

CITY OF SAN MARCOS, TEXAS

Recycled Water Feasibility Study & Master Plan

**WaterSMART: Water
Recycling and
Desalination Planning**



APPLICANT

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TECHNICAL PROPOSAL AND EVALUATION CRITERIA

EXECUTIVE SUMMARY

DATE: February 28, 2023

APPLICANT NAME: City of San Marcos, Texas

PROJECT NAME: City of San Marcos Recycled Water Feasibility Study & Master Plan

CITY, COUNTY, STATE: San Marcos, Hays County, Texas

PROJECT LENGTHS OF TIME: The total project length, including the grant execution, plan development, and close-out, is estimated to take 24 months. The estimated completion date is October 2025.

PROJECT ON FEDERAL FACILITY OR FEDERAL LAND: No

The City of San Marcos, Texas (population 68,580), a recognized disadvantaged community, requests \$250,000 to complete a Recycled Water Feasibility Study & Master Plan (Study). The total project cost is \$500,000. The proposed Study will determine the feasibility of expanding the City's existing reclaimed water system, capturing an estimated 4,000 acre-foot per year (AFY) of water discarded from the City's Wastewater Treatment Plant (WWTP) to the San Marcos River. The Study will provide a roadmap for future reclaimed water efforts and include a prioritized list of projects for construction. The project will build upon the City's ongoing efforts to expand water reuse as an alternative water supply, maintain water levels in the protected Edwards Aquifer, and preserve critical habitat in the San Marcos River. The Study contributes to accomplishing the goals of the notice of funding opportunity (NOFO) by "developing a new water recycling feasibility study," aligning with the top objective listed on page 12 of the NOFO. Projections for the San Marcos area indicate that by 2038 current water supplies may be insufficient to meet the needs of a rapidly growing population.¹ Additionally, prolonged drought periods have adversely impacted water delivery in the supply system. The project will provide the City with valuable information to address rapidly growing water demands and investigate water supply strategies.

PROJECT LOCATION

The proposed project is located in the City of San Marcos, Hays County, Texas, approximately 30 miles southwest of the City of Austin and 51 miles northeast of the City of San Antonio. The city is situated on the Balcones Fault, the boundary between the Hill Country and the Coastal Plains, where many springs emerge, such as the San Marcos Springs. The study area is in the "Transition Zone" of the Edwards Aquifer (an underground layer of porous, honeycombed, water-bearing rock that includes the Edwards and associated limestone). The Transition Zone is marked with caves and sinkholes where water enters the limestone below, with numerous wells and springs that provide water to the region. The proposed study area will include the city limits, as shown in Figure 1.

¹ South Central Texas Reginal Water Planning Group Water Plan Volume 1. <https://www.region1texas.org/>

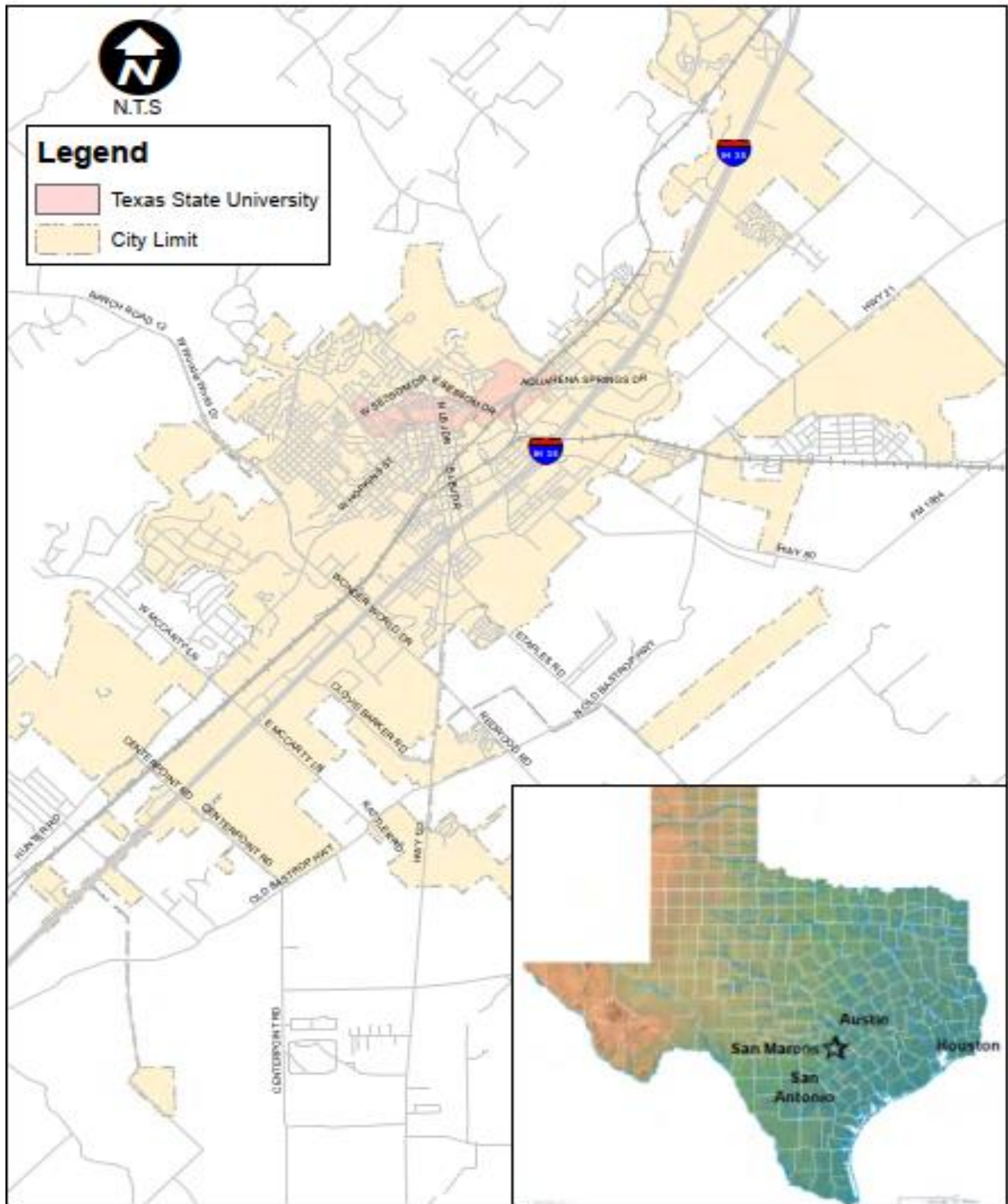


Figure 1. Project Location

TECHNICAL PROJECT DESCRIPTION

Applicant Category and Eligibility: The City of San Marcos is an eligible applicant per the eligibility requirements described in *Section C.1. Eligible Applicants* of the Notice of Funding Opportunity No. / R23AS00076. As the **local authority** within the **Western United States**, the City of San Marcos is seeking funding within **Funding Group 1**.

Goals: The proposed study aims to identify cost-effective, drought-resilient projects for potential potable and non-potable reclaimed water for the City of San Marcos.

Approach: The proposed San Marcos Recycled Water Feasibility Study and Master Plan will include, at minimum, the following tasks:

Task 1. Introduction to the Project

1. Identify the non-Federal project sponsor.
2. Provide a description of the study area and an area/project map.
3. Provide a definition of the study area in terms of both the site-specific project area where the reclaimed water supply will be needed and developed, and any reclaimed water distribution systems.

Task 2. Identify Needs and Challenges

This task serves to describe key water resource management problems and needs for which a water reclamation or recycling project will provide a solution, including the following information. All projections shall be reasonable and applicable for a minimum of 20 years.

2a. Identify the Current Water Supply Gap

1. Identify the need for recycled water and additional water supplies.
2. Evaluate previous studies done on drought, population growth, and demand projections.
3. Evaluate current and historical water supplies, including water rights and potential additional water sources, specifically focusing on drought and curtailment conditions.

