Northeast South Dakota Water Pipeline Project
An Update to the COVID Relief Liaison Committee
November 18, 2021
Presented by Joe Gaa, Aberdeen City Manager

1. Overview
    a. Pre-identified City of Aberdeen Priority Needs
        i. Water Plant Improvements ($35M) and New Wastewater Plant ($55M)
        ii. Economic Growth- Value Based Agriculture- Demkota Beef, AGP
    b. Lost Economic Development Opportunity in 2020- Wet Mill (Corn)
    c. Multiple Source Water Studies Completed Over the Years

2. Feasibility Study- Missouri River as the Sole Water Source For Aberdeen
    a. Access to the MO River for the Dakotas has not been as planned
    b. Water rights to the MO River are becoming more urgent
        i. Time is of the essence for both east river and west river projects
    c. The Feasibility Study identified additional capacity ($335M)
        i. WEB, BDM, Economic Development

3. Making the Northeast South Dakota Pipeline Project a Reality
    a. Possible Partnership with WEB- Intake Structure
    b. Possible Partnership with WEB and BDM- Providing Water to BDM
    c. These efforts could allow for the consolidation of ARPA Fund Requests
    d. Looking at other opportunities to work together for redundancy efforts
        i. Redundancy vs. Duplication
    e. Without State and Federal Dollars- this project is not possible
        i. ARPA Funds, Infrastructure Allocations
    f. Why do this at all?
        i. Water is a Critical Need for Life
        ii. Economic Development and Growth

4. Questions/Comments

Thank you for your time!

EXECUTIVE SUMMARY

A. Introduction

In June 2021 the City of Aberdeen, SD issued a Task Order to Bartlett and West, Inc. for the stated purpose of the … 'preparation of a Final Engineering Report (FER) for a Raw Water Intake and Transmission Pipeline from Lake Oahe near Mobridge, SD to the City of Aberdeen's Water Treatment Plant…'. The Report was to include a technical and economical evaluation of the facilities and services which would be needed to accomplish that effort. Although there are identified many uncertainties and possible obstacles to the Project (such as funding levels, permitting requirements, possible environmental requirements, and ultimate water quantities that may be delivered), there are also identified significant opportunities, that of provision of a dependable, drought resistant, and easily treated water supply, and an opportunity to assist in the growth and economic expansion of both the City and the northeast portion of the State of South Dakota.

The Report is presented in nine (9) Sections which includes the discussions relative to the need for the Project, the current and expected water use of the City, the current and expected water treatment requirements relative to the Project, applicable facilities, and infrastructure, a proposed and preferred project alternative, cost estimates, annual operating budgets, project funding and phasing discussion, and recommendations for continued pursuit of the Project.

