Water and Wastewater Systems Improvements
City of Mercedes, Texas -

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Primary Applicant Information

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Executive Summary

The City of Mercedes, Texas has proposed to construct various infrastructure improvements to allow it to better serve its residents and to improve and preserve environmental and human health conditions in the border area. The existing systems do not have the capacities to allow the City to expand its services to other areas that are not currently served or are under-served. The project will allow the City to expand into these areas and to ensure the availability of a permanent drinking water source to these residents. It will also permit the City to properly collect and treat wastewater from areas that are not served or are under-served before it enters the region's water resources. The City is seeking funding, in the form of grants and loans, to assist it in designing and constructing these improvements. The improvements proposed for the area are:

- *The proposed water distribution improvements involve the construction of a 12" water line to serve the surrounding area. This 12" line, totaling approximately 18,350 linear feet, will be constructed of AWWA C-900 polyvinyl chloride (PVC) pipe. A slight modification to the existing water pumping station to allow for the connection of this new line, the installation of a vertical high service pump, will be required. As part of these improvements a 500,000-gallon elevated storage tank will be constructed. This tank will stabilize water system pressure in the project area.*
- *Proposed improvements to the wastewater system will be to the existing collection system. These improvements include construction of a new lift station, including structure pumps and electrical, 2,640 linear feet of 6" Class 160 PVC pressure main, 1,320 linear feet of 12" sanitary sewer gravity collection line, and modification of an existing lift station*

A separate yet related project within the system service area, designed to connect 3,885 nearby colonia area residents to the City's water and wastewater treatment facilities by constructing new sanitary sewer and potable water distribution lines, has been funded by the Texas Water Development Board and will begin construction at approximately the same time as the project proposed in this application. The combined effect of these two projects will be to allow the City to supply potable water to and collect and treat wastewater from residents in the City and surrounding colonias. Construction of these projects improves the community's public health by providing a permanent and safe drinking water source to residents and reduces the volume of pollutants that reach area water resources by eliminating ineffective and outdated wastewater treatment methods. No significant adverse environmental impacts will result from the construction or operation of the proposed projects.

1 General Project Description

a. PROJECT LOCATION: Mercedes, Hidalgo County, Texas U.S.A.Site Location: Urban Area
Nearest City: N/A

b. PROJECT LOCATION AND AREA OF IMPACT:

1. *Geographical Location of Project and Area of Impact:*

   The City of Mercedes is located in Hidalgo County, Texas, which is part of the Lower Rio Grande Valley. Construction of the proposed project will occur within the City and will serve the residents of Mercedes, surrounding communities, and adjacent sites which are not currently connected to the City's water and wastewater systems.
2. *Suitability of Proposed Site:*

   The proposed area of service is generally located northeast and east of the City of Mercedes. The proximity to existing City water and wastewater facilities provides an ideal situation for expansion. Additional capacity to treat and distribute water and expanded wastewater collection capabilities will be required to accommodate these additional users.

c. ENVIRONMENTAL ISSUES

Existing water treatment and distribution facilities and wastewater collection facilities are presently operating at or near their capacities, restricting the City from serving new users (both residential and commercial) within the City and the Empowerment Zone (which includes existing colonias residents). Proposed expansion of the City's infrastructure will enable it to prevent, control, and reduce environmental pollutants, improve drinking water supply and treatment, increase fire protection (by providing water supply lines and fire hydrants with adequate pressure to areas which are not currently served), provide for adequate collection of sewage, improve human health, promote sustainable development, and enhance the general quality of life for residents in the area. It will also allow the City to better serve it's existing users and provide services to potential users whose current facilities are substandard.

Short term impacts resulting from construction of the proposed facilities include lowered air quality from fugitive dust emissions, increased noise in areas immediately adjacent to the construction sites, and temporary traffic delays. These impacts should cease once construction of the proposed facilities is complete.

Long term impacts resulting from construction of the proposed facilities include changed scenic views once construction of the elevated storage tank is complete and increased water withdrawal from area resources.

Other long term impacts resulting from construction of this project, when it is combined with the project to connect the colonias to the City's water and wastewater systems, are improved public health resulting from a permanent and safe drinking water supply for residents and a reduction in the volume of pollutants that reach area water resources resulting from the elimination of ineffective and outdated wastewater treatment methods.

d. PROJECT ALTERNATIVES

An environmental information document (EID) was prepared by Hicks & Company in August 1994 to address the environmental impacts resulting from construction and operation of improvements to the City's existing water and wastewater facilities. The scope of the improvements examined by the EID cover the essential elements of this proposed project among other improvements. In addition to the proposed project, the EID discussed the potential impacts of two other alternatives: Alternative 1 - the no action alternative and Alternative 2 - the on-site treatment technology alternative. The no action alternative (Alternative 1) essentially maintained the existing water and wastewater facilities and existing infrastructure. The EID stated "The no-action alternative was eliminated as a viable alternative due to the demonstrated need for water and wastewater improvements within the project area". Alternative 2 consisted of using on-site wastewater collection and treatment alternatives including individual and cluster-type wastewater treatment technologies. The report stated that "This alternative was eliminated due to unfavorable soils, undersized lots, variations in the number and degree of unusable land due to animal pens, gardens, and outbuildings, and serious existing sanitary conditions and potential health risks associated with current wastewater related problems". Alternative 3, which includes centralized wastewater treatment and collection alternative, is the preferred alternative. The decision to use centralized treatment facilities necessitated the sewage collection line improvements and the water treatment plant and distribution system improvements proposed for this project.

