

Texas Water

Development Board

OLA ID 1537229

PIF No. 14191

Entity Name: North Texas MWD

Project Name: BDL Program Phase II

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General Information

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Funding Type SWIFT

Contact Information

County Collin

Entity Contact Information	Engineering Firm Contact Information
Name of Entity North Texas MWD	Name of New Entity
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Title Financial Analyst	Title Funding Specialist
Email kjones@NTMWD.COM	Email mark.evans@freese.com
	Firm Name Freese & Nichols
Make Changes N	Make Changes Y
No Entity TxWISE Id	No Engineering TxWISE Id

Service Area

Population Served 2,250,000

Project Description

Project Name BDL Program Phase II

Where can Project be found in the most recent Regional Water Plan?

The project is described on page #: 5D.18, G.112, 5D.31

The capital cost is listed on page #: H.46, H.52

Region C - REGION C

Phase(s) Applied For

Planning N

Acquisition N

Design N

Construction Y

Emergency

Applicant/entity's water supply will last less than 180 days. N

Applicant has received or applied for Federal emergency funding. N

None of the above. Y

Agricultural Efficiency Project? N

Estimated average annual residential water bill \$395.02

Annual Median Household Income \$95,602

Project will produce water Y

Project will conserve water N

Please provide the volume of water anticipated to be produced or conserved by the project per decade:

2020	2030	2040	2050	2060	2070
120200	120200	159700	159700	159700	159700

Project will address water loss N

Description of Proposed Project Components • Expand the capacity of the Leonard Water Treatment Plant from 70 MGD to 140 MGD

- Expand the pumping capacity of the North High Service Pump Station with 2-45MGD pumps and build a new South High Service Pump Station with a firm capacity of 90 MGD.
- Expand the pumping capacity of the Raw Water Pump Station at the Bois d'Arc Lake site to a firm capacity of 142 MGD or up to 236 MGD.
- Expand the Terminal Storage Reservoir capacity at the Leonard Water Treatment Plant site with a second cell with an approximate capacity of 210 MG.

Beneficiaries of the NTMWD's Leonard WTP

NTMWD is a regional wholesale provider of potable water. In addition to the customers below, NTMWD also serves Dallas, Denton, Ellis, Fannin, Hunt, Kaufman, Rains, and Rockwall counties.

Applicable NTMWD PWS Water System ID numbers: Bonham PWS #0740051, Tawakoni PWS #1290052, Wylie PWS #0430044, and Leonard North WTP PWS #0740055.

Current Customers

Ables Springs WSC
Allen
Anna
Blackland WSC
Bonham
BHP WSC Hunt Co portion
Caddo Basin SUD
Cash SUD
College Mound WSC
Collins Co. Other
Copeville SUD
Crandall
Culleoka WSC
Denton County Other
East Fork SUD
Fairview
Farmersville
Fate
Forney
Forney Lake WSC
Frisco
Garlan
Gastonia-Scurry SUD
Hackberry
Heath
High Point WSC
Howe
Hunt County Other
Josephine
Kaufman
Kaufman County Other
Lavon
Lavon WSC

Potential Future Customers

Blue Ridge
Celina
Ector
Fannin County Other
Honey Grove
Leonard
Savoy
Southeast Fannin Co SUD
Trenton
Weston
Kaufman County Mining
Fannin County Mining

Little Elm
Lowry Crossing
Lucas
McKinney
McLendon-Chisolm
Melissa
Mesquite
Milligan WSC
Mt. Zion WSC
Murphy
Nevada
North Collin WSC
New Hope
Oak Grove
Parker
Plano
Post Oak Bend City
Princeton
Prosper
RCH WSC
Richardson
Rockwall
Rockwall Co. Other
Rose Hill SUD
Rowlett
Royse City
Sachse
Saint Paul
Scurry
Seis Lagos UD
Sunnyvale
Talty
Talty WSC
Terrell
The Colony
Van Alstyne
Wylie
Wylie Northeast SUD
Non-Municipal Customers
Collin County Manufacturing
Dallas County Manufacturing
Denton County Manufacturing
Fannin County Manufacturing
Grayson County Manufacturing

Kaufman County Manufacturing
Kaufman County Steam Electric
Rockwall County Manufacturing

Readiness to Proceed to Construction

Preliminary planning or design work (30% of total project) has been completed or is not required.

