



LITTLE ELM

TOWN OF LITTLE ELM, TX REUSE WATER MAIN INFRASTRUCTURE PROJECT

WaterSMART: Drought Response Program Drought Resiliency Projects FY 2021

PREPARED FOR:

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August 5, 2020

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TECHNICAL PROPOSAL

EXECUTIVE SUMMARY

DATE: August 5, 2020
APPLICANT NAME: Town of Little Elm, Texas
CITY, COUNTY, STATE: Little Elm, Denton County, Texas

Brief Description of Project: In an effort to build long-term resilience to the frequent, prolonged drought events in North Texas, the Town of Little Elm (population 48,189) requests \$333,696 to install a recycled water main that will utilize treated effluent from the Town's Reclamation-funded 100,000-gallon wastewater reuse storage tank for irrigation of public land. The project will provide a consistent supply of treated wastewater for irrigation to over 110 acres of parkland, local school sports fields, roadway medians, and public green spaces, saving approximately 255 acre-feet of imported potable water annually. Grant funded activities include excavating and trenching, installing 4,919 linear feet of 8-inch irrigation main and 225 linear feet of 16-inch steel encasements for crossings at Witt Road and Cottonwood Creek, connecting the line to the reuse storage tank, installing pipe connections to an existing 8-inch reuse line segment, and to an existing 2-inch water meter, resodding and landscape repair, resurfacing and pavement repair, inspections and testing. The system is designed to last for 50 years and is expected to save at least 255 acre-feet of potable water annually, or 50.5 million gallons - enough water for over 320 average families each year, which contributes to our long-term, local sustainability. The proposed infrastructure project will increase the reliability and sustainability of water supplies, improve efficiency in the use of water, and bolster our community against cyclical droughts. By utilizing treated effluent for reuse in irrigation, the project increases the flexibility of our water system, providing a source for irrigation that is consistent regardless of drought conditions. The project is not located on a federal facility. The Town expects this project to proceed immediately upon notification of grant funding, and anticipates that the construction of the project can be completed within 24 months.

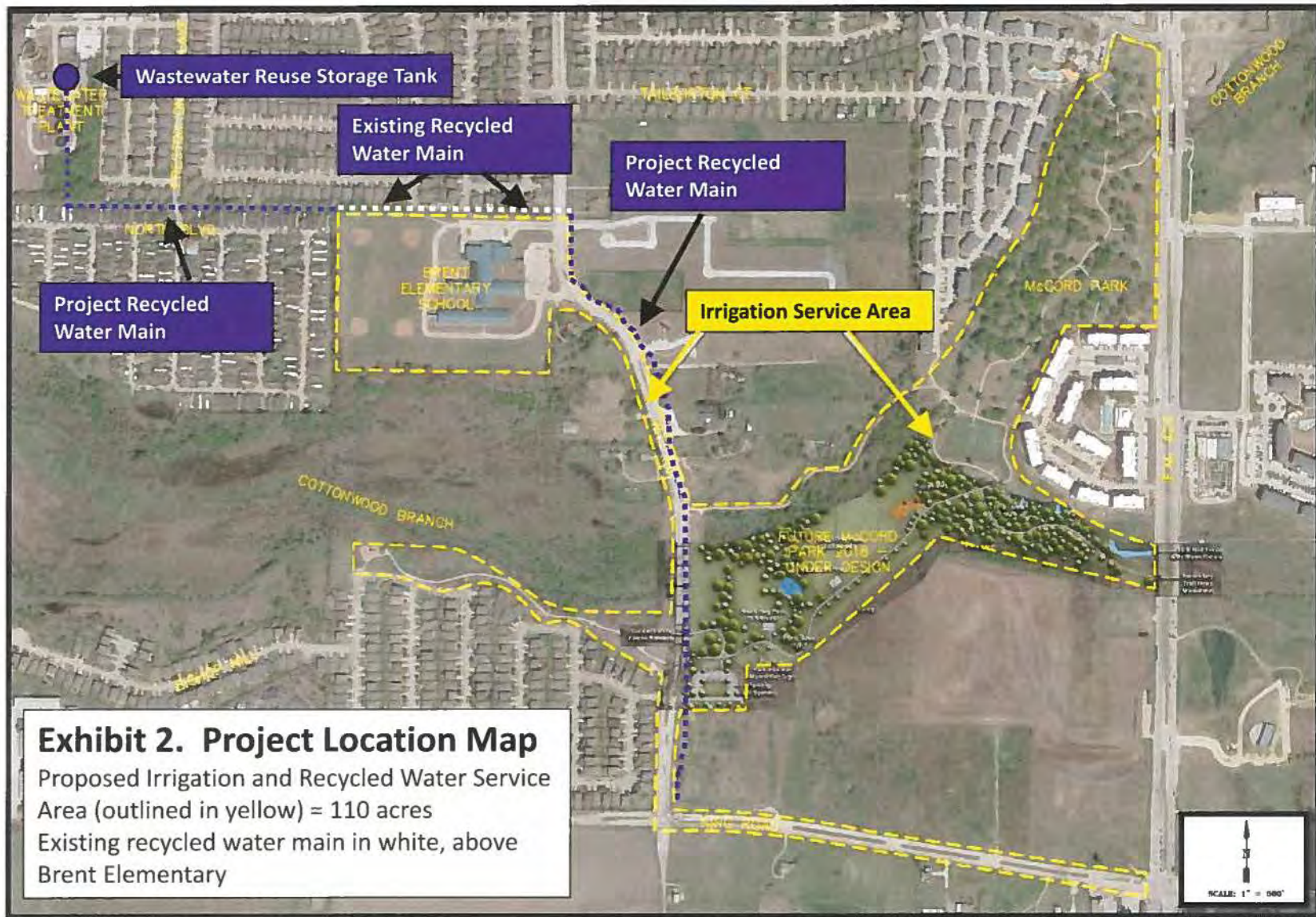
PROJECT LOCATION

The project is in Little Elm, Texas in Denton County. Exhibit 1 illustrates the location of Little Elm within the state of Texas and then within the County. Exhibit 2 illustrates the project's location within Town limits. The Town of Little Elm is located on the shores of Lewisville Lake and is a part of the Dallas-Fort Worth Metroplex. The project latitude is 33.162222 and the project longitude is 96.901111.



Exhibit 1. Little Elm location.

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BACKGROUND DATA

Water Supply, Water Rights, and Water Uses

The Town has experienced significant, sustained population growth since 2000, and is one of the fastest growing municipalities in Texas. Since 2010, an average of 2,200 residents per year have moved to Little Elm. According to the U.S. Census Bureau, the Town has a total area of 18.6 square miles of which 14.6 square miles is land and 4.1 square miles is Lewisville Lake. Lewisville Lake is an Army Corps of Engineers lake providing potable water to the City of Dallas. This water is not available as drinking or irrigation water for Little Elm.

Little Elm's Public Works Department is responsible for the water utility and water quality. The Town obtains its water from three different sources: 1) surface water from the North Texas Municipal Water District (NTMWD); 2) groundwater from its own wells; and 3) treated effluent from the Town's wastewater treatment plant (WWTP). The Department has water-delivery authority of the Town's 1.5 billion annual total gallons, or approximately 4,453 acre-feet per year (AFY), of total potable water managed, and 1.3 billion gallons supplied (4,091 AFY) to customers.

The Town also treats 1.06 billion gallons (3,253 AFY) per year of wastewater at the WWTP, and provided 137.6 million gallons (422 AFY) in treated effluent for multiple uses including irrigation, plant washdown, and belt press operations in 2019. The Town's total water supply is approximately 7,706 AFY, when including both potable water and wastewater treated at the WWTP available for direct reuse. By far, the NTMWD is the largest source of potable water for the Town. NTMWD supplies clients with most of its water from Lavon Lake, 30 miles east of Little Elm. Groundwater for the Town is drawn from the Paluxy and Woodbine Aquifers. The Water Utility serves the current population (48,189 residents), commercial, institutional, agricultural and wholesale customers with 13,932 meter connections. The majority of the connections (96 percent) are residential. Little Elm Independent School District (LEISD) is the highest volume water user in the Town, which is significant as the proposed project will irrigate an LEISD school athletic field and school grounds.

Current and Projected Water Demand

It is estimated that the Town's population will grow to a total of 90,000 by 2060 (up from the original projection of 70,478 at build-out stated in the 2008 General Plan).¹ Current water demand is 6,003.9 AFY.² This equates to about 111 gallons per person, per day.³ Using this equation, we anticipate demand in 2065 to be approximately 10 million gallons per day, or 11,210.4 AFY, an increase of 87 percent over today's demand.⁴ The proposed project will help us reduce dependence on costly imported potable water currently used for irrigation and ensure that we can meet our projected water demand. Texas' population is expected to increase more than 70 percent between 2020 and 2070, from 29.5 million to 51 million. Over half of all the statewide population growth between 2020 and 2070 is expected to occur within Dallas Fort-

¹ Town of Little Elm 2019 Water Conservation and Water Resource Management Plan.

² 5.36 million gallons per day x 365 days = 1,956,400,000 gallons per year = 6,003.9 AFY.

³ 5.36 million gallons per day divided by 48,189 people = 111.2 gallons per person per day.

⁴ 10 million gallons per day x 365 days = 3,652,920,000 gallons per year = 11,210.4 AFY.

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Worth (proposed project area) and Houston areas. Water demand is projected to increase by 17 percent, from 18.4 million AFY in 2020 to 21.6 million AFY in 2070.⁵ The Texas Water Development Board (TWDB) has recommended 2,341 water management strategies for the Dallas Fort Worth region – by far the highest number of strategies for any region in the State, of which direct reuse strategies (like the proposed project) are a major contributor⁶. TWDB expects direct reuse projects to provide 371,000 AFY of water savings to the region by 2070, and 1.2 million AFY to the State.

