Transport and Environment Committee

10.00am, Thursday, 18 May 2023

Response to motion by Councillor Lang - Surface Treatments of Carriageways

Executive/routine	**Executive**
Wards	**All**
Council Commitments	

1. Recommendations

1.1 Transport and Environment Committee is asked to note the content of the report, including:

1.1.1 The rational for introducing surface treatments in Edinburgh;

1.1.2 The issues with the surface treatment programme in 2022/2023; and

1.1.3 The use of alternative materials in future capital programmes.

1.2 Committee is asked to refer this report to Governance, Risk and Best Value Committee, in line with the motion agreed by the Council on 9 February 2023.

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Report

Response to motion by Councillor Lang - Surface Treatments of Carriageways

2. Executive Summary

2.1 This report seeks to inform members on the suitability of Surface Treatments in Edinburgh and the methodology used to select areas of investment suitable for surface treatments. The report also seeks to demonstrate that surface treatments represent best value in achieve the best road condition for the available budget.

3. Background

3.1 On 9 February 2023, the Council approved an adjusted motion by Councillor Lang on Surface Treatments of Carriageways. The motion requested a report to Governance, Risk and Best Value Committee in two cycles on whether the Council's spend on surface treatment continued to represent best value given the issues which had arisen and for a report to Transport and Environment Committee in three cycles on the feasibility of assessing and testing sustainable road surfacing in order to determine the viability and cost effectiveness of such technologies.

3.2 Edinburgh re-introduced surface treatments to all road categories in 2016/2017. Surface treatments are preventative maintenance treatments that aim to slow deterioration on carriageways.

3.3 A methodology of prioritisation, approved by Transport and Environment Committee in January 2016, is used to identify which projects should be included in the surface treatments programme.

4. Main report

Roads Maintenance Condition Survey

4.1 The condition of Edinburgh's roads is assessed annually as part of the Scottish Roads Maintenance Condition Survey (SRMCS), an independent survey of road conditions in all 32 Scottish local authorities. The survey provides each local authority with a Road Condition Index (RCI), which identifies the percentage of

roads in need of maintenance. Edinburgh's Road Condition Index (RCI) has improved from 36.2% in 2020/2022 to 35.0% in 2021/2023.

4.2 The RCI consists of three categories of deterioration: Red, Amber 1 and Amber 2, with roads in the red category being in the worst condition. Currently the majority of carriageways prioritised for investment fall within the red category. Owing to the cost of these treatments, treating the red category roads only results in a small number of carriageway resurfacing or strengthening schemes being carried out each year.

Transport Asset Management Plan

4.3 As part of the modelling work for the Transport Asset Management Plan (TAMP), alternative scenarios for capital investment were developed. These scenarios are predicated on a more preventative approach, aimed at roads that are in the Amber condition categories. Investment on these roads require less expensive treatments (e.g. surface dressing), which would improve the condition of the carriageway and delay the need for resurfacing or strengthening work. Owing to the cheaper cost of the treatments required on Amber condition roads, more roads could be treated each financial year.

4.4 This preventative approach treats more roads within the amber condition categories and less within the red, thus significantly slowing their deterioration and negating the need for more robust, expensive treatments.

Treatment

4.5 Edinburgh currently uses two surface treatments across the carriageway network, Surface Dressing and Micro Asphalt. The treatment type is agreed on-site by the in-house design team and the surface dressing contractor. The level of pre-patching required is also agreed on-site with the contractor.

4.6 Surface treatments are the most widely used surfacing methods by Scottish Local Authorities. This accounted for 57% of all carriageway area treated in Scotland in 2021/2022. Surface dressing alone accounted for 55% of the carriageway area treated. This highlights the reliance and confidence road authorities have in the effectiveness and suitability of surface treatments.

4.7 Surface treatments extend the design life of a road by a minimum of five to seven years before it should be considered again for treatment. However, in most cases this will be exceeded, in particular, on unclassified roads will low traffic volumes.

4.8 Surface treatments are around five times less expensive than resurfacing treatments and around nine times less expensive than strengthen treatments.

4.9 Edinburgh has benefited greatly from the re-introduction of surface treatments in slowing deterioration across the network and, in particular on the unclassified Network (primarily residential streets). The unclassified network accounts for 80% of Edinburgh's carriageway network and it would not have been possible to treat as many roads using resurfacing and strengthening treatments.

4.10 Since surface treatments were introduced in 2016 over 700,000m^2 of carriageway has been treated with surface treatments.

4.11 Due to the nature of surface treatments and the weather window available, there have been a small number of scheme failures where defects have appeared on roads sooner that would have been expected. These defects have generally been rectified by small scale remedial works. This level of defects is generally accepted as part of large-scale surface treatment programme.

4.12 It is accepted that areas of carriageway under the greatest stress (junctions, bus stops, signals) are likely to deteriorate quicker that the running lanes. This is true of most treatment types and maintenance intervention may be required earlier in the lifecycle. It still remains beneficial to treat all these areas when carrying out a surface treatment.

2022/2023 Performance

4.13 In 2022/2023 the Council experienced a greater number of failures than would have been normally expected. After discussions with the contractor and investigations into the failures they have determined that the likely cause of the failures on the micro asphalt schemes was caused by the aggregate used on these schemes. The aggregate was sourced from a different supplier and was at the upper limit in terms of size grading permitted and, thus, whilst still technically within specification, this may have impacted on the bonding of the chippings within the mixture and the mechanical locking together of the chippings from the material mix.

