

## WATER CYCLE

The water cycle describes the existence and movement of water on, in, and above the earth. The “water cycle” concept can be applied to the Sedona Wetlands Preserve system. Class A+ treated effluent is supplied to the wetlands. As water flows through the basins, a portion is consumed by a combination of evaporation into the atmosphere, evapotranspiration by plants, or percolation into the subsurface. On average, evaporation rates are approximately 58 inches per year (in/yr); evapotranspiration is assumed to be negligible but may become significant as vegetation develops; and percolation rates are estimated to be approximately 78 in/yr. On the other hand, average precipitation adds 18 in/yr.

Table 2.1 summarizes the wetlands water balance.

**Table 2.1 Wetlands Water Balance  
Operations & Maintenance Manual  
City of Sedona Dells Wetlands, Phase I  
Water Consumption (Water out of the System)**

Evaporation <sup>(1)</sup>	-58 in/yr
Evapotranspiration	None Assumed Initially
Percolation <sup>(2)</sup>	-78 in/yr
Subtotal Water Consumption	-136 in/yr
<b>Water Added into the System</b>	
Precipitation <sup>(3)</sup>	18 in/yr
Subtotal Water Added	18 in/yr
<b>Net Water Balance</b>	
Net Water Consumption	-118 in/yr
Wetland Water Surface Area	12 acres
Annual Estimated Effluent Consumption	120 acre-feet
Annual Estimated Effluent Consumption	39,000,000 gallons

Notes:

(1) ADWR Cooley Method for “normal” evaporation

(2) Based on hydraulic conductivity tests (ASTM D5084) performed by Speedie & Associates, February 2011

(3) Based on National Oceanic and Atmospheric Administration (NOAA) data