

Division(s): All

**GROWTH AND INFRASTRUCTURE SCRUTINY COMMITTEE
19 NOVEMBER 2012**

CHANGES TO ROAD MAINTENANCE METHODS

Report by Deputy Director for Commercial

Introduction

1. Recent changes have been made in the council's highways and maintenance service to the techniques and methods used for recycling road materials. These changes have been made as part of the Directorates broader commitment to make associated efficiency savings. This report tracks progress made to date and provides members with detailed information on the changes made to realise these savings.

Recycling techniques

2. Additional efficiency savings have been realised through innovative construction methods that tackle the environmental problem of tar in Oxfordshire's roads.
3. While all new roads are manufactured using bitumen, up until the mid-1980s many of our roads used tar in their construction. Tar is now recognised as carcinogenic and so construction methods have to change to remove any risks when these materials are found during road maintenance.
4. Two techniques are available and both have been trialled in Oxfordshire as part of this year's programme. The 'In Situ Technique' recycles the material within the site. The 'Ex Situ Technique' requires material containing tar to be removed from site, taken to a depot for recycling and then relaid as an overlay on another maintenance scheme in the county.

Savings to date

5. The pilot schemes that have already been completed have delivered efficiency savings totalling £217,000.

In-situ recycling technique

6. This technique uses a machine that pulverises the pavement and foundation layers to a depth of 200mm in a single pass. The loosened granular material is shaped and rolled, a cement and Pulverised Fuel Ash mixture is laid over the surface and the pulveriser then makes a second pass to mix the cement binder with the pavement material. Water is added during this stage to

GI6

achieve the optimum moisture content. The road is then trimmed to shape and rolled before a surface course of new bitumen is laid. The base layer constructed by the recycling process provides a finished pavement with a design life of more than twenty years.

7. This new technique was used for the reconstruction of a residential street at Yarnells Hill in North Hinksey. Historically, the Council's approach would have been to replace the damaged asphalt and foundation layers with new pavement construction. The recycling option reduced the cost from £313,000 to £166,000, while shortening the construction period by half, to just two weeks. It also reduced the "carbon footprint" of the work by reducing waste and the movement of heavy vehicles for the disposal and replacement of materials.
8. Yarnells Hill is the third project that has been carried out in Oxfordshire this year using in-situ recycling. In both of the previous schemes the technique was adopted as a means of treating tar-bound material that would otherwise have been sent to landfill as hazardous waste. Such disposal is the least favoured option in the Environment Agency's guidelines for waste treatment. Current legislation requires reuse and recycling options to be considered wherever possible. Disposal as hazardous waste is also an expensive option with costs up to £350 per m³.

Ex-situ recycling technique

9. A process for recycling and reusing road materials containing tar, known as 'ex situ treatment', has recently been used on a road maintenance scheme in Lew, near Witney. Eight hundred tonnes of safely recycled bituminous material containing tar was used in this scheme, sourced from four other maintenance schemes in the county.
10. The material containing tar was initially stockpiled and then recycled by Bardon Contracting, our surfacing subcontractor, at their Eastleigh plant. From there, it was brought back to Lower Farm Road in Lew for re-laying. Using recycled material saved nearly £70,000, compared with the cost of sending the material to landfill and replacing it with new asphalt.

Financial and Staff Implications

11. There are no staff implications or additional financial implications. Savings to date total approximately £217,000.
12. These innovative methods have delivered environmental benefits as well as the economic ones – they avoid unnecessary waste and reduce the carbon impact of the repairs.
13. In situ and ex situ treatment of bituminous materials containing tar are set to become integral parts of the annual programme of road improvements delivered by the County Council.

GI6

14. Savings from recycling will allow available budgets to be redirected to construction rather than waste disposal, with more schemes added to the annual programme.

RECOMMENDATION

15. **The Committee is RECOMMENDED to note the progress to date**

MARK KEMP

Deputy Director for Commercial

Background papers: none

Contact Officer: Jim Daughton, Service Manager, 01865 815083

November 2012