and incidents affecting the road network.

Continued investment is needed to maintain reliability and resilience and enable the Council to adopt emerging network management technologies.

Impact of Recent Investment

Improving accessibility across Glasgow's transport network remains a key priority. The ongoing programme of traffic signal and junction upgrades provides opportunity to remove barriers and create a safer, more inclusive environment for all road users. Typical improvements include the provision of tactile paving, upgraded pedestrian crossings, enhanced signal equipment and improved footway layouts. These support people with disabilities, older people and those with mobility or sensory impairments.

These improvements support the objectives set out in the Glasgow Transport Strategy, which seeks to create a sustainable, accessible and people focused transport system, encouraging walking, wheeling and cycling while reducing dependence on private car travel. They also align with Glasgow's Strategic Plan 2022-2027 and the City's wider commitments to reducing inequality, improving public health and addressing climate change. By embedding inclusive design principles within transport investment decisions, Glasgow can help ensure that the benefits of a safer and more sustainable transport network are accessible to everyone.

Transport Scotland Active Travel Transformation Fund (Tier 1) has funded the upgrade of thirteen traffic signal junctions and pedestrian crossings across Glasgow, delivering improvements to pedestrian accessibility, road safety and active travel connectivity. These upgrades have enhanced crossing opportunities for people walking, wheeling and cycling, while supporting access to key destinations throughout the City.

Transport Scotland's Road Safety Improvement Fund and the Councils Capital funding have also enabled the upgrade of two major traffic signal junctions and one pedestrian crossing.

Additional investment has targeted areas with higher levels of deprivation, improving connections to schools, community facilities, public transport links and other essential services. This helps ensure that the benefits of transport investment are shared more equitably and support those communities most in need.

6.2 Asset Condition

Historical investment for the renewal and replacement of traffic signal assets has not kept pace with the ageing profile of the network. As a result, an increasing proportion of traffic signal infrastructure has reached or exceeded its expected operational life, contributing to a rise in faults and a growing maintenance burden. Many assets now require more frequent intervention, while some components are becoming increasingly difficult to repair or replace due to equipment obsolescence.

The current traffic signal maintenance contract includes regular condition monitoring through routine inspections of key infrastructure assets, including controllers, signal poles, underground cabling and signal heads. These inspections provide a comprehensive assessment of asset condition and identify locations requiring intervention or replacement.

Each asset is assessed using a five point condition scale, where a score of 1 represents infrastructure that is in good operational condition and a score of 5 indicates assets that are obsolete, in poor condition and require replacement. This condition data helps inform maintenance priorities, future investment decisions and the development of renewal programmes aimed at improving the reliability, resilience and safety of Glasgow's traffic signal network.

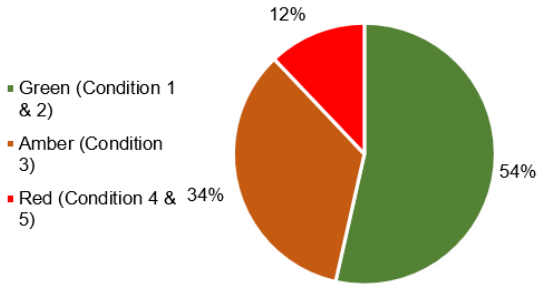


Figure 14.0 – Traffic Signal Condition

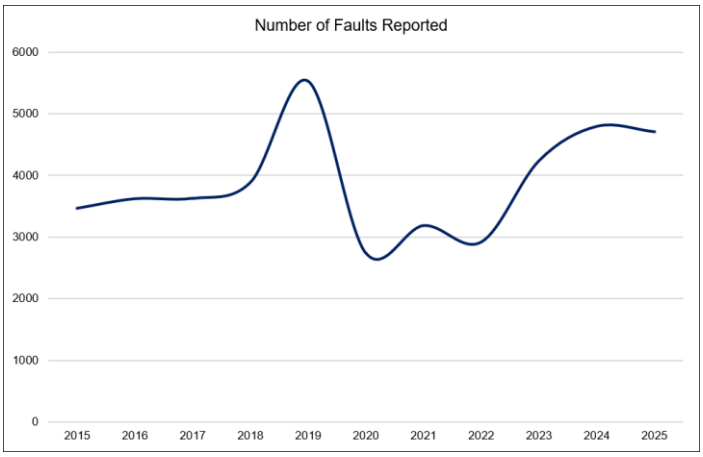


Figure 15.0 – Number of Traffic Signal Faults Reported

Analysis of traffic signal faults during 2025/26 shows that failures are continuing to increase, reflecting the challenges associated with an ageing asset and a growing proportion of obsolete equipment. Years

of limited investment have resulted in many installations operating beyond their intended design life, increasing the frequency of faults and the resources required to maintain the network.

A significant factor is the ongoing shortage of halogen lamps, which remain in use at 42% of the City's traffic signal sites. These assets are not only less energy efficient than modern LED alternatives, but replacement components are becoming increasingly difficult to source due to manufacturing constraints and diminishing market availability.

Current condition assessments indicate that approximately 34% of Glasgow's traffic signal assets require significant upgrade or replacement. A sustained modernisation programme is required to address asset deterioration, improve network reliability and resilience, reduce maintenance costs, and support the transition to more energy efficient and sustainable traffic signal technology.

