# APPENDIX C

# Carriageway Lifecycle Plan - Investment Options for Road Maintenance

## 1. Purpose of this document

1.1 This document presents the results of scenario testing that explain the implications of different funding levels and maintenance methods for the future condition of roads within the Borough. The report also provides recommendations for an investment strategy for road maintenance.

1.2 The recommended strategy will form part of the Council's Transport Asset Management Strategy.

## 2. Background

### 2.1 How much does the Council spend on major maintenance of roads?

2.1.1 Since 2010/11 the Council has spent an average of £2.1M of capital each year on major maintenance or roads. This included grant funding from the Department for Transport and also included additional capital funding from the Council.

2.1.2 In 2017/18 and 2018/19 the Council has allocated £1.0M each year for maintenance of roads and pavements in addition to the money it receives from the Department for Transport. In 2017/18 the total allocation specifically for roads is £2.518M which is greater than the average spend since 2010/11.

### 2.2 Is the overall condition of roads getting better or worse?

2.2.1 Evidence from road condition surveys indicates that the condition of Southend's road network is gradually declining. Between 2014/15 and 2015/16 the percentage of roads in poor condition (with potholes and unevenness) rose from 12.7% to 13.5%.

2.2.2 This is in spite of additional capital funding provided by the Council since 2014 to road maintenance over and above the funding allocations it receives from Central Government.

2.2.3 Currently the Council allocates its capital money for road maintenance solely to resurfacing. Whilst this approach provides long term solutions for the specific roads treated, individual resurfacing schemes require a significant capital investment and therefore the Council can only treat a limited number of roads using this method.

2.2.4 This means that with current budgets it would take the Council nearly 200 years to resurface every local street in the Borough.

## 2.3 The need for a long term strategy for maintenance

2.3.1 A sustainable road network is vital to the future prosperity of the town particularly in view of the key role of tourism to our economy as well as the need to realise potential for economic growth in the Southend Airport areaA, Shoeburyness and other regeneration areas.

2.3.2 Failure to prevent decline in the condition of the network can lead to a disproportionate increase in the cost of road repairs and personal injury or damage claims and can deter inward investment in the Borough.

## 2.4 The forecasting model

2.4.1 The Council has tested a number of scenarios using a forecasting model to find out what the implications of the funding shortfall are over the next 20 years and to identify how much budget is required to ensure that the length of roads affected by poor condition does not increase.

2.4.2 The forecasting model was also used to identify if adopting a proactive approach to maintenance would enable the Council to do this at a lower cost than could be achieved by only doing resurfacing.

2.4.3 An additional scenario was tested to identify how much investment would be required to improve the overall condition of the Borough's roads.

2.4.4 The forecasting model was developed using detailed statistical analysis of data on the condition of Southend's roads and historical data on maintenance carried out in the Borough. It uses this analysis to show how the likelihood of deterioration changes over time following different types of maintenance.

2.4.5 The model also accounts for different types of road, reflecting the level of usage by traffic and the construction of the road amongst other factors.

## 2.5 Road maintenance options

2.5.1 There are 3 key types of maintenance that are considered in the forecasting model.

***Resurfacing***

2.5.2 This involves planing off and relaying of a new surface course over a whole section of road and, dependent on the condition of lower layers, replacing varying amounts of these lower layers too. This is carried out using specialised machinery.

***Patch repairs***

2.5.3 This involves localised repairs, for example, around a group of potholes and sections that are cracked or likely to deteriorate in the short term.

***Proactive maintenance***

2.5.4 These involve the laying of a thin surface on top of the old surface, which is called Microasphalt. This can improve the smoothness and appearance of the road as well as greatly reducing the rate of deterioration of the road structure. Also, because they are typically ¼ of the cost of resurfacing it is possible to treat far more roads with existing budgets. This also means that, on local roads, the Council can avoid the need to do expensive resurfacing for at least a further 15-20 years.

