

NEBRASKA NATURAL RESOURCES COMMISSION

Water Sustainability Fund

Application for Funding

Section A.

ADMINISTRATIVE

PROJECT NAME: NPPD North Platte Hydropower Generation Facility Bypass Analysis

SPONSOR'S PRIMARY CONTACT INFORMATION (Not Consultant's)

Sponsor Business Name: Nebraska Public Power District (NPPD)

Sponsor Contact's Name: Ed Dekleva

Sponsor Contact's Address: 402 East State Farm Road, North Platte, NE 69101

Sponsor Contact's Phone: (308) 535-5326

Sponsor Contact's Email: ejdekle@nppd.com

1. **Funding** amount requested from the Water Sustainability Fund:

Grant amount requested. \$118,200

- If requesting less than 60% cost share, what %? N/A

If a loan is requested amount requested. \$ N/A

- How many years repayment period? N/A
- Supply a complete year-by-year repayment schedule. N/A

2. **Neb. Rev. Stat. § 2-1507 (2)**

Are you applying for a **combined sewer overflow 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 N/A
- Attach a copy to your application. N/A
- What is the population served by your project? N/A
- Provide a demonstration of need. N/A
- Do not complete the remainder of the application.

3. **Permits Required/Obtained** Attach a copy of each that has been obtained. For those needed, but not yet obtained (box “NO” checked), 1.) State when you will apply for the permit, 2.) When you anticipate receiving the permit, and 3.) Your estimated cost to obtain the permit.

(N/A = Not applicable/not asking for cost share to obtain)

(Yes = See attached)

(No = Might need, don't have & are asking for 60% cost share to obtain)

G&P - T&E consultation (required)	N/A <input checked="" type="checkbox"/> Obtained: YES <input type="checkbox"/> NO <input type="checkbox"/>
DNR Surface Water Right	N/A <input checked="" type="checkbox"/> Obtained: YES <input type="checkbox"/> NO <input type="checkbox"/>
USACE (e.g., 404/other Permit)	N/A <input checked="" type="checkbox"/> Obtained: YES <input type="checkbox"/> NO <input type="checkbox"/>
FEMA (CLOMR)	N/A <input checked="" type="checkbox"/> Obtained: YES <input type="checkbox"/> NO <input type="checkbox"/>
Local Zoning/Construction	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"/>

There will be no permits needed during this stage of the project. The North Platte Hydropower Generation Facility Bypass Analysis (Analysis) will identify, evaluate, and develop a strategy for permitting needs.

4. **Partnerships**

List each Partner / Co-sponsor, attach documentation of agreement:

NPPD is the sole sponsor for the Analysis and has received support from several partners including:

Central Nebraska Public Power & Irrigation District (Central or CNPPID)

NPPD and Central hydropower projects are interrelated. Adding the capability to bypass water from Lake Maloney around the North Platte Hydropower Generation Facility (Facility) will enhance the capability to operate and maintain the Sutherland Project for the benefit of both NPPD and Central. Central promotes any project that has the potential to reduce demand for water from the North Platte River and/or Central's McConaughy Reservoir.

Platte River Recovery and Implementation Program (PRRIP)

The PRRIP and NPPD work together directly to achieve water management goals. Improvements in the flexibility in NPPD's system will assist PRRIP in attaining its objective of managing river flows to benefit threatened and endangered species.

Nebraska Region 51 Emergency Management

The Nebraska Region 51 Emergency Management supports the project for providing flood mitigation and increased public health, safety, and welfare.

Identify the roles and responsibilities of each Partner / Co-sponsor involved in the proposed project regardless of whether each is an additional funding source.

NPPD is the sole project sponsor and has the resources and capabilities to implement the Analysis. NPPD will hire a consulting engineering firm to complete the Analysis.

5. **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.

The estimated cost of the Analysis is \$197,000. NPPD is requesting a 60% cost share from the Water Sustainability Fund (WSF). A breakdown of cost by tasks and cost share is shown in Table 1. There are no other contributors at this stage of the project. Should WSF funding not be obtained, NPPD will be required to fund the Analysis through rates charged to its electricity customers.

Table 1 – Analysis Cost by Task

TASK	TASK NAME	COST	WSF	NPPD
1	Data Collection	\$ 22,000	\$ 13,200	\$ 8,800
2	Preliminary Design			
2a	Design and Drafting Alternatives	\$ 81,000	\$ 48,600	\$ 32,400
2b	Geotechnical Evaluation	\$ 32,000	\$ 19,200	\$ 12,800
2c	Hydraulic Modeling/Energy Dissipation	\$ 28,000	\$ 16,800	\$ 6,400
3	Review Permitting Requirements	\$ 16,000	\$ 9,600	\$ 6,400
4	Analysis Reporting	\$ 18,000	\$ 10,800	\$ 7,200
Total		\$ 197,000	\$ 118,200	\$ 78,800

6. Overview

In 1,000 words or less, provide a brief description of your project including the nature/purpose of the project and its objectives. Do not exceed one page!

The Nebraska Public Power District (NPPD) is responsible for the operation and management of the Sutherland Project. The Sutherland Project receives water from the Keystone Diversion Dam below Lake Ogallala in accordance with water right priority and through an agreement with the Central Nebraska Public Power and Irrigation District (Central). Currently, the sole outlet of the Sutherland Project is through the North Platte Hydropower Generation Facility (Facility) and to the South Platte River. A description of the Sutherland Project is shown in Figure 1.

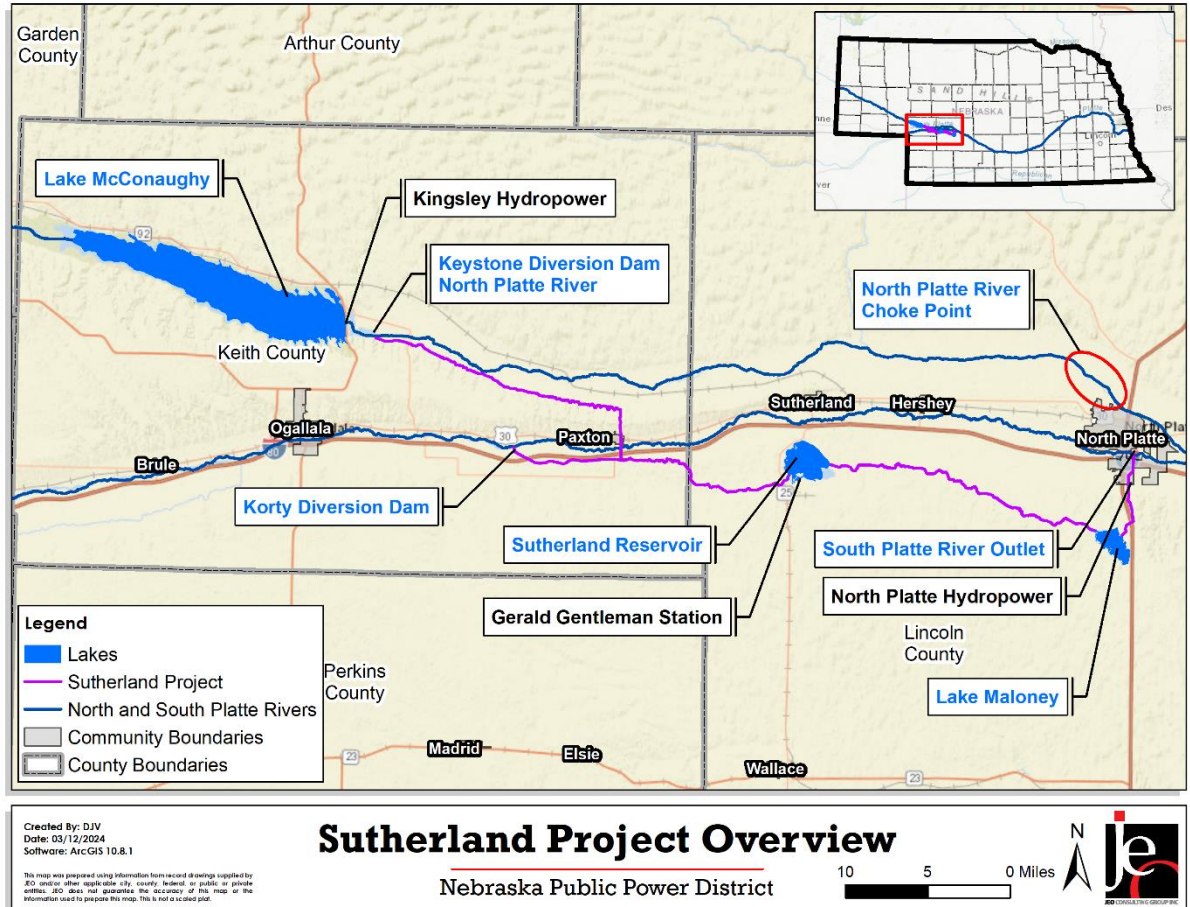


Figure 1 – Sutherland Project Overview

This Analysis will investigate the construction of a bypass around the Facility. Having the bypass brings multiple benefits including safety enhancements, optimization of operations, increasing hydropower production capacity, and improvement to NPPD’s capability to manage the volume and timing of water for the Platte River Recovery Implementation Program (PRRIP) and Twin Platte Natural Resources District (TPNRD) Integrated Management Plan (IMP) goals. The proposed bypass, in relation to Lake Maloney and the Facility, is shown in Figure 2.

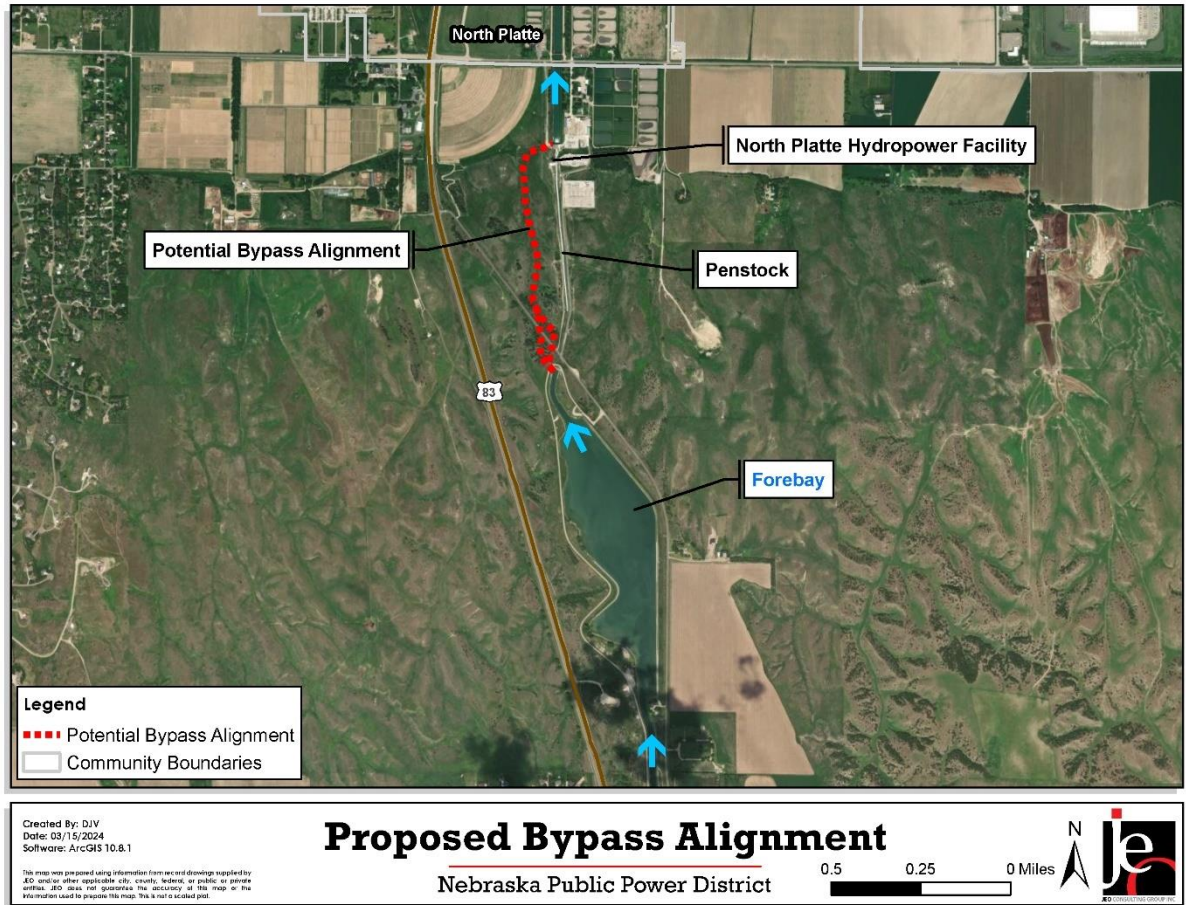


Figure 2 – Lake Maloney and North Platte Hydropower Facility Location

The Facility, shown in Figure 3, houses two, 12 MegaWatt (MW) units. NPPD also operates a 1 MW hydropower facility in Kearney. Combined, NPPD’s hydroelectric generators produce enough power to serve 9,500 homes. Currently, if maintenance is required at the Facility, NPPD must shut off the intake to the entire Hydroelectric Project system. Furthermore, if both hydropower units fail or cannot be started, there is no way to immediately stop the flow of water from the Sutherland Project to the Facility.