6.3 Traffic Signal Investment Options

Sustained investment is required to address the legacy of ageing and obsolete traffic signal assets across the City to improve network reliability, reduce whole life maintenance costs, enhance accessibility and road safety, and support the transition to more energy efficient and environmentally sustainable infrastructure.

Investment Option 1 – No Investment

Without additional investment, the traffic signal asset will continue to deteriorate as assets reach the end of their operational life. This is likely to result in an increase in equipment failures, longer fault durations and rising maintenance costs.

As the network ages, there will be an increasing risk of disruptions to key junctions, pedestrian crossings and public transport routes. Obsolete equipment and deteriorating underground cabling will become more difficult to maintain, reducing the resilience of the network and increasing the likelihood of prolonged outages. In addition to the operational impacts, there would be a growing risk to road safety, accessibility and network efficiency.

Investment Option 2 – Current Investment

Funding for traffic signal upgrades was £3.4m in 2025/26, a notable increase compared to previous years. Sustained investment at this level would be required to upgrade the entire network within an estimated nine year period.

Annual investment levels remain difficult to forecast, with funding allocations subject to variations from year to year. This uncertainty continues to pose challenges for long term planning and programme delivery. It should also be noted that the current level of investment places increased demands on existing resources.

While this approach allows for gradual improvements, it would not adequately mitigate road safety risks or prevent increased network disruptions associated with ageing and obsolete infrastructure.

Investment Option 3 – Steady State Investment

An annual investment of £4.5m is required to maintain steady state across the network addressing assets assessed as being in poor but serviceable condition. This level of funding would support essential replacement works and enable the Council to manage ongoing maintenance demands effectively.

Investment Option 4 – Comprehensive Upgrade to LED and Equality Act 2010 Compliance

An annual investment of £6.3m per annum for five years is necessary to;

- Eliminate reliance on obsolete halogen lamps
- Upgrade all signalised junctions to LED technology
- Achieve full compliance with the Equality Act 2010

This programme would significantly improve network reliability, energy efficiency and accessibility. Increased investment would require an expansion of internal resources to support the design, delivery and management of capital projects.

5 Year Investment - £31.5m

Investment Option 5 – Tactile Cones and Tactile Paving

Traffic signals, tactile cones and tactile paving play a vital role in enabling visually impaired pedestrians to navigate the City safely and independently. There are currently 74 sites without tactile cones and 64 without tactile paving highlighting the need for continued investment to improve accessibility across the network.

A comprehensive programme to address these accessibility gaps, alongside a Citywide transition to LED traffic signal technology would provide an opportunity to modernise the traffic signal network while delivering significant accessibility, operational and environmental benefits, including;

- Improved accessibility and safety, particularly for visually impaired pedestrians
- Reduced energy consumption and associated operating costs
- Lower maintenance requirements and costs
- Reduced CO_2 emissions and environmental impact
- Improved operational reliability and fewer component failures
- A more modern and resilient traffic signal network

Significant improvements have already been delivered within the City Centre through the Avenues Programme, including enhancements to pedestrian infrastructure and accessibility. However, there remains a need for further investment across Glasgow, particularly in communities and outlying areas that have not benefited from the same level of recent infrastructure improvement. Future investment in traffic signal accessibility and LED upgrades would provide an opportunity to address this imbalance, ensuring that improvements to accessibility, safety and the condition of traffic signal infrastructure are delivered more consistently across the City.

This investment would allow accessibility improvements and the transition to LED technology to be delivered as a coordinated programme, helping to address existing deficiencies while improving the long term efficiency, reliability and sustainability of the City's traffic signal asset.

Additional Investment - £8m

Investment Option 6 – Upgrade UTMC System

The existing Urban Traffic Management and Control (UTMC) system has been operational since 2014 and will require a major upgrade within the next five years to keep pace with industry developments and emerging technologies.

The system currently supports key traffic management functions across the city, including;

- Bus Priority Systems at approximately 130 junctions
- SCOOT adaptive traffic control at around 400 junctions

It is our intention to undertake a strategic review of the UTMC system over the next two years. This will consider the future requirements of the service, emerging technologies and the options available for a next generation strategic traffic management system. The review will help define the preferred approach, scope and future investment requirements ahead of replacing or substantially upgrading the existing system.

A comprehensive system upgrade is currently estimated to require investment of approximately £2m.

Investment in a new UTMC system would provide a modern and resilient platform for managing Glasgow's road network, with potential benefits including;

- Enhanced strategic management of the road network
- Integration of AI-based traffic optimisation technologies
- Improved journey-time and incident monitoring
- Better management of congestion and associated emissions
- Greater ability to respond dynamically to changing network conditions
- Improved support for active travel, public transport and wider sustainable transport objectives

Additional Investment - £2m

7.0 Traffic Signs, Lines & Street Furniture

7.1 Asset Overview

Glasgow City Council is responsible for the maintenance of;

- 24,000 traffic signs
- 20,000 bollards
- 110km of pedestrian barrier
- 5.3km of vehicle safety barrier
- 5,700km of road markings

All these assets improve the safety and usability of the road network. Additional street furniture such as seating, grit bins and bus shelters is also included within this asset group.