Although the scope of the project evaluated in the EID is larger than the one proposed for this project, the overall environmental impacts resulting from its construction and the motivation to construct it are the same. The no-action alternative would severely restrict the City of Mercedes in providing services to areas who remain unserved or whose facilities are currently substandard. Construction of these proposed facilities will allow the City to have the necessary infrastructure to deliver a permanent and safe drinking water supply and improve wastewater collection for users.

e. PROJECT JUSTIFICATION

Failure to construct the proposed facilities would restrict the City of Mercedes from providing services to areas which would otherwise remain unserved or significantly under-served. As explained in Section 1, part d "Project Alternatives", the no-action alternative and the on-site treatment facility alternative do not satisfy the requirement of improving environmental conditions in the City through improved water treatment and distribution and wastewater collection which is the goal of this proposed project. The preferred alternative provides the infrastructure improvements which best satisfy this goal. In addition, this project, when combined with the project to connect the colonias to the City's water and wastewater treatment facilities, will improve the existing infrastructure and provide facilities which will allow better service to existing users and provide service to areas who remain unserved or whose current facilities are below standard. This project will allow the City to enhance the environment and human health conditions in the community while increasing the quality of life for area residents.

f. TRANSBOUNDARY ASPECTS

Construction of the proposed facilities will help to improve the environmental conditions within the City of Mercedes and the surrounding area by reducing the volume of untreated wastewater reaching area water sources. Treating wastewater that would otherwise remain untreated or under-treated will improve the water resources shared by Texas and The Republic of Mexico. Improved wastewater collection reduces the volume of pollutants which enter area water resources shared by both countries. Improved water quality and long term sustainable development will contribute to enhancing the environment for the cross-border and downstream residents.

g. PROJECT WORK TASKS

Proposed Design and Construction Costs

Proposed Construction Activity	*Construction Cost*	*Engineering Cost*	*Total Cost*	*Completion Date(1)*	*Responsible for Completion*
Water Treatment Improvements	*$1,657,600*	*$212,400*	*$1,870,000*	*6/98*	*City of Mercedes*
500,000 Gallon Elevated Storage Tank	*$714,000*	*$85,680*	*$799,680*	*6/98*	*City of Mercedes*
Construction of Water Line Extensions	*$579,095*	*$69,491*	*$648,586*	*6/98*	*City of Mercedes*
Sewer Collection Line Improvements (2)	*$240,372*	*$28,844*	*$269,216*	*6/98*	*City of Mercedes*
Drainage Improvements	*$353,265*	*$42,391*	*$395,656*	*6/98*	*City of Mercedes*
Relocation of Existing Irrigation Line	*$119,796*	*$14,376*	*$134,172*	*6/98*	*City of Mercedes*
TOTAL	*$3,664,128*	*$453,182*	*$4,117,310*		

(1) Based on a design period of six (6) months that begins in January 1997 and a twelve month construction period.

(2) The total project cost of $269,216 for this task differs and has been corrected from the one presented in the construction cost estimate prepared by Sigler, Winston, Greenwood, & Associates, Inc. (SWG). This difference is due to a math error in the SWG estimate.

2 Environment and Human Health

a. DOCUMENTATION OF ENVIRONMENTAL REGULATORY COMPLIANCE

i. Environmental Action Required

a) U.S. Army Corps of Engineers - Evaluation of project to determine its effects to Waters of the United States (including wetlands) as described in Section 404 (b)(1).
b) Texas Natural Resource Conservation Commission - approval of plans and specifications for expansion of water treatment plant and distribution system and expansion of wastewater collection system expansion.
c) Hidalgo County Irrigation District No. 9 - permit for stormwater construction.

ii. Required Authorizations

a) U.S. Army Corps of Engineers - verification that construction of the project will not occur in jurisdictional waters of the U.S. was received by the City of Mercedes on November 21, 1994.
b) Texas Natural Resource Conservation Commission - approval of water and wastewater plans for construction.
c) Hidalgo County - County Engineer approval of plans for construction.
d) Hidalgo County Irrigation District No. 9 - permit for stormwater construction.

iii. Provide Copies of all Documents Submitted to Regulatory Agencies to the BECC at the Time of Application.

