MEDIA RELEASE

Anatomy of a pothole

Gauteng, 28 August 2022 - Operation Vala Zonke, the national Transport Department's pothole repair campaign spearheaded by the South African National Roads Agency SOC Limited (SANRAL), is quickly gaining momentum as reports pour in daily on the SANRAL pothole APP.

As repairs get underway in various municipalities around the country, we turn our investigative eye on the irksome pothole itself - that much-cursed South African malady that President Cyril Ramaphosa declared war on earlier this year.

Like everything made for the outdoors, roads are worn down by use and eroded by weather. This together with constantly high traffic volumes including, an ever-growing number of heavy vehicles, requires the roads to take enormous strain and if not adequately maintained will deteriorate including the formation of potholes.

Amongst other things, potholes are formed by high or very low temperatures causing cracks in the road surface. These cracks get wider over time and rainwater would seep in, eroding the underlying layers of crushed rock and gravel.

Passing traffic stresses the road surface further, until it loses strength and collapses, and breaks away from the surface. The small gap caused by this absent piece of surface grows in size as more water and traffic penetrates the underlying layers. That is why we generally see more potholes forming during rainy seasons.

Key to preventing potholes is regular routine road maintenance to ensure rain or storm water flows off the road surface as quickly as possible. Regular routine road maintenance should also ensure that there a natural unimpeded slope away from the road on either side, so that water runs off into a ditch or roadway drainage system. Maintenance activities like regularly cleaning stormwater culverts and grass cutting are therefore essential.

In some cases, especially on narrow rural roads, the weakest spot is where the surface meets the verge. If the traffic volumes on these roads are high, including a high percentage of heavy vehicles, then certain parts of the surface edges will deteriorate. These are generally referred to as edge breaks which if left unattended to will propagate towards the outside wheel path, thus also forming a pothole.

"While poor maintenance is often cited as the main cause of potholes, the damage caused to roads by heavy vehicles, especially overloaded vehicles, is a major contributing factor. Heavy vehicle using roads which were not designed to carry such loads, is a serious concern. Overloaded heavy vehicles cause the greatest amount of damage to roads, even in a single instance of transgression. A single overloaded axle and associated wheel pressures that are above the permissible limits, will have a detrimental impact on the asset value of the road, causing longer term damage of which potholes are one of the symptoms," said Randall Cable, SANRAL Western Region Manager.

Tackling the pothole pandemic in SA is not a simple matter of slapping on a hot-asphalt band aid and steering away from the problem.

The commitment from national government, SANRAL and other road authorities, has to be supported by the public. Reporting potholes via the SANRAL APP will ensure that Operation Vala Zonke delivers on its promise to fix potholes on all SA roads, said National Transport Minister Fikile Mbalula during the launch in Gauteng earlier this month.

The APP, available on IOS and Android phones, has moved beyond its bumpy start, when it wasn't available for Android for a few days.

Technical glitches in the registration and sign-in process - and the 'select an issue' tab - have been ironed out and the app is now running on both platforms, according to SANRAL APP project manager Andrew Mac Kellar.

“The pothole reporting function is running smoothly now, although we are still working on the feedback function. The important thing is that potholes are being reported to the maintenance teams concerned, and we are streamlining that process further,” says Mac Kellar.

Pothole repair is also a costly business. According to Mbalula, the cost of fixing a single pothole is between R700 and R1,500/per square meter.

The process of fixing a pothole is down to an exact science:

- The pothole is cleaned out. Dirt and debris in the pothole are removed. Having pieces of broken asphalt mixed in with the new asphalt can weaken the repair.

- The pothole is reshaped. Straight edges are cut “around” the pothole and old asphalt is removed.

- Primer and new asphalt. The pothole is primed, and new asphalt is used for the repair. The asphalt is compacted after being applied to minimise water penetration and increase its resistance. The compaction also creates a bond between the old and new asphalt.

- Clean-up. Any debris left around the repair is removed. Most pothole repairs can be driven on immediately.

Otsile Mpela, MD of Bafenyi Asphalt, cites poor workmanship as one of the greatest obstacles to achieving quality pothole fixing and edge-break repairs.

“It is imperative that the correct procedure is applied. The first thing to do is to develop a checklist of the equipment and tools required, including good quality cold asphalt,” he says.

In the execution phase, a concrete saw is used to cut out the existing asphalt around the pothole or edge-break. “A proper square cut is required if you are patching a pothole.” Mpela says that after cutting and preparing, it’s important to use SS60 primer, which serves as a glue to hold the cold-asphalt and base together. “You can use a hard-broom to spread it around and cover the whole exposed area. Leave it for three to five minutes before you apply your asphalt, which is spread around with a rake.”

“While you are compacting, the poured asphalt will start to go down. Keep pouring asphalt until it is level with the existing surface.” A five to 10-minute compacting period follows.

The SANRAL Pothole app is free and is 17.2 MB in size. The app has received a ratings and review score of 2.9 out of 5, up from 2.3 out of 5 earlier this month. The APP is easy to download and open and you can start reporting potholes immediately after registration. The App opens up a little camera which you use to take a picture of the pothole, while the system automatically records the GPS location," says Mac Kellar.

The information then gets assigned to the relevant authority, depending on the location of the road, and the responsible maintenance depot attends to fixing the pothole.

"The person reporting the pothole gets a notification that the report has been received, and one when the pothole has been fixed. Even if a lot of people report the same pothole, they will all receive these notifications," Mac Kellar assures South Africans.

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