The Analysis will determine the most cost-effective solution, which will depend on the capacity of the various bypass alternatives considered. Once complete, a 30% engineering design and cost estimate will be established. Both are valuable to NPPD when seeking additional local, state, or federal funding. Future funding efforts for final design and construction may include a United States Bureau of Reclamation (BOR) WaterSMART grant application and/or a second application to WSF.



Figure 3 - Facility Looking Upstream

7. **Project Tasks and Timeline**

Identify what activities will be conducted to complete the project, and the anticipated completion date.

- What activities (Tasks) are to be completed.
- An estimate of each Tasks expenditures/cost per year.
- Activities in years 4 through project completion under a single column.

The schedule assumes that the WSF grant is approved, funding is available mid-summer 2024, and the project kickoff occurs in October 2024. This schedule is subject to change. Overall, the work is anticipated to be completed within one year. A breakdown of the proposed schedule by task is shown in Table 2.

Table 2 – Project Cost and Schedule for Major Task

TASK	TASK NAME	COST	START	END
1	Data Collection	\$ 22,000	Oct. 2024	Dec. 2024
2	Preliminary Design			
2a	Design and Drafting Alternatives	\$ 81,000	Dec. 2024	April 2025
2b	Geotechnical Evaluation	\$ 32,000	Nov. 2024	Jan. 2025
2c	Hydraulic Modeling/Energy Dissipation	\$ 28,000	Jan 2025	April 2025
3	Review Permitting Requirements	\$ 16,000	April 2025	May 2025
4	Analysis Reporting	\$ 18,000	April 2025	June 2025
Total		\$ 197,000		

8. **IMP**

Do you have an **Integrated Management Plan** in place, or have you initiated one?

YES

NO

Sponsor is not an NRD

Section B.

DNR DIRECTOR'S FINDINGS

Prove Engineering & Technical Feasibility

(Applicant must demonstrate compliance with Title 261, CH 2 - 004)

1. Does your project include physical construction (defined as moving dirt, directing water, physically constructing something, or installing equipment)?
YES NO

If you answered "YES" you must answer all questions in section 1.A.
If you answer "NO" you must answer all questions in section 1.B.

If "YES", it is considered mostly structural, so answer the following:

- 1.A.1 Insert a feasibility report to comply with Title 261, Chapter 2, including engineering and technical data; N/A
- 1.A.2 Describe the plan of development (004.01 A); N/A
- 1.A.3 Include a description of all field investigations made to substantiate the feasibility report (004.01 B); N/A
- 1.A.4 Provide maps, drawings, charts, tables, etc., used as a basis for the feasibility report (004.01 C); N/A
- 1.A.5 Describe any necessary water and/or land rights including pertinent water supply and water quality information (004.01 D); N/A
- 1.A.6 Discuss each component of the final plan (004.01 E); N/A
- 1.A.7 When applicable include the geologic investigation required for the project (004.01 E 1); N/A
- 1.A.8 When applicable include the hydrologic data investigation required for the project (004.01 E 2); N/A
- 1.A.9 When applicable include the criteria for final design including, but not limited to, soil mechanics, hydraulic, hydrologic, structural, embankments and foundation criteria (004.01 E 3). N/A

If "NO", it is considered mostly non-structural, so answer the following:

- 1.B.1 Insert data necessary to establish technical feasibility (004.02);

NPPD has Professional Engineers on staff who have discussed the option of a bypass around the Facility from Lake Maloney for several years and have determined that it is a feasible option to enhance water management capabilities of the Hydroelectric Project. They have decided that the project is feasible and necessary to improve operations and provide mitigation of a potential safety hazard. NPPD's engineers and other staff will be complemented by the services of a qualified engineering firm to complete other technical aspects of the Analysis.

The goal of the Analysis is to collect data, assess various alternatives for the bypass, determine a preferred alternative, and develop a preliminary design and opinion of probable construction cost for the bypass. An overview of the potential bypass alignment is shown in Figure 4.



Figure 4 – Potential Bypass Alignment

NPPD has vast experience completing similar complex projects. Technical aspects of the Analysis that will be available to NPPD include topographic survey, geotechnical assessments, permitting reviews, alternative Analysis, engineering design, cost estimating, and reporting.

1.B.2 Discuss the plan of development (004.02 A);

The intent of the Analysis is to conduct an alternatives analysis and preliminary design for a bypass system around the Facility. This Analysis will investigate the most cost-effective alternative for constructing a bypass around the current, sole outlet of Lake Maloney, which feeds the Facility's two active hydropower units. A scope has been established and includes the following major project elements.

DATA COLLECTION

Includes development of a project schedule and facilitation of a kickoff meeting to determine data needs. NPPD will provide data to allow for an in-depth review of historical operational events where maintenance was required, including flow rates, forebay/pool elevations, adverse impacts, economics of said impacts, etc. The forebay, shown in Figure 5, directs water into the penstock.



Figure 5 – Facility Forebay looking South Near the Penstock Inlet

To support the Analysis, topographic and bathymetric data will be collected at critical locations and complemented by LiDAR elevation data. Bathymetric data may be needed at the canal inlet and outlet at the Facility. A summary of anticipated operational efficiencies will be developed using knowledge gained from historical events to allow for a projected need of additional system flexibility with the proposed bypass.

NPPD will provide the Probable Maximum Precipitation (PMP) study and historical inflow data. Hydraulics data will help analyze routing scenario/sizing to accommodate Sutherland Reservoir emergency drawdown operations and flow rates.

PRELIMINARY DESIGN, 2 OPTIONS

Includes a detailed list of alternatives, including, but not limited to:

- No action
- Diversion structure and pipeline/channel, energy dissipation structure, and outlet to existing canal able to handle up to 300 CFS.
 - Diversion structure and pipeline/channel, energy dissipation structure, and outlet to existing canal able to convey the maximum flow of the Facility of 1,800 CFS
 - Analysis of each alternative's land rights requirements, environmental impacts, and constructability.

Iteratively refine the preliminary design of each alternative including preliminary alignment and profile, preliminary headgate/diversion schematic, preliminary energy dissipation schematic, preliminary grading plan and preliminary roadway crossing. Quality Assurance and Quality Control reviews will be performed prior to each review milestone. A preliminary alignment for the future bypass showing topography at critical points and key design considerations is included below in Figure 6.

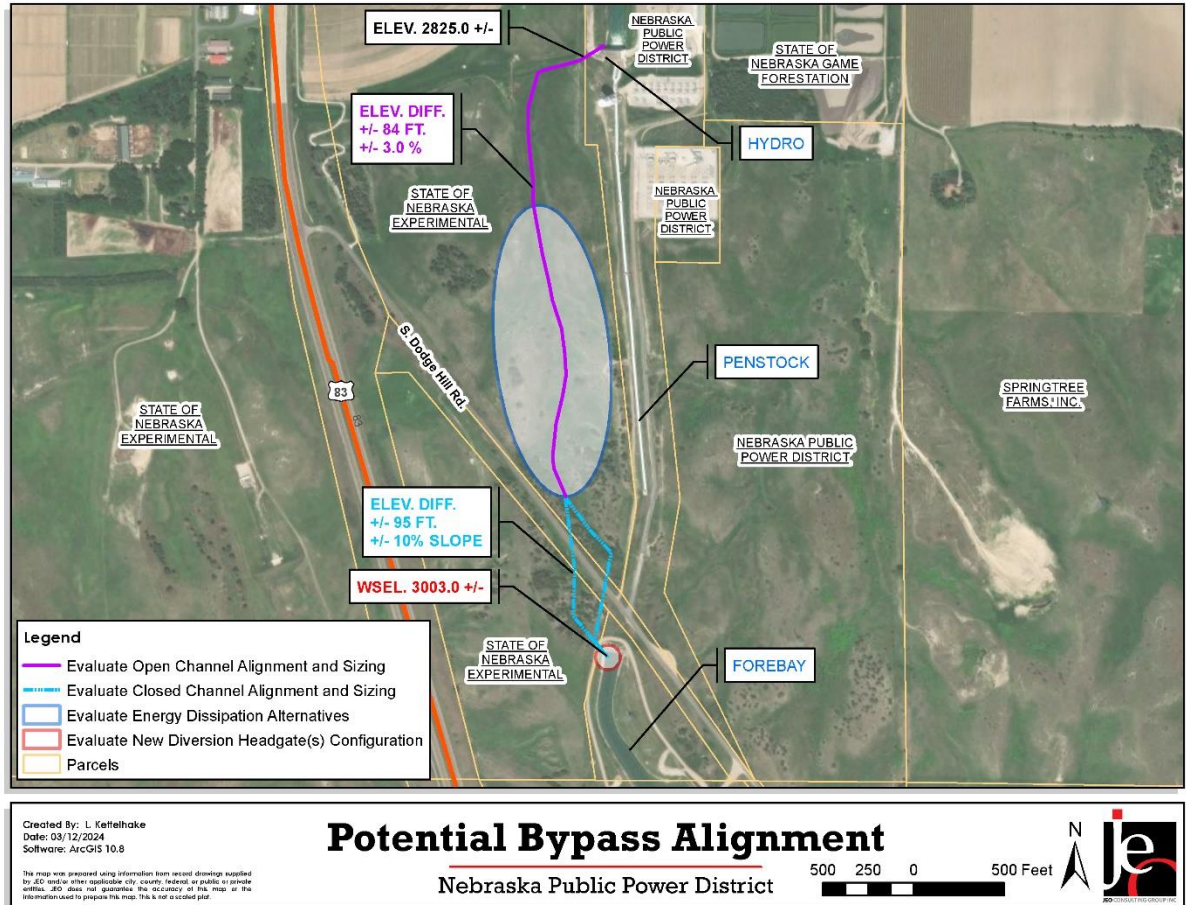


Figure 6 – Key Design Considerations for Bypass Alignment

The preliminary design will include development of a hydraulic model for alternatives and a budgetary cost estimate for each alternative. A meeting will be held with NPPD and other stakeholders at the mid-point of the preliminary design phase to determine a preferred alternative carried forward to preliminary 30% design.