Potential Shortfalls

Like many areas in the State of Texas, the Town of Little Elm experiences severe drought at an alarming frequency, thus the potential for water shortfalls is ever-present. Additionally, our population increase has been staggering (over 700 percent in the last 15 years) and continues to rise. The Town is scrambling to invest in infrastructure to expand the water and wastewater system to meet the need brought by unrelenting growth and persistent drought. Continued droughts coupled with explosive local population growth and an estimated build-out of 90,000 demand immediate water conservation measures.

Drought and Reductions in Supply

The past and potential drought impacts for North Texas and Little Elm are urgent. Texas has a long history of catastrophic droughts. The National Climatic Data Center (NCDC) recorded a total of 28 cases of drought between 1996 and 2011, the year of the worst one-year drought ever recorded. The 2010–2014 drought ranks as the second-worst and second-longest statewide drought on record, based on the Palmer Drought Severity Index. El Nino rains in 2015 pulled our region from the extreme, prolonged drought, but it quickly returned to the region again in 2016 and abnormally dry to extreme drought conditions have continued every year since. It is imperative that we continue to seek measures to efficiently use our water supply.

In response to a major drought from 2005-2007, NTMWD developed and implemented a Water Conservation and Drought Contingency Plan. Likewise, the Town of Little Elm developed its own Water Resources and Water Management Plan (Plan) and updated the Plan in 2011, 2014 and 2019. The Plan discusses water conservation methods including reuse and recycling of wastewater, landscape and water management, metering, public education, and various other water conservation measures. The Plan includes mandatory permanent water conservation methods (e.g., watering lawns just twice per week during summer months), and also includes criteria that trigger Stages 1-3 (ranging in severity from least to highest) of additional mandatory water conservation strategies for both the Town and utility users. Stages 1-3 are triggered, in part, by a reduction in local supply from NTWMD, often due to low levels in the conservation pools of Lavon Lake (low is below 70 percent in summer, 60 percent in other months). In 2014, Lake Lavon (Little Elm's main supply of water) dropped to 50 percent of its capacity, and according to Jerry Cotter, Chief of the Water Resource Branch with the Army Corps of Engineers,

⁵ Chapter 5, Water for Texas: 2017 State Water Plan, Texas Water Development Board.

⁶ Chapter 8, Water for Texas: 2017 State Water Plan, Texas Water Development Board.

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the lake was dropping an inch a day.⁷ Since 2008, the Town has entered Stages 1-3 on an ongoing basis. In fact, Stages 1-3 are entered so frequently, that the Town provides year-round public outreach and even invested in a local conservation mascot, Dewey the Raindrop, to encourage education for our youngest residents. Dewey appears at the Town's annual "Water is Life" Expo, back-to-school events, and bi-annual Town clean-up events.

Population Increase and Rising Water Demands

Our population increase demands immediate water conservation measures. As mentioned above, the Town grew over 700 percent since the year 2000. As growing municipalities in North Texas compete for resources, shortages due to drought may occur and rates for purchasing water will likely increase. According to the State Water Plan (SWP), the population served by the NTMWD currently stands at over 1.7 million people and is expected to more than double by 2070 to 3.7 million residing inside the NTMWD service area. Additional supplies to meet higher demands will be expensive and difficult to develop and may cause major environmental impacts. Increasing population coupled with long and ongoing drought means that the demand for water will only increase as the supply decreases. One way to build resilience to the next impending drought is to implement smart water conservation measures such as wastewater recycling and reuse.

Water Delivery and Distribution System

The Town of Little Elm owns and operates the local water distribution system and the Public Works Department's Water Utility provides day-to-day management and oversight of the entire system. Water is pumped from two of NTMWD's transfer stations in the Cities of Frisco and Richardson (eight and 30 miles away, respectively) to Little Elm's distribution system, which includes:

- 113.4 miles of potable water mains;
- 93 miles of gravity wastewater lines and 12.4 force mains;
- Four ground storage tanks (5 million-; 2 million-; 68,000-; and 101,000-gallon tanks);
- Three elevated storage tanks (2 million-gallon and 1 million-gallon tanks); and

Exhibit 3. Dewey the Raindrop – Conservation Mascot



⁷ "Record Low Levels at Lake Lavon." CBS DFW, July 8, 2014, < <http://dfw.cbslocal.com/2014/07/08/record-low-water-levels-at-lake-lavon/>>.

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- Four booster pumps (three pumps at 2,650 gallons per minute and one pump at 1,500 gallons per minute).

The Town also owns and operates a 3 million gallons per day (GPD) Activated Sludge Wastewater Treatment Plant (WWTP) (under expansion to 4 million GPD). The WWTP is the site of the Town's previous Reclamation-funded project – the 100,000-gallon wastewater reuse storage tank. As mentioned above, a portion of the effluent is recycled and used for offsite irrigation, plant washdown, and belt press operations. The remainder is discharged into an unnamed creek which discharges into Lewisville Lake. The proposed project will install reuse irrigation lines to connect to the wastewater reuse storage tank treated supply.

Reclamation Relationships. Little Elm established a relationship with the Bureau of Reclamation (BOR) when we were awarded a Drought Resiliency Project Grant for a 100,000-gallon Wastewater Reuse Storage Tank in 2016. The funding of this application would represent our second project with the BOR.

TECHNICAL PROJECT DESCRIPTION AND MILESTONES

We propose to install 4,919 linear feet (0.93 miles) of recycled water mains, connecting a BOR-funded 100,000-gallon water reuse storage tank to multiple irrigation connections including McCord Park, Brent Elementary School, area roadway medians, and public green spaces, totaling approximately 110 acres. Specifically, the project will extend south from a connection on North Boulevard, continuing east to connect and cross Witt Road, continuing south along Witt Road to cross Cottonwood Creek through McCord Park, and terminate at the intersection of Witt Road and King Road.

Currently, the Town uses recycled water for a small segment of landscaping, two neighborhoods, and WWTP washdown purposes. However, imported potable water is used for all irrigation purposes in the *proposed project area*. This project represents the Town's next step towards eliminating potable water use for irrigation and other municipal purposes. The new recycled water main will save at least 255 acre-feet of imported potable water per year and will help recharge local ground water supplies.

All work will be completed on Town-owned land and/or existing utility easements. The project is expected to be completed within 24 months upon grant award (please see Exhibit 6 Schedule on page 20). The following tasks will be accomplished:

Task 1. Project Management. The Town will assign a Project Manager (PM) and Fiscal Project Manager to the proposed project upon award notification. The PM will be responsible for day-to-day oversight of the project, maintain contact with the BOR and provide updates, and hold monthly check-in meetings to ensure the project remains on-task and on-schedule. The PM will also be responsible for capturing performance data, as specified in this application. Performance data will be included in the project's final evaluation and report, and submitted to the BOR within six months of the performance period. The Fiscal Project Manager will ensure all BOR required reporting documents are correctly submitted and on time including quarterly reports, requests for reimbursement, and records retention. **Deliverables:** Minutes from monthly check-in

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meetings, quarterly program performance reports, requests for reimbursement, financial reports including SF-435 federal forms, final fiscal report, Project Evaluation, and Final Performance Report.

Task 2. Execute Grant Agreement. Upon notification from the BOR of a grant award, the PM will work with the BOR program officer to negotiate the grant agreement and deliverables. **Deliverable:** Executed grant agreement.

Task 3. Final Design, including Review and Approval. The proposed project is currently in the design process. Final design plans are expected to be completed prior to award. Final designs and construction drawings will be developed by an engineering consultant and provided to the PM and Town Council for review and subsequent approval. **Deliverables:** 100 percent complete and approved design drawings and documents, including construction drawings. Please see Preliminary Design Plans as Exhibit 4.

Task 4. Environmental Compliance including NEPA. The PM will work with the BOR to follow all environmental compliance protocols including completion of the National Environmental Policy Act (NEPA) requirements. In addition, all required permits will be obtained, as required by Town, State and Federal laws and regulations. **Deliverable:** Completed NEPA documentation and permits obtained.

Task 5. Develop Construction RFP, Advertise and Review Construction Bids. The PM will develop the construction Request for Proposal (RFP), and advertise according to Town of Little Elm and BOR procurement policies, and review and rank all received bids. **Deliverables:** RFP and bid tally sheets.

Task 6. Construction Notice to Proceed. The PM will negotiate the contract with the qualified construction company according to BOR regulations and procurement practices, award the contract, and issue Notice to Proceed with the successful contractor. The PM will conduct a kick-off meeting with the Construction Manager to agree on deliverables and timeline, and set up monthly check-in meetings with both parties. **Deliverables:** Executed construction contract, meeting notes from kick-off meeting.

Task 7. Construction. Construction will include the following sub-tasks and will take approximately six months to complete: *Please also see Exhibit 4. Preliminary Design Drawings further below.*

7a. Excavation and trenching at the recycled water main locations from the future recycled water storage tank, along North Boulevard and Witt Road including trench safety and installation of 4,694 linear feet of silt fencing.

7b. Install 4,919 linear feet of 8-inch PVC pipes, nine 8-inch gate valves, three 8-inch air release valves, a blow off valve, ductile iron fittings, and 16-inch steel encasements for system delivery crossings at Witt Road and Cottonwood Creek.

7c. Install water supply connection to the storage tank's reuse system, connect to existing 8-inch reuse line and connect to existing 2-inch water meter.

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7d. Backfill and plant block sod with 6-inch topsoil and hydromulch over trenched areas.

