

Report

Report to:	Community and Enterprise Resources Committee
Date of Meeting:	13 December 2022
Report by:	Executive Director (Community and Enterprise Resources)

Subject:	Roads Asset Management Plan 2022 - Update
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1. Purpose of Report

1.1. The purpose of the report is to: -

- ◆ provide an update on the Roads Asset Management Plan (RAMP) and outline the condition of roads and related infrastructure assets.

2. Recommendation(s)

2.1. The Committee is asked to approve the following recommendation(s):-

- (1) that the contents of this report be noted.

3. Background

3.1. The Executive Committee, at its meeting held on 22 September 2010, approved the implementation of an extended model for Corporate Asset Management from 2011. This included developing Asset Plans across several service areas, in line with CiPFA guidance, and summarised, under an overarching Corporate Asset Management Plan, which demonstrates how each area supports corporate objectives. The Service Areas are Property, Housing, ICT, Roads Infrastructure and Fleet.

3.2. The Corporate Asset Management Plan (AMP) is reviewed annually and, being the Council's single largest asset group, the Roads Asset Management Plan (RAMP) is a key element of the corporate document.

3.3. The development of RAMPs across Scotland provides an excellent example of collaborative working across all 32 councils. A 4-year project, in which all councils participated, was completed in 2016. The good progress achieved is now being developed further via a successor project in which all Scottish councils are again participating.

3.4. The main purpose of developing the RAMP is to: -

- ◆ Ensure we have a sound knowledge of the extent and condition of our main asset groups
- ◆ Understand where any knowledge gaps exist and consider how these might be addressed
- ◆ Understand the level of current investment on each asset group and the associated condition trend

3.5. The roads asset consists of the following main groups.

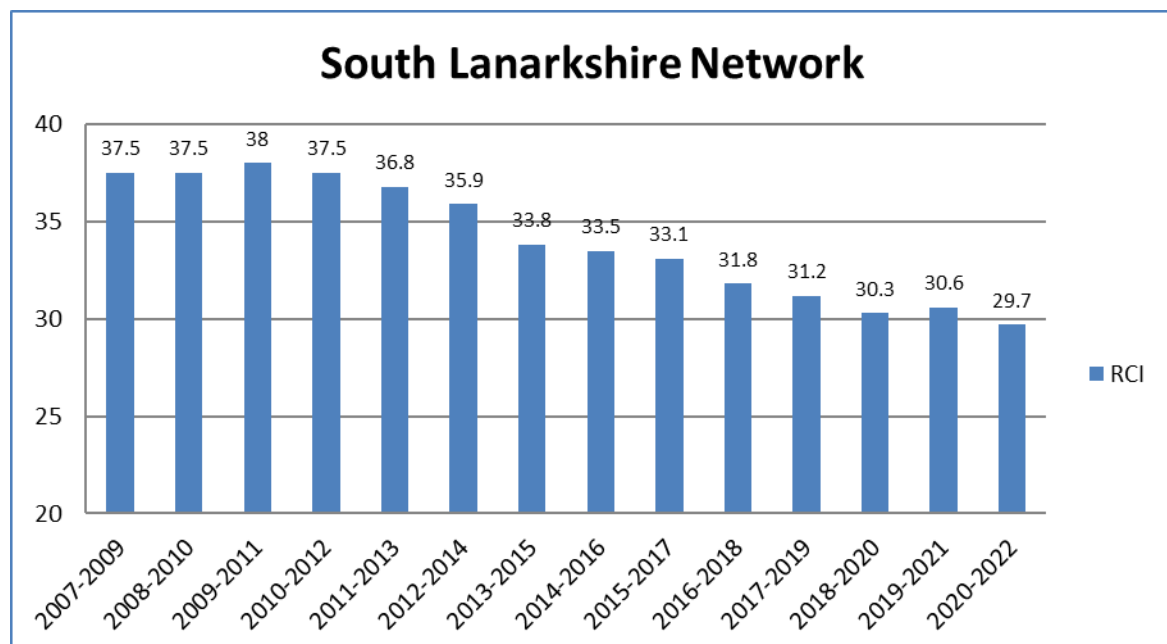
Asset Type	Asset Description and Components
Carriageway	The part of the road used by vehicles. This asset group includes drainage systems, lay-bys, bus lanes, traffic calming and verges.
Footways, Footpaths and Cycleways	Footways – used by pedestrians adjacent to the carriageway. Footpaths – used by pedestrians remote from the carriageway. Cycleways – used by cyclists and in some cases pedestrians. Pedestrianised Areas – generally located in town centres.
Structures	Primarily bridges and culverts with a span greater than 0.9 metres and retaining walls with minimum retained height of 1.35 metres.
Street Lighting	Includes lamps, columns, ducts, cabling, control pillars, illuminated road signs and bollards and festive lighting
Traffic Management Systems	Signalised junctions and pedestrian crossings, detection equipment, ducts, and cabling
Street Furniture	Vehicle restraint systems (safety fence)

