

- **Recreation use patterns have changed a lot in the last 30 years, but Forest Service design guidelines for sizing water systems have remained the same.**
- **Forest Service water systems need to be designed and constructed to provide visitors the amount of water they need. Water systems that are larger than necessary cost more and don't benefit visitors.**
- **An informal survey showed that water use appears to be lower than it used to be in more developed campgrounds, but appears to be higher than it used to be in less developed campgrounds.**

Despite these changes, the Forest Service is still using guidance for sizing water systems from the 1970s—the Forest Service Handbook 7409.11 , Section 44.11–Exhibit 01, Average Daily Design Flow (excerpted in [table 1](#)). The table lists average daily design flows used when designing water supply systems for Forest Service recreation areas.

It's important that the design flow table match actual water-use rates so Forest Service water systems can be designed and constructed to provide the amount of water that is needed without spending extra money for water systems that are larger than necessary. Data were collected to find out whether standard water-use rates for recreation areas have changed as a result of recreation and plumbing fixture changes and whether the table should be updated.

**Table 1 Forest Service Handbook 7409.11 , Section 44.11–Exhibit 01 (recreation information only).**

Average Daily Design Flow		
Consumer Use	Consumption in gallons per day	Unit
<b>Camping Facility</b>		
Without flush toilets	5	PAOT*
With flush toilets	20-30	PAOT*
With flush toilets and showers	25-50	PAOT*
Trailer with —		
Water connection	25	PAOT*
Water and sewer connection	50	PAOT*
<b>Day use</b>		
Without flush toilets	1	Person
With flush toilets	5	Person
With toilets and showers	20	Person
<b>Travel Trailer Dump Station</b>	20-30	Trailer
<b>Miscellaneous</b>		
Organization camp	35-75	Person

\*PAOT—Persons At One Time.

Water EDU calculation based on above: 25 Gallons per 1 PAOT -  
 -> 50 G per 2 people, SAWS water 290 g = 1 EDU  
 means 0.172 EDU per 1 RV or 5. 8 RV units = 1 EDU water

SEWER EDU: based on SAWS 200 = 1 EDU,  
 applied to above 0.25 EDU per 1 RV or 4 RV units= 1 EDU sewer