District Applications Submittal Form
(Complete and Attach to Submittal Package)

Date 03/11/2024

District Name: Crystal Clear Special Utility District

Type of Application Submitted (please check the appropriate boxes):

- ☐ Additional Powers
- ☐ Annexation
- ☐ Appeal of a Decision of the Board
- ☐ Bond Amendment
- ☐ Bond Sale Authorization
- ☐ Bond Issue
- ☐ Bond Issue - Expedited Review
- ☐ Change in Scope
- ☐ Change Order
- ☐ Change in Plans
- ☐ Conversion
- ☐ Creation
- ☐ Director Appointment
- ☐ Dissolution
- ☐ Emergency Project
- ☐ Escrow Release
- ☐ Extension of Time
- ☐ Fire Plan
- ☑ Impact Fee
- ☐ Name Change
- ☐ Plan Approval
- ☐ Purchase of Facilities
- ☐ Revenue Note
- ☐ Standby Fee
- ☐ Surplus Funds
- ☐ Tax Revision
- ☐ Water and Wastewater Rules
- ☐ Other:

Your cooperation will help us provide better service.
Additional information is available at our website:
SEND APPLICATIONS TO:
District Review Team, MC 156
Water Supply Division
Texas Commission of Environmental Quality
PO Box 13087
Austin, TX 78711-3087

Print Form Reset Form

TERRILL & WALDROP
ATTORNEYS and COUNSELORS

810 West 10th Street
Austin, Texas 78701
Tel (512) 474-9100
Fax (512) 474-9888

March 11, 2024

District Review Team
Office of the Executive Director
Districts Section, Building F
Texas Commission on Environmental Quality
12100 Park 35 Circle
Austin, Texas 78753

Re: Petition of Crystal Clear Special Utility District for Approval of Amended Impact Fee pursuant to Texas Local Government Code Section 395.080 and Commission Rules

District Review Team:

Please allow this correspondence to serve as Crystal Clear Special Utility District's ("CCSUD") application, pursuant to Texas Local Government Code Section 395.080 and 30 Texas Administrative Code Section 293.172 to the Texas Commission on Environmental Quality ("TCEQ") for approval of CCSUD's proposed revised impact fee of $5,163.00 per standard residential connection.

CCSUD is a special utility district created by the Texas Legislature's 2013 passage of Senate Bill 1116, codified at Texas Special District Local Laws Code Chapter 7206. Section 7206.102(c) of the CCSUD enabling act authorizes CCSUD to increase its water service impact fee (a) "only as provided by Chapter 395, Local Government Code, as approved by the [TCEQ], or as otherwise provided by law." CCSUD's impact fee has remained at $2,500 per standard residential connection since prior to CCSUD's conversion from a non-profit water supply corporation to a special utility district.

In support of CCSUD's Application, please find enclosed:

(1) Proof of payment of the $100 required filing fee through TCEQ EPay system (30 TAC § 293.172(1)).

(2) A certified copy of the September 23, 2023 CCSUD Board of Directors' resolution authorizing approval of the impact fee and stating the amount of the proposed fee (30 TAC § 293.172(2)) is enclosed as **Attachment A.**

(3) THE CCSUD 2023-2032 capital improvements plan report ("CIP"), signed and sealed by CCSUD's consulting professional engineer and identifying the proposed capital improvements for which the impact fees will be assessed (30 TAC § 293.172(3)) is enclosed as **Attachment B**.

(4) The required land use plan mapping, including number of connections, methodology associated with each category of development, identifying properties against which the impact fees shall be assessed, proposed land uses, and existing facilities, and including estimated demand required by the new connections (30 TAC § 293.172(3)(A),(B), (C)(i-iv), 30 TAC § 293.172(4) and (5)), enclosed as **Attachment C**. With respect to the land use plan mapping and related projections, please be advised that as a special utility district operating pursuant to Texas Water Code Chapters 49 and 65, CCSUD does not have any jurisdiction, authority or control regarding the nature and type of development within its District boundaries or water certificate of convenience and necessity ("CCN") service area. However, in geographic areas in which CCSUD's service area overlaps with the corporate boundaries of a municipality that controls development and maintains zoning authority, the growth projections of that municipality were incorporated in CCSUD's land use estimates.

(5) The description of facilities intended to be financed through impact fees and detailed cost analysis required by 30 TAC § 293.172(6) is included in the CIP, enclosed as **Attachment B**.

(6) The detailed calculation of the impact fee and complete explanation of all assumptions used in the calculation as required by 30 TAC § 293.172(7) is enclosed as **Attachment D** in the form of the Water Supply Acquisition Fee and Impact Fee Study prepared for CCSUD by Willdan Financial Services, CCSUD's rate and fees consultant.

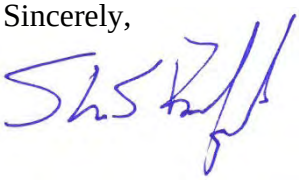
Request for Limited Waiver of Notice Requirements

Upon a finding of administrative and technical completeness, CCSUD respectfully requests a limited waiver of the Commission's notice requirements in connection with this application. Commission Rule 293.173, governing Impact Fee Notice Action and Requirements, requires that notice of an impact fee application be both published and provided by mail to "each owner of property within the service area… unless good cause is shown why such notice should not be given." Good cause exists here because CCSUD's service area consists of 175 square miles, and tens of thousands of individual landowners (many of whom are not retail customers of CCSUD but rely on private wells). Thus, written mailed notice would be prohibitively expensive.

As an alternative to individual mailed notice to all landowners, CCSUD proposes to send mailed notice to all landowners and developers who requested that CCSUD's consulting engineer perform hydraulic service feasibility and cost studies to properties within the District within the past 5 years. CCSUD further proposes inclusion of a billing insert to each of its approximately 6,000 current customers that would direct customers to the Commission-approved notice on CCSUD's website once issues. Finally, CCSUD proposed strict compliance with the newspaper publication requirements set forth in Commission Rule 293.173(c)(1).

Please do not hesitate to contact me if you have any questions or determine that additional information might assist in your review and consideration of CCSUD's updated impact fee application.

Sincerely,



Shan S. Rutherford
TERRILL & WALDROP

cc: Michael Briscoe
Daniel Harrison

TCEQ ePay Receipt

Transaction Information

Trace Number:	582EA000601396
Date:	03/11/2024 04:49 PM
Payment Method:	CC - Authorization 0000288619
ePay Actor:	BECKIE FIGG
TCEQ Amount:	$100.00
Texas.gov Price::	$102.51*

* This service is provided by Texas.gov, the official website of Texas. The price of this service includes funds that support the ongoing operations and enhancements of Texas.gov, which is provided by a third party in partnership with the State.

Payment Contact Information

Name:	BECKIE FIGG
Company:	TERRILL & WALDROP
Address:	810 WEST 10TH STREET, AUSTIN, TX 78701
Phone:	512-474-9100

Cart Items

Voucher	Fee Description	AR Number	Amount
696074	DISTRICT IMPACT FEE FILING FEE		$100.00
		TCEQ Amount:	**$100.00**

TCEQ ePay Voucher Receipt

Transaction Information

Voucher Number:	696074
Trace Number:	582EA000601396
Date:	03/11/2024 04:49 PM
Payment Method:	CC - Authorization 0000288619
Voucher Amount:	$100.00
Fee Type:	DISTRICT IMPACT FEE FILING FEE
ePay Actor:	BECKIE FIGG

Payment Contact Information

Name:	BECKIE FIGG
Company:	TERRILL & WALDROP
Address:	810 WEST 10TH STREET, AUSTIN, TX 78701
Phone:	512-474-9100

Customer Information

Customer Name:	CRYSTAL CLEAR SPECIAL UTIITY DISTRICT
Customer Address:	2370 FM 1979, SAN MARCOS, TX 78666

Billing Information

Billing Name:	TERRILL & WALDROP
Bill Address:	810 WEST 10TH STREET, AUSTIN, TX 78701

Other Information

Comments:	2023 Impact Fee Application

Attachment

A

RESOLUTION NO. 20230922
A RESOLUTION OF THE BOARD OF DIRECTORS OF CRYSTAL CLEAR SPECIAL UTILITY DISTRICT APPROVING IMPACT FEE STUDY AND RESULTING IMPACT FEE AMOUNT, APPROVING LAND USE PLAN AND AUTHORIZING SUBMISSION OF PROPOSED IMPACT FEE ADJUSTMENT TO THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY FOR APPROVAL

WHEREAS, Crystal Clear Special Utility District ("CCSUD") is a special utility district created under the process established through its enabling legislation, Texas Special District Local Laws Code Chapter 7206; and

WHEREAS, Section 7206.002 of CCSUD's enabling legislation provides that CCSUD is a special utility district created under and essential to accomplish the purposes of Section 59, Article XVI, Texas Constitution; and

WHEREAS, Section 7206.002(c) authorizes CCSUD to increase its water service impact fee "as provided by Chapter 395, Local Government Code, as approved by the commission, or as otherwise provided by law"; and

WHEREAS, Texas Local Government Code, Chapter 395, Section 395.080(b) provides in relevant part that "any district created under Article XVI, Section 59 . . . of the Texas constitution may petition the Texas Natural Resource Conservation Commission for approval of any proposed impact fees, charges, fees, assessments, or contributions"; and

WHEREAS, the Texas Commission on Environmental Quality (TCEQ) is the successor agency to the Texas Natural Resource Conservation Commission and has promulgated rules at 30 Texas Administrative Code Sections 293.171 through 293.176 governing the process for a special district to petition for approval of an increase in impact fees; and

WHEREAS, CCSUD retained Willdan Financial Services, a professional rate consultant, to conduct an impact fee study and to work with M&S Engineering, CCSUD's consulting engineering firm, to develop the capital improvements plan supporting CCSUD's proposed impact fee adjustment; and

WHEREAS, the results of the capital improvements plan and impact fee study recommending a revised impact fee of $5,163 per standard residential connection, subject to approval by the TCEQ, were presented to and approved by the CCSUD board of directors at its duly-noticed regular board of directors meeting on August 24, 2023; and;

WHEREAS, M&S Engineering has developed and finalized the land use assumptions and mapping required by the TCEQ; and

AFFIDAVIT

STATE OF TEXAS §
§
COUNTY OF GUADALUPE §

Before me, the undersigned authority, personally appeared Regina Franke who, beings by me duly sworn, deposed as follows:

"My name is Regina Franke, I am of sound mind, over eighteen years of age, capable of making this affidavit, and personally acquainted with the facts stated herein.

I am the custodian of records for Crystal Clear Special Utility District. Attached hereto are ___ pages of records from our office being Resolution No. 20230922, A RESOLUTON OF THE BOARD OF DIRECTORS OF CRYSTAL CLEAR SPECIAL UTILITY DISTRICT APPROVING IMPACT FEE STUDY AND RESULTING IMPACT FEE AMOUNT, APPROVING LAND USE PLAN AND AUTHORIZING SUBMISSION OF PROPOSED IMPACT FEE ADJUSTMENT TO THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY FOR APPROVAL.

These pages of records are kept by me in the regular course of business, and it was in the regular course of business for an employee or representative of Crystal Clear Special Utility District with knowledge of the act, event, condition, opinion, or diagnosis record to make the record or to transmit information thereof to be included in such record; and the record was made at or near the time or reasonably soon thereafter. The record attached hereto are the originals or exact duplicates of the originals."

Regina Franke
General Manager
Crystal Clear Special Utility District

SWORN TO AND SUBSCRIBED BEFORE ME ON THE 28th day of September, 2023.

YESENIA TELLO
Notary ID # 13156125-5
My Commission Expires
05/24/2026

NOTARY PUBLIC IN AND FOR
Guadalupe COUNTY, TEXAS

WHEREAS, by the adoption of this resolution, the District approves the Capital Improvement Plan, Land Use Assumptions and establishes new Impact Fees to be assessed upon approval by the TCEQ for all new development;

NOW THEREFORE BE IT RESOLVED BY THE BOARD OF DIRECTORS OF CRYSTAL CLEAR SPECIAL UTILITY DISTRICT:

1. That CCSUD, by and through its Board of Directors, hereby reaffirms and ratifies its prior approval of the revised impact fee amount of $5,163 as set forth in the study developed by CCSUD's updated capital improvements plan.

2. That CCSUD, by and through its Board of Directors, approved the land use assumptions and mapping presented to the CCSUD Board of Directors at its September 28, 2023 duly-noticed regular board meeting.

3. That CCSUD further authorizes its officers and general manager to take any and all reasonable and necessary steps acting through CCSUD's retained attorneys and consultants to cause to be submitted to TCEQ a petition for consideration of CCSUD's requested adjusted water service impact fee of $5,163 per standard residential connection.

4. That should any paragraph, sentence, clause, phrase or section of this Resolution be adjudged or held to be unconstitutional, illegal or invalid, the same shall not affect the validity of this Resolution as a whole, or any part or provision hereof other than the part so decided to be invalid, illegal or unconstitutional, and shall not affect the validity of the current impact fee structure previously in effect by the District.

ADOPTED AND APPROVED by a quorum of the Board of Directors on this 28th day of September, 2023, by vote of 5 to Ø and Ø abstaining.