Impact of Recent Investment

A Capital investment of £500k in 2025/26 allowed for the repair of identified vehicle safety barrier on the Clydeside Expressway and Duntreath Avenue in addition to the repair of outstanding street furniture defects including damaged kerbs and the replacement of missing bollards.

The committed investment of £1.55m, as part of the current investment programme, will allow for planned maintenance programmes to be developed to target a significant backlog of repairs prioritising the street furniture assets in worst condition for repair to reduce the risk to public safety.

Despite the increased Capital investment stated above, the current Revenue investment of £546k per annum is restrictive. For example, 73% of the roads marking investment under the Roads Maintenance team (£97k) has been required to be spent by September 2026 to replace worn and faded lining to mitigate the risk to public safety, therefore, resulting in extremely limited maintenance of road markings until next financial year.

Parking Zone Refresh

During this financial year to date and last financial year, significant investment has been taken from income to refresh the road markings within 11 restricted parking zones. As many of these zones had not been maintained adequately for some time, it was resulting in parking attendants being unable to issue penalty charge notices within some roads, therefore, impacting road safety, compliance and subsequent parking income. This refresh work remains ongoing.

To allow this work to continue within the remaining parking zones, it is estimated that £500,000 would be required next financial year to ensure that all parking zones have sufficient road markings in place to allow the enforcement of these assets.

7.2 Asset Condition

There is no accurate, up to date condition data available for the various street furniture and road marking asset for the full City. However, it can be assumed that the condition of the asset is deteriorating as reactive maintenance requirements are increasing and investment is limited.

Future condition assessments of this vast asset will be based upon sample data. A sample survey of two multi-member wards has been completed that captured traffic signs, lines and street furniture asset inventory and condition data. This data is to be prorated to provide an estimate of condition for the full Council area.

7.3 Traffic Signs, Lines & Street Furniture Investment Options

Increased and sustained investment would proactively target assets beyond or nearing the end of their useful life, improve asset condition and reduce ongoing maintenance costs.

Investment Option – Vehicle Safety Barrier Maintenance Programme

An additional annual revenue investment of £125k would allow for the effective and efficient management of vehicle safety barrier damaged in road traffic accidents. At present, there is no separate, identified budget for this work and money has to be reallocated from other asset budgets.

Additional Revenue Investment - £125k per Annum

Investment Option – Repair Assets in Need of Renewal

An additional revenue investment of £130k over a sustained period would allow for the repair or replacement of all street furniture identified as being in poor condition, including traffic signs, pedestrian barrier and bollards. This investment will improve road safety and remove unsightly road furniture.

Additional Revenue Investment - £130k per Annum

8.0 Structures

8.1 Asset Overview

Glasgow City Council is responsible for maintaining and managing 407 structures throughout the City.

These include listed structures, such as the Albert Bridge (built 1871), old masonry arch bridges such as Snuff Mill footbridge (built 1730) in Langside and modern iconic structures such as the Clyde Arc (built 2006) and the Govan Partick Footbridge (built 2024). All have differing maintenance requirements dependent upon their structural type and condition.

Glasgow's structures connect communities and ensure commerce allowing citizens and business easy access across rivers, railways and roads ensuring efficient travel and transportation.

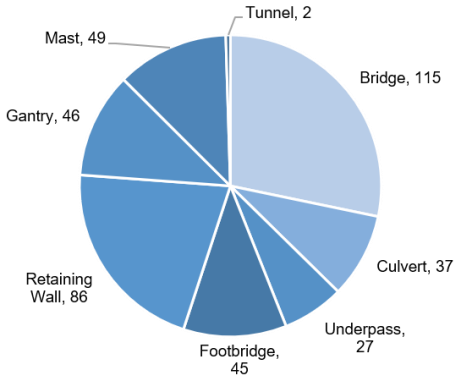


Figure 16.0 – Structures Asset

Impact of Recent Investment

Springburn Road bridge that carries the Springburn Expressway over the railway had badly corroded vehicle parapets. The repair work was carried out over a live railway on nightshifts. Parapet panels were replaced with corrosion resistant Aluzinc material.

Heavily weathered stonework on the Sixty Steps retaining wall was replaced. The cope stones were replaced with sandstone and dressed and cast-iron railings replaced to match existing. The wall is an Alexander Thomson wall and Category B listed structure which necessitated a high standard of workmanship.

Reactive maintenance this year included treating failures at two bridges;

1. Temple Bridge carries Bearsden Road over the Forth and Clyde Canal. Repairs were carried out following a corroded steel deck failing.
2. Pointhouse Bridge is on the Clydeside Expressway over the River Kelvin. The movement joint was repaired over three nightshifts following the nosing material breaking up forming a pothole.

After heavy rainfall river debris such as branches and tree trunks collected at six bridge piers. This could have led to scour that is a risk to the integrity of the bridge. The debris was cleared.

Granite parapets at Brock Bridge, Barrhead Road bridge and Riverford Road bridge required joints pointed with mortar and the surface jet washed. This improved the appearance and durability of the parapets. This work was part of the minor works contract that covered repairs to over 44 structures.