N

Applicant is prepared to begin implementation or construction within 18 months of application deadline. Y

Applicant has acquired all water rights associated with the proposed project, or none will be required. Y

Estimated Costs

TWDB Requested Amount

Low-Interest Loan Amount \$583540000.00

Deferred Loan Amount

Board Participation Amount

Local Contribution Amount \$35254000.00

Other Amount

Other Desc

Total Estimated Project Costs \$618794000.00

Anticipated Debt Service for 2018 Loan Closing is anticipated to be: OTHER-REQUEST

If not anticipating level debt service, please explain Structured - Interest Only Payments for first 2 years

Additional Attachments

The following documents are attached after this page:

Lower Bois d'Arc Descriptions and Costs.pdf

Conservation. Conservation is the projected conservation savings for NTMWD’s existing and potential customers, based on the Region C recommended water conservation program. Not including savings from low-flow plumbing fixtures (which are built into the demand projections) and not including reuse, conservation by NTMWD customers is projected to reach over 44,400 acre-feet per year by 2070.

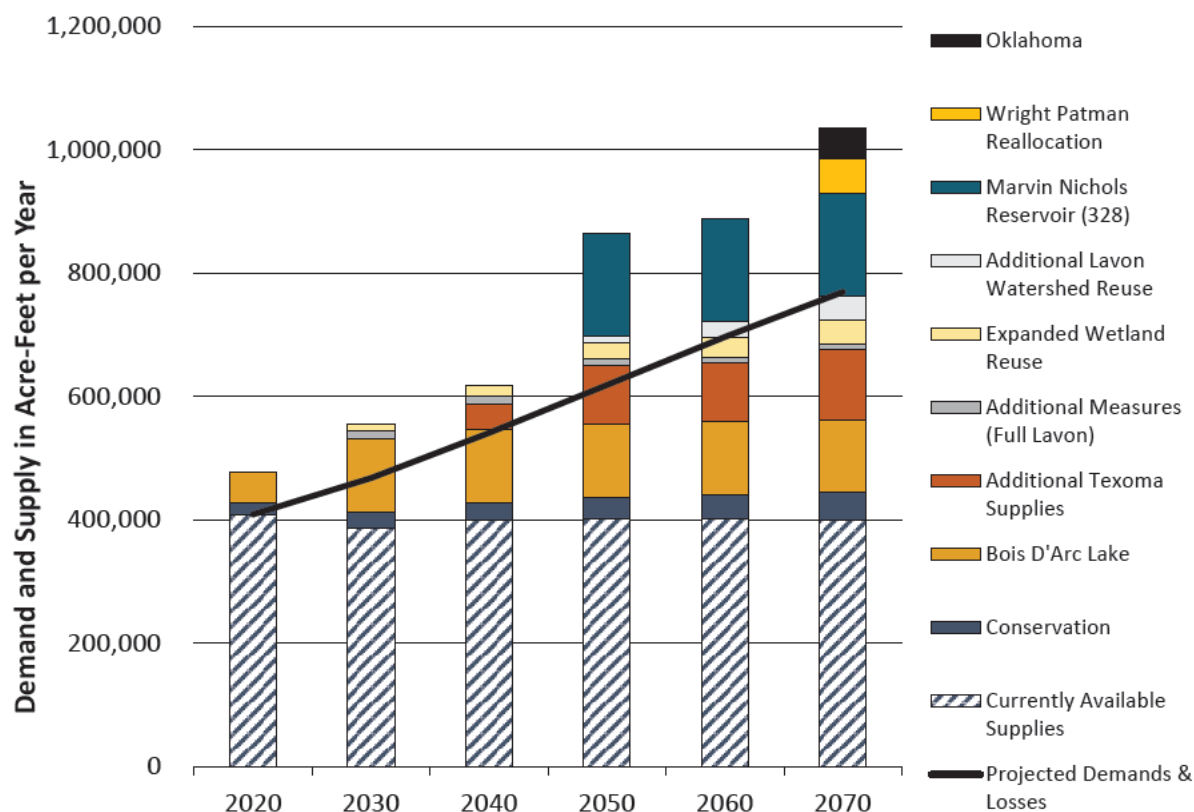
Bois d’Arc Lake. Bois d’Arc Lake, formerly known as Lower Bois d’Arc Creek Reservoir, was a recommended strategy for the North Texas Municipal Water District (NTMWD) in the past four Region C Water Plans. ^(1, 2, 3) The project is located in Region C on Bois d’Arc Creek in Fannin County, northeast of the City of Bonham. At the conservation pool elevation of 534 feet MSL, the lake will have a surface area of 16,641 acres and a capacity of 367,609

acre-feet. Bois d’Arc Lake will provide up to 120,200 acre-feet per year for NTMWD and Fannin County.

