United States Environmental Protection Agency

EPA's 2011 Drinking Water Infrastructure Needs Survey and Assessment

Summary In 2011, the U.S. Environmental Protection Agency (EPA) conducted its fifth Drinking Water Infrastructure Needs Survey and Assessment (DWINSA or Assessment). The purpose of the Assessment is to document the 20-year capital investment needs of public water systems that are eligible to receive Drinking Water State Revolving Fund (DWSRF) monies – approximately 52,000 community water systems and 21,400 not-for-profit noncommunity water systems. As directed by the Safe Drinking Water Act (SDWA), EPA conducts the Assessment every four years and uses the results of the survey to allocate DWSRF funds to the states. The results are also used, in part, to allocate DWSRF tribal set-aside funds to EPA Regions.

How Was the Assessment Conducted? The approach for the Assessment was developed by EPA in consultation with a workgroup consisting of representatives from EPA Regions, each state, and the Navajo Nation. The Assessment approach relied primarily on a random sample survey. A survey questionnaire was used to collect documented needs and costs. In all, approximately 3,150 public water systems received the survey questionnaire.

EPA mailed questionnaires to all 606 of the nation's large water systems (serving more than 100,000 persons) and 2,234 medium systems (serving between 3,301 and 100,000 persons) in the state survey. Approximately 99 percent of the large systems and 97 percent of the medium systems returned the questionnaire. The needs of small water systems (serving fewer than 3,300 persons) in the state survey are based on findings of the 2007 DWINSA and the not-for-profit noncommunity systems are based on findings of the 1999 efforts; both needs are adjusted to 2011 dollars.

The infrastructure investment needs of water systems serving Tribal communities were estimated using a statistically-designed survey. This was the first data collection of these systems since 1999. The sample included 220 American Indian and 86 Alaska Native Village water systems. The participant response rate was 99 and 98 percent, respectively.

What Is the Total Need? The survey estimated a total national infrastructure need of $384.2 billion for the 20-year period from January 2011 through December 2030. American Indian and Alaska Native Village systems represent $3.3 billion of the total national need. It is important to note that the scope of the survey is limited to those needs eligible to receive DWSRF assistance – thus excluding capital projects related primarily to dams, raw water reservoirs, future growth, and fire protection.

How Does the 2011 Need Compare to the Other Assessments? The total national need of $384.2 billion reported by this Assessment is similar to the estimate of $379.7 billion in the 2007 Assessment and $375.9 billion in 2003 (all adjusted to 2011 dollars). The Agency believes the 2011 Assessment continues the success of the 2003 and 2007 efforts in better capturing previously under-reported needs for rehabilitation and replacement of existing infrastructure as compared to the 1995 and 1999 Assessments.

Total National 20-Year Need (in billions of January 2011 dollars)

System Size and Type	Need
Large Community Water Systems* (serving over 100,000 persons)	$145.1
Medium Community Water Systems* (serving 3,301-100,000 persons)	$161.8
Small Community Water Systems (serving 3,300 and fewer persons)†	$64.5
Not-for-Profit Noncommunity Water Systems‡	$4.6
Total State Need	**$376.0**
Alaska Native Village Water Systems	$0.6
American Indian Water Systems	$2.7
Costs Associated with Proposed and Recently Promulgated Regulations	$4.9
Total National Need	**$384.2**

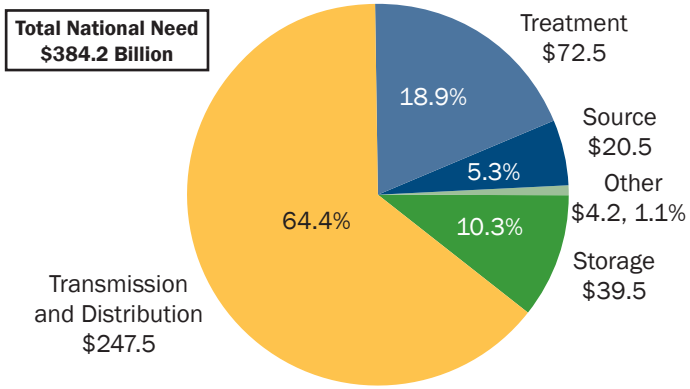
Note: Numbers may not total due to rounding.

* "Large" and "Medium" community water systems are defined the same as for the 2007 Assessment but are different than in the 2003 and previous Assessments. See Appendix A in the DWINSA report for more information

† Based on 2007 Assessment findings adjusted to 2011 inventory and cost models.

‡ Based on 1999 Assessment findings adjusted to 2011 dollars.

Total 20-Year Need by Project Type (in billions of January 2011 dollars)



Note: Numbers may not total due to rounding.

The large magnitude of the national need reflects the challenges confronting water systems as they deal with an infrastructure network that has aged considerably since these systems were constructed, in many cases, 50 to 100 years ago.

Total National Need by Project Type With $247.5 billion in needs over the next 20 years, transmission and distribution projects represent the largest category of need. This result is consistent with the fact that transmission and distribution mains account for most of the nation's water infrastructure. The other categories, in descending order of need are: treatment, storage, source, and a miscellaneous category of needs called "other."

How Does the Need Vary by System Size? The results of the state survey show that the nation's medium-sized community water systems (serving between 3,301 and 100,000 people) account for the greatest share, 43 percent or $161.8 billion, of the total national state system need. Large and small systems also have substantial needs of $145.1 billion and $64.5 billion, respectively.

The majority of the American Indian and Alaska Native Village water systems are small, with only 4 medium-sized Alaska Native Village systems and 73 medium-sized American Indian systems. There are no large American Indian or Alaska Native Village systems. As a result, the findings of the tribal survey are not reported by system size.

What is the Regulatory Need? Although all of the infrastructure projects in the survey promote the public health objectives of the SDWA, only $42.0 billion, or approximately 11 percent of the total national need is directly attributable to compliance with specific SDWA regulations. The majority of projects are needed to ensure the continued provision of safe drinking water.

Of the total $42.0 billion need for obtaining and maintaining compliance, $37.1 billion is needed for existing regulations. The remaining $4.9 billion is for compliance with proposed and recently promulgated regulations. Sixty-five percent of the total regulatory need is associated with microbial contaminants.

How Credible are the Findings? In order to produce an estimate of need nationally and for states receiving an allocation greater than the base amount of 1 percent of the DWSRF, EPA set a statistical confidence level of 95 percent with a precision target of ±10 percent. To meet this target, all large systems were surveyed and an adequate number of medium systems were randomly selected in each fully surveyed state. A national sample of small systems was selected for the 2007 survey and those findings were used for the 2011 Assessment. For the American Indian and Alaska Native Village surveys, EPA set the same confidence and precision targets. To meet the targets, all American Indian and Alaska Native Village systems serving a population of over 3,301 were surveyed, and a random sample of small systems was selected.

In planning for the 2011 Assessment, EPA, states, and representatives of American Indian and Alaska Native Village systems reached a consensus on consistent policies regarding replacement and rehabilitation assumptions and documentation requirements to support projects allowable for the survey. EPA's quality assurance reviews included significant efforts to ensure policies were followed by all states, American Indian, and Alaska Native Village water systems.

Where Can I Obtain More Information? Information on the Drinking Water Infrastructure Needs Survey and Assessment Fifth Report to Congress is available in electronic format on the Office of Ground Water and Drinking Water home page at http://water.epa.gov/infrastructure/drinkingwater/dwns/index.cfm.