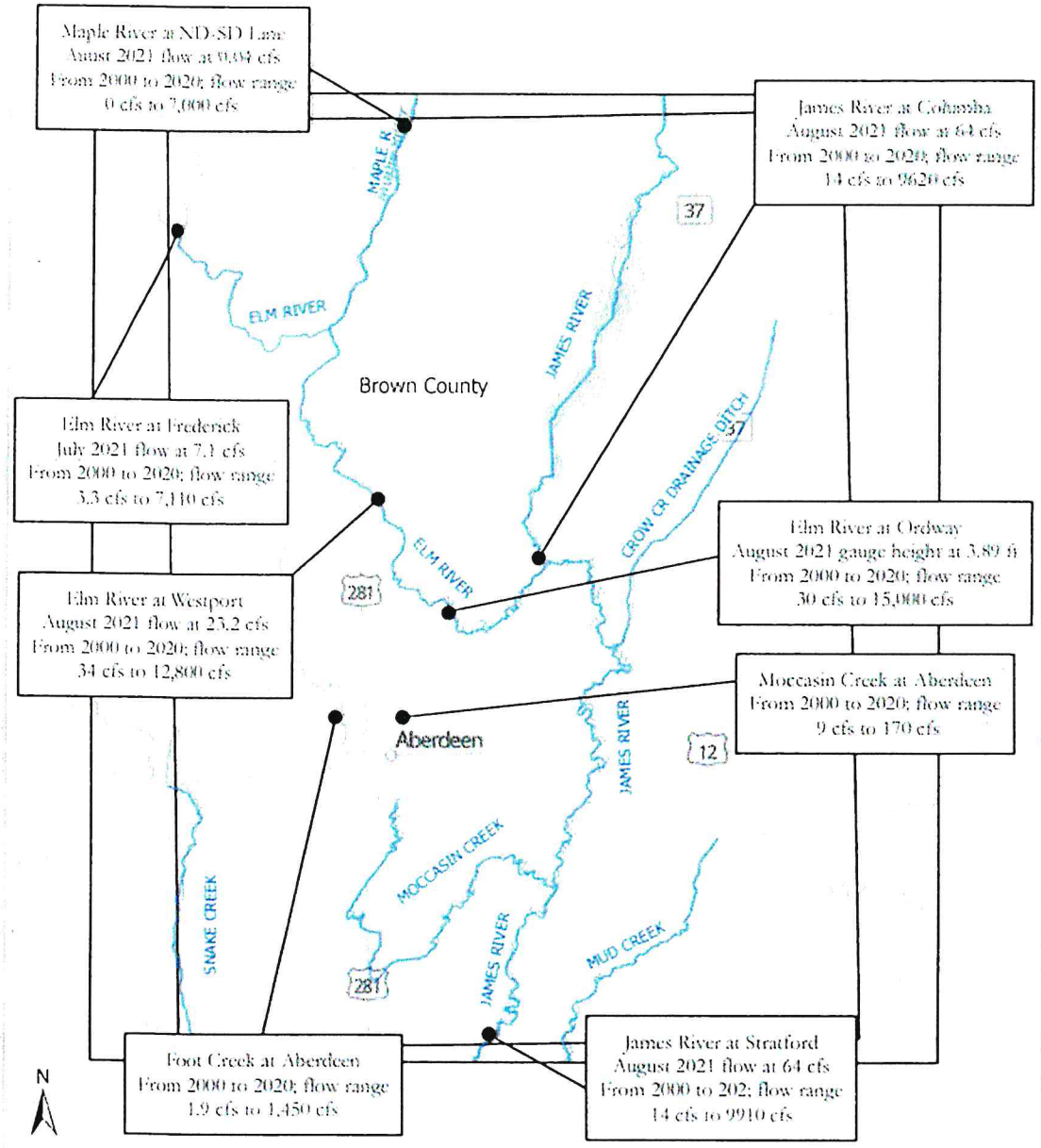
B. Existing and Future Conditions

Currently the City relies on permits for surface water from the Elm Creek and associated surface water bodies in the area. The City does have some ground water permits also which are used to supplement the supply into the City as may be needed. The ground water permits allow the City to draw and use approximately 5.5 million gallons per day. The surface water permits allow the City to draw and use approximately 19.2 million gallons per day. Currently the City has peak consumptive water use that approaches 10 million gallons per day.

However, the current sources are susceptible to treatment issues during low river flows and in times of drought; in recent past years, the flows of the Elm River have approached very low levels which are mitigated by the City's use of storage reservoirs. In the drought of the 1930's the Elm River showed near zero flow at certain times.

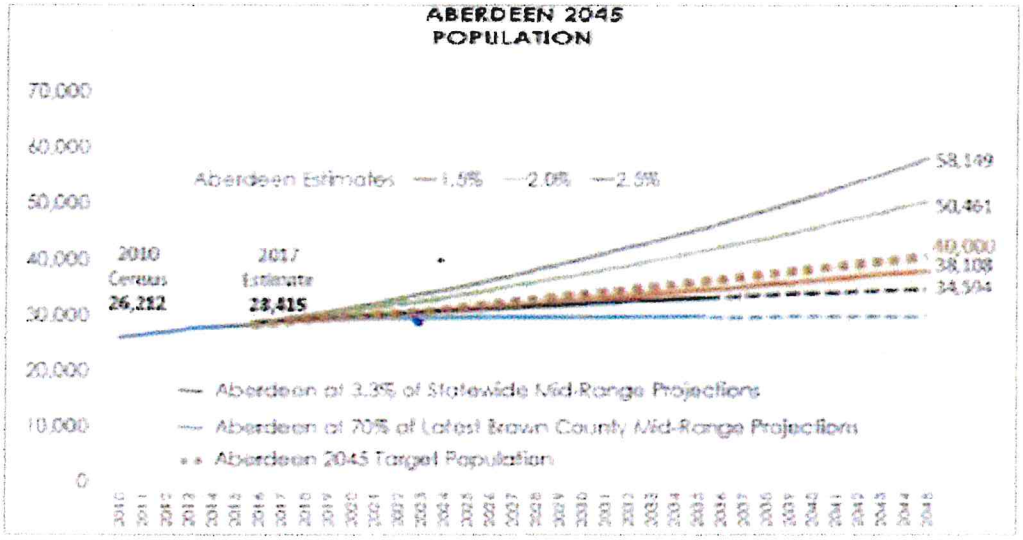
Figure III.B.2.1., excerpted from the Report, shows the location of area surface water sources (note: the City relies mostly on flows from the Elm River, and ground water which can be pumped to supplement the Elm).

Figure III.B.2.1. Location of Surface Water Sources



Additionally, the City is showing steady and inclining growth rates. Figure II.B.1., excerpted from the Report, shows the current City population, and expected growth rates:

Figure II.B.1 Long Term Population Projections



(from Aberdeen Growth Plan, 2019)

C. Need For Project and Economic Growth Opportunities

The City believes this Project has significant potential to resolve current City needs as well as area wide (northeast area of the State) water needs. The following key points are relative to the issue of need and opportunity of this Project:

1. The water and wastewater systems for the City were designed years ago for a residential community of smaller population with no significant industrial water users and little room for growth. To a large extent that was done based on limitation of available water in the area.
2. In recent years, the City has added two large water users in the areas of value-based agriculture. Demkota (beef) and AGP (soybeans) have had success and are poised for growth in the near future. To facilitate that growth, the City must increase the capacity in both water production and wastewater treatment.
3. In 2020, a third opportunity in value-based agriculture that would have located on a prime location west of Aberdeen (in Brown County) was lost due to insufficient water and wastewater capacity.
4. Due to the variety and quantity of products grown and raised within a 250-mile radius, Aberdeen is a prime location for value-based agricultural businesses. Such businesses are typically large water and wastewater users.
5. Aberdeen is not alone in the opportunity for growth in Northeast South Dakota. Other communities with similar opportunities also have the same challenges accessing the quality and quantity of water needed to attract economic development.

