

# Strive For A Pothole-Free Environment

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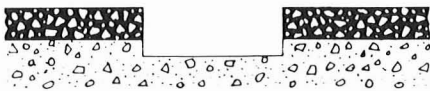
While potholes cannot be eliminated entirely, a good repair program will help to considerably reduce the problem. Repairs made the correct way will not only last longer, but will cost approximately one-fifth as much as the job that is hurried and done improperly. Quite often, there is not enough time or resources available to do the repair the correct way; however, there always seems to be time to do it over and over. The *throw and go*-type of repair with several passes by the dump truck tires for compaction might last a month or two; however, when done correctly, the repair should last a year or more.

## Permanent Pothole Repair Procedure Outlined

There are 7 basic steps to pothole patching. Some steps can be adjusted to the conditions that exist, but for the most part, all steps must be closely followed to ensure a long-lasting patch.

Of course, before the patching is begun, one should have determined that this is the correct procedure. For example, in badly deteriorated sections, a complete overlay may be required. Of utmost concern should be the safety of the repair crew.

### Surface & Base Cut



1. **Marking:** The area around the pothole must be marked with chalk or paint so that the worker doing the cutting can easily and quickly remove the failed material. Marking is done to include only portions of the pavement that will provide a good surface against which the patch is to bond; that is, these portions should have no cracks and appear solid compared to the area immediately adjacent to the pothole.

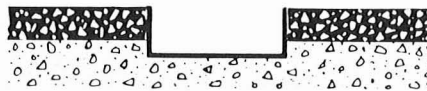
2. **Cutting:** The worker doing the cutting should avoid cutting more than is marked (excess cutting reduces cost effectiveness due to increased material use). The walls of the hole should be made vertical to provide a good surface for adhesion and "locking" the patch in during compaction. Cutting should continue to a depth where good pavement or base material exists.

If the pavement that is cut away is to be recycled, care should be taken to avoid including base and subbase material to prevent contamination of the mix. When the cutting is complete, the large chunks of pavement should be removed and stock-piled, if not used immediately, for future recycling.

3. **Cleaning:** This step includes removing any remaining debris from the hole. (Compressed air works well for this.) If the hole has been made to the base or subbase, these materials, if disturbed, must be compacted so that compaction by traffic will not occur after the patch is in place.

If the hole has water in it, the bonding of the patch will be poor. The hole must be dried as much as possible by using compressed air, a torch, rags, broom, etc. It should be stressed that all debris must be removed from the sides of the hole. Loose material will cause a poor bond, and lead to early failure of the patch.

### Tack Coat Applied

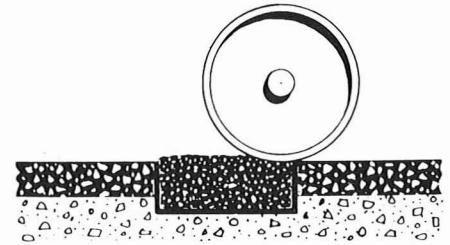


4. **Tacking:** A tack coat should be used to provide a bond between old and new surfaces. Too much tack coat will result in an excess amount of asphalt, which will lead to rutting, and eventual failure of the patch.

Hot mix, as well as recycled mix or cold mix, should always be tacked. The best method for tacking is to spray the tack in a thin coat. Brooming and pouring are generally not effective because excess tack material usually accumulates at the bottom of the hole and around the edges.

5. **Placing:** Holes deeper than 6 inches should be filled (and compacted) in more than one lift. Placing should be done with a shovel in one lift, working from one side of the patch to the other. To prevent segregation, the material should be laid, rather than thrown or raked, into the hole. The patch should be made so that after final compaction, it is slightly (about 1/8 inch) above the surrounding pavement to allow possible future compaction by traffic and eliminate *birdbaths*. No patching material should be left on the surrounding surface.

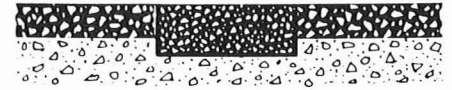
## Asphalt Placed And Compacted



6. **Compaction:** It is crucial that the patch be compacted properly. Poor compaction will cause shrinkage of the patch, allowing intrusion of water around the edges and ultimately leading to failure.

The compaction method should match the size of repair. A one-square-foot patch does not require compaction with a 10-ton tandem steel-wheeled roller. Most road repairs can be made with small to medium-sized vibrating plate or roller compactors. Care should be taken by the operator to ensure that the compaction force is directed on the patch and not the surrounding pavement.

### Finished Patch



7. **Edge Sealing:** Edge sealing is done to keep water out of the joint between the pavement and patch. Any material can be used, so long as it does not cause excess asphalt to bleed around the patch. A layer of fine sand can be used to blot the seal.

With a good preventive maintenance program, the number of potholes can be drastically reduced. Under a preventive maintenance program, timely crack sealing and seal coating are the key ingredients. As soon as a pavement is built, preventive maintenance should start. Early detection and sealing of cracks is necessary. Also, periodic seal coats and/or rejuvenators (as appropriate) are important.

**The majority of the information in the above article was taken from the Pothole Primer, U.S. Army Corps of Engineers, Cold Regions Research & Engineering Laboratory. The layout was adopted from The Wheel, Colorado State University. ■**