4. Carriageway Asset

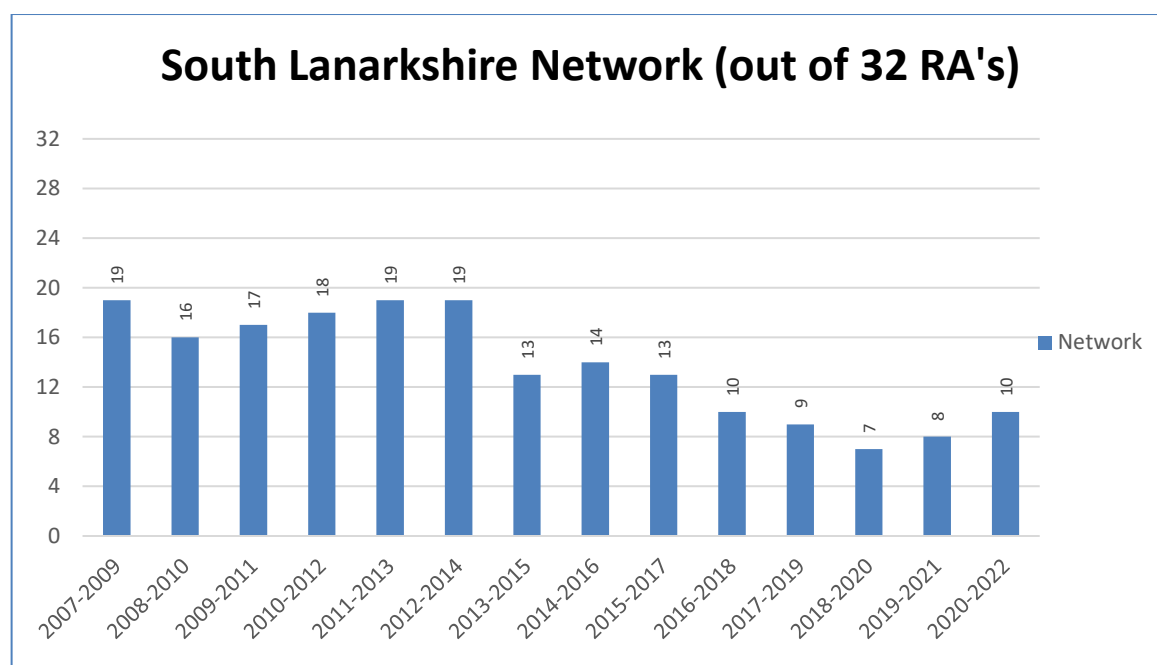
- 4.1. The Council is responsible for a total of 2,295 kilometres (1,426 miles) of carriageway. The Council's carriageway network is divided into four classifications A, B, C and Unclassified.
- 4.2. Inventory records are accurate for the lengths of road, however, the widths of the road are estimated based on classification of the road. Over time, these widths will be collected and added into our network management system and will aid with quantification and refinement of the valuation of the carriageway asset.
- 4.3. The carriageway asset Gross Replacement Cost of the recorded asset, as derived utilising the Asset Valuation tool developed by Society of Chief Officers of Transportation in Scotland (SCOTS), is £2.226 billion.
- 4.4. Safety inspections are carried out in accordance with the Guidance Document for Road Safety Inspections and Defect Categorisations. This manual takes cognisance of the guidance contained within Well Managed Highway Infrastructure Code of Practice. These safety inspections are carried out on a monthly, three monthly or annual basis depending on the hierarchy of the carriageway.
- 4.5. In addition to these inspections, regulatory inspections to deliver our obligations under the New Roads and Street Works Act 1991 (NRSWA) and the Transport Scotland Act 2005 (2019 legislation currently being implemented) are also carried out.
- 4.6. Annually, the Scottish Roads Maintenance Condition Survey (SRMCS) is undertaken on our road network by SCOTS nominated contractor WDM Ltd. This survey tackles 100% of our A class carriageways in one direction, with the other direction being surveyed the following year. 50% of our B and C class roads are surveyed with the whole of the B and C class network being surveyed over a four-year period. Only 10% of our unclassified road network is completed each year. This survey produces our

