

Wiltshire Council

Environment Select Committee

18 June 2019

Rapid Scrutiny Exercise: using plastic waste as part of the council's road maintenance programme

Purpose of the report

1. To present the findings and recommendations of the rapid scrutiny exercise (RSE), which met on 12 July and 03 October 2018 and 27 March 2019, for endorsement by the committee and referral for response to the Cabinet Member for Highways, Transport and Waste.
2. It should be noted that a decision was made to delay the presentation of this report to the Environment Select Committee (ESC) to coincide with the committee's consideration of the Waste Management Strategy at its June 2019 meeting.

Background

3. Following a motion put forward at [Full Council on 22 May 2018](#) by Cllr Brian Mathew and Cllr Steve Oldrieve, calling for Wiltshire Council to undertake a feasibility study into the method of using waste plastics in road repair, resurfacing, and road building programmes, the matter was referred to the Overview and Scrutiny Management Committee (OSMC).
4. At its meeting on [5 June 2018](#), OSMC resolved for the matter to be considered by the ESC, asking ESC to consider the proposal using the evidence available at its forthcoming meeting (on 26 June).
5. At its meeting 26 June, ESC considered a [briefing note](#) and resolved to establish a rapid scrutiny to **consider how feasible it would be for the council to use plastic waste as part of its road maintenance programme.**

Membership

6. The opportunity to take part in the rapid scrutiny was offered to all non-executive members of the council and the following Councillors were appointed:
 - Cllr Brian Mathew, elected as lead member for the RSE
 - Cllr Trevor Carbin
 - Cllr Tony Jackson
 - Cllr Jacqui Lay
7. Cllr Nick Murry had wished to take part in the exercise but was unfortunately unable to attend the meeting on 12 July 2018.

Evidence

8. At its meeting on 12 July 2018 the RSE considered the following:
 - Information on MacRebur "the plastic road company" ([website](#));
 - News reports of local authorities who were trialling or piloting road surfacing with MacRebur;
 - Desk-based research on the advantages and disadvantages of using plastic waste as part of road maintenance (see background documents listed at the end of this report);
 - An update from the council on the research it had undertaken to date on the potential use of plastic waste as part of the council's road maintenance.
9. At its meeting on 3 October 2018 the RSE considered the following:
 - Presentation from MacRebur on:
 - Who are MacRebur
 - Product development – identification of Waste Polymers and Asphalt conformity testing
 - Case studies
 - MacRebur and the supply chain
 - Update on the project developed by Kartar Singh, Senior Corporate Support Manager, in conjunction with the highways team which had led him to win the Annual LGA challenge (2018).
10. At its meeting on 27 March 2019 the RSE solely considered its final report.

Witnesses

11. The RSE members would like to thank the following for attending either of the meetings, providing information and answering questions:
 - Cllr Bridget Wayman, Cabinet Member for Highways, Transport and Waste;
 - Parvis Khansari, Director Highways & Transport
 - Peter Binley, Head of Highways Asset Management & Commissioning
 - Kartar Singh, Senior Corporate Support Manager
12. The RSE members are also very thankful for the comprehensive presentation and valuable information provided by:
 - David Wykes MBA FCMI, Business Development Manager for MacRebur (at the time)
13. The RSE members would also like to thank the following local authorities for answering its questions:
 - Gloucestershire County Council;
 - Dumfries and Galloway Council;
 - Cumbria County Council.

Summary of deliberations

14. To balance its view in terms of how feasible it would be for the council to use plastic waste as part of its road maintenance programme the RSE considered Wiltshire Council's current position with regards to the recycling (and re-using) of plastic waste.
15. It was noted that 39,676 tonnes of dry recycling (paper, glass, cans, textiles, plastic bottles and cardboard) was collected kerbside in 2017/18 and the [end user register for 2017-18](#) showed the following for Wiltshire with regards to plastic recycled or reused:

Material	Re-processor	Tonnage recycled	Tonnage recovered	Tonnage reused	Exported abroad	End use
Plastics (bottles)	J & A Young (Leicester) Ltd, Loughborough	1,495.63	-	-	No	Sorted, graded and granulated
	Viridor Waste Management, Rochester, Kent.	869.26	-	-	No	
Rigid plastics	Wiltshire Plastics U.K. Ltd. Westbury, Wiltshire (Sibley)	784.03	-	-	No	Sorted, graded and shredded
	Regenthill Ltd, Andover, Hampshire.	203.68	-	-	No	Sorted, graded and shredded
	European Polymers, Nottingham	413.48	-	-	No	Sorted, graded and shredded

16. The RSE was informed of the “use of recycled materials in road surfacing” project developed by Kartar Singh, Senior Corporate Support Manager, in conjunction with the highways team which had led him to win the Annual LGA challenge (2018).
17. Since July 2018 the RSE has received updates on the work undertaken by the highways team to organise a pilot of the use of recycled materials in road surfacing project.
18. The RSE was pleased to receive information from officers of the council that demonstrated the council's willingness to consider innovative approaches in terms of road maintenance and products used, whilst exercising due caution with regards to safety issues as well as durability and cost.
19. The RSE would welcome the outcome of the pilot of the use of recycled materials in road surfacing project being reported to scrutiny, when appropriate (*Recommendation 3*).
20. The RSE was informed that the main organisation that the Council is a member of, with an interest in highways and environmental issues, is the Association of Directors of Environment, Economy, Planning and Transport (ADEPT).

