LAKE AGASSIZ WATER AUTHORITY

BOARD OF DIRECTORS

Holiday Inn
Fargo, North Dakota
August 25, 2017

A meeting of the Lake Agassiz Water Authority (LAWA) board of directors was held at the Holiday Inn, Fargo, North Dakota, on August 25, 2017. The meeting was called to order by Chair Mahoney at 11 a.m.

MEMBERS PRESENT

Chair Tim Mahoney
Vice Chair Ken Vein
Director Dave Carlsrud
Director Mark Johnson
Director Ralf Mehnert-Meland
Director Keith Nilson
Director Carol Siegert
Director Bob Keller
Secretary Duane DeKrey

MEMBERS ABSENT

Director LaVonne Althoff
Director Rick Bigwood
Director John Hancock
Associate Member Don Bajumpaa

OTHERS PRESENT

Staff members of the Garrison Diversion Conservancy District were present along with others. The registration sheet is attached to these minutes as Annex I.

The meeting was recorded to assist with compilation of the minutes.

CONSIDERATION OF THE MINUTES

Motion by Director Nilson to dispense with a reading of the June 23, 2017, board minutes and approve them as distributed. Second by Director Johnson. Upon voice vote, motion carried.

OFFICER REPORTS

Ken Vein, Vice Chair, recognized the efforts of Chair Mahoney and Garrison Diversion staff for the presentation made at the State Water Commission meeting and obtaining the $17 million in grant funding.

AGENDA

Motion by Director Mehnert-Meland to approve the agenda as presented. Second by Director Siegert. Upon voice vote, motion carried.

COMMITTEE REPORTS

Technical Advisory Committee - - Al Grasser, Chair, Technical Advisory Committee, informed the board that the committee met on July 25 to review preliminary design efforts and hear updates on approved task orders. In addition, the committee reviewed new task orders on program management, pipeline design and geotechnical investigations that will be presented today. The Technical Advisory Committee recommends the board approve these new task orders.

RED RIVER VALLEY WATER SUPPLY PROJECT (RRVWSP) UPDATE

Chair Mahoney informed the board that after a recent meeting with the State Water Commission where the first $17 million in funding for the RRVWSP was requested, Governor Burgum stated that the $17 million was a grant. He went on to say that the remaining $13 million is a grant as well. This was unanimously passed by the State Water Commission members.

Merri Mooridian, Deputy Program Manager, RRVWSP Administration, reported that with the changes made to the ND Century Code during the state legislature, a new board member representing rural water districts was added west of Highway 1. Bob Keller will represent the Stutsman Rural Water District.

Central North Dakota Environmental Assessment - - Kip Kovar, Deputy Program Manager, RRVWSP Engineering, reported that the Central North Dakota Environmental Assessment (EA) is complete, and the 30-day public comment period ends September 22.

Work Plan Update - - Mr. Kovar referred to the RRVWSP Work Plan Update dated August 15 and provided a status report on the approved task orders, a copy which is attached to these minutes as Annex II.

Mr. Kovar stated that the RRVWSP project is currently in the preliminary design phase, and the anticipated report date is the end of September with an executive summary to be generated for review by the LAWA Technical Advisory Committee.

Ms. Mooridian provided an update on financial modeling and cost allocation.

Task Orders

Program Management

The objective of this task order is to support the development and maintenance of a variety of program management support tools to help successfully execute the project. The tools and processes are expected to be developed and implemented during this biennium and be ready to support a significantly increased program size in the following biennium. The cost of this task order is $491,000.

Final Pipeline Design 28-Mile Segment

This task order is for final design of an approximate 28-mile pipeline segment. The outcome will be bid documents ready for the bidding process on the 28-mile segment, which will set up approximately $150 million worth of construction. It does not include bidding fees. Bidding services will be addressed in an amendment. The cost of this task order is $3,840,000.

Geotechnical Investigation

This task order focuses on the 28-mile segment. Its purpose is to authorize drilling of supplemental borings along the pipeline alignment and to complete laboratory testing of soil samples collected. The cost of this task order is $544,000.

Motion by Director Johnson to approve the following task orders: 1) Program Management in the amount of $491,000, 2) Final Pipeline Design of 28-Mile Segment in the amount of $3,840,000 and 3) Geotechnical Investigation in the amount of $544,000. Second by Director Nilson. Upon roll call vote, the following directors voted aye: Carlsrud, Johnson, Keller, Mahoney, Mehnert-Meland, Nilson, Siegert and Vein. Those voting nay: none. Absent and not voting: Althoff, Bigwood and Hancock. Motion carried.

Planning Level Budget

2015-2017

Ms. Mooridian referred to the 2015-2017 Planning Level Budget dated July 31, 2017, and reviewed it with the board. The total spent through July is $12.3 million. The current total cost estimate is $13.8 million. LAWA's cost share is $1.4 million. A copy of the budget is attached to these minutes as Annex III.

Ms. Mooridian added that this budget is basically for conceptual and preliminary design. There are a few trailing expenses left to finish, and it should be closed out before the end of the year.

2017-2019

Ms. Mooridian next referred to the 2017-2019 planning level budget, which shows that no funds have been expended. A work plan has been laid out based on the funding that was requested from the state legislature and included in HB1020. For preliminary design, there are three amendments to task orders approved for a total amount of $1.3 million. Final design includes upcoming task orders. Financial, administration and legal, as well as construction are also listed. The design and administration subtotal is $17 million, and the subtotal for construction is $13 million for a total of $30 million, which matches the appropriation amount in HB1020. A copy of the 2017-2019 budget is attached to these minutes as Annex IV.