Road Condition Index (RCI) based on the percentages above and applied to the whole of the network. The survey identifies for each 10-metre section of road whether it falls into the red category (requires maintenance) amber (should be considered for maintenance) or green (serviceable). The RCI is published each year as a national performance indicator.

- 4.7. In 2017, SCOTS requested that the backlog for carriageway maintenance across Scotland was recalculated by WDM Ltd, based on the latest SRMCS survey data at the time. The backlog calculation for our road network was £90.420m in 2018. This is the sum of money required to be invested in a single year to bring our road network back to a serviceable standard. This backlog figure has reduced from £137m in 2013, and this is to be welcomed. The backlog figure is due to be updated in 2023.
- 4.8. The condition of our carriageways has improved as outlined below and, although there was a slight regression over the 2019-2021 period, a further improvement was recorded for the latest survey going below 30% for the first time. The RCI is the combined value of the red and amber categories referenced at 4.6 and, overall, a lower figure is better.



- 4.9. Full tables of the Road Condition Index for A, B, C and Unclassified roads is shown in Appendix A
- 4.10. Our position in Scotland in terms of RCI ranking has improved as shown below from 19th reported over the period 2012-14 to 10th over the period 2020-22, noting a year on year drop from 8th over the 2019-21 period. Once again, the lower figure indicates the better performance.



- 4.11. An independent assessment was undertaken by WDM Ltd to calculate the Steady State cost for South Lanarkshire's network in 2018. The steady state is the amount of investment required to maintain the road network in its current condition. Based on the network condition in 2018, the steady state figure, which is based upon the needs/condition of the carriageway network, is £12.500m.
- 4.12. It should be recognised that 4 years on, and given significant and observed increases in construction costs, that the equivalent steady state figure is likely to have increased, although any increase may be offset slightly by an improving network across some category of roads. This figure, both in terms of needs and expected cost, was scheduled to be updated this financial year, but this is now expected during 2023-2024.
- 4.13. It should be borne in mind that the steady state figure is an estimate, rather than an actual figure and it is important to note that the need to improve the condition of the road network is assessed on an individual basis to support and justify expenditure. It must also be noted that the current steady state figure does not take account of the significant construction inflation that the industry is presently encountering. In simple terms, projects are costing much more than before, and the equivalent scale of works are not presently possible with the same level of investment.
- 4.14. During this financial year 2022-2023, approximately £9.765m is being directed towards carriageway improvements.

5. Footway Asset

- 5.1. The Council is responsible for a total of 2,425 kilometres (1,506 miles) of footway. It should be noted that this figure represents adopted footways/footpaths only and there are other footpaths that are maintained by other parts of the Council or third parties. Most of the adopted footway network is contained within the urban area.
- 5.2. The length of footway network is an estimated length based on there being two footways on each length of carriageway within the urban area. All the footways have been estimated as having a 2-metre width. The footway asset Gross Replacement Cost of the recorded asset is estimated at £612.7m.

- 5.3. Inspection arrangements and maintenance categories are similar to those for carriageways in terms of the nature of inspections, but the frequencies can vary depending on the hierarchy.
- 5.4. There is no national condition survey for footways similar to that which is undertaken for carriageways. Instead, priorities for resurfacing are established via the local knowledge of our officers considering the condition of a footway and its level of use.
- 5.5. A sample survey of 59.2% of our estimated footway length was undertaken in calendar years 2014, 2015, 2016 and 2017 which indicated that 16.2% of our footways should be considered for maintenance purposes. This figure is likely to have increased since the sample survey.
- 5.6. The estimated steady state figure for footway maintenance is £0.800m and we are currently investing above this level.
- 5.7. Following the participatory budgeting investment in roads and footpaths completed in 2021/2022, a second phase of investment was agreed that will focus on the improvement of pavements, making our towns and villages safer for pedestrians, supporting healthy lifestyles through physical activity and improving the look and feel of our environment
- 5.8. In addition to £1.000m funding which has been allocated from our roads investment programme for prioritised footway improvements through the participatory budgeting process, a further £2.500m has been identified to support footway and footpath improvements which are part of the adopted footway network. This investment of £3.500m for 2022/2023 will continue the Council's commitment to prioritising investment in roads infrastructure by directing additional funds to help improve the condition of our footways and footpaths. Some of £3.500m will carry forward in 2023/2024.

