Item 2

21st November 2023

Glasgow City Council

Environment and Liveable Neighbourhoods City Policy Committee

Report by George Gillespie, Executive Director of Neighbourhoods, Regeneration and Sustainability

Contact: Christine Francis Ext: 78086

ROADS INFRASTRUCTURE STATUS & OPTIONS REPORT 2023

Purpose of Report:

To advise Committee of the status of Glasgow's roads infrastructure and present investment requirements and scenarios.

Recommendations:

It is recommended that committee notes the issues and investment options detailed in the Annual Status & Options Report 2023 (Appendix 1) as this information feeds into both the Council's budget setting process and capital programme monitoring

Ward No(s): N/A Citywide: ✓

Local member(s) advised: Yes ☐ No ✓ consulted: Yes ☐ No ✓

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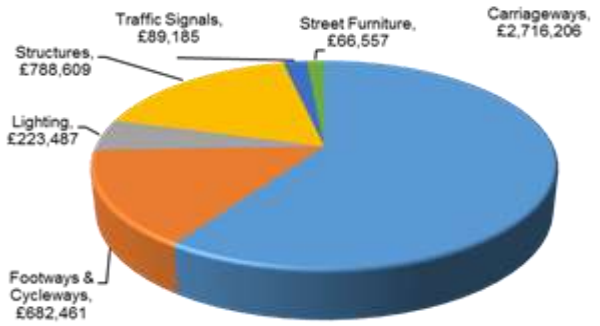
1. Introduction

1.1 Glasgow City Council is responsible for the operation and maintenance of a significant road network and associated infrastructure. Effective management of this asset is of vital importance as the transport of people and goods is essential to the economic and social wellbeing of the City and its citizens.

1.2 As part of the management of this significant asset, an annual review of the current condition is undertaken along with identifying options for investment. This is undertaken in line with national best practice produced by the Society of Chief Officers of Transportation in Scotland (SCOTS).

1.3 The Annual Status and Options Report (ASOR), Appendix 1, sets out the condition of our road related assets and provides a means of identifying and prioritising the overall funding needs of each of the asset categories. The options and scenarios presented aim to assist with the budget setting process and identify where investment should be prioritised.

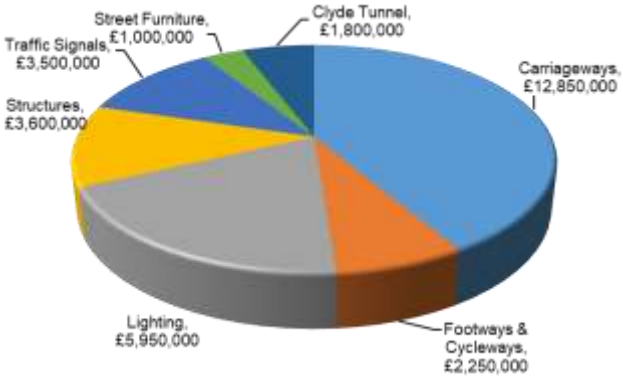
1.4 The cost of replacing all road infrastructure assets is currently estimated at £4.57bn. The pie chart below details the value of the assets broken down by asset type.



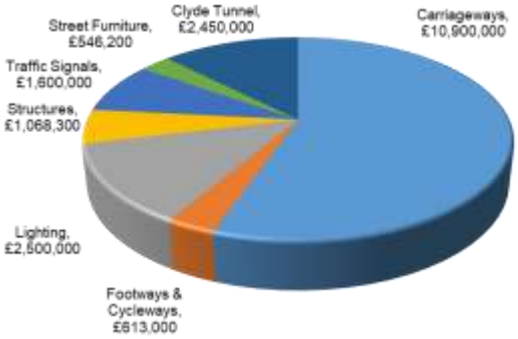
Gross Replacement Cost per Asset (£'000)

1.5 The level of investment required to maintain our roads infrastructure in its current condition (steady state) is estimated at £30.95m per year; this equates to an annual investment of 0.68% of the total asset value.

1.6 The pie charts below illustrate and compare the annual level of capital investment required to maintain the asset in its current condition against the current level of investment. It should be noted that the current investment only includes the additional budget allocation for the current year that can be attributed to works that will improve the condition of the asset and not cyclic or reactive maintenance budgets



Steady State Investment - £30.9m



Current Investment - £19.7m

1.7 It can be seen that current investment falls short of the estimated level required to maintain existing condition. This is true for each of the asset groups. The overall shortfall is approximately £11.2m per annum.

2. Asset Condition and Investment Options

2.1 The ASOR contains details of current asset condition and investment options for all of the road infrastructure asset categories. The following sections summarise the current condition indicators and preferred investment options for each of the main asset categories.

2.2 Carriageways:

- The latest condition data indicates that the condition of our carriageways remained at 71.7% of carriageways in acceptable condition.

- There is a direct correlation between customer satisfaction and public pothole reports. Extreme winter weather and more frequent summer rain events has a detrimental impact on the number of public pothole reports received and, therefore, customer satisfaction. The latest data indicates that satisfaction with roads maintenance has fallen to the lowest level since 2011 (17%) whilst we saw a large increase in public pothole reports to over 20,000.