2b. Establish a Process for Monitoring Near and Long-Term Water Availability, and a Framework for Predicting the Probability of Future Droughts/Existing Drought

2c. Complete a Vulnerability Assessment Evaluating the Risks and Impacts of Drought

This task will evaluate the risks and impacts of drought. The assessment will drive the development of potential mitigation and response actions based on a range of future conditions, including uncertainties related to changing hydrologic conditions.

2d. Description of Current and Projected Water Supplies

1. Evaluate previous studies done on water supply alternatives.
2. Provide a description of current and projected water supplies, including water rights and potential sources of additional water other than the proposed water reclamation or recycling projects and plans for new facilities. Potential future water supply options (not including reclamation options) include:
 - a. Contracting for additional surface water, and
 - b. Importing groundwater from other basins.

2e. Description of Current and Projected Water Demands

1. Summarize historic and current water demands.
2. Summarize projected water demands through 2060.

2d. Identify Water Quality Concerns

1. Define water quality requirements for potable reuse, determined by TCEQ on a case-by-case basis in accordance with the 30 TAC 290 - “Public Drinking Water.” Innovative/alternate treatment clause, which allows permitting of any treatment process that does not have specific design requirements in 290.42(a) - (f) of this title.”
2. For indirect potable reuse to surface water, define expected Texas Pollutant Discharge Elimination System (TPDES) permitting requirements based on surface water quality standards of the receiving stream.
3. For direct potable reuse, define project water quality performance targets based on information from the Texas Water Development Board Direct Potable Reuse Resource Document and site-specific City goals.
4. Identify potential water quality concerns for the current and projected water supply.

Task 3. Identify Water Reclamation and Reuse Opportunities

This task will address the opportunities for water reclamation and recycling in the project area and identify the existing and potential water market and potential sources of reclaimed water.

3a. Identify Uses of Reclaimed Water

1. Provide a description of all uses for reclaimed water, or categories of potential uses, including, but not limited to, environmental restoration, fish and wildlife, groundwater recharge, municipal, domestic, industrial, agricultural, power generation, and recreation.
2. Identify any associated water quality and associated treatment requirements. Potable supply augmentation is the primary preferred use of reclaimed water for this study.

3b. Description of the Water Market

1. Identify existing and potential users, expected use, peak use, on-site conversion costs, if necessary, and desire to use reclaimed or recycled water.
2. Describe any consultation with potential reclaimed or recycled water customers.
3. Describe the market assessment procedures used.

3c. Identify and Address Potential Concerns Associated with Reclaimed Water Uses

This task will identify considerations that may prevent the implementation of water reuse.

1. Discuss considerations (for example, physical, converting systems for reused water, or public acceptance) that could prevent implementing a water reclamation or recycling project.
2. Identify methods or community incentives to stimulate reclaimed or recycled water demand and methods to eliminate obstacles that will inhibit the use of reclaimed or recycled water, including pricing.

3d. Identify Jurisdictional Issues

Identify all the water and wastewater agencies that have jurisdiction in the potential service area or over the reclaimed or recycled water sources.

3e. Describe Potential Sources of Reclaimed Water

Describe potential water sources to be reclaimed or recycled, including impaired surface and ground waters. Potential sources of reclaimed water for the City include the Wastewater Treatment Plant. Satellite plants may also be considered.

3f. Describe Source Water Facilities

1. Define capacities, existing flows, treatment processes, and plans for future facilities.

2. Define the amount of reclaimed water available to meet new demands.

3g. Describe Current Reuse Practices and Summarize Current Water Reclamation Technology

1. Describe any current water reclamation or recycling in the study area, including a list of reclaimed water uses, type and amount of reuse, and a map of existing pipelines and use sites.
2. Provide a summary of any water reclamation, recycling, and desalination technology currently in use in the study area and opportunities for development of improved technologies.

3h. Description of Wastewater and Disposal Options

Describe current and projected wastewater and disposal options other than the proposed water reclamation and recycling projects, and plans for new wastewater facilities, including projected costs, if any.

Task 4. Description of Alternatives

This task will identify and evaluate the alternatives to water reuse projects and compare short- and long-term results with proposed water reuse project scenarios. This task is especially important due to the current projections of insufficient water supply to meet demands by 2038 and the continuous threat of drought conditions.

4a. Describe Non-Federal Funding Condition

This task will describe the “no project” option, i.e., what actions the City would take if Federal funding were not provided for the proposed reuse project.

4b. Define the Objectives of the Project and All Alternatives

Provide a statement of the specific objectives all alternatives, including the water reclamation or recycling projects, are designed to address.

4c. Describe Potential Project Elements

Provide a description of the proposed water reclamation or recycling project including:

1. Detailed project cost estimate.
2. Annual operation, maintenance, and replacement cost estimate.
3. Life cycle costs.
4. The estimated costs shall also be presented in terms of dollars per million gallons (MG), and/or dollars per acre-foot of capacity.

In this regard, the cost estimates shall clearly identify expenditures for major structures and facilities and other types of construction and non-construction expenses and shall be based on calculated quantities and unit prices. Project elements may consist of any of the following:

1. Treatment technologies employed to achieve water quality performance goals.
 - a. For potable reuse, advanced treatment technologies will be considered, including filtration, RO, and advanced oxidation processes (AOP). Alternative treatments such as nanofiltration, ozonation, and biofiltration may also be considered.
2. Location of the advanced treatment facilities.
3. Conveyance infrastructure.

4d. Description of Non-Title XVI Alternatives

If the water reclamation supply options are not implemented, the other options available to the City include the acquisition of additional water rights through contract and/or purchase,

development of additional local groundwater supplies, or importation of groundwater from other basins.

1. Describe the non-Title XVI alternatives, including treatment and conveyance facilities.
 - a. Include maps illustrating the proposed alternatives.
2. Prepare estimates of life cycle cost based on available information in the most recent South Central Texas Regional Water Plan (Region L) and other available water supply studies. Present the costs in dollars per acre-foot and dollars per thousand gallons.

4e. Determine Waste Discharge Requirements

Describe waste-stream discharge treatment and disposal water quality requirements for projects and each alternative.

Task 5. Economic Analysis

This task will summarize the results of the degree to which the proposed uses of reclaimed water identified are cost-effective and identify the economic benefits that are to be realized after implementation. This task will compare the cost of potable reuse options with the cost of nonpotable reuse alternatives developed in previous studies to evaluate the relative economic value of implementing potable reuse only or in a combination of potable and nonpotable.

5a. Describe Existing and Future Conditions

The economic analysis included in the feasibility study report shall describe the existing conditions in the area and provide projections of the future, with and without the project. The study will identify the following:

1. The contributions that the plan could make toward the alleviation of economic problems and the meeting of future water demand.

5b. Cost Comparison

1. Compare the cost of the project alternatives. The basis of this comparison will be:
 - a. Cost of water on a unit basis (\$/acre-foot)
 - b. Project capital cost and the availability of funding to meet the needed expenditures.
2. All comparisons will be made based on the same interest rates and analysis period.

5c. Compare Benefits

1. Identify and analyze potential benefits, which will include but are not limited to, the following:
 - a. Reduction, postponement, or elimination of development of new or expanded water supplies;
 - b. Reduction or elimination of the use of existing diversions from the natural watercourse or withdrawals from aquifers;
 - c. Reduction of demand on existing Federal or other water supply facilities; and
 - d. Reduction, postponement, or elimination of new or expanded wastewater facilities
 - e. Improvement in water quality over existing supplies
2. Develop quantitative benefit estimates from the alternatives where sufficient information is available.
3. For the benefits that are more difficult to quantify, provide qualitative descriptions of the benefits.

Task 6. Selection and Prioritization of the Proposed Water Reclamation and Recycling Projects

1. Provide a justification of why the proposed water reclamation and recycling projects are the selected alternatives in terms of meeting objectives, demands, needs, cost-effectiveness, and other criteria critical to the decision.
2. Provide an analysis and, if applicable, an affirmative statement of whether the proposed water reclamation and recycling projects would address the following:
 - a. reduction, postponement, or elimination of the development of new or expanded water supplies;
 - b. reduction or elimination of the use of existing diversions from natural watercourses or withdrawals from aquifers;
 - c. reduction of demand on existing Federal water supply facilities; and
 - d. reduction, postponement, or elimination of new or expanded wastewater facilities.
3. Identify, evaluate, and prioritize mitigation actions and activities that will build long-term resilience to drought and mitigate the risks posed by drought. This will include actions that can be taken during ongoing drought to minimize/mitigate impacts.