Barriers were constructed at Scotland Street Bridge and at Anniesland and Dumbarton Road Bridge to prevent vehicle loading on weak footways. This opened the footways on Dumbarton Road. On the same contract the railing and brickwork at Cumlodden Drive retaining wall was repaired. It was damaged by vehicle impact.

Routine maintenance was also carried out. Drainage systems were water jet cleaned at 41 structures. Vegetation was cleared at 31 structures. These contracts are cyclic maintenance with a frequency of two years. The new Sighthill Footbridge, Govan Partick Footbridge and South Portland Street Suspension Bridge were being targeted by vandals spraying graffiti, therefore, special arrangements were made for access to clean the graffiti off both structures.

Structural Assessments

A load assessment programme has been ongoing since the 1990s. 20 Council owned/maintained bridges failed the load assessment in addition to 63 privately owned bridges, mostly owned by Network Rail. These bridges either have weight restrictions or interim measures in place, such as vehicle containment barriers to keep traffic to stronger areas of the bridge.

8.2 Asset Condition

There are two key Bridge Stock Condition Indicators (BSCI) used to measure and compare the condition of the Scottish Council Bridge stock. They are measured from the best score of 100 to 0 for the worst and are given bands from Very Good to Very Poor. 'BSCI Average', is a measure of the overall condition of all the structures, and 'BSCI Critical' is a measure of the most deteriorated parts of the structures.

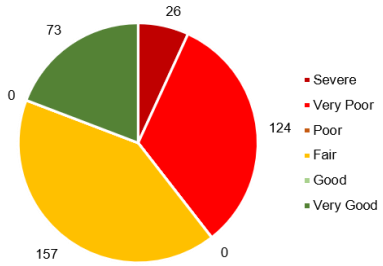


Figure 17.0 – Asset Condition

The Average Condition Indicator is 82. This equates to a condition rating of 'good'.

Glasgow's Critical Condition Indicator is 50. This value equates to a rating of 'poor'. Structures in very poor condition or lower have been investigated and remedial works prioritised. This condition factor does not indicate that the structures are unsafe; it indicates there is a potential for deterioration in condition of an element, or elements, of the structure if maintenance works are not carried out.

Maintenance priorities are targeted to ensure structures are safe. Many structures cannot be fully refurbished due to lack of funding and this is reflected in the condition indicator figures.

72 structures have been identified for future remedial programmes. The table below lists the top ten priorities.

1. Edinburgh Rd Bridge o/rail Refurbishment	£993k
2. Edinburgh Rd o/dis Bridge Repairs	£360k
3. Eldon St Bridge o/dis Rail	£195k
4. Hazelwood Road Footbridge Repairs	£300k
5. Queen Margaret Drive Bridge Repairs	£990k
6. Edmiston Drive Govan Bridge Repairs	£300k
7. Bellfield St Footbridge Replacement	£2.0m
8. Dumbarton Road Bridge o/tunnel Approaches Parapet Upgrade	£150k
9. Finnieston Overpass Refurbishment Phase 2	£3.5m

8.3 Structures Investment Options

It is estimated that £56m is required to strengthen weak bridges, upgrade parapets to current standards and address all maintenance needs identified during the cyclic inspections.

The investment options below are based on the whole structures stock. Individual structures assets vary greatly in size and value from retaining walls on the Clydeside Expressway with a depreciated replacement cost of £18k to £102m for George V Bridge. Their maintenance needs vary accordingly, and some years larger sums are required for larger projects.

Investment Option 1 – No Investment

In the absence of capital funding the condition of the structures stock will move towards very poor. The deterioration of these assets will accelerate until they become unsafe. In the short term there would be an increase in the number of weight restrictions and lane closures. In the longer-term bridges, and roads, would need to be closed.

20 Year Investment - £0m

Investment Option 2 – Steady State Investment

In order to halt deterioration it is estimated that an annual investment of £4.3m is required. With this level of funding the overall condition would not deteriorate. Existing measures including weight restrictions and lane closures would remain. It should be noted that this would be an average annual investment over the 20 year cycle as the spend profile would fluctuate year on year dependent on the nature of the works and structures being repaired.

20 Year Investment - £86m

Investment Option 3 – Structure Repair Plan

In order to strengthen and repair the structures in the worst condition, an annual investment of £5.3m is required for the 20 year cycle. Medium and long term programmes would allow the removal of lane & weight restrictions throughout the city, improve the Bridge Stock Condition Indicators and reduce journey times by HGVs through the City resulting in economic benefits.

20 Year Investment - £106m

Investment Option 4 – Structures Improvement Plan

To improve the condition and performance of the structures stock, including upgrading, would require an average annual capital investment of £7.3m over a 20-year period. Committing this level of investment would minimise whole life maintenance costs while prioritising the required levels of performance, i.e. removal of traffic restrictions from bridges across the network and would shift the structures to a stable ‘fair’ condition.