Lake Audubon Water Control Plan - - Duane DeKrey, Secretary, referred to a copy of LAWA's letter expressing its concerns with the Corps of Engineers' Proposed Lake Audubon Water Control Plan, a copy which is attached to these minutes as Annex V. He added that Garrison Diversion has requested an extension to the comment period deadline in order to present additional technical and economic information.

NDSU Proposal

Secretary DeKrey referred to a copy of a proposal received from NDSU to conduct an economic analysis on the impacts that would result from the Proposed Lake Audubon Water Control Plan, a copy which is attached to these minutes as Annex VI.

The objective of the research is to estimate on-farm and regional economic impacts of changes in irrigation water availability from Lake Audubon including: 1) on-farm returns to irrigated and non-irrigated crop production, existing and new investments in irrigation, and maintenance to existing irrigation systems under different water availability scenarios; 2) processor impacts – including regional potato processors and corn-ethanol refineries that source supplies from the region; and 3) regional economic impacts.

The cost of the study is $82,506, and it should be completed in six months. The funds for the study will come out of the RRVWSP Fund.

Motion by Vice Chair Vein to approve NDSU's proposal to study the economic impacts of the changing irrigation water availability from Lake Audubon in the amount of $82,506. Second by Director Mehnert-Meland. Upon roll call vote, the following directors voted aye: Carlsrud, Johnson, Keller, Mahoney, Mehnert-Meland, Nilson, Siegert and Vein. Those voting nay: none. Absent and not voting: Althoff, Bigwood and Hancock. Motion carried.

Proposed Surplus Water Supply Rule - - Secretary DeKrey referred to a copy of Senator Heitkamp's letter to Garrison Diversion regarding the Corps of Engineers' Proposed Water Supply Rule. This is provided for the board's information.

BOARD MEMBER ELECTION

Ms. Mooridian informed the board that six city members will be elected to the LAWA board at the League of Cities conference on September 29 at the Delta by Marriott in Fargo.

FINANCIAL REPORT

2017 Budget Analysis Statement - - Ms. Mooridian referred to and reviewed the Budget Analysis statement for the period of January 1 to July 31, 2017, a copy which is attached to these minutes as Annex VII.

Total income through July 31, 2017, is $561,739. Expenses are $448,731. The total bank balance at the end of July is $426,258.

Motion by Director Siegert to accept the budget analysis statement for the period of January 1, 2017, to July 31, 2017. Second by Director Mehnert-Meland. Upon roll call vote, the following directors voted aye: Carlsrud, Johnson, Keller, Mahoney, Mehnert-Meland, Nilson, Siegert and Vein. Those voting nay: none. Absent and not voting: Althoff, Bigwood and Hancock. Motion carried.

Bills Paid - - Garrison Diversion was recently paid $227,296 for LAWA's 10% cost share of expenditures.

Summary of Dues and Cost Share Payments - - Ms. Mooridian referred to the table showing membership dues and cost share payments received. Dues collected in 2017 total $32,450. Cost share payments submitted in 2017 are $529,250.

UNFINISHED BUSINESS

Auditing Services - - Ms. Mooridian stated at the last meeting, the board authorized staff to move forward with the process for auditing services. Two proposals were received, and both were very close in price. The decision was made to continue with EideBailly for completion of the 2017 LAWA audit, which will take place in October, at the cost of $6,000.

The board also instructed staff to research whether there would be an entity that would reduce the audit price if LAWA would hire the auditing firm to prepare the audit for more than one year. EideBailly responded stating that they would conduct the 2017 and 2018 audits at the same time at a cost of $9,000.

It was the consensus of the board to conduct the 2017 and 2018 audits together.

NEW BUSINESS

Bylaws & Board Policies - - Ms. Mooridian informed the board that LAWA's Bylaws need to be updated to be in sync with the recent changes to the ND Century Code. The proposed changes need to be mailed out 15 days prior to the board meeting. We will begin that process for the next board meeting.

OTHER

There being no further business to come before the board, the meeting adjourned at 11:40 a.m.

Timothy Mahoney, Chair

Duane DeKrey, Secretary

REGISTRATION

LAWA Board Meeting
Fargo, North Dakota
August 25, 2017

NAME	ADDRESS
Steve L. Burian	AE2S
Kimberly Cook	GDCD
Brian Grubb	City of Fargo
Jerry Blomeke	Cass Rural Water District
Kris Knutson	Moorhead Public Service
Jay Paul Anderson	GDCD
Greg Bischoff	GDCD
Geneva Kaiser	GDCD & SRWD
[illegible]	GDCD
Dennis Mirdnowski	City of Wahpeton
Todd Feland	City of Grand Forks
Al Grasser	City of Grand Forks
BRIAN JOHNSON	EGF WATER & LIGHT DEPT.
Keith mykleseth	" " "
Dave Piepkorn	City of Fargo
Joe Zauner	American Pipe
Bill Schwandt	Moorhead Public Service

RRVWSP Work Plan Update
August 15, 2017

Goal

Spring 2016	Completed Conceptual Design and Cost Estimate
Summer 2017	Complete Preliminary Design and Cost Estimate for pipeline and pump station(s)
2017 - 2018	Complete Phased Final Design and Cost Estimates
2019 - 2027	Phased Bidding and Construction

Total draft budget to complete Conceptual, Preliminary and Final designs is $66 million. The ND legislature appropriated $12.359 million for the RRVWSP for the 2015-2017 biennium. The conceptual design phase has been completed; therefore, no further updates will be included in this report. The ND legislature appropriated $30 million for the RRVWSP for the 2017-2019 biennium.