For these reasons, the City has specifically directed that this Report examine options which not only address and resolve the water needs of the City (relative to growth, and economic development) but also to include analysis for providing water to other third parties in the area (public and private) which need water for their own growth and economic development. Those other parties may include area water districts (specifically

WEB Water Development and BDM Rural Water System) and area towns, communities, and private business enterprises (specifically agricultural value-based businesses).

Important to this issue of a water supply for the City it is important to note that the City has no additional source water to accommodate any significant growth or to patriciate in any area wide economic development opportunities, nor does it appear that the adjacent WEB Water Development System has that ability. This Project allows and creates a partnership between both the City and WEB which will bring a significant and dependable water supply into the North East part of the State and allow both entities the ability to accommodate their increased water needs and to each pursue and assist area wide economic development, particularly in the area of value added agricultural activities.

This Report was developed and paid for by the City of Aberdeen and while some potential partners and funding sources are identified in the Report, no commitments or agreements have been made.

This Project enjoys and has obtained strong City leadership support as evidenced by the following statements:

'. . . A dependable and adequate water supply is critical, not only for our increasing population of our City, but also to support commercial and industrial development opportunities and agricultural processing needs of the area . . .'

Travis Schumaman, Mayor, City of Aberdeen, SD

'. . . this project has significant potential to add partners to share in the benefits it will bring to the north central portion of our State and to encourage value added agricultural development for the entire region. . .'

Joe Gaa, City Manager, Aberdeen, SD

'. . . our current water supplies are susceptible to drought and changing weather patterns and conditions; the Missouri River is our best and only option for a long term and reliable water supply for our City and our area . . .'
Robin Bobzien, City Engineer, Aberdeen, SD

Based on recent discussions by the City with other entities of the area who use or potentially could use a more dependable or a greater supply of water for their needs the City has pursued a Project with a goal of including such flows as follows:

1. As noted, the current City sources are not envisioned to be capable of providing the flow of water needed by the City for long term growth and for City participation in area wide value based agricultural growth opportunities. For that reason the primary purpose of the Project is for delivery of 16 MGD for the City. That is the Option 1 as discussed in the Report. However the City also believes this Project has the ability to be planned and constructed to accommodate other needs of the area also. Discussion of those needs follow.
2. The City is aware that the WEB system has water needs. Therefore for the WEB System, all options of this Project include provision of 12 MGD for them, to be delivered as raw water at or near the existing WEB Water Treatment Plant (near Mobridge). WEB has made numerous public statements, and other statements to the City, of their shortage of water supply for serving the growth they are seeing in their own system as well as a lack of water to allow them to enable and participate in the various value added agricultural businesses (crop processing facilities) which are considered for the area.
3. The City is aware that there are other water needs in the area. For other users in the area, other than the City and WEB, this Project is envisioned for an ability to have options of delivery to include significant volumes of water for their needs. A base flow of 16 MGD (designated as Option 1 in the Report) is reviewed for the City (which is in addition to the 12 MGD already included for WEB as may be needed by them). In addition to this Option 1, a review is also made with additional flow options being then considered for the area needs. Those additional water flows include an added 8 MGD (designated as Option 2 in the Report, which is 16 MGD for the City and the added 8 MGD for other area users). Additionally, an analysis of an added 16 MGD (designated as Option 3 in the Report), which is 16 MGD for the City and the added 16 MGD for other area users. Both Options 2 and 3 continue to include the 12 MGD flow allowance to WEB in addition to other flows as noted.

