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GUIDANCE FOR PROJECT ELIGIBILITY AND DESIGN UNDER THE REGION IX TRIBAL BORDER INFRASTRUCTURE PROGRAM

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GUIDANCE FOR PROJECT ELIGIBILITY AND DESIGN UNDER THE REGION IX TRIBAL BORDER INFRASTRUCTURE PROGRAM

I. Purpose

The purpose of this document is to provide eligibility and design guidance for the rehabilitation and construction of community water and wastewater facilities under the Region IX Tribal Border Infrastructure Program. This document also provides information on requirements for requesting design and construction funding. (Please review the sections on Feasibility Studies and Operation and Maintenance.)

II. Background

The Environmental Protection Agency's 1996 and subsequent Congressional appropriations bills designated funds for infrastructure projects within 100 km (approximately 62 miles) of the U.S.-Mexico Border. The appropriations language states that funding would cover:

> *"... architectural, engineering, planning, design, construction and related activities in connection with the construction of high priority water and wastewater facilities in the area of the United States - Mexico Border, after consultation with the appropriate border commission;"*

Out of the 1997 and 1998 appropriation funds, EPA set-aside $22 million for high priority drinking water and wastewater projects on Tribal lands. EPA set-aside an additional $5 million in fiscal year 2001 funds to continue the program.

III. Eligible Indian Tribes

Federally recognized Indian tribes that are located in the U.S., within 100 kilometers (62 miles) of the US - Mexico border, are eligible to apply for funds under this program. Additionally, each project is required to meet the "EPA Region IX Tribal Border Infrastructure Grant Criteria." **See Appendix A**.

IV. Project Eligibility and Design Standards for Drinking Water Distribution Systems and Water Treatment Facilities

For designing new facilities and renovating existing facilities, EPA Region IX has adopted the "Recommended Standards for Water Works" (Ten States Standards) as our general design guidance. This document is published by the "Great Lakes Upper Mississippi River Board of State Public Health & Environmental Managers." All deviations from the recommended Ten States Standards must be reviewed and accepted by Region IX's technical review committee. Additionally, any deviations will require submission of reference material. (**Note**: Copies of the Ten States Standards can be ordered by calling (518) 439-7286 or through the Internet at www.hes.org.)

All products, materials (including pipes, fittings, and valves) and construction methods used in the rehabilitation/construction of water distribution systems shall conform to the applicable American Water Works Association (AWWA) Standards, National Sanitation Foundation Standards (NSF) and/or American National Standards Institute (ANSI).

A. Water Treatment facilities

Projects involving rehabilitation or design/construction of water treatment facilities, necessary to comply with EPA's National Primary Drinking Water Regulations (NPDWR), will be considered for funding. Design of water treatment facilities shall be equivalent to one of the best available technologies as prescribed by EPA. These projects will be considered a high priority.

Water treatment facilities necessary to meet EPA's National Secondary Drinking Water Regulations will also be considered under this program. However, acceptance of these facilities will be subject to funding availability and will not be considered highest priority.

B. Distribution System

1. General

To be eligible for funding, water line upsizing and looping of lines must be justified based on a computerized network hydraulic analysis (using software that can accept Auto CAD drawings, i.e. KYPIPE, CYBERNET, EPANET, or equivalent) of the system. The model shall be prepared by a licensed professional engineer and based on historical data, or representative data associated with accepted engineering judgement and practice. The model must include the following parameters: *average day demand, maximum day demand, and peak hour demand.* (Fire flow and fire demand can be included only if the existing system *currently* provides fire protection.) All models should be compared and adjusted to actual system operating conditions determined by field testing.

Projects predominantly intended to address future growth needs are *not* eligible for funding under this grant. However, once it is established that a project is eligible for funding based on the criteria listed in **Appendix A**, a reasonable growth factor should be added in the design of all new facilities. All estimated population growth factors used for the design of new/renovated facilities shall be submitted to EPA for review prior to design completion.