Task 7. Evaluate the Potential Effects on the Environment

This task will include an evaluation of the potential environmental impacts that could result in additional costs to comply with NEPA requirements.

7a. Environmental Considerations and Potential Impacts

1. Assess the implications on endangered or threatened species, public health or safety, natural resources, regulated waters of the United States, or cultural resources.
2. Identify potentially significant environmental effects or unique or undefined environmental risks associated with the proposed strategies.
3. Identify the status of required Federal, state, tribal, and/or local environmental compliance measures, including copies of any documents prepared or results of relevant studies.
4. Identify and analyze other available information that would assist with assessing the measures necessary to comply with the NEPA and other applicable Federal, state, or local environmental laws, such as the Endangered Species Act or the Clean Water Act.
5. Describe how the proposed reuse alternatives will affect water supply and quality from a regional, watershed, aquifer, or river basin perspective.
6. Describe the extent of public involvement in the feasibility study and summarize comments received if any.
7. Identify potential effects the project may have on historic properties. Describe potential mitigation measures, the potential for adaptive reuse of facilities, an analysis of historic preservation costs, and the potential for heritage education, if necessary.

Task 8. Legal and Institutional Requirements

This task will identify potential legal and institutional requirements or other barriers to implementing the proposed project.

8a. Analyze Water Rights

Provide an analysis of any water rights issues potentially resulting from the implementation of the proposed water reclamation, recycling desalination project.

8b. Analyze Institutional and Legal Requirements

Other institutional and legal requirements will be identified and summarized. These may include contractual agreements, settlement agreements, or other obligations related to the recommended project.

8c. Analyze Multi-Jurisdictional and Interagency Aspects

Any multi-jurisdictional or interagency agreements associated with the proposed project will be summarized in this task.

8d. Analyze Permitting Requirements

This task will describe the permitting requirements required for project implementation and recommendations for strategies to streamline the permitting process.

8e. Discussion of Any Unresolved Issues Pertaining to Implementing the Proposed Recommendations

As potential issues for the proposed projects arise throughout the study, the issues will be identified and addressed as part of this task.

8f. Analyze Wastewater Discharge Requirements and Rights to Wastewater discharges

1. Identify any current and projected wastewater discharge requirements resulting from the proposed projects.
2. Describe the rights to wastewater discharges resulting from the implementation of the proposed project.

Task 9. Implementation and Funding Plan

Develop an implementation and funding plan that includes the following information:

1. A plan for implementing the preferred alternatives:
 - a. Describe the treatment and infrastructure requirements;
 - b. Identify any future public outreach initiatives that may be needed to address public concerns related to implementation project alternatives;
 - c. Identify basic research needs, if any; and
 - d. Develop a schedule for implementing preferred alternatives that include applicable components such as basic research, pilot testing, design and construction, customer contracts, permitting, and other necessary elements.
2. A funding plan proposed project construction, operation, maintenance, and replacement costs:
 - a. Identify capital costs and the full operation, maintenance, and replacement costs;
 - b. Develop a plan for funding the proposed alternatives, including construction, operation, maintenance, and replacement costs, with an analysis of how the City will pay construction and annual operation maintenance and replacement costs; and
 - c. Description of potential funding sources, Federal and Non-Federal funding sources, including maximum and minimum cost-share.
3. Operational and administrative framework:
 - a. The study will identify who is responsible for undertaking the actions necessary to implement each element of the implementation plan, including communicating with the public about those actions.
4. Financial Capability of Sponsor:
 - a. Demonstrate financial capability if the projects move to construction.

Task 10. Planning Process and Update

This task will include the following:

1. Describe the process that was undertaken to develop the plan, including how stakeholders were engaged and how input was considered; and
2. Include a process and schedule for monitoring, evaluating, and updating the plan.

Task 11. Reporting

Prepare a Title XVI feasibility report that organizes and describes the work performed in the previous tasks and meets applicable requirements of RM Directives & Standards WTR 11-01.

EVALUATION CRITERIA

Evaluation Criterion 1: Project Planning and Analysis

Sub-criterion 1a. Water Recycling Needs and Opportunities (15 points)

(1) Describe the problem and needs in the project area. The City of San Marcos has been forward-thinking about water conservation and reuse for decades. In 2000, the City began its first water reuse project following the City's Wastewater Treatment Plant (WWTP) expansion and changed from secondary to tertiary treatment. Extending an 18-inch diameter pipeline approximately 8.5 miles from the WWTP to a gas-fired power plant in 2000 allowed the City to serve additional customers and implement reclaimed water service. Contracts were executed for extending reclaimed water to a cement plant in 2007 and a golf course in 2010 for irrigation and plant functions, offsetting the potable water draws from these locations.

In 2014, the City commissioned the 'Direct Water Reuse Expansion Feasibility Study' in collaboration with Texas State University (Texas State), funded by the Texas Water Development Board (TWDB). The previous study focused heavily on the feasibility of expanding the City's reclaimed water system to serve Texas State and kick-started a project between the two for the City to develop and study green technology to be utilized in an advanced purification system for potable water reuse.² This technology can enhance the reclaimed water system and the City has begun to discuss using and installing purple pipe to serve the university's four thermal plants and shared recreational areas along the San Marcos River. While the original study was a good first step, it stopped short of analyzing the entire City's potential for projects. Population projections have increased in the last 19 years, rendering the study inadequate for today's needs.

² Texas State University. Faculty Research Spotlight. <https://www.txst.edu/research/resources/research-newsletter/newsletter-archives/research-newsletter-summer-2021/faculty-research-spotlight/faculty-research-spotlight-ikehata.html>

The problem is multi-pronged: 1) The South Central Texas Regional Water Planning Group (also known as Region L) Water Plan advises that current water supplies may be insufficient to meet the City's needs as soon as 2038. The population of San Marcos has shown an average



growth rate of 4.66%, with a projected population of 165,770 in 2038. During this time, there are an additional seven new development areas (residential and commercial) not accounted for in current projections; 2) San Marcos draws a significant portion of its water from the Edwards Aquifer, a protected aquifer that receives rainfall through fractures, caves, sinkholes, and other features. The Edwards Aquifer is the source of the largest springs in Texas and the sole source of drinking water for more than 1.5 million Central Texas residents. Rapid growth and development continue to impact the aquifer, reducing the number of recharge features

needed to maintain this region's primary water resource; 3) The Edwards Aquifer is also home to protected species, which are the San Marcos Salamander, Texas Blind Salamander, Fountain Darter, Texas Wild-Rice, Comal Springs Riffle Beetle, Peck's Cave Amphipod, Comal Springs Dryopid Beetle, Texas Troglobitic Water Slater, Edwards Aquifer Diving Beetle, Comal Springs Salamander, and San Marcos Gamusia; continued draw from the aquifer puts these species at risk and 4) Persistent drought continues to plague the Texas region year after year.³ The City must aggressively analyze alternatives to groundwater supply to offset reduced rainfall caused by climate change. A key focus of the proposed study is to understand how alternative water supplies could build resilience to drought.

(2) Describe the current and projected water supplies and demands in the project area; include a discussion on supply and demand imbalances. Explain how the problems and needs in the area may be impacted by climate change and/or if supply and demand projections will include climate change information. Current Water Supplies. The City of San Marcos

Water/Wastewater Utility is comprised of several components, including groundwater pumping stations, a surface water production and treatment system, a water distribution system, a wastewater collection system, and a wastewater treatment facility. The City of San Marcos utilizes surface and groundwater resources to meet its water needs. The majority of the City's water supply, 80%, originates from surface water from Canyon Lake/Guadalupe River. The surface water is treated at the Regional Surface Water Treatment Plant (SWTP), operated by the Guadalupe-Blanco River Authority (GBRA). Water is delivered from the Guadalupe River via a 20-mile-long raw water pipeline from an intake on a canal extending from Lake Dunlap. In 2008, the plant was expanded to operate at 21 million gallons per day (MGD) to accommodate additional users north of San Marcos. The facility currently produces approximately 9 MGD/27 acre-feet per day (AFD) (or 9,855 AF per year/AFY) for San Marcos.