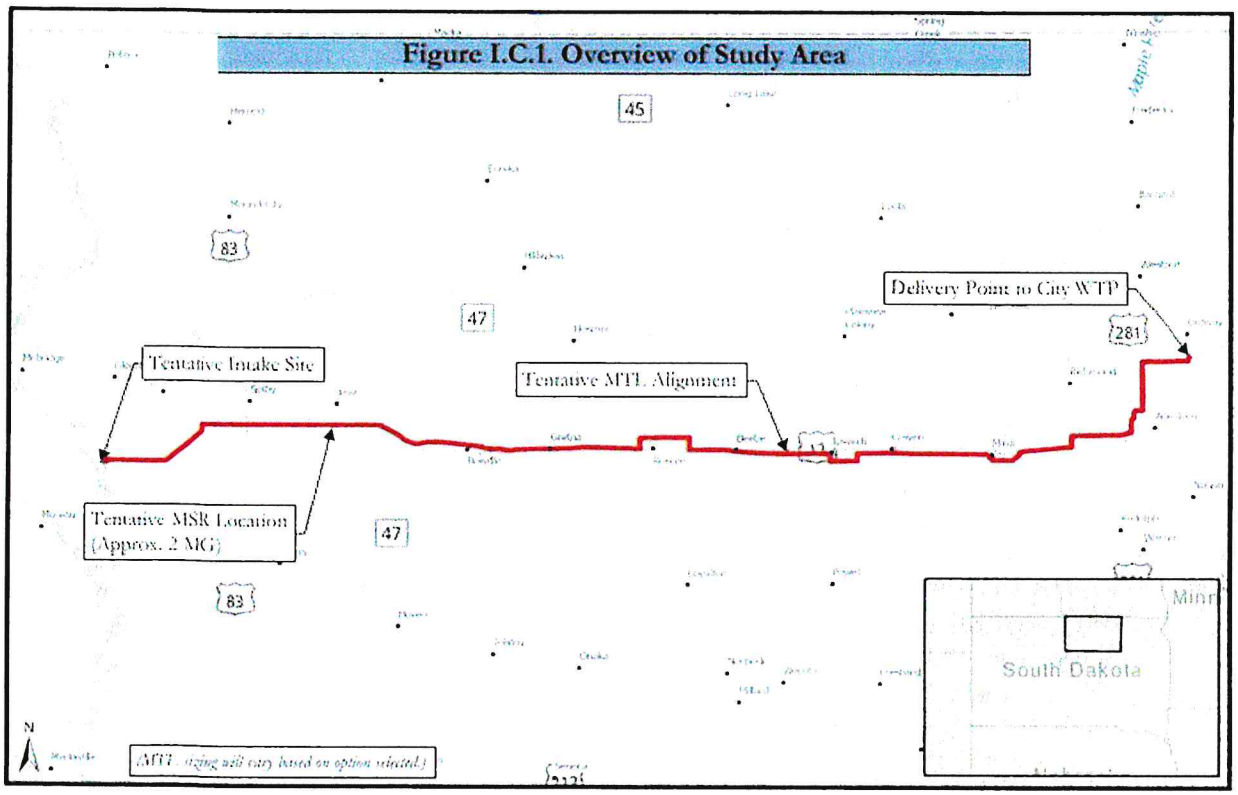
It should be noted that the Report will demonstrate that the most cost feasible Option, and the Option that provides the most benefit for the City, WEB, and for other entities of the North East portion of the State is that Option as identified as number 3. It is Option 3 which is the preferred Option being pursued by the City.

D. Proposed Facilities

The proposed project consists of the following primary features:

- An Intake facility and Main Pump Station, to be located at or near the existing WEB Intake Site on Lake Oahe.
- A Main Transmission Pipeline, sizing to be determined once a final flow rate is determined, to follow from the Intake location to the City Water Treatment Plant location.
- A Main Storage Reservoir to be located east of Selby, SD.
- Secondary Storage Reservoir(s) to be located near the City Water Treatment Plant.
- Associated facilities to include control and metering stations, pressure reducing stations, cathodic protection on the pipeline, telemetry monitoring equipment, and other related pipeline and system features.

Figure I.C.1., excerpted from the Report, provides the tentative location of such facilities:



The major cost component of this Project relates to pipe sizing and pipe material. Based on performance criteria and cost criteria, the recommended pipe for the Project will be Cement Mortar-lined Steel Pipe, subject to revision if costs of other acceptable pipe materials become more competitive.

Sizing of the pipe and other proposed facilities of this Project revolve around three options of service as follows (note all Options include a flow of 12 MGD for WEB use, not shown in the figures below):

- Option 1, which is a maximum daily flow rate of 16 Million Gallons Per Day

- Option 2, which is a maximum daily flow rate of 24 Million Gallons Per Day (16 MGD to used by the City, the added 8 MGD then available for other area needs)
- Option 3, which is a maximum daily flow rate of 32 Million Gallons Per Day (16 MGD to be used by the City, the added 16 MGD then available for other area needs).

Based on the similar pipe sizing required for both Options 1 and 2, and resultant very low difference in cost between those two Options, Option 1 is not considered as a preferred alternative relative to sizing the project for flow capacity. Options 2 and 3 are considered the preferred alternative flow sizing for the Project.

Note that each of the Options also allow for a 12 Million Gallon per Day delivery to the WEB Water Development System, should WEB desire to have access to a larger water delivery for their system. The WEB flow is not a part of the flows shown for each option.

Based on those flow requirements, Table V.A.2.1., excerpted from the Report, provides the water needs, and infrastructure features of this Project:

