

WIRRAL COUNCIL

SUSTAINABLE COMMUNITIES OVERVIEW AND SCRUTINY COMMITTEE

21ST NOVEMBER 2012

SUBJECT:	HIGHWAY MAINTENANCE: (1) SURFACING AND SURFACE TREATMENT MATERIALS AND (2) THE NATIONAL POT HOLE REVIEW
WARD/S AFFECTED:	ALL
REPORT OF:	INTERIM DIRECTOR OF TECHNICAL SERVICES
KEY DECISION?	NO

1.0 EXECUTIVE SUMMARY

- 1.1 This report provides Committee with information on the current surfacing and surface treatment materials being used for the maintenance of the highway network and the benefits associated with their use.
- 1.2 The report also introduces the findings of the National Pot Hole review undertaken by the government-sponsored Highways Maintenance Efficiency Programme (HMEP) titled 'Prevention is better than Cure', and provides an overview of the Council's current maintenance strategy and how this compares to the HMEP review's recommendations.
- 1.3 The maintenance of all aspects of the highway infrastructure is a statutory duty imposed on the Council as Highway Authority.

2.0 BACKGROUND AND KEY ISSUES

- 2.0.1 The purpose of this report is to provide the Committee with an overview of the material types in use on the Borough's highway for resurfacing and surface treatments. This will enable the Committee to understand the benefits of modern surface treatment types in particular, in protecting the carriageways and footways from further deterioration. In addition the publication of the National Pothole Review report provides an opportunity for the Committee to receive officers' perceptions as to how the Council takes into account, or proposes to respond to, those recommendations within that Review which are for local highway authorities to address.

2.1 SURFACING AND SURFACE TREATMENT MATERIALS

- 2.1.1 The roads in the Wirral serve a range of purposes, both in terms of their function to carry various and increasing volumes of traffic and as the streetscape for all our communities. The construction and condition, and rate of deterioration, of those roads varies considerably depending on many factors including the type and volume of traffic, the degree of engineering in their construction, drainage, weather effects and their maintenance history. The main factors affecting the deterioration of road surfaces are volume and weight of traffic, ingress of water causing failure of foundation layers,

including slab movement in concrete roads, or freeze-thaw action causing cracking and spalling (potholing), and oxidation of the surface layer.

- 2.1.2 Most local highway authorities have used the 2005 code of practice *Well Maintained Highways* as the guide to identify network hierarchy and maintenance. Wirral is no exception, but has ensured the hierarchy was not only identified upon historical classification, but also its current use and importance. This has provided Wirral with roads which are manageable, maintainable and sustainable.
- 2.1.3 Whilst reactive maintenance is carried out to make significant defects in road and footway surfaces safe, preventative maintenance programmes are prepared whereby an objective view is taken of the importance of routes and the need to give priority where maintenance treatments can restore substandard skidding resistance or are cost effective in reducing future maintenance requirements.
- 2.1.4 Traditionally road surfaces are made up of bituminous surfacing layer(s) or concrete slab construction over stone foundation. Maintenance has included replacement of these or restoration of the surface texture for skid resistance and protection against the ingress of water through surface dressing, filling of potholes and sealing of cracks (overbanding).
- 2.1.5 The main roads in the older parts of Wirral including the industrial area of central Birkenhead and Wallasey are old tram roads. These are a composite make-up of concrete, setts and in most cases originally surfaced over with mastic asphalt. A number of these roads have only ever been given a surface dressing, due in part to the stone in the mastic asphalt becoming polished, examples of such roads would be sections of Poulton Road, Hoylake Road, Bidston and the original hand laid mastic asphalt of St Pauls Road, Seacombe.
- 2.1.6 Some 35% of the carriageway network on Wirral is constructed from rigid concrete slabs, with 80% of those subsequently being given some kind of bituminous overlay.
- 2.1.7 **Appendix 1** provides details of the surfacing materials employed in the Wirral:
- 2.1.8 In recent years, materials have developed which enable the maintenance of roads to be carried out at reduced cost and more safely and quickly, whilst still meeting those primary objectives of restoring skid resistance and preventing further deterioration by sealing the surface. Generally these are 'thin' layers to treat the surface rather than to replace the surface layer. There is a perception from feedback received from some residents and Councillors that such treatments are a cheap and poor quality alternative to resurfacing of roads and footways.

Appendix 2 provides details of such materials used on Wirral's roads and footways.

- 2.1.9 Over the past six years steady progress has been made to re-introduce surface treatments and increase the use of Micro-asphalt. At the same time the Council has continued to use high quality materials to resurface main routes. This strategy has been supported by maintenance funding over this period, where in spite of a number of severe winters, there has been a steady improvement in the general condition of Wirral's roads as reported in the performance indicators.

