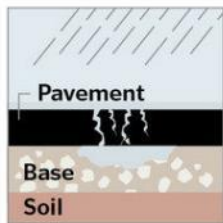


# Urban Weathering

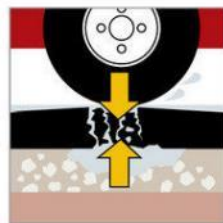
Weathering is the breaking down of rocks and minerals on Earth's surface. Water, ice, acids, salt, plants, animals, and changes in temperature can all contribute to weathering. Weathering occurs over various periods of time and can affect surfaces either physically or chemically.

In cities weathering can be observed in potholes and cracks in pavement. Water contributes to creating potholes and other cracks in roads and sidewalks by seeping into the surfaces and then freezing and expanding. The space where the water expands when it is frozen leaves behind a hole under the pavement. This hole eventually collapses under the weight of traffic.

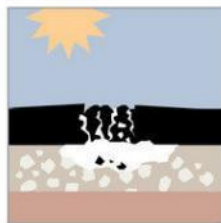
## How potholes form



**1.** Water seeps through cracks in pavement and softens the road's base, collects, then freezes.



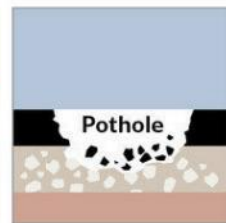
**2.** When the water freezes, it expands and forces the pavement up. Traffic further stresses the pavement.



**3.** The sun dries up the water, leaving a hole under the pavement.



**4.** With no base, the pavement is weakened and collapses under the weight of traffic.



**5.** A pothole is formed where the pavement collapsed. Wear from additional traffic expands the hole.

SOURCES: Virginia Department of Transportation; Better Roads magazine

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Plants can also contribute to weathering as their roots grow up through the surface of the ground. Roots eventually push up on the surface with enough force that the surface weakens, causing cracks that can lead to breakage.

Many other chemical elements and physical structures affect weathering over long periods of time. This causes change to occur in both natural and human made structures.