Table V.A.2.1. Project Preferred Alternative

Water Demands	Project Option 1	Project Option 2	Project Option 3	Notations
Flow for WEB	12 MGD	12 MGD	12 MGD	WEB has noted they would like a redunant water supply; this Project provides that redundancy; note that while WEB has supported this Project there is yet no agreement in place for joint use.
Flow for City	16 MGD	16 MGD	16 MGD	Reference Table IV.C.1.
Flow for TPU	0 MGD	8 MGD	16 MGD	Reference Table IV.C.1.
Total Flow w/WEB	28 MGD	36 MGD	44 MGD	Reference Table IV.C.1.
Total Flow w/o WEB	16 MGD	24 MGD	32 MGD	Note that if this Project does not include WEB then the selected intake site may change; see discussion Part B of this Section. Note: the cost differnce between Options 1 and 2 is not significant, Option 1 is not considered as a preferred flow option.
Project Features				
Intake	Site 2: At/near WEB Intak	Site 2: At/near WEB Intak	Site 2: At/near WEB Intak	Alternative is the Blue Blanket site; see Part B of this Section
Main Pump Station	Site 2: At/near WEB Intak	Site 2: At/near WEB Intak	Site 2: At/near WEB Intak	Alternative is the Blue Blanket site; see Part B of this Section
Treatment	N/A	N/A	N/A	All users, including WEB as applicable, receive raw water
Main Transmission Pipeline	Cement Mortar Lined Steel Pipe	Cement Mortar Lined Steel Pipe	Cement Mortar Lined Steel Pipe	Subject to discussion of Part F of this Section
Main Storage Reservoir	2 MG	3 MG	4 MG	Approximately 3 hour supply to end user(s)
Pressure Reducing Stations	2	2	2	Subject to discussion of Part E of this Section
Master Meter Stations	3 total	3 total	3 total	Subject to discussion of Part G of this Section
Air Valves	est. 1 per 3 miles	est. 1 per 3 miles	est. 1 per 3 miles	Subject to discussion of Part G of this Section
Blowoff Assemblies	est. 1 per 5 miles	est. 1 per 5 miles	est. 1 per 5 miles	Subject to discussion of Part G of this Section
Inline Valves	est. 1 per 5 miles	est. 1 per 5 miles	est. 1 per 5 miles	Subject to discussion of Part G of this Section
Secondary Storage Reservoir(s)	4 MG	6 MG	8 MG	Approximately 6 hour supply to end user(s)
Road, Stream, Utility Crossings	Per Permits	Per Permits	Per Permits	Subject to discussion of Part H of this Section
Right of Way	R/R plus Private	R/R plus Private	R/R plus Private	Subject to discussion of Part I of this Section
Cathodic Protection	yes	yes	yes	As noted in Section IV of Report
Telemetry	yes	yes	yes	As noted in Section IV of Report

E. Project Costs

The construction and non-construction costs of the Project vary widely depending on both the delivered flow to the City, and the pipe material selected, as well as funding agency project requirements. As noted, the lowest cost pipe material is Cement Mortar-lined Steel Pipe and that is the preferred and recommended pipe material for this Project. The flow rate is reviewed relative to three levels of delivery to the City as follows:

- **Option 1; a delivered flow of 16 Million Gallons per Day**, with an additional 12 MGD for WEB as they may opt to participate.
- **Option 2; a delivered flow of 24 Million Gallons per Day**, with an additional 12 MGD for WEB as they may opt to participate, and with the extra 8 MGD to be available for other area needs.
- **Option 3; a delivered flow of 32 Million Gallons per Day**, with an additional 12 MGD for WEB as they may opt to participate, and with the extra 16 MGD to available for other area needs.

The varying flow rates reflect the desire and recognition by the City that this Project is most beneficial and most feasible if additional water were included to accommodate not only the City needs, but the needs of other public and private water users of the northeast portion of the Sate. Therefore Option 1 is for only the City current and future needs, Option 2 includes the City plus water delivery opportunity for other third-party users, and Option 3 is an expansion of Option 2 and provides longer term planning on water needs of the entire area.

A cost comparison between the pipe options and the flow options is provided by Table VI.G.2.1, as excerpted from the Report:

Table VI.G.2.1 Total Project Cost Comparisons

Pipe Material	Option 1 16 MG Delivery	Option 2 24 MG Delivery	Option 3 32 MG Delivery
Ductile Iron Pipe	$ 348 M	$ 351 M	$ 427 M
Cement Mortar Lined Steel Pipe	$ 271 M	$ 298 M	$ 334 M
Polyvinyl Chloride Pipe	$ 407 M	$ 454 M	N/A
Altantic Coastal Pipe	$ 291 M	$ 291 M	$ 292 M

The Table demonstrates why Option 1 is not considered the best choice as the Project flow rate and why Cement Mortar Lined Steel Pipe is considered the best cost selection. As can be noted the Option 1 and Option 2 total costs are all very similar (except for the PVC pipe option); therefore, for very relatively very little additional cost, a Project can be constructed at twice the flow ability as compared between Option 1 and Option 2. Also, as can be noted, the Cement Mortar Lined Steel Pipe shows the best and lowest project cost, (except for Atlantic Coastal Pipe) regardless of which flow option might ultimately be pursued.

Note that although the Atlantic Coastal Pipe shows a lower cost than the other listed pipe materials, it is not recommended as the preferred pipe option at this time pending more review of availability and acceptability of such pipe for this Project.

It is important to note the relatively low-cost increase in the total Project Costs as the Project is reviewed in terms of an Option 1 cost (at $271M), to an Option 2 cost (at $298M), to an Option 3 cost (at $334M). For relatively minor increases in total project costs the project water flow and delivery becomes significantly increased. As example, the increase in cost from Option 1 to Option 3 is approximately 23%, but the flow is doubled. For that reason, Option 3 is the most cost effective, and only practical way to provide for both the current and future needs of the City, and also the needs of other water users and entities of the North East part of the State.

F. Annual Operating Budget

The annual operating budget will not be changed significantly if the ultimate pipe material selection changes; however, the budget is sensitive and will react to varying flow conditions. Varying flows will directly impact the need and use of power at the Main Pump Station, which is the most significant operating expense this Project will have to accommodate.