4.14 The contractor has confirmed that a new supply has been sourced for future contracts and that the chipping size and performance will be closely monitored. All surfacing failures from the 2022/2023 programme will be addressed, in the summer months of 2023/2024, at no further cost to the Council. This type of failure was experienced at other Scottish Roads Authorities in 2022/2023.

4.15 When using surface treatments, loose chippings will always remain on the carriageway after treatment. The contractor has agreed to undertake an ongoing sweeping program of all the sites laid with micro-asphalt from the 2022/2023 program. This sweeping program will continue until the remedial works are completed in the summer of 2023. Initially, it was agreed this would be on a fortnightly frequency, but sweeps will also be undertaken as required.

4.16 Gullies are rarely blocked as a result of any surface treatment work as, during the laying process, all gullies are masked-off to prevent this. In the days and weeks following laying, however, it is quite normal for loose chippings to be generated and find their way into nearby gullies under the actions of rainwater run-off and traffic movement. In some exceptional situations, material failures have occurred whereby excessive amounts of chippings have found their way into the adjacent gullies impacting on their effectiveness. However, there has generally been no excessive chipping loss and any instances of chippings appearing to completely choke a gully are normally due to the gully pot already containing a build-up of silt and/or other detritus prior to the surface treatment work taking place.

4.17 The contractor is required to clean out all gullies within the works area following surface treatment works. This is normally undertaken six to eight weeks following the laying of the material, at which point any loose chippings generated should be at a very low level.

4.18 It is acknowledged that the contractor performed poorly in regard to the reinstatement of the road markings for the 2022/2023 programme of works. The delays were due to internal resourcing issues within the contractor's organisation. Following discussions with Council officers, the contractor has committed to utilising the services of a sub-contractor for this operation in future programmes when it is necessary to ensure that all markings are reinstated within five to six weeks of the surfacing works taking place. It is not possible to reinstate road markings immediately after the surface is laid as they may not fully adhere to the road surface. In order to ensure that the Council's requirements are met, financial penalties will be built into the contract going forward to encourage the contractor to reinstate the markings within this timescale.

4.19 In 2022/2023 there was one instance where the contractor did not adhere to the agreed traffic order. This related to a micro-asphalt scheme at Cluny Gardens where the contractor, in an attempt to gain some time back after a spell of bad weather, implemented an unexpected closure of Cluny Gardens on 18 October 2022. The work was programmed to commence the following day and, therefore, the road was closed outside of the dates shown in the Temporary Traffic Regulation Notice (19 October to 23 October 2023). Officers have met with the contractor and re-iterate the importance of adhering to this process and are confident that this was an exceptional occurrence. However, officers will continue to monitor all temporary traffic orders in future programmes.

Conclusion

4.20 It is accepted that the surface treatment programme in 2022/2023 suffered from more failures than in all previous financial years and that the contractor performance was not as expected and previously demonstrated. This will be closely monitored in 2023/2024 and in future financial years.

Surface Treatment in the Future

4.21 Officers are confident that, within existing budgets, surface treatments remain the most effective preventative treatments available to Roads Authorities. This continues to be the case despite the recent increase in the cost of bitumen as the introduction of surface treatments has significantly slowed deterioration across the carriageway and footway network. Edinburgh's carriageway network would have suffered further deterioration without the option of surface treatments and fewer streets would have benefited from treatment.

4.22 At the moment, there are no other treatments available that offer as good value to Roads Authorities when planning future works programme. They will remain the most used treatment for Local Authorities for some time.

4.23 The Council will continue to look at all surfacing methods available and have recently established a product innovation group. This group will focus on trialling new material with an emphasis on carbon reducing materials. This will include expanding the road recycling programme. Low Temperature Asphalt has already been used in several capital renewal schemes in 2022/2023 and will be widely used in future programmes as suppliers adopt this more sustainable approach.

5. Next Steps

5.1 The capital investment programme will continue to be reviewed regularly to ensure that any adjustment is made to the programme as soon as possible.

5.2 The assessment of the condition of the city's roads is measured annually by the Scottish Road Condition Measurement Survey (SRCMS). This survey shows the percentage of roads that should be considered for maintenance intervention. Edinburgh's RCI has improved from 36.2% in 2020/2022 to 35.0% in 2021/2023.

5.3 A continual gradual improvement in Edinburgh's RCI will be a measure of the success of the Council's road maintenance policies. Additional funding in 2023/24 will be targeted at improving Edinburgh's RCI.

6. Financial impact

6.1 All carriageway surface treatment works are funded from the agreed Roads and Infrastructure Investment – Capital Delivery Priorities Programme.

7. Stakeholder/Community Impact

7.1 There are no significant compliance, governance or regulatory implications expected as a result of approving the recommendations is this report.

7.2 The investment in the city's roads, footways, gullies and street lighting improves the accessibility and safety of the road and footway network and therefore has a positive impact for all users, particularly older people and those with a disability.

7.3 There are no significant sustainability implications expected as a result of approving the recommendations is this report.

8. Background reading/external references

8.1 None.

9. Appendices

9.1 None.