20 Year Investment - £146m

9.0 The Clyde Tunnel

9.1 Asset Overview

Strategic Importance

Glasgow City Council is responsible for the maintenance of the only road tunnel in Scotland. The Clyde Tunnel is the busiest stretch of non-trunk road in Scotland with approximately 80,000 vehicles using the Tunnel each day. An independent study assessing the economic value of the Tunnel concluded that it has local, regional, and national importance. It also concluded that, if the Tunnel was closed to vehicles, there would be an unacceptable severe impact on the movement of goods and people in the Clyde Valley affecting the viability of commerce, industry, and tourism.



Grant Aided Expenditure

The operational funding for Clyde Tunnel funding is not properly accounted for in the Grant Aided Expenditure (GAE) formula. Glasgow City Council receives the same amount of funding as a similar length of local road. This funding takes no account of the need for the Tunnel to be staffed 24/7, the maintenance of the two tunnel bores and safety equipment, the maintenance of the two ventilation buildings, operational control room and the office block. It currently costs in the region of £3m each year to operate and maintain the Clyde Tunnel with a shortfall of approximately £2.6m each year against what is currently received via GAE.

Traffic modelling confirmed that any unplanned closure of the Clyde Tunnel, due to lack of maintenance, would have an adverse socio-economic impact as well as a risk of reputational damage. The traffic modelling also confirmed the regional and national importance of this asset to the economy and its importance in serving the Queen Elizabeth University Hospital. Following a Scottish Government manifesto commitment at the last Scottish Elections, talks are ongoing with Transport Scotland with regards to the ongoing funding of the Clyde Tunnel.

Operational Requirements

There are strict regulations on the safety and management of road tunnels that require an operational workforce 24/7, 365 days a year. The workforce consists of one Tunnel Manager, one operations controller, one assistant operations controller, twelve network officers (three on shift at any one time) and one electrician/fitter. The appointment of a Tunnel Manager (Clyde Tunnel & Tidal Weir) was completed in November 2021 and provides professional oversight, compliance with the Road Tunnel Regulations 2007 and defends GCC's legislative position. Operation safety detail is included in Appendix 2 at the end of this report.

9.2 Asset Condition

Road Tunnel Structural Repairs, Cathodic Protection, Emergency Cross Passage & Approach Ramp Grouting

The

Section 9.2	"1968 on"

The Shieldhall Overpass was opened in 1968on the southern approach to the Clyde Tunnel and carries A739 Clyde Tunnel Expressway over A8 Shieldhall Road. The overpass is heavily trafficked and is vital to the transport network as it links the tunnel to the southwest of the city, Glasgow Airport and M8 traffic to the Queen Elizabeth University Hospital and areas north of the river

The structure is in very poor condition with extensive concrete spalling and exposed corroded reinforcement. A bridge load assessment resulted in a 7.5 tonne weight limit being put in place in January 2013.

Structural repairs and the replacement of the Tunnel's cathodic protection system are required. There is a risk that localised repairs will be needed to the reinforced concrete road deck which would lead to traffic congestion. Structural modification to the existing cross passage is needed so that it can become a compliant evacuation route. Approach ramp grouting repairs are required to improve condition and proper drainage. Once complete, plans are being made to resurface both tunnel bores. An estimated £15m investment will be required.

Operational Buildings

The outcome of a building condition survey carried out in 2015 concluded that the two ventilation buildings, operational control room and the office block require upgrading; structural repairs and remedial works are required so that they are wind and watertight. The condition of these operational buildings increases the risk of system failures that may require the Tunnel to be closed.

Capital funding of £500k was provided in 2023/24 to carry out some works with further funding of £1m in 2024/25 to complete required roof repairs to the workshop roof and to the north and south ventilation buildings. During these roof works, the intake cowling and exhaust ventilation ducts on the north and south ventilation buildings were found to have lost protective galvanised coating allowing significant sections of rust to form, this is contributing to water penetration into the buildings and fans. Funding is required to clean, repair and recoat the protective covering for these essential structural parts. An estimated £730k investment will be required.

Cycle & Pedestrian Tunnels

The existing wall mounted fluorescent compact lamp fittings are beyond their design life and the associated cabling requires to be replaced. To promote active travel and safe use of the cycle and pedestrian ways, the existing lamps and cabling are to be replaced with energy efficient LEDs, new cabling, CCTV & public address systems. This would greatly encourage active travel due to the more welcoming and safer environment. Capital Investment funding was provided in 2023/24 which has allowed AECOM consultants in mid-2024 to design LED lighting replacement throughout the pedestrian tunnel and service access. These works have been included with planned structural repairs. An estimated £700k investment will be required.

North & South Ventilation and Plant Rooms

The original ventilation installation from the 1960s requires to be overhauled. This is used to automatically control pollution within the road tunnel via carbon monoxide/visibility sensors. The ventilation is also an essential part of the fire control systems. An estimated £765k investment will be required.

Road Tunnel Fire Auto Fixed Fogging System, Gas Detection & Fire Ring Main

The integrated fire-safety upgrade will provide fire suppression, allowing more time for evacuation, supporting continued operation of the unaffected tunnel bore and enabling safer access for emergency responders. It will also connect to drainage systems and monitor flow rates across selectable fire zones.

Fixed detectors will be installed at strategic points throughout the tunnel to identify specified combustible, toxic and hazardous gases. Their importance will increase as electric vehicle use grows. Detector locations will account for tunnel geometry, ventilation, vehicle induced airflow, environmental conditions and likely areas of gas accumulation.