7e. Repair any disturbed pavement, landscaping, and irrigation system components at site.

Deliverables: Itemized invoices for expenses, on-site weekly walk through reports, photographs of work completed, and punch list.

Task 8. Testing, Notice of Completion Filed, Piping System Fully Operational. The Construction Manager will conduct the industry-standard required testing of the completed reuse delivery system, and file a notice of completion with the PM. **Deliverables:** Test records and filed notice of completion.

Task 9. Monitoring. The PM will document water saved and actual usage as required for interim and final performance reports. **Deliverables:** Documentation in interim and final performance reports.

Task 10. Project Closeout. Upon completion of construction and testing, the PM will officially close the project period. The PM will develop the Final Performance report, which will include a discussion of: 1) whether the project objectives and goals were met; 2) the benefits achieved by the project, including information and/or calculations supporting the benefits; 3) how the project improves long-term resiliency to drought; 4) how the project demonstrates collaboration, if applicable. **Deliverables:** Records retained, photos, and official Final Performance Report (also mentioned in Task 1 Project Management).

PERFORMANCE MEASURES

Proposed Data Collection Procedures, Schedule, and Reporting. The Town will use a simple 'pre-post' design to quantify project benefits. Calendar year 2019 will serve as the preferred baseline, and earlier years will be used as the baseline when the use of 2019 data is not feasible.

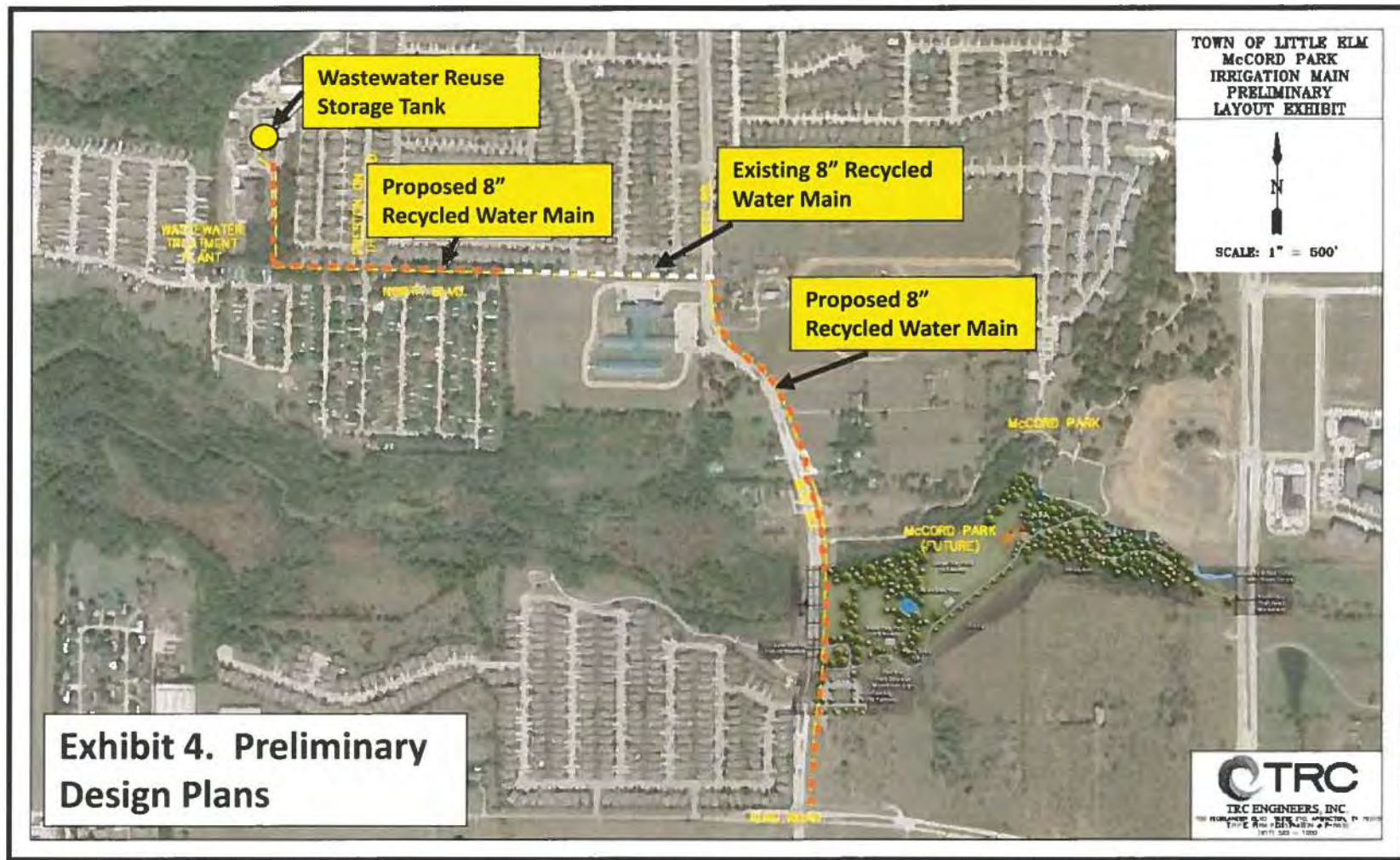
The collection and analysis of performance data will be the responsibility of the Town's Engineering and Water Division, working collaboratively. Data collection and analysis during Year 1 of the project will be two-fold:

- 1) **Baseline Data.** During Year 1, baseline data (i.e., data from calendar year 2019) will be collected for the performance measure named below. These data will be included in the Year 1 report (4th quarterly report), and presented both quarterly and annually.
- 2) **Project Data.** Also during Year 1, project performance data will be collected and compiled each quarter. This will allow for: a) incremental assessment of performance, which will be reported in the project's quarterly reports, and b) annual and two-year projections of performance.

Proposed Performance Measures. The performance of the water reuse irrigation system will be assessed using two measures:

- 1) **Amount of Potable Water Supply Saved** – We know that our current irrigation use for the 110-acre project area is approximately 255 acre feet of potable water annually. Therefore,

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by implementing a recycled water irrigation system, the Town will eliminate the need for imported potable water for irrigation. It is estimated that the project will save 255 AFY of potable water supply, calculated as follows:

Current Irrigation Water Allowance⁸: 756,202 gallons per year/per acre

Gallons converted to AFY: 2.32 AFY

Total Yearly Irrigation Water Volume: 255 AFY (2.32AFY x 110 acres)

Additional Water Supply for Life of Project: 12,750 AF Lifetime (assume 50-year lifetime for recycled water system infrastructure)

Baseline and project data collected will be compiled and analyzed to determine if the actual amount of water supply saved meets the estimates.

- 2) **Actual Amount of Water Better Managed** – The proposed project will allow the Town to better manage their entire water supply, or 4,453 AFY of potable water AND 1.06 billion gallons, or 3,253 AFY of wastewater produced at the WWTP. Together these figures total 7,706 AFY of water. This will be the baseline data. Project data collected will be compiled and analyzed to determine if the actual amount of water that is better managed meets the estimate and increases over time.

Water-Savings Measurement. The project is expected to save approximately 255 AFY of potable water. Upon project completion, measurement of actual reclaimed water used for irrigation in this location will be accomplished by monthly monitoring of water usage via metered connections. The Town will document actual usage as required for BOR grant reports. Actual reclaimed water used may vary depending upon how controllers are programmed and the number of rain events/droughts that occur in each year.

EVALUATION CRITERIA

Criterion A—Project Benefits (40 points)

How will the project build long-term resilience to drought? How many years will the project continue to provide benefits?

The expected useful life of the proposed water reuse infrastructure is 50 years. This translates into conserving approximately 12,750 AF until the system needs to be replaced (at the Town's current reuse infrastructure level).

$$255 \text{ AFY} \times 50 \text{ (Year Life of Project)} = 12,750 \text{ AF per Life}$$

The project builds resiliency to drought by stretching potable water supplies while utilizing a new source of water for irrigation that is not dependent on climatic conditions or imported sources.

⁸ Derived from the City of Frisco Comprehensive Zoning Ordinance, Article IV, Subsection 4.02 – Landscape.

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Wastewater flow is consistent 365 days a year, which means that this source of water will remain consistent, year-in and year-out even in drought conditions. The Town has an obligation to water landscaping, trees, and parks to sustain our tourism and property values. Tourism is a large source of our economic development and growth. The Town uses drought resistant and tolerant species and water-wise irrigation wherever possible, and will utilize reclaimed water to replace approximately 255 AFY of existing landscaping potable water needs within the first year of its life. The project will allow for additional main line connections as the need for the recycled water irrigation continues to grow throughout the Town.

Additional Water Supplies. The proposed project will make approximately 255 AFY of potable water supplies available by replacing the current use of imported potable water (for irrigation purposes) with treated recycled wastewater. The water supply calculations are as follows:

Current Irrigation Water Allowance:	756,202 gallons per year/per acre
Gallons converted to AFY:	2.32 AFY
Total Yearly Irrigation Water Volume:	255 AFY (2.32AFY x 110 acres)
Additional Water Supply for Life of Project:	12,750 AF Lifetime (assume 50-year lifetime for recycled water system infrastructure)

Based upon the above calculations, the Town will offset 756,202 gallons of potable water from NTMWD per year, freeing that same amount to be used for drinking water and other potable water needs elsewhere, regardless of drought conditions.

What percentage of the total water supply does the additional water supply represent? How was this estimate calculated?

The Town's total water supply, including potable water and treated wastewater available for reuse is approximately 7,706 AFY. The percentage of the total water supplied with this project is estimated as follows: 255 AFY (Water Supplied) divided by 7,706 AFY (Avg. Annual Water Supply) = **3.3%**.