Attest:

Mike Cox, President

Donald Bosworth, Secretary

Attachment

B

CRYSTAL CLEAR
SPECIAL UTILITY DISTRICT

2023 – 2032

Water System

Capital Improvement Plan

April 2023

Prepared By:

M&S ENGINEERING
ELECTRICAL | CIVIL | MEP

STATE OF TEXAS
BRADY KOSUB
105051
LICENSED
PROFESSIONAL ENGINEER

April 20, 2023

Main Office:
Post Office Box 970
6477 FM 311
Spring Branch, Texas 78070
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Branch Office:
376 Landa Street
New Braunfels, Texas 78130

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Executive Summary

Introduction

Crystal Clear Special Utility District (CCSUD) provides water service to portions of Comal, Hays and Guadalupe Counties in Central Texas. Components of its existing water system are in need of upgrades to address service commitments, compliance requirements; and, aged, leaky and overcapacity infrastructure. CCSUD has chosen to prepare a Capital Improvement Plan (CIP) to identify and prioritize inadequate infrastructure, support the recommendations in the recently adopted Storage Master Plan; develop new water sources; and, create a plan for implementation. The Capital Improvement Plan (CIP) is a ten-year planning tool used to prioritize new capital investments made by the utility district focusing primarily on infrastructure improvements required to deliver water to the utility district's customers. The CIP will create, prioritize, budget, and schedule projects that address these improvements over the next ten years.

CIP Planning Overview

The list of prospective projects in the CIP were selected based on known compliance issues, leak reports, leak repair data, capacity and pressure issues; and input from CCSUD staff. Each project was then evaluated on a set of criteria in order to rank and prioritize them. The evaluation criteria include how the project would affect: compliance, CCSUD's commitment of service, the Storage Master Plan, water main leaks, and developments in the system.

Capital Improvement Plan

Refer to Appendix A and B for the Master Project List and the Budget Schedule Sheet. Capacity sizing of infrastructure improvements was based on 10 year projected growth for the area of each recommended improvement. An opinion of probable construction cost was developed for each recommended improvement project. The projects were scheduled out through the 10 year plan based on prioritization scores and dollars available for capital improvements projected for each fiscal year.

In Appendix C, there is a project sheet for each project in the plan. The project sheets summarize pertinent information for each project all on one sheet. A Project Location Map illustrating the location and extents of all projects is provided in Appendix D.

Possible Funding Opportunities

The CIP identifies the annual budget conditions for the planning years as well as possible state grants that could help fund some projects. The additional grants were not taken into consideration when developing the schedule, because there is not a guarantee of grant funding for any of the projects.

Conclusion

The Capital Improvement Plan is outlined in the appendices of this report with projects ranked based on the prioritization evaluation criteria and scheduled based on budget and priority. It is recommended that CCSUD revisit this project list and budget schedule annually. This will ensure that the CIP will remain up to date and continue to address the most critical needs of the system.

I. Introduction

A. Service Area

The CIP's study area is defined by the existing CCSUD Certificate of Convenience and Necessity (CCN) boundary. The service area is approximately 206 square miles located within Caldwell, Comal, Guadalupe, and Hays Counties. The heart of the water district is located between the Cities of New Braunfels, Seguin, and San Marcos; and includes the Cities of Kingsbury and Staples. The service area overlaps with the Extra Territorial Jurisdictions (ETJ) of the Cities of New Braunfels, San Marcos, and Seguin. CCSUD service area is experiencing growth that is taxing CCSUD's existing aged infrastructure. The service area has potential customers that want service, but the existing infrastructure is either overcapacity, leaky, or does not reach the potential customers property. CCSUD continues to provide water to more city customers and less rural customers every day.

B. Description of System

Crystal Clear Special Utility District's existing water system consists of three (3) sources of water supply, various production facilities and a distribution network divided into eight (8) pressure zones. The existing CCSUD infrastructure includes:

- 2 Active Water Wells
- 6 Booster Station Sites
- 6 Active Ground Storage Tanks (GST)
- 1 Active Standpipe
- 2 Elevated Storage Tanks (EST)
- Approximately 350 miles of pipelines ranging in size from 1-inch to 16-inch
- Approximately 6,100 Meters

C. Crystal Clear SUD Mission

Crystal Clear Special Utility District's mission is to serve as a provider of clean, reliable potable water to its customers at the lowest possible cost while ensuring that it meets both the customers current and future water needs. CCSUD is dedicated to being a responsible member of the community utilizing all of the financial and physical resources necessary to meeting these objectives. Crystal Clear Special Utility District's priorities are to provide reliable service its customers, a good working environment for its employees, and positive benefits to our community.

II. CIP Planning Overview

A. Planning Tool

This Capital Improvement Plan (CIP) aims to be a planning and budgeting tool that summarizes details about needed infrastructure improvements. The CIP allows for a systematic evaluation

of all the projects concurrently, and identifies the resources and finances required to support them. The CIP also prioritizes and provides a schedule for the completion of each project. This Capital Improvement Plan is focused solely on the replacement of infrastructure that is required to produce and deliver water to the customer over a 10-year period.

B. Planning Goals

The goal of this CIP is to address CCSUD's inadequate infrastructure in a guided and strategic manner that to fulfills their mission to "serve as a provider of clean, reliable potable water to its customers at the lowest possible cost while ensuring that it meets both the customer's current and future water needs." The effective use of capital improvement planning provides CCSUD with an orderly approach to infrastructure improvements in order to maintain the District's infrastructure and ensure the reliable delivery of potable water to each customer. The CIP includes a prospective project list; and, each project has a defined scope, budget and schedule for CCSUD to implement over the next ten years. All line improvements or expansion have been sized for ten years of growth in the system. The CIP aims to correlate a timeline of projects to be completed by ordering them based on prioritization criteria and the annual estimated budget available for CIP projects.

The overall goals of the CIP are as follows:

- Ensure the timely repair and replacement of aging infrastructure
- Meet service commitments for current and future customers
- Ensure that CCSUD's approved capital spending is affordable
- Ensure that CCSUD's CIP funds support only necessary capital improvements
- Improve the relationship between capital and operating budgets
- Focus on long-term planning that can eliminate the need to impose "emergency" rate increases

C. Schedule and Financing

The CIP aims to place the prioritized projects into a proposed 10-year schedule that befits CCSUD's annual budget. Projects were placed in schedule by priority ranking, and with consideration given to the utility district's fiscal year budget, other planned projects that the work might serve to support; and, the general location of each project.

For example, the IH-35 Bore project will connect to the end of the Texas Water Development Board (TWDB) 12-inch Watson Lane waterline and allow greater volumes of the Edwards Aquifer water source to be conveyed across IH-35. Without the bore, the consumption of Edwards water will be limited; hence why the project has been placed in 2023 to be completed around the same time as the Watson Lane waterline project. In 2027, there are a number of projects within the Redwood area that M&S suggests could be packaged together and bid as one project; therefore, these projects have all been scheduled to be completed in the same fiscal year. In that same year, there are a number of projects that CCSUD could potentially do in-house which could free up additional resources for other projects on the schedule.

The CIP will be financed using money from the CCSUD budget that is allocated for capital improvements as well as any potential grants they might receive. The Capital Improvement Plan

schedule should be revisited annually during budget discussions. During this time, CCSUD staff and board members will review those CIP projects proposed for the next fiscal budget year, determine any changes in priority and confirm that capital spending is available for the next fiscal year's identified projects.

D. Project Selection

Proposed projects were identified based on data from leak reports, leak repair work orders, denied customer service requests, overcapacity infrastructure, and input from CCSUD staff. On-going maintenance activities and smaller, routine capital expenditures are not included as a part of this CIP process, nor are projects with construction costs less than $75,000.

E. Project Prioritization

After completion of the identified projects list, each project was evaluated using a criteria matrix to score and rank each one of them. Prioritization scores were developed based on a set of criteria agreed upon by the drafters of this report and CCSUD. Each project was evaluated using a number of questions and given points based on the answers to those questions to give weight to the project's priority. The prioritization criteria matrix included questions on how each project addresses issues in the following areas: compliance, commitment of service, effects on the system if the project is deferred, infrastructure needed to support the storage master plan, and known leaks in the water system. Once evaluated, each project had a point total assigned to it. The projects with the highest point totals are considered to have the highest priority.

The following sections provide additional detail on how each criterion was included and how it was evaluated and weighted:

1. Compliance

The CIP seeks first and foremost to address issues of compliance within CCSUD's system. These may include any parts of the system that may be experiencing low pressure, overcapacity waterlines, shortage of storage capacity volumes and/or shortages in water sources. TCEQ requires a minimum pressure of 35 psi to be held in waterlines serving customers and a minimum of 0.6 gpm of water supply be available from each source. Any part of the system that does not meet this minimum threshold will need to be improved. TCEQ also requires that any system with more than 250 connections need have minimum total storage capacity of 200 gallons per connection. Additionally, TCEQ Chapter 290 has requirements on the maximum number of connections per waterline based on the line size. The information is illustrated in Table 1 below. A number of waterlines within CCSUD's system are serving more meter connections than they should be per the table below.

Table 1. TCEQ Requirements on Minimum Line Sizing for Domestic Flows

Line Size	Max Number of Connections
2”	10
2.5”	25
3”	50
4”	100
6”	250
8”	250+
12”	250+
16”	250+

To score the priority of projects for compliance, three questions were asked, “does this project fix a pressure issue, waterline or water source capacity issue, and/or storage capacity issue?” If the answer to any of the above questions was “yes”, the project was given three points on the prioritization scoring table.

2. Commitment of Service

In some cases, a new meter was installed on an overcapacity waterline knowing that waterline improvements are planned to service that new meter. In addition, in some cases, the customer has already paid a pro-rata share of the waterline construction costs. Those waterline projects were scored to give them a higher priority than those projects that have not had customer buy-in. In other words, CCSUD has already committed service and new water lines to these areas.

Priority scoring for commitment of service was weighted on the number of denied meter requests the project will give new capacity to service. 1 to 3 meter request give 1 point, 4 to 6 meter requests give 2 points, and any more than 7 meter requests fulfilled will give 3 pts. If the project services a customer that has paid into CCSUD’s improvements program, it will receive 3 points in priority scoring.

3. Deferment

Some system upgrades have had developers pay a pro rata share into major system improvements such as elevated storage tanks, transmission mains and/or pump facilities required to get water and/or fire flow to a development. Once a Non-Standard Service Agreement is signed and paid, these projects have been promised to the developer and are part of a critical construction schedule. There are also projects that are required to be in place in order to proceed with other improvements. For example, a new elevated storage tank may be essential to provide sufficient pressures to the system and deferring construction of the new elevated tank would cause customers to go without adequate water supply. Furthermore, a new transmission main is essential to fill the new elevated tank. Therefore, both projects cannot be deferred to a later date.

Any proposed project that is on a critical construction schedule or serves an existing Non-Standard Service Agreement will be given 3 points weighting to its prioritization score.

4. Storage Master Plan

The 2021 Elevated Storage Master Plan was developed to identify locations in CCSUD's service area to construct elevated storage tanks that would support future growth. A number of other recommended infrastructure improvements necessary to support the new elevated tanks, such as transmission mains and pump facilities, were also included in the 2021 Elevated Storage Master Plan. These improvements are necessary in order to transfer water to and fill the elevated tanks; and therefore, this item was included as part of the matrix criteria for prioritizing project. The 2021 Elevated Storage Master Plan is provided in Appendix E for reference. Projects that are part of the Storage Master Plan will be given 3 points weighting to their prioritization score.

5. Leaks

CCSUD contracted Samco Leak Detection in 2017, 2018 and 2019 to identify leaks throughout the system. The resulting leak detection data and reports were provided to M&S for use in preparing this CIP. Additionally, CCSUD provided M&S with leak repair data from its internal work order system.

In evaluating projects for prioritization, M&S weighted information from Samco's reports on main line leaks most heavily, giving 2 points for every main line leak on a given line slated to be replaced. Any leak repairs done on the line to be replaced were given a weighting of half a point as leak repairs could mean either a simple fix was completed or, in the case of multiple repairs one the same line, the line itself has ongoing issues.

See Table 2 below for an illustration and summary of how each criterion was weighted and scored.

Table 2 Prioritization Evaluation Criteria

PRIORITIZATION EVALUATION CRITERIA	
Criteria	*Pts Possible*
1. Compliance	
a. Does this fix a pressure issue? (<35 psi) Yes - 3 pts	3
b. Does this fix a pumping or waterline capacity issue? Yes - 3 pts	3
c. Does this project fix a storage capacity issue? Yes - 3 pts	3
2. Commitment of Service	
a. Does this provide capacity to serve additional meter request(s)? If so, how many? 1 to 3 - 1 pt, 4 to 6 - 2 pts, more than 7 - 3 pts	3
b. Is this project in an area where customers have already paid into system improvements? Yes – 3 pts	3
3. Deferment	
a. Is this project on a critical construction schedule? Does this project support a commitment from a Non-Standard Service Agreement (NSSA)? Yes - 3 pts	3
4. Is this project part of the Storage Master Plan?	
a. Yes - 3 pts	3
5. Does this project fix a high leak area?	
a. Severity of leaks? Rank 0 to 6	6
TOTAL	**27**

III. Capital Improvement Plan

A. Plan Focus

This Capital Improvement Plan is focused solely on the replacement of infrastructure that is required to store and deliver water to the customer. There are numerous water lines within the CCSUD system that need to be replaced due to capacity, pressure, or service limitation issues. Many of the projects proposed in this CIP address those issues. Additionally, there are a few projects from the Storage Master Plan and two water source expansion projects that are to be integrated into the CIP budget and schedule.