All documentation developed for the proposed project has been submitted with this application. These documents include correspondence with the U.S. Department of the Interior - Fish and Wildlife Service, the U.S. Department of Commerce, the U.S. Army Corps of Engineers, the Texas Water Development Board, and the Texas Historical Commission. A copy of the Environmental Information Document prepared by Hicks & Company and the 1994 Facilities Engineering Plan has been provided to the BECC.

iv. Identify any Environmental Issues not already Addressed in i. - iii. that may be Affected by Project Development.

All environmental issues are considered in items i - iii.

v. Provide Environmental Baseline Studies and other Environmental or Health Reports.

The Environmental Information Document has been provided to the BECC.

b. CONFORMANCE WITH LOCAL AND REGIONAL CONSERVATION AND DEVELOPMENT PLANS.

i. List Applicable Local and Regional Plans and Regulations

a) Proposed construction must be consistent with the City of Mercedes Water Conservation and Emergency Water Demand Management Plan
b) Stormwater regulations of Hidalgo County Irrigation District No. 9 must be followed.
c) Proposed construction must comply with City of Mercedes planning and zoning ordinances.

ii. Describe How the Project Addresses or Will Address the Plans and Regulations

The proposed project, from design to construction and operation, will comply with the requirements of the City of Mercedes Water Conservation and Emergency Water Demand Management Plan. This compliance will be assured through the City's management of design services, through its' involvement in the inspection of all related construction services, and through the continued operation and maintenance of all water and wastewater facilities by the City's contract operator in accordance with the management plan. In addition, contractors responsible for construction will be made aware of these requirements through contract documents and will be held accountable for their implementation. Through the City's construction permitting procedures, any new users will be held accountable through enforceable rules and regulations. A stormwater permit from Hidalgo County Irrigation District No. 9 will be obtained prior to construction of the proposed project.

c. ENVIRONMENTAL ASSESSMENT

i. The assessment should include an analysis of a full range of project alternatives.

As discussed in Section 1, part d, the City of Mercedes completed an environmental information document in August of 1994 for water and wastewater projects which included essential elements of the proposed project. This document was prepared as part of the requirement to receive EDAP funding through the Texas Water Development Board (TWDB). Three alternatives were explored as part of this investigation including the preferred alternative - expansion of the existing centralized municipal facilities. The investigation explored short and long term impacts resulting from various infrastructure improvements, including components of the proposed project, to the physical, biological, and the socioeconomical environments. The TWDB concluded that the project presented no significant threat to any of these environments and has issued a Finding Of No Significant Impact. In addition, the U.S. Department of Commerce - Economic Development Administration (EDA), which is a direct funding partner for this project, also determined that the specific improvements proposed for this project created no significant impact on the environment.

ii. Each assessment must include a discussion on transboundary effects.

Although the document does not discuss transboundary effects directly, the effects to regional population, air quality, and economic impacts are discussed. Perhaps the largest transboundary effect will be the improved protection of the environment and human health in and around the City, the Rio Grande River, and the cross border area due to improvements of the existing water and wastewater facilities. The improved facilities will create an environment which is favorable to residential and commercial development without the threat of harming the environment.

3 Technical Feasibility

a. PROJECT SPECIFICATIONS

The criteria used to develop the most practical alternative were: 1) compatibility with existing technologies; 2) availability of land; 3) impact to operations and maintenance costs; 4) impacts to the urban and natural environments; and 5) the reliability of the proposed systems to meet TNRCC criteria.

i. Water Supply and Treatment

The proposed water distribution improvements involves the construction of a 12" water service line to serve the surrounding area. This 12" line, totaling approximately 18,350 linear feet, will be constructed of AWWA C-900 polyvinyl chloride (PVC) pipe. A slight modification to the existing water pumping station to allow for the connection of this new line, the installation of a vertical high service pump, will be required.

The improvements at the existing water plant are intended to increase the capacity of the plant from 3.0 MGD to 4.5 MGD. This 1.5 MGD expansion would be constructed adjacent to the existing plant and utilize technologies similar to those employed at the existing plant. To achieve this increase in water treatment capacity the following facilities will be constructed:

1) Reinforced concrete raw water pump structure
2) Two raw water pumps
3) Yard piping and fittings
4) Rapid mix with equipment
5) Flocculator with equipment
6) Clarification basin with equipment
7) One filter unit with high rate multi-media
8) Pipe gallery
9) Building over filter
10) Instrumentation
11) Electrical
12) Two high service pumps

As part of these improvements, a 500,000 gallon elevated storage tank will be constructed. This tank will stabilize water system pressure in the project area.

Water System Characteristics:

(From 1994 Phase I Facilities Engineering Plan)

a) Historical Data

1) average daily usage - 1.75 million gallons
2) maximum daily consumption - 2.16 million gallons
3) average per capita - 138 gallons per capita per day
4) maximum per capita - 170 gallons per capita per day

b) Projected Consumption - 2015[(1)] and 2022

1) projected consumption, year 2015 - 3.35 MGD (based on 150 gallons per capita per day)
2) projected consumption in colonias, year 2015 - 0.477 MGD (based on 90 gallons per capita per day)
3) projected consumption, year 2022 - 3.75 MGD (based on 150 gallons per capita per day)
4) projected consumption in colonias, year 2022 - 0.513 MGD (based on 90 gallons per capita per day)

(1) - The projections for 2015 are included in this analysis because this was the year examined in the 1994 Facilities Engineering Plan. The life of the project and the NADBank loan is 25 years or through the year 2022. The 2015 numbers were used in the development of the 2022 projections used in this application.