Includes detailed hydraulic modeling to analyze the capacity of the preferred alternative, along with energy dissipation schematic. Further development of the conceptual design of preferred alternative:

- Preliminary alignment and profile
- Preliminary diversion schematic
- Preliminary energy dissipation schematic
- Preliminary grading plan
- Preliminary roadway crossing

Land Rights

Continue the discussion of land rights with University of Nebraska-Lincoln (UNL), who owns land neighboring NPPD. NPPD has initiated a conversation with UNL officials at the West Central Research, Extension, and Education Center.

Geotechnical Investigation

Complete a preliminary geotechnical investigation including:

- Obtain existing geotechnical data from near the site, if available.
- Perform approximately three borings and laboratory analysis. Boring depths will be determined after preliminary alternatives design provides anticipated structure and system details.
- Perform preliminary geotechnical evaluation and analysis to support preliminary design of the preferred alternative. Preliminary recommendations will inform foundations, structural, and pipe bedding preliminary design.

Cost Estimates

Complete a preliminary opinion of probable construction cost (OPCC) commensurate with the level of design for each initial alternative for discussion at a design review meeting with NPPD. Changes to the design and initial OPCC will occur after the review meeting and CAD drawings will be advanced to approximately a 30% design.

Review Permitting Requirements

Initial review of permitting needs or changes to existing permits that may include, but not be limited to:

- Review the potential for an amendment to the current Federal Energy Regulatory Commission (FERC) license amendment.
- United States Army Corps of Engineers (USACE) Section 404
- National Pollutant Discharge Elimination System (NPDES)
- Water rights
- Threatened and Endangered Species considerations
- Easements
- Access and maintenance easements
- Easements for the road crossing
- Others to be determined.

DESIGN REVIEW AND REPORTING

Evaluating effectiveness of preferred alternative to meet project goals will be determined by NPPD staff after reviewing a design report. The draft design summary and report will be written to reflect the needs and requirements of other major federal grant applications such as the BOR WaterSMART.

Following the design review meeting, revisions to the documents will ensue. Upon completion of all revisions, the final deliverable documents will include: 30% design drawings and OPCC cost, and design memo. The design memo will summarize all modeling, design, and permitting analysis. The final deliverables will be accompanied by a presentation to NPPD and stakeholders.

1.B.3 Describe field or research investigations utilized to substantiate the project conception (004.02 B);

To support completion of the Analysis field data collection and investigations will occur including topographic survey and soil data collection for the geotechnical analysis. The geotechnical investigation will begin with obtaining existing data from near the site, if available. This will also include a desktop evaluation using USDA's Natural Resources Conservation Service Web Soil Survey to review suitability of construction for the bypass. The Analysis will include approximately three borings and laboratory analysis including testing, slope stability analyses, and settlement analysis.

1.B.4 Describe any necessary water and/or land rights (004.02 C);

There are no additional water rights needed for this project. The Analysis will take into consideration the existing water rights held by NPPD for the diversion into the Sutherland Project. For South Platte River water, the system operates on a 'pass-through' basis, as NPPD does not have a water right to store water from the South Platte River.

A part of the Analysis will be continuing conversations between NPPD and UNL on land rights. The potential bypass (Figure 7) will be partially located on open space or agricultural property utilized for the West Central Research and Extension Center. Also, an easement for crossing Dodge Hill Road will be evaluated.



Figure 7 – Potential Bypass Open Space

1.B.5 Discuss 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).

For the Analysis, there will be no anticipated effects upon development and or operation of existing structures. The focus of the Analysis will be to detail the anticipated effects of the bypass on the physical environment and to determine how it may affect existing NPPD and/or UNL infrastructure.

Prove Economic Feasibility

(Applicant must demonstrate compliance with Title 261, CH 2 - 005)

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

When considering the potential construction footprint available for the bypass project, there are no other practical means to accomplish the same outcome outside of major structural modifications to the Facility itself to pass water from the penstock around the hydropower generators when they are not operating. Any modification to the penstock would also result in a much more substantial energy dissipation structure, another major expense.

On the east side of the Facility lies the Nebraska Game and Parks Commission's (NGPC) North Platte Fish Hatchery, which eliminates the possibility of an alignment east of the Facility. The alignment on the west side was discussed by NPPD's Professional Engineers and determined to be a feasible solution to evaluate further through this Analysis.

This is the purpose of starting with the Analysis, to provide evidence of the preferred alternative within the practical location to the west of the Facility and to further the idea to a preliminary design. The Analysis will document the preferred alternative and the next best alternative.

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 is the project life. (Title 261, CH 2 - 005).

The estimated cost of completing the Analysis was determined by a qualified engineering firm and reviewed by NPPD's Professional Engineers. The cost was based on previous experience with similar types of water resources engineering projects, projected construction cost, and professional judgment regarding the level of data collection and engineering necessary to move a preferred alternative to a 30% design threshold. Within the Analysis, the design lifetime of the project will likely be 50 to 100 years.

A 30% design is a preferred benchmark for many funding applications. A major benefit of having the Analysis in hand before applying for major funding sources is typically applications score better when the sponsor has adequate documentation of the plan of work and a final goal for construction. The Analysis will serve as a catalyst to leveraging local and state funding with federal funding, such as BOR WaterSmart.

3.A 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).

An estimate to complete the Analysis as described previously in the Plan of Work is shown in Table 3. This includes engineering, topographic/bathymetric survey, project management, geotechnical investigation, and reporting.

Table 3 – Project Task and Cost

TASK	TASK NAME	COST	WSF	NPPD
1	Data Collection	\$ 22,000	\$ 13,200	\$ 8,800
2	Preliminary Design			
2a	Design and Drafting Alternatives	\$ 81,000	\$ 48,600	\$ 32,400
2b	Geotechnical Evaluation	\$ 32,000	\$ 19,200	\$ 12,800
2c	Hydraulic Modeling/Energy Dissipation	\$ 28,000	\$ 16,800	\$ 6,400
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4	Analysis Reporting	\$ 18,000	\$ 10,800	\$ 7,200
Total		\$ 197,000	\$ 118,200	\$ 78,800

3.B 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 intangible or secondary benefits (if any) 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, in a way that justifies economic feasibility of the project such that the finding can be approved by the Director and the Commission (005.02).

At this point of the effort, there will be no direct tangible benefits to NPPD or any of the project stakeholders. Once complete, the Analysis will aid NPPD in obtaining additional funding for final design and construction. A benefit of the Analysis to NPPD and related supporting agencies is the aim to significantly leverage federal funding to complete the project, thus reducing the demand on state and local funding resources.

The benefits of the Analysis include:

- Completion of a preliminary design and completing a cost-estimate for budgeting the remainder of the project.
- Using information within the Analysis to expedite future funding applications.

- Proving a comprehensive understanding of project benefits to other partners including the City of North Platte, TPNRD, and the PRRIP.

Assuming the bypass was completed, potential benefits would include:

- 1) The top benefit identified by NPPD would be an immediate enhancement to public health and safety around Lake Maloney, the forebay, and below the Facility by reducing the threat of a breach. Currently, there are homes, agricultural property, businesses, and infrastructure within flood hazard areas around this area. The addition of the bypass would reduce these threats.
- 2) Optimization of operations and enhanced flexibility in water management could lead to increased hydropower production, thus further reducing the state’s dependence on coal-fired power generation.
- 3) Environmental benefits that could include increased flexibility in target flows for the PRRIP and utilization of freeboard in Lake Maloney that is currently not available for use by NPPD.

3.C Present all cost and benefit data in a table to indicate the annual cash flow for the life of the project (005.03).

NPPD has initiated the Analysis to gain more specific insight on the potential cost of the project and the benefits. The cost of the Analysis is shown in Table 4.

Table 4 – Project Task and Cost

TASK	TASK NAME	COST	WSF	NPPD
1	Data Collection	\$ 22,000	\$ 13,200	\$ 8,800
2	Preliminary Design			
2a	Design and Drafting Alternatives	\$ 81,000	\$ 48,600	\$ 32,400
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Total		\$ 197,000	\$ 118,200	\$ 78,800

The primary benefits of the bypass include operational safety enhancements, flooding hazard mitigation, optimization of operations including an increase in hydropower production, and improvement of NPPD’s capability to manage the volume and timing of water for the PRIPP and TPNRD IMP goals. The TPNRD currently routes it’s NCORPE water through NPPD’s Sutherland Project to the South Platte River.

3.D 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, demonstrate the economic feasibility of such proposal by such

method as the Director and the Commission deem appropriate (005.04). (For example, show costs of and describe the next best alternative.

As mentioned above, NPPD's Professional Engineers and operations staff have made the determination based upon internal reviews that the bypass project is feasible. The options for the location of the bypass are limited due to the presence of the NGPC North Platte Fish Hatchery to the east. As seen in Figure 8, the grade at the preferred location for the bypass is significant. The geotechnical and hydraulic evaluation within the Analysis are critical design elements. The design of the bypass will have to account for significant energy dissipation features due to the change in elevation.

Another consideration, which was determined not to be feasible, would be major structural modifications to the Facility itself to pass water from the penstock around the two hydropower generators when they are not operating. This consideration would still allow for single points of failure and would forego the benefits of an outlet that is independent of power intake, penstock, and surge tank and would require a major structural alteration.

The Analysis will provide NPPD with a conceptual design and OPCC that can then be utilized to apply for additional funding applications. These applications would reduce the financial demand on future local and state resources.

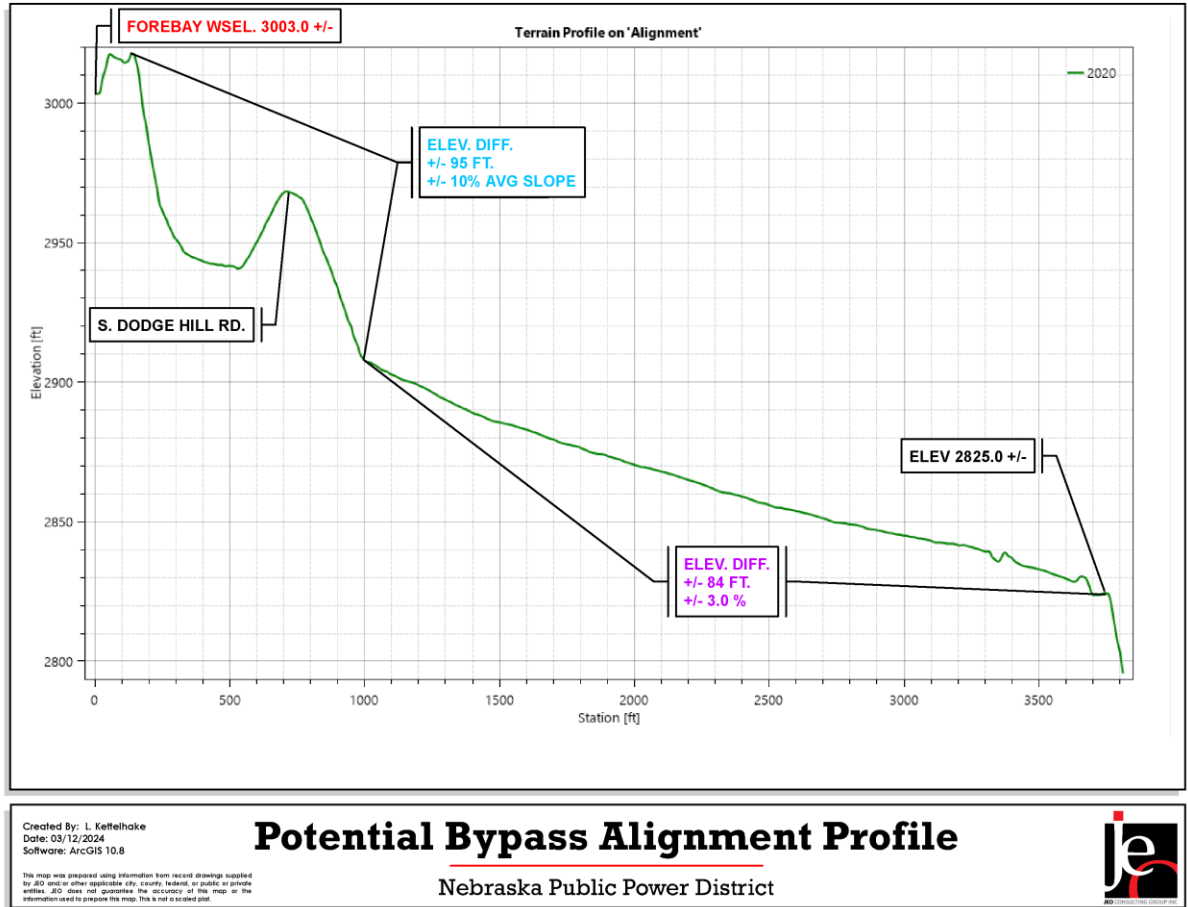


Figure 8 - Potential Bypass Alignment Profile

Prove Financial Feasibility

(Applicant must demonstrate compliance with Title 261, CH 2 - 006)

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

NPPD has sufficient funds to pay for its 40% share of project costs for the Analysis. NPPD is a public corporation and political subdivision of the state of Nebraska and has the authority under Nebraska Statutes Chapter 70 to develop rates to its customers to recover its share of the project costs. NPPD's chartered territory includes all or parts of 84 of the State's 93 counties and more than 400 municipalities in the State.