6. Lighting Asset

- 6.1. The Council has 60,923 lighting columns, 66,017 luminaires, 2,260 Control Pillars and an estimated 1,976 kilometres (1228 miles) of cabling. Inventory records for lighting columns, luminaires and control pillars are accurate, however, inventory of the cabling network and knowledge of its condition is limited as most of it is underground.
- 6.2. The percentage of lighting columns exceeding their design life is 35.7%, giving the Council the sixth oldest lighting column stock in Scotland. The cost to replace all these columns at current rates would be £37.26 million. The cost to maintain the lighting asset in its current condition (steady state) is £1.00million. This should be considered relative to existing capital and revenue funding totalling £0.640m.
- 6.3. The trend in columns beyond their design life continues to improve from 48% in 2015 to 35.7% at present. This progress is primarily a consequence of the column renewal programme which was undertaken in parallel with the LED installation programme, commencing in 2015 and being completed over 3 years. This programme saw some 60,000 lighting units converted to energy saving LEDs and some 7,250 of our oldest lighting columns replaced.

7. Structures Asset

- 7.1. The Council is responsible for a total of 778 structures which includes road bridges, footbridges, culverts, and subways together with a currently unquantified number of road related retaining walls.

- 7.2. Good records are held for most of these assets, however, there are currently limited records held by the Council in respect of road related retaining walls.
- 7.3. The current Gross Replacement Cost of the Structures asset is estimated at £507.9m. This figure does not include the replacement cost of any road related retaining walls.
- 7.4. Bridge inspections are carried out in accordance with the guidance and recommendations of the "Well Managed Highway Infrastructure: A Code of Practice" published by the UK Roads Liaison Group. This recently published Code encourages the use of a risk-based approach toward identifying bridge inspection intervals. At present, General Inspections are carried out every two years and Principal Inspections every six years on all structures with a span more than 0.9m. More frequent Special Inspections are carried out on structures where more specific monitoring of condition is appropriate (e.g. where assessments have indicated potential capacity issues).
- 7.5. Routine repairs that are identified during the bridge inspection process are prioritised considering the severity and extent of the defect which has been observed.
- 7.6. There are 102 steel bridges across the structures asset. Properly specified and applied protective paint systems are expensive but serve to prolong the life span of steel structures and can substantially extend intervals between maintenance and repair operations. The introduction of a formalised maintenance painting regime for our steel bridges would be of significant benefit. Currently, this work is tackled on a needs basis as funding permits.
- 7.7. Investment during 2021/2022 on bridge maintenance and renewal was £860,000. This figure represents a 52% increase upon the 2019/2020 budget allocation but it should be noted that this includes targeted investment at two discrete major bridge replacement projects which extended into 2021/2022. The cost to maintain the structures asset in its current condition (steady state) is £5.230m.
- 7.8. In addition to the inspection process discussed above, a national assessment programme, carried out to determine the suitability (i.e. strength) of the bridge stock for the introduction of 40/44 tonne vehicles onto the road network, revealed 123 bridges to have a load bearing capacity below current standards. A comprehensive bridge strengthening programme has, in recent years, seen excellent progress in addressing the Council's weak bridges. Of the 123 bridges which failed the assessment, only 16 remain to be addressed. These are subject to an enhanced monitoring and inspection regime.
- 7.9. The bridge assessment process included a risk analysis of vehicle containment characteristics at each bridge location. The results of the analysis revealed that, in terms of risk and containment, parapets on 8% of the Council's bridge stock require to be upgraded. A programme to improve vehicle containment capability at these structures has been initiated. Due to competing priorities, there were no containment upgrades undertaken in 2020/2021 and 52 structures remain outstanding as a priority for the implementation of improvement measures.
- 7.10. If current funding levels continue to be provided and depending on the nature and priority afforded to other commitments arising, the completion of several containment improvement schemes per year is anticipated. Again, in terms of risk and containment, the need for upgrading works at the remaining 92% of bridges is currently considered low. It should be recognised that some of these parapets do have containment issues, but the level of risk is low given the site characteristics.