However, if we consider only potable water in this equation (4,453 AFY), and treated wastewater that is utilized as direct reuse (422 AFY), then our total supply that is being used, and not released into a nearby lake is 4,875 AFY. Then we would estimate 255 AFY as a percentage of 4,875 AFY. **This would result in a 5.2% of supply.**

BENEFITS ASSOCIATED WITH THE ADDITIONAL WATER SUPPLIES: The Reuse Water Main Infrastructure Project will provide the following qualitative benefits:

Saving/Freeing up Imported Potable Water Supplies. The proposed project will free up 255 AFY of potable water currently used for irrigation. Using lower quality, treated effluent for irrigation

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means we use the potable water we buy from NMWTD once, then treat it as it flows through the WWTP and use it a second time. Freeing up this potable water means we have more resiliency in recurring drought situations. This new water supply is dependable, consistent, and sustainable.

Reduces costs by reducing the energy needed to move water longer distances or pump water from deep within an aquifer. Little Elm receives most of its water from Lavon Lake, which is over 25 miles away. Using wastewater of lower quality for uses that do not require high-quality water saves energy and money by reducing treatment requirements. Energy is required first in collecting, extracting, conveying, and distributing water to end users and second in treating and disposing of the wastewater once the end users have finished with it. Although it requires additional energy to treat wastewater for recycling, the amount of energy required to treat and/or transport other sources of water is generally much greater.⁹

Improves water supply/delivery, reliability, and flexibility because the wastewater will always be available for irrigation, even in times of drought. Additionally, wastewater sometimes contains higher levels of nutrients such as nitrogen, phosphorus and oxygen, which may help fertilize the landscape including turf, shrubs, and trees.

How will the project improve the management of water supplies, increase operational flexibility?

The project increases operational flexibility and improves the ability to deliver recycled water for irrigation during drought because it is a consistent supply from the wastewater reuse storage tank. The Town's residents will always produce wastewater creating a constant supply for irrigation and other municipal uses. The ability to use stored wastewater and use it locally also helps increase the volume of consistent supply, even in times of drought.

What is the estimated quantity of water that will be better managed as a result of this project? How was this estimate calculated?

The proposed project will allow the Town to better manage their entire water supply, or 4,453 AFY of potable water AND 1.06 billion gallons, or 3,253 AFY of wastewater produced at the WWTP. Together these figures total 7,706 AFY of water. Over ten years, even with no increase due to population, that would mean 77,060 AF of water better managed ($7,706 \times 10 \text{ years} = 77,060$).

Currently, only 137.6 million gallons/422 AFY of wastewater, or 13% of the total amount of the Town's wastewater is reused. The remainder of treated water is discharged to a nearby lake. By utilizing an additional 255 AFY of the treated water for the proposed project, the Town will capture another 8% of wastewater for reuse. Regarding the potable water supply – by offsetting 255 AFY of potable water, the Town is freeing up water for the growing population, reducing future needs for increased water supply, and creating a self-sustaining new water supply.

What percentage of the total water supply does the water better managed represent?

⁹ California Energy Commission's 2005 Report: California's Water - Energy Relationship (CEC#700-2005-011-SF)

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The Town's total water supply is approximately 7,706 AFY, when including both potable water and wastewater treated at the WWTP and available for direct reuse. The project will allow for better management of 100% of the Town's total supply, as described above.

Provide a qualitative description of significance of anticipated water management benefits.

Utilizing recycled wastewater will provide the following qualitative water management benefits:

Improves water supply/delivery, reliability, and flexibility because the wastewater will always be available for irrigation, even in times of drought. Additionally, wastewater sometimes contains higher levels of nutrients such as nitrogen, phosphorus and oxygen, which may help fertilize the landscape including turf, shrubs, and trees.

Reduces imported water and energy costs by reducing the energy needed to move water longer distances or pump water from deep within an aquifer. Little Elm receives most of its water from Lavon Lake, which is over 25 miles away. Using wastewater that is of lower quality for uses that do not require high-quality water saves energy and money by reducing treatment requirements. Although it requires additional energy to treat wastewater for recycling, the amount of energy required to treat and/or transport other sources of water is generally much greater.¹⁰

This project does not include saltwater barriers, wells, or metering components.

Will the project make new information available to water managers?

Yes. The project will improve water management by providing water managers with new data on the amount of treated wastewater used annually for irrigation. This information will also include the savings of potable water purchased for the same use. TCEQ requires an annual water conservation implementation report that details information on various water conservation strategies. The Town will include wastewater annual reuse in this report each year.

Will the project have benefits to fish, wildlife, or the environment?

Yes. The project enhances aquatic/riparian habitat. Plants, wildlife, and fish depend on sufficient water flows to their habitats to live and reproduce. The lack of adequate flow, as a result of diversion for agricultural, urban, and industrial purposes, can cause deterioration of water quality and ecosystem health. By reusing wastewater to supplement demand, the Town is freeing considerable amounts of water for the environment and increasing flows to vital ecosystems. A portion of the Town's water comes from Lavon Lake, which is the uppermost impoundment on the East Fork of the Trinity River. The lake was recently threatened by the invasive zebra mussel (from Lake Texoma), which has the capacity to strip all of the microscopic nutrients from the lake, promoting deadly toxic algae and leaving little for other species to feed.¹¹ Zebra mussels spread as microscopic larvae that cannot be filtered. By reducing its reliance on lake water, the Town of Little Elm will reduce the possibility of spreading this species to other water sources nearby, thereby helping to protect other aquatic/riparian habitats from this invasion.

Criterion B—Drought Planning and Preparedness (15 points)

¹⁰ Source: California Energy Commission's 2005 report: California's Water - Energy Relationship (CEC#700-2005-011-SF)

¹¹ Source: Dallasobserver.com, Zebra Mussel Threat to Texas Lakes is Underestimated, 01/18/12, by Jim Schutz

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Existing Drought Plan: Please see Appendix A for applicable sections of the Town of Little Elm Water Conservation and Water Resources Management Plan. The complete plan can be found online, here:

Little Elm 2019 Plan:

<https://www.littleelm.org/DocumentCenter/View/13293/Water-Conservation-Water-Resource-Management-Plan-04-2019?bidId=>

Explain how the applicable plan addresses drought.

In 2005, the north Texas region entered a drought that lasted until the spring of 2007. During that time, the NTMWD responded by implementing a Water Conservation and Drought Contingency Plan and required that local jurisdictions adopt and/or implement their own plans to respond to drought. As such, the Town of Little Elm developed its own Water Conservation and Water Resource Management Plan (Plan) in 2008, which was updated and adopted in 2011, then again in 2014, and most recently in 2019.¹² The Town's Plan was developed according to the requirements and recommendations of the Texas Commission on Environmental Quality (TCEQ) and in direct response to ongoing and future drought. The Plan includes measures that are intended to result in ongoing, long-term water savings, including emergency response designed to temporarily reduce water use in response to specific conditions, and projects like reuse and recycling water as innovative long-term strategies to increase water supply year-round. The Plan also discusses water conservation methods including landscape and water management, metering, water use records, control of unaccounted water, leak detection and repair, public education, and various other water measures. Among other actions, the Plan defines different drought stages for the Town. The stages are structured to be initiated in reaction to drought conditions and to limit the methods of water use that are allowed for residents and businesses of Little Elm.

Was the drought plan developed through a collaborative process?

Yes. The Water Conservation and Water Resources Management Plan is consistent with Texas Commission on Environmental Quality guidelines and requirements for the development of drought contingency plans for public water suppliers, which includes provisions to inform the public and provide opportunity for public input. In the development process of the Plan, the Town provided written notice of the proposed Plan, and the opportunity to comment on the Plan by newspaper, posted notice, and notice on the Little Elm web site. The Town also made the draft Plan available on the Little Elm web site, provided the draft Plan to anyone who requested a copy, and held a public meeting to discuss the Plan. Additionally, the Town collaborated with the NTMWD in the development of the Plan and provided copies to Texas Water Development Board Region's C and D.

Does the plan include consideration of climate change impacts to water resources or drought?

Climate change is not mentioned specifically in the Town of Little Elm's Plan; however, the increased frequency and duration of droughts is a direct result of climate change, which the Plan

¹² In 2019, the Town updated the name of the Plan to "Little Elm Water Conservation and Water Resources Management Plans."

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addresses. According to the National Integrated Drought Information System (NIDIS), projections of future climate change suggest that drought may become more common given warmer temperatures and increased depletion of soil and vegetation moisture.

Does the plan identify the proposed project as a potential mitigation or response action?

Yes. The Town's Plan was developed, according to TCEQ/NTMWD requirements, as a response to severe drought conditions in Texas. The Plan presents measures that are intended to result in ongoing, long-term water savings including "To maximize the level of reuse in the water supply," which is a main objective listed on page 1-2, and in Chapter 7, Section 7.2, the Plan states, "The Town of Little Elm owns and operates their own wastewater treatment plants and currently is utilizing reuse of treated effluent for wash-down processes, belt press operations and for irrigation purposes at the plant site. Little Elm continues to seek other alternatives for reuse of recycled wastewater effluent" (page 7-1).

Does the proposed project implement a goal or need identified in the plan?

Yes. As mentioned above, the project implements the objective, "To maximize the level of reuse in the water supply," on page 1-2 of Little Elm's plan.

Describe how the proposed project is prioritized in the referenced plan?

The proposed project to maximize the level of reuse in the water supply is listed as a key objective in the Little Elm Plan, and a significant strategy in the SWP. Neither plan prioritizes specific objectives or strategies; rather, they identify a collection of measures to be used in concert to accommodate future water demands in the face of continuing droughts.