Preliminary Design

The conceptual design is complete and was released in September 2016. Preliminary design is underway, and it is estimated to cost $10 million to complete the preliminary design on the entire project. Moving forward with limited funds, it is cost effective to start project phasing. The Implementation Plan will provide a road map to move forward with items that have to be completed first, which include permit phasing, design phasing, and construction phasing.

1) Pipeline alignment McClusky to the split – This pipeline segment from the McClusky Canal traversing east to the split is required for all options under the Implementation Plan. This segment, therefore, has the highest priority of all segments. Preliminary design items include field wetland boundaries, determining trenchless construction boundaries, utility identification, location of valves and blowoffs, and horizontal and vertical layout of pipeline. Estimated cost is $2,800,000.

> Status – Additional land access agreements are required due to rerouting in some areas. Field services are being coordinated and scheduled with landowners and field crews. Approximately 85% complete. The first draft of the pipe profile has been completed. Air and vacuum protection, manways and blowoffs have been placed.

2) Missouri River Conventional Intake/COE Permit – The Implementation Plan identified using a conventional intake near Washburn as a viable option for the RRVWSP. Conventional intake plans and drawings will be generated and submitted to the COE for approval. Work includes preliminary design of the intake and pump station, survey, river bathymetric survey, environmental and geotechnical information, and permit application. Estimated cost is $1,000,000.

> Status – Field work is complete, and draft intake drawings have been prepared for submittal to the USCOE. The intake application was received by the USCOE March 13, 2017. A preconstruction notification meeting was held May 3. The USCOE letter received July 19, 2017, stated Section 408 is not applicable. USCOE letter received July 31 requested a Biological Assessment associated with the intake be completed.

3) Pipeline alignment Washburn to McClusky – This pipeline segment from Washburn to the McClusky Canal is required for all Missouri River intake options. This segment, therefore, has a high priority. Preliminary design items include field wetland boundaries, determining trenchless construction boundaries, utility identification, location of valves and blowoffs, and horizontal and vertical layout of pipeline. Estimated cost is $594,551.

Status – Additional land access agreements are required due to rerouting in some areas. Field services are being coordinated and scheduled with landowners and field crews. Field work is approximately 85% complete. The first draft of the pipe profile has been completed. Air and vacuum protection, manways and blowoffs have been placed.

4) Pipeline alignment split to Baldhill Creek – This pipeline segment from the split to Baldhill Creek is required for all Red River Valley delivery options under the Implementation Plan. This segment, therefore, has a high priority. Preliminary design items include field wetland boundaries, determining trenchless construction boundaries, utility identification, location of valves and blowoffs, and horizontal and vertical layout of pipeline. Estimated cost is $574,783.

Status – Additional land access agreements are required due to rerouting in some areas. Field services are being coordinated and scheduled with landowners and field crews. Field work is approximately 85% complete. The first draft of the pipe profile has been completed. Air and vacuum protection, manways and blowoffs have been placed.

5) Workflow Manager – The overall objective of this task is to provide a robust Geographical Information System (GIS) that is a single source for all spatially related data with anytime access by team members, GDCD, and other stakeholders. The GIS will contain parcels, rights-of-way, survey data, access agreements, landowner information, easements, and other pertinent data. Estimated cost is $150,000.

Status – All software has been purchased. Three training classes on the software have been held. Data continues to be uploaded to the site. The site was activated September 9, 2016.

6) Main Pumping Station, Pre-Treatment, Break Tank, Control Valve Structure, Hydraulics and Transient – Preliminary Engineering – The RRVWSP conceptual design identified a number of alternatives for delivering Missouri River water to eastern and central North Dakota. Alternatives included various water sources, river intake facilities, pumping stations, water treatment plant locations, conveyance pipeline, and discharge locations. In general, work associated with this task order includes preliminary engineering design for the associated project elements identified below; site selection; optimization of the conceptual level design for the hydraulics and preliminary transient analysis; coordination of work associated with field services; and update opinion of probable construction costs for the project elements: Main pumping station, Pre-treatment, Break tank, and RRV control valve structure. The following assumptions were made: project capacity flow rate 165 cfs, water treatment plant location is Washburn, and discharge location is Baldhill Creek. Estimated cost is $997,267.

Status – Preliminary site selection for pre-sedimentation basin, water treatment plant, main pump station, hydraulic break tank, and control valve structure is nearly complete. Hydraulic analysis and facility layouts are complete.

7) Aerial Photography and LIDAR Services – To facilitate preliminary design, base mapping in the form of digital ortho-photographs, surface model, and plan features is needed for the pipeline corridor, approximately 162 miles in length. The most efficient method by which to obtain this large amount of data is through aerial photography and light imaging, detection, and ranging (LiDAR), supplemented by ground surveys. Estimated cost is $259,984.

Status – The pipeline corridor has been flown, and data has been processed. Aerial photography and LIDAR products are being used for preliminary design.