Table VII.E.1., excerpted from the Report, shows the estimated annual operating budget between the three flow options, and the impact and large part the power costs play in all such budgets:

Table VII.E.1. Summary of Project Annual OMR Costs

	Option 1	Option 2	Option 3	Notation
Fixed Costs:				
* System Management (by existing senior City Staff w / limited outside professional services)	$70,000	$70,000	$70,000	Assume time required is part time; duties are Project oversight responsibilities and State/Federal compliance with permits and funding requirements
* System Travel	$20,000	$20,000	$20,000	State and Federal meetings
* System Operator	$65,000	$65,000	$65,000	Assume a full time certified operator for daily monitoring and operation of the system.
* System Administration	$20,000	$20,000	$20,000	Assume part time in-office administration
Subtotal	$175,000	$175,000	$175,000	
Add 30% contingencies	$52,500	$52,500	$52,500	For benefits, health insurance, training, paid time off, retirement, etc.
Total Estimated Fixed Costs	$227,500	$227,500	$227,500	
Special Project Costs:				
* Annualized Vehicle	$10,000	$10,000	$10,000	Assume one service vehicle
* Vehicle Operating Costs	$8,000	$8,000	$8,000	Oil, gas, incidental maintenance
* Supplies and Tools	$3,000	$3,000	$3,000	Incidental tools, office supplies, printing, etc.
* Power, Minor Stations	$10,000	$10,000	$10,000	Heat and lights at PRV and Control Stations
* Power, Main Pump Station	$659,300	$1,099,700	$1,429,400	Pump Operations; heat and lights
* Telemetry Operations	$5,000	$5,000	$5,000	Misc. Electrical charges
* Cathodic Operations	$10,000	$10,000	$10,000	Misc. Electrical charges
Subtotal	$705,300	$1,145,700	$1,475,400	
Add 20 % for Contingencies	$211,590	$343,710	$442,620	For minor System repairs
Total Estimated Special Costs	$916,890	$1,489,410	$1,918,020	
Total All OMR Costs/YR	$1,144,390	$1,716,910	$2,145,520	Not inclusive of catastrophic repair costs
Cost Per Million Gallons/Yr	$196	$196	$184	

G. Project Funding and Phasing

This Project will likely have to rely upon some combination of both State and Federal financing and funding programs.

Table VIII.D.1, excerpted from the Report, provides a summary of available funding programs and a notation of the likely applicability of each to this Project:

Although all noted funding sources will be examined further, the initial focus will be on and with State funds through the appropriate SDANR Programs and with Federal funds through the appropriate EPA and USBR Programs.

Table VIII.D.1. Summary of Funding Options

Sources	Discussed in Part:	Administering Entity	Typical Level of Dollar Involvement	Loan or Grant	Notation
Federal Sources:					
USDA WEP Program	VIII.B.1	USDA RUS	High Level Can be up to $38M	both	Funds most likely to be loans; may be a viable source over a phased period of time
EPA WIFIA Program	VIII.B.2	EPA/Denver	High Level Can be up to 80% of Project	loan	Funds will be by loans; may be a viable source over a phased period of time
EPA STAG Program	VIII.B.2	EPA/Denver	Low Level Can be up to $200K	grant	Project unlikely to qualify
USBR Title 1	VIII.B.3.	USBR/Bismarck	Low Level		Program is currently unfunded, if funded may be applicable for planning and study work
USBR Direct Appropriation	VIII.B.3.	USBR/Bismarck	High Level Can be up to 75-85% of project	grant	Will require Congressional approval, will add time and expense to Project; even if authorized may be a likely 20 year wait on funds
Federal Relief Legislation	VIII.C.6	undetermined	High Level Can be up to 50% of project	grant	Likely to be administered by the State
State Sources:					
State Water Facilities Plan	VIII.C.2.1	SDDANR	Low Level	both	Project unlikely to fit in this Program due to funding needs
State Water Resources Management System	VIII.C.2.2	SDDANR	High Level	both	Project likely to qualify
Consolidated Water Facilities Program	VIII.C.2.3	SDDANR	Low Level	both	Project unlikely to fit in this Program due to funding needs
Drinking Water State Revolving Loan	VIII.C.2.4	SDDANR	High Level	loan	Project likely to qualify
Small Community Planning Grants	VIII.C.3	SDDANR	Low Level	grant	Project unlikely to fit in this Program due to funding needs
Community Development Block Grants	VIII.C.4	Governors Office	Low Level	grant	Project unlikely to fit in this Program due to funding needs
Private Sources:					
Private Bonding	VIII.C.5	Private	Low Level	loan	Unlikely source due to cost of money

With proper and aggressive funding this Project may have the ability to proceed on a 'fast track' schedule; that schedule would be structured to accommodate full planning, design, and construction of the Preferred Alternative for this Project, regardless of flow Option selected, in an 8–10-year time period. A longer-term schedule, if funding delays or other project issues arise, puts this Project on a near 20-year completion schedule.

For maximum cost benefits relative to Project capacity, and for the accommodation of the needs of not only the City, but also WEB, and other area wide water users and entities, the Option 3 is the Preferred Alternate. The City believes that a formula for cost participation will be needed to include both State and Federal funding; that formula will need to include approximately State and Federal program grant funds of approximately 70% in total, with the balance being long term financing. The long term financing is anticipated to be shared by the recipients of the water but will be managed as a City obligation. The City also believes it is important to pursue a fast track schedule for the Project to control cost escalations.