- 7.11. The condition of all highway structures is determined following a General or Principal Inspection and rated in accordance with the ADEPT Bridge Condition Index (BCI) Guidance. BCI values are generated from ratings apportioned to the severity and extent of defects recorded during a bridge inspection and can be interpreted broadly as the percentage condition score of a bridge or a group of bridges. Separate BCI figures are derived to account for the condition of all structural elements of a bridge (BCI_{av}) and for the condition of those elements defined as being of very high importance (BCI_{crit}). The condition indicators for the entire bridge stock as a single group over the past six years are as follows, noting the higher figure indicates better condition.

Year	BCI_{av}	BCI_{crit}
2013-14	85.68	74.60
2014-15	84.91	75.72
2015-16	84.49	75.14
2016-17	84.09	73.02
2017-18	83.83	72.20
2018-19	83.68	72.11
2019-20	82.51	70.39
2020-21	81.87	68.76
2021-22	81.21	68.48

- 7.12. It may be observed from the second and third columns in the above table that BCI_{av} and BCI_{crit} values for the entire asset fluctuate slightly over time but have remained within the range of “good condition” (BCI value 80-90) and “fair condition” (BCI value 65-80) respectively throughout the last six years. It should be noted, however, that there has been a regression in the value of both indicators over the past 6 years which represents an overall and ongoing deterioration in asset condition within that time.
- 7.13. The assembly of a register of road related retaining walls within South Lanarkshire was commenced in 2014/15. The retaining wall asset will be of significant magnitude and the formation of the database which will contain several thousand items is a long-term commitment for the Council. The code of practice suggests that all road related retaining walls should be subject to the same type of inspection regime as is currently carried out on bridges and culverts (see section 7.4).

8. Traffic Signals

- 8.1. The Council is responsible for 231 sets of traffic signals and controlled pedestrian crossings. The numbers and different types of installations are listed below: -
- ◆ 110 Traffic Signals
 - ◆ 73 Puffins
 - ◆ 15 Pelicans
 - ◆ 33 Toucans
- 8.2. South Lanarkshire has an ageing traffic signal and pedestrian crossing asset base, with many utilising older and energy inefficient technology. In recent years, the Council has initiated a programme to replace older traffic signals and pedestrian crossings with modern ones. The replacement of an average traffic signal junction costs in the region of £275k and a pedestrian crossing around £77k. The existing level of funding generally allows for the renewal of one traffic signal junction per year or 4 pedestrian crossings.

- 8.3. External funding does allow other infrastructure to be renewed but this is a changing situation as it is dependent on the availability of funding and our ability for a project to meet grant conditions. These new installations both maximise the safety benefits to all road users and improve the flow of traffic using modern computer control systems such as Microprocessor Optimised Vehicle Actuation (MOVA) and Split Cycle Offset Optimisation Technique (SCOOT).
- 8.4. Typically, Roads and Transportation Services receive and respond to approximately 1,500 traffic signal faults annually. In 2020/2021, officers dealt with 1,289 faults and, in 2021/2022, this decreased to 1,140.
- 8.5. The gross replacement value of all traffic signal apparatus is currently estimated at a value of £33.6m. The cost to maintain the traffic signal asset in its current condition (steady state) is £1.500m.
- 8.6. In 2022/2023, funding of around £0.975m will be directed towards investment in traffic signal infrastructure. This comprises some £0.8m of external funding and £175k of capital funding.
- 8.7. At present, the Council is developing a 15-year lifecycle plan, although the replacement of each asset is still assessed on an individual needs basis. Any plan longer than this would result in reliability issues arising and, over recent years, some installations have failed, resulting in emergency replacement works being necessary. The Council currently has 34 sets of traffic signals and 56 pedestrian crossings (representing 35% of our assets) that are 15 years old or older. This is an increase of 5 sets of traffic signals and the status quo for pedestrian crossings compared to the previous year.
- 8.8. It should also be noted that there is no guarantee that, after September 2023, there will be a supply of incandescent lamps due to an EU directive prohibiting their use and with the reducing demand, lighting manufactures ceasing their manufacture. The Council currently has supply for 22 sets of traffic signals and 45 pedestrian crossings that use these incandescent lamps.
- 8.9. The age of the equipment is increasing quicker than replacement equipment is being installed, therefore, the trend for the overall condition of the asset continues to regress each year. While these older installations continue to operate, the risk of them failing is higher than at other locations with potentially greater impact if they fail during a busy period of the year.