8) StateMod Water Supply Model – GDCD has recently updated user demands and has obtained preliminary nominations from 35 cities and rural water systems across central and eastern North Dakota totaling 159.24 cfs. With these updated demands, an updated design basis is needed to support the sizing of the RRVWSP pipeline. The Bureau of Reclamation (BOR) used the StateMod water supply model to support the original RRVWSP during the EIS. The StateMod model is complex, using hundreds of diversions across eastern ND and western MN with different withdrawal points and water right priorities. This task order will develop design basis to support the RRVWSP pipeline sizing, review existing StateMod files, regenerate a current understanding of how the model was constructed, and run the model so that the 2008 FEIS results can be duplicated. Estimated cost is $103,100.

Status – StateMod files from BOR have been received. The model is running, and the original 2010 preferred alternative is being regenerated for calibration. A workshop was held May 26 to review model operation, assumptions and future recommendations.

9) Pipeline Extensions – To date, the layout and estimated cost of transmission pipelines to provide water to the users without existing river access has not been developed. The purpose of this Task Order is to develop a conceptual plan and associated estimated costs for these users to access the Project. The plan is expected to include turnouts on the core pipeline for future connections, the extension of the core pipeline with smaller diameter pipelines into the additional service areas, and additional pump stations to convey the flow. Estimated cost is $627,333.

Status – The first round of pipeline extension routes has been generated. User needs are being compared with pipeline sizing for each route. Coordination meetings are taking place with systems for review.

10) Discharge Design – This task order is for a permit level design for the discharge structure, including energy dissipation structure to reduce the energy in water as it exits the pipeline near the receiving water body and the concrete apron to convey the water into the receiving water body. Estimated cost is $300,000.

Status – Potential Sheyenne River discharge sites were reviewed at the recommendation of the LAWA Technical Advisory Committee. A site has been selected, and field data is being processed. ND Department of Health has indicated they will most likely require a ND Pollution Discharge Elimination System permit for the project. Preliminary work started on what the water treatment plant would be to achieve the permit.

11) Pipeline Amendment #1 - Preliminary design amendment #1 was required because of alignment changes: changing the discharge site from Baldhill Creek to the Sheyenne River, moving portions of the pipeline closer to roadways and section lines, and avoiding FWS easement boundaries. Amendment work will include field wetland boundaries, determining

trenchless construction boundaries, utility identification, location of valves and blowoffs, and horizontal and vertical layout of pipeline. Estimated cost is $920,648.

12) Discharge Amendment #1 - This task order amendment is to include new work required to obtain a North Dakota Pollutant Discharge Elimination System (NDPDES) permit to discharge water to the Sheyenne River, including coordination with the NDDOH. Estimated cost is $317,000.

13) StateMod Amendment #1 – This amendment will include modifying the original model data, return flows and data input files, as well as run the new scenarios. Modifications were needed to run the model because of the limited documentation from the Bureau of Reclamation. Estimated cost is $111,736.

Final Design

The preliminary design is almost complete and should be released in September 2017. Moving forward with limited funds, it is cost effective to start project phasing. Priority items to move forward first with final design and construction are discharge structure, trenchless crossings and portions of the intake.

1) Pipeline segment 28 miles –This task order will begin final design on a portion of the RRVWSP, and this task order is the first of several pipeline design task orders that will be executed to complete the project. Given the current level of state and local funding allocated for the project's design and construction, the length of the initial segment selected for final design and preparation of construction contract documents is approximately 28 miles. The general location of the 28-mile pipeline segment is in Foster and Wells Counties. The alignment and limits of the pipeline being designed under this task order are identified on the RRVWSP route overview map. Estimated cost is $3,840,000.

2) Geotechnical – This task order will allow engineers to drill supplemental borings along the Preliminary Design Report (PDR) pipeline alignment and discharge site and to complete laboratory testing of soil samples collected. These supplemental borings are necessary to characterize subsurface soil conditions not covered by the 2008 investigation. Relevant existing soils data from the 2008 investigation will be used to the maximum extent practical to support activities. Estimated cost is $544,000.

Financial

1) Financial Modeling/Cost Allocation – Financial costs to the local users of the RRVWSP under various funding methods, project implementation scenarios, and cost-share scenarios will need to be evaluated. Financing strategies will be generated from these scenarios. The task order will assist GDCD in this effort. Estimated cost is $363,800.

> Status – The cost allocation model was refined to include a tiered allocation structure, which considers how project users will benefit from the project by assessing both water supply needs, as well as access to project water. Initial evaluations of project financing mechanisms and local debt options are taking place. In addition to a detailed review and incorporation of project capital costs into the overall financial planning effort, costs

associated with continued project operations, maintenance, and renewal for project long-term and recurring replacement assets are being incorporated.

2) Municipal Advisor – Ernst & Young Infrastructure Advisors (EYIA) was selected through an RFP process to provide municipal advisory services for the RRVWSP. In addition, Springsted will be retained on an as-needed basis for the issuance of bonds and related efforts. These firms have a fiduciary responsibility to GDCD. Estimated cost is $374,835.

Status – EYIA is refining a financial model using capital spend rates based on different financing scenarios. Currently, market risks are being calculated. A request for information is being developed to contact various large project contractors to gain market perspectives. EYIA's work is jointly occurring and being incorporated in modeling being completed by AE2S and Black & Veatch. The models will be reviewed by the LAWA Financial Advisory Committee.