Neb. Rev. Stat. 70-655 states in part: (1) Except as otherwise provided in this section, the board of directors of any district organized under or subject to Chapter 70, article 6, shall have the power and be required to fix, establish, and collect adequate rates, tolls, rents, and other charges for electrical energy, water service, water storage, and for any and all other commodities, including ethanol and hydrogen, services, or facilities sold, furnished, or supplied by the district, which

rates, tolls, rents, and charges shall be fair, reasonable, nondiscriminatory, and so adjusted as in a fair and equitable manner to confer upon and distribute among the users and consumers of commodities and services furnished or sold by the district the benefits of a successful and profitable operation and conduct of the business of the district.

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

There will not be operation, maintenance, or equipment purchases for the Analysis. As stated above, NPPD has sufficient funds to cover reimbursable costs for this project.

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

7. Describe how the plan of development minimizes impacts on the natural environment (i.e. timing vs nesting/migration, etc.).

There will be no impact on the natural environment for the Analysis. Field work will include geotechnical borings, which will have no negative effect. The workplan for the Analysis includes a review of all permitting and environmental clearances. Completion of the Analysis will provide NPPD with a specific picture of potential issues to be mitigated during construction of the bypass.

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

NPPD is a public power and irrigation district that operates under statutes of the State of Nebraska. NPPD's Sutherland Project has been operating since December 1938. NPPD and its predecessor have provided for planning, design, operation, maintenance, and construction of multiple large-scale projects across the state. As such, NPPD is qualified, responsible, and legally capable of carrying out this project.

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

After completion of the Analysis, and once the future bypass project is completed, there will be benefits not only to NPPD, but to other stakeholders in the basin. NPPD anticipates benefits to include:

- Assisting the PRRIP in attaining its objective of managing river flows to benefit threatened and endangered species by providing important operational flexibility in NPPD's system.
- The State of Nebraska is a party to the PRRIP. Optimization of operations and an increase in usable capacity of Lake Maloney will bring greater

opportunity for TPNRD to continue working with NPPD to benefit the TPNRD IMP and maintain baseflows in the Platte River.

- The City of North Platte and Nebraska Region 51 Emergency Management will receive flood hazard mitigation benefits due to a reduction in the threat of overtopping Lake Maloney or power canal. Such an event would inundate land below them and extending to the South Platte River.

10. Are land rights necessary to complete your project? YES NO

The Analysis would not require any land rights. NPPD has initiated a conversation with UNL officials at the West Central Research, Extension, and Education Center and will request permission before any field data collection. The bypass alignment would require land rights negotiations with UNL.

If yes:

10.A Provide a complete listing of all lands involved in the project. N/A

10.B Attach proof of ownership for each easement, rights-of-way and fee title currently held. N/A

10.C Provide assurance that you can hold or can acquire title to all lands not currently held. N/A

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

NPPD is a public power and irrigation district that operates under statutes of the State of Nebraska. NPPD's Sutherland Project has been operating since December 1938. NPPD and its predecessor have provided for planning, design, operation, maintenance, and construction of multiple large-scale projects across the state. As such, NPPD is qualified, responsible, and legally capable of carrying out this project.

12. Identify the probable consequences (environmental and ecological) that may result if the project is or is not completed.

Not completing the analysis, and therefore not constructing the outlet, could have negative environmental/ecological consequences. An overtopping failure would have high velocity discharge with soil erosion, destruction of ecosystem services, and delivery of excess sediment to Fremont Slough and/or South Platte River.

The preliminary design will layout a specific alignment and limits of construction that will then be utilized to forecast any environmental or ecological consequences. Based upon preliminary discussions on benefits of the project, it could result in an uplift of ecosystem services based on optimization of current operations that may

result in an increase of water available to reach target flows for Threatened and Endangered species in the Platte River and an increase in hydropower production at the Facility.

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 above. 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.

When considering the collective water resource benefits of the Sutherland Project, rises in groundwater are the most considerable factor related to benefits of drinking water systems. The groundwater mound, as seen in Figure 9, displays the 5 to 50

feet rises in groundwater since the Sutherland Project was constructed and community Wellhead Protection Areas (WHPAs). This groundwater mound also reduces the likelihood of well interference between agricultural and private or municipal users.

This sustained groundwater mound supplies water to hundreds of private drinking water and at least four community water systems. The incidental recharge occurring from the Sutherland Project also serves as a drought mitigation for private drinking water sources and hundreds of irrigation wells. Looking closely at Figure 9, the groundwater declines seen in southern Keith County cease near the community of Paxton when moving from west to east. This also coincides with the location where the Sutherland Project crosses the South Platte River and continues to the east.

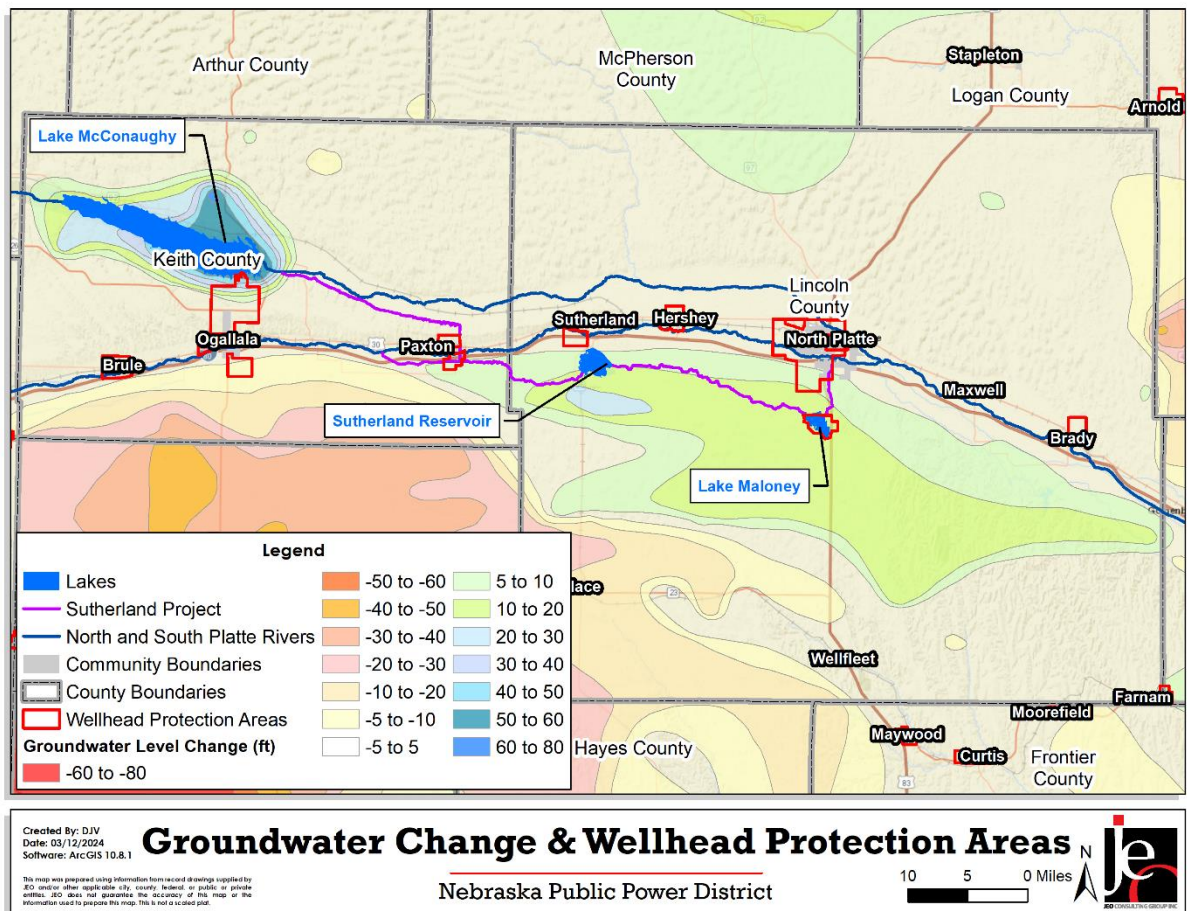


Figure 9 – WHPAs near the Sutherland Project Groundwater Mound

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 Sutherland Project is a critical component of retiming, recharging, and managing water in collaboration with TPNRD to help meet IMP goals. The canal, Sutherland Reservoir (3,050-acres), and Lake Maloney (1,650-acres) provide significant amounts of incidental recharge to the Platte River alluvial and Ogallala aquifers, helping offset pumping impacts from hundreds of high-capacity irrigation wells.

Historically, TPNRD, along with Central Platte NRD and Tri-Basin NRD, have worked with NeDNR to retime flows. For example, the TPNRD has agreements with canals between Lake McConaughy and North Platte to divert excess flows for retiming and the CPNRD also has agreements with canals in Dawson County to do the same.

The following goals and objectives of the IMPs could benefit from the project: 1) to provide offset water for groundwater well impacts, 2) to minimize conflicts between water users. Additionally, construction of the bypass will help NPPD optimize the Sutherland Project operation and increase benefits to NRDs working to reach IMP goals within the Upper and Central Platte Basins.

System-wide improved water management could be beneficial in times of drought and will increase recharge along South Platte River during times of diversion; especially under circumstances where the water is allowed to be stored in Sutherland Reservoir or Lake Maloney. The utilization of the full storage capability of these reservoirs could be realized with the new bypass, allowing improved flexibility in water operations and management.

NPPD Integrated Resources Plan

NPPD has established an Integrated Resources Plan, the current version of which is dated 2023. Within the Plan are several Strategic Directives that are used as guidance in a time of monumental change in the utility industry. Utilities like NPPD must embrace innovation and move quickly to find new and better ways to deliver affordable, reliable, sustainable, and resilient electricity to customers as well as products and services to help improve their quality of life. The Analysis will help achieve one of the strategic directives by optimizing operations and providing a potential for increased hydropower production.