B. Plan Organization

The CIP is organized to present a summary of projects that best address the needs laid out in preceding sections. Find below a summary chart that will be used as a template for presenting the individual projects. It will show an overview of the projects, their prioritization scoring, preliminary cost estimates for design and construction; and, proposed scheduling within the CIP. The projects have been organized into a 10-year fiscal year budget schedule, found in Appendix B. The Master Project List, found in Appendix A has a column denoting which projects were deemed possible for CCSUD to construct in-house. These projects are generally shorter and involve laying water lines that are smaller than 6”.

Furthermore, the budget schedule was created by:

- placing the most critical projects first (based on rank)
- placing supporting transmission mains before elevated tank projects
    - Ex; the IH-35 bore project before the Herber Tank project
- Grouping pipeline projects with similar ranks and location to allow them to be packaged together under one construction package
    - Ex; the four (4) pipeline projects in Redwood under fiscal year 2027

Capital improvement funds vary from $2.8 million to $11.3 million annually over the course of 10 years. M&S notes that these annual cost totals are not perfectly reflective of spending as some projects will extend beyond a single year, such as the Offerman Pump Station and Transmission Main project; and, both well field development projects. M&S would also like to note that the Herber Tank & Fill Line project has a contractual build date of October 2023. This agreement forced its placement above other projects that may have scored higher in priority.

Project sheets for all proposed projects in the CIP can be found in Appendix C. Each project sheet contains the information as shown in Table 3 below. The estimated construction costs provided under the Budget/Schedule section are based on best available data at the time and adjusted for inflation based on the fiscal year in which the project falls within the schedule. Design costs were estimated as 15% of the estimated construction costs for each project.

Table 3 Template for Presenting Individual Projects

Project Name:	Descriptive name for project, usually roadway most closely associated with waterline to be updated or name of facility if part of Storage Master Plan
CIP Project #:	Each project was given a unique project identification number based on the type of project (i.e., WL = waterline, BPS = booster pump station, SMP = storage master plan project).
Rank:	The position number that the project was placed based on the prioritization scoring.
Project Prioritization/ Criteria Scoring:	All projects are rated based on the best of known information for the criteria listed in the prioritization section of the CIP. The scoring is reviewed in committee to adjust as necessary and to build consensus regarding the priority of projects.
Project Description	
Brief description of what project is set to accomplish with reference to geographic location, any preliminary sizing/design that has been done.	
Project Driver	
As much pertinent information as possible to provide documentation for reason project was evaluated and placed in the CIP including reference to compliance issues, leak reports, management directives, NSSA's or other pertinent information.	
Budget/Scheduling	
Projected costs are entered for each planning year of the CIP depending upon project scheduling. Cost estimates are made using 2021 costs and adjusted for inflation dependent upon when they fall within the CIP schedule.	
Project Location Map	
Each project is presented with a map showing the location of the project helping to illustrate project scope.	

IV. Possible Funding Opportunities

A. Grants

There are grants available for water districts, such as CCSUD, that can help fund some of these projects. These grants are available for rural water systems and are funded by different entities. All grants will require applications explaining how and where the grants will be used. These grants are then dispersed based on need and availability at the time of the application. The following grants have been identified as potential funding sources.

Planning and Capacity Building Fund (PCB)

- Funding Agency – Texas Department of Agriculture
- Description – The PCB is a competitive grant for local public facility and housing planning activities.
- Award Amount - Awards are made on an annual basis through a statewide competition. Maximum grant award is based on beneficiary population.
- Eligible Activities – Build or improve local capacity in public infrastructure.

Community Development Fund (CDF)

- Funding Agency – Texas Department of Agriculture
- Description – To meet community development needs related to health and safety of low-moderate income residents.
- Award Amount - $125,000-$800,000 usually about $300,000
- Eligible Activities – Improvement of Public Facilities

V. Conclusion

This Capital Improvement Plan was established to provide a planning and budgeting tool for Crystal Clear Special Utility District. System inefficiencies and inadequate infrastructure were analyzed; and the projects were carefully selected to support the goal of the CIP.

The Capital Improvement Plan is outlined in the appendices of this report with projects ranked based on the prioritization evaluation criteria and scheduled based on budget and priority.

Effective use of this capital improvement plan will allow CCSUD to take an orderly approach to infrastructure improvements. The fiscal year budget schedule shall be utilized annually in collaboration with budget discussions allowing the plan to be implemented successfully.

It is vital that CCSUD revisit this CIP annually to add any new projects and reevaluate the priority of each project. This will ensure that the CIP remains up to date and continuously addresses the most imperative components of the system.

Appendix A

Capital Improvement Plan Master Project List

2023 CIP MASTER PROJECT LIST							
Project Name	*Project #*	*Construction Cost*	*Engineering Cost*	*Priority Score*	*Rank*	*In House?*	*Year Const.*
Zorn Elevated & Fill Line	**SMP-001**	$ 6,250,000	$ 937,500	18	1		2023
Offerman Pump Station & Transmission Main	**SMP-003**	$ 4,430,000	$ 664,500	15	2		2023
IH-35 Bore	**WL-026**	$ 505,000	$ -	10	6		2023
Trinity Well Field Completion & Access	**WS-001A**	$ 3,100,000	$ -	9	9		2024
Center Point & Huber Rd	**WL-001**	$ 894,000	$ 111,750	14	3		2024
Tschoepe Rd	**WL-017**	$ 1,326,000	$ 165,800	9	9	Yes	2024
Wells Ranch Phase III	**WS-003**	$ 23,158,792	$ -	10	6		2024
Crest Dr - Ridge Dr	**WL-005**	$ 3,673,000	$ 459,200	9	9	Yes	2024
FM 20 & Bylerpool	**WL-003**	$ 3,584,000	$ 448,100	11	5		2024
Herber Tank & Fill Line	**SMP-004**	$ 3,750,000	$ 562,500	12	4		2025
FM 621	**WL-007**	$ 4,805,000	$ 600,600	9	9		2025
Hays Caldwell Tank & Fill Line	**SMP-002**	$ 5,000,000	$ 750,000	10	6		2026
El Camino Pump Replacement	**BPS-002**	$ 900,000	$ 112,500	9	9		2026
Swanson/Huber	**WL-010**	$ 1,565,000	$ 195,600	8	15		2026
Wilcox Well Field Development	**WS-002**	$ 24,370,080	$ 3,655,512	9	9		2025
Birmensdorff	**WL-014**	$ 517,000	$ 64,700	7	17		2027
Trinity Well Field Development	**WS-001B**	$ 12,743,520	$ 1,592,940	6	22		2027
3353, FM 1979, & 244A	**WL-002**	$ 1,732,000	$ 216,500	8	15		2027
FM 3353	**WL-006**	$ 1,590,000	$ 198,800	7	17		2027
Forcey and Guadalupe St	**WL-030**	$ 226,000	$ 28,200	7	17	Yes	2028
Kingsbury Pipeline Phase II	**WL-027**	$ 313,000	$ 39,200	7	17		2028
Redwood - FM 1978	**WL-021**	$ 1,742,000	$ 217,800	7	17		2028
FM 1104	**WL-018**	$ 931,000	$ 116,400	6	22	Yes	2028
FM 2623	**WL-020**	$ 839,000	$ 104,900	6	22	Yes	2028
Flying W EST	**SMP-005**	$ 1,750,000	$ 262,500	6	22		2029
Old Lehman Rd	**WL-008**	$ 138,000	$ 17,300	6	22		2029
Redwood - Emerald Acres	**WL-016**	$ 222,000	$ 27,800	6	22		2029
Wade Road	**WL-034**	$ 396,000	$ 49,500	6	22	Yes	2029
Francis Harris - Old Zorn Road	**WL-029**	$ 7,561,000	$ 945,200	6	22		2029
Watts Rd	**WL-009**	$ 1,094,000	$ 136,800	6	22	Yes	2030
Ilka Station Rehab	**BPS-001**	$ 783,000	$ 117,500	6	22		2030
Grant Harris	**WL-013**	$ 238,000	$ 29,700	4	34	Yes	2030
Redwood Road	**WL-031**	$ 565,000	$ 70,700	4.5	33	Yes	2030
Old Bastrop	**WL-032**	$ 5,186,000	$ 648,300	5	32		2030
Allison Rd	**WL-012**	$ 1,634,000	$ 204,300	4	34		2030
Country Acres	**WL-024**	$ 874,000	$ 109,200	4	34		2030
Dreidbrodt	**WL-004**	$ 1,927,000	$ 240,900	4	34		2031
Gravel Pit	**WL-025**	$ 2,642,000	$ 330,300	4	34		2031
Ilka Switch Road	**WL-033**	$ 1,264,000	$ 158,000	4	34		2031
Redwood - Crossover Rd	**WL-015**	$ 486,000	$ 60,800	4	34		2031
Redwood - Mesquite	**WL-022**	$ 282,000	$ 35,300	4	34		2031
US 90	**WL-028**	$ 9,058,000	$ 1,132,200	4	34		2031
Woodrow Center	**WL-019**	$ 859,000	$ 107,400	4	34	Yes	2032
FM 3353 & 1339	**WL-011**	$ 410,000	$ 51,300	3	44		2032
Redwood - Fir	**WL-023**	$ 354,000	$ 44,300	3	44		2032

Appendix B

Capital Improvement Plan Budget/Schedule Sheet

FISCAL YEAR BUDGET SCHEDULE											
Project Name	**Project #**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Zorn Elevated & Fill Line	SMP-001	$ 6,250,000.00									
Offerman Pump Station & Transmission Main	SMP-003	$ 4,430,000.00									
IH-35 Bore	WL-026	$ 421,000.00									
Trinity Well Field Completion & Access	WS-001A		$ 3,317,000								
Center Point & Huber Rd	WL-001		$ 956,580								
Bylerpool	#N/A		$ 553,190								
Tschoepe Rd	WL-017		$ 1,418,820								
Wells Ranch Phase III	WS-003		$ 630,300	$ 630,300	$ 2,864,607	$ 2,864,457	$ 3,233,794	$ 3,233,607	$ 3,233,202	$ 3,234,334	$ 3,234,191
Herber Tank & Fill Line	SMP-004			$ 4,253,250							
FM 621	WL-007			$ 5,449,831							
Hays Caldwell Tank & Fill Line	SMP-002				$ 5,954,550						
Crest Dr - Ridge Dr	WL-005		$ 3,930,110								
El Camino Pump Replacement	BPS-002				$ 1,071,819						
Swanson/Huber	WL-010				$ 1,863,774						
Wilcox Well Field Development	WS-002			$ 9,213,515	$ 9,674,191	$ 10,061,158					
Birmensdorff	WL-014					$ 640,328					
3353, FM 1979, & 244A	WL-002					$ 2,145,162					
FM 3353	WL-006					$ 1,969,289					
Trinity Well Field Development	WS-001B					$ 7,891,720	$ 8,128,472				
Forcey and Guadalupe St	WL-030						$ 288,309				
Kingsbury Pipeline Phase II	WL-027						$ 399,295				
Redwood - FM 1978	WL-021						$ 2,222,274				
FM 1104	WL-018						$ 1,187,679				
FM 2623	WL-020						$ 1,070,315				
Flying W EST	SMP-005							$ 2,277,129			
Old Lehman Rd	WL-008							$ 179,568			
Redwood - Emerald Acres	WL-016							$ 288,870			
Wade Road	WL-034							$ 515,282			
Francis Harris - Old Zorn Road	WL-029							$ 9,838,501			
Watts Rd	WL-009								$ 1,452,002		
Ilka Station Rehab	BPS-001								$ 1,039,230		
Grant Harris	WL-013								$ 315,883		
Redwood Road	WL-031								$ 749,891		
Old Bastrop	WL-032								$ 6,883,073		
Allison Rd	WL-012								$ 2,168,712		
Country Acres	WL-024								$ 1,160,009		
Dreidbrodt	WL-004									$ 2,608,746	
Gravel Pit	WL-025									$ 3,576,703	
Ilka Switch Road	WL-033									$ 1,711,186	
Redwood - Crossover Rd	WL-015									$ 657,940	
Redwood - Mesquite	WL-022									$ 381,768	
US 90	WL-028									$ 6,131,297	$ 6,253,923
Woodrow Center	WL-019										$ 1,186,160
FM 3353 & 1339	WL-011										$ 566,153
Redwood - Fir	WL-023										$ 488,825
Annual Total		**$ 11,101,000**	**$ 10,806,000**	**$ 19,546,896**	**$ 21,428,941**	**$ 25,572,115**	**$ 16,530,138**	**$ 16,332,957**	**$ 17,002,002**	**$ 18,301,972**	**$ 11,729,252**

Appendix C

Capital Improvement Plan Project Sheets

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Center Point & Huber Road Line Replacement
CIP Project #: WL-001
Project Rank: 03

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	5
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	6
TOTAL	**14**

Project Description

Replace a combined 11,400 linear feet of existing water line with new 4" PVC water line along Center Point and Huber Road. The new water line will be on the east side of Huber Road and the south side of Center Point. This project also includes approximately 140 linear feet of directional drill under a creek bed along Huber Road.