Based on these results, the water demand for the City of Mercedes and the colonias will be 4.26 MGD by the end of the proposed project life (2022).

ii. Wastewater Collection

Proposed wastewater facility improvements will be to the existing collection system. These improvements include construction of a new lift station, including structure pumps and electrical, 2,640 linear feet of 6" Class 160 PVC pressure main, and 1,320 linear feet of 12" sanitary sewer gravity collection line and modification to an existing lift station.

Wastewater System Characteristics:
(From 1994 Phase I Facilities Engineering Plan)

a) Historical Data

*1) average daily discharge - 1.24 MGD**
*2) average daily inflow - 1.31 MGD**
3) average per capita - 103 gallons per capita per day

** - The discrepancy between the daily discharge and the daily inflow is the result of water used as plant process water, evaporation from sludge drying beds, and sludge digestion and disposal.*

b) Projected Generation

1) projected flows, year 2015 - 2.23 MGD (based on 100 gallons per day per capita)
2) project flows for the colonias, year 2015 - 0.42 MGD (based on 80 gallons per day per capita)
3) projected flows, year 2022 - 2.50 MGD (based on 100 gallons per day per capita)
4) project flows for the colonias, year 2022 - 0.46 MGD (based on 80 gallons per day per capita)

Based on these projections, the volume of wastewater generated by the City of Mercedes and the colonias in 2022 will be 2.96 MGD. It appears that the existing plant capacity of 2.3 MGD could be exceeded near the end of the project life, assuming that all colonias are connected to the plant. However, when design of the existing plant was ongoing, it was sized to accommodate a large BOD concentration from H&H Foods processing plant effluent. Since that time, H&H has constructed a wastewater pretreatment plant which significantly reduces the BOD from the facility. The reduced BOD into the plant may be enough to offset the increased influent from additional users. The City of Mercedes is currently examining the reduction of BOD from the food processing plant and the influent BOD at the existing wastewater treatment plant to determine if expansion of the plant will be necessary before year 2022.

Regardless of future expansion of the City's wastewater service area, the project, as it is proposed, will not overload the existing treatment plant. This was the finding of the TWDB.

iii. Estimated Design and Construction Costs

The project location and surrounding area is partially developed with room for further expansion. The proposed facilities will be designed to accommodate the capacities generated (both present and projected) in the areas (the City of Mercedes and surrounding areas) to be served through the project life of twenty five years (2022). The estimated design cost for water/wastewater improvements is $453,182 and the construction costs are estimated at $3,664,128 for a total water/wastewater project cost of $4,117,310. Please refer to Table "Proposed Design and Construction Costs" in Section 1, part g, for a cost breakdown for each proposed task.

iv. Operation and Maintenance Costs (Present and Projected)

In April 1994, a Phase I Facilities Engineering Plan prepared for the City determined that the annual operation and maintenance cost of the City's water and wastewater facilities was $988,208 or $340.76 per connection (approximately 2,900 connections). Once construction of the project to connect the 3,885 residents of the outlying colonias to the City's water and wastewater systems is complete, the annual operation and maintenance budget is projected to be approximately $1,370,000 (based on 4,020 connections at same $340.76 per connection). In terms of 1995 dollars, the 2015 annual operation and maintenance costs for the projected 22,300 residents of the City of Mercedes and the 5,300 colonia residents will be approximately $2,690,000 (based on 7,900 connections). In 2022, the annual operation and maintenance costs for the projected 25,000 residents of the City of Mercedes and the 5,700 residents of the colonias will be approximately $2,990,000 (based on 8,800 connections). Although the City is expanding it's existing water and wastewater treatment facilities, the per connection cost for operation and maintenance is not anticipated to increase.

b. TECHNICAL PROCESS

The facilities and improvements proposed for expansion of the City's water and wastewater systems and other related projects are consistent with good engineering practice. The minimal standards for the design and construction of water and wastewater systems established by the Texas Natural Resource Conservation Commission (TNRCC) will be strictly followed by the City and it's contracted design consultants. This compliance will be assured through the submittal of all plans and specifications to the TNRCC for their review and approval. The project utilizes proven technology for water treatment and distribution and wastewater collection. The expansion of the water distribution and wastewater collection systems will be constructed of PVC materials which offers the necessary durability and affordability required for a project of this nature. In addition, proven mechanical technologies (including design methods for valve and piping placement, system compatibility and flexibility, and treatment component integration) and electrical technologies (including alarm systems, automatic and remote monitoring of facility operations, and power conservation through improved design) will be utilized to allow the proposed facilities to be operated with the minimum consumption of resources while providing maximum treatment capabilities.

