

NEBRASKA NATURAL RESOURCES COMMISSION

Water Sustainability Fund

Application for Funding

Section A.

ADMINISTRATIVE

PROJECT NAME: ***Mitchell Wastewater Treatment System Improvements***

PRIMARY CONTACT INFORMATION

Entity Name: ***City of Mitchell***

Contact Name: ***Jeff Sprock, City Administrator***

Address: ***1280 Center Avenue, Mitchell, NE 69357***

Phone: ***308-623-1523***

Email: ***cityadmin@mitchellcity.net***

Partners / Co-sponsors, if any: ***City of Mitchell, Platte River Basin Environmental (land application site) and USDA Rural Development (funding)***

1. Dollar amounts requested: (Grant, Loan, or Combination)

Grant amount requested. \$ ***\$2,407,200***

Loan amount requested. \$ ***None***

If Loan, how many years repayment period? ***N/A***

If Loan, supply a complete year-by-year repayment schedule.
N/A

2. Permits Needed - Attach copy for each obtained (N/A = not applicable)

Nebraska Game & Parks Commission
(G&P) consultation on Threatened and
Endangered Species and their Habitat

N/A Obtained: YES NO

Surface Water Right	N/A <input checked="" type="checkbox"/>	Obtained: YES <input type="checkbox"/>	NO <input type="checkbox"/>
USACE (e.g., 404 Permit)	N/A <input checked="" type="checkbox"/>	Obtained: YES <input type="checkbox"/>	NO <input type="checkbox"/>
Cultural Resources Evaluation	N/A <input checked="" type="checkbox"/>	Obtained: YES <input type="checkbox"/>	NO <input type="checkbox"/>
Other (provide explanation below)	N/A <input checked="" type="checkbox"/>	Obtained: YES <input type="checkbox"/>	NO <input type="checkbox"/>

[Click here to enter text.](#)

3. Are you applying for funding for a combined sewer over-flow project?

YES NO

If yes, do you have a Long Term Control Plan that is currently approved by the Nebraska Department of Environmental Quality?

YES NO

If yes attach a copy to your application. **N/A**

If yes what is the population served by your project? **N/A**

If yes provide a demonstration of need. **N/A**

If yes and you were approved for funding in the most recent funding cycle, then resubmit the above information updated annually but you need not complete the remainder of the application.

4. If you are or are representing an NRD, do you have an Integrated Management Plan in place, or have you initiated one?

N/A YES NO

5. Has this application previously been submitted for funding assistance from the Water Sustainability Fund and not been funded?

YES NO

If yes, have any changes been made to the application in comparison to the previously submitted application? **Yes**

If yes, describe the changes that have been made since the last application.

The scope of the project has remained unchanged.

The USDA Rural Development funding commitment has been finalized.

The project design phase has started which has increased the fees incurred by the City.

Additional information has been provided for a number of the application questions to clarify and strengthen the City's application.

No, I certify the application is a true and exact copy of the previously submitted and scored application. (Signature required) ***N/A***

6. Complete the following if your project has or will commence prior to next July 1st.

As of the date of submittal of this application, what is the Total Net Local Share of Expenses incurred for which you are asking cost share assistance from this fund?

The study phase for the project has been completed and a funding source determined. USDA Rural Development has indicated the project is eligible for a long term loan (a copy of the notice is included in the application packet). Funding has been finalized the project. The City has entered into an agreement with Baker & Associates, Inc covering project design and construction period services for the project. The project is currently in the preliminary design phase. (The Rural Development notice of eligibility & Letter of Conditions are attached as Appendix A).

Attach all substantiating documentation such as invoices, cancelled checks etc. along with an itemized statement for these expenses.

Invoices in the amount of \$54,603 have been submitted by the design engineer (Reference Appendix B). The amount invoiced represents less than 1% of the total project cost.

Estimate the Total Net Local Share of Expenses and a description of each you will incur between the date of submittal of this application and next July 1st for which you are asking cost share assistance from this fund.

The project design is expected to be completed in the fall of 2016 with construction starting in early spring 2017. The estimated expenses for the remaining project design and bidding period services through July 1, 2017 are \$181,922. Construction of the project is expected to begin in late spring 2017 with an additional \$1,146,000 estimated expenditures for construction activities (\$1,070,000) and engineering support (\$76,000) through July 1, 2017.

Section B.

DNR DIRECTOR'S FINDINGS

Does your project include physical construction (defined as moving dirt, directing water, physically constructing something, or installing equipment)?

YES NO

- 1(a). If yes (structural), submit a feasibility report (to comply with Title 261, CH 2) including engineering and technical data and the following information:

A discussion of the plan of development (004.01 A);

A feasibility report was completed in January 2015 to address the City of Mitchell's wastewater system. Two subsequent Preliminary Engineer Report (PER) Amendments were prepared (April 2015 & December 2015) to further evaluate the alternatives available to correct the wastewater system's deficiencies. The selected alternative will replace the City's existing controlled discharge wastewater treatment system with a new lagoon system to include land application of the treated wastewater. The proposed lagoons will total 50 acres of surface area. The land application site requires a minimum of 178 acres to apply the expected amount of wastewater while meeting a 14-inch per year irrigation allocation set by the North Platte Natural Resources District. Copies of the two Preliminary Engineering Report (PER) Amendments describing the proposed project in more detail are included in the application packet (Reference Appendix C).