Carbon Emission Reductions (BP-SD-05)¹

¹ 2023 Integrated Resource Plan, NPPD

Carbon emissions and emissions regulation are a significant business risk for NPPD and its customers. NPPD recognizes the importance of balancing affordability, reliability/resilience, and sustainability when addressing the business risks related to carbon emissions and emissions regulations. This policy establishes the Board of Director's goal for carbon emission reductions that will be used to guide NPPD in determining future generation resource planning options.

NPPD adopted the goal of achieving net zero carbon emissions from NPPD's generation resources by the year 2050. This will be achieved by continuing the use of proven, reliable generation until alternative, reliable sources of generation are developed and by using certified offsets, energy efficiency projects, lower or zero carbon emission generation resources, beneficial electrification projects, or other economic and practical technologies that help NPPD meet the adopted goal at costs that are equal to, or lower than, the current resources.

NPPD management will report to the Board annually the carbon emissions of generating resources under NPPD control on both a total short tons of CO₂ emitted and CO₂ intensity (lbs./MWh) basis including effects of offsets, etc., as discussed above.

The Board of Directors may evaluate and reconsider the District's Carbon Emissions Goal if it is determined that meeting or progressing toward the goal will adversely impact the District's ability to continue to meet the Board's strategic directives concerning reliability (BP-SD-03) or cost competitiveness (BP-SD-04).

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 bypass will optimize water management operations within the entire Sutherland Project, leading to increased opportunities for NPPD to work with its partners, including TPNRD, Central, and NeDNR, and other downstream water users and managers. The water originates in the North Platte and South Platte Rivers, along with releases of stored water from Lake McConaughy. The project will increase aquifer recharge, capture, and has the potential to temporarily store rejected irrigation water in coordination with Central (if deemed to be feasible) and maximize the beneficial use of diverted water for increased hydropower

production. Over the decades since the Sutherland Project's founding, seepage from the Project has contributed to a significant groundwater mound that benefits hundreds of irrigation and domestic supply wells in the region, as shown in Figure 10.

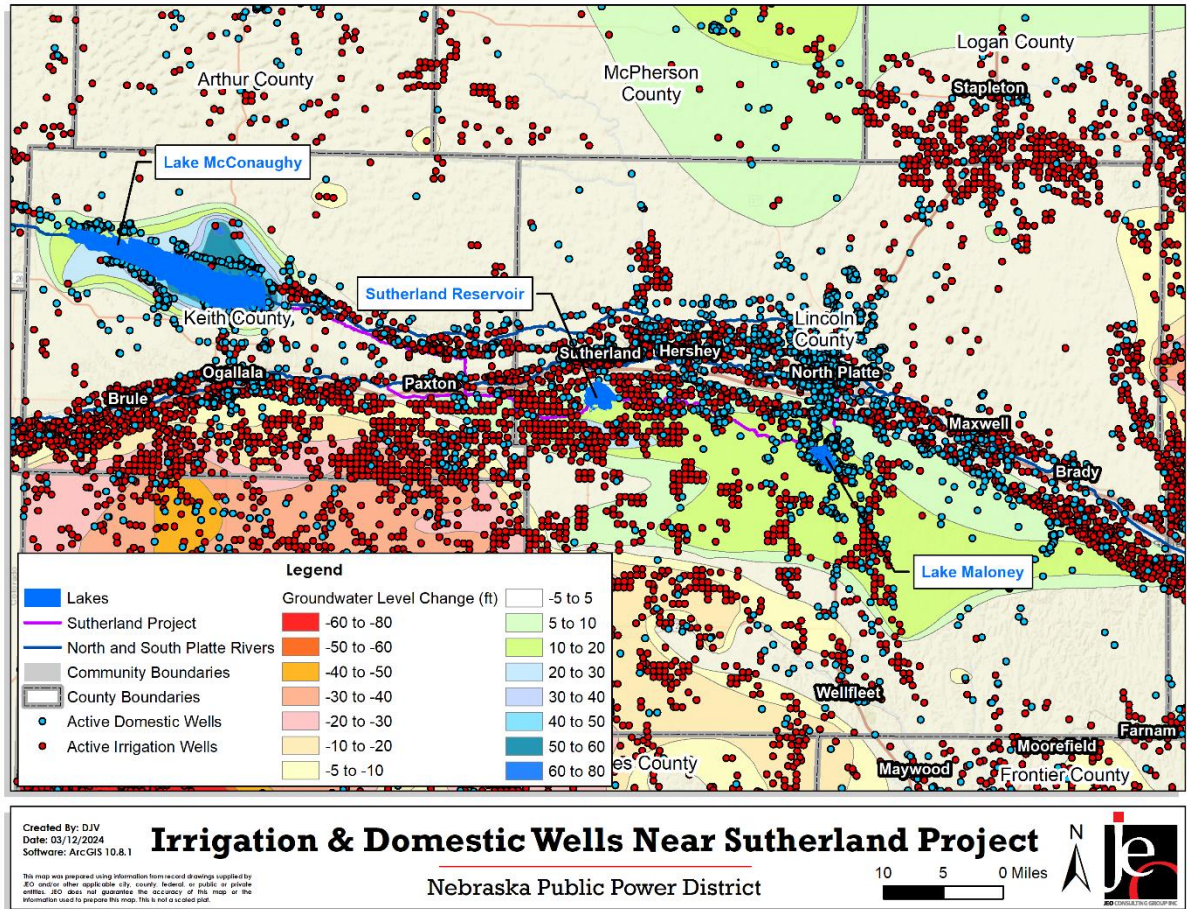


Figure 10 - Wells near the Sutherland Project Groundwater Mound

Rejected irrigation water occurs when water is released from Lake McConaughy, but then it rains where the demand originated. Rather than sending water downstream, at Central's request, NPPD can store some of the water intended for irrigation instead within the Sutherland Project. With the bypass in place, there could be an opportunity to store additional rejected irrigation water in Lake Maloney. This option will be evaluated further as the Analysis is completed.

NPPD currently has a limited amount of capacity to store additional rain events during irrigation season. With NPPD's system not having check structures, it is limited to cuts of 100-200 cfs per day depending on flows. Having additional elevation for normal operating levels in Lake Maloney would allow the operation to store more rainwater if planned correctly. When large rain events are expected in the forecast, NPPD and Central could coordinate to adjust the Outlet Canal to

lower Lake Maloney to the current normal minimum elevation (3004.7-3004.8) to allow for additional capacity for capturing rain events.

Listed in Table 5 is the storage capacity based on elevations at Lake Maloney. The FERC maximum allowed storage capacity is 3006.0 feet above mean sea level (fmsl). Because NPPD can only release water from the Sutherland Project through the Facility, they currently are forced to reduce the elevation of water stored in Lake Maloney to 3005.0 fmsl to improve safety of the entire operation.

Table 5 – Surface Water Elevation and Storage Capacity of Lake Maloney

Water Surface Elevation (fmsl)	Storage Capacity (Ac-Ft)
3004.7	16,090
3005.3	17,050
3005.5	17,373
3006.0	18,178

Comparing 3004.7- 3005.3 fmsl storage allows for an additional 960 Ac-Ft of normal storage availability. This would allow for 483 cfs for a 24-hour period of storage availability. Should it be determined that Lake Maloney could store water to the FERC maximum, this number would increase to 2,088 cfs for a 24-hour period. This decision will be part of the discussion at NPPD during completion of the Analysis.

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 Sutherland Project, and the increased operational capacity with the addition of the bypass, aids NPPD and its water partners and managers downstream to meet recharge and surface water retiming goals. The following are a few of the water management goals and associated benefits of the Sutherland Project.

- 1) **Flood Risk Reduction** – A goal for all state and local agencies, especially NeDNR. The Sutherland Project has been used multiple times to temporarily store South Platte River flood water at the request of the City of North Platte. The system can divert a maximum of 1,200 cfs at Kory Diversion on the South Platte River and store water in Sutherland Reservoir, Lake Maloney, and the canal system. As previously mentioned, the bypass would optimize operations

and allow additional storage within Lake Maloney without creating additional risk, thus further improving flood reduction capabilities.

- 2) **Reduced Dependence on Lake McConaughy and the North Platte River** – NPPD’s water management goals are intertwined with Central’s water management goals. A project that optimizes NPPD’s water management capabilities will have a positive ripple effect on Central’s water management goals. Maximized use of the Sutherland Project allows water savings from the North Platte River water and water stored in Lake McConaughy for future use and agricultural drought protection (i.e., conjunctive management of water supply) and increased hydropower production for both Districts.
 - 3) **Municipal Water Supplies** - Benefits to municipal supplies by retiming water to periods when it may not normally be available—providing more consistent flow.
 - 4) **Endangered Species** – The overall goal of PRRIP and its water management partners, especially NPPD, is to improve habitat for target species. Endangered species and wildlife habitat benefit by retiming the water to help provide water during deficits to wildlife target flows in the central Platte River.
 - 5) **Platte River Flows** – As seen recently, the Platte River has struggled to maintain flows downstream of Grand Island, going completely dry in 2022 and 2023. The Sutherland Project can benefit water conservation by utilizing the excesses through retiming flows and increased storage capabilities in Lake Maloney. Preservation of water resources also provides downstream drought protection through retiming of flows.
 - 6) **Groundwater Recharge** – The NeDNR and TPNRD closely monitor availability of excess flows for intentional groundwater recharge. Increased groundwater recharge benefits residents in the area that rely on groundwater for irrigation, livestock, or residential use, all within an over appropriated area. The system also contributes a significant quantity of incidental groundwater recharge annually.
 - 7) **Reduced Carbon Footprint** – The Sutherland Project provides an alternative supply of cooling water and carbon-free hydropower production for NPPD’s power plants on its Sutherland Project System.
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.

As a non-profit organization, revenue increases for NPPD lead directly to lower costs for users. NPPD is a primary electrical provider and wholesale manager of public power in Nebraska. As the only state with 100% public power, the primary benefit to the state's residents is low-cost energy. Projects that maximize the operations of NPPD will have a direct effect to sustaining low energy costs. NPPD's Strategic Directive, Carbon Emission Reductions (BP-SD-05)², aims to reduce carbon emissions. The bypass project would allow NPPD to utilize the full existing storage capacity of Lake Maloney and allow for optimization of the hydropower production capabilities at the Facility.

With the Facility's hydropower generators being the only discharge means for Lake Maloney, it becomes crucial to keep Lake Maloney at an elevation around 3004.8 fmsl or lower when at higher flows. If there were other means to discharge this water such as the bypass, it would help to increase the normal operating range due to having a second method of releasing water.

A few examples on how the bypass could lead to optimization of the Facility:

- During times when the market has a negative price NPPD could reduce hydropower production and operate the bypass
- Flexibility to operate at higher output during peak times and lower output during low market times.
- During certain times of the year, this would help to allow hydropower to cycle more which maximizes revenues with the market.

Overall project benefits include:

- 1) **Flood Risk Reduction** – The Sutherland Project has been used multiple times to temporarily store South Platte River flood water at the request of the City of North Platte. The system can divert a maximum of 1,200 cfs at Kory Diversion on the South Platte River and store water in Sutherland Reservoir, Lake Maloney, and the canal system. The bypass would allow the quantity of water stored in Lake Maloney to be increased, thus further improving flood reduction capabilities of the system.
- 2) **Water Conservation** – Maximized use of the Sutherland Project allows water savings from the North Platte River water and water stored in Lake McConaughy for future use and agricultural drought protection (i.e. conjunctive management of water supply) and increased hydropower production potential. Improved water management will help maintain flows downstream in the Platte River. Preservation of water resources also provides downstream drought protection through retiming of flows.