³ Edwards Aquifer Habitat Conservation Plan. Covered Species.

<https://storymaps.arcgis.com/collections/f38c5de080ef472b925fa1655e48c576>

Another significant water source is groundwater purchased from the Edwards Aquifer Authority (EAA). The groundwater system is comprised of six active Edwards Aquifer wells, which provide approximately 4.85 MGD/14.9 AF per day (or 5,439 AFY), providing about twenty percent of the City’s annual water usage when not under drought restrictions. This is rare. Currently, the EAA supply is at a Stage 3 restriction, meaning the City receives 35% of its allocation, or about 3.15 MGD/9.7 AFD (3,540 AFY). The Regional Surface Water Treatment Plant mentioned above began operation in January 2000 and has helped to reduce the City’s reliance on the Edwards Aquifer. In addition, the City purchases water from the Canyon Water Regional Water Authority (CRWA), approximately 1.17 MGD/3.6 AFD (1,314AFY) available, and later this year, the City will receive an allocation of 2.4 MGD/7.4 AFD (2,701 AFY) from a start-up Alliance Regional Water Authority (ARWA) plant that serves the cities of Buda, Kyle, and San Marcos supported with groundwater from Carrizo Aquifer.

Source of Supply	Acre Feet per Year Available
Gudalupe-Blanco River Authority	9,855
Edwards Aquifer Authority	5,439 (at full capacity, reduced up to 44% based on drought restrictions)
Canyon Water Regional Water Authority	1,314
Alliance Regional Water Authority	2,701
Total existing Supply	19,309
Existing Reclaimed Water Supply	5,891
Total Supply, including Reclaimed	25,200

Outside of these sources, the City operates a reclaimed water distribution system that provides recycled water to Hays Energy (1.3 MGD), Kissing Tree (a master-planned community of 3,000 homes) golf course and open space irrigation (1.2 MGD), Martin Marietta Concrete Plant (0.7 MGD), and Texas

State University (1 MGD). The City provides a total of 4.2 MGD/12.9 AFD, or 4,708 AFY of reclaimed water, to just four users. However, the plant has an average flow of 5.26 MGD (5,891 AFY), meaning approximately 1.06 MGD/3.3 AFD or 1,204 AFY is lost.

The City has identified additional possible non-reclaimed supplies, some in design phases, some simply conceptual, that might be possible to augment existing supply. There is a possibility to expand the Alliance Regional Water Authority plant, but there are no plans at this time, and funding for construction is a barrier.

Projected Demands. The South Central Texas Regional Water Planning Group Water Plan cites the following:

The population of the South-Central Texas Region is projected to increase by 73% by 2070, with most of the expected growth along the Interstate 35 corridor, which runs through the heart of the City.⁴ By 2070 the total water demands for the region are expected to increase by 25 percent to 1,320,128 AFY. The San Antonio Water System, New Braunfels, and the *City of San Marcos* are expected to have the greatest growth in water demand volumes between 2020 and 2070, with increases of 114,645 AFY, 22,674 AFY, and 14,297 AFY, respectively.⁵

⁴ South Central Texas Regional Water Planning Group Water Plan Volume 1. Page 111. https://www.regionltexas.org/wp-content/uploads/2022/11/RegionL_2021RWP_V1.pdf

⁵ Ibid. Page 117. https://www.regionltexas.org/wp-content/uploads/2022/11/RegionL_2021RWP_V1.pdf

As seen above, the City is teaming with partners outside the Edwards Aquifer Authority (EAA) to reduce the draw on that source and diversify resources. As drought plagues our area, our surface and groundwater supplies are especially vulnerable to reduced replenishment. We are currently in Stage 3 Restrictions with EAA, with a 35% reduction in our available allocation. As the population and development surge, the City is looking to all possibilities for supporting future water needs, which exceed our current and future supply.

(3) Describe how the planning activities will investigate potential uses and markets for reclaimed or desalinated water (e.g., environmental restoration, fish and wildlife, groundwater recharge, municipal, domestic, industrial, agricultural, power generation, and recreation).

The Study will investigate multiple uses of reclaimed water, including environmental restoration, fish and wildlife, groundwater recharge, municipal, domestic, industrial, power generation, and recreation. San Marcos plans to expand and enhance its non-potable reuse system and possibly initiate direct potable reuse to provide potable water to customers. Planning to expand the recycled water system involves identifying potential users along the existing recycled water pipeline and additional infrastructure needed to serve new and projected developments.

(4) Describe the source water that will be considered for the project, including location, capacities, existing flows, treatment processes, and quantities of impaired water available to meet the new reclaimed, recycled or desalinated water demands. The sources of what that will be considered in the proposed feasibility study are:

Existing Reclaimed Water Plant. The City provides four large-scale users an average of 4,708 AFY of reclaimed water. However, the plant has an average flow of 5,891 AFY, meaning over 1,000 AFY of available reclaimed flow is unused and could be used for additional connections.

Treated Effluent from the City of San Marcos wastewater treatment system. Average effluent flow ranges from 3.3 MGD to 5.6 MGD from the WWTP, with an annual average sum of 1,629.65 MG, or 5,001 AFY of treated effluent discharged into the San Marcos River. Capturing this flow could more than double our existing reclaimed system. (The City must use advanced tertiary treatment to meet the 5-5-6-2-1 treatment quality standard and discharge into the river.)⁶

Stormwater. The City of San Marcos is currently in the process of updating the Stormwater Master Plan. The proposed feasibility study will integrate information from the plan to analyze the potential for collecting and reusing stormwater runoff for reuse and distribution to the community. Capacities and flows are unknown at this time.

Sub-criterion 1b. Evolution of Project Alternatives (15 points)

(1) Describe the objectives that all alternatives will be designed to meet. What other water supply alternatives and project alternatives will be investigated? Alternatives for expanding the San Marcos reclaimed water system will be evaluated based on meeting the objectives of providing service to meet the users' water demands while reducing current and future potable water demand and providing positive social and environmental benefits. The proposed feasibility study will identify alternatives for potential potable and non-potable reclaimed water for the City of San Marcos. The alternatives described will be designed to meet the following objectives:

⁶ Water Conservation Plan for the City of San Marcos.

1. Provide a reliable water supply;
2. Ensure water supplies protect and promote public health;
3. Cost-effectiveness;
4. Reduce draws from the Edwards Aquifer;
5. Drought resistance;
6. Response to growth and climate change;
7. Accomplished in a timely manner;
8. Preserve local natural waterbodies.

(2) Describe how the planning activities will develop project alternatives (water supply sources, reuse strategies, or treatment technologies) that have been or will be investigated. The sole purpose of the proposed plan is to investigate multiple alternatives for water supply and identify the most effective use of reclaimed water. This will be accomplished by contracting with a consultant to develop the plan and working with stakeholders to gain input.

(3) Provide a general description of the selected project, including project features, benefits, anticipated costs, and analyses conducted. The selected project is to develop a feasibility study and master plan for recycled water in the City of San Marcos. Benefits will be those described throughout the application: drought resilience, added water capacity for potable and non-potable uses, environmental benefits to endangered species in the San Marcos River, and reduced draw from the Edwards Aquifer. The total project study cost is \$500,000. Analyses will be those actions identified in the Technical Project Description.

(4) Include a preliminary schedule showing major tasks, milestones, and dates for the planning, design, and construction activities related to the project. The proposed study is anticipated to take 24 months to complete. The study is expected to be completed by October 31, 2025.