21. However, it was felt that there would be benefits to the Environment Select Committee being better informed of these approaches and / or the different groups or organisations officers of the council belonged to. This would enable the Environment Select Committee to monitor the council's pro-activeness in considering more eco-friendly approaches to road maintenance (and products used when laying new roads) (*Recommendation 4*).
22. It was also felt beneficial for the Environment Select Committee to regularly consider progress made by the highway industry with regards to "eco-friendly" innovations; from sources such as the Road Surface Treatment Association ([RSTA website](#)) and the Transport Research Laboratory ([TRL website](#)) (*Recommendation 4*).
23. Although the RSE recognised the potential value of the products offered by MacRebur, based on the evidence it received, it concluded that it was not a feasible option for the council to use across its entire highway network, at this point in time, for the following reasons:
 - a. The amount of plastic used was relatively small (between 3kg to 10kg of waste plastics used in 1 ton (1000kg) of asphalt depending on the road design, i.e. 0.3 to 1%);
 - b. The plastic used was specific and therefore the council would have to use the pellets produced elsewhere (rather than be able to use plastic collected in Wiltshire);
 - c. Not enough time had passed to demonstrate the durability of the product (which is how savings would be achieved – in avoiding repair costs) and to ensure that there would not be an increase in pollution when the product aged (through wear of the product and "end of life" process where it is likely the product would be re-used in rights of way, village hall and community groups car parks and farms);
 - d. Not enough time had passed to ensure that the inclusion of plastic in road surfacing would not result in micro-plastics entering watercourses as contamination and flowing into the ocean, with a detrimental effect on marine life.
24. The Transport Secretary announced on 31 January 2019 that £22.9 million was to be used to fund real-world tests across eight local authorities in Buckinghamshire, Bedfordshire, Cumbria, Staffordshire, Kent, Reading, Suffolk and Solihull and Birmingham, known as the Smart Cities project.
25. Plastic roads were among the new technology being backed by the Government as part of research and trials to future proof UK highways, with some £1.6 million of the fund used to extend an existing plastic roads trial in Cumbria. Other technologies to be trialled include using kinetic energy gathered from roads to power lighting and harnessing geothermal energy to prevent car parks and bus stations from freezing over in winter. (A number of news articles were published on this: [Metro](#), [ITV news](#)).
26. The RSE was informed that Wiltshire Council's officers were involved in the initial scoping of the Smart Cities project but did not take part in any of the bids submitted as part of this programme. The main reason given was the council's

involvement in other current research projects funded by the Department for Transport such as the Pothole Spotter, Digital Inspector and Digital Brokerage in Highways Maintenance.

27. It was noted that any new products or innovative technologies developed as part of the Smart Cities projects would be available to all Local Authorities once completed.
28. However, the RSE felt that there could be scope for small scale trial in Wiltshire. This would provide the council with first hand data to enable comparison of products (*Recommendation 2*).
29. The RSE believed that the Environment Select Committee should remain informed of this national testing and consider the outcomes when available. At this point consideration could, and should, be given again to the use of plastic and / or recycled materials as part of the council's road maintenance. (*Recommendation 5*)

Issues the RSE would like to bring to the attention of Environment Select Committee

30. Although the RSE appreciated that these issues technically fell outside of its remit, it would feel remiss if these were not brought to the attention of the committee, in the hope that the committee may add these to its work programme or may recommend that a suitable task group gives these issues further consideration.
31. Firstly, the RSE members would like to acknowledge that any innovation in recycling plastic, as laudable as it may be, should not lead us to forget that these solutions would not be needed if the amount of plastic produced and used was reduced in the first place and public awareness of alternatives to plastic was continually raised. (*Recommendation 6*)
32. The reduction of plastic produced and used was not within the remit of this RSE but should remain a concern for the council and the nation and progress on this should be adequately monitored by the ESC. (*Recommendation 6*)
33. Whilst focusing on how feasible it would be for the council to use plastic waste as part of its road maintenance programme the RSE considered information from innovative approaches to both the (re)use of plastic and the development of new roads.
34. Two of the highlights were:
 - a. Recycling Technologies, a Swindon based enterprise whose chemical process was designed to integrate traditional mechanical recycling activities in order to tackle the hard-to-recycle plastic waste. It claimed that the combination of mechanical and feedstock recycling systems could increase current recycling rates up to 90% ([website](#)).