# 3. Summary of findings

3.1 This summary presents the results of 4 scenarios as follows:

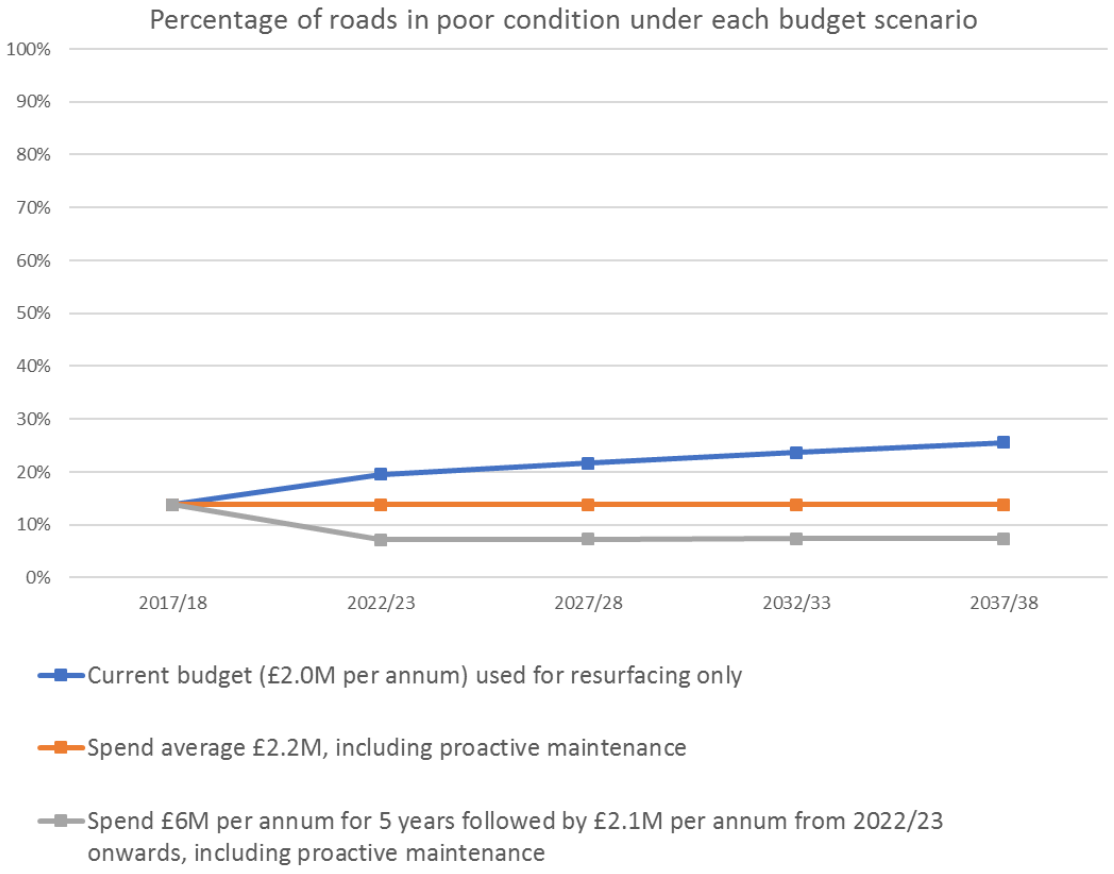
3.1.1 Continue to allocate the same level of annual spend on road maintenance as provided in the 2017/18 budget

3.1.2 Increase the amount of resurfacing to ensure that the percentage of roads affected by poor condition does not increase over the next 20 years

3.1.3 Use a proactive maintenance approach (with Microasphalt) to ensure that the percentage of roads affected by poor condition does not increase over the next 20 years

3.1.4 Invest additional money to halve the percentage of roads affected by poor condition in 5 years (by 2022/23)

3.2 In each scenario the model produces a forecast of the change in percentage of roads affected by poor condition. These are summarised in the chart below.




3.3 The results of forecasting indicate that if the Council continues to allocate the same level of annual spend on road maintenance as provided in the 2017/18 budget (£2.0M) the percentage of roads in poor condition will double over the next 20 years.

3.4 If the Council continues to allocate capital money only to resurfacing and reconstruction of roads then it will require an additional £0.6M (£2.6M) each year to ensure that the length of roads affected by poor condition does not increase over the next 20 years.

3.5 However, if the Council adopts a proactive maintenance approach using Microasphalt treatments it will only require an additional £0.2M (£2.2M) each year to ensure that the length of roads affected by poor condition does not increase over the next 20 years.

3.6 If the Council invests an average of £6M each year for 5 years then it will be able to halve the length of roads affected by poor condition. Thereafter, using a proactive maintenance approach the Council would need to spend £2.1M each year to ensure that the length of roads affected by poor condition does not increase.

3.7 It is unlikely that prudential borrowing could be used to finance such an investment as there are few opportunities to make savings in the reactive repairs budget (which currently stands at approximately £0.150M per year). Also, the Council has successfully maintained a very low rate of payouts for highway claims so there is little scope to make further savings in this area.

# 4. Conclusions and recommendations

4.1 The forecast model demonstrates that £2.2M of capital is required each year for road maintenance over the next 20 years in order to avoid any further increases in the percentage of roads affected by poor condition. This requires approximately £0.2M of additional capital compared with the current 2017/18 allocation.

4.2 Without this additional investment the percentage of roads in poor condition is forecast to nearly double over the next 20 years.

4.3 The forecast model has also demonstrated that a proactive maintenance approach is needed to achieve this. This will enable the Council to extend maintenance treatments to far more roads each year than would be possible if the Council continued with only resurfacing.

4.4 Without a proactive maintenance approach the Council would need to spend an extra £0.6M each year compared with the current 2017/18 allocation to avoid further increases in the percentage of roads affected by poor condition. This reflects the fact that individual resurfacing schemes require more significant capital investment than would be the case with the proactive maintenance approach.

4.5 Therefore it is recommended that a proactive maintenance approach is adopted as a strategy for maintaining Southend's roads.

4.5 A further option was tested to estimate the costs of works required to halve the percentage of roads in poor condition. This option would require £6M each year for 5 years followed by continued investment of £2.1M each year for the rest of the 20 year period.

4.6 There are limited opportunities to make savings through this last option . However, it is recommended to undertake further work to identify the benefits of targeted investment in road maintenance in key areas within the Borough such as regeneration areas and areas susceptible to flooding. In the latter case it is recommended that future proposals for investment in road maintenance are considered as a coordinated package with improvements to drainage and culverts.