This project is currently under construction and includes the dam and lake, raw water intake, and transmission pipeline to the Leonard Water Plant (also currently under construction), and approximately 19,000 acres of mitigation. Impoundment of water is expected to begin in 2021 with initial operation beginning in 2022.

Additional Lake Texoma Blend Phase I and II NTMWD holds a Texas water right in Lake Texoma to divert and use up to 197,000 acre-feet per year from the lake. Water from Lake Texoma is brackish, which means that the use of Texoma water requires the water to be blended with a freshwater source or desalinated. For NTMWD, there are three potential sources

Figure 5D.3 Recommended Water Management Strategies for the North Texas Municipal Water District



state. For the long term, Oklahoma still remains a potential source of water supply for Region C users.

Infrastructure to Treat and Deliver to Customers:

Fannin County Water Supply System
NTMWD will cooperate with Fannin County entities to develop a treated water supply system for Fannin County water users after Bois d'Arc Lake is developed by 2030.

Chapman Booster Pump Station Capital costs for this WMS will be split between NTMWD and Irving. This strategy will provide greater reliability of supply and operational flexibility and has no new supplies associated with it.

Treatment and Distribution Improvements In addition to securing raw water sources, NTMWD must also treat the water, and all infrastructure to deliver this treated water to its member cities is the responsibility of NTMWD. NTMWD has a schedule of projects necessary to do this. These projects are divided into decadal needs.

Additional Upper Sabine. NTMWD has temporary supplies through a contract with the SRA in Lake Tawakoni and Lake Fork. The total temporary contract amount from SRA is up to 40,000 acre-feet per year through October 2025. NTMWD plans to pursue an extension of these temporary supplies. However, due to the uncertainty of how much might be available, this strategy has not been included as a recommended or alternative strategy.