Criterion C—Severity of Actual or Potential Drought Impacts to be Addressed (15 points)

Past and Potential Impacts to Specific Sectors

Like many areas in the State of Texas, the Town of Little Elm experiences drought at an alarming frequency. Texas has a long history of catastrophic droughts. The National Climatic Data Center (NCDC) recorded a total of 28 cases of drought between 1996 and 2011. In 1998 the Associated Press reported that "the second drought to hit Texas in three years is leaving farmers in dire straits and taxing the state economy." The dry spell deepened through 1999, when the New York Times reported "Worse Drought Than in '98 Appears Possible in Texas." In 2000, a spokesman for the Texas Department of Agriculture told the New York Times, "we are in the midst of an unmitigated disaster and it has been accumulating in magnitude over the last five years," after strains on water supply since 1996 caused \$5 billion in losses to Texas agriculture. Extreme to severe drought continued with regular frequency, and wreaked havoc again in 2005, 2006, 2008 – 2015, and 2017 – 2019. The Texas environmental law firm McPherson Law cited that in just the first two years of the 2010/2011 extreme drought, "livestock and agricultural losses were estimated at \$5.2 billion, stock tanks dried up, hungry cattle were rushed to market, crops plowed under, junior rights in many rivers were cut off, and wildfires burned more than 3.4 million acres." A 2018 Dallas Morning News emphasized that point, stating that the prolonged drought, including 2011's drought of record event, created severe hay shortages for cattle farmers and led

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some ranchers to prematurely slaughter their herds or export them out of state.¹³ "Cotton can be drought-resistant, but not cattle," said Katharine Hayhoe, a climate scientist at Texas Tech University.¹⁴

If no action is taken, severe impacts are expected to continue in Texas. John Nielsen-Gammon, who is a professor of atmospheric sciences at Texas A&M University, is the lead author of a paper that forecasts the arrival of more extreme droughts through this century. These could include decades-long "megadroughts," which have not afflicted the state for a thousand years.¹⁵ The bottom line, according to climate models, is that an increasing aridness will grip the state. Soil will dry up and not be able to support the same amount of agriculture and plant and animal life, affecting our 148 agricultural customers as well as the broader region. In Little Elm, impacts are most felt in our capacity to meet the water demand of a growing population and the effects of drought on the Town's tourism industry – our biggest economic driver.

Population Increase and Rising Water Demands

The most substantial impact from ongoing and future drought is the threat of dwindling water resources for our growing population. As mentioned earlier, the Town has seen unprecedented growth for 20 years, and adding an average of 2,200 residents per year since 2010. Residential and business development is occurring at a break-neck speed, demanding over a thousand new potable water connections each year. And, the growth is not isolated to Little Elm. Our water supplier, NTMWD, serves a population that will more than double in the next 50 years, leading them to identify multiple new sources for water supply, including the largest recycled water program in Texas. As growing neighboring municipalities in North Texas compete for resources, shortages due to drought are possible. Even if drought conditions lessen, population growth drives up water demand, increasing water prices and the need to develop further water sources. The SWP states that Texas' existing water supplies – those that can already be relied on in the event of drought – are expected to decline by approximately 11 percent between 2020 and 2070, from 15.2 to 13.6 million acre-feet per year.¹⁶ The SWP further states, that "if no additional water supplies are developed, water users face a potential water shortage of 4.8 million acre-feet per year in 2020 and 8.9 million acre-feet per year in 2070 in the event of a repeat of the drought of record. **Without additional supplies, approximately one-third of Texas' population would have less than half of the municipal water supplies they will require in 2070.** Municipal water users may face water shortages over six times greater in 2070 (approximately 3.4 million acre-feet) than in 2020 (approximately 511,000 acre-feet). Without additional water supplies, the annual economic losses resulting from water shortages would range from approximately \$73 billion in 2020 to \$151 billion in 2070."¹⁷

¹³ "Climate Change to Bring North Texas Longer Droughts," Nov. 11, 2018, Dallas News, <<https://www.dallasnews.com/news/environment/2018/11/28/climate-change-to-bring-north-texas-longer-droughts-heavy-rains-120-degree-temps-within-25-years/>>.

¹⁴ Ibid.

¹⁵ "Texas Needs To Prepare For A 'Megadrought,' State Climatologist Warns," July 10, 2020, KUT News, Mose Buchelle, <<https://www.kut.org/post/texas-needs-prepare-megadrought-state-climatologist-warns>>.

¹⁶ Water for Texas: 2017 State Water Plan, Texas Water Development Board, Chapter 6, page 61.

¹⁷ Water for Texas: 2017 State Water Plan, Texas Water Development Board, Chapter 7, page 77.

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Impact to Tourism, Local Investments and Health

In addition, recreational business related to Lake Lewisville will be severely impacted as water level drops during drought conditions. Little Elm is a tourism destination whose population doubles on the weekends as North Texans visit our popular inland beach and lakefront district. We depend on our outdoor amenities and 'lakeside lifestyle' to bring in business and economic growth (e.g., Hula Hut restaurant, multiple popular beachside events, several miles of trails, over 10 volleyball courts, wake-boarding park, and large boating access ramp and dock). Recreational activities on Lewisville Lake provide a significant source of revenue and growth, and drought conditions that cause the lake level to decrease result in less recreational opportunity and revenue. Low water levels coupled with North Texas' extreme heat makes attending outdoor events not only uncomfortable, but dangerous. The Little Elm Hazard Mitigation Action Plan states that 56 fatalities were recorded in Denton County between 1996 and 2011 because of extreme heat events.

Describe any increases to the severity or duration of drought in the project area resulting from changes to water supply availability.

Since 2000, the longest duration of drought (D1-D4) in Texas lasted 271 weeks beginning on May 4, 2010 and ending on July 7, 2015, known as the second worst statewide drought of record.¹⁸ The most intense period of drought occurred the week of October 4, 2011 where D4 affected 87.99 percent of Texas land, including the Little Elm/Dallas-Fort Worth region. As mentioned previously, Lake Lavon (Little Elm's main supply of water) dropped to 50 percent of its capacity, and was dropping an inch a day in 2014.¹⁹ Extreme drought continued in 2015, especially in North Texas. The Texas Water Development Board's Texas Drought Report stated that "exceptional drought, the worst category, strengthened its hold on North Texas," with 39 percent of the state in moderate to exceptional drought in 2015. The National Weather Service's Weather Forecast Office reported that some North Texas communities were "within weeks of running out of water." Please see Exhibit 5 for the U.S. Drought Monitor graph for Denton County from 2000 – 2020. As recently as 2019 the region was in D2 – severe drought.

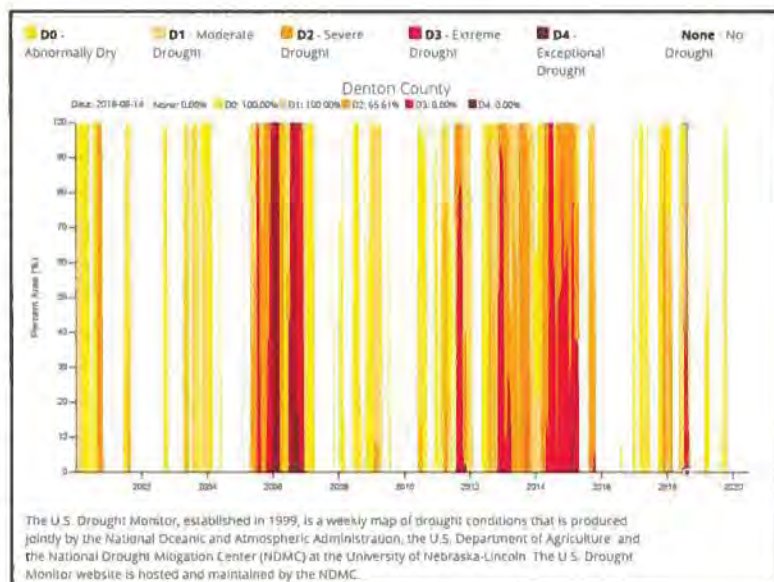


Exhibit 5. U.S. Drought Monitor Graph – Denton County

¹⁸ Water for Texas: 2017 State Water Plan, Texas Water Development Board, Chapter 3, page 32.

¹⁹ "Record Low Levels at Lake Lavon." CBS DFW, July 8, 2014, < <http://dfw.cbslocal.com/2014/07/08/record-low-water-levels-at-lake-lavon/>>.

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As mentioned earlier, extreme heat coupled with dry conditions further exacerbates drought in North Texas. Likewise, lower than average rainfall contributes to lower water resources in water supplier lakes and reservoirs. The average precipitation for the Dallas-Fort Worth region is 36.14 inches per year. The region has not met that number in five of the 10 last years – notably reduced from 2010-2014 and again from 2016-2017.²⁰

Both extreme heat and drought are expected to increase in the region. In February 2013, the state climatologist told the Texas Legislature that high temperatures related to climate change exacerbated the drought of record. He said that the state's average temperature has increased by an average of about 2 degrees Fahrenheit since the 1970s. An analysis of how climate and extreme weather will affect infrastructure in the Dallas-Fort Worth area showed that by 2050, soil moisture will be reduced by 10-15 percent in all seasons compared to historic values due to increase in temperatures – the increased heat and dryness increasing the likelihood of drought.²¹ The assessment noted that the combination of heat and drought poses a problem for drinking water supplies, which North Texas sources from surface reservoirs that will be increasingly prone to evaporation.

