



# Northumberland

## County Council

COMMITTEE: CABINET

DATE: 13 JUNE 2023

---

### **ENHANCED POTHOLE REPAIR INVEST TO SAVE TRIAL**

**Report of:** John Riddle Cabinet Member for Improving our Roads and Highways

**Lead Officer:** Simon Neilson, Executive Director Place and Regeneration

---

#### **1. Purpose of report**

To seek approval to undertake an 'invest to save' trial of first-time patch repair of a proportion of actionable carriageway pothole defects, to quantify the costs and benefits associated with this alternative approach to one of the main revenue funded highway maintenance activities undertaken by the Council.

#### **2. Recommendations**

Cabinet is recommended to:-

2.1 approve the commencement of a 3-month 'invest to save' trial of first-time patch repair of a proportion of actionable carriageway pothole defects in the North and Tynedale Local Area Committee areas of the County.

2.2 approve the allocation of £492,600 in revenue funds from the severe weather reserve to fund the pilot scheme.

#### **3. Link to Corporate Plan**

This report is relevant to the following key themes in the Corporate Plan for 2023-2026:

**3.1** Achieving Value for Money - Improve how we use data and performance monitoring to inform and plan our services, deliver improved outcomes and ensure continuous improvement.

**3.2** Driving Economic Growth - Maintain the high standards of vital local services ensuring the natural and physical environments our residents live in, are active in

and visit, are accessible, clean, tidy and safe. A transport network that is well maintained and connects people and business.

#### **4. Key issues**

There is a desire to improve the condition and quality of the road surface and its ride quality through the adoption of first time cut out patching as a revenue maintenance repair technique (rather than the current technique for pothole filling).

However, this approach would require a step change in operations due to the nature and scope of the additional works involved, as the repair technique used takes longer to complete, requires testing for tar bound planings to ensure safe disposal of any hazardous waste, as well as traffic management and street works permitting. These operational, financial and logistical constraints mean that the application of this repair technique would be limited to a proportion of less urgent Category 2 defects which have 14-day and 28-day repair timeframes.

It is necessary to ensure that during any trial that the Council continues to repair other defects such as urgent Category 1 (2 hour and 24 hour) carriageway defects, footway defects, minor drainage repairs, sign repairs, vegetation removal etc, in order to ensure that other essential revenue maintenance activities are undertaken in a timely manner to safeguard highway users and avoid any backlog of works being generated.

A three-month pilot scheme in two areas of the County would cost £492,600 to undertake. It is proposed that this cost is met from the severe weather reserve which has been established to help meet any weather-related additional highway maintenance repair costs.

It is envisaged that the trial will commence in late June and run for approximately 3 months. The trial would be monitored, and cost and performance data evaluated to help further understand the effects and impacts of carrying out more pothole actionable defects as a first-time fix using a patch repair technique. Any proposed changes to revenue funded highway maintenance activity arising from the trial that entail revenue growth will need to be considered alongside other growth pressures as part of the Council's Medium Term Financial Plan budget setting process for 2024/25 onwards.

#### **5. Background**

Resources to carry out highway maintenance within Northumberland are funded through both revenue and capital funding. Revenue funding is used for day to day reactive, routine and cyclic maintenance. Capital funding is for planned, programmed or structural maintenance which improves or upgrades the asset - which for carriageways would include planned structural patching, resurfacing, reconstruction and surface treatment aimed at keeping roads structurally sound and extending operational life. Capital highway maintenance budgets are generally provided through the LTP capital grant allocation, which over the past 3 years has been supplemented with significant additional County Council capital through the £17.225m U and C roads maintenance programme. The Highways Service has also been very successful in securing specific grant funding through competitive bidding

opportunities, such as the Highway Maintenance Challenge Fund (the most recent example being £3.7m for refurbishment works to 8 steel bridges). For 2023/24 the capital budget for highway maintenance from LTP funding is £20.863m together with a further £3.8m allocated in the government's Budget in March 2023.