A fast-track project schedule, showing all anticipated project planning, design, and construction activities, is shown in VIII.E.1.1, as excerpted from the Report:

Figure VIII.E.1.1. Fast Track Schedule of Project

	Significant Assumptions	Cost Notations
Low-Cost Effort Moderate Cost Effort High-Cost Effort Highest Cost Effort	1. No extensive environmental work would be required. 2. A ROW acquisition process could be achieved in a timely manner. 3. No third party lawsuits would interrupt the Project timeline. 4. Adequate and timely State or Federal Funding could be obtained. 5. Facility locations, particularly the Intake Site and Main Storage Site can readily be obtained.	1. Costs are Based on Mortar Lined Steel Pipe, Option 3

	YEAR 2022		YEAR 2023		YEAR 2024		YEAR 2025		YEAR 2026		Additional Wrap-up Years	Total Budget per Task
	First Half	Second Half	First Half	Second Half	First Half	Second Half	First Half	Second Half	First Half	Second Half	2027-2028	
Planning and Pre-Design Activities												
1. Formation and Use of Planning Team	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$20,000	$70,000
2. Distribution of Project to Funding/Regulatory	$1,000											$1,000
3. Internal City Discussion of Funding Options	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000						$6,000
4. Project Governance and Setup	$2,000											$2,000
5. Area Partner Discussions	$2,000	$2,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$4,000	$16,000
6. Public Input Solicitation	$1,000											$1,000
7. Funding Positioning	$10,000	$10,000	$5,000	$5,000	$3,000	$3,000	$2,000	$2,000	$1,000	$1,000	$4,000	$46,000
8. Secure Water Source	$2,000	$1,000	$1,000	$1,000								$5,000
9. Confirm Atlantic Coastal Pipe Availability	$5,000	$3,000	$2,000	$2,000								$12,000
10. Project Power Pursuit	$2,000	$2,000	$1,000	$1,000								$6,000
11. SWOT Analysis	$2,000	$1,000	$1,000	$1,000								$5,000
12. Project Phasing Review	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$1,000	$4,000	$14,000
Total Planning and Pre-Design Budgets	$34,000	$26,000	$18,000	$18,000	$11,000	$11,000	$9,000	$9,000	$8,000	$8,000	$32,000	$184,000
Site Investigations and Preliminary Design												
1. Intake Site Investigations		$125,000										$125,000
2. Main Storage Site Selection		$15,000										$15,000
3. Main Transmission Line Alignment		$40,000										$40,000
4. Project Permits and Approvals		$15,000	$10,000									$25,000
5. ROW Acquisition		$700,000	$700,000	$500,000								$1,900,000
6. Environmental and Cultural Clearances		$150,000	$150,000	$100,000	$100,000							$500,000
Total Site Investigations and Preliminary Design		$1,045,000	$860,000	$600,000	$100,000							$2,605,000
Design/Bid Activities												
1. Intake Facility and Associated Facilities Design/Bid (including Pump Station, site work, power supply, cathodic protection)		$750,000	$1,500,000	$500,000	$250,000							$3,000,000
2. Intake and Pump Station Contract Administration and Inspections					$250,000	$500,000	$1,500,000	$250,000				$2,500,000
3. Main Transmission Line Design/Bid (including all appurtenances, crossings and PRV stations)		$1,500,000	$2,500,000	$2,500,000	$3,500,000	$3,500,000	$3,500,000	$3,000,000	$2,200,000			$22,200,000
4. Main Transmission Line Contract Administration and Inspections				$2,100,000	$2,100,000	$2,100,000	$2,100,000	$2,100,000	$2,000,000	$2,000,000	$4,000,000	$18,500,000
5. Main Storage Reservoir Design/Bid (including site work and control station or vault)					$200,000	$100,000						$300,000
6. Main Storage Reservoir Contract Administration and Inspections							$125,000	$125,000				$250,000
7. Secondary Storage Reservoir Design/Bid (including site work and control station or vault)						$200,000	$100,000					$300,000
8. Secondary Storage Reservoir Contract Administration and Inspections										$125,000	$125,000	$250,000
9. Telemetry Control for Selected Facilities Design/Bid (including a Central Control Facility)					$10,000	$5,000						$15,000
10. Telemetry Controls Contract Administration and Inspections						$8,000	$5,000					$13,000
Total Design/Bid/Administratin/Inspection Activities		$2,250,000	$4,000,000	$5,100,000	$6,310,000	$6,413,000	$7,330,000	$5,475,000	$4,200,000	$2,125,000	$4,125,000	$47,328,000
Construction Activities												
1. Intake Facility and Associated Facilities (including Pump Station, site work, power supply)						$10,000,000	$10,000,000	$8,750,000				$28,750,000
2. Main Transmission Line (including all appurtenances, crossings and PRV stations)					$30,000,000	$30,000,000	$35,000,000	$35,000,000	$35,000,000	$35,000,000	$49,700,000	$249,700,000
3. Main Storage Reservoir (including site work and control station or vault)							$1,438,000	$1,438,000				$2,876,000
4. Secondary Storage Reservoir (including site work and control station or vault)										$1,438,000	$1,438,000	$2,876,000
5. Telemetry Control for Selected Facilities (including a Central Control Facility)							$40,000	$40,000	$40,000	$40,000	$19,000	$179,000
Total Construction Activities					30,000,000	$40,000,000	$46,478,000	$45,228,000	$35,040,000	$36,478,000	$51,157,000	$284,381,000
Total Costs All Activities	**$34,000**	**$3,321,000**	**$4,878,000**	**$5,718,000**	**$36,421,000**	**$46,424,000**	**$53,817,000**	**$50,712,000**	**$39,248,000**	**$38,611,000**	**$55,314,000**	**$334,498,000**

