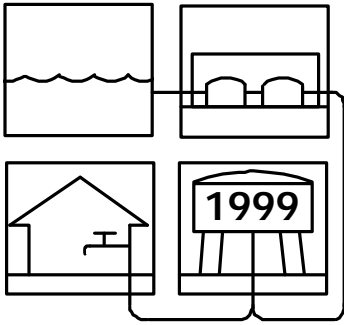




# Fact Sheet

## 1999 Drinking Water Infrastructure Needs Survey: American Indian and Alaska Native Village Water Systems





# FACT SHEET

## 1999 Drinking Water Infrastructure Needs Survey: American Indian and Alaska Native Village Water Systems

In 1999, the U.S. Environmental Protection Agency (EPA) conducted the second Drinking Water Infrastructure Needs Survey. As part of this survey, the 20-year capital investment needs for American Indian and Alaska Native Village water systems were documented. The survey reports infrastructure needs that are required to protect public health, such as projects to ensure compliance with the Safe Drinking Water Act (SDWA). As directed by the SDWA, EPA uses the results of the survey as a tool for allocating Drinking Water State Revolving Fund (DWSRF) Tribes.

### How Was the Survey Conducted?

The approach for the survey was developed by EPA in consultation with a workgroup consisting of American Indian, Alaska Native Village, and Indian Health Service representatives. All of the 19 American Indian systems serving more than 3,300 people completed a mailed questionnaire. EPA offered technical assistance to help these systems identify eligible needs and prepare supporting documentation. As small systems often lack the specialized staff and planning documents needed to complete the questionnaire, EPA conducted site visits to a random sample of 78 American Indian water systems serving fewer than 3,300 people.

In Alaska, the availability of key personnel and data resources (such as aerial photographs) allowed for a census of the 174 systems that serve predominantly Alaska Native Villages. The survey included 2 medium-sized systems and 172 small systems. Infrastructure projects for these systems were documented by EPA in consultation with district engineers, Village Safe Water, and Alaska Native Village representatives.

### What Is the Total American Indian and Alaska Native Village System Need?

The survey estimates that American Indian and Alaska Native Village water systems need to invest \$2.2 billion in capital improvements for the 20-year period from January 1999 through December 2018. Of this total, \$2.0 billion is needed now to ensure the provision of safe drinking water.

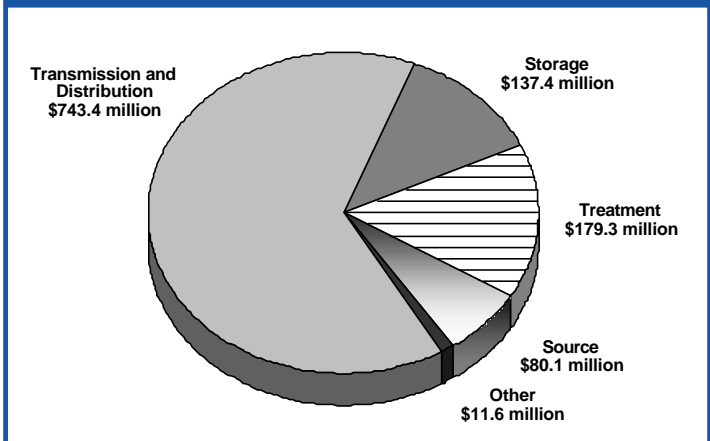
### What Is the American Indian Need?

The total 20-year need for American Indian systems is \$1.2 billion of which \$1.0 billion is needed now to protect public health. Transmission and distribution projects account for 65 percent of the total need, a finding that reflects the long lengths of main often needed to transport water from a source to a treatment facility and from the facility to remotely located users. Treatment is the second largest category of need at \$179 million. Approximately 93 percent of American Indian systems rely on ground water, and therefore the treatment needs of these systems are typical of groundwater systems—with disinfection (chlorination) being the most common form of treatment. The remaining categories of need, in descending order, include storage, source, and a miscellaneous category of needs called “other.”

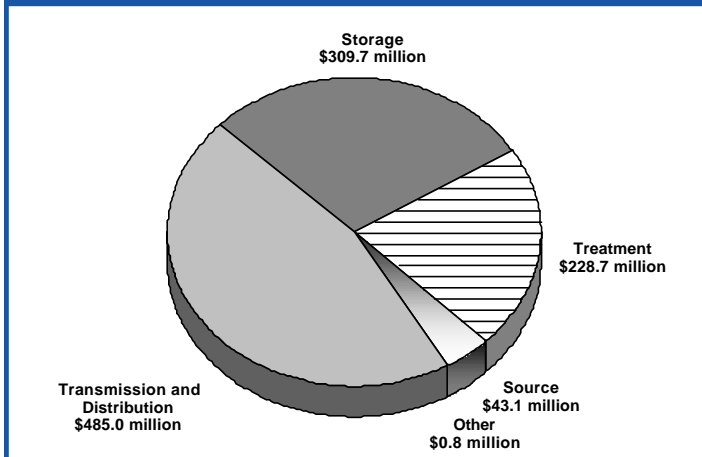
### What Is the Total Alaska Native Village Need?

