

Border Environment Cooperation Commission
Water Main Replacement Project for Somerton, Arizona

[General Criteria](#)

[Human Health and Environment](#)

[Technical Feasibility](#)

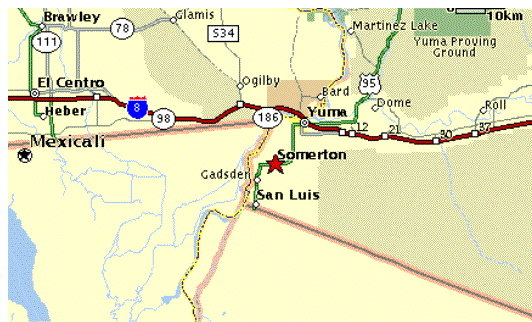
[Financial Feasibility and Project Management](#)

[Public Participation](#)

[Sustainable Development](#)

I. General Criteria

1. **Type of Project.** *The project consists of the replacement of existing asbestos cement pipe (ACP) water mains, service lines, meter boxes, meters, and fire hydrants, and the installation of new system control valves.*
2. **Location of Project.** *The City of Somerton is located in Yuma County, Arizona, approximately 10 miles [16 km] southwest of Yuma, Arizona, 10 miles [16 km] south of the California/Arizona border, and 10 miles [16 km] north of the southern Arizona/Mexico border. The project is located within the 100 km border region as defined by the La Paz agreement. The City of Somerton is a community of approximately 6,700 residents and the population is expected to reach 10,800 by the year 2025 (1.9% annual increase). The City limits bound an area of approximately one square mile. The City of Somerton is shown in the figure below:*



Description of Project and Tasks. *The project consists of replacing old undersized water mains, valves, fire hydrants, lot service lines, water meters, and meter boxes in portions of the City. These components will be replaced because they are at the end of their service life, resulting in increased maintenance to repair leaks. Approximately 40,000 linear feet [12,200 m] of water lines will be replaced. Also, when fire hydrants are maintained, the water service must be shut off in large areas of the city because of lack of isolation valves.*

Compliance with International Treaties and Agreements. *The project will not have any international impacts as all construction, maintenance, and project effects will occur within U.S. territory in a very localized zone.*

II. Human Health and the Environment

1. **Human Health/Environmental Needs.** *The risk of health impacts increases with the age of the pipes. The water main replacement project will provide beneficial impacts to human health by maintaining and improving water quality. Existing pipes with residual iron and manganese deposits will be replaced, limiting the clouded water and discolored clothing problems. Also, the project will reduce or eliminate the need to take large sections of the system out of service during hydrant maintenance and thus prevent potential problems during fires or other human health emergencies.*
2. **Environmental Assessment.** *The U.S Environmental Protection Agency (EPA) issued a letter dated May 20, 1999 stating that the Somerton Water Main project "is eligible for a Categorical Exclusion under 40 CFR 6.107 and is exempt from the substantive environmental review requirements of the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et. seq.). In addition, USDA Rural Development issued a Categorical Exclusion for the project on April 21, 1999. The reason for the Categorical Exclusion was that all proposed construction activities will take place within areas that have been previously disturbed. No wetlands, floodways, rivers, endangered species, historical, or archaeological sites will be affected by this project.*

An Environmental Assessment (EA) was prepared in compliance with the BECC Project Certification Criteria. The EA presents the following information:

- *the current environmental setting of the City of Somerton*
- *the direct, indirect, cumulative, and short- and long-term positive and negative effects of the project on the environmental components of the affected area*
- *description of unavoidable negative impacts and planned mitigation efforts*
- *environmental benefits, risks, and costs of the proposed project as well as the environmental standards and objectives of the affected area*
- *transboundary impacts and possible effects in each country*

None of the impacts are significant for any of the environmental parameters.

3. **Compliance with Ecology and Cultural Laws and Regulations.** *EPA determined that the project is categorically exempt for the environmental reviews under NEPA.*