9. Street Furniture - Vehicle Restraint Systems

- 9.1. There are currently 515 vehicle restraint systems, totalling 43.3 Km. Approximately 20% of the systems have reached the end of their serviceable life (life expired) due to having timber posts suffering from rot as opposed to steel posts. Some systems have also suffered from extensive corrosion.
- 9.2. Approximately 10% of existing systems are damaged, and an estimated 95% of the systems surveyed would not comply with current design standards, although there is no need to retrospectively replace older installations unless they have suffered significant damage and need replacement. Repairs are prioritised in line with available funding.

- 9.3. The estimated gross replacement cost of the vehicle restraint systems which would bring the systems up to current standards is £12.97million. The estimated cost to replace older systems is £8.6million. The estimated annual cost to maintain the asset in its current condition (steady state) is £0.4million.

10. Conclusions and Summary

- 10.1. Roads and related infrastructure keep our communities and businesses connected. Businesses use it to deliver goods and services, buses travel along it, people use it to travel to work and communities to access shopping, learning, healthcare, and active travel priorities. This paper sets out the overall condition of this infrastructure and important matters to note are as follows:

- ◆ Carriageways: This has generally been improving in condition because of previous investment decisions, with a slight regression in RCI figure in 2020, recovering slightly again in 2021.
- ◆ Footways / Footpaths: At least 16.2% of our network requires to be considered for maintenance but it should be noted that investment has been increased significantly in recent years.
- ◆ Structures: Bridge condition is generally good to fair although the overall outlook is one of slow deterioration. Good progress has been made in dealing with bridges assessed as being inadequate for current loading standard, however, greater investment is required in the maintenance of the bridge stock to arrest the general deterioration in condition and continuing attention is additionally required to the many bridges with sub-standard parapets. The specific investment commitment to replace two bridges in Clydesdale is welcomed noting the need to significantly increase funding for the Clyde Bridge project.
- ◆ Street Lighting: Recent investment has reduced energy use by approximately half and replaced 7,253 of the oldest lighting columns representing significant progress. Current investment is focusing on targeting columns over their critical age, to maintain a 'steady state' position. The percentage of lighting columns exceeding their design life is 35.7%.
- ◆ Traffic Management Systems: The overall condition of traffic signal equipment is deteriorating as the current replacement programme is not sufficient to upgrade the number of installations that are greater than 15 years in age.
- ◆ Street Furniture: The condition of vehicle restraint systems is such that a significant number are beyond their design life and require to be improved. A prioritised programme of sustained investment will be required.

11. Employee Implications

- 11.1. There are no employee implications associated with this report.

12. Financial Implications

- 12.1. Investment in roads and related infrastructure will be necessary to lock in and retain the benefits of the already significant investment levels to date. Capital programmes for future years will, therefore, consider necessary investment opportunities for the asset groups discussed above.

- 12.2. However, as noted earlier, projects are costing much more than before, and the equivalent scale of works are not presently possible with the same level of investment. This point must be considered should the overall condition of the asset groups be expected, at least, to be maintained to the same level. Moving forward, pressures across Council budgets are likely to impact on the level of funding that can, in the short term, continue to be directed at these road infrastructure asset groups.
- 12.3. Similarly, opportunities will be taken to secure and lever in new sources of funding including external partner funding where possible. Significant success has already been achieved in securing external funding for traffic signal and active travel investment
- 13. Climate Change, Sustainability and Environmental Implications**
- 13.1. Policy and asset management directed at maintaining, improving, or making road and transport infrastructure safe and resilient is essential to support economic and sustainability priorities.
- 14. Other Implications**
- 14.1. There are no other implications or risk in relation to the information contained within this report.
- 15. Equality Impact Arrangements and Consultation Arrangements**
- 15.1. This report does not introduce a new policy, function or strategy or recommend a change to an existing policy, function, or strategy and, therefore, no impact assessment is required.