The facilities proposed for expansion of the existing water treatment plant and the treatment process to be used (discussed in 3 (a)(i)) are consistent with those currently employed. Expansion of this existing facility using technologies which are currently in use will reduce the cost of training the operator. Also, the use of elevated storage to maintain water pressure is consistent with TNRCC policy concerning water distribution. All construction related to this proposed project will be done in strict accordance to industry standards and in accordance with a quality assurance program established in the contract documents.

c. QUALITY CONTROL PROGRAM

During design, City of Mercedes staff will have extensive input into the specification of products to be used on the project to assure consistency to approved local standards. The design documents will set up a process for shop drawing submittal to verify product quality prior to installation. The City, with the assistance of its' contracted design and construction consultants, will provide construction administration and inspection of the proposed facilities to assure quality conformance to project specifications by the contractor. The City will prepare a list (punchlist) of items to be corrected by the construction contractor and require him to correct these items before final approval will be given. As the project nears completion, the City will hold a final inspection with the contractor.

d. INVESTMENT TIMETABLE

Design of the project is scheduled to begin at the end of 1996 or in the early months of 1997. It is estimated that project engineering design will be completed within 6 months of notice to proceed. A construction completion date has been set for twelve months after award of contract. The various sub-projects within the proposed project will be designed concurrently. A similar schedule is proposed for construction. Some of the smaller projects will begin construction before the larger projects; however, the proposed schedule calls for completion of all projects by June 1998.

Next table presents the proposed expenditures for design and construction per quarter.

Design and Construction Expenditures Per Quarter							
	1997 (1)				1998		
Project Tasks							
	1st Quar.	2nd Quar.	3rd Quar.	4th Quar.	1st Quar.	2nd Quar.	Total
Water treatment Improvements	$76,464	$114,696	$187,000	$331,520	$497,280	$663,040	$1,870,000
500,000 Gallon Elevated Storage Tank	$30,845	$46,267	$79,968	$142,800	$214,200	$285,600	$799,680

Construction of Water Line Extensions	$25,016	$37,526	$64,858	$115,819	$173,729	$231,638	$648,586
Sewer Collection Line Improvements	$10,384	$15,576	$50,958	$72,116	$120,182	$0	$269,216
Drainage Improvements	$15,261	$22,891	$74,892	$105,979	$176,633	$0	$395,656
Relocation of Existing Irrigation Line	$5,175	$7,763	$49,356	$71,878	$0	$0	$134,172
TOTAL	$163,145	$244,719	$507,032	$840,112	$1,182,024	$1,180,278	$4,117,310

(1) This schedule is based on design of proposed facilities beginning the first quarter of 1997 and construction beginning in the third quarter of 1997.

4 Economic and Financial Feasibility

a. MAIN FINANCIAL INFORMATION

The financial projections assume that the City of Mercedes obtains the funding from the Economic Development Administration (EDA), the Rio Grande Valley Empowerment Zone, and the NADBank, while attaining the projected level of sales volume. The projected capital requirement of $4,117,310 is assumed to be funded by partial use of a grant from the EDA totaling $1,345,446, partial use of a grant from the Rio Grande Valley Empowerment Zone totaling $896,964, and a loan from the NADBank of $1,874,900 at 8.25% for a period of twenty five years.

Financial Structure

Agency	*Amount of Grant/Loan Dedicated to Project*	*%*
EDA Grant Assistance (1)	*$1,345,446*	*33*
Rio Grande Valley Empowerment (1) Zone Grant Contribution	*$896,964*	*22*
City of Mercedes Loan from NADBank (2)	*$1,874,900*	*45*
Total Project Funding	*$4,117,310*	*100*

(1) - The dollar amount shown is the amount of the grant which is dedicated to this project. The remainder of the grants from EDA and the Rio Grande Valley EZ contribution will be used to fund other infrastructure improvements within the City of Mercedes which are not associated with this project.

(2) - Approximately $453,182 of this amount will potentially be funded through a Project Development Assistance Program (PDAP) loan at a 2% interest rate.

b. PLANNING, CONSTRUCTION, OPERATION AND MAINTENANCE BUDGET

Planning and construction costs for the proposed water and wastewater improvements have been discussed previously in the application. Essentially, the estimated design cost for water/wastewater improvements is $453,182.

In 1993, the annual operation and maintenance cost for the City's water and wastewater facilities was $988,208 or $340.76 per connection (approximately 2,900 connections). Once construction of the project to connect the 3,885 residents of the outlying colonias to the City's water and wastewater systems is complete, the annual operation and maintenance budget is projected to be approximately $1,370,000 (based on 4,020 connections at $340.76 per connection). In terms of 1995 dollars, the 2015 annual operation and maintenance costs for the projected 22,300 residents of the City of Mercedes and the 5,300 residents of the colonias will be approximately $2,690,000 (based on 7,900 connections). In 2022, the annual operation and maintenance costs for the projected 25,000 residents of the City of Mercedes and the 5,700 residents of the colonias will be approximately $2,990,000 (based on 8,800 connections). Although the City is expanding it's existing water and wastewater treatment facilities, the per connection cost for operation and maintenance is not anticipated to increase.