Red River Valley Water Supply Project
Planning Level Budget
July 31, 2017

		July 2015 through July 2017		
Conceptual Engineering (July 2015 - June 2016)	**% Complete**	**Current Estimate**	**Actual July 2015 - July 2017**	**Estimated Outstanding Expenses**
Missouri River Intake Investigation	100%	$ 1,141,058	$ 1,141,058	$ -
Horizontal Collector Well	100%	$ 400,564	$ 400,564	$ -
Hydraulic and Pump System	100%	$ 478,455	$ 478,455	$ -
Pipeline Alignment	100%	$ 958,000	$ 958,000	$ -
Discharge System (Baldhill Creek)	99%	$ 805,988	$ 798,181	$ 7,807
Land Services	89%	$ 469,980	$ 420,439	$ 49,541
Needs Assessment	100%	$ 149,863	$ 149,863	$ -
Water Treatment Plant Analysis	99%	$ 438,731	$ 435,774	$ 2,957
Implementation Plan	84%	$ 190,000	$ 159,012	$ 30,988
Sub-Total	98%	$ 5,032,639	$ 4,941,346	$ 91,293
Preliminary Engineering (July 2016 - June 2017)				
Needs Assessment - amendment #1 & 2	100%	$ 294,604	$ 294,604	$ -
Missouri River Conventional Intake Design	92%	$ 999,578	$ 917,942	$ 81,636
Pipeline Alignment McClusky to Split & Land Services (ROE)	97%	$ 2,515,425	$ 2,428,608	$ 86,817
Pipeline Alignment Washburn-McClusky & Land Services (ROE)	96%	$ 593,683	$ 570,489	$ 23,194
Pipeline from Split to Baldhill Creek (RRV) Land Services (ROE)	85%	$ 574,783	$ 489,445	$ 85,338
Baldhill Creek Analysis Phase II	On Hold			
Land Services (Aerial)	100%	$ 259,984	$ 259,092	$ 892
Main Pump Station and Break Tank	88%	$ 997,267	$ 880,973	$ 116,294
StateMod	84%	$ 103,100	$ 86,868	$ 16,232
Pipeline Extensions	61%	$ 627,333	$ 381,142	$ 246,191
McClusky Canal Intake	On Hold			
Discharge Design (Sheyenne/Baldhill)	60%	$ 300,000	$ 179,970	$ 120,030
Water Treatment Plant, does not include pilot	On Hold			
Sub-Total	89%	$ 7,265,757	$ 6,489,133	$ 776,624
Administration, Legal and Financial				
Administration (cost & schedule, communications, LAWA)		$ 240,208	$ 113,854	$ 126,354
Legal	59%	$ 375,000	$ 219,755	$ 155,245
Financial Modeling	57%	$ 413,800	$ 234,806	$ 178,994
Municipal Advisor	68%	$ 374,835	$ 254,366	$ 120,469
Workflow Manager	89%	$ 150,000	$ 132,888	$ 17,112
Sub-Total	62%	$ 1,553,843	$ 955,670	$ 598,173
Total	89%	$ 13,852,239	$ 12,386,148	$ 1,466,091
90% State Cost Share		$ 12,467,015	$ 11,147,534	$ 1,319,482
10% LAWA Cost Share		$ 1,385,224	$ 1,238,615	$ 146,609

* 2015-/2017 state appropriation $12,359,000

Red River Valley Water Supply Project

2017-2019 Planning Level Budget

Work Task	Percent Complete	Total Amount	Amount Spent to July 2017	Remaining Amount
Preliminary Design				
Pipeline Amendment #1	0%	$ 920,648	**$ -**	$ 920,648
Discharge Amendment #1	0%	$ 317,000	**$ -**	$ 317,000
StateMod Amendment #1	0%	$ 111,736	**$ -**	$ 111,736
Subtotal	**0%**	**$ 1,349,384**	**$ -**	**$ 1,349,384**
Final Design				
Pipeline Final Design - 28 miles	0%	$ 3,840,000	$ -	$ 3,840,000
Trenchless Final Design	*Upcoming*	*$ 900,000*	*$ -*	*$ 900,000*
Discharge Final Design	*Upcoming*	*$ 300,000*	*$ -*	*$ 300,000*
Intake Final Design	*Upcoming*	*$ 2,000,000*	*$ -*	*$ 2,000,000*
Land Services	*Upcoming*	*$ 450,000*	*$ -*	*$ 450,000*
Geotechnical	0%	$ 544,000	$ -	$ 544,000
Sediment Transport	*Upcoming*	*$ 325,000*	*$ -*	*$ 325,000*
Trenchless Construction Phase Services	*Upcoming*	*$ 500,000*	*$ -*	*$ 500,000*
Discharge Construction Phase Services	*Upcoming*	*$ 500,000*	*$ -*	*$ 500,000*
Intake Construction Phase Services	*Upcoming*	*$ 500,000*	*$ -*	*$ 500,000*
Subtotal	**0%**	**$ 9,859,000**	**$ -**	**$ 9,859,000**
Financial, Administration, Legal, Etc.				
Financial Modeling/Cost Allocation	0%	$ 1,000,000		$ 1,000,000
Program Management Set Up	0%	$ 491,000	$ -	$ 491,000
Administration (communications, LAWA)	0%	$ 800,000	$ -	$ 800,000
Systems Outreach/Signups	*Upcoming*	*$ 550,000*	*$ -*	$ 550,000
Legal	0%	$ 500,000	$ -	$ 500,000
Subtotal	**0%**	**$ 3,341,000**	**$ -**	**$ 3,341,000**
Undesignated	*Upcoming*	*$ 2,450,616*	*$ -*	*$ 2,450,616*
Design & Adminstration Subtotal	**0%**	**$ 17,000,000**	**$ -**	**$ 17,000,000**
Construction				
Pipeline Trenchless Construction	*Upcoming*	*$ 7,000,000*	*$ -*	*$ 7,000,000*
Discharge Construction	*Upcoming*	*$ 2,000,000*	*$ -*	*$ 2,000,000*
Intake Construction	*Upcoming*	*$ 4,000,000*	*$ -*	*$ 4,000,000*
Construction Subtotal	**0%**	**$ 13,000,000**	**$ -**	**$ 13,000,000**
Total	**0%**	**$ 30,000,000**	**$ -**	**$ 30,000,000**