The Council has also made significant investments in new vehicles, plant and systems to support improved performance of revenue and capital based highway maintenance activities, such as the fleet of 4 new gully tankers across the County, the PotholePro multi-functional mobile repair machine which is being utilised in the South-East of the County and back office asset management IT systems, such as the Alloy highway management system that supports improved agile working, data management and analysis to assist further improvement and investment decisions. Most recently the Council has also invested in the introduction of a new on-line public realm reporting system FixMyStreets Pro to improve the ease and accessibility for members of the public to report maintenance issues such as potholes, and to significantly improve the standards of customer service through provision of automated updates on actions being taken through to completion of repair.

Improving the condition of the highway network is a key corporate priority for the Council and this report specifically focuses on revenue funded highway maintenance activity associated with fixing individual potholes and sets out the basis for a pilot scheme to evaluate and help further understand the effects and impacts of carrying out more pothole actionable defects as a first-time fix using a patch repair technique.

Actionable defects on the carriageway are identified from either highways inspections or from reports by third parties (third parties can be members of the public, elected Members, other staff, etc). The majority of defects on the carriageway are potholes. All carriageway actionable defects are risk assessed depending on their size, location and the nature of the road to determine whether they need repair within 2 hours, next working day, 14 days or 28 days. These timescales are set out in the Council's Highway Maintenance Manual and form a key aspect of the Council's Section 58 Highways Act defence of third-party insurance claims.

The repairs to these actionable defects are currently carried out by response gangs supplemented by hot box gangs. One two-person response gang is assigned to each of the 12 highway inspectors across the County, with one hotbox gang in each of the four operational areas. (It should be noted that the response gangs are also responsible for carrying out footway defect repairs, minor drainage repairs, sign repairs, minor vegetation removal, etc).

The repairs to potholes are currently predominantly carried out by cleaning out the pothole, coating the surface, and infilling the pothole with bituminous material or an equivalent permanent cold repair material. On occasion, where appropriate depending on the defects identified, the repair may also be a "plaster patch" where 6mm bituminous material is spread over the defect and surrounding area and compacted.

Repairs risk assessed as needing repair in 2 hours or next working day are Category 1 defects, whilst those needing repair in 14 days or 28 days are classed as Category 2 defects. The majority of defects found countywide are classed as Category 2 defects. For 22/23 the number of carriageway pothole defects across the County were as follows:

- Cat 1 (2 hour or 24 hour) - 1,435 actionable pothole defects
- Cat 2 (14 or 28 days) - 38,979 actionable pothole defects

This number of highway defects were repaired by the 12 No. two-operative response gangs with a pickup, wheelbarrow, vibrating plate and small tools, together with four three operative Hotbox vehicles and gangs which operated across the County. For all Category 2 defects, simple traffic management to Chapter 8 of the Traffic Signs Manual was used due to the short duration nature of the works, with signs placed out by the operatives carrying out the repairs. As the repair is by filling the defect rather than excavating in the highway and is of very short duration, no street works permit process is undertaken.

Repair of individual potholes is a revenue funded activity in terms of financial budgets. The repair methodology currently employed as set out above has allowed the identified actionable defects to be repaired within required timescales to keep the network safe, to meet the necessary timescales for defence of insurance claims and whilst working in line within the revenue budgets available. However, it is recognised that if it was possible to carry out repairs of actionable pothole defects by first-time cut out patching (rather than pothole filling) this would be beneficial to the condition and quality of the road surface and ride quality, and that repairs would be expected to have a longer life than pothole infilling.

- However, this would require a step change in operations. A cut out patch repair for each pothole would require traffic management to be set up, a saw cut around the perimeter of the defective area, the area to be mechanically planed out, excavated material disposed of, the base and edge of the patch to be tack coated, patch material placed and compacted and traffic management left in place whilst the material cooled and hardened. As the identified actionable defects to be repaired at any one time may be widely spaced across an area, travel time will also impact the number of defects that can be repaired. One operational team to carry out such patch repairs would need the following plant and labour and would be expected to be able to carry out around 24 patch repairs per day. 1x Skid Steer Planer plus sweeping attachment
  - 1 x 18T hotbox HGV
  - 2 x Skilled Highways Operatives
  - 2 X Traffic management operatives
  - 2 x 3.5/6.5T Tippers

Because of the longer duration of this activity and additional plant and labour for a patching operation compared to pothole infilling, a full traffic management layout would be needed at each location. Due to the excavation into the highway and the tar bound hazardous classification of many existing road materials, site testing of

excavated materials and necessary segregation and disposal will also need to be undertaken. Additionally, as there will be excavation in the highway and longer duration works, street works permits will be needed for each location.