Estimated first year water sales are $1,086,553. The projections assume a 5% rate increase in the first and eighteenth year with an annual increase in usage of 5%. Over the past five years the annual increase in water usage has been as much as 8.4%. Estimated first year sewer sales are $482,475. The projections assume an annual increase in usage of 5%. Estimated first year miscellaneous sales are $ 86,016. The projections assume an annual increase of 1%. Interest income is assumed to be 4% of the beginning cash balance.

The projections assume that personnel services expenses will increase by 5% per year while supplies are projected to increase at a rate of 6% per year. Repairs are assumed to increase at 7% per year and services are projected to increase at a rate of 5% per year. Sundry and other expenses are estimated to increase at 10% per year. Increases are based on historical data.

New construction is being amortized over a twenty five year useful life using the straight line method of depreciation. Existing depreciable property is estimated to end in ten years. Additional fixed assets are assumed to be purchased in year eleven for $350,000. These assets are being amortized over a useful life of twenty years using the straight line method. Bad debt expense is estimated to be 1.6% of total revenues.

c. SENSITIVITY ANALYSIS

The University of Texas - Pan American performed an analysis of the financial impact of this project. Essentially, the analysis looked at economic factors in the region which might affect the City of Mercedes' timetable for repaying the requested loan. One item analyzed by UT PanAm was the sensitivity of this payback schedule to the proposed interest rate of the loan. The model examined the 8.25% rate (which is the rate currently proposed) and a 9% rate. The increased rate added approximately $11,000 per year to the City's liability.

d. BREAK-EVEN ANALYSIS - OPERATIONAL AND FINANCIAL

A break-even analysis for the City of Mercedes was performed by the UT PanAm as part of this application. UT PanAm developed a model to analyze existing operational and maintenance costs for the City, including existing and future revenues from water and wastewater users, and project future operation and maintenance costs in an attempt to determine the pay-back period for the NADBank loan. The major assumptions used in this model were:

- *A five percent increase in user fees in years 1 and 18*
- *A five percent annual increase in operating revenues from additional users*

Based on the results of this economic analysis and on the assumption that the term of the loan would begin in January 1997, the City would repay the NADBank loan by year 25 or 2022.

e. ECONOMIC BENEFITS

Improved infrastructure and environmental conditions in the region will offer a more attractive setting for economic development. This increase in economic development means increased revenues for public entities from sales and property taxes.

5 Social Issues

a. GENERAL INFORMATION ABOUT THE COMMUNITY

General information about the community is presented in the EID prepared by Hicks & Company. In general, the EID reported that the U.S. Census Bureau estimated that the 1990 population of the City of Mercedes was 12,694. A Phase I Facilities Engineering Plan, prepared by Sigler, Winston, Greenwood, and Associates, Inc. stated that the population of the City could reach 22,298 persons by 2015. Ethnically, the overwhelming majority of Hidalgo County and City of Mercedes citizens are of Hispanic descent, comprising 84% of the population. Table 5-1 presents population estimates

through the life of the project.

Population Projections

Area	*1990 Population*	*2015 Population*	*2022 Population[(1)]*	*% Growth (Total)*
City of Mercedes	*12,694*	*22,300*	*25,000*	*97%*
Colonias	*3,885*	*5,300*	*5,700*	*47%*
Total	*16,579*	*27,600*	*30,700*	*85%*

(1) - The population projection for 2015 was developed by the City of Mercedes during development of the 1994 Facilities Engineering Plan. The 2022 population figure was developed for this application based on the projected growths trends of the area through 2015.

b. DESCRIPTION OF LOCAL ENVIRONMENTAL SERVICES

The City of Mercedes provides water and wastewater utilities, as well as solid waste disposal for it's residents. All residents within the City limits are provided potable water through the municipal water distribution system while approximately 99.8% of these residents are provided municipal wastewater collection and treatment (the colonia areas are not within the City limits). Water is provided through the existing 3.0 MGD water treatment facility. The Rio Grande is their primary source of water. Residents of the outlying colonias have no access to a public water supply system. These residents rely on sources such as water wells, bottled water, water hauling services, neighbors who have access to a source of water, and water from drainage and irrigation ditches. The colonias do not have centralized wastewater collection or treatment facilities either. City of Mercedes residents are served by a centralized wastewater treatment and collection system which includes a 2.30 MGD oxidation ditch wastewater treatment facility.

