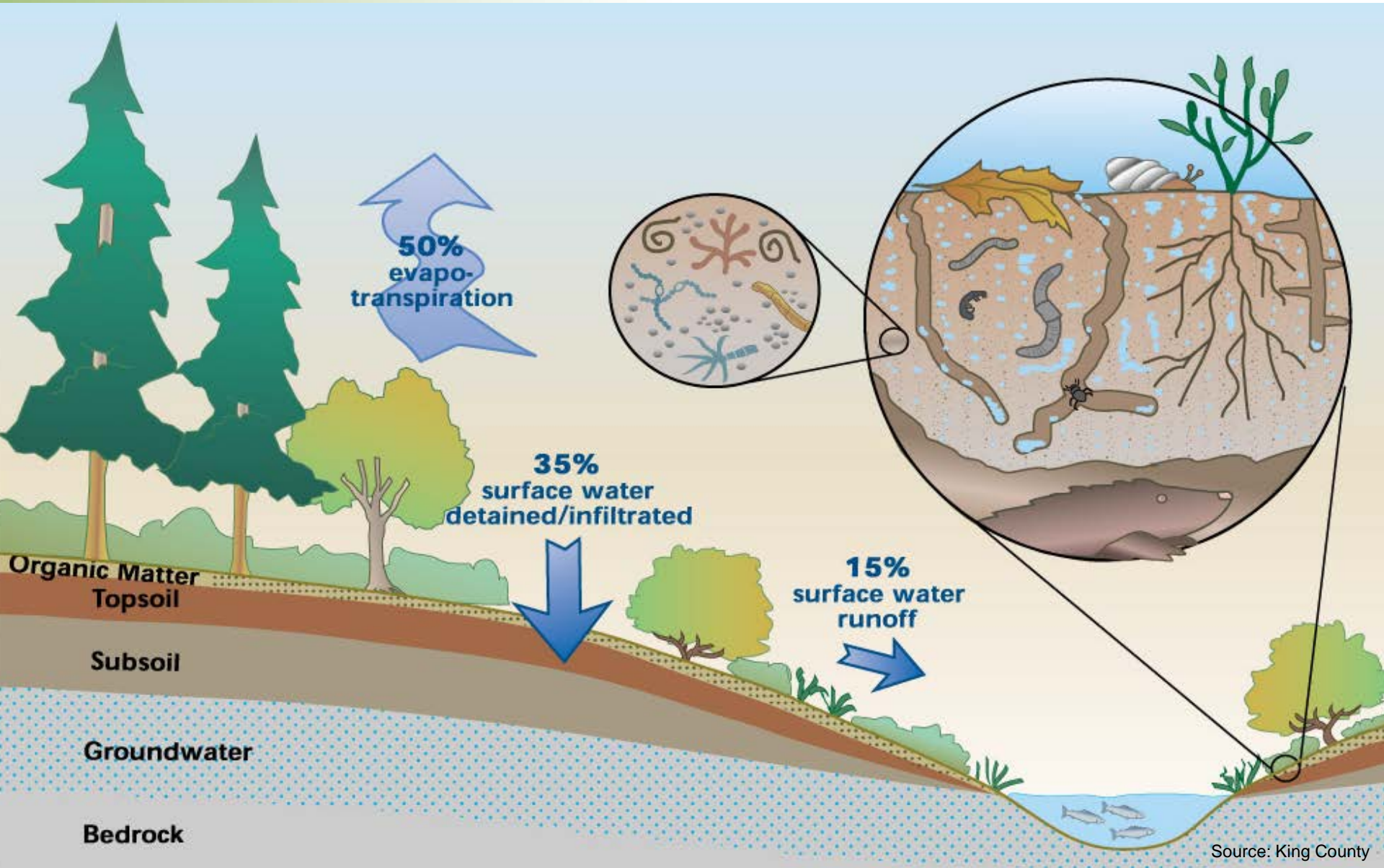




# Introduction to Hydrology

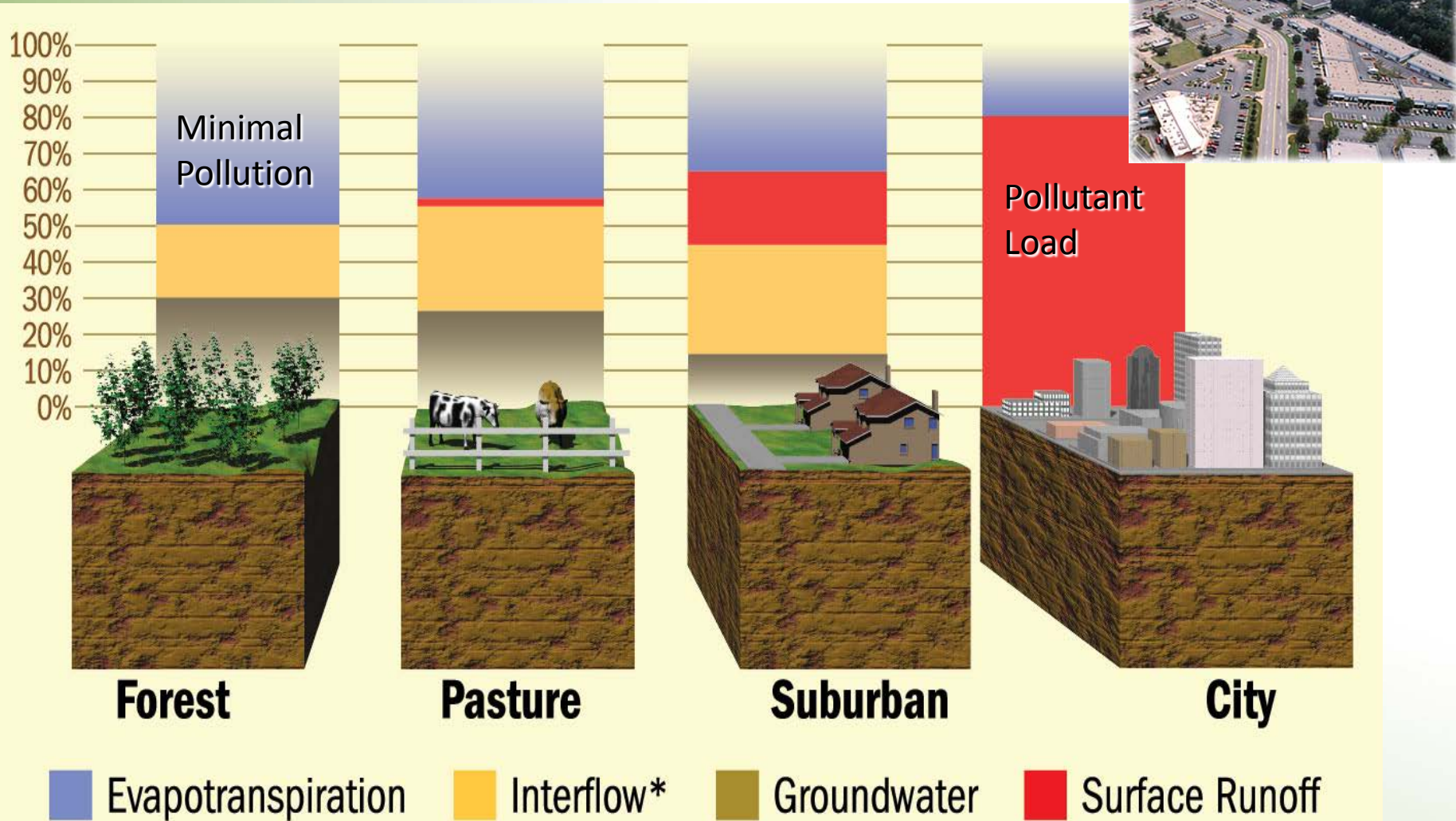


# Natural Stormwater Management





# Land Use = Hydrology = Pollutant Load = Water Impairment



Source: Sego Jackson, 2001

\*water that travels just below the surface

# 75% of Us Live Near Polluted Water



- Turbidity/TSS - Clay & Fine Silt Sediment (5100 streams)
- Coliform bacteria
- Metals – Cu, Cd, Cr, Ni, Pb, Zn
- Nutrients – N & P
- Petroleum Hydrocarbons - Motor Oil, Diesel Fuel, Gasoline (polycyclic aromatic hydrocarbons)