The existing fire-water ring main, embedded within the tunnel's concrete walls, will be surveyed and assessed for condition. The work will include hydraulic assessment and verification of the available flow and pressure. An estimated £5.8m investment will be required.

Clyde Tunnel Approach Ramps Grouting

Grouting repairs to the tunnel approach ramps are required to improve their condition and restore effective drainage. An estimated £345k investment will be required.

Road Tunnel Emergency Cross Passage

The existing cross-passage requires structural modification so that it can provide a compliant emergency evacuation route between the road tunnels. An estimated £3.6m investment will be required.

Clydeside Expressway Gantry Upgrades with associated ICT Infrastructure

Clydeside expressway gantries are 30 years old and will require upgrading or replacement. Cost estimates to utilise the existing gantry structures and upgrade with the inclusion of all associated ICT infrastructure. An estimated £6.8m investment will be required.

Replacement Drainage Pumps

The Clyde Tunnel drains any water reaching the road deck during heavy rainfall towards sumps below the pedestrian and cycleway tunnels. This is automatically pumped away, when necessary, by two sets of three pumps which activate in sequence to keep levels under control. This is monitored and controlled by the integration into our Supervisory Control and Data Acquisition system (SCADA) system. The previous surface mounted pumps were around twenty years old and failing. Several recent attempts to rebuild these pumps to the original design specification have failed as the pumps are still overheating under load. A costing exercise was carried out comparing costs of refurbishment against replacement with new pumps which was significantly cheaper and would prove more reliable. Revenue funding was used to replace three of the six pumps in late 2025, with plans to replace those remaining in 2027.

9.3 Clyde Tunnel Investment Requirements

The Tunnel and its approaches require substantial capital investment. The table below summarises prioritised investment needs.

Clyde Tunnel (Priority = Red/Amber/Green)	**Estimate (£m)**
Road Tunnel Structural Repairs, Cathodic Protection and Resurfacing	15.00
Clydeside Expressway Gantries & Associated ITS Equipment	6.80
Tunnel VMS, PAVA and Re-Broadcast	0.95
Cycle & Pedestrian Tunnels – Lighting	0.70
Road Tunnel LV Power Supply and Distribution Upgrade	1.20
Clyde Tunnel Fire Alarm System	0.50
Intake cowling & exhaust ventilation repairs	0.73
Road Tunnel Ventilation & plant rooms Upgrade	0.77
Road Tunnel Fire Auto Fixed Fogging System, Gas Detection & Fire Ring Main	5.80
Clyde Tunnel Approach Ramps Grouting	0.35
Road Tunnel Emergency Cross Passage	3.58
SCADA Integration CCTV & Intercoms Cycle & Pedestrian Tunnel	0.57
Clyde Tunnel Yard Security Gates & Intercom/CCTV	0.20
Total	**37.15**

10.0 Ex GCC Housing Infrastructure

10.1 Maintenance Obligations

The roads, footways and footpath infrastructure associated with the 2003 housing stock transfer to Glasgow Housing Association are not adopted as public and the Council has no statutory obligation under the Roads Scotland Act with regards to maintenance and replacement of these assets and consequently are not included in any safety inspection regime or considered for inclusion in investment programmes.

A number of these housing estates have been subsequently subject of secondary transfers and are the responsibility of Local Housing Associations and due to a lack of investment, this infrastructure is generally in poor condition and requires extensive investment to bring it up to an acceptable standard.

A recent legal interpretation of the 2003 transfer agreement has determined that although not statutorily obliged to maintain these assets, the Council corporately does have contractual (under the terms of the agreement) and a wider duty of care (as landowner) obligations to ensure that these assets are safe and maintained to a reasonable standard. At present NRS undertake reactive repairs to ensure that these assets remain safe, however without planned investment these assets continue to deteriorate and the requirement to undertake these repairs has increased resulting in dissatisfaction of residents, an increasing number of complaints and puts additional pressure on already stretched maintenance resources. It will not be feasible to continue to undertake these types of repairs forever and investment will be required to upgrade and replace these assets.

10.2 Scale of the Assets & Upgrade Costs

The roads infrastructure that serves the ex GCC Housing Estates is significant and comprises of approximately 44km of road (2% of existing network length) and 265km of footway and footpaths (8% of existing network length). A visual survey undertaken in 2015 estimated the cost to bring these roads and footpaths to acceptable standard. When updated to recent prices, this is now estimated to be in the region of £9.5m, although this will not take into account any likely deterioration that has occurred between 2015 and 2025.

A substantial lighting asset, estimated to be approximately 8,800 columns (12% of existing total), is also associated with the 2003 housing stock transfer. No condition data is available however in the absence of any investment it is likely that the majority of this will either have exceeded or be near to exceeding its 30-year service life and will be in need of replacement. As the asset continues to deteriorate it will pose an ongoing structural and electrical safety risk. The cost to completely replace the lighting asset associated with the Stock Transfer is estimated to be £32m.