A description of all field investigations made to substantiate the feasibility report (004.01 B);

As noted previously, the facilities plan reviewed the condition of the City's entire wastewater system. This included measurements of sewage flows, and assessments of the wastewater collection and the existing treatment systems.

Maps, drawings, charts, tables, etc., used as a basis for the feasibility report (004.01 C);

The attached PER Amendments (Reference Appendix C) provide detailed information on each of the investigated alternatives. This includes vicinity maps (with improvements identified), water balance calculation spreadsheets, itemized capital & operation costs and life cycle costs.

A description of any necessary water and land rights and pertinent water supply and water quality information, if appropriate (004.01 D);

The project will require easements for siting a sewage lift station; a sewage force main to transfer the waste to the lagoon system from the lift station and an irrigation supply main to transfer the wastewater from the lagoons to the land application site. The City currently owns the land on which the wastewater lagoons will be located. The land application site presently has combined surface and groundwater rights to irrigate approximately 170 acres. An agreement between the City and land application site owner [Platte River Basin Environmental (PRBE)] detailing the delivery and use of the wastewater as an irrigation source will be executed. A draft letter of understanding between the City and PRBE is included in the application packet (Reference Appendix D).

A discussion of each component of the final plan including, when applicable (004.01 E);

Required geologic investigation (004.01 E 1);

The proposed improvements do not require extensive geologic or geotechnical investigations. Soil Survey information is considered adequate for the majority of the design considerations.

Required hydrologic data (004.01 E 2);

Historic rainfall and pond evaporation data for the Mitchell area along with estimates of the City's wastewater flows were used in conjunction with the proposed lagoon sizing to estimate the amount of wastewater that will be available for land application.

Design criteria for final design including, but not limited to, soil mechanics, hydraulic, hydrologic, structural, embankments and foundation criteria (004.01 E 3).

The project must comply with NDEQ requirements and standard engineering practices. This includes, but is not limited to, the specific requirements for improvements that are constructed in a flood plain and separation between the lagoon floors & groundwater table, the minimum cell sizing based on the strength of the wastewater, equipment redundancy requirements and health & safety considerations. The NDEQ has reviewed the groundwater separations for the lagoon and land application sites and have determined that the sites are suitable to be utilized for the intended project.

The land application site has been under irrigation for over 50-years. The application site is predominantly loam or sandy loam soils which are suitable for crop production.

- 1(b). If no (non-structural), submit data necessary to establish technical feasibility including, but not limited to the following (004.02):

A discussion of the plan of development (004.02 A);
N/A

A description of field or research investigations utilized to substantiate the project conception (004.02 B); **N/A**

A description of the necessary water and/or land rights, if applicable (004.02 C); **N/A**

A discussion of the anticipated effects, if any, of the project upon the development and/or operation of existing or envisioned structural measures including a brief description of any such measure (004.02 D).
N/A

2. Provide evidence that there are no known means of accomplishing the same purpose or purposes more economically, by describing the next best alternative.

Cost analyses are included in the PER information included with the application for each of the alternative options. The following summarizes the capital costs, yearly operations & maintenance costs and present worth of the options.

Lagoons w/ Land Application (Selected Alternative)

Capital Cost -	\$4,012,500
O&M Costs -	\$54,200
Present Worth -	\$4,818,861

Treatment Plant

Capital Cost -	\$4,114,500
O&M Costs -	\$103,900
Present Worth -	\$5,660,272

Complete Retention Lagoons

Capital Cost -	\$6,296,250
O&M Costs -	\$27,100
Present Worth -	\$6,699,410

The total estimated costs for the second most feasible option are approximately 2.5% higher than the projected costs for the selected option. The yearly operation & maintenance costs for the second option are \$50,000 per year greater than the selected option. This equates to \$55 per year per customer. The attached PER Amendments describe the evaluation of the treatment options available to the City and the reasoning for selecting the chosen option in more detail (Reference Appendix C).

3. Document all sources and report all costs and benefit data using current data, (commodity prices, recreation benefit prices, and wildlife prices as prescribed by the Director) using both dollar values and other units of measurement when appropriate (environmental, social, cultural, data improvement, etc.). The period of analysis for economic feasibility studies shall be fifty (50) years or with prior approval of the Director, up to one hundred (100) years [T261 CH 2 (005)].
 - Describe any relevant cost information including, but not limited to the engineering and inspection costs, capital construction costs, annual operation and maintenance costs, and replacement costs. Cost information shall also include the estimated construction period as well as the estimated project life (005.01).

The total cost of the proposed project is \$4,012,000. This is broken down as follows:

- **Administration/Legal - \$15,000**
- **Engineering Fees - \$466,000**
- **Construction - \$3,210,000**
- **Contingencies - \$321,000**

The operations & maintenance costs are estimated at \$23,000 per year. This includes an allowance for the periodic replacement of the pumps and motors utilized in the project.

Itemized cost estimates are included in the attached PER Amendments (Reference Appendix C). Costs are included for the major components of the project along with the yearly operating & maintenance costs used to develop life cycle costs for each of the options.

- Only primary tangible benefits may be counted in providing the monetary benefit information and shall be displayed by year for the project life. In a multi-purpose project, estimate benefits for each purpose, by year, for the life of the project. Describe any intangible or secondary benefits separately. In a case where there is no generally accepted method for calculation of primary tangible benefits describe how the project will increase water sustainability, such that the economic feasibility of the project can be approved by the Director and the Commission (005.02).