H. Conclusions and Recommendations

This Report provides the following specific near term and immediate conclusions and recommendations:

1. **Formation of a Planning Team.** The recommendation is offered that the City, upon review and acceptance of this Report, form a planning team to continue pursuit of this Project as noted herein.
2. **Project Discussion with Funding/Regulatory Agencies.** It is recommended that this Report be provided to the State, Federal, and local review, regulatory, and potential funding agencies as identified within the Report. Distribution should be made with a cover letter which requests comments and discussion of available funding, needed permits, and other items as may be required from each agency.
3. **Internal City Discussions.** Concurrent with items as noted, the City should begin internal review and discussion of this Project to ascertain a common and agreed upon strategy of how or if the Project should be pursued, and how or if the City has ability to provide some level of interim or cost share funding toward the Project.
4. **Project Governance.** If this Project remains essentially as a City constructed and City operated Project, the governance of the Project likely will be under an existing City Department, or one formed specially for the Project. If third party(s) involvement becomes a factor, it may be likely that such third party(s) will want some representation or an input process into the planning and construction and operation of the Project.
5. **Area Partnering Opportunities.** To a large extent the Federal and State funding and regulatory agencies are likely to be more favorable to a Project that is as inclusive as possible for the needs of the greater northeast portion of the State, not solely as needed for the City. To that extent it is recommended that an aggressive outreach effort be made to other possible water users of the area, particularly public entity users such as WEB, the BDM System, other smaller communities, and other public bodies or entities which may be identified.
6. **Public Awareness Meetings.** It is recognized that significant public awareness of this project has been achieved during the preparation of this Report. Further public meetings, press releases, and community discussions are recommended to maintain high visibility of this Project.
7. **Funding Positioning.** It is recommended that the City begin action to secure Federal and State Funds for project phasing activities.
8. **Pursuit of Water Source.** Depending on the success the City may have with funding positioning, it is recommended that action be taken to secure water sources as discussed within this Report.
9. **Atlantic Coastal Pipe Availability.** Because the issue of the availability and large potential costs savings associated with this pipe option, it deserves a special effort of review. It is recommended that actions, including a direct contact with the supplier and the gathering and review of material data be undertaken.
10. **Project or Preferred Power Pursuit.** Briefly discussed in this Report is the possibility of a significant savings in OMR costs (particularly first lift power cost at the Intake site) if this Project would qualify for a federal program commonly called Project Power or Preferred Power. Pursuit of this possibility is recommended.
11. **SWOT Analysis.** It is recommended that the City implement a review team to conduct a Project Strength, Weaknesses, Opportunity, and Threat (SWOT) analysis of this Project.
12. **Project Phasing Refinement.** The Report provided discission and tables showing a likely 'fast track' project implementation of the Project and a 'longer term' implementation of the Project. Most of the items provided in this listing of recommendations will impact how this Project continues to

proceed and under what circumstances and criteria. This Report recommends a team review of these phasing concepts and further refinement of same.

In addition to the near term or immediate recommendations, the Report also recommends the following longer-term efforts:

1. **Project Environmental**. Environmental requirements (including cultural, historical) will likely depend on requirements of the involved State and Federal funding agencies. This Report recommends this as a long-term effort depending on the outcome of one or more of the shorter-term recommendations as previously presented.
2. **Project Permitting and Approvals.** Once more planning has been accomplished, this Project can move into an investigation phase which includes a review and solicitation of the needed permits and other agency (both Federal and State, as applicable) approvals.
3. **Project Rights of Way.** A significant issue to resolve is Project Right of Way which may be pursued and ultimately obtained. Although this Report is recommending a combination of a R/R RWO along with adjacent private ROW, the R/R ROW is only assumed to be available based on representations made by third parties and has not been confirmed. Even if R/R ROW is available it is noted that adjacent private ROW will still be needed, and is some instanced, the R/R property may be unsuitable for the needs of this Project. Also uncertain at this time is the possible use of State Highway ROW. These issues are recommended for further review.
4. **Design Phases of Facilities**. Once issues identified above and in other parts of this Report are resolved (specifically including the assurance of full Project funding) then designing of facilities can begin. It is recommended that all design activities, until all Project issues are resolved, stay at a conceptual level only.
5. **Construction Phases of Facilities**. No construction effort, other than planning and design efforts as discussed, can proceed until all issues presented by this Report are resolved. Construction can be short term or long term in effort, depending almost entirely on the funding which might be available.
6. **OMR of Facilities**. This Report recommends discussions with the WEB System, regardless of if WEB is a user of the Project or not, as to their ability and willingness to assist in part or in whole in the OMR needs of this Project.