City of San Marcos Feasibility Study Project Schedule	2023			2024					2025																		
	Q4			Q1			Q2		Q3		Q4		Q1		Q2		Q3		Q4								
	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Execute Funding Award																											
Procure Consultant for Plan Development																											
Project Kick Off																											
Identify Needs and Challenges																											
Identify Water Reclamation and Reuse Opportunities																											
Identify and Evaluation Alternatives																											
Economic Analysis																											
Environmental Analysis																											
Legal and Institutional Requirement																											
Implementation and Funding Plan																											
Prepare Draft Report for Review																											
Final Report Approval																											

Figure 2. Propose Project Schedule

Evaluation Criterion 2: Stretching Water Supplies (20 points)

(1) Describe the potential for the project to reduce, postpone, or eliminate the development of new or expanded non-recycled water supplies. As a rapidly growing community, it will be

critical for the City to strategically plan to appropriately accommodate growth to support the most beneficial long-term solution for water efficiency. The study aims to determine the most viable options for recycled water use to stretch valuable water resources. Expansion of reclaimed water would reduce reliance on the Edwards Aquifer and Canyon Lake during drought periods. This would contribute to the maintenance of the spring flow of the San Marcos Springs and the protection of endangered species in the San Marcos River.

The City and surrounding communities (i.e., Buda and Kyle) have discussed designing and constructing an expansion of the ARWA start-up plant coming on line this year to provide additional water supplies to support population growth. The proposed study could help delay the need for such measures in the near future.

(2) Describe the potential for the project to alleviate pressure on existing water supplies and/or facilities. Please describe the existing water supplies, identify the supplies and/or facilities that will be impacted, and explain how they will be impacted by the Project, including quantifications where applicable. As mentioned, existing supplies are drawn mostly from GRBA surface water sourced from Canyon Lake. Please see the table below, adjusted to show source and customers from earlier in the application:

Source of Supply	Acre Feet per Year Available	Source	Provides Water To
Guadalupe-Blanco River Authority	9,855	Canyon Lake	Portions of Hays, Caldwell, Atascosa, Comal, Guadalupe, Wilson, and Bexar Counties
Edwards Aquifer Authority	5,439 (at full capacity, reduced up to 44% based on drought restrictions)	Edward Aquifer Wells	Portions of Hays, Williamson, Travis, Comal, Blanco, Bexar, Medina, Uvalde, and Kinney Counties
Canyon Water Regional Water Authority	1,314	Canyon Lake	Portions of Hays, Caldwell, Atascosa, Comal, Guadalupe, Wilson, and Bexar Counties
Alliance Regional Water Authority	2,701	Carrizo-Wilcox Aquifer	Kyle, San Marcos and Buda, County Line Special Utility District (SUD), Crystal Clear SUD, Martindale WSC, and Green Valley SUD.
Total Existing Supply	19,309		

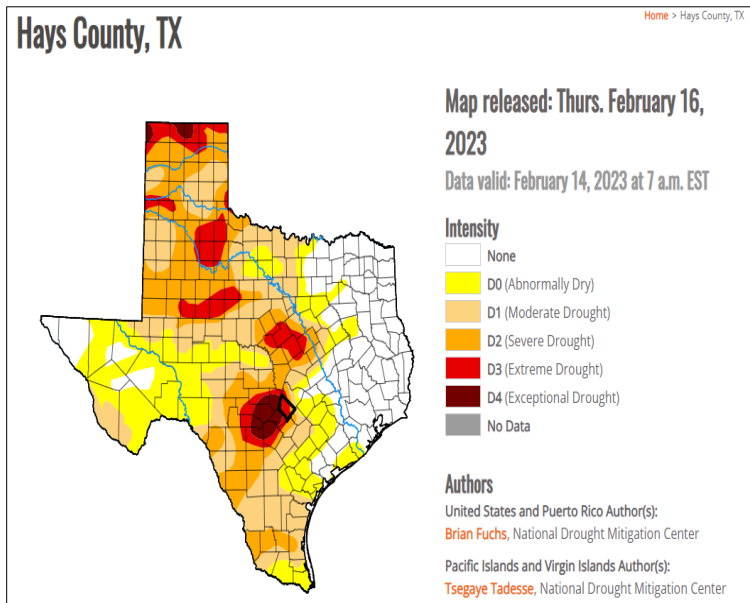
Table 2. Water Supply and Customer

Like all of our State, the water supply in Central Texas is stretched thin, with heavy competition for rights. Luckily, the City of San Marcos has formed strong partnerships with neighboring cities like Kyle and Buda to share resources and costs. But as this Central Texas region continues to boom in population, threats for water competition will be ever-present. As stated previously, the population of this region is projected to increase by 73% by 2070, with most of the expected growth along the Interstate 35 corridor (which runs through the City of San Marcos and right

through the Edwards Aquifer). In addition, water from the Edwards Aquifer is especially vulnerable. Over wide areas, the aquifer produces large volumes of water from several layers of highly permeable and porous honeycombed rock. Because the aquifer is extremely permeable and has rapid recharge and discharge, it is vulnerable to contamination when exposed to the surface in the aquifer recharge zone. The aquifer is highly regulated and thus not always reliable.

The City has preliminarily identified approximately 6,205 AFY of additional supply that could augment potable use (1,204 AFY unused reclaimed, 5001 AFY treat effluent).

(3) Describe the potential for the project to make water available to address a specific concern. Explain the specific concern and its severity. Also, explain the role of the project being investigated in addressing the concern and the extent to which the project will address it. Specific concerns include population growth and drought. Historical prolonged periods of drought and heat have negated the immediate opportunities for precipitation to adequately increase the water supply level within the Edwards Aquifer to meet the current population demand for usage. To address the severity and concerns of drought, the Study will include the following components: Investigate the use of a drought monitoring system, a vulnerability assessment, the identification of mitigation actions that will build long-term resiliency to drought, response actions that can be implemented during drought to alleviate negative impacts, and a framework to identify who is responsible for undertaking actions necessary to implement each element.



As 100% of our potable water supply comes from surface and groundwater, we are especially vulnerable to drought, as demonstrated by our current 35% restricted draw on Edwards Aquifer water. The Edwards Aquifer supplied approximately 42% of the total water used in the South Central Texas Region in 2010. Water demands for the counties using significant supplies from the Edwards Aquifer are projected to grow approximately 0.76 percent per year between 2020 and 2040. However, not even the present level of use can be sustained through drought periods while maintaining levels of flows at the Comal and

Table 3. Drought Conditions

San Marcos Springs adequate to support habitats of threatened and endangered species while also meeting downstream water rights.⁷

⁷ 2021 South Central Texas Regional Water Plan, South Central Texas Regional Water Planning Group – Region L, https://www.twdb.texas.gov/waterplanning/rwp/plans/2021/L/RegionL_2021RWP_V1.pdf?d=4130.5

The periods of prolonged drought in San Marcos have adversely impacted water delivery in the supply system. The regional climate change patterns have created meteorological conditions with prolonged periods of increased temperatures beyond the standard Fall and Winter months. See the Texas Drought Monitor image from February 16, 2023, showing Hays County, outlined in black, as in Extreme Drought, surrounded by Extreme and Exceptional Drought conditions in the Edwards Aquifer service area (Figure 3).

(4) Describe the potential for the project to help create additional flexibility to address drought. Will water made available by the project being investigated continue to be available during periods of drought? To what extent is the water made available by the project being investigated more drought resistant than alternative water supply options? Water supply reliability is a significant issue for the region as water supplies that are susceptible to drought make up a significant portion of the water supply in the region. Increased reclaimed water use could enhance the overall reliability of the water supply and provide a valuable resource during recurring drought conditions that will support the environmental goals of the region as well as the local economy. Reclaimed water, by nature, is not dependent on the surface or groundwater supplies but rather on treated effluent from the wastewater system. This means that the supply will be consistently available regardless of drought conditions.

Evaluation Criterion 3: Environment and Water Quality (20 points)

(1) Describe the potential for the project to improve the quality of surface water or groundwater. The project could improve surface water quality by decreasing the nutrient load of the effluent discharge by the WWTP into the San Marcos River, as it could be recycled and reused instead of discharged.