² 2023 Integrated Resource Plan, NPPD

- 3) **Municipal Water Supplies** – As seen above in Figure 9, the Sutherland Project has created a significant groundwater mound through central Lincoln County and nearby. Municipal water systems benefit from a reliable supply, especially during drought.
- 4) **Endangered Species** – Benefits to endangered species and wildlife habitat by retiming the water to help provide water during deficits to wildlife target flows in the central Platte River.
- 5) **Groundwater Recharge** – Excess South Platte or North Platte River flows can be used for intentional groundwater recharge. Increased groundwater recharge for the benefit of residents in the area that rely on groundwater for irrigation, livestock, or residential use, all within an over appropriated area. Incidental recharge has resulted in a groundwater mound, providing water supplies to irrigation and domestic wells and stream baseflow.
- 6) **Hydropower Production** – The Sutherland Project provides an alternative supply of cooling water and carbon-free hydropower production for NPPD's power plants on its Sutherland Project System. This helps meet NPPD's goal of increasing carbon free power sources by 2050.

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.

When considering cost-effectiveness, the project can be viewed in two separate ways. First, when looking at the benefit of the Analysis, and secondly, as a forecast of the benefits gained after the bypass is complete. NPPD's goal with the Analysis is to identify the most cost-effective design within the bypass alignment west of the Facility. NPPD's Professional Engineers and management staff have completed an initial site evaluation and determined the alignment to the west of the Facility as serving as the most cost-effective option to complete the bypass.

The cost for the Analysis is based upon five tasks as described in Table 6 and will include engineering, survey, geotechnical evaluation, a review of design alternatives, summary of permitting requirements, stakeholder coordination, and reporting.

Table 6 – Project Task and Cost

TASK	TASK NAME	COST	WSF	NPPD
1	Data Collection	\$ 22,000	\$ 13,200	\$ 8,800
2	Preliminary Design			
2a	Design and Drafting Alternatives	\$ 81,000	\$ 48,600	\$ 32,400
2b	Geotechnical Evaluation	\$ 32,000	\$ 19,200	\$ 12,800
2c	Hydraulic Modeling/Energy Dissipation	\$ 28,000	\$ 16,800	\$ 6,400
3	Review Permitting Requirements	\$ 16,000	\$ 9,600	\$ 6,400
4	Analysis Reporting	\$ 18,000	\$ 10,800	\$ 7,200
Total		\$ 197,000	\$ 118,200	\$ 78,800

The estimated construction cost of the bypass including operation and maintenance, land rights, permitting, and other cost considerations will be determined during the Analysis. The report will be utilized by NPPD to obtain federal funding sources.

When considering the potential construction footprint available for the bypass project, there are no other practical means to accomplish the same outcome outside of major structural modifications within the existing Facility. These alterations would have to allow water to pass from the penstock and around the hydropower generators when they are not operating. This would require major structural alterations to the Facility.

On the east side of the Facility lies the NGPC's North Platte Fish Hatchery, which eliminates the possibility of an alignment in that direction. The alignment on the west side was discussed by NPPD's Professional Engineers and determined to be a feasible solution to evaluate further through this Analysis. The potential alignment and key design considerations of the bypass is shown below in Figure 11.

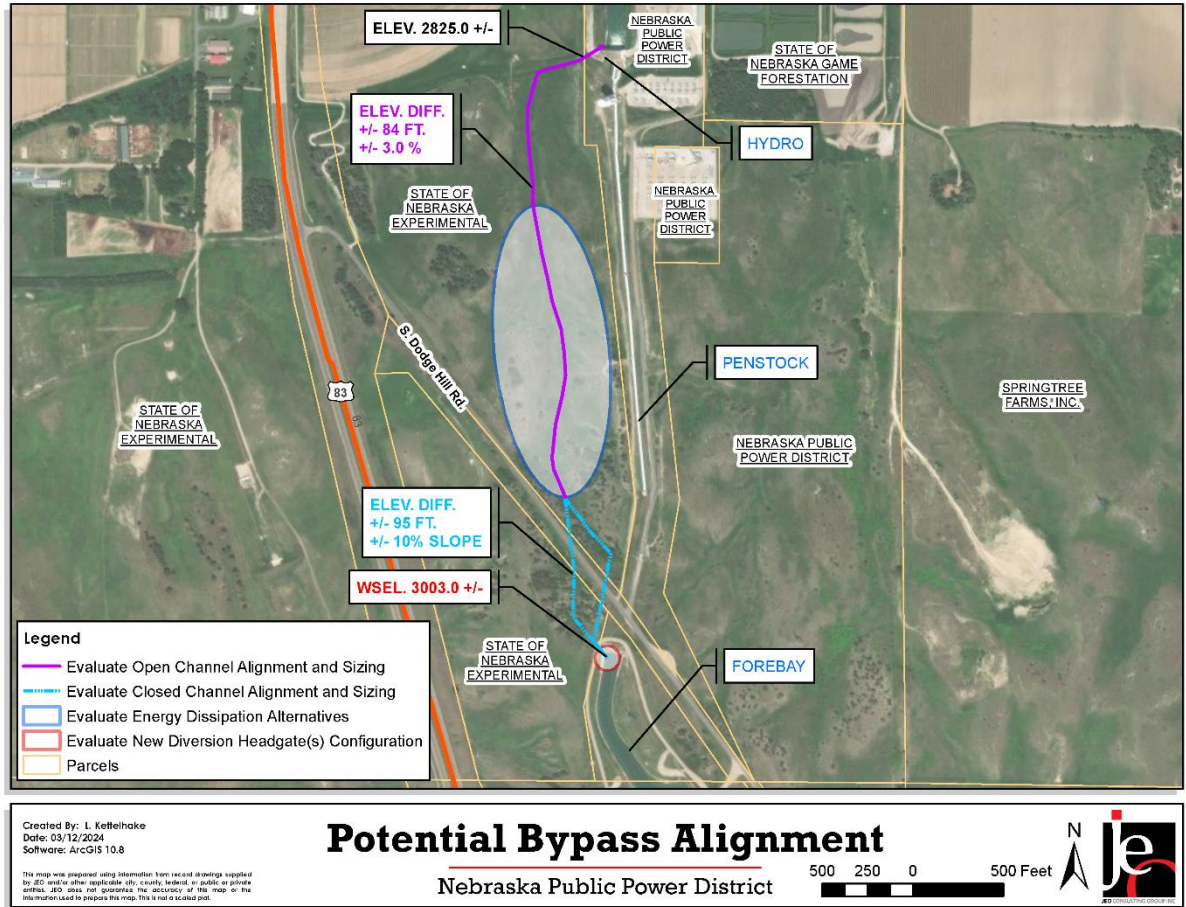


Figure 11 - Potential Alignment of the Bypass

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.

Since the inception of the PRRIP in 2007, NPPD has been a critical partner in achieving the land and water management goals. The PRRIP is a federal agreement established by Colorado, Wyoming, Nebraska, and the Department of Interior, who formed a unique partnership with the goal of developing a shared approach for managing the Platte River for endangered and threatened species. Water users from the three states, U.S. Bureau of Reclamation, U.S. Fish & Wildlife Service, and local and national conservation groups joined the effort. Together,

these stakeholders developed an innovative approach for improving the management of the Platte River — for the health of the ecosystem and the people that depend on it. The PRRIP is the result of that planning effort.

The PRRIP is focused on implementing this shared vision for creating and maintaining habitats on the Platte River, including river flows. This includes reducing shortages to target flow in the Platte River from Lexington to Chapman, Nebraska.

Water released from the Lake McConaughy Environmental Account is preferentially routed through NPPD’s Sutherland Project to the extent that conveyance capacity is available (see Figure 12).

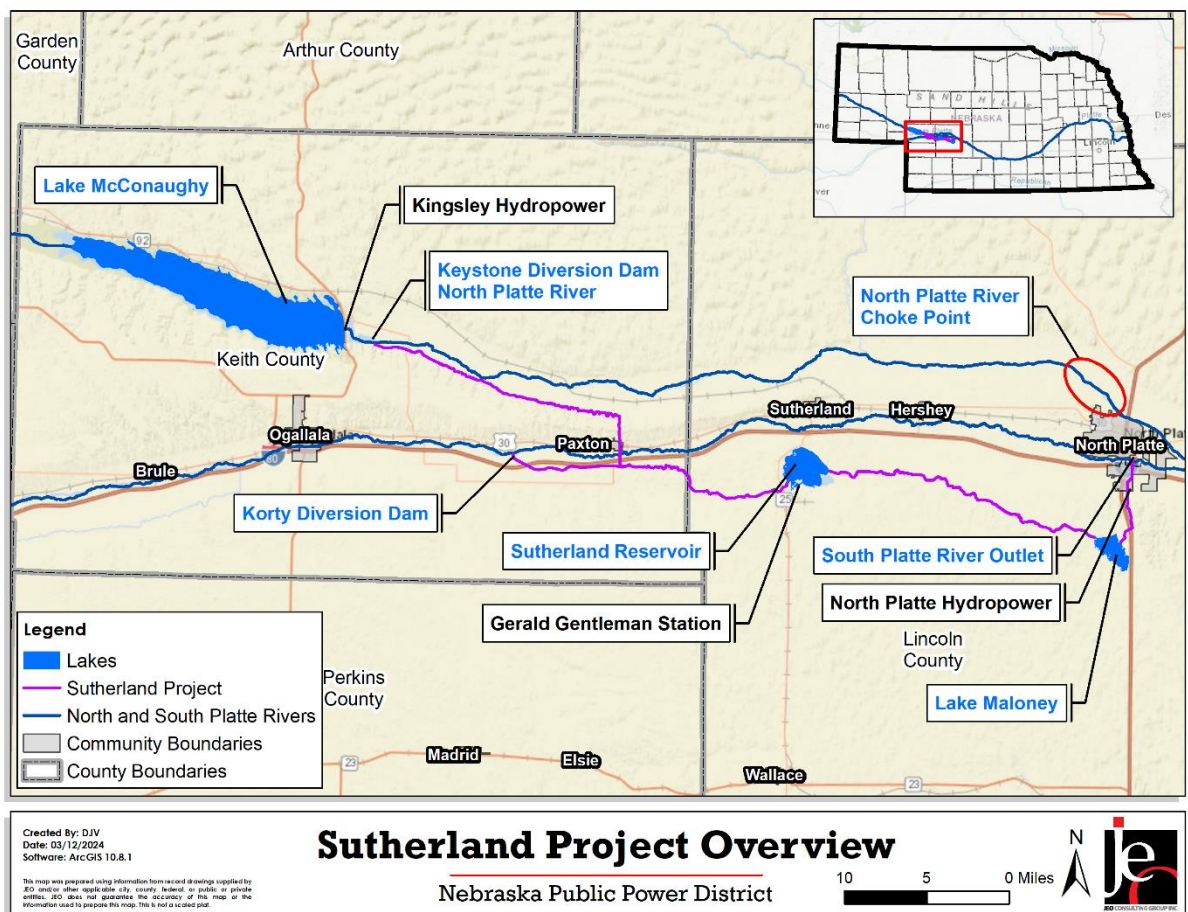


Figure 12 – Sutherland Project Overview

The Analysis will be a major first step towards the design and construction of a bypass around the Facility. In addition to immediate improvements to NPPD’s operations and increased public safety, the bypass would enhance and improve NPPD’s capabilities for managing the volume and timing of water used by the

PRRIP to meet flow targets and provide other benefits for threatened and endangered species that utilize the central Platte River.

Importantly, the bypass would provide greater flexibility for routing water around the North Platte chokepoint, which can constrain water deliveries to the PRRIP's associated habitat reach downstream from the Lake McConaughy Environmental Account when the Sutherland Canal system is operationally limited (Figure 13).