The monetary benefit of the project is to reduce the financial burden of the City’s wastewater system customers by reducing the monthly user rates required for USDA Rural Development loan repayment. If the City is unsuccessful in securing grant money through the Water Sustainability Fund, the yearly loan payment to Rural Development is \$145,957. If the City is successful in securing grant money, the estimated yearly loan payment would be reduced to \$58,383 for a savings of approximately \$87,500 per year. This equates to a savings of \$114 per year for the average sewer customer. This translates to a potential savings of \$3.5 million to the residents of Mitchell over the 40-year loan repayment period. A Rate Comparison detailing these costs is included in Appendix E.

- All benefit and cost data shall be presented in a table form to indicate the annual cash flow for the life of the proposal, not to exceed 100 years (005.03).

The following table summarizes and the corresponding impacts to the projected user rates. A more detailed comparison can be found in Appendix # and includes breakdowns for grant/loan funding and loan only funding (Reference Appendix E).

	<u>RD Loan w/ WSF Grant</u>
Capital Cost	\$4,012,000
Loan Amount	\$1,604,800
Grant Amount	\$2,407,200
Annual Payment	\$57,386
Annual O&M	\$23,000
Total Annual Costs	\$80,386
Customers	767
Cost per Customer	\$105

- In the case of projects for which there is no generally accepted method for calculation of primary tangible benefits and if the project will increase water sustainability, the economic feasibility of such proposal shall be demonstrated by such method as the Director and the Commission deem appropriate (005.04).

The existing treatment lagoons were constructed prior to implementation of the NDEQ's current regulations. As constructed, the allowable seepage from the lagoons was twice the current allowed seepage. The existing treatment system was also designed to periodically discharge wastewater to the North Platte River. The proposed project will include a synthetic liner (HDPE) that effectively reduces the seepage from the cells to zero. The excess wastewater that is not evaporated from the cells is land applied as irrigation water with regulations preventing any wastewater from leaving the application site. As a result, the project essentially eliminates untreated or partially treated wastewater from entering the underlying aquifer or surrounding surface waters.

4. Provide evidence that sufficient funds are available to complete the proposal.

The project has been selected for funding from USDA Rural Development's loan/grant program. The Rural Development letter documenting the offer of funding is included in the application packet. The City has received the Rural Development Letter of Conditions for the project (Reference Appendix A).

5. Provide evidence that sufficient annual revenue is available to repay the reimbursable costs and to cover OM&R (operate, maintain, and replace).

As part of the USDA Rural Development funding requirements the City must increase the City's sewer user rates to generate the revenues necessary to satisfy the City's current financial obligations plus any debt burden resulting from the proposed project. The City is working with the Nebraska Rural Water Association to evaluate the current rate structure and propose any increases needed to insure the financial obligations are met.

6. If a loan is involved, provide sufficient documentation to prove that the loan can be repaid during the repayment life of the proposal.

In order to secure USDA Rural Development funding, the City is required to demonstrate its ability to repay their loan obligation. As noted previously, the City is reviewing their current wastewater budget obligations and revenues in conjunction with the proposed project costs to determine the appropriate user rates to insure the wastewater system can operate as required.

7. Describe how the plan of development minimizes impacts on the natural environment.

The wastewater treatment scheme of evaporative lagoons with essentially zero seepage and land application of wastewater essentially eliminates untreated or partially treated wastewater from entering the underlying aquifer or surrounding surface waters of the North Platte River. The current wastewater treatment operations include periodic releases of partially treated wastewater to the North Platte River which degrades the water quality during the release period. The proposed treatment system will eliminate these direct discharges. When wastewater is land applied, no runoff of the wastewater from the application site can occur. The proposed lagoon system will be sited on lands that were previously used as settling ponds and are currently sitting idle. This minimizes the need to disturb/change the land use patterns in the area. The land application area is currently under center pivot irrigation further reducing the impacts on current land uses.

8. Explain how you are qualified, responsible and legally capable of carrying out the project for which you are seeking funds.

The applicant is a second class city which gives them the legal ability to incur debt and establish user rates to repay that debt. They have the experienced support staff necessary to successfully operate the wastewater treatment facility in accordance with the applicable regulations.

9. Explain how your project considers plans and programs of the state and resources development plans of the political subdivisions of the state.

The proposed project will allow the City to conform with current NDEQ regulations for the handling of wastewater. The City is currently under a NDEQ Compliance Order to correct deficiencies in the waste treatment (Reference Appendix F).

The project is located in the North Platte Natural Resources District (NPNRD). The groundwater within the NPNRD is overappropriated forcing the NRD to investigate means to reduce depletions within the NRD. The City of Mitchell uses groundwater as their potable water supply and being part of the North Platte NRD's Integrated Management Plan (IMP) they must comply with the conditions restrictions concerning groundwater withdrawals.

10. Are land rights necessary to complete your project?

YES NO

If yes, provide a complete listing of all lands involved in the project.

1) City owned lands (lagoons), 2) county/private owned lands (easements for force main & irrigation supply main, 3) PRBE owned lands (land application site)

If yes, attach proof of ownership for each easements, rights-of-way and fee title currently held.

A copy of the deed for City ownership of the lagoon property is included in the application packet (Reference Appendix G). A draft letter of understanding for use of the land application site is also included (Reference Appendix D).

If yes, provide assurance that you can hold or can acquire title to all lands not currently held.

A Property Docket is submitted to the USDA Rural Development prior to finalization of the funding package. The Property Docket includes documentation of ownership, easements and purchase options and a legal opinion of the City's ability to utilize the lands.

