Hot Pavement and Water Quality

Impervious surfaces, such as sidewalks, roofs, parking lots, and roads, prevent rainwater from percolating into the ground. On sunny days, sunlight warms these surfaces more than surrounding lawns. For example, asphalt can heat up to ~150 degrees when the air temperature is only 90 degrees. When water flows across these warm surfaces, runoff is warmed by the impervious surface. When this warm runoff is then carried quickly to streams or groundwater by stormwater systems, it results in thermal pollution.

Stream water temperature plays an integral role in stream health. Aquatic organisms have a preferred temperature range, warm runoff can stress those animals whose preferred range falls below elevated temperatures. Temperature also changes stream water chemistry which in turn can change biological activity and species diversity. Warm water carries less dissolved oxygen than cool water. As warm runoff mixes with stream water and raises water temperatures it may drive oxygen out of receiving water bodies further reducing availability to fish and other organisms.

Slowing runoff to allow it to cool reduces the impact of thermal pollution on streams and water bodies receiving the runoff. Encourage responsible development in your community by promoting rain gardens, filter strips, grass swales, and retention basins which slow down runoff. At home, direct downspouts into the lawn, flower garden, or rain garden, away from driveways.