Lake Agassiz
Water Authority

P.O. Box 140, Carrington, ND 58421 Phone 701-652-3194 Fax 701-652-3195

June 27, 2017

Ms. Kellie Bergman
Chief, Water Control and Water Quality Section
U.S. Army Corps of Engineers
1616 Capital Avenue
Omaha, NE 68102

RE: Lake Audubon Water Control Plan

Dear Ms. Bergman:

As Chairman of the Lake Agassiz Water Authority (LAWA), I represent the stakeholders that will be paying the local cost share for the Red River Valley Water Supply Project (RRVWSP), which is a municipal, rural and industrial water supply from the Missouri River that will provide a supplemental water supply for up to one half of North Dakota's population. LAWA was specifically formed under state law as a political subdivision to represent the stakeholders in connection with the RRVWSP.

The U.S. Army Corps of Engineers (Corps) Water Control Plan and the recently announced proposed restriction on the differential head between Lake Audubon and Lake Sakakawea will create devastating water supply problems and will result in over a $171 million cost to North Dakota. In exchange for allowing the Federal government to flood prime, fertile river bottom land with Garrison Dam, the State of North Dakota was promised significant irrigation acreage and municipal water supplies, among other authorized uses. The Snake Creek Pumping Plant, Lake Audubon and the McClusky Canal are instrumental components needed to deliver water for the statutorily authorized purposes. If the Corps proposed restriction is enacted during times of drought, it would cut off all benefits provided by the Garrison Diversion Unit, which is specifically intended to provide a reliable water supply. In short, an agency policy change will completely terminate Congressionally authorized purposes that were promised to the State of North Dakota. This is simply unacceptable.

Because the McClusky Canal is authorized to provide municipal, rural and industrial water, the RRVWSP is working to procure use of McClusky Canal water as its preferred water supply option. The RRVWSP will safeguard the water supply for North Dakota communities and rural water systems in central and eastern North Dakota in times of drought, as well as promote industrial development. The Corps plan to restrict water availability during times of drought is unworkable and will violate contracts and statutory obligations. Droughts are precisely when the RRVWSP will be needed the most, so restricting the use of the McClusky Canal during droughts eliminates a $171+ million cost savings to the State of North Dakota for the RRVWSP, a portion of which is being paid by LAWA stakeholders. LAWA will explore all legal and political opportunities to halt the institution of this Corps restriction, as the risks and financial devastation to central and eastern North Dakota are far too great. If North Dakota were to experience a 10-year 1930s-type drought, an estimated $25 billion

negative economic impact is expected without the RRVWSP in place. This is an issue that LAWA and other North Dakota interests will stand firm on and litigate if necessary.

In addition to being the Chairman of LAWA, I also serve as the Mayor of Fargo. On behalf of Fargo residents, I can attest to the incredible need the City of Fargo will have for a reliable water supply during a drought. While there is another option to obtain Missouri River water directly from the river rather than in the McClusky Canal, that option is not nearly as economically feasible. By using the McClusky Canal, preliminary estimates suggest a cost savings of $171 million in construction costs and millions of dollars annually in operation and maintenance costs. If the McClusky Canal is not an option, the price of the RRVWSP may reach a level that makes it unaffordable for many of the communities it is intended to serve, leaving them without a reliable water supply in times of drought.

In short, North Dakota stakeholders, water users, irrigators, cities and rural communities were promised a water supply from the McClusky Canal through federal legislation and federal contracts. If there is a problem with the roadway/dam, it needs to be repaired. The Corps is under an obligation to repair this infrastructure. Do not compromise the economic vitality of central and eastern North Dakota due to the unwillingness by the Corps to maintain their infrastructure. The cost to North Dakota communities is too great. I strongly encourage the Corps to reconsider the proposed changes to the Lake Audubon Water Control Plan.

Sincerely,

Dr. Timothy J. Mahoney
Board Chair

NDSU NORTH DAKOTA STATE UNIVERSITY

GRANT APPLICATION TRANSMITTAL

This page indicates university endorsement of the referenced proposal and is intended to be submitted to the sponsor organization.

