

**WATER AND SEWER SYSTEM IMPROVEMENTS
DOUGLAS AZ.
STEP II FORMAT**

1..GENERAL DESCRIPTION OF THE PROJECT:

- a. **Project Originator/s:** City of Douglas, Arizona, U.S.A.
Project Manager; David G. flow, Acting Public Works
Director

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Email: not applicable

- b. **Project Location:**

1. The design and conduction of water and sewer lines In the Sunnyside and Farview Colonias are in the northwest and north central areas adjacent to the City. Please reference the attached map.
2. The design and construction of a sewer interceptor along Bonita Avenue begins at 24th Strut and runs south on Bonita Avenue to 3rd street. Please reference the attached map.
3. The design and construction of water main improvement along G Avenue begins at 15th Street and ends at 3rd Street. Along F Avenue, it begins at 17th Street and ends at 3rd Street on 10th Street, it begins on Pan American Avenue and ends at F Avenue At A Avenue, it begins at 23rd Street and ends at 15th Street for the WasteWater Treatment Plant, it begins east of the intersection of Chino Road and 5th Street and ends at the Watewater Treatment Plant. Please reference the attached map.

- c. **Environmental Issue:**

This project proposes to address the environmental ad health issues associates with raw sewage in the neighborhoods, either from failing septics or sewer backups. Additionally, health and environmental issues associates with a lack of reliable sources of potable water will be addressed.

d. **Project Alternatives:**

In the case of sewer lines in the Colonias, the only real alternative to the project is the replacement of a failing septic system, with a new septic system. However, in most cases this is not possible because of the size of the residential lots in question. There is not room for a replacement septic system. The "no project" alternative will lead to increased numbers of septic failures and increased exposure of local residents to the health hazards associated with raw sewage in their yards and threatening their water supply. Additional impacts are the increased economic impact of pumping their septic tanks on a frequent basis and the restriction of growth due to regulatory limitations on issues new well permits.

In the case of water lines in the Colonias, the project alternative is to continue installing individual wells. Again, because of the small lot size, it is very difficult, if not impossible, to place wells with the proper setbacks from property lines, buildings and septic systems. This endangers the quality of the drinking water at each well. Additionally, depth to reliable groundwater sources is extremely large, making it unaffordable for many of the residents to drill new or replacement wells. The "no project" alternative will lead to increasing numbers of failed wells, increasing potential for contaminated wells and restricted growth due to regulatory issuing new well permits.

In the case of the sewer interceptor along Bonita Avenue, project alternatives include placing a north-south interceptor along one of the

other

avenues. The objective of this Interceptor is to balance the flows on the east-west local sewers so that no individual local sewer is so lengthy that the flows within it will not exceed its capacity. Thus, the new north-south interceptor must be placed mid range, say in *the A Avenue* to Carmelita Avenue area. Bonita Avenue was selected because it is mid-range. The "no project" alternative will allow sewer backups on overloaded, undersized sewers to continue with frequency, endangering the health of residents with raw sewage overflows in houses, yards and alleys.

In the case of water main improvements, there are no practical project alternatives over than the "no project" alternative. These facilities must be rehabilitated in place if we are to provide a safe and reliable source of potable water to residences and businesses. The "no project" alternative will lead to continued failure of these older segments of our water system, increasing the potential for contamination of our system and impeding our ability to provide adequate fire protection.

e. **Project Justification:**

Most of the project elements are focused on the Colonias areas because the needs there are so great. Economic conditions are extremely poor, thus creating living conditions that can be considered substandard.

Upgrades to essential services like water and sewer are often financially unachievable to the individual resident. Because of the human health and environmental importance of avoiding the hazards associated with inadequate water and sewer facilities, the City, as the local area provider of these services, feels it must take the lead to help the project happen.

f. Project Strengths and Weaknesses:

The strength of the project is that it addresses a recognized need in several different areas of the community in a definitive and efficient fashion where the project alternatives are limited or non-existent.

The project weakness is that it does involve several different areas of the community which will increase our outreach efforts in communicating with the residents in each of these different and separate neighborhoods. The City of Douglas is prepared to dedicate the personnel necessary to coordinate each of these projects within each of the neighborhoods.