- In recognition of the impact severe weather has on the number of potholes an additional £6m was allocated to the carriageway budget this year with a view to improving condition and public satisfaction in the coming years.

- Current level of investment remains below the steady state value. We are effectively managing the condition by undertaking shorter term preventative treatments which extend the life of the surface, but do not address any underlying structural issues.

- To enable Glasgow City Council to further improve its performance, an increase in investment to £13.95 million per annum, sustained over a five year period, would improve condition, reducing the ongoing cost of maintenance to £10.6 million per annum thereafter.

- The carriageway investment options have been estimated by entering the latest objective road condition data from the annual, national road condition survey into the SCOTS cost projection tool which allows us to predict the impact of various levels of investment while also making an allowance for the ongoing deterioration of the road network over time.

- It is significant to note that it is cheaper to intervene early in the material lifecycle than to wait until more extensive repairs are required and a fairly small increase in investment now, will save a substantial amount of money in the future.

2.3 Active Travel Infrastructure:

2.3.1 Footways

- Footways are vital for nearly all journeys, but are particularly important for the most vulnerable in society who may not have easy access to private or public transport. The most recent footway condition data indicates that 81.2% of our footways are in either a good or fair condition. 2.9% (approximately 92km) of our footways exhibit major or structural deterioration and 15.9% (approximately 498km) exhibit minor deterioration such as cracking.

- The condition of footways is the most significant factor in the number of public injury claims and 2022/23 saw the first increase in the number of footway claims settled since 2017. The current level of roads investment in footways remains below the steady state value. An annual investment of £3.8m per annum for five years would remove all footways exhibiting major defects and structural deterioration, whilst reducing the ongoing cost of maintenance to £1.95m per annum thereafter.

2.3.2 Cycle Infrastructure

- Over the past few years, there has been significant investment in new cycle network. Latest condition data indicates that 94% of the primary cycle network is in good or fair condition and this is reflective o

- Although no major Council Capital requirement has been identified for the cycle network infrastructure it should be noted that significant investment (detailed in Appendix 1) is already in place via a number of external streams to substantially increase the scale of the network in the coming years.

- The new infrastructure installed as part of the continued expansion of the cycle network and public realm areas, such as the Avenues Project, requires increased inspection, maintenance and winter gritting as well as different plant and machinery to maintain it. The specialist routine and cyclic maintenance requirements of this infrastructure, such as increased sweeping, gritting and more expensive materials, therefore creates an increased burden on resources and existing revenue budgets. It is key that future revenue budgets are increased as a result.

- An annual revenue investment of £75k would enable the required levels of gritting, sweeping and surface maintenance to be carried out at this point. As the network grows revenue budget will need to continue to be increased commensurately. Investment under this level would lead to a reduction in the condition of the cycle network.

2.4 Street Lighting:

- Approximately 41% of Glasgow's 74,000 street lighting columns remain beyond their Expected Service Life (ESL). This is a significant issue as the deteriorating condition of the infrastructure poses an increasing risk to public. To mitigate this risk an increased inspection regime has been implemented to identify and pro-actively remove columns in the poorest condition.

- A Risk Management Strategy has been implemented to ensure that ongoing repair and replacement (electrical and structural) is prioritised in accordance with the risk it poses and that those columns most at risk of failure are identified and replaced.

- Although the recent Street Lighting investment has been significant in comparison to the past, the level of investment is still below the £5.95m steady state figure required to maintain the infrastructure in its current condition. There is a need for increased investment as the existing levels do not address the ageing profile of the lighting assets. If we continue at the current level of investment, the age profile of the columns will continue to deteriorate and the risk of injury by column collapse or exposure to electrical wiring will increase. Over 58% of lighting columns will exceed their expected service life by 2033.

- Investment of approximately £6.67 million per annum over 15 years is required to replace up to 30,800 'at-risk' columns and associated cabling which will result in a substantial improvement in infrastructure condition

2.5 Traffic Signals:

- There are over 900 traffic signal installations in Glasgow with approximately 54% assessed as being in need of replacement.

- Current level of investment remains below the steady state value. An annual investment of £3.5m is required to maintain the current condition of the asset.

- An investment of £27.5 million over 5 years should be considered to replace all ageing installations and provide modern low energy LED lights along with fully compliant tactile paving and indicators.

2.6 Structures:

- The Council is responsible for maintaining 395 bridges and other structures throughout the City. Overall condition is rated as 'Fair', but the most critical elements are rated as 'Very Poor' which indicates that there is risk of deterioration if maintenance work is not undertaken.

- Maintenance priorities are targeted to ensure structures remain safe, serviceable and useable. The top priority remains the strengthening of the Shieldhall Overpass and £4.5million of funding has been secured for the financial year 2024/25.

- In order to strengthen and repair the structures in the worst condition, an annual investment of £4.5M is required for a 20 year cycle. Medium and long term programmes would allow the removal of lane and weight restrictions throughout the City and improve the condition of the asset.

