BRIDGEND COUNTY BOROUGH COUNCIL

REPORT OF THE

CORPORATE DIRECTOR - COMMUNITIES

TOWN AND COMMUNITY COUNCIL FORUM

22 JULY 2013

HIGHWAY MAINTENANCE OF POTHOLES

1. Purpose of the report

The purpose of the report is to inform the Forum of the current processes for identification and repair of potholes.

2. Connection to Corporate improvement Plan/Other Corporate Priority

2.1 The issue of illegal and obstructive parking cross-cuts a number of aims in the Corporate Plan. This includes the Strategic Themes *Strong Communities* where the aim is to 'build safe and inclusive communities' and *Young Voices* where we want all children and young people to be safe. Road safety also forms part of the aims of the Community Strategy to have Strong Communities where there is a reduction in crime and people feel safer in their communities.

3. Background

3.1 *Why Do Potholes Form*

Potholes are generally created either when the foundation of the road fails causing the surface to sink and break up, or through the road surface allowing water to penetrate into the tarmac either through age, damage or physical openings for services (gas, electric, water, telecoms, sewers etc.)

Water is able to gain entry to the subsurface of the road through any 'cracks' that are present on the road surface, then during winter, water present under the road surface can freeze causing it to expand. In the same way when a bottle of water is placed in a freezer and as the water freezes the expansion of the ice can have enough energy to burst the top off the bottle.

In simple terms the expansion and contraction of the water ice under a carriageway gradually displaces material until a large enough void/depression is created as well as causing further cracking and the ingress of water. Ultimately the void collapses under vehicle traffic loading causing the breaking up and forming of the pothole, further vehicle traffic causing additional mechanical damage and widening and deepening of the pothole. Such

damage can be augmented in wet weather with a 'washing' effect as the water accelerates the removal of loose particles.

3.2 *How Do We Detect / Prevent Potholes*

There is no current widely used inspection technique to determine when and where a pot hole might form. As recommended by national guidelines, planned inspections of our streets are carried out which identify where potholes have occurred.

The frequency upon which carriageways and footways are inspected is based upon a categorisation such traffic/pedestrian volume or traffic/pedestrian type which would result in periodic inspections ranging from monthly to annually. The intervention criteria is based on an All Wales standard. Carriageways defects in excess of 40mm will be repaired, and in excess of 20mm for footways. However, dependent on the classification of the highway, as described above, the response time will vary. For example a pothole in excess of 40mm on the A4061 will require a repair within 24hrs, but the same pothole in a residential cul-de-sac would be repaired within 28 days. These intervention criteria and response times have been generally accepted in the courts as reasonable and complies with the Authorities duty to maintain under Section 41 Highways Act 1980. Apart from these scheduled inspections, members of the public are able to contact the Council with reports of potholes which are investigated and dealt with in accordance with the appropriate intervention criteria. These customer referrals are recorded on the CRM data base and passed to the Highway Inspector for assessment.

In terms of preventative actions, where the Authority is aware of carriageway excavations by utility companies, inspectors check the quality of the work and reinstatement to ensure that the likelihood of issues is substantially reduced. Furthermore, regular core testing is undertaken of a random sample of utility openings to ensure their compliance with the specification.

3.3 *How does the Council deal with potholes*

Pothole repairs: The Authority repairs potholes with either a **Cold** or **Hot** material. In both cases the defect is completely cleared of any water or debris, with a section being cut back around the pothole to ensure suitable vertical faces for material to adhere. A pre-application of a tack coat to assist adhesion is applied before the cut section is filled with asphalt/tarmac and compacted with appropriate compaction equipment.

- **Cold Material** - This is used as an immediate response to a pothole to prevent issues to users of the highway and as the name suggests uses a cold mixture of deferred set tarmac to fill the hole and compacted into position. Whilst this is not generally considered a permanent repair in most situations these repairs will remove the immediate defect and the repairs last a reasonable time and no further works are required. Unfortunately in certain circumstances there are premature failures in the repair due to significant amount of traffic utilising the route, the weather conditions at the time of repair

and the overall surface condition of the road being poor. Due to its simplicity this repair allows potholes to be made safe relatively quickly and easily.

In the event of a pothole being identified that requires remedial measures within 24hrs a Cold Material repair is used, and mitigates against injury or damage to third parties and reduces the risk to the authority in the case of personal injury or damage claims.

- **Hot Material** - In the event of a failure of a cold lay repair described above, or at locations where a cold lay repair is not appropriate, a repair is undertaken with the use of hot material, again the pothole is completely cleared of any water or debris, with a square/rectangular section being cut back around the pothole. A pre-application of a tack coat to assist adhesion may be applied before the cut section is filled with hot asphalt and compacted with a mechanical means such as a drum roller or a vibratory plate. The joint around the repair is then sealed. This form of repair is likely to last significantly longer than the cold repair but is more costly in terms of time and resources required. The availability of hot asphalt is also restricted to the opening times of the suppliers. Even these repairs can be subject to failure if the structure of the road has failed, the surface around the repair is cracked or breaking up, there are water springs under the surface, the repair has been carried out in very wet or cold weather, or the area suffers from a high level of heavy turning traffic. In some instances the only appropriate repair method is complete resurfacing, which is extremely expensive.

4. Current Situation

Between 2011/12 the Council had in the order of 2438 reports of potholes which were addressed according to the response and intervention criteria.

Between 1st January until the end of May the highway inspectors and repair teams have received 481 reported potholes and sought resources to implement as many hot material repairs as possible to further reduce and reoccurrence of potholes.

Roads Looking Like Patchwork Quilts

It is often commented that the number of pothole repairs on roads resembles a patchwork quilt? However, if we were to extend the size of repair the cost in time and materials would escalate and would not guarantee that a pot hole would occur just outside of the repaired area. This is in all likelihood due to defects in the road surface that may need to be addressed through a greater level of intervention such as resurfacing or surface dressing. However, the use of hot material repairs does allow for a greater resilience of repair that may be more cost beneficial when compared to the cold material repair.

4.1 The Future

Overall between 30 and 40% of the Highways funding for carriageway maintenance is expended upon reactive repairs. As this is considered a large

proportion of expenditure, trials have been made with differing compounds of cold and hot repairs but the results potential additional costs for such interventions such as Rhino™ repair have not been identified as presenting an overall improvement in current methods. Currently the Council is trialing the utilisation of more hot material repairs where possible to mitigate against cold repair failures. The success of this operation will be monitored to ascertain if this meets the best value approach to repairs.

5. Effect upon Policy Framework & Procedure Rules

5.1 There is no effect.

6. Equalities Impact Assessment

6.1 There is no impact on specific equality groups and disability duties.

7. Financial Implications

7.1 There are none.

8. Recommendation

The Forum is recommended to note the report.

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Background papers:

Equalities Impact Assessment Toolkit