2. System Assessments and As-Builts

The preparation of system assessments, including the preparation of hydraulic analyses, will be considered for funding. Projects requesting these types of assistance will be considered as planning projects.

Additionally, the preparation of system as-builts will also be considered for funding under this grant program. Accurate as-builts are essential items in the preparation of hydraulic analyses, system assessments, and successful operation and maintenance programs.

3. System Pressure & Line Sizing

Projects to eliminate pressure problems in distribution lines exhibiting a minimum residual pressure less than 35 psi during peak hour demand or maximum day demand, will be considered for funding. Additionally, systems **that *currently* provide fire protection** and cannot maintain a minimum pressure of 20 psi, at ground level, at all points in the distribution system, during fire flow and fire demand conditions, will be considered for line upsizing to address low pressure areas. Loss of system pressure can lead to cross-connection problems and other system hydraulic problems that can hamper the conveyance of potable water through the distribution system. (Note: Fire flow requirements shall be determined by the appropriate fire authority.)

4. Dead End Lines

Due to the possibility of bacterial growth in dead end lines, line looping (or tie-ins) of water mains, where practical, will be considered for funding under this program. For areas where looping is not practical, funding for fire hydrants, cleanouts, or flush valves will be considered.

5. Replacing Old or Faulty Pipe

Waterline breaks are a potential source of system contamination and usually result in system contamination by coliform bacteria. Some waterline breaks attributed to situations such as new construction, pressure surges, and other rare occurrences are expected as part of regular system operations. However, if certain sections (or lines) of pipe are experiencing an excessive number of waterline breaks, (i.e., more than one break in a year) due to the pipe condition, (i.e., age, material, corrosion, etc.), replacement of the problematic area of pipe will be considered under this grant.

C. Master Plans

Master Planning enables Tribes to design for anticipated future needs by properly sizing and locating facilities, such as water distribution lines, treatment facilities, wells, and tanks. Master Plans should eliminate the need to replace working facilities before their design life is reached. Master Plans will be considered for funding under this grant. (**Note**: All Master Plans will include the preparation of a Feasibility Study that will focus on facilities to be rehabilitated/constructed under this grant. Guidance on preparing Feasibility Studies is provided in **Appendix B**.)

D. Feasibility Studies

Feasibility studies are integral to project planning. Feasibility studies describe the condition of the existing system, explain the need for proposed projects, list a range of alternatives considered for addressing current problems, list capital costs and O&M costs for all alternatives under consideration, list environmental concerns of all alternatives under consideration, provide a proposed preliminary design, and provide detailed cost estimates for the proposed design. Projects to conduct feasibility studies will be considered for funding. (**Note**: Feasibility studies shall be a requirement of all project proposals requesting design/construction funding. All

feasibility studies shall adhere to the "Feasibility Studies" guidance provided in **Appendix B.**)

E. Pump Stations/Houses

Unsanitary conditions in pump houses and water treatment buildings can become direct sources for water quality and public health problems; therefore, the replacement or rehabilitation of unsanitary and unsafe pump houses and water treatment buildings will be considered for funding under this program. Examples of potential rehabilitation or replacement projects are pump houses that do not protect or prevent entrance of animals or unauthorized personnel, pump houses that flood during seasonal rains, and pump houses without separate rooms or adequate area for chemical feed facilities.

F. Storage Tanks

Tanks with extensive wall corrosion or other unsanitary conditions that may allow contaminants to enter the tank (or otherwise adversely affect public health) may be considered for rehabilitation or replacement under this grant.

In situations where there is reasonable suspicion that unsanitary conditions exist, projects to drain and clean water storage tanks so that a complete inspection/evaluation can be performed will be considered for funding. These types of projects are necessary in determining the extent of potential health risks and services needed to address the health risks.

Storage tanks must have adequate protection from sources of contamination, including unauthorized visitors and vandalism, to insure a safe and healthy water supply; therefore, projects intended to secure storage tanks from outside interference (for example, constructing a chain link fence around the perimeter of the storage tank site) will be considered for funding.