10.3 Summary

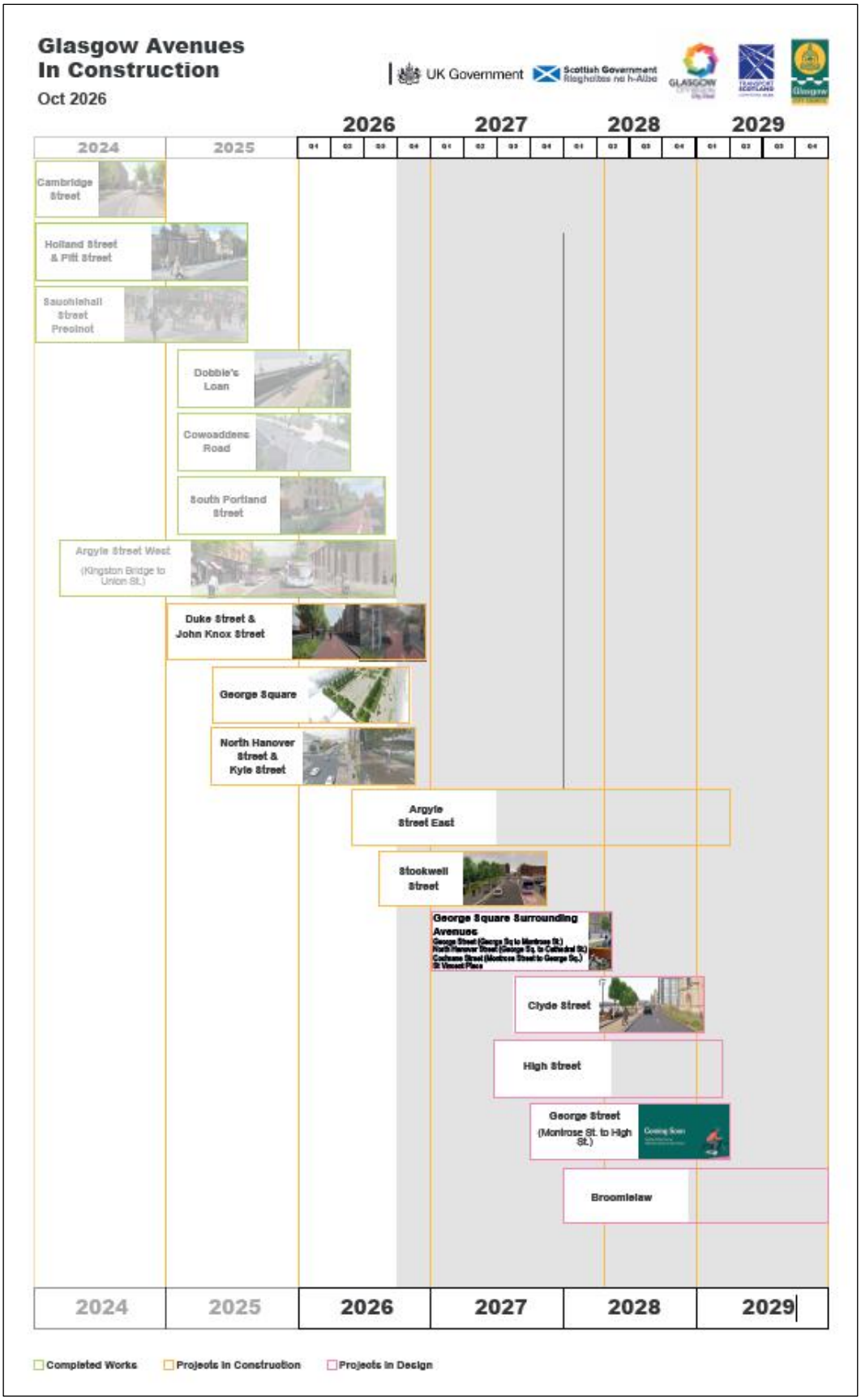
In the absence of significant investment to repair and upgrade these assets The Council is exposed to an ever-increasing maintenance liability that is likely to increase year on year, the likelihood is that costs to undertake reactive repairs will increase, customer satisfaction will decrease and complaints, Member Enquiries and public liability claims will also increase. To try and mitigate these risks we are proposing to establish cross department working group to review how these assets are maintained and explore options and opportunities to attract additional funding.

11.0 Recommended Investment Options

Asset Group	Investment Option	Projected Outcome
Carriageways	£123.5m Over 10 Years	An annual investment of £12.35m for 10 years would lead to the Glasgow road network being in the best condition since 2006.
Footways	£10.4m Over 5 Years	An annual investment of £2.08m would allow the existing coniditon of our footway network to be maintained.
Street Lighting	£20m Per Annum	An annual investment of £20m would progressivley reduce the backlog of ageing and high risk lighting infrastructure assets.
Traffic Signals	£31.5m Over 5 Years	An annual investment of £6.3m for 5 years will convert all traffic signal junctions with old incandescent technology to LED's and achieve full compliance with the Equality Act 2010.
Structures	£106m Over 20 Years	An annual investment of £5.3m over a 20 year period would allow for the structures in the worst condition to be targeted for repair.
Clyde Tunnel	£31.5m	An investment of £31.5m would allow for the repair of operational infrastructure and structural issues.