Because of these additional logistical complications, it is not felt it would be possible to carry out Cat 1 (2 hour and next working day) defect repairs using patching, and these would always need to be repaired in the first instance as pothole infill. Cat 2 (14 day and 28 day) defect repairs could potentially be repaired as cut out patch repairs if the necessary budgets and resources were available. However, where the location of one of these defects required a road closure, the defect would need to be repaired as a pothole infill as the road closure process requires 12 weeks' notice. Defects at the edge of carriageway may also need careful consideration as there is often no carriageway material to patch into where the issue is caused by vehicle overrun to the edge of the existing carriageway width. In addition, because of the general deterioration of the surface surrounding a specific actionable defect, it may be difficult at some locations to identify the area to be patched without extending the patching to a very large area.

To further understand the effects and impacts of carrying out more pothole actionable defects as a patch repair, it is proposed to undertake a 3-month trial of first-time patch repair of a proportion of actionable carriageway pothole defects in two of the Local Area Committee areas of the County, Tynedale and North. The Tynedale area has good access to quarries for supply of repair materials. In contrast the North area has experienced some supply chain issues due to the recent closure of Howick Quarry and the cost and productivity implications of additional travel times and supply chain logistics associated with the increased use of a first-time fix patching technique needs to be identified to determine the viability of adopting this approach across more rural areas. The Castle Morpeth and South-East areas of the County will continue with the existing repair methodology and therefore act as part of the evaluation process against which the impacts and overall productivity and performance of pothole repair activity in the two different pilot areas can be compared.

The mid/late summer period offers the optimum time in which to try out new approaches to highway maintenance activity on the network due to the more favourable weather conditions whilst also avoiding the operational demands associated with the provision of the winter maintenance service. A 3-month trial would therefore be undertaken in both Tynedale and North areas to undertake a proportion of Cat 2 actionable pothole defects as first time cut out patch repairs. An additional patching gang with the plant and labour as set out above would be employed in each of the two areas. Each gang would be expected to be able to carry out around 24 patch repairs per day. As this would only be a proportion (anticipated to be around a third) of the defects identified in the trial period in the two areas it would be intended that all other Cat 2 defects would continue to be fixed as currently, using the existing response gang / hot box resources. The number and proportion of Cat 2 pothole defects repaired using the patching gang would be maximised as far as possible, with the number of defects able to be repaired by patching being one of the key metrics measured during the trial.

The response gangs would also continue their normal duties for other defects such as Cat 1 carriageway defects, footway defects, minor drainage repairs, sign repairs, vegetation removal etc to ensure that other essential revenue maintenance activities are undertaken in a timely manner to safeguard highway users and avoid any backlog of works being generated.

The additional cost of providing a patching gang for this three-month period is expected to be ~£246,300. This is broken down as follows. Average weekly cost of circa £20,525.

- 1x Skid Steer Planer/sweeper (£450 per Day)
- 1 x 18T hotbox HGV (£475 per day)
- 2 x Skilled Highways Operatives (£512 per day)
- 2 X Traffic management operatives (£464 per day)
- 2 x 3.5/6.5T Tippers (£260 per day)
- 35 tonnes of AC 6/10mm per day (approx.) (£1,800)
- Disposal of excavated material (based on 24T per day) (£144)

Therefore, the additional cost for the three-month trial in two areas is estimated to be £492,600. It is intended that this revenue funding would be sourced by releasing funding from the severe weather reserve, which has been established to help meet the costs of weather-related highway maintenance issues.

Additional resource issues may also be incurred in relation to preparing streetworks permit applications, streetworks permit processing and site testing for tar bound materials. The implications and resource needs of these will be monitored during the trial but are currently expected to be met from within existing budgets for the period of the trial.