- b. PlasticRoad - the concept consists of a prefabricated, modular and hollow road structure based on (recycled) plastics. It claimed that the prefabricated production, the light weight and the modular design of the PlasticRoad make construction and maintenance faster, simpler and more efficient compared to traditional road structures ([website](#)).
35. It soon became obvious that the issue of collecting, sorting and recycling of waste was vast and complex, not forgetting work to be done to reduce the production of waste (and especially non-recyclable waste), nonetheless the committee should remain informed of local, national and international development and innovations.
36. This led the RSE to conclude that consideration should be given to environmental issues overall by ESC through a specific task group (*Recommendation 8*) and by ensuring that timely information is provided to ESC on innovations and research with regards to avoiding the production of non-recyclable waste, and to collecting, processing and recycling waste.
37. It was noted that on Tuesday 19 March 2019 OSMC considered two notices of motion relating to climate change referred by Full Council. In response OSMC asked the ESC to form a task group looking at making Wiltshire carbon neutral by 2030 and conducting a baseline audit of renewables.

Recommendations

The rapid scrutiny exercise recommends that:

Recommendation 1- The Environment Select Committee endorses the report of the RSE and refers it to the Cabinet Member for Highways, Transport and Waste for response at the Committee's next meeting (currently scheduled for 3 September 2019).

Recommendation 2 – That the Cabinet Member for Highways, Transport and Waste gives consideration to some small-scale testing of MacRebur products or other recycled products, in areas identified as susceptible for pot hole or with degradation issues. Understandably an estimate of resources required would be needed first. This would provide the council with its own data to enable comparison of products.

Recommendation 3 – That the Cabinet Member for Highways, Transport and Waste considers reporting the outcome of the trials for the council's use of recycled materials in road surfacing project to ESC, or a relevant task group, when appropriate. If opportune, this could be included in the Highways Service annual report to ESC.

This would provide the committee with comparative information when it considers the outcome of the national trials.

Recommendation 4 – That the Cabinet Member for Highways, Transport and Waste agrees with ESC the best way(s) in which the committee, within available resources, can be kept informed of local, national and international developments and

innovations from the different groups and organisations focusing on highways and environmental issues, including the use of plastic in road maintenance.

This could be included in the Highways Service annual report to ESC or in interim briefing notes from officers following attendance at meetings of these groups and organisations.

This would enable the Environment Select Committee to monitor the council's pro-activeness in considering more eco-friendly approaches to road maintenance and to ensure that the council (and committee) remains aware of innovations and approaches considered by the highway industry.

Recommendation 5 – That the Cabinet Member for Highways, Transport and Waste agrees with ESC the best way(s) in which the committee can be informed of progress on the Smart Cities project, with a focus on the Cumbria trial (plastic roads). Based on the outcome the committee may wish to ascertain if any of the technologies tested, including the use of plastic in roads, should be considered by the council for use on its roads, car parks or as part of its road maintenance.

This would enable the council to remain abreast with eco-friendly technology to future proof UK highways.

As acknowledged within this report, the following three recommendations apply to areas which technically fell outside of the remit of the RSE, nonetheless it would feel remiss if these were not brought to the attention of the committee.

Recommendation 6 – That ESC, either directly or through an overview and scrutiny task group, carries on monitoring the council's commitment to and engagement with local, national and international initiatives to continually raise the public's awareness of options to reduce waste and plastic consumption.

This would enable the committee to ensure that prevention (reducing waste, especially non-recyclable waste) remains at the forefront for the council.

Recommendation 7 – That, in future, ESC considers appointing a member (or members) of the committee, or of a relevant task group, to investigate topic / issues / innovations with regards to recycling / reusing waste (for example to visit a newly established recycling plant, or to meet with companies such as MacRebur when there are recent developments).

This would enable the committee to ascertain if these innovations would be appropriate for the committee, or council, to consider further.

Recommendation 8 – That the ESC asks the Climate Change task group to take into consideration this report, and the work undertaken by this RSE when it draws up its work programme. The RSE hoped that the task group would be able to provide timely information to ESC on innovations and research with regards to avoiding the production of non-recyclable waste, and innovations in collecting, processing and recycling waste.

Cllr Brian Mathew, lead member for the rapid scrutiny exercise – using plastic waste as part of the council's road maintenance programme

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Appendices

Background documents

The RSE considered a wide ranging selection of information, opinion and research on the use of plastic waste in road maintenance and road surfacing, including:

- Earth untouched, <http://earthuntouched.com/plastic-roads-revolutionary-idea/>
- The green age, <https://www.thegreenage.co.uk/plastic-roads-future-of-recycling/>
- The International Journal of Innovative Research in Science, Engineering and Technology (India),
https://www.ijirset.com/upload/2017/february/11_A%20Survey.pdf
- Prabhakar Sharma (with the School of Ecology and Environment Studies, Nalanda University, Rajgir, Nalanda, Bihar)
<https://www.hindustantimes.com/opinion/are-plastic-roads-a-safe-environmental-option/story-dniZV9Leyk0MQQZGRvHVGM.html>
- The Logical Indian, <https://thelogicalindian.com/story-feed/opinion/waste-plastics-for-road-laying-good-bad-or-ugly/>

SMART Places – Live Labs Competition Winners (including Cumbria)

<https://www.adeptnet.org.uk/system/files/documents/ADEPT%20Smart%20Places%20winners%20JAN%202019.pdf>