David Booth
Executive Director (Community and Enterprise Resources)

21 November 2022

Link(s) to Council Values/Priorities/Outcomes

Values

- ◆ Focused on people and their needs
- ◆ Working with and respecting others
- ◆ Accountable, effective, efficient and transparent
- ◆ Ambitious, self-aware and improving
- ◆ Fair, open and sustainable

Priorities

- ◆ We will work to put people first and reduce inequality
- ◆ We will work towards a sustainable future in sustainable places
- ◆ We will work to recover, progress and improve

Outcomes

- ◆ Good quality, suitable and sustainable places to live
- ◆ Thriving business, fair jobs and vibrant town centres
- ◆ Caring, connected, sustainable communities
- ◆ People live the healthiest lives possible

Previous References

- ♦ Community and Enterprise Resources Committee - 7 December 2021

List of Background Papers

- ♦ Roads Asset Management Plan – 2022 Update

Contact for Further Information

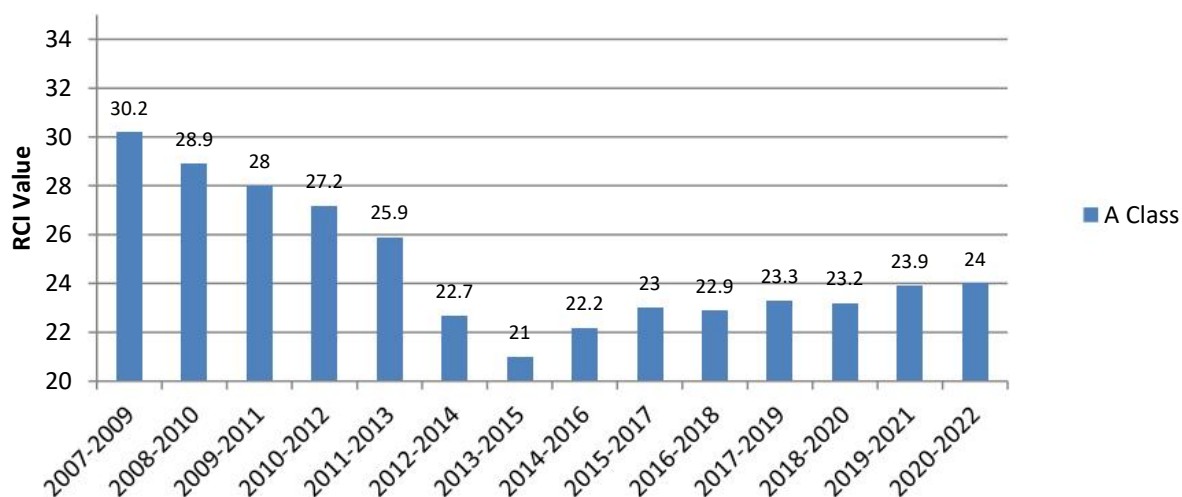
If you would like to inspect the background papers or want further information, please contact:
Colin Park, Head of Roads, Transportation and Fleet Services

