



## Summary Project Report

# Tackling Potholes with Technology

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# The Pothole Problem

*A pothole is “a local deterioration of the pavement surface in which the material breaks down in a relatively short time and is lost, causing a steep depression”.*



Potholes can form due to surface cracking, traffic loading, freeze/thaw, poor quality reinstatements from the “top down” or “bottom up” in the pavement.

In future, pothole occurrence could be influenced by:

**Climate change** – higher intensity rainfall, increased temperatures

**Traffic loading** – increase in traffic volumes and/or vehicle weights

**Maintenance** – that does not address the causes of an ageing infrastructure

The challenge:

Potholes are a growing problem and will take millions to fix; can more be done to prevent them happening in the first place?



The poor state of England's pothole-riddled road system is costing £14.4bn a year in economic damage

UK Government has increased its national pothole repair fund to £700 million for 2023/24





# Pothole Solutions

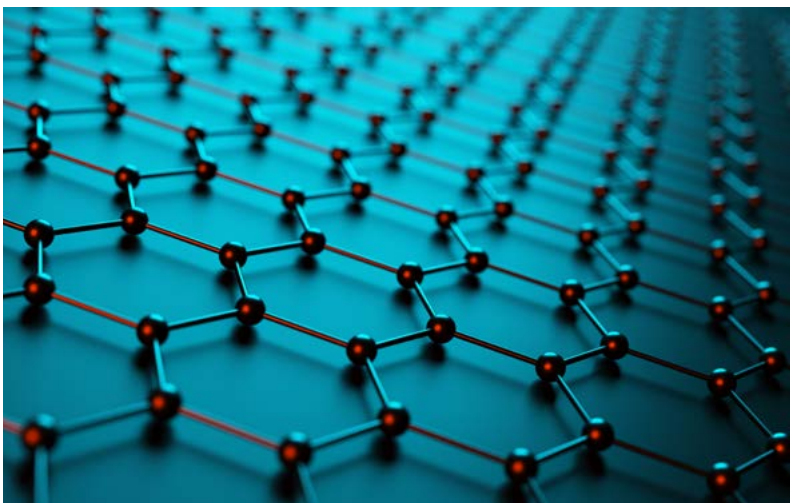
There are many traditional and new technologies on the market in the UK and overseas to identify, prevent and fix potholes. There are different levels of confidence regarding each technology and it is not a one size fits all. Different technologies will be appropriate for different scenarios.

## Identify



<a href="#">Digital vehicular surface condition monitoring (DRIMS) – Waterman</a>	
<a href="#">SCANNER and introduction of PAS 2161 – TRL</a>	
<a href="#">Road surface alerts – NIRA</a>	
<a href="#">AI-powered collection and analysis of road data – Vaisala</a>	

## Prevent



<a href="#">Innovative longer life asphalt mixes</a>
<a href="#">Graphene-enhanced asphalt</a>
<a href="#">Ground source heating/cooling of pavements</a>
<a href="#">Self-healing technology for asphalt pavements</a>

## Fix



[Autonomous pothole detection and repair – Robotiz3d](#)



[Pothole Pro – JCB](#)



[Spray injection patching – Velocity](#)



[Jet Patcher](#)





# Vision Zero for Potholes

There is no process to assure the different technologies or benchmark them against each other to see which ones work the best for different scenarios on UK roads.

The following steps could be taken to address this:

- Develop a specification for new technology and materials
- Design and implement process for assurance and benchmarking of new technology and materials
- Design and implement annual audit process for each supplier or technology to ensure they continue to perform to the specification
- Implement accelerated pavement testing to test performance of new products and innovations



A specification is a detailed, precise description of requirements for a product, material, service, or process. It defines what a product must do or how it must perform.

A standard is a formal, consensus-based document, formally published, developed by a recognised authority, that sets out approved requirements, guidelines, or characteristics for materials, products, processes, or services.

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