Water storage tanks must be capable of supplying water to the distribution system during emergency situations such as electricity outages, routine pump maintenance, and fire flow conditions. If adequate storage capacity is not provided, the water system can lose pressure resulting in a high potential for cross connection contamination or other resulting public health threats that exist when communities are out of water. Therefore, increasing water storage capacity for systems that do not meet the following minimum standards, will be considered for funding under this grant.

> Multi Source Systems: For systems with two or more sources, water storage capacity should equal twice the *average daily demand* minus the 12 hour pump capacity of the remaining water sources with the largest water source off-line. However, at no time should the storage capacity be less than the *average daily consumption rate.* (This minimum capacity standard for water storage can be increased for remote systems.)
>
> Single Source Systems: For systems with only one water source, water storage capacity should equal twice the *average daily demand.* (This minimum capacity standard for water storage can be increased for remote systems.)

Note: For systems that *currently* supply fire protection, required fire flow reserve should be added directly to the consumption rates listed above. During fire flow conditions, the water system experiences high public health risks due to the depletion of the domestic water reserve and the potential loss of system pressure potentially resulting in cross connection contamination. (Note: Fire flow reserve requirements shall be determined by the appropriate fire authority.)

G. Disinfection

EPA specifies that maintaining a disinfectant residual throughout the distribution system is the best technology for achieving compliance with the MCL for total coliform. Therefore, adding, replacing or repairing disinfection equipment for water systems will be considered for funding.

V. Project Eligibility and Design/Construction Standards for Water Wells

For new well construction and renovation of existing wells, EPA Region IX requires that appropriate well drilling and well development standards be followed. The selected standards must be submitted to the EPA project officer for review prior to requesting construction funding. (**Note**: due to the regional differences in geology among Region IX communities, EPA Region IX strongly suggests following State and Local well drilling standards. Many counties have adopted well drilling standards which take into account local geologic and hydrogeologic conditions.)

All products, materials (including pipes, fittings, and valves) and construction methods used in the rehabilitation/construction of water wells should conform to the applicable American Water Works Association (AWWA) Standards, National Sanitation Foundation Standards (NSF) and/or American National Standards Institute (ANSI).

A. Well Rehabilitation or Replacement

Poorly constructed wells (i.e., wells with cracked or damaged sanitary seals, casing, and screens) can contribute to water quality and public health problems by allowing above ground contaminants to enter the groundwater and distribution systems, as well as allowing cross communication of contaminants between different aquifers. Therefore, the replacement or rehabilitation of existing water wells will be considered for funding if the water well's production is required to meet minimum system water demands.

Constructing new wells will also be considered in cases where a well is not capable of producing water which meets the NPDWR; and, it is determined that replacement of the well is preferable to treatment of the water based on cost and other relevant factors, such as disposal of treatment residuals and long term operation and maintenance requirements. However, it must also be determined that the new well production is required to meet the minimum system water demands. Projects predominantly intended to address water *quantity* issues are *not* eligible for funding. However, additional water source development will be considered for funding under the following circumstances:

> The total developed water source production (from ground or surface water) is not capable of providing the system with adequate capacity to insure a constant supply of

safe drinking water to all users. Pump motors are not designed to run continuously. As a general guideline, if the available water sources cannot supply the *average day demand* in approximately 12 hours, additional water source development will be considered. (Pump capacity should not be considered in this evaluation, only the maximum sustainable yield.)

Water systems are usually required to have a minimum of two water sources. Having two or more water sources helps to alleviate potential water shortages (and associated health problems) experienced when one source is disconnected from the system for any reason including repair or maintenance.

B. Well Testing

In cases where the sanitary condition of the well, or structure of the well is in question due to water quality problems, insufficient or outdated well information, or continual declining production, well testing (such as water quality testing, video logging, sonic logging, and pump testing to determine maximum yield) will be considered for funding.

C. Well Abandonment

Wells that are not properly abandoned pose a serious threat to ground water quality. They can act as a conduit for above ground contaminants to enter the groundwater; they can also cause cross communication between good quality and poor quality aquifers, and if not sealed, they can be life threatening to children and small animals. The proper abandonment of unused wells will be considered for funding.