Asset Group	Additional Revenue Investment	Projected Outcome
Cycleways	£100k per annum	An additional investment of £100k would enable the required levels of gritting, sweeping, rain garden maintenance and surface maintenance to be carried out.
Traffic Signs, Lines and Street Furniture	£130k per annum	An additional investment of £130k over a sustained period would allow for the repair or replacement of all street furniture identified as being in poor condition

Appendix 1 – Glasgow Avenues in Construction



Appendix 2 – Clyde Tunnel Operational Safety

SCADA

The existing Supervisory Control and Data Acquisition system (SCADA) was replaced In July 2022 due to obsolete technology and lack of available replacement parts. This SCADA replacement has been installed in a new environmentally controlled server room and provides a modern system for control of pumps, ventilation, lighting, telephones, fire control, and VAID. Further sub-systems can be added later to the fibre backbone provide extra integrated functionality at a lower cost than a standalone implementation.

LED Lighting

LED Lighting installation in both bores of the Tunnel was completed in June 2022 and has been fully integrated into SCADA. This major improvement work provides modern, controllable energy efficient lighting that is compliant with current safety and design standards. Our electricity supplier has indicated a 50% saving has been achieved on our typical 94,000 kWh monthly usage for lighting at the Clyde Tunnel after introduction of LED Lighting.

Telephone System

The ageing analogue PABX internal & SOS telephone was updated in September 2022 to a modern IP internal telephony system with enhanced routing features, call recording, fault reporting and integration with SCADA systems.

VAID

The Clyde Tunnel has a variety of critical operational safety systems and equipment. A new Video Automated Incident Detection (VAID) system was installed in October 2021 and later integrated with the upgraded SCADA improving traffic control and incident detection. The system was extended further in July 2022 to enhance ramp & portal visibility. This replaced the old proprietary analogue VAID system that was beyond its design life and provides additional safety functionality and enhanced digital camera coverage along with incident recording and limited archiving of video.

Road Tunnel Fire Detection

Funding has been sourced to upgrade the obsolete ADT Fire Control system which is required to provide compliance with Design & Refurbishment Code of Practice for Roads Tunnels (CD352). An independent Fire Risk Assessment was carried out in September 2022 and plans are progressing to have a new Fire Control system installed mid-2026. This fire control system will also be fully integrated within the new SCADA system. An estimated £500k investment funding will be required.

Clyde Tunnel Yard

Increase of security required for Clyde Tunnel yard to avoid unwanted visitors by installation of remotely controlled vehicle gates and intercom/CCTV system. Additional CCTV was installed September 2025 with plans for gates & intercoms being discussed with contractors. An estimated £200k investment funding will be required.

Electric Vehicle Batteries

An emerging risk is that of potential for Electric Vehicle (EV) fires occurring within the tunnel. The risk of an EV fire within the tunnel is low however the impact is very high should it happen. A working group has been setup to investigate options to mitigate the risks to the public, staff and tunnel structures. We will look at engaging with specialist contractors to assist recovery of vehicles and procedures to deal with contaminated by-products from any fire. As the only road tunnel within Scotland, the working group will be taking the lead in developing new operational procedures and regular review as necessary.

Business Continuity Plan

The Glasgow Operations Centre (GOC) will be updated by end-2026 to include backup facilities for operational control of Clyde Tunnel to ensure business continuity as and when required. On-site backup and training facilities are also available within the meeting room at the Clyde Tunnel. This SCADA

integration will be regularly tested to ensure easy transition between operational sites and will be utilised during live exercises to ensure multi-agency responses are fully co-ordinated.

Public Address, Radio Re-broadcast, VMS

The Clyde Tunnel has no public address, voice alarm, Emergency Services Airwave Radio or public radio re-broadcast systems. There is a risk that should there be a major incident within the Tunnel, the efficient and safe management of the emergency services and evacuees could be compromised.

Variable message signing (VMS) and improved traffic control is required to provide compliance with Design & Refurbishment Code of Practice for Roads Tunnels (CD352). An estimated £950k investment funding will be required.

Mobile Telephony

Vodafone in conjunction with local contractors identified the Clyde Tunnel as critical infrastructure and will install upgraded “leaky feeder” cabling late-2025, this will provide mobile telephony signal inside the road tunnel and pedestrian tunnel. It is hoped that other mobile telephony providers will integrate into this system.

Road Tunnel Fire Protection

Comprehensive active fire protection installations are required to provide compliance with Design & Refurbishment Code of Practice for Roads Tunnels (CD352). Refer to the table in Section 9.3.

HV Power Supply

Scottish Power Energy Networks (SPEN) upgraded the dual power supplies (North & South) to the Clyde Tunnel from 6.6KV to 11KV High Voltage (HV) within their national programme in May 2022. The Clyde Tunnel’s cabling, switch gear and sub stations were earlier upgraded to accept the 11KV SPEN HV supply. A designated HV Authorised Person has been appointed, the upgrade works and authorised person improves the resilience of the HV electrical supply to the Clyde Tunnel.

LV Power Supply

Further works are still required on the Low Voltage (LV) Power Supply and Distribution which requires to be upgraded as this is an original installation from the early 1960s. See table in Section 9.3.