11. Identify how you possess all necessary authority to undertake or participate in the project.

The applicant is a second class city. This provides the City with the ability to secure funding, enter into contractual agreements to construct the improvements and establish user rates to recover expenses.

12. Identify the probable environmental and ecological consequences that may result as the result of the project.

The USDA Rural Development funding requirements include the preparation of an Environmental Assessment (EA). If any detrimental environmental or ecological consequences are noted during the preparation of the EA they will be mitigated as required. A Public Hearing was held by the City of Mitchell on July 5, 2016 to hear any public comment regarding the EA. No comments expressing environmental concerns were received.

Section C.

NRC SCORING

In the NRC's scoring process, points will be given to each project in ranking the projects, with the total number of points determining the final project ranking list.

The following 15 criteria constitute the items for which points will be assigned. Point assignments will be 0, 2, 4, or 6 for items 1 through 8; and 0, 1, 2, or 3 for items 9 through 15. Two additional points will be awarded to projects which address issues determined by the NRC to be the result of a federal mandate.

Notes:

- The responses to one criterion *will not* be considered in the scoring of other criteria. Repeat references as needed to support documentation in each criterion as appropriate. The 15 categories are specified by statute and will be used to create scoring matrixes which will ultimately determine which projects receive funding.
- There is a total of 69 possible points, plus two bonus points. The potential number of points awarded for each criteria are noted in parenthesis. Once points are assigned, they will be added to determine a final score. The scores will determine ranking.
- The Commission recommends providing the requested information and the requests are not intended to limit the information an applicant may provide. An applicant should include additional information that is believed will assist the Commission in understanding a proposal so that it can be awarded the points to which it is entitled.

Complete any of the following (15) criteria which apply to your project. Your response will be reviewed and scored by the NRC. Place an N/A (not applicable) in any that do not apply, an N/A will automatically be placed in any response fields left blank.

1. Remediates or mitigates threats to drinking water;
 - Describe the specific threats to drinking water the project will address.
 - Identify whose drinking water, how many people are affected, how will project remediate or mitigate.
 - Provide a history of issues and tried solutions.
 - Provide detail regarding long range impacts if issues are not resolved.

The existing treatment facility periodically discharges partially treated wastewater to the North Platte River System. The lagoons, as allowed in their original design, can lose up to one quarter inch of water per day through seepage into the groundwater. Affected parties are the rural residents living downstream of the facility who use the groundwater as their drinking water source and those persons who use the River for recreational activities. The proposed project will provide an improvement to the overall quality of groundwater and surface water in the area by the elimination of these discharges. The direct discharge of wastewater to the North Platte River will be eliminated. Seepage from the lagoon cells will be reduced to essentially zero by the use of a synthetic liner. The improvement in quality is difficult to quantify; however, it is accepted that reductions in wastewater discharges to the environment are beneficial. This benefit will extend to the various water uses (groundwater & surface water) downstream of the treatment facility. There are an estimated population of 29,000 people in 11 communities lying between the wastewater treatment system and Lake McConaughy that would benefit from the improvement in water quality. The wastewater treatment system has periodically discharged partially treated wastes since the early 1980's when the current system was constructed.

2. Meets the goals and objectives of an approved integrated management plan or ground water management plan;
 - Identify the specific plan that is being referenced including date, who issued it and whether it is an IMP or GW management plan.
 - Provide the history of work completed to achieve the goals of this plan.
 - List which goals and objectives of the management plan the project provides benefits for and how the project provides those benefits.

The City of Mitchell is located in the overappropriated portion of the North Platte Natural Resources District (NRD). In 2009 the North Platte NRD entered into an IMP with the Nebraska Department of Natural Resources (DNR) for the North Platte watershed. This IMP stipulates that the North Platte NRD must reduce its ground water depletions in its overappropriated area by approximately 8,000 acre-feet per year by 2019. This project will assist the North Platte NRD with returning to being fully appropriated by providing a net annual benefit to the stream of approximately 95 are feet per year. As part of the IMP the City of Mitchell must stay under a groundwater usage baseline of 173,323,000 gallons per year (531.9 acre-feet). The City has utilized flowmeters on all commercial and residential water customers for the past 30 years. The water meters hold users accountable for their water consumption and greatly reduce overall water use. This allowed the City to stay 20,000,000 gallons under the base line in 2015 attesting to the City's commitment to maintain city water use levels at sustainable levels.

3. Contributes to water sustainability goals by increasing aquifer recharge, reducing aquifer depletion, or increasing streamflow;

List the following information that is applicable:

- The location, area and amount of recharge;
- The location, area and amount that aquifer depletion will be reduced;
- The reach, amount and timing of increased streamflow. Describe how the project will meet these objectives and what the source of the water is;
- Provide a detailed listing of cross basin benefits, if any.

The project will provide a reduction in groundwater depletions in the area. While the proposed project eliminates the controlled discharge from the existing lagoon system, the project reduces the burden on groundwater pumping in the area by eliminating the need for groundwater irrigation of the land application site. Based on the averages of water pumped for potable use and wastewater discharged over the past 14 years the City had a net yearly depletion of 462.6 ac-ft (554.3 ac-ft potable water pumped minus 91.7 ac-ft wastewater returned). The land application area (160 acres) was under a 14-inch per year allocation equating to a depletion of 186.7 ac-ft. The proposed project eliminates this depletion resulting in a net depletion of 367.6 ac-ft or a net yearly reduction of approximately 95 ac-ft of groundwater. The reduction in depletions will occur in the area of the groundwater well that previously supplied the irrigation system at the land application site. The reductions will occur during the irrigation season (approximately June to September). The irrigation well's proximity (less than ½-mile) to the North Platte River will hasten the effect the reduced depletion will have on the river system.