Project Driver

The waterline along Huber and Center Point is currently a 2" line and is undersized for the area. There have been 6 denied meter requests along this waterline due to the small pipe diameter and limited capacity of the existing waterline. The Samco leak reports found 2 main line leaks and 1 potential leak associated with this waterline. Customers along this road have already paid into infrastructure improvements.

Budget/Schedule	
Year Of Construction:	2024
Design Cost:	$111,750
Construction Cost:	$894,000
Net Cost:	$1,005,750

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: 3353, FM 1979, & 244A Water Line
CIP Project #: WL-002

Project Rank: 15

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	3
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	2
TOTAL	**8**

Project Description

Replace a combined 14,700 linear feet of water line with new 6" PVC water line along FM 3353, FM 1979 and 244A. The new water line will be on east side of FM 3353, south side of FM 1979 and west side of 244A. This project also includes approximately 45 linear feet of directional drill under a creek bed along FM 3353.

Project Driver

The waterlines along FM 3353, FM 1979 and 244A are currently a 2" line and is undersized for the area. There have been 9 denied meter requests along the lines due to the small pipe diameter and limited capacity of the existing waterlines. The Samco leak report found 1 main line leak and 1 meter box leak associated with this waterline.

Budget/Schedule	
Year Of Construction:	2027
Design Cost:	$216,500
Construction Cost:	$1,732,000
Net Cost:	$1,948,500

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: FM 20 & Bylerpool

CIP Project #: WL-003

Project Rank: 04

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	3
3. Deferment	3
4. Storage Master Plan	3
5. Leaks	0
TOTAL	**12**

Project Description

Replace a combined 24,800 linear feet of water line with new 6" PVC water line along FM 20 and Bylerpool Road. The new line will be on the south side of FM 20 and the west side of Bylerpool Road. This project also includes approximately 227 linear feet of directional drill under a creek bed along FM 20.

Project Driver

The lines along FM 20 and Bylerpool Road are currently undersized for the area. The Samco leak report found 1 main line leak in 2018 and 8 main line leaks in 2019, as well as 5 leak fixes associated with these waterlines.

Budget/Schedule	
Year Of Construction:	2024
Design Cost:	$448,100
Construction Cost:	$3,584,000
Net Cost:	$4,032,100

Project Location

Project Name: Dreidbrodt Water Line Replacement

CIP Project #: WL-004

Project Rank: 34

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	1
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**4**

Project Description

Replace 13,000 linear feet of water line with new 12” PVC water line along Dreidbrodt Road. The new water line will be on the south side of Dreidbrodt Road. This project also includes approximately 172 linear feet of directional drill under a creek bed along Dreidbrodt Road.

Project Driver

The waterline along Dreidbrodt Road is currently a 3” line and is undersized for the area. There have been 3 denied meter requests along the lines due to the small pipe diameter and limited capacity of the existing waterline.

Budget/Schedule	
Year Of Construction:	2031
Design Cost:	$240,900
Construction Cost:	$1,927,000
Net Cost:	$1,537,900

Project Location

Project Name:	Crest Circle Drive and Ridge Drive
CIP Project #:	WL-005
Project Rank:	06

Project Prioritization / Criteria Scoring	
1. Compliance	6
2. Commitment of Service	1
3. Deferment	3
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**10**

Project Description

Replace a combined 18,500 linear feet of water line with new 3",6", and 8" PVC water line along Ridge Drive, Park Drive, Paul's Drive and Crest Circle Drive. This project also includes a directional drill under a creek bed along Ridge Drive and Crest Circle Drive.

Project Driver

The lines along Ridge Drive, Park Drive, Paul's Drive, and Crest Circle Drive are currently undersized for the area. Pressures are typically low in this area. There has been 1 denied meter request along the lines due to the small pipe diameter and limited capacity of the existing waterline. The Samco leak report found 2 service side leaks associated with these waterlines.

Budget/Schedule	
Year Of Construction:	2026
Design Cost:	$459,200
Construction Cost:	$3,673,000
Net Cost:	$4,132,200

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: FM 3353

CIP Project #: WL-006

Project Rank: 17

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	2
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	2
TOTAL	**7**

Project Description

Replace 11,400 linear feet of water line with new 6" PVC water line along FM 3353. The new water line will be on the north side of FM 3353.This project also includes approximately 260 linear feet of directional drill under a creek bed along FM 3353.

Project Driver

The waterline along FM 3353 is currently a 2" line and is undersized for the area. There have been 5 denied meter request along the lines due to the small pipe diameter and limited capacity of the existing waterline. The Samco leak report found 1 main line leak associated with this waterline.

Budget/Schedule	
Year Of Construction:	2027
Design Cost:	$198,800
Construction Cost:	$1,590,000
Net Cost:	$1,788,800

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: FM 621

CIP Project #: WL-007

Project Rank: 06

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	3
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	4
TOTAL	**10**

Project Description

Replace a combined 16,800 linear feet of water line with new 8" PVC water line along FM 621. The new water line will be along the south side of FM 621. This project also includes approximately 111 linear feet of directional drill under a creek bed along FM 621.

Project Driver

The lines along FM 621 are currently undersized for the area. There have been 9 denied meter request along the lines due to the small pipe diameter and limited capacity of the existing waterline. The Samco leak report found 1 main line leak, 1 meter box leak and 5 repaired leaks associated with this waterline.

Budget/Schedule	
Year Of Construction:	2025
Design Cost:	$600,600
Construction Cost:	$4,805,000
Net Cost:	$5,405,600

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Old Lehman Road

CIP Project #: WL-008

Project Rank: 22

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	0
3. Deferment	3
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**6**

Project Description

Replace 700 linear feet of water line with new 12” PVC water line along Old Lehman Road. The new water line will be on the east side of Old Lehman Road.

Project Driver

The waterline along Old Lehman Road is currently a 6” line and is undersized for the area.

Budget/Schedule	
Year Of Construction:	2029
Design Cost:	$17,300
Construction Cost:	$138,000
Net Cost:	$155,300

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Watts Road

CIP Project #: WL-009

Project Rank: 22

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	3
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**6**

Project Description

Replace 11,250 linear feet of water line with new 4" PVC water line along Watts Road. The new water line will be on the west side of Watts Road and the north side of Woodrow Center.

Project Driver

The waterline along Watts Road is currently a 2.5" line and is undersized for the area. There have been 8 denied meter request along the lines due to the small pipe diameter and limited capacity of the existing waterline. The Wilcox Well Field Development (WS-002) pipeline will supersede this project and replace it if WS-002 is to be constructed.

Budget/Schedule	
Year Of Construction:	2030
Design Cost:	$136,800
Construction Cost:	$1,094,000
Net Cost:	$1,230,800

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Swanson/Huber

CIP Project #: WL-010

Project Rank: 15

Project Prioritization / Criteria Scoring	
1. Compliance	6
2. Commitment of Service	2
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**8**

Project Description

Installing new and replacing existing pipe totaling 16,300 linear feet of 4" PVC water line along Swanson Road and Huber Road. The new water line will be along the southside of Deitert Road and the east side of Swanson Road. This project also includes a directional drill under a creek bed along Huber Road. The new line will extend to reach additional customers.

Project Driver

The waterlines along Swanson Road and Huber Road are currently 2" lines and are undersized for the area. There have been 4 denied meter requests along the lines due to the small pipe diameter and limited capacity of the existing waterline.

Budget/Schedule	
Year Of Construction:	2026
Design Cost:	$195,600
Construction Cost:	$1,565,000
Net Cost:	$1,760,600

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: FM 3353 & 1339

CIP Project #: WL-011

Project Rank: 44

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	0
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**3**

Project Description

Replace 1,500 linear feet of water line with new 12” PVC water line along FM 3353 and FM 1339. The new water line will be on the north side of FM 1339. This project also includes approximately 80 linear feet of directional drill under a creek bed along FM 1339.

Project Driver

The waterlines along FM 3353 and FM 1339 are currently 2” lines and are undersized for the area. Overall, the area is overcapacity downstream.

Budget/Schedule	
Year Of Construction:	2032
Design Cost:	$51,300
Construction Cost:	$410,000
Net Cost:	$461,300

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Allison Road

CIP Project #: WL-012

Project Rank: 34

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	1
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**4**

Project Description

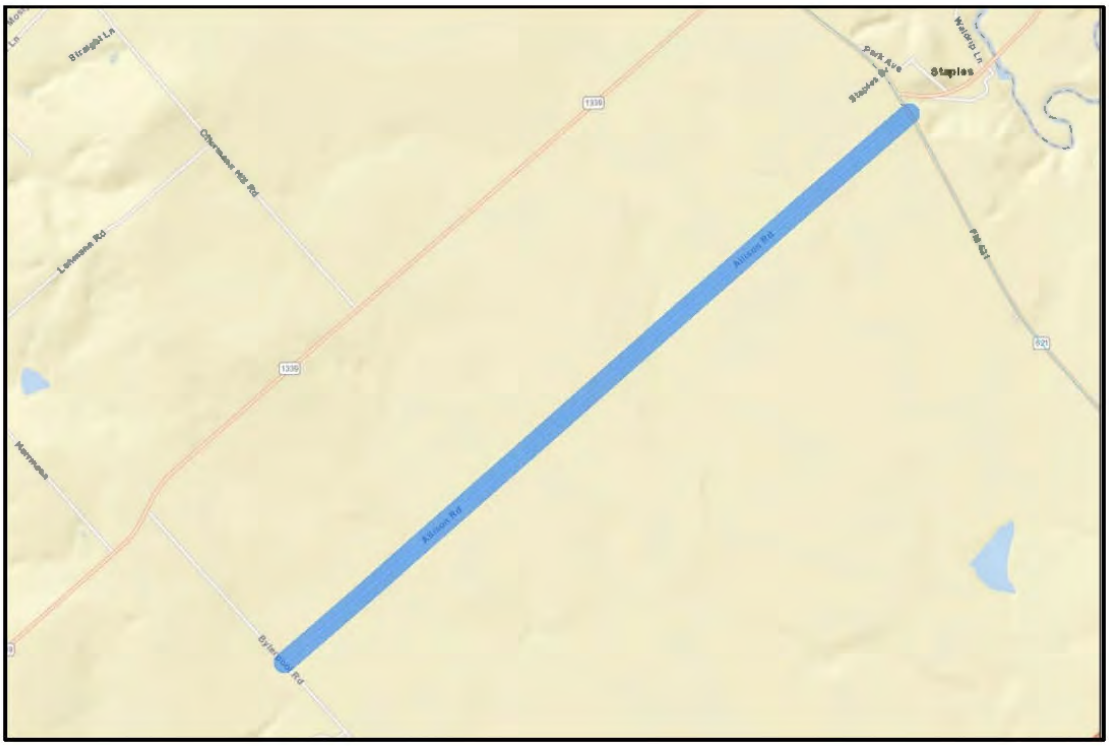
Replace 13,000 linear feet of water line with new 6" PVC water line along Allison Road. The new water line will be on the north side of Allison Road. This project also includes approximately 114 linear feet of directional drill under a creek bed along Allison Road.

Project Driver

The waterline along Allison Road is currently a 2" line and is undersized for the area. There have been 2 denied meter request along the line due to the small pipe diameter and limited capacity of the existing waterline.

Budget/Schedule	
Year Of Construction:	2030
Design Cost:	$204,300
Construction Cost:	$1,634,000
Net Cost:	$1,838,300

Project Location



Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Grant Harris

CIP Project #: WL-013

Project Rank: 34

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	1
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**4**

Project Description

Replace 2,100 linear feet of water line with new 4" PVC water line along Grant Harris. The new water line will be on the north side of Grant Harris.

Project Driver

The waterline along Grant Harris is currently a 2" line and is undersized for the area. There have been 3 denied meter request along the lines due to the small pipe diameter and limited capacity of the existing waterline.

Budget/Schedule	
Year Of Construction:	2030
Design Cost:	$29,700
Construction Cost:	$238,000
Net Cost:	$267,700

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Birmensdorff

CIP Project #: WL-014

Project Rank: 17

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	4
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**7**

Project Description

Replace 2,360 linear feet of water line with new 8” PVC water line along Birmensdorff Drive. The new water line will be on the south side of Birmensdorff Drive.

Project Driver

The waterline along Birmensdorff is currently a 3” line and is undersized for the area. There have been 3 denied meter request along the lines due to the small pipe diameter and limited capacity of the existing waterline. Customers along this road have already paid into infrastructure improvements.

Budget/Schedule	
Year Of Construction:	2027
Design Cost:	$64,700
Construction Cost:	$517,000
Net Cost:	$581,700

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name:	Redwood - Crossover Road
CIP Project #:	WL-015
Project Rank:	34

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	1
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**4**

Project Description

Replace 2,100 linear feet of water line with new 8" PVC water line along Crossover Road. The new water line will be on the south side of Crossover Road.

Project Driver

The waterline along Crossover Road is currently a 2.5" line and is undersized for the area. There have been 3 denied meter request along the lines due to the small pipe diameter and limited capacity of the existing waterline.