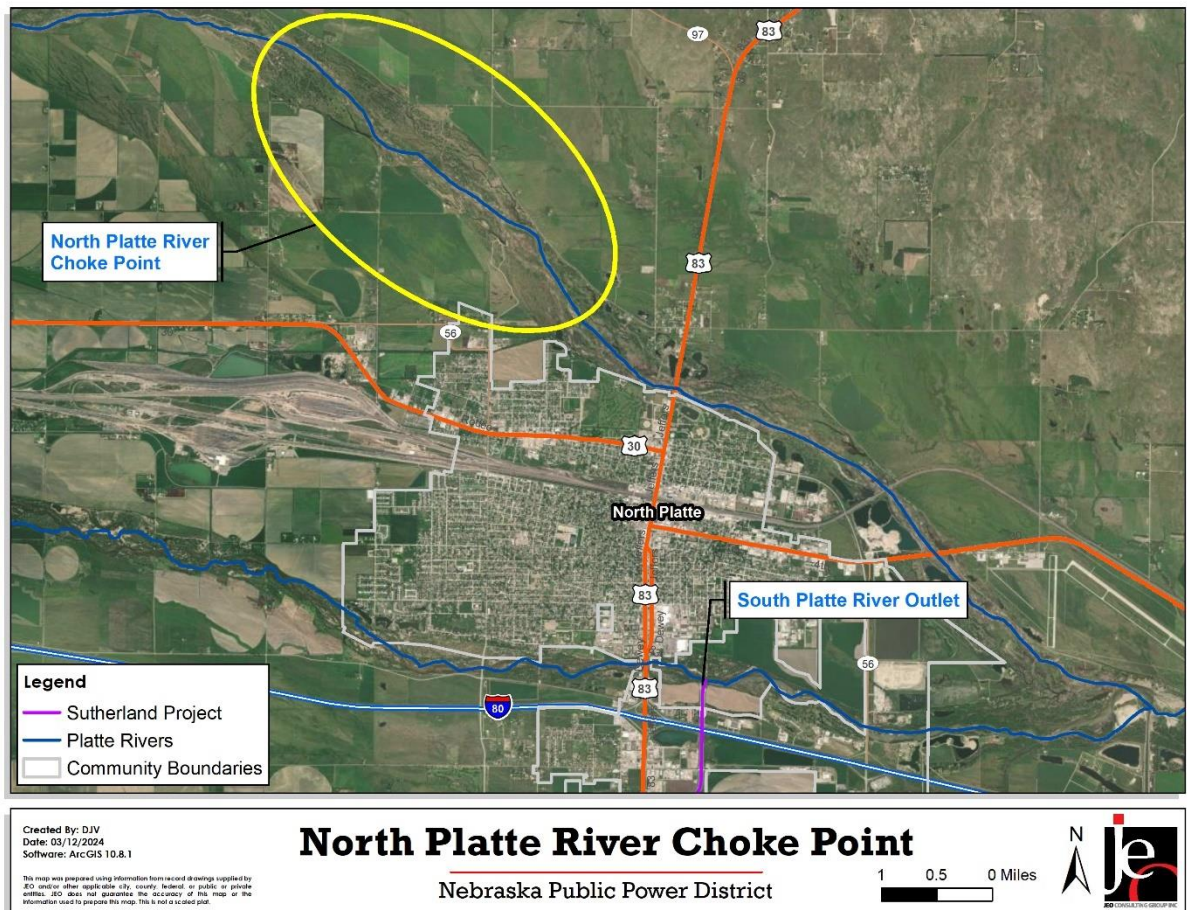


Figure 13 – North Platte River Chokepoint

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.

NPPD's Sutherland Project, including the Facility and canal, are critical water resources and energy production infrastructure. The Analysis will be a major first step towards the design and construction of a bypass around the Facility at the downstream end of the Sutherland Project.

The bypass would result in immediate improvements to NPPD's operations, would enhance and improve NPPD's capabilities for managing the volume and timing of water utilized by other agencies to achieve statewide goals of groundwater recharge and management of threatened and endangered species habitat, and would improve public safety to residents downstream of the system.

The Sutherland Project has been used multiple times to temporarily store South Platte River flood water at the request of the City of North Platte. The system can divert a maximum of 1,200 cfs at Korty Diversion on the South Platte River and store water in Sutherland Reservoir, Lake Maloney, and the canal system. The bypass would increase the quantity of water stored in Lake Maloney, thus further improving temporary flood reduction storage capabilities of the system.

For example, if a typical flood flow is 16,000 cfs, the Sutherland Project would allow for a 7.5% reduction in flow within the Platte River from Korty Diversion to North Platte (approximately 35 miles). The value of cost savings for flood mitigation, power enhancement, and value to water resource management in the Platte River basin, will be quantified within the Analysis.

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 Sutherland Project benefits water quality through seepage of Platte River diversions, resulting in a safe and plentiful supply to hundreds of domestic wells from eastern Keith County east across Lincoln County.

Another water quality issue improved by the proposed project is to protect the existing flow of cooling water for Gerald Gentleman Station (GGS). GGS has a pollutant discharge limit with respect to the temperature of water it discharges into

Sutherland Reservoir after it is used for cooling purposes in the generation plant. Currently, if the Facility is offline, water must cease to flow or flows must be significantly reduced through the Sutherland Project, which could result in increasing water temperatures. Protecting the flows of cool water from the canal is vital to full operation of GGS. If a water quality temperature limit is reached, one of the solutions is for GGS to reduce generation, with that generation needing to come from a more costly generating plant, thus raising costs to NPPD electricity users throughout the state.

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.

Given the statewide benefits to be achieved through completion of the Analysis, and eventual bypass construction, NPPD intends to partner with the NRC and NeDNR through receipt of cost-share from the WSF. There are no other local funding resources being utilized for the Analysis.

NPPD has sufficient funds to pay for its 40% of project costs of the Analysis and can manage substantial projects, such as the bypass. NPPD is a public corporation and political subdivision of the state of Nebraska and has the authority under Nebraska Statutes Chapter 70 to develop rates to its customers to recover its share of the project costs. NPPD's chartered territory includes all or parts of 84 of the State's 93 counties and more than 400 municipalities.

Neb. Rev. Stat. 70-655 states in part: (1) Except as otherwise provided in this section, the board of directors of any district organized under or subject to Chapter 70, article 6, shall have the power and be required to fix, establish, and collect adequate rates, tolls, rents, and other charges for electrical energy, water service, water storage, and for any and all other commodities, including ethanol and hydrogen, services, or facilities sold, furnished, or supplied by the district, which rates, tolls, rents, and charges shall be fair, reasonable, nondiscriminatory, and so adjusted as in a fair and equitable manner to confer upon and distribute among the users and consumers of commodities and services furnished or sold by the district the benefits of a successful and profitable operation and conduct of the business of the district.

NPPD has obtained letters of support from the PRRIP, Central, and Nebraska Region 51 Emergency Management. NPPD has also received confirmation that NeDNR is in support of the project and TPNRD will also benefit.

Once complete, a 30% engineering design and cost estimate will be established and documented within the Analysis. This level of assessment is targeted by NPPD for seeking additional local, state, or federal funding. Future funding efforts for final design and construction may include a BOR WaterSMART grant application. The use of WaterSMART will reduce the reliance on use of rate payer feeds to complete the project.

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.

NPPD Integrated Resource Plan

Carbon emissions and emissions regulation are a significant business risk for NPPD and its customers. NPPD recognizes the importance of balancing affordability, reliability/resilience, and sustainability when addressing the business risks related to carbon emissions and emissions regulations. This policy establishes the Board of Director's goal for carbon emission reductions that will be used to guide NPPD in determining future generation resource planning options as outlined within Carbon Emission Reductions (BP-SD-05)³.

NPPD adopts the goal of achieving net zero carbon emissions from NPPD's generation resources by the year 2050. This will be achieved by continuing the use of proven, reliable generation until alternative, reliable sources of generation are developed and by using certified offsets, energy efficiency projects, lower or zero carbon emission generation resources, beneficial electrification projects, or other economic and practical technologies that help NPPD meet the adopted goal at costs that are equal to, or lower than, then current resources.

NPPD Management will report to the Board annually the carbon emissions of generating resources under NPPD control on both a total short tons of CO₂ emitted and CO₂ intensity (lbs./MWh) basis including effects of offsets, etc., as discussed above.

³ 2023 Integrated Resource Plan, NPPD

The Board of Directors may evaluate and reconsider the District's Carbon Emissions Goal if it is determined that meeting or progressing toward the goal will adversely impact the District's ability to continue to meet the Board's strategic directives concerning reliability (BP-SD-03) or cost competitiveness (BP-SD-04). The Sutherland Project contains critical water management infrastructure for the Platte River that helps multiple agencies achieve sustainable water use goals. Following the determination by NPPD that the project was feasible, the Analysis is the second step towards immediate improvements to NPPD's operations and increased public safety. The bypass would enhance and improve NPPD's capabilities for managing the volume and timing of water used by several agencies and increase hydropower capabilities.

Other Water Management Plan Benefits

The North Platte Hydro Generation Facility Bypass will benefit the TPNRD IMP by allowing the continued reliable use of the Nebraska Cooperative Republican Platte Enhancement (NCORPE) project as an offset to meet IMP goals. The NCORPE project delivers offset water to the South Platte River by delivering water into the Sutherland Project a couple of miles upstream of Lake Maloney. All facilities are in place and have been operating since 2019. If NPPD is unable to return water to the South Platte River, NCORPE will not be able to deliver offset water.

The North Platte Hydro Generation Facility Bypass will benefit the Platte River Recovery Implementation Program by continuing to allow Environmental Account (EA) water to more efficiently be transported to CNPPID's Tri-County Diversion. All facilities are in place and EA water has been transported through the Sutherland Project since 1998. If EA water cannot be transported through the Sutherland Project, it must be released down the North Platte River where it will experience 1) more losses than if it is in the Sutherland Project and 2) limitations on maximum flow rates due to flood stage issues at North Platte.

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 first state-wide issue addressed by the project is flood protection through the reduction of flows during times of flooding. The Analysis will identify the potential to increase storage in Lake Maloney where NPPD currently has a limited amount of capacity to store additional rain events during irrigation season, or to store

rejected irrigation water. With NPPD’s system not having check structures, it is limited to cuts of 100-200 cfs per day depending on flows. Having additional elevation for normal operating levels in Lake Maloney could potentially allow for additional storage of rejected irrigation water and flood flows. When large rain events are expected in the forecast, NPPD and CNPPID could coordinate to adjust the Outlet Canal to lower Lake Maloney to the current normal minimum elevation (3004.7-3004.8 fmsl) to allow for additional capacity for capturing rain events. Table 7 lists the storage capacity based on elevations at Lake Maloney.

Table 7 – Surface Water Elevation and Storage Capacity of Lake Maloney

Water Surface Elevation (fmsl)	Storage Capacity (AF)
3004.7	16,090
3005.3	17,050
3005.5	17,373
3006.0	18,178

Comparing 3004.7- 3005.3 fmsl storage allows for an additional 960 Ac-Ft of normal storage availability. This would allow for 483cfs for a 24-hour period of storage availability. While the maximum storage elevation is 3006.0 fmsl according to FERC, it has not yet been determined by NPPD if storage up to that level is an option. This will be discussed as part of the Analysis process. Overall project benefits include:

- 1) **Flood Risk Reduction** – The Sutherland Project has been used multiple times to temporarily store South Platte River flood water at the request of the City of North Platte. The system can divert a maximum of 1,200 cfs at Koryt Diversion on the South Platte River and store water in Sutherland Reservoir, Lake Maloney, and the canal system. The bypass would increase the quantity of water stored in Lake Maloney, thus further improving flood reduction capabilities of the system. The number of people or acres that could benefit from removing 1,200 cfs of flood flows is difficult to determine. For example, if a typical flood flow is 16,000 cfs, then this would be a 7.5% reduction in flow.
- 2) **Water Conservation** – Maximized use of the Sutherland Project allows water savings from North Platte River water and water stored in Lake McConaughy for future use and agricultural drought protection (i.e. conjunctive management of water supply) and increased hydropower production potential. Improved water management will help maintain flows downstream in the Platte River. Preservation of water resources also provides downstream drought protection through retiming of flows.
- 3) **Endangered Species** – Benefits to endangered species and wildlife habitat by retiming the water to help provide water during deficits to wildlife target flows in the central Platte River.