4. Contributes to multiple water supply goals, including, but not limited to, flood control, agricultural use, municipal and industrial uses, recreational benefits, wildlife habitat, conservation of water resources, and preservation of water resources;
 - List the goals the project provides benefits.
 - Describe how the project will provide these benefits
 - Provide a long range forecast of the expected benefits this project could have versus continuing on current path.

The proposed project will bring the City's wastewater treatment into compliance with state regulations. The current treatment fails to reduce the levels of Carbonaceous Biochemical Oxygen Demand (CBOD), Total Suspended Solids (TSS), Ammonia and Fecal Coliform to the maximum levels allowed by regulation. High CBOD loads reduce the amount of dissolved oxygen (DO) in water which can reduce or eliminate aquatic life viability in an aquatic system. Excessive TSS can impair water quality for aquatic and human life, impede navigation and increase mortality rates in aquatic life from flooding risks (i.e. smothering aquatic eggs). High levels of ammonia cause excessive plant growth (algal bloom) and decay, and further reduces DO disrupting the natural balance of the aquatic ecosystem. Increased Fecal Coliform concentrations can reduce DO to levels that can lead to mortality in fish and other aquatic life. High levels of coliform bacteria can be an indication of other pathogens with potentially significant impacts to public health. The construction of this project will eliminate these contaminants from reaching the stream.

By improving the water quality of the North Platte River, aquatic and terrestrial wildlife will benefit from improved habitat. Improvements include increased dissolved oxygen in the stream, less turbidity, reducing the source for algal blooms and decreased chance of disease. Enhanced wildlife habitat has direct benefits for the sportsman and outdoorsman. Better habitat will lead to more robust wildlife populations for these groups to enjoy. Improved water quality will also reduce health risks to recreational users while improving the aesthetics of their outdoors experience. Healthy aquatic systems (plants) help slow down the water during flood events reducing the erosion damage during floods.

The lagoon seepage and discharge also has adverse effects on rural and municipal drinking water quality on downstream wells in the alluvial aquifer from the project site to Lewellen. The affected population is estimated be at least 29,000 people.

The positive impacts of this project will occur over the life of the treatment system. The estimated life of the infrastructure components being installed under this project exceeds 50 years, however, the ability to utilize this method of wastewater treatment will not end. This project will completely eliminate the introduction of contaminants to the river system while reducing depletions for the life of this project. The land application process provides a direct beneficial use for the wastewater that would otherwise be discharged. The project eliminates depletions from the groundwater supply well for the land application area.

5. Maximizes the beneficial use of Nebraska's water resources for the benefit of the state's residents;
- Describe how the project will maximize the increased beneficial use of Nebraska's water resources.
 - Describe the beneficial uses that will be reduced, if any.
 - Describe how the project provides a beneficial impact to the state's residents.

The construction of the project will eliminate constituents with detrimental environmental effects that are present in the City's wastewater treatment system from reaching the North Platte River. By improving the water quality of the North Platte River aquatic, terrestrial wildlife and human populations will benefit.

In summary the proposed improvements will:

- ***Reduce stream turbidity & algal blooms,***
- ***Lead to a decreased chance of disease,***
- ***Enhanced wildlife habitat,***
- ***Improve water quality***
- ***Improve rural and municipal drinking water quality***
- ***Assist in meeting the federally mandated requirements of the Platte River Recovery Implementation Program (PRRIP),***
- ***Increase streamflow for enhanced habitat for hunting and recreational use of residents***
- ***Decrease debt for Nebraska resident reducing financial burden on tax payers, and***
- ***Reduce groundwater depletions by an estimated 95 acre-feet per year.***

No beneficial uses will be reduced by the project. The state's residences will receive the direct benefit of improved surface water quality in the North Platte River system. This includes benefits to sensitive aquatic life as well as recreational users.

6. Is cost-effective;

- List the estimated construction costs, O/M costs, land and water acquisition costs, alternative options, value of benefits gained.
- Compare these costs to other methods of achieving the same benefits.
- List the costs of the project.
- Describe how it is a cost effective project or alternative.

Cost analyses are included in the Preliminary Engineering Report information included with the application for each of the alternative options (Reference Appendix C). The following summarizes the capital costs, yearly operations & maintenance costs and present worth of the options.

Lagoons w/ Land Application (Selected Alternative)

Capital Cost -	\$4,012,500
O&M Costs -	\$54,200
Present Worth -	\$4,818,861

Treatment Plant

Capital Cost -	\$4,114,500
O&M Costs -	\$103,900
Present Worth -	\$5,660,272

Complete Retention Lagoons

Capital Cost -	\$6,296,250
O&M Costs -	\$27,100
Present Worth -	\$6,699,410

In summary the proposed project has the lowest capital costs as well as the lowest present worth of the viable options.

The \$4,012,000 project cost is broken down as follows:

- **Administration/Legal - \$15,000**
- **Engineering Fees - \$466,000**
- **Construction - \$3,210,000**
- **Contingencies - \$321,000**

7. Helps the state meet its obligations under interstate compacts, decrees, or other state contracts or agreements or federal law;
 - Identify the interstate compact, decree, state contract or agreement or federal law.
 - Describe how the project will help the state meet its obligations under compacts, decrees, state contracts or agreements or federal law.
 - Describe current deficiencies and document how the project will reduce deficiencies.