(2) Describe the potential for the project to improve effluent quality beyond levels necessary to meet State or Federal discharge requirements. Chapter 86, Article 9 of the San Marcos Code of Ordinances establishes the regulations for preventing contaminants and pollutants from entering the city's potable water system.⁸ This section of the city's ordinances ensures effective cross-connection control, an inspection of backflow prevention devices, and conformance with Texas Commission of Environmental Quality reclaimed water regulations. Water from the WWTP is regulated beyond state or federal discharge requirements because it is released into the San Marcos River and is heavily monitored.

(3) Describe the potential for the project to improve flow conditions in a natural stream channel. Increasing the use of reclaimed water in the study area would increase the reliability of supplies for industrial and municipal irrigation uses. The reduced demand on the Edwards Aquifer resulting from the increased use of reclaimed water can increase spring flow by reducing withdrawals from the aquifer, which is vital in this region. Reclaimed water could also support the riparian and aquatic habitat along the San Marcos River by providing water for irrigation of vegetative buffers in city parks along the river identified in the USACE Section 206 Aquatic Ecosystem Restoration Project. Irrigation of city parklands along the San Marcos River would

⁸ San Marcos, Texas - Code of Ordinances.

https://library.municode.com/tx/san_marcos/codes/code_of_ordinances?nodoid=SPAGEOR_CH86UT

also provide a vegetative buffer along the areas of critical habitat that will aid in reducing erosion and sediment transportation to the river.

(4) Describe the potential for the project to restore or enhance habitat for non-listed fish and wildlife species. Habitats for Texas wild rice, the fountain darter, the San Marcos salamander, and the San Marcos gambusia depend on constant natural spring flow in the San Marcos River. Recommended recovery actions from the USFWS 1984 San Marcos River Endangered and Threatened Species Plan include managing the Edwards Aquifer to ensure the continuation of the San Marcos Springs flow.⁹ This action protects both non-listed and threatened fish and wildlife species.

(5) Describe the potential for the project to provide water or habitat for federally listed threatened or endangered species. The Edwards Aquifer Recovery Implementation Program's Habitat Conservation Plan has identified minimizing withdraws from the Edwards Aquifer and San Marcos River as essential to the survival of the endangered species that rely on the aquifer and the river.¹⁰ The San Marcos River provides habitat for four species listed by the USFWS as endangered, as identified in the question above (Texas wild rice, the fountain darter, the San Marcos salamander, and the San Marcos gambusia). Reduced diversions from the San Marcos River resulting from expanded use of reclaimed water will increase instream flows in the upper San Marcos River in critical habitat areas.¹¹

Evaluation Criterion 4: Department of the Interior Priorities (15 points)
Climate Change.

(1) Provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis. The project will address the impacts of climate change and help combat the climate crisis by outlining a plan for reclaimed water use that will reduce the draw on existing supply, including the Edwards Aquifer, reducing the impacts of increased drought on both water supply and endangered species habitat of the San Marcos River. Reclaimed water will be an additional source of water for the City that does not depend on rainfall.

According to the National Oceanic and Atmospheric Administration (NOAA), the global average temperature recorded from January – December 2022 was the sixth highest since global records began in 1880. In North America, 2022 ties with 2011 and 2019 as the continent's 15th warmest year on record. In the contiguous United States, dry and warm conditions damaged wildfires across the West during the Northern Hemisphere Spring and Fall seasons.¹² Texas was deemed the southern Plains region's epicenter of drought and heat in 2022. The state recorded having the second driest period between the months of January through July, and with the hottest

⁹ San Marcos Recovery Plan for San Marcos River Endangered and Threatened Species. https://www.edwardsaquifer.org/wp-content/uploads/2019/02/1985_FWS_SanMarcosRecoveryPlan.pdf

¹⁰ Edwards Aquifer Recovery Implementation Program. <https://www.edwardsaquifer.org/wp-content/uploads/2022/07/Edwards-Aquifer-Recovery-Implementation-Program-Nov-2021.pdf>

¹¹ Direct Water Reuse Expansion Feasibility Study. <https://tx-sanmarcoscity.civicplus.com/DocumentCenter/View/4700/Direct-Water-Reuse-Expansion-Feasability-Study-PDF>

¹² Annual 2022 Global Climate Report, [Annual 2022 Global Climate Report | National Centers for Environmental Information \(NCEI\) \(noaa.gov\)](https://www.noaa.gov/global-climate-report),

temperatures recorded during April through July. Almost half of the state’s territory was impacted by moderate to severe levels of drought.¹³

(2) Does the proposed project strengthen water supply sustainability to increase resilience to climate change? Does the proposed project contribute to climate change resiliency in other ways not described above? Yes. The proposed feasibility study and master plan will aid in the City’s efforts to reduce water use stressors on the existing water supply have been driven in response to the escalator events derived from recurring drought cycles and the regional push to preserve the endangered species habitat of the San Marcos River by reducing water demand usage from the Edwards Aquifer.

Disadvantaged or Underserved Communities.

(1) Will the proposed project benefit the disadvantaged or historically underserved community? Benefits can include but are not limited to, public health and safety by addressing water quality, new water supplies, or economic growth opportunities. Yes. San Marcos is classified as a disadvantaged and historically underserved community.¹⁴ The proposed project plan will highlight the impacts and conditions of climate change experienced in the region. Also, the proposed project plan will address new innovative means, methodologies, and the need for increased efforts for an effective water reclamation and water management system in relation to the adverse impacts posed upon the socioeconomic, public health, housing, environmental, and existing water supply facilities of the community.

The estimated population of San Marcos exceeds 67,000 residents, which includes approximately 38,000 Texas State University students.¹⁵ According to the United States Census Bureau, the per capita income for San Marcos is \$22,001, with an estimated 30.6% of persons in the local community living in poverty, in comparison to the national per capita income of \$37,638 with an estimated 11.6% of persons in the nation living in poverty.¹⁶ Four census tracts identified within the City have met the thresholds of meeting moderate to high levels of the Social Vulnerability Index (SVI).¹⁷ Data provided for Hays County drills down to produce an overall SVI of 0.6585 (Possible scores range from 0, lowest vulnerability, to 1, highest vulnerability).

Tribal Benefits.

(1) Does the proposed project directly serve and/or benefit a Tribe? Will the project improve water management for an Indian Tribe? There are three federally recognized tribes within the State of Texas. None of the recognized tribes are within the Central Texas region. According to 2020 census data, more than 3,100 people in Hays County identify as “American Indian.” Of the estimated 3,100 people identifying as “American Indian,” approximately 270 of the same

¹³ Annual 2022 Drought Report, [Annual 2022 Drought Report | National Centers for Environmental Information \(NCEI\) \(noaa.gov\)](https://www.noaa.gov/news/annual-2022-drought-report).

¹⁴ United States Census Bureau – Hays County, Texas QuickFacts.

<https://www.census.gov/quickfacts/fact/table/TX,sanmarcocitytexas,hayscountytexas/PST045222>.

¹⁵ Texas State University, Institutional Effectiveness Office of Institutional Research. University Enrollment.

<https://www.ir.txst.edu/highlights/highlights-enrollment>.

¹⁶ United States Census Bureau – Hays County, Texas QuickFacts.

<https://www.census.gov/quickfacts/fact/table/TX,sanmarcocitytexas,hayscountytexas/PST045222>.

¹⁷ CDC Social Vulnerability Index. <https://www.atsdr.cdc.gov/placeandhealth/svi/index.html>.

identifying group reside within the City of San Marcos.¹⁸ Even though the project plan will not directly serve any federally recognized tribes in the state, all people within the Central Texas region will reap the benefits of an improved water management system plan and utilizing a reclaimed water supply.

(2) Does the proposed project support Tribal resilience to climate change and drought impacts or provide other Tribal benefits, such as improved public health and safety by addressing water quality, new water supplies, or economic growth opportunities? There are no federally recognized tribes in the Edwards Aquifer zone or Central Texas. However, the proposed project plan will benefit all identified demographic groups within the local community by providing updated guidance establishing a long-term plan encompassed with adjusted resiliency measures to implement and manage an innovative and effective water delivery system, to increase the water system capacity, to improve the water quality of the natural and reclaimed water supply system, to protect the environment and its habitat, and to mitigate any adverse impacts derived from climate change which impacts the overall state of infrastructure functionality, local public health, and the local economy.