- 2.1.10 A preventative maintenance strategy which combines surfacing, as appropriate, and surface treatment programmes is working well but to reduce reactive repairs and improve the network. The benefits of low cost, quickly laid, surface treatments need to be embraced so that the with use of carriageway slurry and surface dressings it is possible to treat about 7% of the network each year based on recent funding levels.
- 2.1.11 With this approach, the levels of road surface improvement lead to reducing enquiries, ad-hoc inspections, and reactive repairs. This, in turn, will speed up the planned inspections, reducing the required number of staff. Finally, there are savings which can be achieved through reduced reactive repairs and the Council will at the same time maintain a high repudiation rate for insurance claims.

2.2 THE HMEP NATIONAL POT HOLE REVIEW

- 2.2.1 In April 2011 the government announced an initiative to review the pothole problem under the umbrella of the Department of Transport sponsored Highways Maintenance Efficiency Programme (HMEP).
- 2.2.2 Involving a range of key stakeholders from the public and private sectors, including road, footway and cycleway user groups, the review considered how local highway authorities in England currently deal with potholes, as well as wider stakeholder views and implications.
- 2.2.3 The focus of the review has been to identify good practice through consultation in order to demonstrate how potholes and other related aspects of highway maintenance work are dealt with more efficiently and effectively. It is intended that this will also enable sharing of knowledge between authorities and other stakeholders, including lessons learnt.
- 2.2.4 The Report from the review *Prevention and a better cure* was published in April 2012 and made 17 Recommendations targeted at government, the wider maintenance industry and in some cases specifically at local highway authorities. The recommendations can be grouped into three themes:
- Prevention is better than cure; intervening at the right time will reduce the amount of potholes forming and prevent a bigger problem later.
 - Right first time; do it once and get it right, rather than face continuous problems. Guidance, knowledge and workmanship are enablers to do this.
 - Clarity for the public; local highway authorities need to communicate to the public what is being done and how it is being done.
- 2.2.5 This report to Committee is intended to provide an overview on the approaches being taken or required at Wirral in order to meet those recommendations which are specifically for the local highway authorities to consider and address, and a summary is provided at **Appendix 3**.
- 2.2.6 Preventative maintenance has been the Council's ethos since 2005, slowly reducing reactive repairs and increasing proactive surfacing using more surface treatment materials which enable the maximum amount of funds to be utilised to treat as many

roads as possible. This strategy reduces the number of potholes forming and in turn reactive repairs.

- 2.2.7 As part of the maintenance policy, most actionable defects are issued as a 'priority three' which ensures that 98% of such defects are given a first time permanent repair. The number of 'priority one' works is carefully monitored so that three quarters of the remaining two percent are given a first time permanent repair. This means that currently only 0.5% of all works issued are given a temporary repair or barricaded.

This method provides a very cost effective operation with a high number of completion dates meeting the targets.

- 2.2.8 It is fully acknowledged that it is the sections of the recommendations covering the need for clarity for the public where the department needs to focus and improve. The Committee will recall that part of their recommendations from the third annual review of the Highway and Engineering Services Contract was the wish to see improvements in customer communication.

- 2.2.9 Since that Committee resolution, a review has been made to the operational process and the correspondence with the customer. This has resulted in a new process which will improve performance reporting and improve customer information and communication. Added to this is the ongoing work with Committee's Task and Finish Group to review the Councillor's own communication arrangements through the Streetscene system. Further work is planned to improve the information given to customers regarding materials used and the rationale behind the decisions, including in respect of the specific recommendations contained in the National Pothole Review.

3.0 RELEVANT RISKS

- 3.1 Highway maintenance is a statutory requirement and failure to follow the Council's policies will impact on the Council's reputation, the condition of the network and defending public liability claims.

4.0 IMPLICATIONS FOR VOLUNTARY, COMMUNITY AND FAITH GROUPS

- 4.1 There are no specific implications arising from this report.

5.0 RESOURCE IMPLICATIONS: FINANCIAL; IT; STAFFING; AND ASSETS

- 5.1 There are no specific implications arising from this report

6.0 LEGAL IMPLICATIONS

- 6.1 Highway Maintenance and the clearance of ice and snow are both duties placed on the Council by statute.

7.0 EQUALITIES IMPLICATIONS

- 7.1 Has the potential impact of your proposal(s) been reviewed with regard to equality?

(b) No because there is no relevance to equality.

8.0 CARBON REDUCTION IMPLICATIONS

8.1 There are no specific implications arising from this report.

9.0 PLANNING AND COMMUNITY SAFETY IMPLICATIONS

9.1 There are no specific implications arising from this progress report.

10.0 RECOMMENDATION/S

10.1 The Committee is requested to note the contents of the report.

11.0 REASON/S FOR RECOMMENDATION/S

11.1 The Committee's scrutiny of the highway maintenance policy and strategies is an important factor in developing and improving the service.