G.5 NTMWD Major Water Management Strategy Technical Memorandums

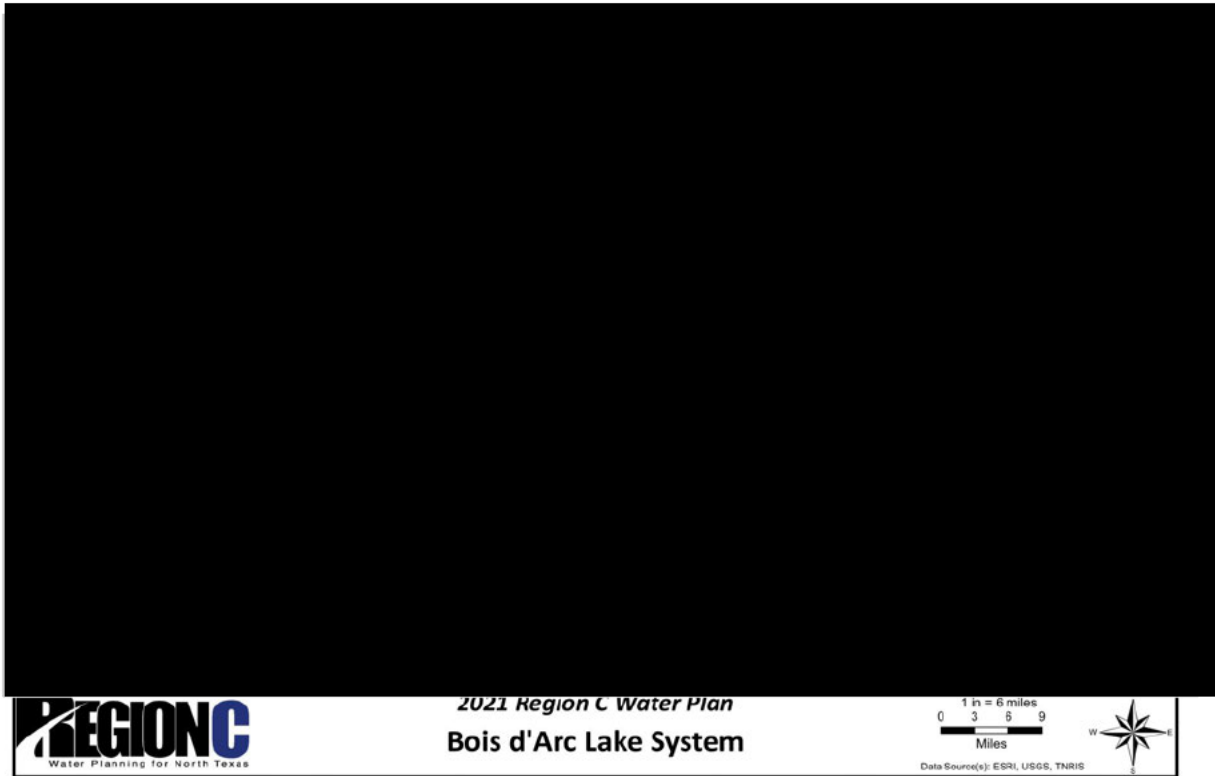
G.5.1 Bois d’Arc Lake

Potential Sponsor(s):	NTMWD
WMS/Project Type:	New Surface Water (Reservoir)
Potential Supply Quantity:	120,200 acre-feet per year (107 MGD)
Implementation Decade:	2020
Strategy Capital Cost:	\$939,638,000
Unit Water Cost (\$/kgal):	\$1.49 during Debt Service; \$0.25 after Debt Service
Application:	Recommended

Strategy Description

The proposed Bois d’Arc Lake, formerly known as Lower Bois d’Arc Creek Reservoir, was a recommended strategy for the North Texas Municipal Water District (NTMWD) in the past four Region C Water Plans. The project is located in Region C on Bois d’Arc Creek in Fannin County, northeast of the City of Bonham. At the conservation pool elevation of 534 feet MSL, the lake will have a surface area of 16,641 acres and a capacity of 367,609 acre-feet.

This project is currently under construction and includes the dam and lake, raw water intake, and transmission pipeline to the Leonard Water Plant (also currently under construction), and approximately 19,000 acres of mitigation. Impoundment of water is expected to begin in 2021 with initial operation beginning in 2022.



TR116409: H:\WR_PLANNING\1 - Working\Ap\G\BoisArcLakeSystem.mxd

Supply Development (Quantity, Reliability, Quality)

Water Quantity

Bois d'Arc Lake is permitted to divert 175,000 acre-feet per year. The firm yield of the reservoir is 120,200 acre-feet per year, which was obtained using the Red River Water Availability Model with the instream flow requirements specified in the water right. Supplies shown in 2020 are lower than the firm yield due to the assumption that the lake will be in the process of filling and there would be no diversions before 2022. The decrease over time is due to projected sedimentation buildup.

Table G.54 Summary of Quantities

Description	2020	2030	2040	2050	2060	2070
NTMWD	50,000	120,200	120,200	119,200	118,400	117,600

Reliability

The reliability of this water is high. This strategy will also add redundancy to NTMWD's overall water supply system during the early decades of use.

Water Quality

Water quality is expected to be good. Based on water quality modeling conducted for permitting, the average total dissolved solids in Bois d'Arc Lake are expected to be less than 200 mg/l.

Environmental Considerations

Bois d’Arc Lake would inundate 16,641 acres, and construction of the project would impact a total of 17,068 acres for the dam and lake and 860 acres for the transmission system. A jurisdictional determination was conducted for the reservoir in 2007. Based on this study, there are 5,874 acres of wetlands and 651,024 linear feet of streams within the project site. The vegetative cover types for the lake and dam are shown on **Table G.55**.

Table G.55 Vegetation Cover Types for Bois d’Arc Lake

Habitat Type	Acreage
Evergreen Forest	228
Upland / Deciduous Forest	2,216
Riparian Woodland / Bottomland Hardwood	1,728
Forested Wetland	4,602
Shrubland	63
Shrub Wetland	49
Grassland / Old Field	4,761
Emergent / Herbaceous Wetland	1,223
Cropland	1,757
Riverine	219
Lacustrine	87
Tree Savanna	132
Shrub Savanna	4
Total	17,068

There are three federally listed threatened and endangered species in Fannin County (Interior Least Tern, Piping Plover and Red Knot), but there are no habitats for these species within the Bois d’Arc Lake project area. Of the state listed species potentially located in Fannin County, five fish, three mussel and three reptile species have potential habitat in the project area. However, none of these species were observed or collected during field studies for the reservoir.

NTMWD developed a mitigation plan to mitigate for impacts associated with the reservoir project. This plan has been accepted by the state and the USACE. Mitigation construction has begun.

Permitting and Development

NTMWD has been granted the necessary permits to construct Bois d’Arc Lake. These permits include a water right permit, an interbasin transfer permit, and a Section 404 permit.

The project is currently under development and expected to be online by 2022.

Cost Analysis

The cost estimate for Bois d’Arc Lake is based on actual construction costs provided by NTMWD and as reported in the project’s Monthly Program Reporting. Financing costs are based on actual financing terms and conditions for the project. Other annual costs were developed following TWDB guidance for operation and maintenance costs.