Sponsor Organization: Garrison Diversion Conservation District

Project Title: *The Economic Impacts of Changing Irrigation Water Availability From Lake Audubon*

Project Director: David Ripplinger

Department: Agribusiness and Applied Economics

Project Budget:

Total Direct Costs		$ 71,744
F&A/In-direct Costs		$ 10,762
F&A/IDC Rate	15%	
Total Requested		$ 82,506

Authorized University Representative:

Title: Amy Scott, Assistant Director; Jill Mackenzie, Award and Program Officer

Address: Office of Sponsored Programs Administration
North Dakota State University
NDSU Dept. 4000, PO Box 6050
Fargo ND 58108-6050

Phone: (701) 231-8045

Signature: Amy B. Scott

Date: 7-28-17

Any future notifications regarding this proposal, including award notices, should be directed to the authorized university representative at the address listed above.

Thank you.

THE ECONOMIC IMPACTS OF CHANGING IRRIGATION WATER AVAILABILITY FROM LAKE AUDUBON

A research proposal
submitted to
Garrison Diversion Conservancy District
Carrington, North Dakota

July 24, 2017

Submitted by
David Ripplinger
Dean A. Bangsund

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NDSU NORTH DAKOTA STATE UNIVERSITY

Background

Congress authorized the construction of six dams, including the Garrison Dam in North Dakota, on the Missouri River in 1944 for the primary purpose of flood control, irrigation, navigation, and hydropower. In exchange for the permanent loss of 300,000 acres of farmland, North Dakota was promised over a million acres of irrigation. The original plan was never realized, in part because the targeted lands are ill suited for irrigation.

A new plan that would take water from behind Garrison Dam to irrigate to other lands in North Dakota was soon developed and the Garrison Diversion Unit was created by Congress in 1965 to irrigate of 250,000 acres and to serve other purposes. Construction on the Garrison Diversion progressed from 1968 to 1984 when work was halted due to environmental concerns, difficulties with land acquisition, irrigation economics, and objections from Canada. In 1986, the plan for the Garrison Diversion was altered again, this time limiting irrigation to 130,940 acres.

In 2005, Lake Sakakawea the reservoir formed behind the Garrison Dam dropped to 1,806 feet. At the same Lake Audubon, its sister lake located on the other side of an embankment, stood at 1,847 the elevation required to maintain flow throughout the McClusky Canal that provides water for irrigation and other purposes. The difference in elevation made evident to the Army Corps of Engineers that relief wells designed to relieve the resulting differences in pressure were not performing as designed and that the embankment was at risk of failure.

While irrigation was a primary purpose of the act that created the Garrison Dam, it wasn't until the Bureau of Reclamation conceded permitting authority to the Garrison Diversion Conservation District in 2011 that long-term permitting was possible. Today, the McClusky Canal has the potential to irrigate 51,700 acres and the Garrison Diversion Unit is under contract to provide 24 inches of water to 5,900 acres of cropland in central North Dakota.

The Army Corps of Engineers, which manages the Missouri River, its dams, and consequently the elevation of Lakes Sakakawea and Audubon, has stated that its primary responsibility is to ensure the safety of the embankment and that Lake Audubon may be drawn down to 1837, a level where water no longer flows into the Canal.

Drawing Lake Audubon down to an elevation of 1837 or lower would prevent the irrigation of currently irrigated cropland. The threat of loss of irrigation water would also likely reduce the expansion of irrigated acres along the McClusky Canal, maintenance of existing irrigation systems, and have negative impacts to processors who source crops from the irrigated acres, as well as other negative impacts that would ripple throughout the regional economy.

Objectives:

The objective of the research is to estimate on-farm and regional economic impacts of changes in irrigation water availability from Lake Audubon including:

1) On-farm returns to irrigated and non-irrigated crop production, existing and new investments in irrigation, and maintenance to existing irrigation systems under different water availability scenarios;
2) Processor impacts – including regional potato processors and corn-ethanol refineries that source supplies from the region; and
3) Regional economic impacts.

Scope of Work:

Stochastic budgets for current and feasible non-irrigated and irrigated crops will be created. Yield will be conditional on water availability. Precipitation/ground water availability will be modeled using historical data. Irrigation water availability will vary by scenario. Crop budgets will be used to estimate expected returns to irrigated and non-irrigated crop production. Simulation will be used to estimate returns to existing irrigated production, irrigation maintenance, and returns to new irrigated acres.

Supply risk to regional processors will be modeled by simulating regional crop production for corn, potatoes, and beets under different precipitation/ground water events and irrigation water scenarios.

Regional Economic Impacts

Regional economic assessments typically examine economic activity from a project, program, policy, or activity by measuring direct and secondary impacts. Direct impacts are those changes in output, employment, or income that represent the initial or first-round effects of a project, program, or event. Secondary impacts (further categorized into indirect and induced effects) result from subsequent rounds of spending and re-spending within an economy.

Direct impacts are typically measured as injections (reductions) of money within a specified economy. In the case of a loss of irrigation, direct impacts could include the following:

1) change in production input purchases and net returns to producers and landowners
2) reduction in crop volumes for local grain handling facilities
3) reduction in crop volumes for transportation of crops from grain handling facilities to end markets
4) disruptions, reductions, or loss of regional crop processing activities providing sufficient causality of those outcomes can be linked to reduction in crop availability, quality, or quantity due to a loss of irrigation

The direct impacts (i.e., the regional estimates of the net change in expenditures and returns) will be aggregated into economic sectors and represent input into the IMPLAN

modeling system. IMPLAN is an input-output model that traces linkages among sectors of an economy and calculates various forms of business activity resulting from a direct impact in an economic sector. Those changes in business activity can be further separated into indirect and induced effects, and both types of secondary economic activity will be included in the economic impacts.