Evaluation Criterion 5: Watershed Perspective and Stakeholder Involvement (15 points)

(1) Will the proposed project implement a regional or state water plan or integrated resource management plan? Yes. This project supports utilizing recycled water to offset potable water needs. The 2021 SCTRWP includes 33 Water Management Strategies for San Marcos and the surrounding regions, including reuse (pg. ES-10, Executive Summary)¹⁹.

(2) Will the proposed project help meet the water supply needs of a large geographic area, region, or watershed? The proposed project will help meet the water supply needs of the local community and region. The City of San Marcos is in the South Central Texas Regional Water Planning Area, which includes all or parts of 21 counties, portions of nine river and coastal basins, the Guadalupe Estuary, and the San Antonio Bay. The largest cities in the region are San Antonio, Victoria, **San Marcos**, and New Braunfels. The region contains the two largest springs in Texas: Comal and San Marcos. Water planning in the region is particularly vital due to the intricate relationship between the region's surface and groundwater resources. With limited local water resources, the region will rely on water supplies from outside the region to meet its future needs.²⁰

(3) Will the proposed project promote collaborative partnerships to address water-related issues? Describe stakeholder involvement in the project planning process. Yes. Stakeholders include the Edwards Aquifer Authority, Hays County, Representative Erin Zwiener, San Marcos Regional Airport, and Texas State University. These stakeholders have agreed to sit on a committee throughout the planning process and provide information on the organization's website for public outreach. A copy of the draft report will also be provided to the following

¹⁸ United States Census Bureau – Hays County, Texas QuickFacts.

<https://www.census.gov/quickfacts/fact/table/TX,sanmarcocitytexas,hayscountytexas/PST045222>.

¹⁹ South Central Texas Regional Water Plan | Volume 1. https://www.regionltxas.org/wp-content/uploads/2022/11/RegionL_2021RWP_V1.pdf

²⁰ Texas Water Development Board Region L Planning Group.

<https://www.twdb.texas.gov/waterplanning/rwp/regions/l/index.asp>

agencies for review: Texas Commission on Environmental Quality, Edwards Aquifer Authority, Texas Water Development Board, Region L Water Planning Group, Texas Parks and Wildlife, and U.S. Fish and Wildlife Services.

(4) Will the proposed project include public outreach and opportunities for the public to learn about the project? Yes. Three public meetings will be conducted to solicit public input regarding the study, with notices of the public meetings posted in accordance with the public meetings requirement and on the City's website. The City maintains an active public information program to educate water users about the importance of water conservation techniques. Public outreach activities will also include a campaign to educate the public via the City's website. The City's project director, in conjunction with the City's communication department, will manage the campaign and work with stakeholders to promote public input and collaboration through each stakeholder's website. A draft final report will be made available on the city website for public review and comment, with a notice posted in the local newspaper.

REQUIRED PERMITS OR APPROVALS

The City approved a resolution on February 21, 2023, in support of the grant application. The resolution is included in the application pack. The City anticipates that no additional permits or approvals will be required to develop the feasibility study. However, the consultant will explore and confirm if any permits or approvals are required to develop the proposed study. The feasibility study will identify needed permits and approvals for proposed water-reuse projects.

An official Resolution will be submitted to sha-dro-fafoa@usbr.gov within 30 days of the application deadline.

FUNDING PLAN

The City of San Marcos will contribute \$250,000.00 in local funds for hiring an experienced consultant to conduct the City of San Marcos Recycled Water Feasibility Study & Master Plan. This study is critical for responsible water planning efforts. Funds are readily available for this project and a Letter of Commitment is included with this application package. There are no actual or potential conflicts of interest.

Table 1. Summary of Non-Federal and Federal Funding Sources

Funding Sources	Amount
Non-Federal Entities	
<i>Local Funds</i>	\$250,000
Non-Federal Subtotal	\$250,000
Requested Reclamation Funding	\$250,000
Total Project Cost	\$500,000

Table 2. Total project cost table

Source	Amount
<i>Costs to be reimbursed with the requested Federal funding</i>	\$250,000
<i>Costs to be paid by the applicant</i>	\$250,000
Value of third-party contributions	\$0.00
TOTAL project cost	\$500,000

BUDGET NARRATIVE

Personnel.

There are no personnel costs associated with this project.

Fringe Benefits.

There are no fringe benefits associated with this project.

Travel.

There are no travel costs associated with this project.

Equipment.

There are no equipment costs associated with this project.

Materials and Supplies.

There are no materials and supplies costs associated with this project.

Contractual.

Tasks performed by the consultant may include but will not be limited to identifying the water supply needs and challenges, identifying water reclamation and reuse opportunities, a description of alternatives, economic analysis, the selection and prioritization of the proposed water reclamation and recycling projects, evaluating the potential effect on the environment, legal and institutional requirements, an implementation and funding plan, a description of the planning and update process, reporting, and research needs.

The selected Consultant will be hired to develop the Feasibility Study and Master Plan. The \$500,000 fee is based on the City of San Marcos's history of hiring consultants to complete similar planning documents, including our most recent Water Master Plan and Stormwater Master Plan. The fee is in line with the average fees in our area for this type of analysis and planning document. The City of San Marcos will request Proposals from interested qualified Respondents to provide the contractual services in accordance with City and Federal procurement guidelines.

Total Project Cost: \$500,000

Other Expenses.

There are no other costs associated with this project.

Indirect Costs.

There are no indirect costs associated with this project.

Total Cost.

The total costs of the proposed feasibility study are \$500,000. The total federal cost-share shall not exceed \$250,000. The total non-federal cost-share in in-kind or cash match shall be equal to or greater than the total federal cost-share amount.



CITY MANAGER'S OFFICE

February 24, 2023

U.S. Department of Interior
Secretary Deb Haaland
1849 C Street NW, MS, 5311
Washington, DC 20240
Bureau of Reclamation

RE: Commitment Letter for City of San Marcos Title XVI Feasibility Study

Dear Secretary Haaland,

As required by the WaterSMART: Water Recycling and Desalination Planning guidelines, this letter serves as a commitment of funding from the City of San Marcos for the Title XVI Feasibility Study project, which will be submitted on February 28, 2023.

The City of San Marcos will provide a 50% match as required. The funds are programed in the City's current approved Capital Improvements Projects program.

Sincerely,

A handwritten signature in black ink that reads "Stephanie Reyes".

Stephanie Reyes
City Manager
City of San Marcos

RESOLUTION NO. 2023-35R

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN MARCOS, TEXAS APPROVING THE FILING OF AN APPLICATION WITH THE BUREAU OF RECLAMATION SEEKING FINANCIAL ASSISTANCE IN CONNECTION WITH A FEASIBILITY STUDY FOR WATER RECYCLING/REUSE IN THE ESTIMATED AMOUNT OF \$500,000.00 WITH A NON-FEDERAL COST SHARE OF FIFTY PERCENT (50%); DESIGNATING AN AUTHORIZED REPRESENTATIVE TO ACT ON BEHALF OF THE CITY FOR THE PURPOSE OF FURNISHING INFORMATION AND EXECUTING DOCUMENTS THAT MAY BE REQUIRED IN CONNECTION WITH THE PREPARATION AND FILING OF THE APPLICATION AND ANY RESULTING GRANT; AND DECLARING AN EFFECTIVE DATE.

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SAN MARCOS, TEXAS:

PART 1. The filing of an application with the Bureau of Reclamation (BOR) seeking financial assistance in connection with a feasibility study for water recycling/reuse for an estimated amount of \$500,000.00 with a non-federal cost share of fifty percent (50%) is hereby authorized.

PART 2. The Director of Engineering/CIP is designated to act on behalf of the City of San Marcos for the purpose of furnishing information and executing documents that may be required in connection with the preparation and filing of the application.

PART 3. This resolution shall be in full force and effect immediately from and after its passage.

ADOPTED on February 21, 2023.