Tel: 07795 090 494

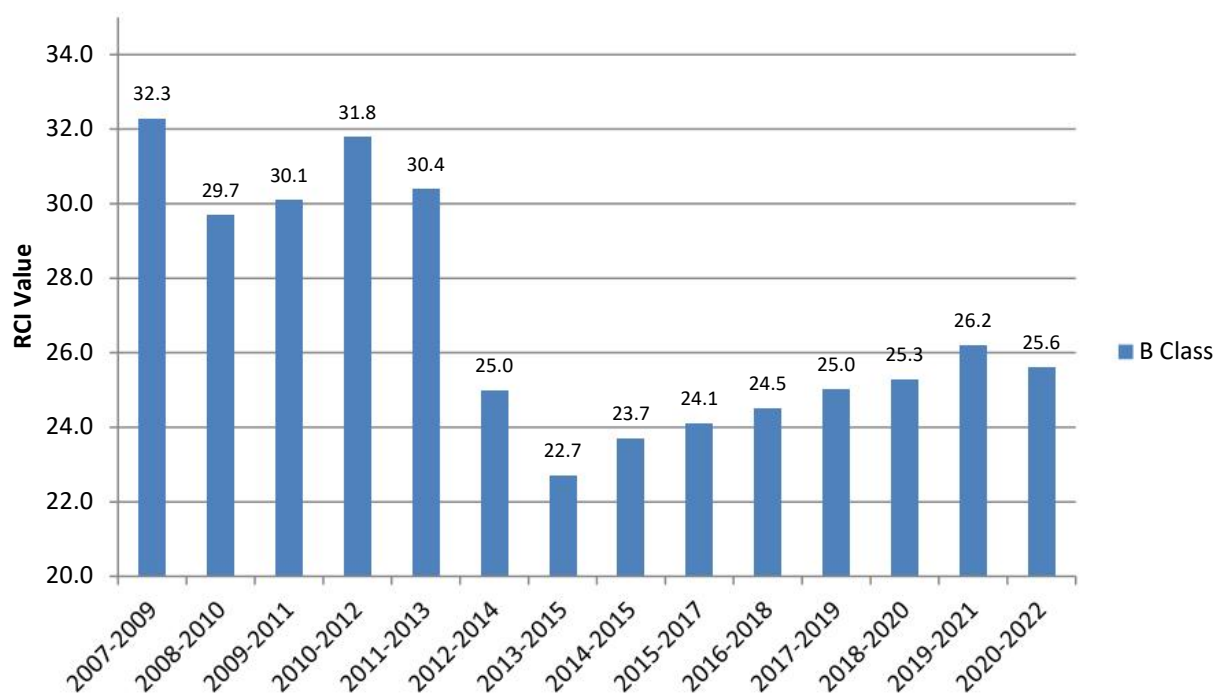
E-mail: colin.park@southlanarkshire.gov.uk

RCI tables for A, B, C and Unclassified Roads

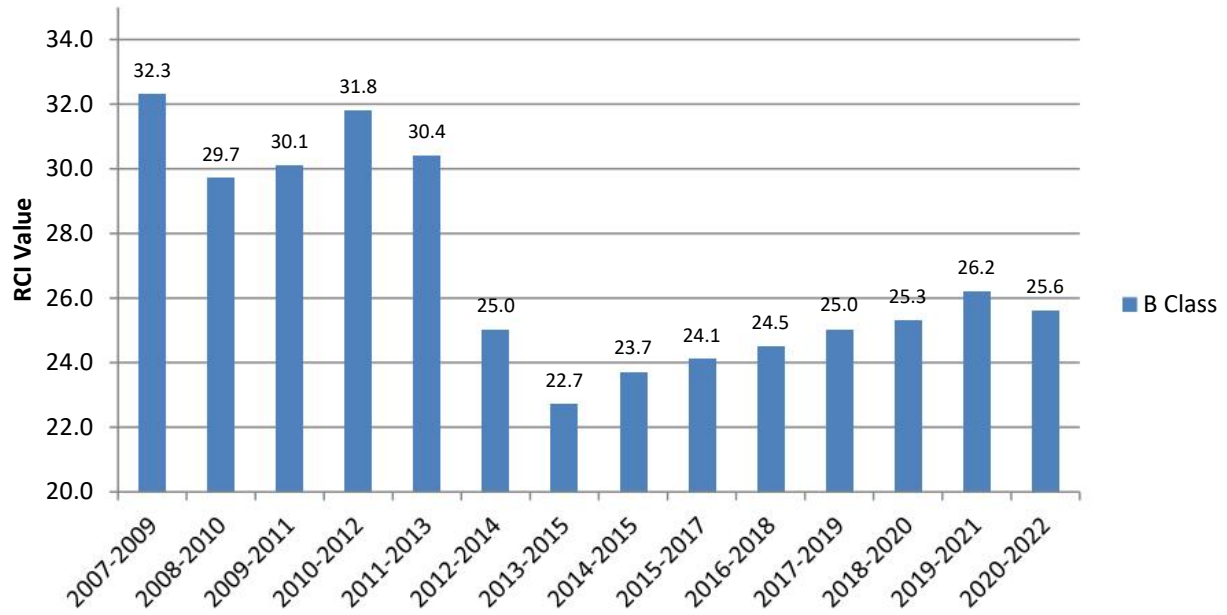
South Lanarkshire A Class



South Lanarkshire B Class



South Lanarkshire B Class



South Lanarkshire Unclassified

