

Wake Water Trend #2: Increased Stormwater Runoff

Surface water runoff is expected to increase due to changes in land use and weather patterns.



Stormwater Runoff

Drivers and Expected Impacts

Increasing frequency of extreme weather events is expected to create more stormwater runoff and contribute to flooding. Land use changes, especially the new impervious surfaces added to accommodate population growth contribute to this trend. These hard and compacted surfaces reduce infiltration because they cannot absorb water at the same rate as natural vegetated surfaces (Figure 1).

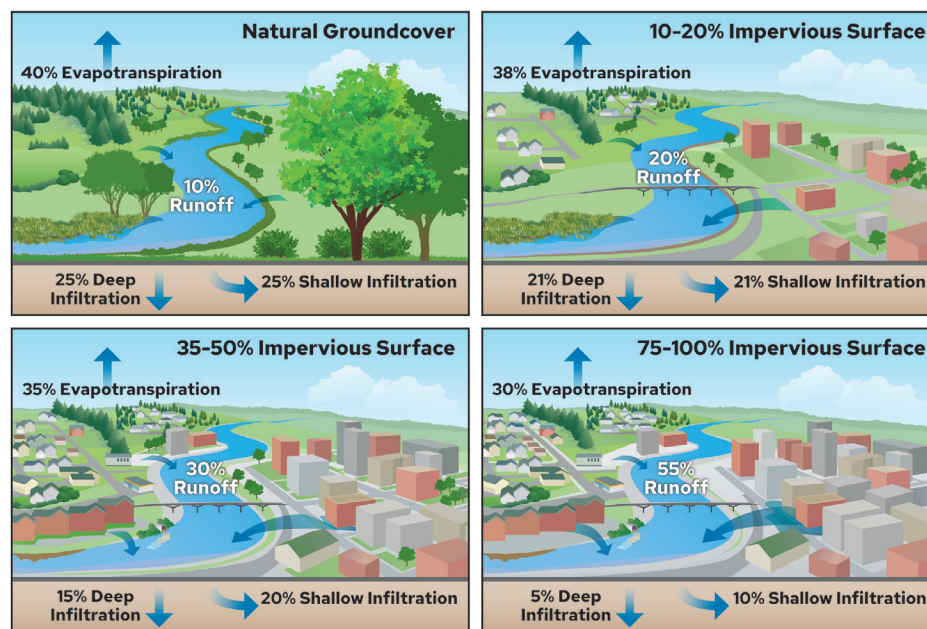


Figure 1. Comparison of impervious surface coverage to water infiltration and surface runoff. (Source: Tetra Tech; generated with data from FISRWG 2001¹)

Related Trends



Future Trends

The Wake County One Water Team used hydrology and water quality metrics to describe the County’s hydrologic (the effects of water on land) and water quality characteristics under current and future conditions. The future is uncertain, but the models illustrate a range of risks. Changes in the amount of pollution will vary based on location and pollutant type. Major observations across Wake County include (Tetra Tech and RTI 2025²):

- Long-term daily average runoff is projected to increase.
- Increased runoff volumes are anticipated to increase the likelihood of localized flooding.
- Large increases in pollution are expected during and after storms.

¹ <https://directives.nrcs.usda.gov/sites/default/files2/1712931021/20691.pdf>

² Tetra Tech and RTI (Research Triangle Institute International). 2025. *Baseline Analysis Memorandum*. Report 2.3.5. Prepared for Wake County Government by Tetra Tech and RTI, Research Triangle Park, NC.