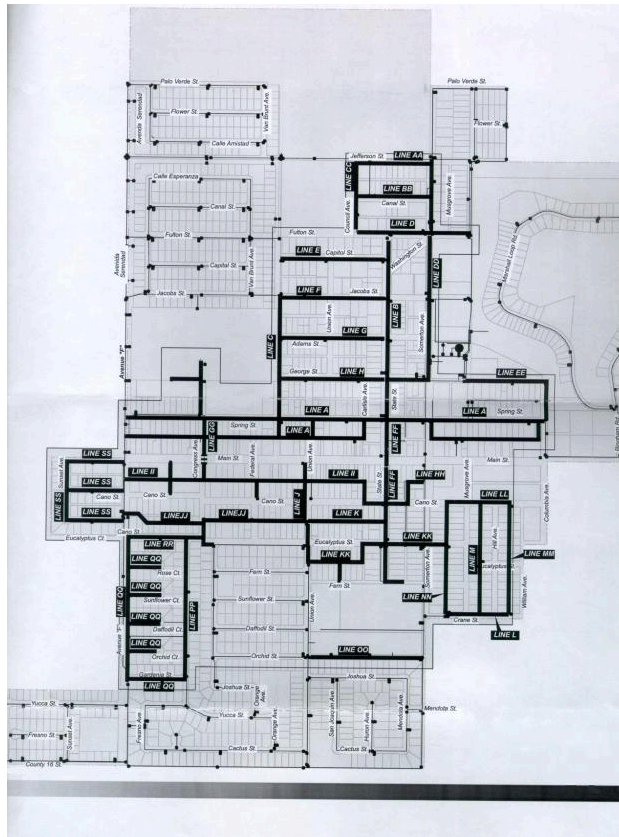
III. Technical Feasibility

1. **Appropriate Technology.** The preliminary engineering design consists of the layout shown in the figure presented below. Implementation of the water project would not change the source of potable water or quantity of water withdrawn. A decrease in water demand may be observed due to the efficiency gained in replacing leaking and brittle ACP distribution lines with 6", 8", and 10'-diameter PVC water mains. The ACP lines will be left in the trenches and buried along with the new pipes following replacement.

Somerton drinking water has consistently met or exceeded all Federal and State requirements for all tested contaminants. There have been no violations. However, there have been intermittent episodes of poor water quality due to hydrant maintenance and pipe repair activities. Due to the expected reduction in required maintenance, high water quality will be consistently maintained. Pipes with residual iron and manganese will be removed. Replacement of valves and hydrants will facilitate repair and maintenance and will reduce the need to take larger sections of the system out of service during hydrant maintenance.

Somerton's population is expected to increase by nearly 65 percent by the year 2025. However, the primary purpose of the water main replacement project is not growth, but rather to provide reliable water service to current residents. The average water consumption rate for Somerton is about 150 gallons [570 l] per capita per day (gpcd) or 1.0 MGD [43.8 l/s]. This consumption rate is comparable to some other desert communities, although this rate could be reduced significantly with pipe replacement and water saving measures such as xeriscaping. The BECC is in the process of starting a water conservation plan for the City of Somerton to identify specific water consumption reducing measures.

The proposed construction technology for the water main replacement is widely used in the U.S and is well recognized and proven. The recommended alternative includes the replacement of water mains, valves, fittings, lot service lines, water meters, meter boxes, and fire hydrants with modern, commonly used components. The intended construction method of open trenching is a standard practice following established construction codes.



2. **O&M Plan.** An operations and maintenance manual does not exist. The design engineer will prepare an O&M manual for the City upon completion of the water main replacement project design. The O&M manual will include contingency plans for operational problems and a safety plan for Occupational Safety and Health Administration (OSHA) safety requirements.
3. **Compliance with applicable design norms and regulations.** A registered professional engineer licensed in the State of Arizona will design this project. The design will conform to current building codes and it must fulfill the City's own public works and permit conditions, and pass inspection prior to completing the project.

V. Financial Feasibility and Project Management

1. Financial Feasibility.

The NADB completed the financial analysis to determine the funding structure of the project and the user rates to guarantee the financial sustainability of the operating agency.

Estimated Cost

Concept	Amount (US\$)
Water Main Replacement	3,436,791
Total	\$3,436,791

Current

Operation and Maintenance Costs (Annual)

Concept	Amount (US\$)
Water System	
Personnel & Operations cost for distribution and treatment, without any debt, capital outlays, administration, or customer costs.	338,513
Total water system expenses (including \$35,175 capital outlays and \$7,522 debt service)	453,879

Financial Structure

Source	Amount (US\$)	%
USDA-Rural Development*	1,582,961	46.1
BEIF	818,161	23.8
City of Somerton (match for RD grant)	39,000	1.1
USDA-Rural Development loan	996,669	29.0
Total	\$3,436,791	100%

*Note: This figure includes a proposed USDA-RD grant for \$818,161 for FY2000-2001. This grant will not be disbursed until USDA-RD fiscal year begins in October 2000.

Also, the City of Somerton expects to receive a total of \$238,858 in transtion assistance to ease the user fee increase.

2. **Rate Model:** The NADBank prepared a rate study to determine the water user fees that will guarantee the financial sustainability of the project. The proposed water user fees are presented below.

PROPOSED SINGLE FAMILY RATES (US\$)			
	2000	2001	2002
Base fee (5,000 gallons)	\$ 10.50	\$ 8.25	\$ 8.50
Fee for every 1,000 gallons	\$ 0.75	\$ 1.25	\$ 1.25
	2003	2004	2007
Base fee (5,000 gallons)	\$ 8.75	\$ 9.00	\$ 10.40
Fee for every 1,000 gallons	\$ 1.35	\$ 1.45	\$ 1.75

As an example, a family of 4 with an average consumption of 150 gallons per capita per day expects to pay \$20.25 in the year 2000 and \$33.15 for the same consumption in the year 2007.