Jane Hughson
Mayor

Attest:

Elizabeth Trevino
City Clerk



February 16, 2023

U.S. Department of Interior
Secretary Deb Haaland
1849 C Street NW, MS, 5311
Washington, DC 20240

RE: Letter of Support for the City of San Marcos WaterSMART: Water Recycling and Desalination Planning Opportunity

Dear Ms. Secretary:

The Edwards Aquifer Authority (EAA) is pleased to support the City of San Marcos' submission of a grant application to the Bureau of Reclamation's WaterSMART: Water Recycling and Desalination Planning opportunity for a feasibility study.

The EAA is a special purpose regional groundwater agency, created by the Texas Legislature and in operation since 1996 to manage, enhance, and protect the Edwards Aquifer system. Geographically, the EAA regulates use of the Edwards Aquifer in all or parts of eight counties in South-Central Texas, including Uvalde, Medina, Bexar, Atascosa, Comal, Guadalupe, Caldwell and Hays counties. The EAA mission is focused on ensuring the Edwards Aquifer remains a sustainable and reliable water resource for all users and uses. These include municipal uses such as that of the City of San Marcos as well as industrial, agricultural, and environmental uses, including conservation efforts to ensure continuous spring flow from the Edwards Aquifer to sustain endangered species habitats in the San Marcos and Comal rivers.

Increased scarcity of surface and groundwater supplies is a key factor in the further development of water reuse in the State of Texas. Water reuse is one way to help ensure safe, reliable, and locally controlled water supplies that are essential for a livable community.

Given the rising demand for freshwater due to population growth and the uncertainties of changing weather patterns, water planning for the future must address both the quantity and quality of water supplies. As an organization focused on further securing the future sustainability of our region's primary water resource, the Edwards Aquifer, the EAA supports the City of San Marcos in seeking funding for an opportunity to address these challenges and, in doing so, positively impacting the community, region, and State.

Sincerely,

A handwritten signature in black ink, appearing to read 'Roland Ruiz', is written over a light gray signature line.

Roland Ruiz
General Manager



County Judge Ruben Becerra
DIRECTOR

January 27, 2023

U.S. Department of Interior
Secretary Deb Haaland
1849 C Street, NW, MS 5311
Washington, DC 20240

RE: City of San Marcos WaterSMART: Water Recycling and Desalination Planning – Letter of Support

Dear Secretary Haaland:

On behalf of Hays County, I would like to express support for the grant application being submitted to the Bureau of Reclamation's Water Recycling and Desalination Planning funding opportunity for a feasibility study to analyze opportunities for recycled water use and prioritize projects.

Hays County recognizes the great benefit of increased reclaimed water utilization to meet strained regional water supplies. A feasibility study will be helpful in identifying potential reuse projects viable to meet the needs of the rapidly growing population and will increase the drought resiliency of the regional water supply.

Hays County commends the city of San Marcos' efforts as this is the next step toward achieving the region's goals in exploring water reuse opportunities in our area.

Respectfully,

A handwritten signature in blue ink, appearing to read "Ruben Becerra", with a long horizontal flourish extending to the right.

Ruben Becerra, Hays County Judge

Phone: 512.393.2205 • E-mail: Judge.Becerra@co.hays.tx.us
111 E. San Antonio St., Suite 300 • San Marcos, Texas 78666

February 9, 2023

U.S. Department of Interior
Secretary Deb Haaland
1849 C Street, NW, MS 5311
Washington, DC 20240

RE: Letter of Support for the City of San Marcos Title XVI Feasibility Study

Dear Secretary Haaland:

I am pleased to support the City of San Marcos' application to the WaterSMART: Water Recycling and Desalination Planning Opportunity.

The proposed feasibility study aligns with my research mission to develop innovative technologies for sustainable water resource management. As a recent recipient of the Bureau of Reclamation Desalination and Water Purification Research Program Pitch-to-Pilot (R21AC10218), I studied the potential of increasing water supplies by reducing the cost, energy consumption, and environmental impact of otherwise unusable water. The research team conducted a demonstration study at a wastewater treatment plant in San Marcos and continuing a long-standing partnership between the City and Texas State University.

I believe that collaboration with industry professionals, federal agencies, and academic researchers is critical in successful engineering research projects such as this. The City of San Marcos has a unique opportunity to collaborate with the Bureau of Reclamation through this WaterSMART program, to improve water efficiency and diversity of the sources available for future supply. I would be pleased to act as a stakeholder during the development of the study/plan and provide support and requested reviews.

Please feel free to contact me by e-mail (kikehata@txstate.edu) or by phone (512-245-0855) if you need further information or require clarification.

Sincerely yours,



Keisuke Ikehata, PhD, PE, PEng
Assistant Professor

January 27, 2023

U.S. Department of Interior
Secretary Deb Haaland
1849 C Street, NW, MS 5311
Washington, DC 20240



RE: The City of San Marcos Reclaimed Water Feasibility Study

Dear Secretary Haaland:

On behalf of the San Marcos Regional Airport, I am pleased to express support for the submission of a grant application to the WaterSMART: Water Recycling and Desalination Planning opportunity to develop a Recycled Water Master Plan.

Through the proposed plan the city will investigate the current needs and demands, water reclamation and reuse opportunities, and review new technologies for feasibility and cost-effectiveness that will aid the city in identifying a combination of alternatives that will be most effective at increasing water supply, improving water quality, and the technical implementation for potential reclaimed water use.

This opportunity is unique and will allow the City to plan for infrastructure to accommodate the rapidly growing population, mitigate the potentially devastating impacts of drought conditions, and continue to lead the way in implementing sustainable water management practices. Given the growing demand for potable water and the issue of finite water supplies, future water infrastructure must address growing needs and water quality challenges.

Sincerely,

A handwritten signature in blue ink that reads "Jim Wimberly".

Jim Wimberly
San Marcos Regional Airport

TEXAS HOUSE OF REPRESENTATIVES



Erin Zwiener

District 45 · Hays County

U.S. Department of Interior
Secretary Deb Haaland
1849 C Street, NW, MS 5311
Washington, DC 20240

RE: Bureau of Reclamation WaterSMART: Water Recycling and Desalination – City of San Marcos Letter of Support

Dear Secretary Halland:

I want to convey my support for the City of San Marcos' application to the Bureau of Reclamation WaterSMART: Recycling and Desalination Planning grant opportunity.

Water resources in Texas are more scarce as drought exacerbates the pressures of development. I am passionate about giving cities more tools to direct development in relation to water use planning and water conservation standards. This is a unique opportunity to plan for infrastructure that will support a rapidly growing population and mitigate the devastating impact of Texas' persistent drought conditions.

I look forward to your positive review of the submitted application.

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

Erin Zwiener
State Representative | District 45
Hays County

BUDGET NARRATIVE

Personnel.

There are no personnel costs associated with this project.

Fringe Benefits.

There are no fringe benefits associated with this project.

Travel.

There are no travel costs associated with this project.

Equipment.

There are no equipment costs associated with this project.

Materials and Supplies.

There are no materials and supplies costs associated with this project.

Contractual.

Tasks performed by the consultant may include but will not be limited to identifying the water supply needs and challenges, identifying water reclamation and reuse opportunities, a description of alternatives, economic analysis, the selection and prioritization of the proposed water reclamation and recycling projects, evaluating the potential effect on the environment, legal and institutional requirements, an implementation and funding plan, a description of the planning and update process, reporting, and research needs.

The selected Consultant will be hired to develop the Feasibility Study and Master Plan. The \$500,000 fee is based on the City of San Marcos's history of hiring consultants to complete similar planning documents, including our most recent Water Master Plan and Stormwater Master Plan. The fee is in line with the average fees in our area for this type of analysis and planning document. The City of San Marcos will request Proposals from interested qualified Respondents to provide the contractual services in accordance with City and Federal procurement guidelines.

Total Project Cost: \$500,000

Other Expenses.

There are no other costs associated with this project.

Indirect Costs.

There are no indirect costs associated with this project.

Total Cost.

The total costs of the proposed feasibility study are \$500,000. The total federal cost-share shall not exceed \$250,000. The total non-federal cost-share in in-kind or cash match shall be equal to or greater than the total federal cost-share amount.