The project has benefits that meet the goals of the Platte River Recovery Implementation Program (PRRIP). The PRRIP is a partnership between Colorado, Wyoming, Nebraska and the federal government with elements to increase stream flows in the central Platte River during relevant time periods; enhancing, restoring and protecting habitat lands for the target bird species under the Endangered Species Act while accommodating certain new water-related activities.

The proposed project will decrease depletions to the aquifer system by 95 ac-ft. thereby increasing the amount of water in the system and enhancing stream flow. The increased water quality provided by this project will also improve habitat in the Platte River system making it more robust through healthier food sources and improved aquatic plant components.

The project reduces depletions in the North Platte River system indirectly increasing the amount of groundwater and thereby, the amount of surface water available in the system. This benefits the Platte River Recovery Implementation Program and its goal of improving habitat.

8. Reduces threats to property damage or protects critical infrastructure that consists of the physical assets, systems, and networks vital to the state or the United States such that their incapacitation would have a debilitating effect on public security or public health and safety;

- Identify the property that the project is intended to reduce threats to.
- Describe and quantify reductions in threats to critical infrastructure provided by the project and how the infrastructure is vital to Nebraska or the United States.
- Identify the potential value of cost savings resulting from completion of the project.
- Describe the benefits for public security, public health and safety.

The elimination of partially treated wastewater being discharged to the North Platte River improves the overall quality of the water flowing in the river. This provides a direct benefit to over 100 miles of river system from the project site to Lewellen. By improving the water quality of the North Platte River, aquatic and terrestrial wildlife will benefit from improved habitat. Improvements include increased dissolved oxygen in the stream, less turbidity, reducing the source for algal blooms and decreased chance of disease. Enhanced wildlife habitat has direct benefits for the sportsman and outdoorsman. Better habitat will lead to more robust wildlife populations for these groups to enjoy. Improved water quality will also reduce health risks to recreational users while improving the aesthetics of their outdoors experience. Healthy aquatic systems (plants) help slow down the water during flood events reducing the erosion damage during floods.

The project will also reduce groundwater depletions by changing the source of irrigation water for the land application area from a dedicated groundwater well to utilizing wastewater.

9. Improves water quality;

- Describe what quality issue(s) is/are to be improved.
- Describe and quantify how the project improves water quality, what is the target area, what is the population or acreage receiving benefits, what is the usage of the water: residential, industrial, agriculture or recreational.
- Describe other possible solutions to remedy this issue.
- Describe the history of the water quality issue including previous attempts to remedy the problem and the results obtained.

The proposed project will provide an overall improvement of the drinking water quality in the area through the reduction of wastewater being introduced to groundwater and surface water. The current treatment fails to reduce the levels of Carbonaceous Biochemical Oxygen Demand (CBOD), Total Suspended Solids (TSS), Ammonia and Fecal Coliform to the maximum levels allowed by regulation. The proposed project will bring the City's wastewater treatment into compliance with state regulations. The current treatment fails to reduce the levels of Carbonaceous Biochemical Oxygen Demand (CBOD), Total Suspended Solids (TSS), Ammonia and Fecal Coliform to the maximum levels allowed by regulation. High CBOD loads reduce the amount of dissolved oxygen (DO) in water which can reduce or eliminate aquatic life viability in an aquatic system. Excessive TSS can impair water quality for aquatic and human life, impede navigation and increase mortality rates in aquatic life from flooding risks (i.e. smothering aquatic eggs). High levels of ammonia cause excessive plant growth (algal bloom) and decay, and further reduces DO disrupting the natural balance of the aquatic ecosystem. Increased Fecal Coliform concentrations can reduce DO to levels that can lead to mortality in fish and other aquatic life. High levels of coliform bacteria can be an indication of other pathogens with potentially significant impacts to public health. The construction of this project will eliminate these contaminants from reaching the stream.

The project improves water quality as the discharge of wastewater to the North Platte River will be eliminated and seepage from the lagoon cells will be reduced to essentially zero. The improvement in groundwater quality is difficult to quantify; however, it is accepted that reductions in wastewater discharges to the environment are beneficial. The removal of partially treated wastewater from the North Platte River improves its surface water quality experienced by recreational users of the river. The target area extends from Mitchell to Lake McConaughy with an estimated 29,000 persons and 11 communities.

The feasibility report identified three alternative solutions to correct the treatment system deficiencies: lagoons with land application, treatment plant and complete retention lagoons. The proposed project is the cost effective solution in terms of capital costs and long term operations & maintenance costs.

10. Has utilized all available funding resources of the local jurisdiction to support the program, project, or activity;

- Identify the local jurisdiction that supports the project.
- List current property tax levy, valuations, or other sources of revenue for the sponsoring entity.
- List other funding sources for the project.

The City of Mitchell is the local jurisdiction supporting the project.

The City has the following levy & valuations

property tax levy - 0.47901

valuation - \$58,537,358

property tax - \$268,252.07

sales tax - \$188,241.02

The current wastewater user rates are \$20 per month for residential and \$21.85 for commercial. The total wastewater revenue in 2015 was \$186,872.57.