- 4) **Groundwater Recharge** – The Sutherland Project has created a significant groundwater mound through central Lincoln County and nearby. Municipal water systems benefit from a reliable supply, especially during drought. There are several thousand acres of irrigated cropland benefiting from the historical recharge and resulting groundwater mound along the Sutherland Project. Excess South Platte or North Platte River flows can be used for intentional groundwater recharge. Increased groundwater recharge benefits residents in the area that rely on groundwater for irrigation, livestock, or residential use, all within an over appropriated area. Incidental recharge has resulted in a groundwater mound, providing water supplies to irrigation and domestic wells and stream baseflow.
- 5) **Hydropower Production** – The Sutherland Project provides an alternative supply of cooling water and carbon-free hydropower production for NPPD’s power plants on its Sutherland Project System. This helps meet NPPD’s goal of increasing carbon free power sources by 2050. NPPD’s statewide power distribution would benefit, thus helping keep electric fees low.

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.

Once complete, the Analysis will be utilized by NPPD to leverage state and local dollars with federal government partners to facilitate the remainder of the project. Having a 30% engineering design and cost estimate completed will greatly increase the scoring of any future funding application. The Analysis will provide a specific path to finalizing design, permitting, and building the Facility bypass. The Analysis will include an implementation and funding strategy.

The bypass project is anticipated to cost several million dollars. Leveraging state and local resources with federal funds will reduce the dependence on electrical rate payer fees statewide and help keep electrical costs as low as possible. Specifically, NPPD plans to target BOR WaterSMART funds, and the Analysis will be written in a manner to reflect the needs of the lengthy WaterSMART applications. NPPD will consider other local and state funding resources also, including WSF.

The Analysis cost by task and breakdown between NPPD and WSF is shown in Table 8.

Table 8 – Analysis Cost by Task

TASK	TASK NAME	COST	WSF	NPPD
1	Data Collection	\$ 22,000	\$ 13,200	\$ 8,800
2	Preliminary Design			
2a	Design and Drafting Alternatives	\$ 81,000	\$ 48,600	\$ 32,400
2b	Geotechnical Evaluation	\$ 32,000	\$ 19,200	\$ 12,800
2c	Hydraulic Modeling/Energy Dissipation	\$ 28,000	\$ 16,800	\$ 6,400
3	Review Permitting Requirements	\$ 16,000	\$ 9,600	\$ 6,400
4	Analysis Reporting	\$ 18,000	\$ 10,800	\$ 7,200
	TOTAL	\$ 197,000	\$ 118,200	\$ 78,800

NPPD has sufficient funds to pay for its 40% of project costs of the Analysis and is capable of managing a project such as the bypass construction in the future. NPPD is a public corporation and political subdivision of the state of Nebraska and has the authority under Nebraska Statutes Chapter 70 to develop rates to its customers to recover its share of the project costs. NPPD’s chartered territory includes all or parts of 84 of the State’s 93 counties and more than 400 municipalities.

Neb. Rev. Stat. 70-655 states in part: (1) Except as otherwise provided in this section, the board of directors of any district organized under or subject to Chapter 70, article 6, shall have the power and be required to fix, establish, and collect adequate rates, tolls, rents, and other charges for electrical energy, water service, water storage, and for any and all other commodities, including ethanol and hydrogen, services, or facilities sold, furnished, or supplied by the district, which rates, tolls, rents, and charges shall be fair, reasonable, nondiscriminatory, and so adjusted as in a fair and equitable manner to confer upon and distribute among the users and consumers of commodities and services furnished or sold by the district the benefits of a successful and profitable operation and conduct of the business of the district.

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 Sutherland Project is part of the Lower South Platte River watershed (see Figure 14) and contributes immensely to the ecosystem services within the Platte River valley. There are approximately 4,700-acres of open water, all accessible to the public (Lake Maloney with 1,650-acres and Sutherland Reservoir with 3,050-acres). These waterbodies and the associated canal system provide public access to high-quality fishing, has created aquatic habitat, serves as a waterfowl refuge

for a wide variety of species, and helps improve water quality by capturing sediment and filtering pollutants. The entire Sutherland Project has contributed to hundreds of acres of wetlands associated with inlets, canal banks, and shorelines.

The construction of the bypass will increase the storage capacity and functionality of the entire system by ensuring water can pass through, maintaining adequate oxygen supplies for fish and other aquatic species, when the Facility is not operating.

The Analysis will take into consideration and document the benefits of the bypass to the watershed system. Identification of these ecosystem services will be beneficial.

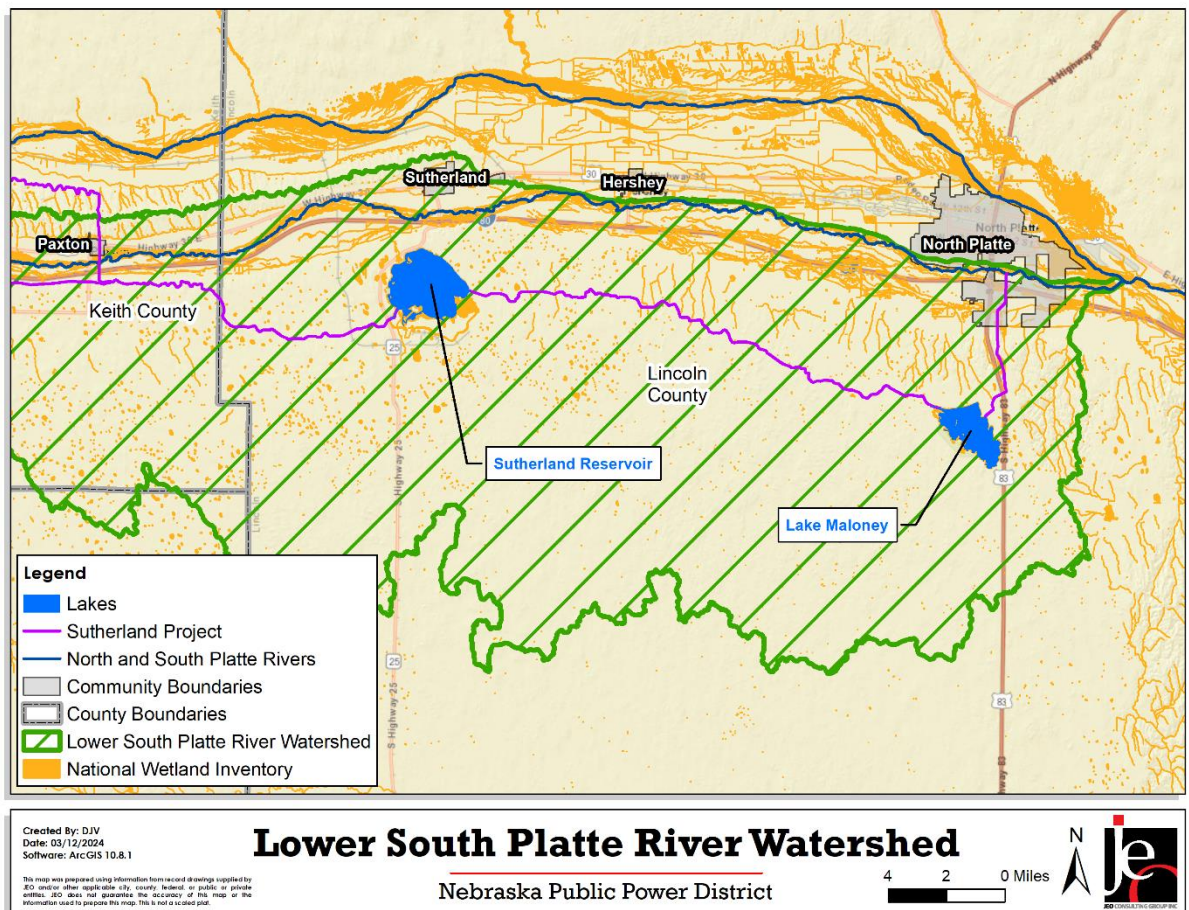


Figure 14 – Lower South Platte River Watershed

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.

Projects of this magnitude, which can aid multiple water management stakeholders with groundwater recharge, Platte River flow management, wildlife and aquatic habitat enhancement, flood mitigation, and hydropower production, among others, helps meet several of the goals found within the NeDNR Annual Report to the Legislature and Plan of Work 2022-2023.

NeDNR Goal #1 – Establish strong state leadership, involvement, and support for science-based decision making that is necessary to sustain state and local water management outcomes.

The NeDNR has provided leadership to NPPD, Central, multiple NRDs, PRRIP, and other key stakeholders within the Sutherland Project as surface water and groundwater have been managed in a conjunctive manner. The Analysis will provide strong science and engineering-based information for the most cost-effective design to build the bypass around the Facility.

NeDNR Goal #2 - Provide high quality products and services through the performance of our duties in the areas of floodplain management, flood mitigation planning, dam safety, and survey to promote the safety of all Nebraskans.

The greatest benefit of the bypass is to provide immediate improvements to the public health, safety, and welfare of those living or working around Lake Maloney, the canals, and below the Facility on the south side of the City of North Platte. The bypass will reduce the risk of flooding or a breach of the Lake Maloney dam, forebay, or other infrastructure.

NeDNR Goal #3 - Develop and implement customized and decentralized water management plans established through collaboration with local Natural Resource Districts and stakeholders that provide for long-term sustainability of the state's water resources.

The Sutherland Project is a critical component of retiming, recharging, and managing water in collaboration with TPNRD to help meet IMP goals. The canal, Sutherland Reservoir, and Lake Maloney provide significant amounts of incidental recharge to the Platte River alluvial and Ogallala aquifer, helping offset pumping impacts from hundreds of high-capacity irrigation wells.

Historically, TPNRD, along with Central Platte NRD and Tri-Basin NRD, have worked with NeDNR to retime flows. For example, the TPNRD has agreements with canals between Lake McConaughy and North Platte to

divert excess flows for retiming and the CPNRD also has agreements with canals in Dawson County to do the same.

NeDNR Goal #4 - Encourage strong public engagement with multiple constituents and stakeholder groups in planning and implementation activities to ensure that local and state needs are addressed.

The Analysis will include public and agency coordination, including the City of North Platte, UNL's West Central Research, Extension, and Education Center, TPNRD, PRRIP, FERC, and NeDNR.

NeDNR Goal #5 - Protect existing water uses through collaborative investments in water resource projects, planning, administration and permitting of surface water rights, and the registration of groundwater wells.

The existing water uses of the Sutherland Project include recharge, surface water retiming, recreation, flood risk reduction, and hydropower development. Incidental recharge supports irrigation, domestic, and municipal water supplies. A commitment from the NRC's WSF to NPPD to complete the Analysis would help protect and enhance the existing water uses.

NeDNR Goal #6 - Provide agency-wide services and support in the areas of information technology and transparent data sharing, business process improvement, public information, and administration of state-aid funds in conjunction with the NRC.

The use of WSF for the Analysis continues the valuable partnership between NPPD, NeDNR, and other partner agencies. Use of state-aid funds (e.g. WSF) for the project provides a state-wide benefit by maintaining low energy rates across the State.

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.

NPPD's project is not designed to meet the requirements of a federal mandate which furthers the goals of the WSF.