Solid waste disposal is contracted to the City of Mercedes by Browning-Ferris Inc. All residents within the City limits are provided solid waste disposal services. Residents of the colonia areas rely on private solid waste haulers or burning to dispose of solid waste.

c. POTENTIAL ECONOMIC IMPACTS

As stated in the EID, direct economic impacts from implementing the proposed project includes the cost of connecting each residence and the affected area to the existing municipal water distribution and wastewater collection facilities. This cost will be incurred by each resident. This impact will be a one time expense and will be supported through user fees. Secondary, long term impacts from implementing the proposed project include residential and commercial growth. The proposed improvements should increase the value of existing property which, when coupled with a projected growth in residential and commercial development, will provide a larger tax base for the City and allow for the users to afford the operation and maintenance costs required to insure the project's long term sustainable development. The residents of the colonias, totaling approximately 5,700 by 2022, will perceive the largest benefit from the proposed improvements. However, all residents within the City and the colonias will benefit from the proposed construction as their water and wastewater service will improve and the increased tax revenues will allow the City to better serve it's residents with environmentally sound facilities long into the future.

Based on the results of the economic analysis performed by UT Pan Am, the City of Mercedes will raise user fees for water and wastewater services by 5%. The additional revenues collected due to this increase were considered by UT Pan Am in the economic analysis to determine the City's ability to repay the loan within the project life span of 25 years. However, this increase will be incurred by each existing and future users.

d. PROJECT IMPACTS ON CULTURAL RESOURCES

The EID indicates that the impacts to cultural resources will be. The Texas Historical Commission (THC) has given its approval for construction of the project based on its "very low" potential impact to cultural or historical. THC generally will not state that a project will have no impact on cultural resources due to the potential to unearth items of historical or cultural importance during the projects construction.

e. OTHER PROJECT IMPACTS

Other short term impacts from the proposed project discussed in the EID include: lowered ambient air quality from dust due to construction; noise from construction activities; and traffic disruption. These impacts will cease once construction is complete. Impacts which are considered long term include increased withdrawal of raw water from and increased discharge of treated wastewater to the Rio Grande and a permanent change in scenic views from the construction of the 500,000 gallon elevated storage tank.

6 Community Participation

a. COMPREHENSIVE COMMUNITY PARTICIPATION PLAN

i. Local Steering Committee

So that the City may better gauge the response of the public concerning the proposed project, a steering committee has been established. This committee, comprised of City business and community leaders, is involved in the decision making process by offering suggestions to local officials concerning potential environmental and economic impacts resulting from construction of the proposed project. This committee also will be responsible for developing methods to further involve the public in the project and soliciting public acceptance for it. The committee members include:

- *Oscar Flores - Representative for the Community*
- *Ramiro R. Sierra - Representative for the Chamber of Commerce*
- *Bernardino Cantu - Representative for Local Businesses*

A meeting with the local steering committee was held on August 28, 1996 to inform them of the progress of this Step II application. The decision was made to continue the progress meetings with the local steering committee so that the City could inform local businesses and area residents about the status of the project.

ii. Meetings with Local Organizations

Through the local steering committee and the public meetings, a communication link between the City and local business, civic, community, and neighborhood organizations has been established. The City has encouraged individual meetings with these organizations to develop a better understanding of the local perception of the project. This coordination has allowed the City to develop the proposed project in such a way that maximum benefit to all residents and organizations has been achieved.

iii. Public Meetings

Environmental Information Document

During development of the EID, a public meeting was held to discuss the environmental impacts resulting from construction and operation of the proposed project. During this meeting, the City and it's environmental consultant presented a discussion of the scope of the project and the environmental consequences should the project be constructed. Comments from attendees were solicited, both verbal and written, at this meeting. A comment period of 45 days after the public meeting was established so that the City could receive all comments from the public concerning the project. No comments were received.

Additional Public Involvement

The City of Mercedes, in coordination with the BECC, has scheduled a public meeting for October 3, 1996. At this meeting the public will be informed of the status of the project and the future actions which will occur. The BECC will be provided a copy of the legal notice for this public meeting and the agenda.

iv. Report to BECC

Once the community participation phase of the project is complete, the City of Mercedes will provide to the BECC a report documenting the successful completion of the Comprehensive Community Participation Plan. The report will include supporting documentation including a list of the activities of the local steering committee which are related to the project, a list of local meetings conducted, a copy of the legal notice of public meeting, the minutes from the public meeting, and other required documentation to demonstrate the scope and success of the public participation plan. The report will convey that the community understands and accepts the project and the associated environmental, health, and social benefits.

v. Post Certification Participation Plan

Once certification of the project by the BECC is obtained, the City of Mercedes will provide to the BECC a Post-Certification Participation Plan. The plan will discuss the goal of achieving public awareness of and acceptance for the construction, operation, and maintenance of the proposed water and wastewater improvements.

7 Operation and Maintenance

a. 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. The quality control program will act as a vehicle for close communication between the City and the contractors and will enable for a smooth start-up and operation of the proposed facilities. Due to the complex nature of some of the equipment being installed, minor problems may occur; however, the quality control program should enable quick resolution of any potential problems.

b. CONTINGENCY PROGRAM

The construction 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.

