RURAL ECONOMY AND CONNECTIVITY COMMITTEE

PRE-BUDGET/FINANCIAL SCRUTINY ON ROADS MAINTENANCE IN SCOTLAND

SUBMISSION FROM ROAD SURFACE TREATMENTS ASSOCIATION

In general, across the UK, over the medium term, there has been a decline in spending on road maintenance and a decline in condition of road surfaces. This has led to an increase in a “backlog” of repairs. However, there is a lag between cuts in spending and deterioration in a road surface so cause and effect may not be readily obvious.

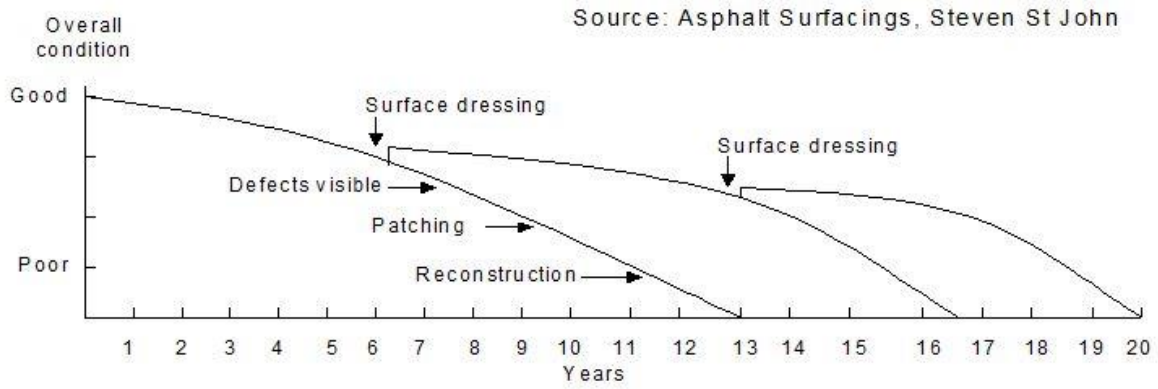
Asphalt road surfaces are generally very robust and provide a long service life; perhaps 10 years even on the busiest strategic routes and much longer in rural environments. However, asphalt does degrade slowly with time by oxidation of the bitumen which leads to a loss of flexibility and the formation of cracks. Cracks let water into the surface and freeze thaw action and hydraulic pumping increase the speed of deterioration. This will usually manifest as an increasing number of potholes and other defects in the road surface. Good asset management techniques mean road managers will intervene at the appropriate time with suitable techniques to keep the road surface in safe and serviceable condition before the extensive potholing stage, provided they have funds to do so.

It is possible to “sweat the asset” – to reduce spending on preventative maintenance for a number of years, but that does not mean the deterioration of the asphalt stops; it just means that when maintenance is eventually carried out that it will be more extensive than it would have otherwise been. This means much higher costs and greater disruption to road users from more extensive work. For example, full resurfacing may then be required, whereas intervening a few years earlier might have meant a surface treatment could have been used at around 20% of the cost per square metre and at 10x the speed of installation, thus saving money and reducing disruption to the travelling public. Delaying maintenance work also increases the likelihood of potholes that require reactive maintenance, which is much more expensive than planned routine maintenance and treats much smaller areas of road surface as a result.

Modern road maintenance is about asset management and achieving the lowest life cycle cost. This means intervening at the appropriate time in the life cycle of the road surface, such that the deterioration can be arrested and more extensive works, such as resurfacing or reconstruction are delayed. Road managers have long used techniques like surface dressing to seal roads and restore skid resistance and texture depth, without resurfacing the roads. This saves time and money but also has a much lower environmental impact than planing out say 40mm depth of surface course and disposing of the material, and then laying new asphalt to the same thickness using asphalt derived from primary aggregates.

The illustration below shows how a road might deteriorate if no intervention occurs (the first curve) and how the life of a road surface might be extended by intervening at the appropriate time with the right treatment – the example here being surface

dressing, although there is a wide range of treatments and techniques available to the road asset manager.



Deterioration of a road surface can also be categorised into several defect types that can be cost effectively treated in different ways. For example, skid resistance and texture depth can fall below the required values creating a risk of skidding and accidents for road users. Replacing the surface course of the road to full depth (25 to 40mm depth for example) at a cost of say £15 - £20 per square metre would solve this problem. But, surface treatment techniques such as retexturing may also solve the problem at perhaps 10 – 15% of the cost and without creating hundreds of tonnes of waste for transport and disposal.

The different road surface treatments available might be better in some situations than others; for example, surface dressing is very effective on rural roads, whereas asphalt preservation might be more suitable in urban environments.

Asphalt road surfaces often degrade from points of weakness such as seams. Some good work has been carried out by Transport Scotland on techniques to reduce the effect of seams opening on new road surfaces, which will improve the situation going forward. However, there are many seams on Scotland's roads that if left untreated will lead to premature failure of the surface. Such seams and other cracks can be effectively treated proactively with crack and joint treatments to cure the problem or substantially reduce the rate of decay, so the rest of the road surface is not affected.

Treating roads under an asset management plan requires a degree of certainty in funding on a cycle longer than 12 months. Asset management plans for example should look at the road surface over a much longer period than a year and confidence in funding levels assists managers to plan accordingly to achieve best value. For example, a road where surface dressing is intended to be used to extend the working life of the road will normally require patching and join repair done in year 1 prior to the surface dressing being done in year 2. If there is uncertainty in funding from year to year it creates short term thinking by necessity. In England, the strategic road network has benefitted from a 5-year settlement for funding, allowing managers to plan. This is now being considered for local roads in England / Wales and Scotland would benefit from a similar approach.

Lack of funding means asset managers will focus on reactive maintenance on the worst roads – those in the "red" condition. Additional funding would mean cost

effective proactive treatment of roads in amber condition to restore them to the green condition in a cost effective and timely manner, whilst also dealing with the backlog of roads in the red condition that need more extensive repair.

Addressing the points in the briefing document specifically:

1 & 2) Effect of reducing budgets on Scotland's roads and road users

Continuing with low maintenance budgets will continue the general decline in road condition and create a larger backlog and long-term major problem for the future. Deteriorating roads lead to road user disruption as unplanned emergency repairs are carried out which are more disruptive and much more expensive than maintain the asset in a planned way. The Scottish economy is dependent on a reliable road network for moving goods and people around the country.

3) Addressing negative effects of reduced spending

Roads in the amber condition should be identified and proactively treated with lower cost surface treatments to restore them to the green condition via maintenance budgets. Resurfacing / reconstruction should be focussed on those roads already in the red condition. These more expensive one-off reconstruction projects could come from a one-off capital spend, with a life cycle plan for roads thereafter to look after the roads via planned interventions over a 30-year period. Blackpool Council in England did this some years ago with renewal of roads via capital spending and have now embarked on "Project Amber" to keep those roads in good condition. The Local Councils Roads Innovation Group (LCRIG) van provide more detail.

4) Delivery of road maintenance via the current structure

There is a view that 33 road authorities in Scotland is too many and that efficiencies / economies of scale may be achieved by a smaller number of authorities covering larger areas. This may certainly lead to economies of scale from the supply chain as larger authorities would have larger orders to place and hence more negotiating power. Even if the 33 authorities are maintained, collaboration between authorities could enable approaching the supply chain with larger contracts for regional deals to achieve efficiency and economies of scale.