Budget/Schedule	
Year Of Construction:	2031
Design Cost:	$60,800
Construction Cost:	$486,000
Net Cost:	$546,800

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Redwood - Emerald Acres

CIP Project #: WL-016

Project Rank: 22

Project Prioritization / Criteria Scoring	
1. Compliance	0
2. Commitment of Service	1
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	5
TOTAL	**6**

Project Description

Replace 1,100 linear feet of existing water line with new 4" PVC water line along Emerald Acres. The new water line will be on the northside of Emerald Acres.

Project Driver

The waterline along Emerald Acres is currently a 2" line and is undersized for the area. There have been 1 denied meter request along this waterline due to the small pipe diameter and limited capacity of the existing waterline. The Samco leak reports found 10 leak repairs associated with this waterline.

Budget/Schedule	
Year Of Construction:	2029
Design Cost:	$27,800
Construction Cost:	$222,000
Net Cost:	$249,800

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Tschoepe Road

CIP Project #: WL-017

Project Rank: 05

Project Prioritization / Criteria Scoring	
1. Compliance	6
2. Commitment of Service	5
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**11**

Project Description

Replacing combined 9,500 linear feet of existing water lines with new 6" PVC water line along Tschoepe Road. The new water line will be on the north side of Tschoepe Road. This project also includes a directional drill under a creek bed along Tschoepe Road.

Project Driver

The waterlines along Tschoepe Road are currently a 2" and 2.5" lines and are undersized for the area. There have been 5 denied meter requests along this waterline due to the small pipe diameter and limited capacity of the existing waterline. The Samco leak reports found 1 service side leak associated with this waterline. Customers along this road have already paid into infrastructure improvements.

Budget/Schedule	
Year Of Construction:	2024
Design Cost:	$165,800
Construction Cost:	$1,326,000
Net Cost:	$1,491,800

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: FM 1104

CIP Project #: WL-018

Project Rank: 22

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	1
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	2
TOTAL	**6**

Project Description

Replacing 9,500 linear feet of existing water lines with new 6” PVC water line along FM 1104. The new water line will be on the east side of FM 1104.

Project Driver

The waterline along FM 1104 is currently a 2” line and are undersized for the area. There have been 3 denied meter requests along this waterline due to the small pipe diameter and limited capacity of the existing waterline. The Samco leak reports found 1 potential service side leak and 5 leak repairs associated with this waterline.

Budget/Schedule	
Year Of Construction:	2028
Design Cost:	$116,400
Construction Cost:	$931,000
Net Cost:	$1,047,400

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Woodrow Center

CIP Project #: WL-019

Project Rank: 34

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	1
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**4**

Project Description

Extending line and replacing a combined 8,500 linear feet of new 4" PVC water line along Woodrow Center. The new water line will be on the east side of Woodrow Center.

Project Driver

The waterline along Woodrow Center is currently a 1.5" line and is undersized for the area. There have been 2 denied meter requests along this waterline due to the small pipe diameter and limited capacity of the existing waterline. The Samco leak reports found 1 distribution valve leak associated with this waterline.

Budget/Schedule	
Year Of Construction:	2032
Design Cost:	$107,400
Construction Cost:	$859,000
Net Cost:	$966,400

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: FM 2623

CIP Project #: WL-020

Project Rank: 22

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	1
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	2
TOTAL	**6**

Project Description

Replace a combined 6,200 linear feet of existing water lines with new 6" PVC water line along FM 2623. The new water line will be on the south side of FM 2623 and the north side of Max Road. This project also includes a directional drill under a creek bed along FM 2623.

Project Driver

The waterlines along FM 2623 are currently undersized for the area. There have been 3 denied meter requests along this waterline due to the small pipe diameter and limited capacity of the existing waterline. The Samco leak reports found 4 leak repairs associated with this waterline.

Budget/Schedule	
Year Of Construction:	2028
Design Cost:	$104,900
Construction Cost:	$839,000
Net Cost:	$943,900

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Redwood – FM 1978

CIP Project #: WL-021

Project Rank: 17

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	0
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	4
TOTAL	**7**

Project Description

Replace 5,500 linear feet of existing water lines with new 12” PVC water line along FM 1978. The new water line will be on the north side of the FM 1978. Due to the larger size of the new line, fire hydrants can also be installed along FM 1978.

Project Driver

The waterline along FM 1978 is currently undersized for the area. The Samco leak reports found 1 meter box repair and 9 leak repairs associated with this waterline.

Budget/Schedule	
Year Of Construction:	2028
Design Cost:	$217,800
Construction Cost:	$1,742,000
Net Cost:	$1,959,800

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Redwood – Mesquite

CIP Project #: WL-022

Project Rank: 34

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	1
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**4**

Project Description

Replacing 1,500 linear feet of existing water lines with new 6" PVC water line along Mesquite Street. The new water line will be on the north side of Mesquite Street.

Project Driver

The waterline along Mesquite Street is currently undersized for the area. There have been 1 denied meter requests along this waterline due to the small pipe diameter and limited capacity of the existing waterline.

Budget/Schedule	
Year Of Construction:	2031
Design Cost:	$35,300
Construction Cost:	$282,000
Net Cost:	$317,300

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Redwood - Fir

CIP Project #: WL-023

Project Rank: 44

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	0
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**3**

Project Description

Replacing 1,700 linear feet of existing water lines with new 4" PVC water line along Fir Street. The new water line will be on the south side of Fir Street.

Project Driver

The waterline along Fir Street is currently undersized for the area.

Budget/Schedule	
Year Of Construction:	2032
Design Cost:	$44,300
Construction Cost:	$354,000
Net Cost:	$398,300

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Country Acres

CIP Project #: WL-024

Project Rank: 34

Project Prioritization / Criteria Scoring	
1. Compliance	0
2. Commitment of Service	2
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	2
TOTAL	**4**

Project Description

Replacing a combined 4,900 linear feet of existing water lines with new 6” and 8” PVC water lines along Country Acres. The new water line will be on the north side along Ilka Switch, east side of Reyna Lane and the north side of Shawn Lane.

Project Driver

The waterlines along Country Acres are currently undersized for the area. There have been 4 denied meter requests along this waterline due to the small pipe diameter and limited capacity of the existing waterline. The Samco leak reports found 1 main line leak associated with this waterline.

Budget/Schedule	
Year Of Construction:	2030
Design Cost:	$109,200
Construction Cost:	$874,000
Net Cost:	$983,200

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Gravel Pit

CIP Project #: WL-025

Project Rank: 34

Project Prioritization / Criteria Scoring	
1. Compliance	0
2. Commitment of Service	2
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	2
TOTAL	**4**

Project Description

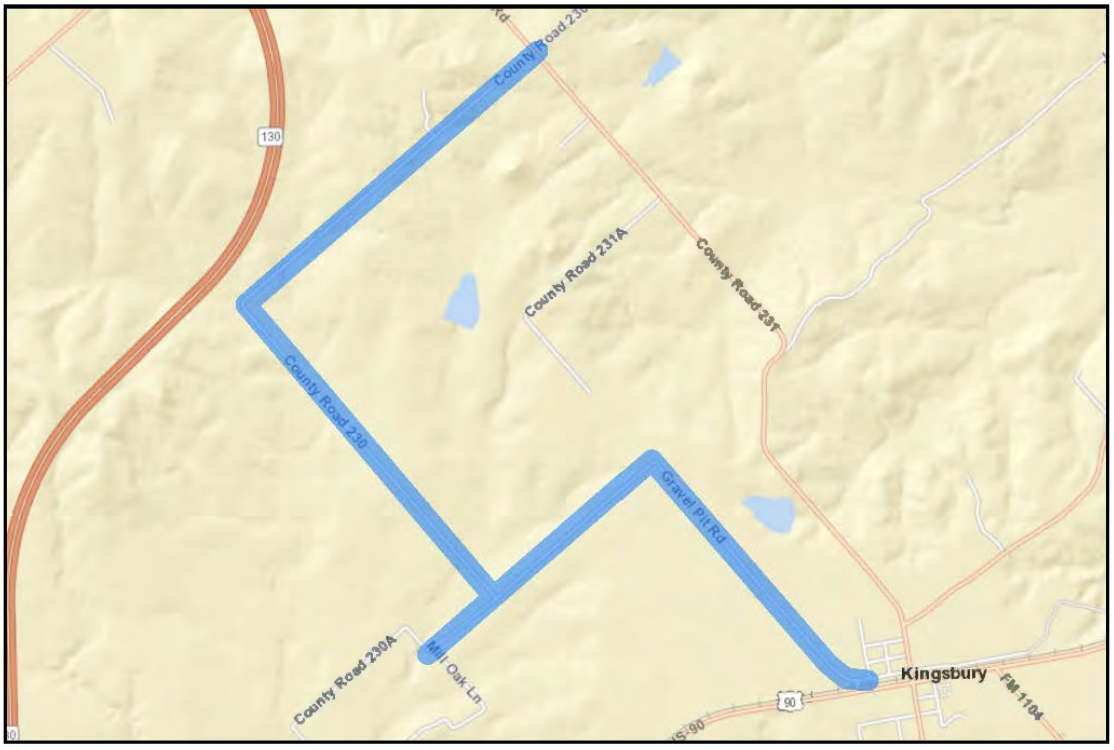
Add 4” PVC water line in area as well as replace existing 2” line with 4” water line. Total of 28,300 linear feet of water line.

Project Driver

There is a lack of water lines in this sector to connect new customers. There are a few existing customers that are sub metered off a different customer. There have been multiple meter requests in the area, but no existing lines to serve them. The Samco leak report found 1 main line leak on the existing water line to be replaced. Customers along this road have already paid into infrastructure improvements.

Budget/Schedule	
Year Of Construction:	2031
Design Cost:	$330,300
Construction Cost:	$2,642,000
Net Cost:	$2,972,300

Project Location



Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: IH-35 Bore

CIP Project #: WL-026

Project Rank: 06

Project Prioritization / Criteria Scoring	
6. Compliance	3
7. Commitment of Service	1
8. Deferment	3
9. Storage Master Plan	3
10. Leaks	0
TOTAL	**10**

Project Description

Bore 12” water line inside 36” steel casing across Interstate Highway 35 and connect to existing waterlines on either side of freeway. Approximately 350 linear feet.

Project Driver

Water from the Nelson Booster Station north of IH-35 is conveyed across IH-35 through an existing 4-inch waterline. A larger diameter pipe is needed to properly convey water to the east side of the highway, where the majority of CCSUD’s system lies. This expansion in capacity will help to service numerous new meters and new customers with non-standard service agreements.

Budget/Schedule	
Year Of Construction:	2023
Design Cost:	$ ---
Construction Cost:	$421,000
Net Cost:	$421,000

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Kingsbury Pipeline Phase II

CIP Project #: WL-027

Project Rank: 17

Project Prioritization / Criteria Scoring	
1. Compliance	6
2. Commitment of Service	1
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**7**

Project Description

Installing 3,500 feet of new 12-inch and 8-inch waterline throughout the town of Kingsbury and under UPRR railroad easement and US 90.

Project Driver

Completion of waterline capacity expansion from Kingsbury Phase I. Upsizes existing 2” and 3” lines in the area to meet demands in Kingsbury and further south along US 90.

Budget/Schedule	
Year Of Construction:	2028
Design Cost:	$39,200
Construction Cost:	$313,000
Net Cost:	$352,200

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: US 90

CIP Project #: WL-028

Project Rank: 34

Project Prioritization / Criteria Scoring	
1. Compliance	0
2. Commitment of Service	0
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	4
TOTAL	**4**

Project Description
Installing 37,200 feet of new 12-inch waterline to replace undersized portions of the line so that water can be conveyed across the system.

Project Driver
This will be used to convey water across the south side of the system from the west to the east. With the larger line size there will be less friction losses and we will be able to convey larger volumes of water across the system. The Samco leak reports found 2 main line leaks associated with this waterline.

Budget/Schedule	
Year Of Construction:	2031
Design Cost:	$1,132,200
Construction Cost:	$9,058,000
Net Cost:	$10,190,000

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Francis Harris – Old Zorn Rd.