Cost estimates for this strategy are included in **Appendix H**.

Table G.56 Summary of Costs

Entity	Capital Cost	Unit Cost (\$/1,000 gal)		Table for Details
		With Debt Service	After Debt Service	
NTMWD	\$939,638,000	\$1.49	\$0.25	H.46

Water Management Strategy Evaluation

Bois d’Arc Lake will provide NTMWD with sufficient supply to meet its demands through 2030. It also provides a new fresh water source that NTMWD intends to use to blend with its existing Lake Texoma supplies. These two sources will provide sufficient water to NTMWD for the next 20 years.

Additionally, the development of the lake and approved mitigation will provide approximately 50,000 acres of aquatic and terrestrial habitat along a 42-mile corridor adjacent to and connected by Bois d’Arc Creek.

Water User Group Application

The Bois d’Arc Lake project is a recommended strategy for NTMWD. Water from Bois d’Arc Lake will be used as part of NTMWD’s system and will meet the needs of NTMWD customers. Consideration was given to where the water can be used based on the IBT permit. No customers outside of the Red and Trinity Basins, and Sulphur Basin within Fannin County, were assigned supply from this strategy.

Table H.46

Cost Estimate Summary Water Supply Project Option September 2018 Prices NTMWD - Bois d'Arc Lake	
Cost based on ENR CCI 11170.28 for September 2018 and a PPI of 201.9 for September 2018	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
CAPITAL COST*	
Dam and Reservoir	\$253,372,000
Transmission Pipeline	\$195,373,000
Raw Water Intake and Pump Station	\$101,915,000
Conflicts	<u>\$125,130,000</u>
TOTAL COST OF FACILITIES	\$675,790,000
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$70,227,000
Environmental & Archaeology Studies and Mitigation	<u>\$193,621,000</u>
TOTAL COST OF PROJECT	\$939,638,000
ANNUAL COST	
Debt Service (3.1 percent, 30 years)	\$48,561,000
Operation and Maintenance	\$6,581,000
Pumping Energy Costs (0.08 \$/kW-hr)	<u>\$3,449,000</u>
TOTAL ANNUAL COST	\$58,591,000
Available Project Yield (acft/yr)	120,200
Annual Cost of Water (\$ per acft)	\$487
Annual Cost of Water After Debt Service (\$ per acft)	\$83
Annual Cost of Water (\$ per 1,000 gallons)	\$1.49
Annual Cost of Water After Debt Service (\$ per 1,000 gallons)	\$0.25
*Costs are from the NTMWD Contract Summary Master (2019)	
6/6/2019	

Table H.52

Cost Estimate Summary Water Supply Project Option September 2018 Prices NTMWD - Treatment and Distribution (CIP)	
Cost based on ENR CCI 11170.28 for September 2018 and a PPI of 201.9 for September 2018	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
CAPITAL COST	
Transmission Pipeline	\$1,580,404,000
Primary Pump Stations	\$425,621,000
Water Treatment Plant	\$1,667,920,000
TOTAL COST OF FACILITIES	\$3,673,945,000
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$1,206,861,000
Interest During Construction (3% for 1 years with a 0.5% ROI)	<u>\$134,223,000</u>
TOTAL COST OF PROJECT	\$5,015,029,000
ANNUAL COST	
Debt Service (3.5 percent, 30 years)	\$272,674,000
Operation and Maintenance	
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)	\$15,804,000
Intakes and Pump Stations (2.5% of Cost of Facilities)	\$10,641,000
Water Treatment Plant	<u>\$73,581,000</u>
TOTAL ANNUAL COST	\$372,700,000
Available Project Yield (acft/yr)	737,986
Annual Cost of Water (\$ per acft)	\$505
Annual Cost of Water After Debt Service (\$ per acft)	\$136
Annual Cost of Water (\$ per 1,000 gallons)	\$1.55
Annual Cost of Water After Debt Service (\$ per 1,000 gallons)	\$0.42
<i>Note: One or more cost element has been calculated externally</i>	
AGG	1/0/1900

Submittal

I, Kassi Jones - Financial Analyst, as the designated authorized representative of the North Texas MWD, hereby approve and authorize the submission of this project information form to the Texas Water Development Board. I certify that all information contained herein is true and correct to the best of my knowledge. I understand the failure to submit a complete project information form by the stated deadlines may result in the withdrawal of the form without review.

Submitted by Kassi Jones - Financial Analyst

Telephone Number (469) 626-4934

Submitted date 2022-01-28 11:18:06.4