# Storm Water Pollution Areas

## What

- Parking Lots, Highways/Streets, Rooftops
- Golf Courses, Lawns, Pet Parks

## Who

- NPDES Stormwater Permits:
- MS4s, Industrial, Construction
- CAFOs, CSOs

Sources



- ✓ Trout/Salmon bearing
- ✓ Endangered species
- ✓ Eutrophic water bodies
- ✓ Beaches/Recreational
- ✓ TMDL designated streams

Priority Areas

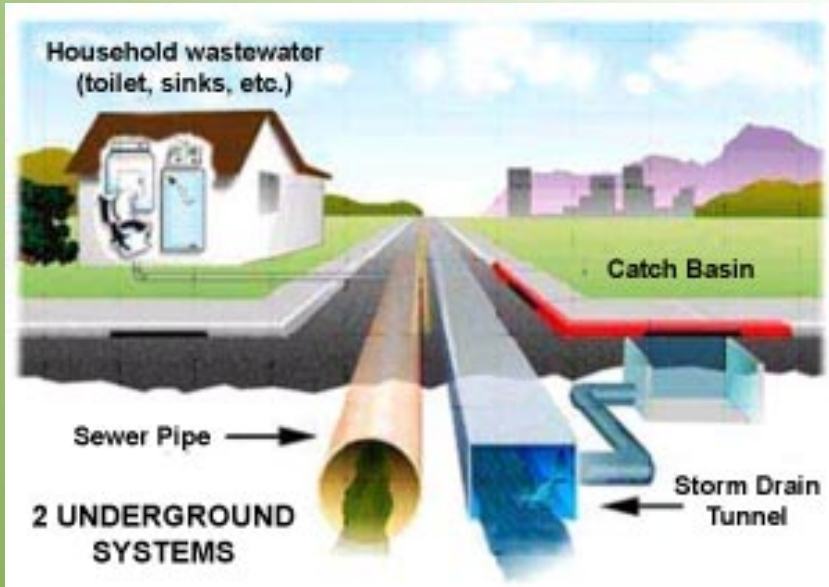


# During construction why do we target only sediment?

- No Stabilization (disturbance) = Big Load,
- Other pollutants attach to sediment,
- Post-construction, however....
- Sedimentation is #1 source of water pollution in the US (USEPA)



# Grey Infrastructure is..\$\$\$\$\$\$

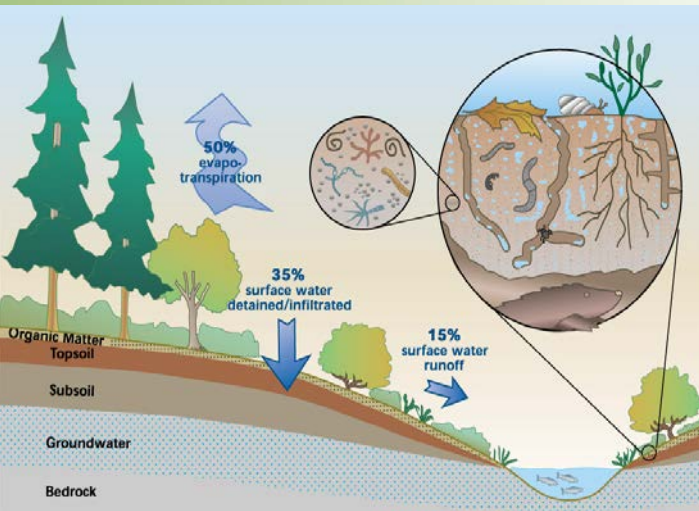


- ✓ Centralize Collection, Conveyance & Treatment
- ✓ Land Intensive
- ✓ Infrastructure Intensive
- ✓ Pollution Intensive
- ✓ Energy Intensive





# Runoff + Erosion Control



**Designed to:** 1) dissipate energy of rain impact; 2) hold, infiltrate & evaporate water; 3) slow down/disperse energy of sheet flow; 4) provide for optimum vegetation growth