An economic impact analysis will be conducted for a multi-county region comprising the major trade centers in the area and include a state-level assessment. Both the regional and state-level assessment will include estimates of the change in economy-wide personal income, gross business volume, direct impacts, secondary impacts, employment and state-level tax collections.

Timeline:

The 9-month project will proceed according to the following approximate timeline.

August 1, 2017 – initiate work
Activities:
September 1, 2017 – provide first update to GDCD
Activities:
November 1, 2017 – provide second update to GDCD
Activities:
January 31, 2018 – submit draft report to GDCD
Activities: complete internal and external review of analysis
April 30, 2018 – submit final report to GDCD

Deliverables:

The research team will place findings of the project into a departmental research report. Study sponsors will be included in the review process for the report. It is anticipated that excerpts from the report will serve as briefing materials by study sponsors.

The research team also will be available to make an oral presentation of research findings to the study sponsors upon request.

Personnel:

Dr. David Ripplinger is an Assistant Professor and Bioenergy/Bioproducts Economist in the Department of Agribusiness and Applied Economics at NDSU. His degrees include a M.S. degree in Agricultural Economics from Iowa State U. and a Ph.D. in Transportation & Logistics from NDSU. Ripplinger's research focuses on production and marketing economics. His most recent work involved economic, financial, and environmental analyses that support the commercialization of new bioenergy pathways and existing pathway profitability. He has investigated the economics of new industrial crop production and the economic impact of bioenergy activity in the Northern Plains.

Dean Bangsund is a Research Scientist in the Department of Agribusiness and Applied Economics at North Dakota State University. He has B.S. and M.S. degrees in Agricultural Economics from NDSU. Over the past 25 years, Bangsund has been involved with research and outreach projects pertaining to economic and fiscal impact assessment, community economic development, natural resource management, and rural socio-economic issues pertinent to the Great Plains region of the United States. Bangsund has contributed to the successful completion of nearly 85 grant and contract projects, been an integral part of numerous multi-disciplinary research teams, and has authored over 230 professional papers and articles.

Budget Narrative

6 months of a research assistant professor effort are budgeted at $28,000 salary and $11,956 fringe (at a 12-month salary of $56,000 and fringe rate of 42.7 percent). Research scientist effort is budgeted at $22,000 (4.5 months of research scientist salary @ $4,889/month) and $8,470 fringe benefits (rate of 38.5%).

Travel to present preliminary and final results is budgeted at $1,068. This includes 800 miles of vehicle travel at $.535 per mile, four nights lodging at $90 per night, and 8 days per diem at $35 per day.

$250 is budgeted for printing 50 copies of the final report at $5 per copy.

Indirects are charged at the sponsor's 15% rate and total $10,762.

The total cost of the project is budgeted at $82,506.

Cost-Basis Budget:

Salaries & Wages			Requested Funds
Full time faculty			$28,000
Fringe Benefits			$11,956
Full time staff, research assoc., techs, post docs			$22,000
Fringe Benefits			$8,470
Undergraduate student			
Fringe Benefits			
Part time staff			
Fringe Benefits			
Total Salaries & Fringe Benefits			$70,426
Operating Expense			
Tuition or Texbooks			
Travel			$1,068
Material and Supplies			
Postage			
Printing			$250
Repairs			
Subcontracts			
Rents & Leases			
Expendable Equipment			
Operating Fees & Services			
Professional Fees & Services			
Other Expense			
Total Operating Expense			$1,318
Total Direct Costs			$71,744
Facilities & Administrative % TDC	15.00%	IDCs	$10,762
Total Cost			$82,506

LAKE AGASSIZ
WATER AUTHORITY

2017 Budget Analysis
For the period of January 1, 2017 - July 31, 2017

Income	**2017 Budget**	**Actual as 07/31/17**	**Balance of Budget**
Dues Income	$ 27,000.00	$ 32,450.00	$ (5,450.00)
Interest Income	$ 50.00	$ 38.51	$ 11.49
Miscellaneous	$ -	$ -	$ -
Cost Share/Development Agr.	$ 1,200,000.00	$ 529,250.67	$ 670,749.33
Total Income	$ 1,227,050.00	$ 561,739.18	$ 665,310.82
Expenses			
Dues Expenses	$ 1,280.00	$ 1,280.00	$ -
Accounting	$ 5,000.00	$ -	$ 5,000.00
Directors Expense	$ 100.00	$ -	$ 100.00
Insurance	$ 550.00	$ -	$ 550.00
Service Fees	$ 66.00	$ 38.50	$ 27.50
Water Quality Sampling	$ 5,500.00	$ -	$ 5,500.00
Engineering	$ 1,233,657.00	$ 415,748.42	$ 817,908.58
Adm/Legal/Financial	$ 70,000.00	$ 31,664.42	$ 38,335.58
Total Expenses	$ 1,316,153.00	$ 448,731.34	$ 867,421.66

Account Activity		
Beg. Bank Balance 1-1-17		$ 313,250.51
Income Received		$ 561,739.18
Total Funds Available		**$ 874,989.69**
Service Fees	$ 38.50	
#1130 ND Water Coalition	$ 1,000.00	
#1131 ND Rural Water Systems	$ 280.00	
#1132 Garrison Diversion	$ 220,116.01	
#1133 Garrison Diversion	$ 227,296.83	
Total Expenses	**$ 448,731.34**	
Ending Bank Balance		**$ 426,258.35**