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APPENDICES

Appendix 1 Surfacing Materials used in Wirral

Appendix 2 Surface Treatment types used in Wirral

Appendix 3 Recommendations of the National pothole Review in the context of Wirral's highway maintenance strategies

REFERENCE MATERIAL

The HEMP pothole review report *Prevention and a better cure* was published in April 2012, a copy of the full is available on <http://www.dft.gov.uk/hmep/>.

Code of Practice *Well Maintained Highways*

<http://www.ukroadsliasongroup.org/en/utilities/document-summary.cfm?docid=C7214A5B-66E1-4994-AA7FBAC360DC5CC7>

Colas UK website pages on surface treatments

<http://www.colas.co.uk/services/surface-treatments>

SUBJECT HISTORY (last 3 years)

Council Meeting	Date
Sustainable Communities Overview and Scrutiny: Highway and Engineering Services Contract – Third Annual Review	26 th June 2012
Sustainable Communities Overview and Scrutiny: Highway and Engineering Services Contract – Second Annual Review	26 th September 2011
Cabinet : Highway and Engineering Services Contact – Progress Report and Gateway 5 Review	3 rd February 2011
Sustainable Communities Overview and Scrutiny: Highway and Engineering Services - Annual Presentation	14 th September 2010
Sustainable Communities Overview and Scrutiny: Highway and Engineering Services Contract – Six Month Update.	18 th November 2009

Appendix 1 – Surfacing Materials used in Wirral

Material Type	Comments
<p>Hot Rolled Asphalt (HRA)</p> <p>A machine laid bitumen mat with fine and medium aggregates within. Coarse aggregate chippings are applied to the surface prior to rolling.</p> <p>£15.00 per square metre (sqm)</p> <p>15 years life low/medium traffic 10 years life medium/high traffic</p>	<p>This has been widely used on Wirral for over sixty years. It is the Preferred surface material for all new estate roads and is used on all the main roads on Wirral. Whilst highly durable with good skid resistance, it is difficult to lay efficiently and safely in busy and narrow streets.</p>
<p>Concrete Pavements (Rigid)</p> <p>Rigid concrete slabs, with expansion/contraction joints at intervals.</p> <p>40 year design life when new. Not now used.</p>	<p>The last new roads on Wirral that were constructed in concrete were built in the early seventies, Fender Way and Prenton Hall Road being examples. Most were poorly maintained until decisive action was taken to arrest deterioration in the late nineties. Whilst highly durable concrete roads are expensive, noisy and difficult to support utility activity.</p>
<p>Stone Mastic Asphalt (SMA)</p> <p>Not now used.</p>	<p>A modern surface material, this overlay is still widely used around the country. Wirral ceased with it use in 2006, as it was deemed unsuitable to overlay on concrete roads. Examples being Arrowe Park Road (part).</p> <p>Current Stone Mastic Asphalt roads in poor condition include Martins Lane Liscard and New Chester Road, New Ferry.</p>
<p>Dense Bitumen McAdam (DBM)</p> <p>£8.00 per square metre (sqm)</p> <p>12 years life low/medium traffic 8 years life medium/high traffic</p>	<p>Used on link and unclassified roads. A sound and Practical surfacing material usually laid to a depth of 30mm but on most unclassified roads due to the poor quality of existing surfaces usually means including regulating material resulting in depths of up to 50mm this can prove relatively expensive. Used extensively as the surface for footways.</p>

Appendix 2 – Surface Treatment types used in Wirral

Treatment type	Comments
<p>Surface Dressing</p> <p>Hot applied, machine laid, mix of polymer modified bitumen with chippings applied, then rolled with rubber tyres.</p> <p>£2.31 – 2.50 per square metre (sqm)</p> <p>15 years life low/medium traffic 10 years life medium/high traffic</p>	<p>This is the most commonly used maintenance surface treatment. Wirral ceased with its use in the early nineties. It was re-introduced with a limited use in 2006. However residents objected to its use in local roads due to surface binder ‘bleeding’ caused by vehicle movements, and excessive loose chippings, which leads to complaints. Therefore this process has only been used mostly on main routes over existing Hot Rolled Asphalt where the results have been very good.</p> <p>Relatively low cost solution and durable if applied well.</p>
<p>Micro-Asphalt</p> <p>Cold applied, machine laid, mix of polymer modified bitumen emulsion and fine aggregates, usually in two layers, typically 15mm thick, laid quickly and produces a quiet surface.</p> <p>£4.00 – 4.50 per square metre (sqm)</p> <p>10 years life low/medium traffic 6 years life medium/high traffic</p>	<p>This material has been used on Wirral since the late eighties and was originally applied to overlay concrete pavements. It has a design life of approximately six – ten years but most exceed this with some achieving a life of fourteen years plus.</p> <p>Since 2007, this material has been used to resurface all unclassified and some C roads. This has enabled treatment of a significant number of roads and, through providing an overlay, in most cases restores some surface profile and improves the ride quality of the existing surface.</p> <p>This proves more beneficial than the cheaper surface dressing, and with less chipping loss.</p>
<p>Carriageway ‘Slurry’ microsurfacing</p> <p>Cold applied, machine or hand laid single coat application of bitumen emulsion mixed with fine aggregate and fillers, typically 6 mm thick, laid quickly.</p> <p>£2.55 per square metre (sqm)</p> <p>6 years life low/medium traffic.</p>	<p>This is a thin overlay, which follows the existing surface profile. Similarly to surface dressing, It does an excellent job in sealing an existing surface and does extend the life of a carriageway. However, if the surface profile is poor, it can result in areas of standing water which can no longer soak into the existing failed surface.</p> <p>Not suitable for medium/high traffic levels.</p>