VI. Project Eligibility and Design Standards for On-Site Wastewater Systems, Community Collection Systems and Treatment Facilities

For designing new facilities and renovating existing facilities, EPA Region IX has adopted the "Recommended Standards for Wastewater Facilities" (the Ten States Standards) for wastewater treatment facilities. This document is published by the Greater Lakes Upper Mississippi River Board of State Public Health and Environmental Managers. (**Note**: Copies of the Ten States Standards can be ordered by calling (518) 439-7286 or through the Internet at www.hes.org.) For onsite wastewater treatment systems, EPA has adopted the "Design Manual - Onsite Wastewater Treatment and Disposal Systems" (the purple book). This document is published by EPA's Office of Research and Development. Copies can be obtained by contacting EPA at (415) 744-1944. All deviations from these standards must be presented to EPA for review.

EPA Region IX requires that proposed project design standards, technical reference material, or supplier reference material be submitted to EPA for review, for all community collection systems and treatment facilities prior to requesting design/construction funding.

All products, materials (including pipes, fittings, and valves) and construction methods used in the rehabilitation/construction of water distribution systems shall conform to the applicable National Sanitation Foundation Standards (NSF) and/or American National Standards Institute (ANSI).

A. Feasibility Studies

Feasibility studies are integral to project planning. Feasibility studies describe the condition of the existing system, explain the need for proposed projects, list a range of alternatives considered for addressing current problems, list capital costs and O&M costs for all alternatives under consideration, list environmental concerns of all alternatives under consideration, provide a proposed preliminary design, and provide detailed cost estimates for the proposed design. Projects to conduct feasibility studies will be considered for funding. (**Note**: Feasibility studies shall be a requirement of all project proposals requesting design/construction funding. All feasibility studies shall adhere to the "Feasibility Studies" guidance provided in **Appendix C.**)

VII. Operation and Maintenance Requirements

In accordance with "EPA Region IX Tribal Border Infrastructure Grant Criteria," **Appendix A**, "Projects must have adequate provisions for long-term operation and maintenance of systems." Higher priority will be given to systems that have adequate existing infrastructure/capacity for long-term operation and maintenance. If the system or utility does not currently have adequate capacity for long term operation and maintenance, the recipient will have to agree to take appropriate steps to ensure that the utility develops capacity before any construction funding will be issued. In an attempt to assess a system's/utility's capacity for long-term operation and maintenance, EPA Region IX shall require that each recipient complete and submit the attached capacity checklist and financial worksheet prior to receiving design/construction funding. **See Appendix D and E**.

Appendix A (removed)

Appendix B

Region IX Tribal Border Infrastructure Grant
Feasibility Study Guidance

WATER FACILITY
(Modified from RUS "Preliminary Engineering Report" Bulletin 1780-2)

I. GENERAL. A Feasibility Study should clearly describe the owner's present situation, analyze alternatives, and propose a specific course of action, from an engineering perspective. *The level of effort required to prepare the report and the depth of analysis within the report are proportional to the size and complexity of the proposed project.* The following should be used as a guide for the preparation of Feasibility Studies under the EPA Region IX Tribal Border Infrastructure Program.

II. PROJECT PLANNING AREA. Describe the area under consideration. The project planning area may be larger than the service area determined to be economically feasible. The description should include information on the following:

A. Location. Maps, photographs, and sketches. These materials should indicate legal and natural boundaries, major obstacles, elevations, etc.

B. Environmental Resources Present. Maps, photographs, studies and narrative. These materials should provide information on the location and significance of important land resources (farmland, rangeland, forestland, wetlands and 100/500 year floodplains, including stream crossings), historic sites, endangered species/critical habitats, etc., that must be considered in project planning.

C. Growth Areas and Population Trends. Specific areas of concentrated growth should be identified. Population projections for the project planning area and concentrated growth areas should be provided for the project design period. These projections should be based on historical records with justification from recognized sources. (Some important areas of growth that should be evaluated are future housing developments, community facilities, and economic developments. The Tribal Council, economic committees, housing committees, and other appropriate entities should provide estimates for future growth.)