9. Binational Aspects:

This project does not have a binational scope.

2. ENVIRONMENT:

a. Documentation of Environmental Regulatory Compliance.

Project approval by the appropriate regulatory organizations will be obtained. This requirement is not anticipated to be a problem. Because the project is relatively small in scale and involves conventional water distribution and sewer collection facilities, agency review and approval should be routine. The City of Douglas expects to need permits from the Arizona Department of Environmental Quality, Arizona Department of Transportation, and Cochise County to complete this project. The project will be designed and constructed in compliance with the rules and regulations of these agencies and accepted industry practices. Details of each regulatory approval will be provided to the BECC upon receipt of their approval.

b. Conformance with Local and Regional Conservation and Development plans.

1. The Douglas **General Plan** was adopted in 1994 by the Planning Commission and the Mayor and Council. The contact person is Greg Lucero, community Development Director, 42510th Street Douglas, Arizona, 85607, (520) 307501, ext. 43.

The project complies with the plan in that the General Plan anticipates continued urbanization and the annexation of the region around Douglas and calls for the provision of basic City services, including water and sewer to these areas. The General Plan also calls for protection of the aquifer below Douglas that is used for the municipal water supply. The General Plan recognizes that Douglas has an airborne dust problem and encourages implementation of practices to minimize the generation of airborne dust.

c. **Environmental Assessment**

The short, medium, and long term impacts of the project focus on human health. In the short term, the project has a positive impact by eliminating sources of pollution, contamination and potential hazards to human health. Completing the project now will allow for neighboring grown areas to connect to the water and sewer system in the near future, further abating similar environmental problems in the medium and long-term. In the short term, negative impacts primarily lies with dust created by construction and interruptions interruption of service during connections to the new facilities. Dust created by construction will be abated through a comprehensive dust control plan developed during design and implemented during construction. Temporary interruptions of Service will be coordinated individually with each homeowner as the project progresses Negative long-term Impacts include increased demand on water production and wastewater treatment capacities. The City is embarking on a master planning effort for the water and sewer systems. This effort will help the City identify current limitations and quantify and prioritize capacity expanding measures that must be implemented in future years. There is no significant environmental risk in undertaking the project. Certainly the environmental benefits outweigh the risks.

The project is energy efficient in several ways. The sewer collection system is all gravity flow, not utilizing electric pumps. The water distribution system replaces individual electric wells with the existing municipal well production facilities and its economy of scale.

The project is basically a mitigatory effort. Widespread health and contamination problems do not exist. However, problems have occurred and the potential for their continuing to occur is very high. Implementing

the project will avoid the social and economic impacts of a problem that has gotten out of hand.

3. TECHNICAL FEASIBILITY.

a. Project Specifications.

The project is very nearly fully developed. Facilities will be sized to handle the capacity demand to City demand generated by the immediate neighborhood. Additionally, the facilities will be sized for adjacent neighborhoods that can be served by future extensions from this project area. Design costs are estimated at \$200,000.00 and construction costs are estimated at \$1.8 million. Annual operation and maintenance costs are estimated to be \$15,000.00.

b. Technical Process

The project utilizes proven technology for the delivery of sewer collection and water distribution. Sewage collection will be the simple normal gravity system without the use of any mechanical pumping equipment. It is anticipated that PVC pipe will be used, increasing construction efficiencies and easing the sewer maintenance burden through the minimization of the number of joints, the provision of good, tight, roots resistant joints, and smooth inner walls with formed bench walls through manholes. Water distribution will be achieved through the use of PVC pipe extended from the existing distribution system that receives its pressure from elevated tanks. No booster pumps will be required. Because of the use of simple proven technology, product life cycle costs are minimized. As stated above, annual operation and maintenance is estimated to be \$15,000.00.

c. Quality Control Program

During design, staff will have extensive input into the specification of products to be used on the project to assure a consistency to approved local standards. The design document will set up a process for shop drawing submittal to verify product quality prior to installation. The City will provide construction inspection during the construction phase to assure quality conformance to project specifications by the contractor. As the project nears completion, the City will hold a Final Inspection with the contractor. All punchlist items will be required to be addressed by the contractor prior to project acceptance.

d. Investment Timetable.