Treatment type	Comments
<p data-bbox="193 194 507 228">Carriageway 'Retread'</p> <p data-bbox="193 262 558 595">The existing surface is scarified to a depth of 75mm, the loose material is re-graded, emulsion is applied and chippings added, a further application of emulsion is given and then smaller chippings (essentially a surface dressing) applied.</p> <p data-bbox="193 629 558 696">£9.00 per square metre (sqm)</p> <p data-bbox="193 730 558 797">6 years life low/medium traffic</p>	<p data-bbox="579 194 1294 327">This process has been applied on a number of Wirral's roads over the last fifteen years, mostly on unclassified roads. It is used to restore the profile of a carriageway.</p> <p data-bbox="579 360 1294 595">Care needs to be taken on site selection as the process can be expensive if waste materials need to be taken off site. Another proviso is that it is necessary to further seal the surface within 5 years; failure to do so can mean the carriageway may start to pothole, examples being Joan Avenue and Wastdale Drive Moreton.</p> <p data-bbox="579 629 1294 730">Limited use of this treatment can be very cost effective and can restore a carriageway shape without the need for a full reconstruction.</p> <p data-bbox="579 763 1129 797">Not suitable for medium/high traffic levels.</p>

Appendix 3 – National Pothole Review Recommendations in the context of Wirral highway maintenance strategies

Recommendation		Wirral context
No.	Description	
1	Revise <i>Well Maintained Highways Code of Practice</i> .	National Roads Liaison Board action.
2	Monitor customer satisfaction.	Already conducted at Wirral through maintenance programme surveys and Council complaints procedure. Further review against national best practice to be undertaken in developing service, particularly to allow benchmarking of Wirral's performance.
3	Clear, published policy on pothole management.	Wirral's website contains much useful information in respect of highway maintenance and a reporting tool for defects. A specific approach for potholes will be reviewed, taking into account best practice available nationally.
4	Investment justification.	Department for Transport action.
5	Longer term commitment to funding.	Government action.
6	Adopt principle that prevention is better than cure.	Wirral already takes a balanced approach to investment across the highway network through preventative maintenance including lower cost surface treatment programmes, as well as responding to those reactive repairs required to safety defects.
7	Competence in making the right choices	Wirral's highway maintenance officers (and the Council's contractor) are very experienced in highway maintenance techniques and materials, undergo training and continue to engage with, and learn from, the wider industry best practice.
8	Guidance on materials	Wider industry action.
9	Define potholes, based on best practice.	Wirral defines its maintenance intervention levels in its highway maintenance policy. As part of 3 above, this will be reviewed to ensure explicit information is published.
10	Permanent repairs first time, not temporary	Wirral undertakes permanent repairs first time, unless this cannot be achieved for safety reasons.
11	Inspection manual required, and trained/qualified inspectors	Wirral already provides a guidance manual for its inspectors, who are trained. Most are qualified in the supervision of reinstatements, and

		some have ONC/HNCs in construction related subjects. A programme to complete the reinstatement qualifications will be put in place.
12	Management of potholes through technology/systems	Wirral presently manages all of its defects (rather than specifically potholes) through the CRM system, and online defect reports are responded to. The recommendation envisages a 'register' of potholes, and this will be reviewed against existing arrangements.
13	Pothole repair techniques against published best practice.	Wirral already undertakes repair work in line with published best practice, unless safety needs dictate a temporary repair.
14	A quality scheme should be introduced for manual surfacing repairs	Wider industry action.
15	Short and long term maintenance programmes (4 years) should be developed and shared between highway authorities and utilities.	Wirral Council does not presently prepare maintenance programmes beyond one year. This practice will be reviewed as part of developing asset management of the highway infrastructure.
16	Fewer road openings, including trenchless technology	Wider industry action.
17	Research and Innovation	Wider industry action.