Criterion D—Project Implementation (10 points)

The Town of Little Elm is capable of entering into a financial assistance agreement with the BOR for the proposed project, and in fact, successfully managed and closed out a BOR-funded Drought Resiliency Project, as mentioned throughout the application. There are no identifiable reasons why the proposed project would not be feasible or otherwise advisable, including environmental or cultural resources compliance issues, permitting issues, legal issues, or financial position.

- ***Implementation Plan.*** See the Project Schedule below for the detailed implementation plan.
- ***Permits.*** The Town expects to file for a construction permit (provided by the Town Development Services Department), which will be provided in-kind, and a municipal reclaimed water permit from the Texas Commission on Environmental Quality (TCEQ). The Town will follow local and State protocol to procure the TCEQ permit.
- ***Engineering and Design Work.*** The Town is currently under contract with TRC Engineering to complete design of the project. The final design plans are expected to be completed prior to award.
- ***Policies.*** The Town does not anticipate needing any new policies or administrative actions to implement the project.
- ***Environmental Compliance Estimate.*** We have estimated environmental compliance costs at \$3,000. During the development this application, we spoke to Mr. Mark Treviño, Area Manager of the Bureau of Reclamation Interior Region 6 office, and described the

²⁰ Rainfall data collected from the National Weather Service website <https://www.weather.gov/fwd/dmoprecip>.

²¹ Climate Change/Extreme Weather Vulnerability and Risk Assessment for Transportation Infrastructure in Dallas and Tarrant Counties, University of Texas at Arlington (UTA).

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proposed project scope of work. Mr. Treviño stated that a line item of \$3,000 should be added for “Environmental Compliance Costs Including NEPA.”

Criterion E—Nexus to Reclamation(10 points)

Little Elm established a relationship with the Bureau of Reclamation (BOR) when we were awarded a Drought Resiliency Project Grant for a 100,000-gallon Wastewater Reuse Storage Tank in 2016. The funding of this grant application would represent our second project with the Reclamation. The proposed project will directly connect to the above mentioned BOR funded storage tank as the next step in Little Elm’s goal to convert all irrigation needs to recycled water.

Criterion F—Department of the Interior and Bureau of Reclamation Priorities (10 points)

The proposed project aligns with the following *Department of the Interior* Priorities:

1. Creating a conservation stewardship legacy second only to Teddy Roosevelt

a. Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment. The project utilizes direct reuse, which is a best practice that utilizes science to disinfect and treat wastewater, making it safe for irrigation, municipal uses, discharge into waterbodies, and even drinking water – though that application is not part of the project.

5. Modernizing our infrastructure

c. Prioritize Department infrastructure needs to highlight: (1) Construction of infrastructure.

The project will construct 0.93 miles of a reclaimed water line for irrigation, utilizing treated effluent to offset potable water needs in the growing Town. The project modernizes the Town’s entire wastewater and water infrastructure system by providing an innovative best practice to reuse wastewater – essentially using potable water twice before it seeps back into the water table below.

The project aligns with the following *Bureau of Reclamation* Priorities:

1. Increase Water Supplies, Storage, and Reliability under WIIN and other Authorities. The proposed project will increase water supply reliability for at least the project’s useful life of 50 years. Using treated effluent/recycled water is, by its nature, a long-term reliable solution that depends on a guaranteed source of wastewater. By saving 255 AFY of potable water, the project reduces dependence on imported water sources.

3. Leverage Science and Technology to Improve Water Supply Reliability to Communities. The Town of Little Elm is one of the only NTMWD customers that operates their own wastewater plant. As such, their previous BOR-funded project to store and treat wastewater for reuse is unique at the municipal level, and utilizes the best practices in science and water management to develop a new, sustainable water source without requesting additional supplies from NTMWD.

4. Address Ongoing Drought. Regardless of drought levels, the Town’s wastewater will always be a reliable source for reuse. The project provides a sustainable, long-term solution to threatened reliability of water resources in times of drought.

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Exhibit 6. Project Schedule

#	Tasks	2021						2022								2023															
		Calendar Year Quarter:						Q3		Q4		Q1		Q2		Q3		Q4		Q1		Q2									
		Month:						JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	May	Jun
1	Project Management (24 months)																														
2	Execute Grant Agreement (Anticipated July 2021 – 1 month)																														
3	Final Design Including Review and Approval (3 months)																														
4	Environmental Compliance Including NEPA (3 months)																														
5	Develop Construction RFP, Advertise, and Review Construction Bids (2 months)																														
6	Construction Notice to Proceed (1 month)																														
7	Permitting Process (2 months)																														
8	Construction (6 months)																														
9	Testing, Notice of Completion Filed, Piping and System Fully Operational (2 months)																														
10	Monitoring (14 months)																														
11	Project Closeout (2 months)																														

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PROJECT BUDGET

Funding Plan and Letters of Commitment

Describe how the non-Federal share of Project costs will be obtained.

The non-Reclamation share of project costs is immediately available and will be derived from the Town's Utility fund.

Project funding provided by a source other than the applicant shall be supported with letters of commitment from these additional sources.

Not applicable. The applicant will provide the total funding.

Please identify the sources of the non-Federal cost share contribution for the project.

The Town will utilize the Utility fund to provide the 50 percent match cost-share requirement in cash.

Describe any costs incurred before the anticipated Project start date that you seek to include as project costs.

Not Applicable. The Town does is not including any costs incurred before the anticipated start date in the proposed project budget.

Budget Proposal

Table 1. Total Project Cost Table

SOURCE	AMOUNT
Costs to be reimbursed with the requested Federal funding	\$333,696
Costs to be paid by the applicant	\$333,697
Value of third-party contributions	\$ 0
TOTAL PROJECT COST	\$667,393

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Table 2. Summary of Non-Federal and Federal Funding Sources

FUNDING SOURCES	AMOUNT
Non-Federal Entities	
1. Town of Little Elm	\$333,697
Non-Federal Subtotal	\$333,697
REQUESTED RECLAMATION FUNDING	\$333,696

Table 3. Budget Proposal

Budget Item Description	Computation		Quantity Type (hours/days)	Total Cost
	\$/Unit	Quantity		
Salaries and Wages				
Not Applicable				\$ -
Fringe Benefits				
Not Applicable				\$ -
Travel				
Not Applicable				\$ -
Contractual				
Trench Safety	\$2.40	4,694	LF	\$11,265.60
Silt Fence	\$2.40	4,694	LF	\$11,265.60
8" PVC Irrigation Main	\$60	4,919	LF	\$295,140
8" Gate Valve	\$3,600	9	EA	\$32,400
Blow Off Valve	\$1,800	1	EA	\$1,800
8" Air Release Valve	\$3,600	3	EA	\$10,800
2" Irrigation Service	\$1,440	2	EA	\$2,880
Ductile Iron Fittings	\$7,200	2	TON	\$14,400
Open Cut Concrete with 16" Steel Encasement	\$180	88	LF	\$15,840
8" Dry Bore w/ 16" Steel Encasement	\$300	225	LF	\$67,500
Horizontal Directional Drilling (Bore) 8" HDPE	\$270	350	LF	\$94,500
Connection to Tank and Existing 8" Reuse Line	\$3,600	1	LS	\$3,600
Connection to Existing 2" Water Meter	\$1,800	1	LS	\$1,800

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Budget Item Description	Computation		Quantity Type (hours/days)	Total Cost
	\$/Unit	Quantity		
Block Sod (Bermuda)	\$14.40	1,635	SY	\$23,544
Hydromulch	\$3.60	1,105	SY	\$3,978
Concrete Pavement Repair	\$240	57	SY	\$13,680
Landscape/Irrigation Repairs	\$60,000	1	LS	\$60,000
Subtotal Contractual/Construction				\$664,393
Supplies/Materials				
Not Applicable				\$ -
Equipment				
Not Applicable				\$ -
Other				
Environmental Compliance Including NEPA				\$3,000
Total Direct Costs				\$667,393
Indirect Costs - %				\$-
Total Project Costs				\$667,393

Budget Narrative

Salaries and Wages

No salaries or wages are included in the proposed project budget.

Fringe Benefits

No fringe benefits are included in the proposed project budget.

Travel

No travel costs are included in the proposed project budget.

Equipment

No equipment is included in the proposed project budget. All costs are either contractual or environmental.

Materials and Supplies

No materials and supplies are included in the proposed project budget.

Contractual

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The Town proposes to construct a recycled water irrigation system connected to the BOR-funded 100,000-gallon water reuse storage tank irrigation connection. Total Contractual/Construction costs represent the bulk of the project costs (\$667,393), included in the BOR Request. The following costs are based on probable engineering estimates obtained from TRC Engineering during the design phase, and are deemed reliable and realistic. The costs are explained as follows:

Construction/Contractual. The Town will utilize a competitive procurement method to secure a contractor. The successful contractor will oversee construction, which will include the following key costs associated with construction of the project, and will take approximately six months to complete.