CIP Project #: WL-029

Project Rank: 22

Project Prioritization / Criteria Scoring	
1. Compliance	0
2. Commitment of Service	0
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	6
TOTAL	**6**

Project Description

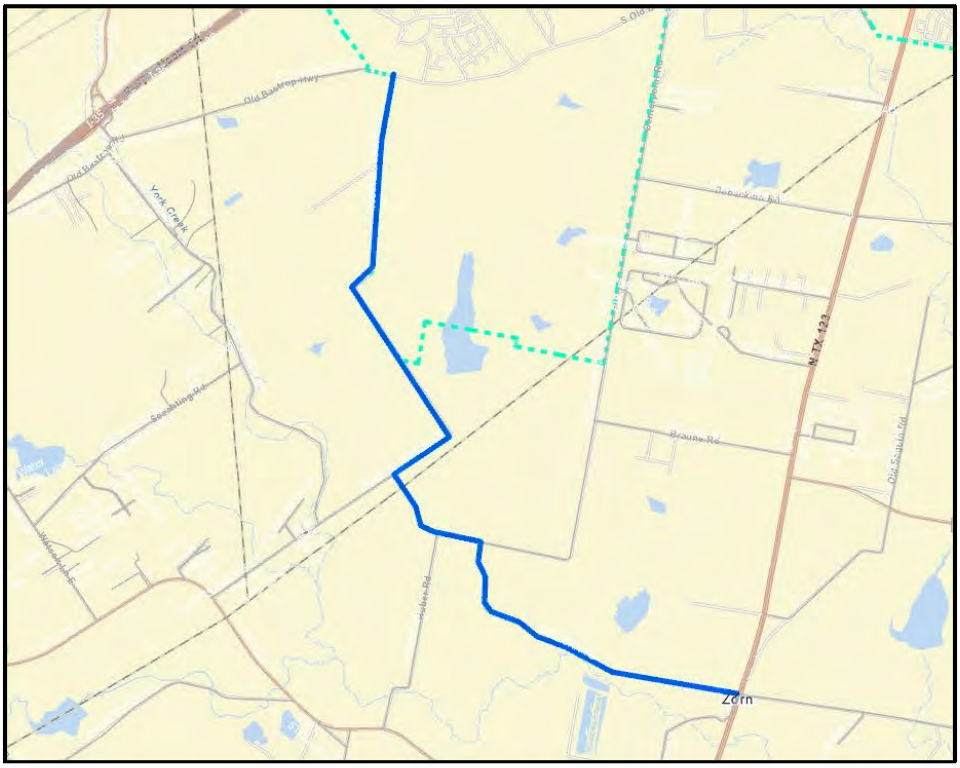
Installing 32,900 feet of new 12-inch waterline to replace undersized portions of the line so that water can be conveyed between pressure zones.

Project Driver

This will be used to convey water from the west side of the system (Nelson pressure zone) to the east side of the system where there is a need for higher volumes of water. With the larger line size there will be less friction losses and we will be able to convey larger volumes of water across pressure zones. The Samco leak reports found 3 main line leaks associated with this waterline.

Budget/Schedule	
Year Of Construction:	2029
Design Cost:	$945,200
Construction Cost:	$7,561,000
Net Cost:	$8,506,000

Project Location



Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Forcey and Guadalupe St

CIP Project #: WL-030

Project Rank: 17

Project Prioritization / Criteria Scoring	
1. Compliance	6
2. Commitment of Service	1
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**7**

Project Description
Installing 1,760 feet of new 2-inch, 2.5-inch, and 3-inch water lines to increase the capacity in this area.

Project Driver
The waterlines in this area are currently undersized. There have been 2 denied meter requests along this waterline due to the small pipe diameter and limited capacity of the existing waterline.

Budget/Schedule	
Year Of Construction:	2028
Design Cost:	$28,200
Construction Cost:	$226,000
Net Cost:	$254,200

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Redwood Road

CIP Project #: WL-031

Project Rank: 33

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	1
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	.5
TOTAL	**4.5**

Project Description

Installing 5,300 feet of 4-inch waterline to replace the undersized 1.5-inch and 2-inch lines.

Project Driver

The waterlines in this area are currently undersized. There have been 2 denied meter requests along this waterline due to the small pipe diameter and limited capacity of the existing waterline. There has also been a leak repair along this road.

Budget/Schedule	
Year Of Construction:	2030
Design Cost:	$70,700
Construction Cost:	$565,000
Net Cost:	$635,700

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Old Bastrop

CIP Project #: WL-032

Project Rank: 32

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	0
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	2
TOTAL	**5**

Project Description

Installing 16,500 feet of new 16-inch waterline to replace stretches of smaller diameter waterlines.

Project Driver

This will be used to convey water between pressure zones and provide fire flow to this area of the system. With the larger line size there will be less friction losses and we will be able to convey larger volumes of water across pressure zones. The Samco leak reports found 1 main line leak associated with this waterline.

Budget/Schedule	
Year Of Construction:	2030
Design Cost:	$648,300
Construction Cost:	$5,186,000
Net Cost:	$5,834,300

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Ilka Switch Road

CIP Project #: WL-033

Project Rank: 34

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	1
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**4**

Project Description
Installing 8,000 feet of 8-inch waterline to replace the undersized 2.5-inch and 4-inch waterlines.

Project Driver
The waterlines in this area are currently undersized. There have been 3 denied meter requests along this waterline due to the limited capacity of the existing waterline.

Budget/Schedule	
Year Of Construction:	2031
Design Cost:	$158,000
Construction Cost:	$1,264,000
Net Cost:	$1,422,000

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Wade Road

CIP Project #: WL-034

Project Rank: 22

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	1
3. Deferment	0
4. Storage Master Plan	0
5. Leaks	2
TOTAL	**6**

Project Description
Replacing a combined 4,150 linear feet of existing water lines with new 4-inch PVC water lines.

Project Driver
The waterlines in the area are currently undersized. There have been 2 denied meter requests along this waterline due to the small pipe diameter and limited capacity of the existing waterline. The Samco leak reports found 1 main line leak associated with this waterline.

Budget/Schedule	
Year Of Construction:	2029
Design Cost:	$49,500
Construction Cost:	$396,000
Net Cost:	$445,500

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name:	Ilka Station Rehabilitation
CIP Project #:	BPS-001
Project Rank:	22

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	0
3. Deferment	3
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**6**

Project Description

Rehabilitate the two ground storage tanks on the site to meet TCEQ compliance. These rehabilitations would include recoating the interior and exterior of the tanks and adding OSHA access and fall protection measures.

Project Driver

Without these changes these tanks exist outside of TCEQ compliance and could lead to fines. These issues were cited in the 2016 CCSUD CIP.

Budget/Schedule	
Year Of Construction:	2030
Design Cost:	$117,500
Construction Cost:	$783,000
Net Cost:	$900,500

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: El Camino Pump Replacement
CIP Project #: BPS-002
Project Rank: 09

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	3
3. Deferment	3
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**9**

Project Description

Upgrade the pumps at El Camino Booster Station to increase pumping capacity in this pressure zone and for system redundancy.

Project Driver

The pumps at El Camino will need to be replaced and upsized to meet TCEQ pumping requirements. A portion of the proposed pump replacement has been paid for by customers for improvements in the El Camino zone. There is potential that the Zorn Elevated Storage Tank will make this project obsolete.

Budget/Schedule	
Year Of Construction:	2026
Design Cost:	$112,500
Construction Cost:	$900,000
Net Cost:	$1,012,500

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Zorn Elevated Tank

CIP Project #: SMP-001

Project Rank: 01

Project Prioritization / Criteria Scoring	
1. Compliance	9
2. Commitment of Service	3
3. Deferment	3
4. Storage Master Plan	3
5. Leaks	0
TOTAL	**18**

Project Description

A new elevated storage tank will be constructed along the east side of SH 123 to fit the storage needs of the system in the El Camino zone.

Project Driver

A portion of the proposed elevated storage tank has been paid for by customers to fix the pressure and capacity issues in the El Camino zone. This elevated storage tank is part of the proposed storage master plan and will meet commitments made to developers in non-standard service agreements.

Budget/Schedule	
Year Of Construction:	2023
Design Cost:	$937,500
Construction Cost:	$6,250,000
Net Cost:	$7,187,500

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Hays Caldwell Tank

CIP Project #: SMP-002

Project Rank: 09

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	3
3. Deferment	0
4. Storage Master Plan	3
5. Leaks	0
TOTAL	**9**

Project Description

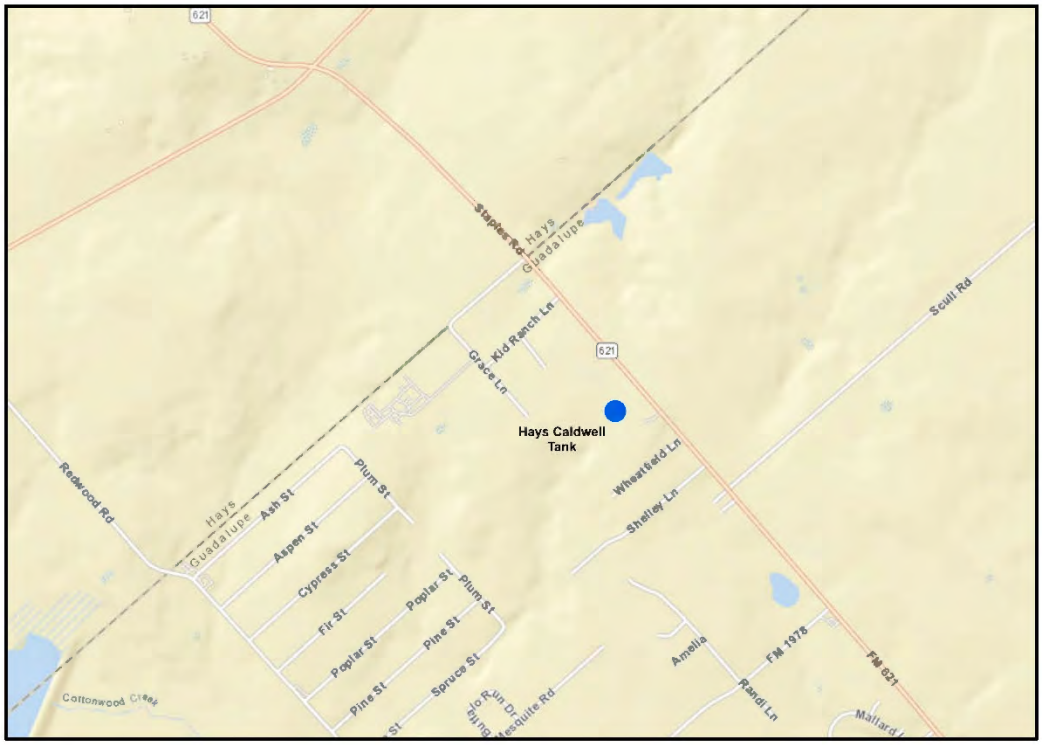
A new elevated storage tank will be constructed along the west side of FM 621 to fit the storage needs of the system in the Hays-Caldwell Zone.

Project Driver

The proposed elevated storage tank has been paid into by customers to fix the capacity issues in the Hays-Caldwell zone. This elevated storage tank is part of the proposed storage master plan and will meet commitments made to developers in non-standard service agreements.

Budget/Schedule	
Year Of Construction:	2026
Design Cost:	$750,000
Construction Cost:	$5,000,000
Net Cost:	$5,750,000

Project Location



Project Name: Offerman Pump Station and Transmission Main

CIP Project #: SMP-003

Project Rank: 02

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	6
3. Deferment	3
4. Storage Master Plan	3
5. Leaks	0
TOTAL	**15**

Project Description

A new ground storage tank and pumps with 16,000 linear feet of fill line connected to a 12-inch water line along FM 621. The ground storage tank and pump station will be located on the west side of Offermann Hill Road in the Hays Caldwell zone. In total, the tank will be able to store 500,000 gallons of water.

Project Driver

The proposed ground storage tank and pump station is needed to store and distribute the ARWA water expected to be delivered in 2023. This project is part of the proposed storage master plan and will meet commitments made to developers in non-standard service agreements.

Budget/Schedule	
Year Of Construction:	2023
Design Cost:	$664,500
Construction Cost:	$4,430,000
Net Cost:	$5,094,500

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Herber Tank

CIP Project #: SMP-004

Project Rank: 09

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	3
3. Deferment	0
4. Storage Master Plan	3
5. Leaks	0
TOTAL	**9**

Project Description

A new elevated storage tank will be constructed along the south side of IH-35 to fit the storage needs of the system in the Nelson Zone.

Project Driver

This elevated storage tank is part of the proposed storage master plan and will meet commitments made to developers in non-standard service agreements. There is a signed agreement in place that sets the construction complete date for this tank in October 2025.

Budget/Schedule	
Year Of Construction:	2025
Design Cost:	$562,500
Construction Cost:	$3,750,000
Net Cost:	$4,312,500

Project Location

Project Name: Flying W EST

CIP Project #: SMP-005

Project Rank: 22

Project Prioritization / Criteria Scoring	
1. Compliance	0
2. Commitment of Service	3
3. Deferment	3
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**6**

Project Description

A new elevated storage tank is to be constructed along the north side Hunter Road to fit the storage needs of the system in the Havenwood Zone.

Project Driver

This elevated storage tank will help CCUSD meet commitments made to existing connections as well as be prepared for growth in the area.

Budget/Schedule	
Year Of Construction:	2029
Design Cost:	$265,500
Construction Cost:	$1,750,000
Net Cost:	$2,015,500

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Trinity Well Field Completion and Access

CIP Project #: WS-001A

Project Rank: 09

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	3
3. Deferment	3
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**9**

Project Description

Completion to production state for the three Trinity wells, full finish out of wells and all appurtenances thereof, and all associated electrical/mechanical/structural elements required to complete wells.

Project Driver

This project will address the need for an additional water supply source in the northern part of the system.

Budget/Schedule	
Year Of Construction:	2024
Design Cost:	$--
Construction Cost:	$3,100,000
Net Cost:	$3,100,000

Project Location

Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Trinity Well Field Development
CIP Project #: WS-001B

Project Rank: 22

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	0
3. Deferment	3
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**6**

Project Description

Completion to production state for the three Trinity and one Kutscher wells to include construction of a gathering tank at the Nelson Boost Station, 25,000 feet of HDPE transmission main from the wells to the new storage tank, all appurtenances thereof, and all associated electrical/mechanical/structural elements required to complete tie in.