It is envisaged that the trial will commence in late June and run for approximately 3 months. The trial would be monitored as it proceeds to identify and action any possible improvements or resolve issues encountered and to track the numbers and size of patch repairs completed. The key metrics to be evaluated through the trial being the number of individual pothole patch repairs and m2 of patching undertaken per day/week, average cost per m2 and per individual pothole patch repair, compliance with agreed response times in the different areas and any implications regarding streetworks permit resourcing. At the expiry of the trial the outcomes and implications of the trial will be evaluated and any proposed changes to revenue funded highway maintenance activity arising from the trial that entail revenue growth will be considered alongside other growth pressures as part of the Council's Medium Term Financial Plan budget setting process for 2024/25 onwards.

## 6. Implications

<b>Policy</b>	It is important that reported defects are investigated and if actionable, repaired within the agreed response times to ensure the safety of the highway network and to mitigate the Council's financial liabilities associated with insurance claims. The trial has been carefully developed to ensure that the increased use of cut out patch repairs should not compromise these two key objectives.
<b>Finance and value for money</b>	The cost of undertaking a 3-month invest to save pilot in two areas on the basis outlined in the report is estimated to be £492,600, to be funded from the severe weather reserve. The outcomes of the pilot scheme will be used to evaluate whether a first-time patch repair for actionable carriageway pothole defects offers an affordable and better value for money approach than the current maintenance arrangements.
<b>Legal</b>	As a Highway Authority, the County Council has legal obligations to maintain the highway under the Highways Act 1980.  The Local Authorities (Functions and Responsibilities) (England) Regulations 2000 confirm that the matters within this report are not functions reserved to Full Council
<b>Procurement</b>	Existing procurement framework agreements will be used to secure any additional staffing, plant and materials to enable the pilot to proceed.
<b>Human Resources</b>	None at this stage.
<b>Property</b>	None
<b>Equalities</b> (Impact Assessment attached)  Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	None
<b>Risk Assessment</b>	The selection of Category 2 defects that have 14 and 28 day response timeframes and the deployment of an additional 'gang' in each pilot area to undertake the repairs in a programmed approach will help maintain the safety of the network by mitigating the risk of repairs being delayed. Co-ordination of repairs through street works permits will also seek to minimise the disruption to

	highway users from the traffic management that has to be deployed during the maintenance activity.
<b>Crime &amp; Disorder</b>	N/A
<b>Customer Consideration</b>	The proposed trial of first-time patch repair of actionable pothole defects is expected to improve customer satisfaction with road condition and highways repairs.
<b>Carbon reduction</b>	If first time patching reduces repeat failures of pothole repairs, this may reduce life cycle carbon impacts of highway maintenance activity.
<b>Health and Wellbeing</b>	None
<b>Wards</b>	Alnwick, Amble, Amble West with Warkworth, Bamburgh, Bellingham, Berwick East, Berwick North, Berwick West with Ord, Bywell, Corbridge, Haltwhistle, Haydon with Hadrian, Hexham Central with Acomb, Hexham East, Hexham West, Humshaugh, Longhoughton, Norham and Islandshires, Prudhoe North, Prudhoe South, Rothbury, Shilbottle, South Tynedale, Stocksfield and Broomhaugh, Wooler

**Background papers:**

None

**Report sign off.**

***Authors must ensure that officers and members have agreed the content of the report:***

	Full Name of Officer
Monitoring Officer/Legal	Suki Binjal
Executive Director of Finance & S151 Officer	Jan Willis
Relevant Executive Director	Simon Neilson
Chief Executive	Helen Paterson
Portfolio Holder(s)	Cllr John Riddle

**Author and Contact Details**

**Report Authors**

**Name: Paul Jones, Director of Local Services**

**Contact email: [paul.jones01@northumberland.gov.uk](mailto:paul.jones01@northumberland.gov.uk)**



**Name: David Laux, Head of Technical Services**

**Contact email: [david.laux@northumberland.gov.uk](mailto:david.laux@northumberland.gov.uk)**

**Name: Kris Westerby, Highways Delivery Manager**

**Contact email: [kris.westerby@northumberland.gov.uk](mailto:kris.westerby@northumberland.gov.uk)**