The proposed facilities will be designed to provide system flexibility and redundancy, including pipe and valve configuration and back up power and treatment systems, which will allow the City to continue to operate them should a contingency program be needed. This design will give the City's contract operator the flexibility to bypass systems or reroute processes to alternate treatment routes and supply power and treatment chemicals to the system should it be required. The intent of this design is to allow the City to treat and supply potable water to and collect wastewater from residents should emergency situations arise. Although a contingency program for every emergency situation cannot be developed, the proposed systems will be able to function as designed during foreseeable emergency situations.

c. OPERATION AND MAINTENANCE PROGRAM

The construction contract documents will require the contractor, through the equipment supplier, to provide training and, if necessary, certification for the City's operators. Also, the contract documents will require the contractor to supply the City with operation and maintenance manuals. The costs for these programs are included in the estimated construction costs. The requirement for training of personnel and supplying operation and maintenance manuals will be clearly defined in the contract documents and the technical specifications. Each potential bidder will be required to include these costs within their bid price.

Through its contracted operator, OMI Inc., the City will continue to implement its program of operation and maintenance to promote the long term function of the proposed facilities. Since the proposed new facilities will employ technologies and equipment similar to those currently utilized by the City, the existing operation and maintenance program will be implemented once construction is complete.

d. SAFETY PROGRAM

The safety program for operation and maintenance of the equipment included in the proposed projects includes initial training by the contractor/equipment supplier, certification through state agencies for operation of the equipment, and regular routine refresher courses required by the State for each operator. During construction, the contractor will provide his employees with a site specific health and safety plan.

Through its contracted operator, the City will continue to implement its existing safety program to reduce the potential for accidents during operation of the facilities. Since the proposed new facilities will employ technologies and equipment similar to those currently utilized by the City, the existing safety program will be implemented once construction is complete.

e. POLLUTION PREVENTION PLAN

A detailed pollution prevention plan will be prepared prior to construction of the proposed facilities. This plan will be consistent with federal, state, and local regulations concerning the prevention of pollution and the steps necessary to reduce to potential for pollution from construction activities. This plan will identify the pollutants of concern during construction of the project and the methods necessary to prevent contamination. All contractors will be required to understand the requirements of this plan and be responsible for it's implementation.

Pollution prevention during operation of the proposed facility will be handled through the state and federal permits which control the operation of water and wastewater treatment facilities. In addition, the City, with the assistance of its contracted operator, will continue to implement its existing pollution prevention program to reduce the potential for pollutant release during operation of the facilities. Since the proposed new facilities will employ technologies and equipment similar to those currently utilized by the City, the existing pollution prevention program will be implemented once construction is complete.

8 Sustainable Development

SUSTAINABLE DEVELOPMENT INFORMATION

The proposed project will provide several contributions to the sustainable development of the area

- *The proposed project will create approximately 60 full-time jobs during construction.*
- *Reduction of water pollution due to implementation of proven water and wastewater treatment technologies.*

CONSERVATION OF NATURAL RESOURCES

The City of Mercedes has approached an existing area golf course about recycling the wastewater treatment plant effluent. It has been proposed by the City that the treated effluent be used to irrigate the course. The golf course, located approximately 2 miles north of the plant has been receptive to the idea and negotiations are currently underway. Additional infrastructure would need to be constructed to allow the golf course to use the recycled effluent. Although no savings in operation and maintenance costs would be realized from this project, a fee would be charged to the golf course for the water.

The benefit of this proposed action would be to the natural environment. Recycling effluent reduces the amount of potable water used for items other than human consumption and reduces the need for additional water supply and treatment facilities, and conveyance systems. Also, nutrients typically found in wastewater treatment plant effluent cause degradation of receiving waters. If the plant effluent is reused or discharged for use on the golf course, the nutrients will aid in the growth of grasses and reduces the amount of fertilizers applied to the course.

BENEFITS TO LOW-INCOME RESIDENTS

Promotion of economic development in the area, better water and wastewater treatment capabilities, and expansion of the City's tax base are all effects of construction of the proposed facilities that will benefit low-income residents. Economic expansion will increase the availability of jobs in the area and an increased tax base will allow the City to expand it's services to all residents. An improved quality of life, both environmentally and economically, will be experienced by low-income residents.

As was mentioned earlier, construction of the project to connect the 3,885 colonia residents to municipal water and wastewater treatment facilities is planned. The combined effect of this project with the proposed project will be to allow the City to supply potable water to and collect and treat all wastewater from all residents in the surrounding colonias. Construction of these projects improves the area's public health by providing a permanent and safe drinking water source to residents and reduces the volume of pollutants that reach area water resources by eliminating ineffective and outdated wastewater collection and treatment methods.

COMMUNITY PARTICIPATION

Through the preparation of the environmental information document, the community has participated in the development of this project. Citizens were asked to voice their concerns about the development of the proposed project and comment on the measures proposed to mitigate the impacts created by it's construction. This participation allowed civic leaders to gauge the publics perception of the project and make changes to its scope to better serve the community.

With the establishment of a local steering committee, the City has developed another line of communication with the community. This committee, with representatives from local businesses and community residents, have participated from the beginning and will continue to participate in the future development of this project.