1. For excavation and trenching at the recycled water main locations from the recycled water storage tank, along North Boulevard and Witt Road, we estimated a total of 4,694 linear feet (LF) of trench safety will be necessary at \$2.40 per LF. $4,694 \text{ LF} \times \$2.40 = \$11,265.60$. For this task, we also estimated a total of 4,694 LF of silt fencing will be necessary at \$2.40 per LF. $4,694 \text{ LF} \times \$2.40 = \$11,265.60$.
2. For installation of 4,919 LF of recycled water main piping and system, the following estimates were found to be necessary:
 - 4,919 LF of 8-inch PVC pipes at \$60 per LF. $4,919 \text{ LF} \times \$60 = \$295,140$;
 - Nine 8-inch gate valves at \$3,600 each. $9 \times \$3,600 = \$32,400$;
 - One blow off valve at \$1,800.
 - Three 8" air release valves at \$3,600 each. $3 \times \$3,600 = \$10,800$
 - 2" irrigation service at \$1,440 each. $2 \times \$1,440 = \$2,880$.
 - Two tons of ductile iron fittings at \$7,200 per Ton. $2 \times \$7,200 = \$14,400$;
 - 88 linear feet of open-cut concrete with 16" steel encasement at \$180 per LF. $88 \times \$180 = \$15,840$.
 - 225 LF of 16-inch steel encasements for system delivery crossings at Witt Road and Cottonwood Creek at \$300 per LF. $225 \times \$300 = \$67,500$; and
 - 350 LF of 8" HDPE for horizontal directional drilling at \$270 per LF. $350 \times \$270 = \$94,500$.
3. To install the water supply connection to the storage tank's reuse system and the existing 8" reuse line, we estimated a lump sum cost of \$3,600. We will also connect to an existing 2" water meter at an estimated lump sum cost of \$1,800.
4. To backfill and plant block sod and place hydromulch over trenched areas, the following estimates were developed:
 - 1,635 square yards (SY) Bermuda block sod at \$14.40 per SY. $1,635 \times \$14.40 = \$23,544$; and
 - 1,105 SY of hydromulch at \$3.60 per SY. $1,105 \times \$3.60 = \$3,978$.

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5. To repair any disturbed pavement, we estimated a total of 57 SY of pavement will be necessary at \$240 per SY. $57 \times \$240 = \$13,680$.
6. For repairs to landscaping, and irrigation system components at the project site, we have estimated a lump sum total of \$60,000.

Environmental and Regulatory Compliance Costs/OTHER

We have estimated environmental compliance costs at \$3,000. During the development this application, we spoke to Mr. Mark Treviño, Area Manager of the Bureau of Reclamation Interior Region 6 office, and described the proposed project scope of work. Mr. Treviño stated that a line item of \$3,000 should be added for "Environmental Compliance Costs Including NEPA."

Indirect Costs

No indirect costs are included with the proposed project budget.

Total Costs

The total project cost is \$667,393.20, and includes equipment, all construction, and environmental compliance costs. We rounded the number to \$667,393.

Budget Form

The SF-424C: Budget Information for Construction Programs is included with this application under a separate cover.

ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

- *Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.*

The proposed project will have a minor and temporary impact on the surrounding environment which could include dust, soil erosion, partial loss of vegetation, and minor traffic congestion. The construction phase is scheduled to be completed within six (6) months and includes the following tasks:

- Excavation and trenching at the recycled water main locations from the future recycled water storage tank, along North Boulevard and Witt Road including trench safety and installation of 4,694 linear feet of silt fencing.
- Install 4,919 linear feet of 8-inch PVC pipes, nine 8-inch gate valves, one blow off valve, three 8-inch air release valves, 350 linear feet of horizontal direction drilling for 8" HDPE pipe, ductile iron fittings, 88 linear feet of open cut concrete, and 16-inch steel encasements for system delivery crossings at Witt Road and Cottonwood Creek.

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- Install water supply connection to the storage tank's reuse system at existing 8" reuse line and existing 2" water meter.
- Backfill and plant block sod and hydromulch over trenched project areas.
- Repair any disturbed pavement, landscaping, and irrigation system components at project site.

The Town and construction contractor will take every precaution and develop a plan to minimize any temporary impacts on the environment. The actions taken will include, but not be limited to:

- Utilizing erosion control devices;
 - Minimizing the amount of disturbed soil;
 - Meeting or exceeding any local or state sediment or erosion control plans;
 - Minimizing the amount of removed vegetation;
 - Ensuring efficient and timely construction;
 - Construction personnel will post signage of work area;
 - Construction personnel will facilitate ingress and egress of vehicles to project site through on-street traffic direction; and
 - The Construction Contractor will alert local emergency response entities that construction vehicles will be located within the project area.
- ***Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?***

There are no known species listed as a Federal threatened or endangered species in the project area.

- ***Are there wetlands or other surface waters inside the project boundaries that potentially fall under Clean Water Act (CWA) jurisdiction as "Waters of the United States?" If so, please describe and estimate any impacts the proposed project may have.***

There are no wetlands or other surface waters inside the project boundaries that will be impacted by the project. All work will be completed on previously disturbed Town-owned roadways.

- ***When was the water delivery system constructed?***

The Town of Little Elm water system has been constructed continually since 1966. The Town's water reuse system construction began in 2015.

- ***Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., head gates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.***

The proposed project will not result in any modification of individual features of a canal-based irrigation system such as head gates, canals, or flumes.

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- ***Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places?***

There are no buildings, structures, or features in the proposed project area that are listed on or eligible for listing on the National Register of Historic Places.

- ***Are there any known archeological sites in the proposed project area?***

There are no known archeological sites in the proposed project area.

- ***Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?***

No. In fact, the proposed project will have a highly positive effect on all residents of the Town of Little Elm including low income and minority populations. The project will help save our imported, potable water for our growing population.

- ***Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?***

No, the project will not have any impacts on sacred sites or tribal lands.

- ***Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?***

The proposed project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species.

REQUIRED PERMITS OR APPROVALS

The Town expects to file for a construction permit (provided by the Town Development Services Department), which will be provided in-kind, and a municipal reclaimed water permit from the Texas Commission on Environmental Quality (TCEQ). The Town will follow local and State protocols to procure the TCEQ permit.

EXISTING DROUGHT PLAN

Relevant sections of the Town of Little Elm Water Conservation and Water Resource Management Plan are included in this application as Appendix A.

The full Plan is available upon request.

LETTERS OF SUPPORT

Letters of support from the following organizations and individuals are included in Appendix B.

- Representative Patterson
- Mayor Hillock
- Community Development Corporation (CDC)
- Chamber of Commerce (COC)

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- Economic Development Corporation (EDC)
- Community Waste Disposal
- Keep Little Elm Beautiful

OFFICIAL RESOLUTION

Appendix C contains a placeholder for the official resolution in support of this application and this project. The signed, adopted Resolution will be provided to the Bureau of Reclamation within 30 days of the application deadline.



JARED PATTERSON

TEXAS STATE REPRESENTATIVE • DISTRICT 106

July 21, 2020

Secretary David L. Bernhardt
U.S. Department of the Interior
1849 C Street, N.W.
Washington, DC 20240

Subject: Little Elm, Texas Recycled Water Lines

Dear Secretary Bernhardt:

As the Texas State Representative for Denton County, I would like to offer this letter in support of the Town of Little Elm's application for Bureau of Reclamation funding. The proposed project will install recycled water irrigation lines, building on a previously funded Reclamation project to install a wastewater storage tank. The recycled water irrigation lines will allow Little Elm to draw the recycled water from the storage tank for irrigation purposes, thereby saving valuable potable water for residents. As a state representative and a resident of North Texas, I support projects like this one that address drought and climate change and aim to stretch taxpayers' dollars.

The Town of Little Elm purchases nearly 100% of its water from the North Texas Municipal Water District (NTMWD). The Town's Wastewater Treatment Plant treats and cleans the community's wastewater, and most of it is then released into Lake Lewisville. With the proposed project, the water that the Town pays for from NTMWD will, in effect, be used twice – once for the town's public sewer system, and then, after it is cleaned and treated, again for local landscape irrigation.

The project is a multi-beneficial activity that I urge you to consider for funding.

God bless,

A handwritten signature in black ink that reads "Jared A. Patterson". The signature is written in a cursive, flowing style.

Jared Patterson
State Representative



Town of Little Elm
100 W. Eldorado Parkway
Little Elm, Texas 75068
214-975-0400

July 16, 2020

Secretary David L. Bernhardt
U.S. Department of the Interior
1849 C Street, N.W.
Washington, DC 20240


Subject: Support Letter for the Town of Little Elm's Application (BOR Drought Resiliency Grant)

Dear Secretary Bernhardt:

As the Mayor of the Town of Little Elm, Texas, I am pleased to offer this letter of support for the Town's application to the Bureau of Reclamation. The funding derived from this grant will afford us the opportunity to install recycled water infrastructure to irrigate our public land. In addition, this infrastructure will provide the system-based infrastructure for additional connections that will provide recycled irrigation to local schools, medians, trails, and other parkways in the future. The proposed project will improve the efficiency in the use of water, contribute to the sustainability of our current potable water supplies, and bolster our community against cyclical droughts.

It is important to note that, over recent years, the Town of Little Elm has made a substantial investment in reuse and conservation efforts. As such, we are not expecting that this funding will provide all that we need. Rather, it will supplement existing funding and speed us toward our goal of greater conservation. The proposed project is fully aligned with our Water Conservation and Water Resources Management Plan as well as the North Texas Municipal Water District (NTMWD) Conservation and Drought Contingency Plan. This proposed project will address our current challenges related to irrigation and water reuse in the face of persistent drought conditions. I encourage you to consider the application for full funding, so that the Town of Little Elm may move forward in its water conservation efforts and also serve as an example of infrastructure improvements that make a difference in our region and state.

Sincerely,



David Hillock, Mayor
Town of Little Elm, Texas



Town of Little Elm
100 W. Eldorado Parkway
Little Elm, Texas 75068
214-975-0400

July 20, 2020

Secretary David L. Bernhardt
U.S. Department of the Interior
1849 C Street, N.W.
Washington, DC 20240

Subject: Town of Little Elm's Grant Application to Improve Water Reuse Infrastructure

Dear Secretary Bernhardt:

On behalf of the Little Elm Community Development Corporation, I am pleased to support the Town in its efforts to improve water use and reuse in their application for funding from the Bureau of Reclamation (BOR) Drought Resiliency grant. The Town proposes to install recycled water irrigation lines that will effectively provide ongoing potable water savings. The Town's proposed project is an example of forward-thinking efforts that will align with the local Water Conservation Plan by increasing the reliability of the water supply, especially in times of severe drought.