III. EXISTING FACILITIES. Describe the existing facilities including at least the following information:

A. Location Map. Provide a schematic layout and general service area map (may be identified on project planning area maps).

B. History.

C. Condition of Facilities. Describe present condition; suitability for continued use; adequacy of water supply; and, if any existing central facilities, the treatment, storage, and distribution capabilities. Also, describe compliance with Safe Drinking Water Act.

D. Financial Status of any Operating Central Facilities. Provide information regarding rate schedules, annual operating and maintenance (o&m) cost, tabulation of users by monthly usage categories and revenue received for last three fiscal years. Give status of existing debts and required reserve accounts.

IV. NEED FOR PROJECT. Describe the needs in the following order of priority:

A. Public Health and Water Quality. Describe concerns and include relevant regulations and correspondence from/to Federal regulatory agencies.

B. System O&M. Describe the concerns and indicate those with the greatest impact. Investigate water loss, management adequacy, inefficient designs, and problem elimination prior to adding additional capacity.

C. Growth. Describe the reasonable growth capacity that is necessary to meet needs during the planning period. Facilities proposed to be constructed to meet future growth needs should generally be supported by additional revenues. Consideration should be given to designing for phased capacity increases. Provide number of new customers committed to this project.

V. ALTERNATIVES CONSIDERED. This section should contain a description of the reasonable alternatives that were considered in planning a solution to meet the identified need. The description should include the following information on each alternative:

A. Description. Describe the facilities associated with the alternative. Describe all feasible water supply sources and provide comparison of such sources. Also, describe treatment, storage and distribution facilities.

B. Design Criteria. State the design parameters used for evaluation purposes. These parameters must follow EPA design guidance.

C. Map. Schematic layout.

D. Environmental Impacts. Do not duplicate the information in the applicant's submittal of environmental information. Describe unique direct and indirect impacts on floodplains, wetlands, other important land resources, endangered species, historical and archaeological properties, etc., as they relate to a specific alternative. EPA must conduct an environmental assessment prior to project approval.

E. Land Requirements. Identify sites and easements required. Further specify whether these properties are currently owned, to be acquired or leased.

F. Construction Problems. Discuss concerns such as subsurface rock, high water table, limited access, or other conditions which may affect cost of construction or operation of facility.

G. Cost Estimates.

1. Construction.

2. Non-Construction and Other Projects.

3. Annual Operation and Maintenance.

4. Present Worth, based on Federal discount rates.

H. Advantages/Disadvantages. Describe the specific alternative's ability to meet the owner's needs within its financial and operational resources, comply with regulatory requirements, compatibility with existing comprehensive area-wide development plans, and satisfy public and environmental concerns. A matrix rating system could be useful in displaying the information.

VI. PROPOSED PROJECT (RECOMMENDED ALTERNATIVE). This section should contain a fully developed description of the proposed project based on the preliminary description under the evaluation of alternatives. At least the following information should be included:

A. Project Design.

1. Water Supply. Include requirements for quality and quantity. Describe recommended source, including site.

2. Treatment. Describe process in detail and identify location of plant and site of any process discharges.

3. Storage. Identify size, type and site location.

4. Pumping Stations. Identify size, type, site location and any special power requirements.

5. Distribution Layout. Identify general location of line improvements: lengths, sizes and key components.

6. Hydraulic Calculations. This information should provide sufficient detail in a tabular format to determine compliance with EPA design requirements. Automation tools should be used by the engineer. The submittal should include a map with a list of nodes and pipes and the associated characteristics, such as elevation of node, pipe diameter,

pipe segment length, reservoir elevation, domestic and industrial water demands, fire flow, etc.

B. Cost Estimate. Provide an itemized estimate of the project cost based on the anticipated period of construction. Include development and construction, land and rights, legal, engineering, interest, equipment, contingencies, refinancing, and other costs associated with the proposed project. (For projects containing both water and waste disposal systems, provide a separate cost estimate for each system.)