The project design is anticipated to take place over a period of six months with financial requirements of approximately equal monthly installments of \$34,000.00. The construction phase is anticipated to cover an eighteen month period beginning at the end of the design period. It is anticipated that approximately equal installments of \$100,000.00 will be required each month.

4.ECONOMIC AND FINANCIAL FEASIBILITY:

The City is currently assembling essential financial data for use in a detailed analysis of the project. As the project develops, this information will be provided to BECC for review. The City intends to repay the loan primarily with increased cash flow generated by new users attached to the system. The City controls utility bill collection closely. Ultimately the threat of discontinuance of service plus penalties is sufficient to obtain compliance very few accounts are written off as bad debt. This new revenue is estimated to be \$150,000.00. Allowing for increased annual operation and maintenance costs, this leaves approximately \$135,000.00 to use for debt service.

a.Project Impacts on Local Populations

The number of people who will directly benefit if the project is implemented is estimated to be 1,250. The number of people who would be affected directly if the project is not implemented is estimated to be 1,250. The number of people who would be affected indirectly if the project is not implemented is estimated to be 1,250.

Because local unemployment rates are so high, and because it is unlikely a local contractor will bid on this project the City of Douglas is contemplating using a requirement to employ 50% of the workforce from the local economy area.

Because municipal water and sewers are not available in these areas, the project will have a positive impact on local economic development, opening the way for expansion and growth in the neighborhoods as well as in the adjoining undeveloped areas. Both in-fill development and expansion areas have been restricted from developing because of the limitations described herein on Septic systems, and wells.

b. Projects Impacts on Cultural Resources:

There are no negative impacts on cultural Resources as a result of this project.

c. Characterization of local economic situation:

The local unemployment rate is currently 16% (May 1995). The average per capita income is \$6,619.00 (1990 Census).

e. **COMMUNITY PARTICIPATION.**

.. Public Expectations:

If the Project is implemented, the public would, generally, expect the City to complete the project as quickly as possible for the least costs practical. During the planning and design phases for this project, it is anticipated that there will be neighborhood meetings held to discuss the merits of the project in combination with formal public meetings held by City Council at the appropriate times. Both of these activities will be supported through Public relations efforts that will include communications through newspaper direct mailings, and leaflet distribution. *This* outreach program will continue through the construction phase and into the operation phase as each neighborhood encounters the disruption and eventual delivery of new services. Education on use and maintenance of new (property owner) facilities will be provided. Comments received from the public at meetings, hearings, and through correspondence will be recorded and held on file for reference by staff and BECC.

7. OPERATION AND MAINTENANCE.

Start-Up Operation Program:

As mentioned earlier, the construction phase will include quality control monitoring and will lead up to final inspections and testing prior to project acceptance. Because of the simplicity of the systems being implemented, it is anticipated there will be no surprises after the new users are connected into the systems and delivery of services begins.

b. Contingency Program:

The contract documents will provide for a warranty period for workmanship and materials. Should there be a need for follow up corrective measures to be taken, the contractor will be contacted immediately.

c. Operation and Maintenance Program

The operation of the new water distribution and sewer collection system will be assimilated into the existing maintenance program that exists for the current systems. These activities will include periodic cleaning and inspection of the sewer, operation of water valves, inspection and operation of fire hydrants and sampling of water quality. Employees of the City's Departments of Public Works Water Division and Wastewater Division will be responsible for operation and maintenance. They have the appropriate Water and Waster certifications. Continuing education and training of our staff is a priority. Opportunities are made available periodically on a variety of specialty subjects that assist our staff in being more productive and effective. Separate operation and maintenance manuals will not be required due to the conventional technology used,

d. Safety Program:

Because of the simplistic nature of the new facilities, there will not be a need for a special operational safety program. However, the City currently implements a safety program that focus on the protection and well-being of our employees and the general public at large through compliance with existing regulations and exercising good judgement and using common sense. These policies and practices will be extended to the operation and maintenance phases of the new facilities .