The Town proposes to build on their previous BOR-funded project that installed a 100,000-gallon wastewater reuse storage tank at the Town's wastewater treatment plant (WWTP). The new project will install water lines from the storage tank to provide a consistent supply of treated wastewater available for irrigation and other municipal uses to save our imported potable water for our growing population.

We are pleased to support the Town of Little Elm's efforts to take progressive measures that will allow the Town to draw recycled water from the wastewater storage tank to be used for irrigation purposes. These types of projects demonstrate the Town's commitment to water recycling and sustainability in the face of ongoing drought conditions.

We encourage you to consider this proposed project by the Town of Little Elm for BOR funding. The Town has shown extensive planning efforts that are in line with BOR's goals and objectives, including this proposed project. We look forward to implementing more progressive environmental strategies and programs that address water use and reuse in a way that serves as an example for other communities.

Sincerely,

Edee Hansen
Chairperson
Little Elm Community Development Corporation



June 16, 2020

Secretary David L. Bernhardt
U.S. Department of the Interior
1849 C Street, N.W.
Washington, DC 20240

Subject: Support Letter for the Town of Little Elm's Application for a BOR Drought Resiliency Grant

Dear Secretary Bernhardt:

As the Executive Director of the Little Elm Chamber of Commerce, I enthusiastically support the Town's BOR Drought Resiliency grant application to upgrade the water irrigation system with recycled water. The Little Elm Chamber of Commerce is a non-profit organization of volunteers working together to improve the quality of life in Little Elm and the surrounding communities. With the persistent threat of drought conditions in North Texas, the proposed project will provide the community the much-needed opportunity to implement a proactive effort that installs new recycled infrastructure to irrigate approximately 110 acres of public parkland and green space.

The Town of Little Elm is just 27 miles north of Dallas and 25 miles east of Dallas-Fort Worth (DFW) International Airport, which is the third busiest airport in the world. From a business perspective, the Town's proposed project to address recycled water infrastructure in a way that saves potable water is exactly the type of project that will place the Town of Little Elm on a stronger path of economic growth in the Dallas area.

We at the Little Elm Chamber of Commerce hope you will find favor with the BOR Drought Resiliency grant application from our Town and award funding for this proactive effort that addresses water use and reuse for our community.

Sincerely,

A handwritten signature in black ink that reads "Kristen Abl".

Kristen Abl
Executive Director
Little Elm Chamber of Commerce



**Town of Little Elm
Economic Development Corporation
100 West Eldorado Parkway
Little Elm, TX 75068
214-975-0455**

June 23, 2020

Secretary David L. Bernhardt
U.S. Department of the Interior
1849 C Street, N.W.
Washington, DC 20240

Subject: Little Elm BOR Application for Water Reuse Infrastructure

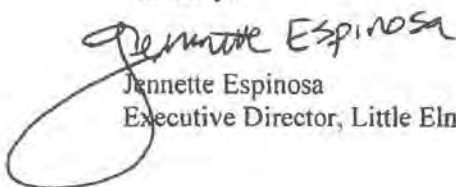
Dear Secretary Bernhardt:

With pleasure, I submit this support letter on behalf of the Little Elm Economic Development Corporation for the Town's BOR Drought Resiliency application to install recycled water infrastructure at McCord Park. The Economic Development Corporation understands that fiscal economic growth depends on a solid commitment and plan to implement environmentally sound efforts that are mindful of the current and future infrastructure needs. Regarding water use and conservation, the Town of Little Elm has demonstrated innovative environmental planning strategies that resulted in its Water Conservation and Water Resources Management Plan, and now is moving forward with projects that reflect the commitment to water savings by using recycled water irrigation in line with its Plan goals and previous accomplishments.

The proposed Reuse Infrastructure Project will install recycled water irrigation for approximately 110 acres of public land. The Town of Little Elm has shown its commitment to more cost-effective responses by planning ahead and proactively identifying resiliency projects in advance of a water crisis. The Town is dedicated to water savings economically, and also to serving as an example of how a small town with a rapidly-growing population can plan and accommodate growing water usage needs, especially in drought-ridden regions like north Texas.

We fully support the Town's application for a BOR Drought Resiliency grant and hope you will find their proposed project one that is worthy of funding.

Sincerely,



Jennette Espinosa
Executive Director, Little Elm Economic Development Corporation



July 28, 2020

Secretary David L. Bernhardt
U.S. Department of the Interior
1849 C Street, N.W.
Washington, DC 20240

Subject: Support for the Town of Little Elm's Application (BOR Drought Resiliency Grant)

Dear Secretary Bernhardt:

Community Waste Disposal has been providing the Solid Waste services for Little Elm residents and commercial business since 1998, over these 2 decades the community has grown 1,500% in homes from 724 homes to 11,642 homes.

CWD is supportive of the Town of Little Elm's BOR Drought Resiliency Grant. This grant will allow the community to keep growing and install the infrastructure for recycled water to irrigate public lands. The funds from this project will improve the efficiency in the use of water, contribute to the sustainability of our current potable water supplies, and bolster our community against Texas droughts.

Town of Little Elm is located in the North Texas Region and water shortage will become a serious problem in the future. The BOR Drought Resiliency Grant is fully aligned with our Water Conservation and Water Resources Management Plan as well as the North Texas Municipal Water District (NTMWD) Conservation and Drought Contingency Plan.

I humbly implore you to full fund the Town of Little Elm's BOR Drought Resiliency Grant and the allow the Town Staff to implement water conservation efforts that will a positive environmental difference in the North Texas Region.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert A. Medigovich", with a stylized flourish at the end.

Robert Medigovich
Municipal Coordinator



KEEP LITTLE ELM BEAUTIFUL

Little Elm, Texas 75068
214-729-4351

July 20, 2020

Secretary David L. Bernhardt
U.S. Department of the Interior
1849 C Street, N.W.
Washington, DC 20240

RE: Little Elm's Application for BOR Drought Resiliency Funding

Dear Secretary Bernhardt:

I am pleased to provide this letter of support on behalf of the town of Little Elm, Texas's **Keep Little Elm Beautiful** (KLEB) committee. KLEB has worked with Little Elm on numerous conservation and beautification projects. These include our bi-annual Clean & Green litter clean-up and recycling events, and our Water is Life Expo, through which we partner with the town and Little Elm Independent School District to provide rain barrel demonstrations and education regarding water-smart irrigation and conservation.

As Texas continues to experience drought conditions, we are eager to encourage and support projects that help conserve precious potable water. KLEB will have many opportunities to provide public outreach regarding the proposed recycled water irrigation system should the project be awarded. This project will allow Little Elm to better manage water usage and reuse wastewater to keep out parks, playgrounds, and greenspaces beautiful and usable while keeping potable water available for potable uses such as drinking and cooking. This is an excellent opportunity to educate the public about conservation and the value of wastewater reuse. Little Elm is a leader in conservation and environmental issues. As a long-standing 'Tree City USA,' and recipient of multiple awards from Keep America Beautiful including the Governor's Achievement Award for outstanding reduce, reuse, recycle policies, the Town continues to be at the forefront of efforts to preserve and enhance our environment.

This shovel-ready project is ideal for Reclamation funding. We hope you support the Town's ongoing effort to lead North Texas in important conservation projects.

Sincerely,



Kim Wilson-Rivers
Chairperson
Keep Little Elm Beautiful



Kim Wilson-Rivers – Chairperson
KLEB75068@Gmail.com

TOWN OF LITTLE ELM, TEXAS

RESOLUTION NO:

A RESOLUTION BY THE TOWN OF LITTLE ELM APPROVING THE APPLICATION FOR GRANT FUNDS FOR THE BUREAU OF RECLAMATION'S WATERSMART DROUGHT RESPONSE PROGRAM: DROUGHT RESILIENCY PROJECTS PROGRAM FOR FISCAL YEAR 2021 FOR THE TOWN'S WATER REUSE INFRASTRUCTURE PROJECT.

WHEREAS, the Town of Little Elm has prepared an application to apply for federal funding from the United States Department of the Interior, Bureau of Reclamation (Reclamation) to assist in the funding of the Drought Resiliency Program Project; and

WHEREAS, the funding opportunity is provided by Reclamation through their Grant Program entitled "WaterSMART Drought Response Program: Drought Resiliency Projects for FY 2021" Funding Opportunity Announcement No. is BOR-DO-20-F002; and

WHEREAS, the Water Reuse Infrastructure Project will install recycled water infrastructure connecting the Town's Water Reuse Storage Tank to local parkland, athletic fields, and public spaces; and

WHEREAS, the Applicant, if selected, will enter into an agreement with Reclamation to carry out the project.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE TOWN OF LITTLE ELM, TEXAS:

SECTION 1

That the Town of Little Elm Town Council has reviewed and supports the filing of an application for the improvements of the Water Reuse Infrastructure Project.

SECTION 2

That the Town of Little Elm Town Council certifies that they will work with Reclamation to meet established deadlines for entering into a grant or cooperative agreement with Reclamation.

SECTION 3

That the Town of Little Elm Town Council certifies that they are capable of providing the amount of funding specified in the application.

SECTION 4

That the Town of Little Elm appoints the Town Manager, or designee, as agent to conduct all negotiations, execute and submit all documents including, but not limited to applications, agreements, payment requests and so on, which may be necessary for the completion of the aforementioned project.

PASSED AND APPROVED this Tuesday, xx, xx, 2020.

David Hillock
Mayor

ATTEST:

Kathy Phillips, Town Secretary