The project was submitted to the Nebraska Water Wastewater Advisory Committee representing the Nebraska Department of Environmental Quality, Nebraska Department of Health & Human Services, Nebraska Department of Economic Development and USDA Rural Development for funding considerations. After review by the Committee, the City was recommended for (and has secured) funding for the project through the Rural Development's loan program (Reference Appendix A). The funding is a loan only package with no grant monies available. The revenues required for repayment of the loan will be generated by increases in sewer system user rates. No other sources of funding are anticipated.

11. Has a local jurisdiction with plans in place that support sustainable water use;

- List the local jurisdiction and identify specific plans being referenced that are in place to support sustainable water use.
- Provide the history of work completed to achieve the goals of these plans.
- List which goals and objectives this project will provide benefits for and how this project supports or contributes to those plans.
- Describe and quantify how the project supports sustainable water use, what is the target area, what is the population or acreage receiving benefits, what is the usage of the water: residential, industrial, agriculture or recreational.
- List all stakeholders involved in project.
- Identify who benefits from this project.

The City of Mitchell is the local jurisdiction and is included in the North Platte NRD's IMP. A baseline consumptive groundwater use has been established for the City with the City being responsible for offsetting all increases over the baseline amount. The IMP also establishes an irrigation allocation which will be imposed on the land application operations.

Under the IMP the City must stay under a groundwater usage baseline of 173,323,000 gallons per year. The City of Mitchell has had flowmeters on all commercial and residential water customers for the past 30 years. The use of meters holds users accountable for their water consumption and is a leading contributor to reductions in water usage. This has allowed the city to remain 20,000,000 gallons under the base line in 2015 pointing to the City's commitment to keeping ground water use levels at sustainable levels.

The goals of the project are:

- ***Compliance with state and federal mandates,***
- ***Improved water quality,***
- ***Come up with economic option for the City,***

The project goals will be met by implementing the most cost effective treatment alternative and eliminating the release of high levels of undesirable constituents into the river and aquifer system.

While the proposed project eliminates the existing controlled discharge the project reduces the burden on groundwater pumping in the area by eliminating the need for groundwater irrigation of the land application site. A net yearly reduction of approximately 95 ac-ft of groundwater is anticipated serving to improve the water sustainability of the area. The shareholders and beneficiaries of the project are the residents & businesses of the City of Mitchell, the area groundwater users and persons.

12. Addresses a statewide problem or issue;

- List the issues or problems addressed by the project and why they should be considered statewide.
- Describe how the project will address each issue and/or problem.
- Describe the total number of people and/or total number of acres that would receive benefits.
- Identify the benefit, to the state, this project would provide.

The project has benefits that meet the goals of the Platte River Recovery Implementation Program (PRRIP). The PRRIP is a partnership between Colorado, Wyoming, Nebraska and the federal government with elements to increase stream flows in the central Platte River during relevant time periods; enhancing, restoring and protecting habitat lands for the target bird species under the Endangered Species Act while accommodating certain new water-related activities. The project benefits include improved water quality and the reduction of groundwater depletions.

The City of Mitchell is located in an overappropriated portion of the North Platte Natural Resources District (NRD). The City is included in an IMP for the North Platte watershed that the North Platte NRD entered into with the Nebraska Department of Natural Resources (DNR) in 2009. The IMP stipulates that the North Platte NRD must reduce its ground water depletions in its overappropriated area by approximately 8,000 acre feet per year by 2019.

By reducing the groundwater pumping required for irrigation of the land application site, the project assists with reducing the depletions from the North Platte River system. This directly benefits the immediate project area and indirectly benefits those areas further downstream. An estimated 29,000 persons located in 11 communities between Mitchell and Lake McConaughy will benefit from the project.

13. Contributes to the state's ability to leverage state dollars with local or federal government partners or other partners to maximize the use of its resources;

- List other funding sources or other partners, and the amount each will contribute, in a funding matrix.
- Describe how each source of funding is made available if the project is funded.
- Provide a copy or evidence of each commitment, for each separate source, of match dollars and funding partners.
- Describe how you will proceed if other funding sources do not come through.

The City currently has secured a USDA Rural Development loan for the entire project budget (Reference Appendix A). The loan offered has an interest rate of 1.875% with a 40-year term.

Receipt of grant funding through the Water Sustainability Fund would reduce the loan amount and free the obligation of those RD monies toward this project. This would make those monies available to other communities, increasing the number of projects that can be funded by Rural Development.

14. Contributes to watershed health and function;

- Describe how the project will contribute to watershed health and function in detail and list all of the watersheds affected.

The proposed project will bring the City's wastewater treatment into compliance with state regulations. The current treatment method fails to reduce the levels of Carbonaceous Biochemical Oxygen Demand (CBOD), Total Suspended Solids (TSS), Ammonia and Fecal Coliform to the maximum levels allowed by regulation. High CBOD loads reduce the amount of dissolved oxygen (DO) in water which can reduce or eliminate aquatic life viability in an aquatic system. Excessive TSS can impair water quality for aquatic and human life, impede navigation and increase mortality rates in aquatic life from flooding risks (i.e. smothering aquatic eggs). High levels of ammonia cause excessive plant growth (algal bloom) and decay, and further reduces DO disrupting the natural balance of the aquatic ecosystem. Increased Fecal Coliform concentrations can reduce DO to levels that can lead to mortality in fish and other aquatic life. High levels of coliform bacteria can be an indication of other pathogens with potentially significant impacts to public health.