C. Annual Operating Budget.

1. Income. Provide a rate schedule. Project income realistically, based on user billings, water treatment contracts, and other sources of incomes. In the absence of other reliable information, for budget purposes, base water use on 60 gallons per capita per day, or 150 gallons per residential-sized connection per day, or 4,500 gallons per residential-sized connection per month. When large agricultural or commercial users are projected, the report should include facts to substantiate such projections and evaluate the impact of such users on the economic viability of the project. The number of users should be based on equivalent dwelling units, which is the level of service provided to a typical rural residential dwelling.

2. Operations and Maintenance Costs. Project costs realistically. In the absence of other reliable data, base on actual costs of other existing facilities of similar size and complexity. Include facts in the report to substantiate operation and maintenance cost estimates. Include salaries, wages, taxes, accounting and auditing fees, legal fees, interest, utilities, gasoline, oil and fuel, insurance, repairs and maintenance, supplies, chemicals, office supplies and printing, and miscellaneous.

3. Capital Improvements. If purchasing water or if water is being treated by other, these costs should be included in o&m costs.

4. Debt repayments. Describe existing and proposed project financing from all sources.

VII. CONCLUSIONS AND RECOMMENDATIONS. Provide any additional findings and recommendations that should be considered in development of the project. This may include recommendations for special studies, highlight the need for special coordination, a recommended plan of action to expedite project development, etc.

Appendix C

Region IX Tribal Border Infrastructure Grant
Feasibility Study Guidance

Wastewater System
(Modified from RUS "Preliminary Engineering Report" Bulletin 1780-3)

I. GENERAL. A Feasibility Study should clearly describe the owner's present situation, analyze alternatives, and propose a specific course of action, from an engineering perspective. *The level of effort required to prepare the report and the depth of analysis within the report are proportional to the size and complexity of the proposed project.* The following should be used as a guide for the preparation of Feasibility Studies under the EPA Region IX Tribal Border Infrastructure Program.

II. PROJECT PLANNING AREA. Describe the area under consideration. The project planning area may be larger than the service area determined to be economically feasible. The description should include information on the following:

A. Location. Maps, photographs, and sketches. These materials should indicate legal and natural boundaries, major obstacles, elevations, etc.

B. Environmental resources present. Maps, photographs, studies and narrative. These materials should provide information on the location and significance of important land resources (farmland, rangeland, forestland, wetlands and 100/500 year floodplains, including stream crossings), historic sites, endangered species/critical habitats, etc. that must be considered in project planning.

C. Growth areas and population trends. Specific areas of concentrated growth should be identified. Population projections for the project planning area and concentrated growth areas should be provided for the project design period. These projections should be based on historical records with justification from recognized sources. (Some important areas of growth that should be evaluated are future housing developments, community facilities, and economic developments. The Tribal Council, economic committees, housing committees, and other appropriate entities should provide estimates for future growth.)

III. EXISTING FACILITIES. Describe the existing facilities, including at least the following information:

A. Location map. Provide a schematic layout and general service area map (may be identified on project planning area maps).

B. History.

C. Condition of facilities. Describe present condition; suitability for continued use; adequacy of current facilities; and, if there are any existing central facilities, the treatment, storage, and disposal capabilities. Also, describe compliance with Clean Water Act.

D. Financial status of any operating central facilities. Provide information regarding rate schedules, annual operating and maintenance cost (O&M), tabulation of users by monthly usage categories and revenue received for last three fiscal years. Give status of existing debts, and required reserve accounts.

IV. NEED FOR PROJECT. Describe the needs in the following order of priority:

A. Public Health and Water Quality Problems. Describe concerns and include relevant regulations and correspondence from/to Federal, and State regulatory agencies.

B. System O&M. Describe the concerns and indicate those with the greatest impact. Investigate infiltration and inflow, management adequacy, inefficient designs, and problem elimination prior to adding additional capacity.

