



Sprawl's Impacts on Water Resources and Watersheds

Metropolitan Area ⁱ	Acres Developed (1982 -1997) ⁱⁱ	Impervious Acres at:		Avg. Yearly Infiltration Loss (billions of gallons of water) ⁱⁱⁱ
		15% Imperv.	35% Imperv.	
Atlanta, GA	609,500	91,425	213,325	56.9 to 132.8
Boston-Brocton-Nashua, MA – NH	433,000	64,950	151,550	43.9 to 102.5
Washington, DC	343,300	51,495	120,155	23.8 to 55.6
Dallas, TX	302,400	45,360	105,840	6.2 to 14.4
Houston, TX	291,400	43,710	101,990	12.8 to 29.8
Minneapolis-St. Paul, MN-WI	286,100	42,915	100,135	9.0 to 21.1
Chicago, IL	250,000	37,500	87,500	10.2 to 23.7
Charlotte-Gastonia-Rock Hill, NC - SC	246,200	36,930	86,170	13.5 to 31.5
Philadelphia, PA-NJ	238,800	35,820	83,580	25.3 to 59.0
Riverside-San Bernardino, CA	232,500			Model does not apply*
Orlando, FL	222,600	33,390	77,910	9.2 to 21.5
Nashville, TN	216,000	32,400	75,600	17.3 to 40.5
Raleigh-Durham-Chapel Hill, NC	207,000	31,050	72,450	9.4 to 21.9
Pittsburgh, PA	201,800	30,270	70,630	13.5 to 31.5
Tampa-St. Petersburg- Clearwater, FL	199,800	29,970	69,930	7.3 to 17.0
Detroit, MI	187,200	28,080	65,520	7.8 to 18.2
Greenville-Spartanburg- Anderson, SC	166,300	24,945	58,205	12.7 to 29.5
Greensboro-Winston-Salem- Highpoint, NC	148,100	22,215	51,835	6.7 to 15.7
Phoenix-Mesa, AZ	145,600	21,840	50,960	Model does not apply*
Seattle-Bellevue-Everett, WA	141,000	21,150	49,350	10.5 to 24.6

Estimates of groundwater infiltration lost to imperviousness show that billions of gallons of water are no longer recharging aquifers and surface waters. This chart depicts the effect of large amounts of new development and various levels of imperviousness across the Top 20 most land-consuming metro areas. Relative infiltration losses are the result of a combination of factors, including amount of land consumed, average annual precipitation, local climate, topography and other factors according to USGS regional groundwater data.

*(Note: The model does not apply to metro areas in arid regions because low rainfall and very high rates of evaporation remove much of the available rainfall before it infiltrates and replenishes

groundwater. For a detailed explanation of how the figures in the table were calculated, please see the Appendix to the report.)

ⁱ Metropolitan Statistical Areas and Primary Metropolitan Statistical Areas as defined by the Office of Management and Budget (OMB) in guidance effective June 30, 1999 (OMB Bulletin 99-04). Northeastern County Metropolitan Areas are based on townships and were defined in the same OMB memorandum.

ⁱⁱ Source: United States Natural Resources Inventory, Natural Resources Conservation Service, United States Department of Agriculture (USDA), 1997 (revised December 2000). Available at: <http://www.nrcs.usda.gov/technical/NRI/1997/>.

ⁱⁱⁱ Gallons of lost infiltration of rainwater, rounded to the nearest 1/10 billion gallons. According to the United States Geological Survey (USGS), the average American uses between 80 to 100 gallons of water every day. Using 100 gallons per day, a billion gallons of water per year would be enough to fulfill the daily usage of approximately 27,397 people.

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