The wastewater treatment scheme of evaporative lagoons with virtually zero seepage and land application of wastewater essentially eliminates untreated or partially treated wastewater from entering the underlying aquifer or surrounding surface waters of the North Platte River. The current wastewater treatment operations include periodic releases of partially treated wastewater to the North Platte River which degrades the water quality during the release period. The proposed treatment system will eliminate these direct discharges. When wastewater is land applied, no runoff of the wastewater from the application site can occur. The proposed lagoon system will be sited on lands that were previously used as settling ponds and are currently sitting idle. This minimizes the need to disturb/change the land use patterns in the area. The land application area is currently under center pivot irrigation further reducing the impacts on current land uses

By improving the water quality of the North Platte River, aquatic and terrestrial wildlife will benefit from improved habitat. Improvements include increased dissolved oxygen in the stream, less turbidity, reducing the source for algal blooms and decreased chance of disease. Enhanced wildlife habitat has direct benefits for the sportsman and outdoorsman. Better habitat will lead to more robust wildlife populations for these groups to enjoy. Improved water quality will also reduce health risks to recreational users while improving the aesthetics of their outdoors experience. Healthy aquatic systems (plants) help slow down the water during flood events reducing the erosion damage during floods.

15. Uses objectives described in the annual report and plan of work for the state water planning and review process issued by the department.
- Identify the date of the Annual Report utilized.
 - List any and all objectives of the Annual Report intended to be met by the project
 - Explain how the project meets each objective.

N/A

16. Federal Mandate Bonus. If you believe that your project is designed to meet the requirements of a federal mandate which furthers the goals of the WSF, then:

- Describe the federal mandate.
- Provide documentary evidence of the federal mandate.
- Describe how the project meets the requirements of the federal mandate.
- Describe the relationship between the federal mandate and how the project furthers the goals of water sustainability.

The Nebraska Department of Environmental Quality (NDEQ) administers the Clean Water Act requirements (as regulated by the Environmental Protection Agency) concerning the handling and disposal of wastewaters in the State. The City of Mitchell has received Letters of Violation from the NDEQ for discharging wastewaters that do not meet the requirements of the City's National Pollutant Discharge Elimination System (NPDES) Permit issued by the NDEQ. The City is currently under a NDEQ Compliance Order to make the necessary improvements to their wastewater treatment system to bring the system back into compliance. The proposed project assists the City in bringing its treatment system into compliance.

Section D.

PROJECT DESCRIPTION

1. Overview

In 1,000 characters or less, provide a brief description of your project including the nature and purpose of the project and objectives of the project.

The proposed improvements will convert the wastewater treatment from a controlled discharge lagoon system to a system using lagoon treatment and subsequent land application of the treated wastewater. Approximately 50 acres of wastewater lagoons will be constructed. A minimum of 178 acres of land is required for the irrigation component. The improvements will include a lift station on the main outfall sewer to transfer the wastewater to the lagoons and an irrigation pump station to supply the center pivot irrigation equipment at the land application site.

Approximately 4,000 lineal feet of force main is required between the outfall lift station and the lagoons and approximately 11,450 lineal feet of irrigation supply main is required between the lagoons and the land application pivot.

The wastewater lagoons will be constructed on a site that had previously been used as settling ponds for a local sugar beet factory. The proposed lagoon cells will use the general form of the previous ponds; however, the new cells will be designed to conform to NDEQ wastewater regulations. The cell construction will include an HDPE liner system to virtually eliminate seepage.

The proposed land application site is currently irrigated farm land using groundwater as the water source. The current groundwater allocation for the irrigated lands will be replaced by wastewater from the lagoon system. The wastewater discharge from the existing system to the North Platte River will be curtailed. A net reduction in overall water consumption is anticipated.

The proposed lagoons will be constructed on land currently owned by the City of Mitchell. A long term agreement will be executed between the land application site land owner and the City to address the wastewater use as an irrigation source. The proposed force mains will be installed in existing right-of-ways to the extent possible to minimize disruption of existing land uses.

The project objectives include the improvement in surface water and groundwater quality by eliminating the periodic discharge of partially treated wastewater to the North Platte River and the continuous loss of wastewater to the groundwater system through seepage from the treatment lagoons. The project will also decrease depletions to an overappropriated aquifer system by changing the source of irrigation water for nearly 170 acres of crop land from a groundwater well to wastewater reuse.

2. Project Tasks and Timeline

Identify what activities will be conducted by the project. For multiyear projects please list what activities are to be completed each year.

The project is expected to be completed over a two-year period starting in January 2016 and finishing in January 2018. The project design, agency review and bidding/contract award activities are scheduled through December 2016. The start of construction is slated to begin in January 2017 with final completion in late December 2017/January 2018.

3. Partnerships

Identify the roles and responsibilities of agencies and groups involved in the proposed project regardless of whether each is an additional funding source. List any other sources of funding that have been approached for project support and that have officially turned you down. Attach the rejection letter.

The City of Mitchell is the primary 'agency'. The Platte River Basin Environmental group will partner for the land application aspect of the treatment system. USDA Rural Development is providing the funding for the City's share of the project.

4. Other Sources of Funding

Identify the costs of the entire project, what costs each other source of funding will be applied to, and whether each of these other sources of funding is confirmed. If not, please identify those entities and list the date when confirmation is expected. Explain how you will implement the project if these sources are not obtained.

USDA Rural Development is the funding source for the City's share of the project.

5. Support/Opposition

Discuss both support and opposition to the project, including the group or interest each represents.

No public opposition against the project has been brought forward. The funding process will offer additional opportunities for public input on the project.