C. Growth. Describe the reasonable growth capacity that is necessary to meet needs during the planning period. Facilities proposed to be constructed to meet future growth needs should generally be supported by additional revenues. Consideration should be given to designing for phased capacity increases. Provide number of new customers committed to this project.

V. ALTERNATIVES CONSIDERED. This section should contain a description of the reasonable alternatives that were considered in planning a solution to meet the identified need. The description should include the following information on each alternative:

A. Description. Describe the facilities associated with the alternative. Describe all feasible wastewater treatment technologies and provide comparison of such. Also, describe collection facilities. A feasible alternative may be a combination of central facilities and management of on-site facilities or only the latter.

B. Design criteria. State the design parameters used for evaluation purposes.

C. Map. Schematic layout.

D. Environmental impacts. Do not duplicate the information in the applicant's submittal of environmental information. Describe unique direct and indirect impacts on floodplains, wetlands, other

important land resources, endangered species, historical and archaeological properties, etc., as they relate to a specific alternative. EPA must conduct an environmental assessment prior to project approval.

E. Land requirements. Identify sites and easements required. Further specify whether these properties are currently owned, to be acquired, or leased.

F. Construction problems. Discuss concerns such as subsurface rock, high water table, limited access, or other conditions which may affect cost of construction or operation of facility.

G. Cost estimates (Separate estimates for collection and treatment).

1. Construction.

2. Non-Construction and Other Projects.

3. Annual Operation and Maintenance.

4. Present Worth, based on Federal discount rates.

H. Advantages/disadvantages. Describe the specific alternative's ability to meet the owner's needs within its financial and operational resources, comply with regulatory requirements, compatibility with existing comprehensive area-wide development plans, and satisfy public and environmental concerns. A matrix rating system could be useful in displaying the information.

VI. PROPOSED PROJECT (RECOMMENDED ALTERNATIVE). This section should contain a fully developed description of the proposed project based on the preliminary description under the evaluation of alternatives. At least the following information should be included:

A. Project design.

1. Treatment. Describe process in detail and identify location of plant and site of any discharges.

2. Pumping Stations. Identify size, type, site location and any special power requirements.

3. Collection System Layout. Identify general location of line improvements: lengths, sizes and key components.

4. Hydraulic Calculations. This information should provide sufficient detail in a tabular format to determine compliance with EPA design requirements. Automation tools may be used by the engineer. The submittal should include a map with a list of manholes and pipes and the associated characteristics, such as elevation of inverts, pipe diameter, pipe segment length, etc.

B. Cost estimate. Provide an itemized estimate of the project cost based on the anticipated period of construction. Include development and construction, land and rights, legal, engineering, interest, equipment, contingencies, refinancing, and any other costs associated with the proposed project. (For projects containing both water and waste disposal systems, provide a separate cost estimate for each system.)

C. Annual operating budget.

1. Income. Provide a rate schedule. Project income realistically, based on user billings, wastewater treatment contracts, and other sources of income. In the absence of other reliable information, for budget purposes, base wastewater generation on 60 gallons per capita per day, or 150 gallons per residential-sized connection per day, or 4,500 gallons per residential-sized connection per month. When large users are projected, the report should include facts to substantiate such projections and evaluate the impact of such users on the economic viability of the project. The number of users should be based on equivalent dwelling units, which is the level of service provided to a typical rural residential dwelling.

2. Operations and Maintenance Costs. Project costs realistically. In the absence of other reliable data, base on actual costs of other existing facilities of similar size and complexity. Include facts in the report to substantiate operation and maintenance cost estimates. Include salaries, wages, taxes, accounting and auditing fees, legal fees, interest, utilities, gasoline, oil and fuel, insurance, repairs and maintenance, supplies, chemicals, office supplies and printing, and miscellaneous.

3. Capital Improvements.

4. Debt Repayments. Describe existing and proposed project financing from all sources.

VII. CONCLUSIONS AND RECOMMENDATIONS. Provide any additional findings and recommendations that should be considered in development of the project. This may include recommendations for special studies, highlight the need for special coordination, a recommended plan of action to expedite project development, etc.