Project Driver

This project will address a need for expanded water source capacity in the northern part of the system pending new large developments adding demand. As the developments are pending at the moment, there is no non-standard service agreement that exists to pay for or require the well field development yet.

Budget/Schedule	
Year Of Construction:	2027-2028
Design Cost:	$1,592,940
Construction Cost:	$12,743,520
Net Cost:	$14,336,460

Project Location

Project Name: Wilcox Well Field Development

CIP Project #: WS-002

Project Rank: 09

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	3
3. Deferment	3
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**9**

Project Description

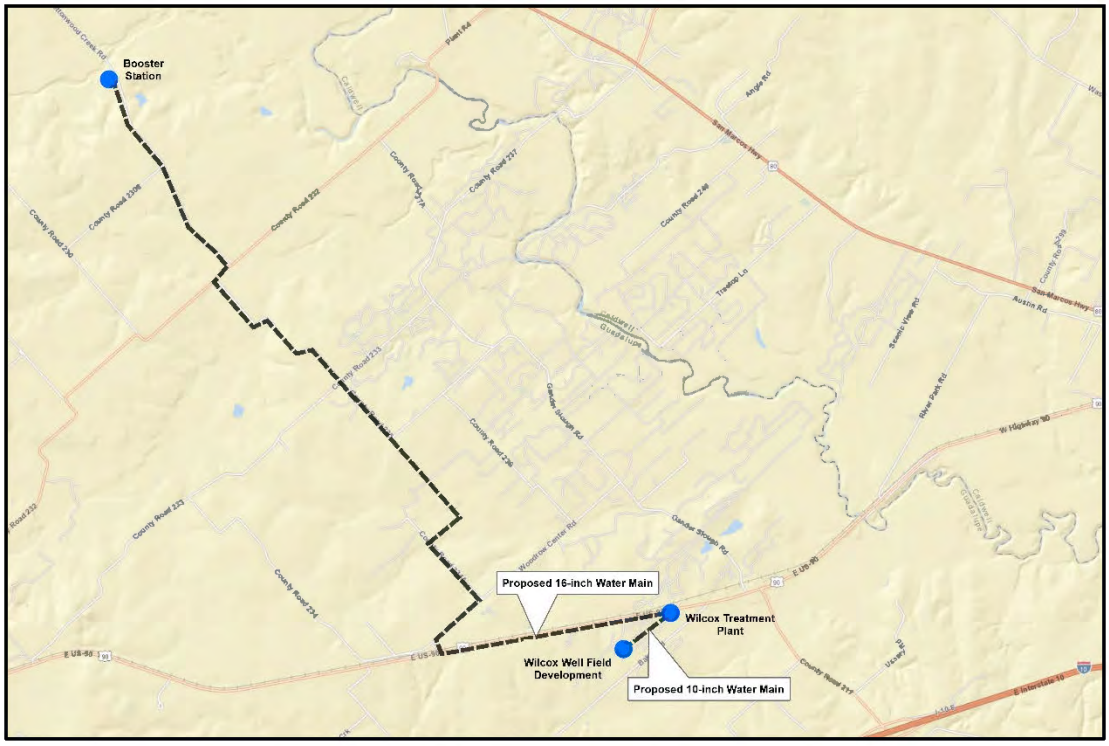
Completion to production state for Wilcox wells to include construction of a 500,000-gallon ground storage tank, 9,400 feet of 12" distribution main from the wells to tie into existing water system, full finish out of wells and all appurtenances thereof, and all associated electrical/mechanical/structural elements required to complete tie in.

Project Driver

This project will address a need for expanded water source capacity in the southern part of the system pending new large developments adding demand. As the developments are pending at the moment, there is no non-standard service agreement that exists to pay for or require the well field development yet.

Budget/Schedule	
Year Of Construction:	2032
Design Cost:	$3,655,512
Construction Cost:	$24,370,080
Net Cost:	$28,025,592

Project Location



Crystal Clear Special Utility District
Capital Improvement Plan 2023-2032

Project Name: Wells Ranch Phase III

CIP Project #: WS-003

Project Rank: 09

Project Prioritization / Criteria Scoring	
1. Compliance	3
2. Commitment of Service	3
3. Deferment	3
4. Storage Master Plan	0
5. Leaks	0
TOTAL	**9**

Project Description

This project will be completed by CRWA and will include development of a well field and a series of 12-inch to 30-inch lines to get the water to a CCSUD delivery point.

Project Driver

This project will address a need for expanded water source capacity in the central part of the system to serve the connections that are coming online in that area.

Budget/Schedule	
Year Of Construction:	2024 - 2032
Design Cost:	$--
Construction Cost:	$23,158,792
Net Cost:	$23,158,792

Project Location

Appendix D

Capital Improvement Plan Projects Map

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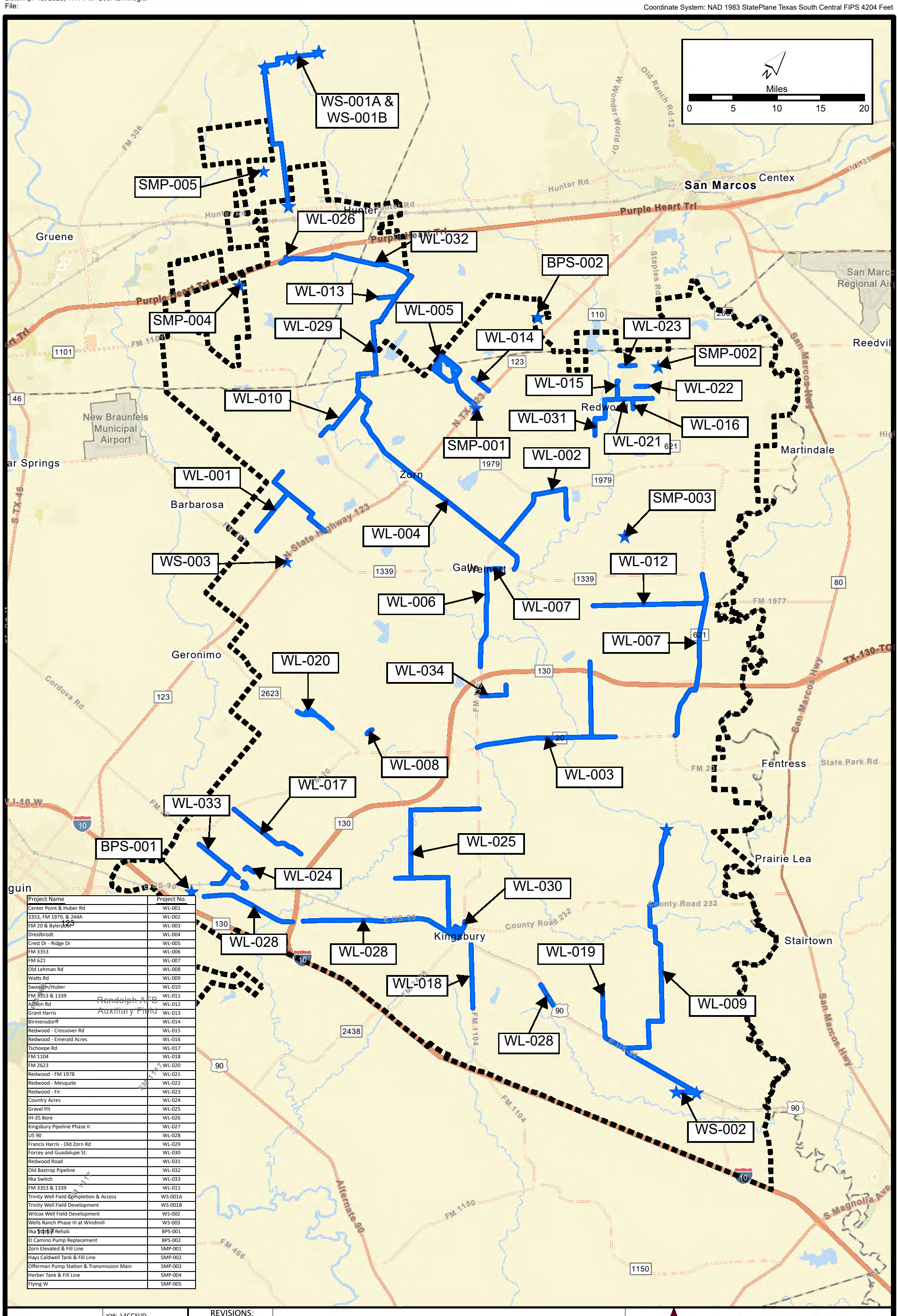
Coordinate System: NAD 1983 StatePlane Texas South Central FIPS 4204 Feet



Project Name	Project No.
Center Point & Huber Rd	WL-001
3353, FM 1979, & 244A	WL-002
FM 20 & Bylerpool	WL-003
Dreidbrodt	WL-004
Crest Dr - Ridge Dr	WL-005
FM 3353	WL-006
FM 621	WL-007
Old Lehman Rd	WL-008
Watts Rd	WL-009
Swanson/Huber	WL-010
FM 3353 & 1339	WL-011
Allison Rd	WL-012
Grant Harris	WL-013
Birmensdorff	WL-014
Redwood - Crossover Rd	WL-015
Redwood - Emerald Acres	WL-016
Tschoepe Rd	WL-017
FM 1104	WL-018
FM 2623	WL-020
Redwood - FM 1978	WL-021
Redwood - Mesquite	WL-022
Redwood - Fir	WL-023
Country Acres	WL-024
Gravel Pit	WL-025
IH-35 Bore	WL-026
Kingsbury Pipeline Phase II	WL-027
US 90	WL-028
Francis Harris - Old Zorn Rd	WL-029
Forcey and Guadalupe St.	WL-030
Redwood Road	WL-031
Old Bastrop Pipeline	WL-032
Ilka Switch	WL-033
FM 3353 & 1339	WL-011
Trinity Well Field Completion & Access	WS-001A
Trinity Well Field Development	WS-001B
Wilcox Well Field Development	WS-002
Wells Ranch Phase III at Windmill	WS-003
Ilka 1117 Rehab	BPS-001
El Camino Pump Replacement	BPS-002
Zorn Elevated & Fill Line	SMP-001
Hays Caldwell Tank & Fill Line	SMP-002
Offerman Pump Station & Transmission Main	SMP-003
Herber Tank & Fill Line	SMP-004
Flying W	SMP-005

SHEET: EXH

JOB: 14CCSUD
DATE: MARCH 2023
DRAWN: KV PM:
DESIGN: NS DM:
PEER: OTHER:

REVISIONS:

DATE	DESCRIPTION

2023
CCSUD CIP
PRELIMINARY PROJECT MAP

M&S ENGINEERING
ELECTRICAL | CIVIL | MEP
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Appendix E

2021 Elevated Storage Master Plan

ELEVATED STORAGE

MASTER PLAN

January 2021

Prepared By:

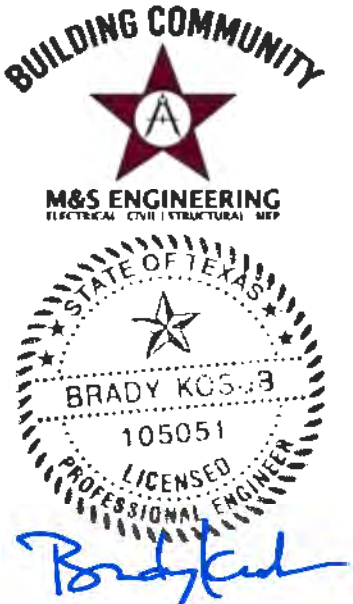

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Table of Contents

Executive Summary

Introduction

The Elevated Storage Master Plan has been prepared to identify suitable locations within Crystal Clear Special Utility District's service area to construct elevated storage tanks that will support growth over the next 30 years. Previous system upgrades have focused on increasing booster pump capacity; however, this is not a feasible option for keeping up with the continued growth and future demands. Elevated storage is better suited to increase pressures, improve system stability, and provide efficiency within the system.

A new elevation relief map and dynamic WaterCAD model were developed as part of this effort. The master plan report presents existing system information; future system conditions; existing and future water sources; population projections and water demand; and recommendations for implementing elevated storage. Tank capacity, location, and supporting infrastructure are part of the elevated storage tank recommendations.

Water Demands and Population Projections

Historical water usage and meter connections were analyzed and compared to future meter connections based on population projections within the water system. A 2.8% annual growth rate was used to determine population growth. The average daily demand of 331 gallons per connection per day was used to calculate future water demand. These calculations resulted in 16,417-meter connections and 6,087 acre-feet of water supply demand in the year 2050.

Developing a WaterCAD Model

A WaterCAD™ Extended Period Simulation (EPS) hydraulic model was developed as part of this analysis to reflect how future infrastructure will influence system conditions. The EPS model provides data and graphs showing how the hydraulic conditions perform over a series of time steps in a 24-hour period. The model was used to evaluate whether the recommended storage tank and pipeline infrastructure met the design criteria established during the analysis of the system.

Storage Tank and Infrastructure Recommendations

A total of five (5) elevated storage tanks are recommended to support the system. Two of the five elevated storage tanks are either currently being built or already exist, leaving 3 additional elevated tanks to be constructed throughout the district. The three additional recommended elevated tanks are Hays-Caldwell EST, Herber EST and Zorn EST; and each require additional infrastructure. The cost estimates for the combined infrastructure improvements (elevated tank and supporting pipeline and pumps) were summarized by pressure zone as explained in the last section (VIII.B) of the Master Plan.