The total 20-year need for Alaska Native Village systems is \$1.1 billion. Of this total, \$1.0 billion is needed now. Transmission and distribution comprise the largest category of need at \$485 million. Although Alaska Native Village systems usually need only a modest amount of pipe to connect each home, arctic conditions require the use of insulated above-ground mains and continuously circulating heated water which greatly increase costs. Storage represents the second largest category of need at \$310 million and treatment is the third-largest at \$229 million. The large need for water treatment and storage is due in part to the seasonal availability of water which requires many systems to treat and store an entire year’s worth of water within an 8 to 12 week period during the summer. Due to these unique requirements Alaska Native Village facilities often have capacities that far

### Total 20-Year American Indian Water System Need by Category (in January 1999 dollars)



## Total 20-Year Alaska Native Village Water System Need by Category (in January 1999 dollars)



exceed what would normally be expected for these small communities. Costs are also elevated due to the high cost of transporting equipment and construction materials to remote sites. Source water and “other” infrastructure projects account for the remaining needs.

### What Is the per Household Need?

The public health significance of the total American Indian and Alaska Native Village water systems’ need is underscored by considering the per-household costs which average \$6,500 per household for American Indians and \$51,000 per household for Alaska Natives.

For American Indian systems, widely dispersed homes, the remote location of communities, and the limited availability of water resources are among the logistical challenges that account for these high per household needs. Alaska Native Village systems face higher costs due to their remote locations and the unique design and construction standards that are required to withstand permafrost conditions.

### What is the Regulatory Need?

Although all of the infrastructure projects in the survey promote the public health objectives of the SDWA, approximately \$165 million of the total need is directly attributable to specific SDWA regulations—with \$57 million and \$108 million for American Indian and Alaska Native Village systems, respectively. Almost all of these needs involve the upgrade, replacement, or installation of treatment technologies for compliance with the Surface Water Treatment Rule.

### How Credible are the Findings?

The methods developed for the survey produce a highly precise and credible estimate of need. Each need included in the survey was accompanied by documentation describing the project and why it is needed. Stringent documentation criteria ensured fairness and uniformity in assessing each system’s needs.

Because all of the Alaska Native Village and medium-sized American Indian Water systems were included in the survey, the needs of these systems were calculated with certainty. The estimates of need for small American Indian systems have a national precision level of 95 percent  $\pm$  10 percent (meaning that there is 95 percent likelihood that the actual need is within 10 percent of the estimated need).

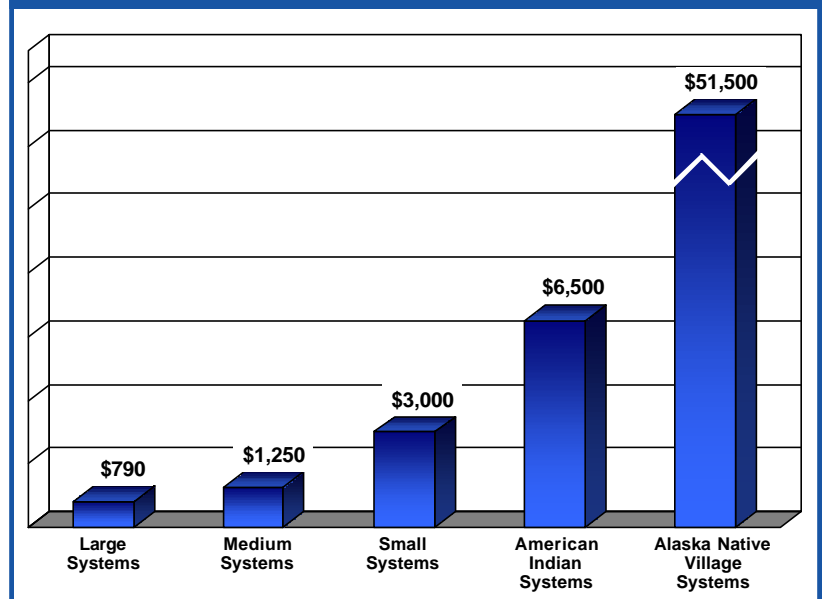
### How Does the Need Compare to the First Survey?

The total need for American Indian and Alaska Native Village systems increased by \$534 million and \$216 million, respectively, compared to the 1995 findings. This increase resulted from refining the methods used to estimate the needs. For the American Indian systems, the sample size was increased to provide a more precise estimate of national need. Similarly, the use of a census for Alaska Native Village systems increased the precision of the need estimate compared to the statistical sampling and extrapolation methods used in the first survey.

### Where Can I Obtain More Information?

Information on the Second Drinking Water Infrastructure Needs Survey Report to Congress is available from the Safe Drinking Water Hotline at 1-800-426-4791. EPA will post the electronic files on the Office of Ground Water and Drinking Water home page at [www.epa.gov/safewater](http://www.epa.gov/safewater). Reprints of the report are available for sale to the public through the Educational Resource Information center at 1-800-276-0462, or through the National Technical Information Service at 1-800-553-NTIS or (703) 487-4650.

## Average 20-Year Per-Household Need (in January 1999 dollars)





United States  
Environmental Protection Agency  
(4101)  
Washington, DC 20460

Official Business  
Penalty for Private Use  
\$300

**Bulk Rate**  
Postage and Fees Paid  
EPA  
G-35