3. **Project Management.** The City is empowered to undertake the required debt obligations and retains the authority to perform standard administrative functions to operate and manage the system.

V. Public Participation

Comprehensive Public Participation Plan. *The City of Somerton submitted a public participation plan to BECC on March 13, 2000 and was approved on the 20th of that month. The Plan comprises the development of a steering committee, meeting local organizations, providing project information to the public, holding public meetings and submitting a final report for the project.*

Steering Committee: *The steering committee was formed on January 12, 2000. Its membership is composed of: Paula Muñoz, citizen of Somerton; Irma Aguirre, Arizona Public Service; Rudy Agustín, Housing America Corp.; Sylvia Gradias, Gradias Realty; Scott Omer, Arizona Department of Transportation; Salvador Troccoli, citizen of Somerton; Ricardo Lomeli, Somerton School Board and Architect; Laurie Senko, Executive Director of Housing America Corp.; Judith Bobbitt, Superintendent Somerton School District; Fred Gloria, Accountant; Ernie Shoemaker, City Building Department; and Bates Sale, of Sale Investments Company. Maribel Camacho, Guadalupe Rivera, Flora Redondo, and Rosario Sanchez, of the Somerton Promotoras de Salud are also members of the committee.*

The steering committee has a technical support group composed of Eddie Mendez, Public Works Director; Leo Lomeli, City Water Specialist and Cliff O'Neill, Community Development Director. The committee was responsible for the development of the public participation plan. The committee has met six times since January 2000.

Local Organizations: *The Somerton School Parents League, Somerton Merchants Association, Senior Nutrition Center, the Immaculate Heart of Mary Catholic Church, and the Somerton Promotoras de Salud were contacted to present the proposed project and solicit their support.*

Public Information: *The project proposal has been available at the Somerton City Hall and after work hours at the Somerton Police Station. Project fact sheets were mailed out to every household, and the Promotoras de Salud will deliver public meeting notices and surveys door to door. The Yuma Daily Sun published an article on the city's efforts to improve the water quality on May 17, 2000. Flyers have been handed out at the Immaculate Heart Catholic Church with additional information included in the church bulletin. Technical Support Group staff made presentations at steering committee and local organizational meetings. The engineering consultant provided the technical presentation at the April 5 public meeting.*

- **Public Meetings:** *Public meetings were held on March 22, April 5, and July 18 to present the technical aspects, project costs, and proposed rate increase to local residents.*

VI. Sustainable Development

1. **Definition and Principles.** *The project complies with BECC's definition of Sustainable Development: "An economic and social development based on the conservation and protection of the environment and the rational use of natural resources, but considering current and future needs, as well as present and future impacts of human activities".*

The water main replacement project is centered on providing an improved quality of life for human beings. While services already exist for the water consumers, the water main has reached the end of its useful life. There are episodes of reduced water quality and disruption of service because of the original design of the system and the age of the infrastructure. These conditions must be improved for water provision to meet the needs of current consumers but especially for future consumers.

The water main replacement project will occur in older areas of the city characterized by low-income housing with some retail and other commercial services. By improving the water service, the City of Somerton is ensuring equitable quality of service to this group.

The project provides environmental protection by replacing lines that have frequent leaks. Although the leaks are generally repaired very quickly, this will reduce the potential for water losses as well as reducing the energy and materials consumed to maintain the lines.

Stakeholders for this project include the City Council, City departments that plan and operate the water supply system, the residents and business that will benefit from the pipe replacement, those who will be impacted by the construction activity, the Cocopah tribe, and supportive state and federal state agencies such as Rural Development and the Arizona Department of Environmental Quality. The City of Somerton has led the planning and decision-making process through the Community Development Department with support from the Public Works Department. A Steering Committee comprising members of the general public was formed for review and recommendations on the project.

2. **Institutional and Human Capacity Building.** *An aspect of this project that will build institutional capacity is the O&M manual that will be prepared and funded as part of this project. The manual will be a reference document for setting up routine maintenance and for trouble-shooting non-routine maintenance, thereby improving the capabilities of the public works department.*
3. **Conformance with Applicable Local/Regional Conservation and Development Plans.** *The City of Somerton does not have a General Plan, though a draft General Plan was prepared. The water main replacement is consistent with the draft plan to provide services that support existing and planned land uses. No regional plan exists for water supply, although a plan will be prepared through assistance of the NADBank. As a pre-existing condition, this project will be incorporated into the regional plan.*
4. **Natural Resource Conservation.** *This project will likely create an incremental benefit by extending the groundwater supply through replacement of deteriorated pipes. Also, a water conservation plan will be prepared to identify potential water consumption reducing measures.*
5. **Community Development.** *Without the water main replacement, a number of negative impacts to the community will continue, hindering community development. Also benefits are expected from the development of the water conservation plan.*