



**US Army Corps
of Engineers.**

Engineer Research and
Development Center

Pothole Patching Resources

Technology

The Cold Regions Research and Engineering Laboratory offers documentation and a video to assist elected officials and administrators of cities, towns, and military facilities in understanding and managing their pothole problems in asphalt pavements. Additional references in the *Pothole Primer* direct the reader to more detailed information on roadway design and repairs with an emphasis on reducing or eliminating the formation of potholes.

Problem

Roads and streets are the one public facility that practically every taxpayer uses every day. Unlike other facilities or public buildings that we may visit occasionally, roads and streets get a daily physical and visual rating. They are the most visible public facility and affect each citizen's safety, comfort, and economy every day of the year.

A pothole is any pavement defect involving the surface or the surface and base, to the extent that it causes significant noticeable impact on vehicle tires and vehicle handling. Potholes are most prevalent in cold regions, and most potholes are found on local road and street systems: 80% of the nation's roads are local roads, which are more apt to have "just grown" rather than being planned from the start, and which are much more likely to have water, gas and other utilities underneath. Potholes don't just appear, though, and there's a great deal that can be done to eliminate them.

Current pothole repair methods are costly and ineffective. Temporary patching that lasts only days or even hours is not a proper use of resources and can cost up to five times as much annually as one-time permanent patches.

Traffic continues to increase, and trucks keep getting heavier, causing more damage to roads. The damage from potholes to smaller cars has increased substantially. Potholes have caused permanent injury and even death, with accompanying lawsuits and settlements.

The combined effect of decreasing road maintenance funds and increasing traffic growth has propelled many communities into a severe potholing situation. The community can counteract this trend by initiating a program of preventive maintenance.



Potholes result from the effects of water and traffic on pavement.



Temporary patches may last only days and can cost five times as much per annum as permanent patches.

**Expected Cost
To Implement**

The video and documentation are available free of charge from the Cold Regions Research and Engineering Laboratory and from CRREL's Web site (see URLs below).

Benefits/Savings

The video and documentation offered by CRREL give public administrators sensible and cost-effective suggestions for making permanent, one-shot repairs of potholes. Using commercially available equipment for recycling hot-mix asphalt concrete and currently available trucks, compactors, and pavement breakers, permanent one-shot repairs of potholes are possible at considerable savings in time, resources, and money. A 1976 comparison of the effectiveness of different techniques of pothole repair showed that doing the job the wrong or "expedient" way can cost five times as much as doing it the right way.

ERDC POC

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Distribution Sources

The videotape, reports, and technical digest article listed below are available free of cost from USA Cold Regions Research and Engineering Laboratory, Attn: Library, 72 Lyme Rd., Hanover, N.H. 03755-1290. The *Pothole Primer* report is available on line in PDF format at CRREL's Web site.

**Available
Documentation**

Pothole Primer – A Public Administrator's Guide to Understanding and Managing the Pothole Problem, CRREL Special Report 81-21 (revised December 1989).
(http://www.crrel.usace.army.mil/research/Pothole_Primer.pdf) (18.8M PDF file)

The Engineer's Pothole Repair Guide, CRREL Cold Regions Technical Digest 84-1.

Comparison of Three Compactors Used in Pothole Repair, CRREL Special Report 84-31.

Videotape: *Potholes – Causes, Cures, and Prevention*, 12 minutes, Video 72, PD00064, U.S. Army Cold Regions Research and Engineering Laboratory. (To order, go to <http://crrellib1.crrel.usace.army.mil/uhtbin/cgiirsi.exe/DvKvnNpjxL/0/49>, Search on Potholes, check Video 72 and hit REQUEST, select New Title Purchase, then fill in and send form.)