2.7 Clyde Tunnel:

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

- The funding Glasgow receives for the operation and maintenance of the Clyde Tunnel is the same amount per kilometre as for a standard stretch of local road. Due to the operational and regulatory requirements of the Tunnel this equates to annual shortfall of approximately £820,000.

- The ASOR identifies the key prioritised investment needs for the Tunnel. The top priorities are a number of improvements of the cycle and pedestrian tunnels to provide a safe active travel route, the repair of the ventilation system and a power system upgrade.

3. Carbon Reduction

3.1 Several investment options and initiatives in the different asset categories have carbon reduction benefits;

- We are aiming to reduce the environmental impact of road surfacing operations. Much of the material removed is already recycled back into road materials and officers are actively pursuing the use of new 'warm mix' asphalts which significantly reduce the carbon footprint, potentially reduce disruption and improve road worker safety (through materials having reduced temperatures) whilst having no negative effect on long term durability.

- LED streetlights consume significantly less energy than traditional incandescent lamps. All column replacements will include the installation of new LED lanterns. This will improve the efficiency of the lighting network and contribute towards the Council's corporate sustainability objectives by reducing energy consumption and carbon emissions. However, it is worth noting that due to continually increasing energy costs, the reduction in energy consumption is not expected to lead to a reduction in energy costs. In fact, it is predicted that energy costs will continue to rise for the foreseeable future.

- Investment in LED traffic signals will similarly reduce energy consumption.
- New dual fueled low carbon interchangeable Winter Fleet.
- Trial of a Hydrogen fueled multifunctional tractor used for planing and de-icing.

4. Climate Adaptation

4.1 Flood risk and climate change present a significant environmental risk to the City. Climate change has implications for the road drainage systems, with higher intensity storms predicted to become more frequent. For example, during August 2020 Glasgow experienced a 1 in 600 year storm event which saw the number of blocked gully reports increase to 608, compared to 489 in August 2019, which was the wettest on record, and 160 in August 2018.

4.2 It should also be noted that, in certain circumstances, floods are not always due to blocked gullies. Other contributing factors include; the underlying capacity of the sewer network which is insufficient to cope with periods of intense rainfall, heavy leaf fall in autumn which covers gullies preventing floodwater from draining, although this impact can be reduced with the assistance of residents clearing leaves in the vicinity of their property, and surface water management techniques that divert floodwater into 'green corridors', flood plains or storage areas until a storm passes.

4.3 Sustainable Urban Drainage Systems (SUDS) provide an environmentally friendly method to manage surface water and aim to control the flow, volume and frequency of surface water and prevent pollution by intercepting silt and runoff. This new SUDS infrastructure, such as; rain gardens, swales, basins, ponds or tree pits, requires increased inspection and maintenance as well as different plant and machinery to maintain it. The specialist routine and cyclic maintenance requirements of this infrastructure, such as increased sweeping, gritting and more expensive materials, therefore creates an increased burden on resources and will require future revenue budgets to be increased as a result.

4.4 The completion of the cyclic drainage review has also allowed the new risk-based approach to gully cleaning to commence in conjunction with neighbourhood ‘weeks of action’. The system we have put in place is effective, but more expensive. To date, 13 neighbourhoods have been completed with 62% showing a reduction in the number of blocked gully reports once the work has been completed, despite a 153% increase in rainfall between 2021/22 and 2022/23.

5 Policy and Resource Implications

Resource Implications:

Financial:	Investment options are detailed within the report.
Legal:	None
Personnel:	None
Procurement:	None
Council Strategic Plan:	Investment in road infrastructure supports the delivery of sustainable transport and travel, becoming a net zero carbon city and the creation of safe, clean and thriving neighbourhoods. This report is aligned to CSP Grand Challenge 3 Mission 1 and Mission 2 as well as Grand Challenge 4 Mission 1.
Equality and Socio-Economic Impacts:	
Does the proposal support the Council's Equality Outcomes 2021-25? Please specify.	Yes
What are the potential equality impacts as a result of this report?	No significant impact, positive impact or negative impact.
Please highlight if the policy/proposal will help address socio-economic disadvantage.	The preferred investment options presented within the report are expected to have a positive impact, particularly on those with physical disability and sensory impairment.
Climate Impacts:	
Does the proposal support any Climate Plan actions? Please specify:	The proposal supports the Climate Plan through the improvement of infrastructure for walking and cycling. Under Theme 3 of the plan, the proposal will support decarbonisation of transport systems by helping to improve infrastructure for walking, cycling, wheeling and reducing the need to travel.
What are the potential climate impacts as a result of this proposal?	The impacts of this proposal will have a positive impact in assisting the Council in addressing climate issues.

Will the proposal contribute to Glasgow's net zero carbon target?	Yes the proposal will contribute to Glasgow's net zero carbon target.
Privacy and Data Protection Impacts:	None

6 Recommendations

6.1 It is recommended that committee notes the issues and investment options detailed in the Annual Status & Options Report 2023 (Appendix 1) as this information feeds into both the Council's budget setting process and capital programme monitoring.