I. Introduction

A. Description of System

The Elevated Storage Master Plan's study area is defined by the existing CCSUD Certificate of Convenience and Necessity (CCN) boundary. The service area is approximately 206 square miles located within Caldwell, Comal, Guadalupe, and Hays Counties. The heart of the water district is located between the Cities of New Braunfels, Seguin, and San Marcos; and includes the Cities of Kingsbury and Staples. This area of the district is seeing more growth and development than the rest of the system.

With the encroachment of the surrounding cities, CCSUD continues to provide water to more City customers and less rural customers every day. The service area includes the Extra Territorial Jurisdictions (ETJ) of the Cities of New Braunfels, San Marcos, and Seguin. See Appendix A for an illustration of CCSUD's service area (Exhibit A1 – Service Area Map). Each City's Code of Ordinance identifies fire flow requirements for new developments within each of their jurisdictional areas. Currently, the CCSUD water system often cannot meet fire flow demands mandated by the surrounding Cities. Strategically located elevated storage tanks will help the District to meet fire flow demands.

The elevations in the service areas range from 350 feet (MSL) to 888 feet (MSL). These generally decrease as you travel from the Northwest to the Southeast across the area. The current service area is divided into eight (8) pressure planes that each have a different number of connections, pumping capacity, and storage based on the existing infrastructure. More system data is provided below in Section III, Existing System Conditions, of the Plan.

B. Objective and Scope of Study

The purpose of the Elevated Storage Master Plan is to identify suitable locations within the system for the construction of elevated storage tanks that will allow CCSUD to continue to serve its customers effectively, reliably, and efficiently into the future. The specific objectives to be completed as part of this exercise were to:

- Create a new (updated) elevation relief map using the latest LiDAR data (2-foot contours)
- Develop a dynamic WaterCAD model including updated demands, pump curves and tank operating ranges
- Model various tank locations in the new dynamic model
- Make recommendations on future elevated tank capacities based on future growth and known residential developments over the next 30 years
- Develop preliminary cost estimates for future tanks and pipelines necessary to pressurize the system
- Recalculate new GPCD based on production data

C. Definitions and Acronyms

The following terms are used throughout this report. These definitions were provided for clarity to the reader to provide a better understanding of each term as it is use in the report.

Acre-Foot (AF) – the volume of water that covers one acre of surface area to a depth of one foot of water. One AF is equal to 325,853 gallons.

Average Daily Demand (ADD) – The total volume of water delivered to the system over a year divided by the number of days in the year. The average use in a single day expressed in gallons per day (GPD).

Capital Improvements Plan (CIP) – Recommended improvements to the water distribution system based on population and water demand projections for future conditions.

CCN – A Certificate of Convenience and Necessity (CCN) is the State issued water service area that grants an entity exclusive rights as a utility provider within the CCN boundary.

CCSUD – Crystal Clear Special Utility District, also referred to as the "District."

CRWA – Canyon Regional Water Authority

Demand (consumption) – Volume of water consumed over a given period of time, typically measured in units of Gallons Per Day (GPD) or Gallons Per Minute (GPM)

Diurnal Curve – Typically a graph depicting water demand over a 24-hour period with demand plotted on the y-axis and time plotted on the x-axis.

EST – Elevated Storage Tank

Extended Period Simulation (EPS) – Type of analysis used to perform the hydraulics of a system over a specified period of time in multiple time steps.

Extra Territorial Jurisdiction (ETJ) – The legal ability to exercise authority of the nearest town and city's form of government.

Fire Flow Demand – The amount of water that should be available for municipal fire protection.

FCV – Flow Control Valve

Geographic Information System (GIS) – A system designed to capture, store, manipulate, analyze, manage, and present all types of geographical data.

GPCD – Gallons Per Connection Per Day

GPD – Gallons Per Day

GPM – Gallons Per Minute

GST – Ground Storage Tank

Guadalupe-Blanco River Authority (GBRA) – Government owned corporation that provides water supply and water conservation in the Guadalupe River Basin which includes the Blanco, Comal, and San Marcos.

Living Unit Equivalent (LUE) – The typical flow or water usage that would be produced by a single-family residence.

Mean Seal Level (msl) – The measurement of ground elevation at a point on the Earth's surface relative to the mean height of the surface of the sea.

Maximum Daily Demand (MDD) – The maximum volume of water used during a 24-hour period within a given year.

Peak Hour Demand (PHD) – The maximum one-hour water demand given in units of volume per day that a given distribution system experienced or would experience during a particular year or other period of time.

Pressure Plane (Pressure Zone) – A network of pipes having a common pressure range; each plane may be separated from other planes using closed valves, pressure regulating valves, pump stations, and storage facilities.

PSI – pounds per square inch (U.S. customary unit for pressure)

TCEQ – Texas Commission on Environmental Quality

TWDB – Texas Water Development Board

Total Pumping Capacity – The total pumping capacity that a pump station can deliver.

Transmission System (Piping) – Transmission piping typically consist of 12-inch diameter and larger piping, having minimum service connections if possible and function primarily as the vehicle to move larger quantities of water throughout the water system

II. Existing System Conditions

A. Existing System Characteristics

Crystal Clear Special Utility District's existing water system consists of three (3) sources of water supply, a distribution network divided into eight (8) pressure zones, eight (8) pump stations, and 14 storage tanks. The system currently serves approximately 16,770 people or 6,510 LUEs. The current demands of the system require 2,255 acre-feet per year (AF/YR). Exhibit A2 – Existing System Conditions Map provided in Appendix A gives an illustration of the existing water sources, pressure zones, booster pump station and facility locations within the District. The existing sources of supply include: 1) the Edwards Aquifer; 2) surface water from the Hays Caldwell interconnect; and 3) surface water from Lake Dunlap.

Below is a description of the various infrastructure existing within each pressure zone:

1. Havenwood Zone

This zone is supplied by the Nelson Wells and serves approximately 695 LUEs. The water source for this zone is conveyed from the wells to the Nelson Booster Station and pumped into the Havenwood EST by the Havenwood pumps which are located at the Nelson Plant site.

- Nelson GST = 200,000 gallons
- Havenwood EST = 250,000 gallons
- Havenwood Pumps = Two pumps at 600 GPM each

2. Nelson Zone

This zone is supplied by the Nelson Wells and serves approximately 520 LUEs. The water source for this zone is conveyed from the wells to the Nelson Booster Station and pumped into the system by the Nelson pumps.

- Nelson GST = 200,000 gallons

- Nelson Pumps = Two pumps at 200 GPM each
- Nelson Pressure Tank = 10,000 gallons

3. Kuentsler Zone

This zone is supplied by the Nelson wells and serves approximately 97 LUEs. The water source for this zone is conveyed from the wells to the Nelson Booster Station and into the Kuentsler Booster Station.

- Kuentsler GST = 200,000 gallons
- Kuentsler Pumps = Two pumps at 350 GPM each
- Kuentsler Pressure Tank = 2,500 gallons

4. Hays-Caldwell Zone

This zone is supplied by the Hays-Caldwell Interconnect and serves approximately 1,906 LUEs. The water source for this zone is pumped from the interconnect to the Old Bastrop EST.

- Old Bastrop EST = 500,000 gallons
- Hays-Caldwell Interconnect Pumps = Two pumps at 850 GPM each

5. El Camino Zone

This zone is supplied by the Hays-Caldwell Interconnect and serves approximately 1,587 LUEs. The water source for this zone is pumped through the Hays-Caldwell Zone and ultimately into the El Camino Booster Station. After the El Camino Booster Station, the water source is pumped into the zone by the El Camino pumps and into the Zorn Standpipe.

- El Camino GST = 500,000 gallons
- El Camino Pumps = Two pumps at 350 GPM each
- El Camino Pressure Tanks = Two tanks at 10,000 gallons each
- Zorn Standpipe = 325,000 gallons

6. Dunlap Zone

This zone is supplied by the CRWA Lake Dunlap Interconnect and serves approximately 142 LUEs. The water source for this zone is conveyed from the Interconnect to the Windmill Booster Station. Water is pumped from the Windmill Booster Station and into the Pape Booster Station and Dunlap Zone.

- Windmill GST = 1,000,000 gallons
- Windmill Pumps = Two pumps at 415 GPM each
- Pape GST #1 = 30,000 gallons
- Pape GST #2 = 20,000 gallons
- Pape Pumps =
  - 2 pumps at 200 GPM each
  - 1 pump at 400 GPM

7. Boeder Zone

This zone is supplied by the CRWA Lake Dunlap Interconnect and Wells Ranch and serves approximately 286 LUEs. The water source for this zone is transferred from the

Interconnect to the Windmill Booster Station, to the Pape Booster Station and then into the Boeder Booster Station, which serves the Boeder Zone.

- Boeder GST = 321,500 gallons
- Boeder Pumps = Two pumps at 500 GPM each
- Boeder Pressure Tank = 10,000 gallons

8. Ilka Zone

This zone is supplied by the CRWA Lake Dunlap Interconnect and serves approximately 851 LUEs. The water source for this zone is conveyed from the Interconnect to the Windmill Booster Station, to the Pape Booster Station, into the Boeder Booster Station and then into Ilka Booster Station and into the system defined by the Ilka Zone.

- Ilka GST = 487,600 gallons
- Ilka Pumps = Two pumps at 690 GPM each
- Ilka Pressure Tank = 10,000 gallons each

III. Starting System Conditions

Due to the large number of improvements going into the system currently and knowledge of near future projects to be constructed, the system was analyzed for water storage needs based on the completion of those improvements. Improvements include the following completed infrastructure:

- Windmill North Pumps
- All new waterlines from TWDB Construction Package No. 3
- New Boeder Elevated Storage Tank
- All new waterlines and Nelson Booster Station Upgrades from TWDB Construction Package No. 7
- IH-35 Bore

For this report, this is considered the Starting System Conditions, or in other words, the basis for evaluating future system needs and identifying the most suitable elevated storage tank locations. The Starting System Conditions Map (Exhibit A3) provided in Appendix A provides an illustration of how the water system will look during the Starting System Conditions. The exhibit shows water pipelines, pressure zone, storage tanks, water wells, sources, and facilities.

IV. Population Projections and Water Demands

Water system demands are an important part of the plan. Establishing current demands and applying population growth factors for future water demands is fundamental in determining storage system capacity and transmission main infrastructure needs.

A. Population Projections and Future LUE Counts

Population projections were calculated by multiplying the current population by an assumed 2.8 percent (2.8%) annual growth rate over the next 30 years. The District's population served is based on three (3) people per connection. Thus, population projections were used to calculate the projected number of connections in 2050 as well. Proposed connections coming online due

to known residential developments were also added. Table 4-2 summarizes the proposed residential developments and associated number of connections for each one.

TABLE 4-2: PROPOSED CONNECTIONS	
Development	**Connections**
Brookhollow Club Estates	59
Creekside Station	385
Gaskin Ranch	30
Mill Creek	15
Mesquite Ranch	25
Mesquite Business Park	22
Mulberry Meadows	160
Independence	340
Navarro Subdivision	1450
Spencer Land	305
Fleming Farms	326
River Bend	2000
TOTAL =	**4,732**

B. Existing System Demand

The existing connections were based on CCSUD's meter data collection ranging from size 5/8-inches to 6-inches. The demand calculations are based on assigning each meter size an equivalent number of LUEs based on CCSUD's meter size table. The demand calculations resulted in a total of 6,510 LUEs. Furthermore, an average daily demand of 331 GPCD was calculated based on production data provided by the District.

C. Future System Demand Projections

The average daily demand of 331 GPCD was used to calculate future system demand projections. Using the future connections (LUE counts) and 331 GPCD, future demands were projected for the next 30 years for the purpose of this study. Table 4-3 shows CCSUD's demands over the next three (3) decades.

TABLE 4-3: FUTURE DEMAND PROJECTIONS				
Year	**2020**	**2030**	**2040**	**2050**
Projected Meter Count	6,290	12,275	14,740	16,417
Water Supply Demand (AF/Year)	2,332	4,551	5,465	6,087

V. Future System Conditions

The CCSUD water system is in an area of higher than normal population growth and future system conditions are driven by residential developments and the expansion of nearby cities. Furthermore, water source entry point locations and higher elevation areas within the District are the driving factors for placement of the recommended elevated storage tanks.

A. Identified Locations and Capacities for Elevated Storage Tanks

The Elevation Relief Map (Exhibit B1) provided in Appendix B was used to identify the higher elevation areas to place the proposed elevated storage tanks throughout the system. Secondly, the supply sources listed in Table 3-1 along with demand projections (based on both existing population growth rates and known developments), were used to size the proposed elevated storage tanks. Refer to Table 6-4: Proposed Tanks for a summary of the tank elevations and recommended volume capacities.

B. Future Water Sources and Supply Volumes

In addition to the water sources listed in section III.A, two more sources of water will be added to the system in 2023, one delivered at the Windmill Booster Station and a second delivery point along Offermann Hill Road. Table 5-1 lists the capacity of each source (current and future) in acre-feet per year. The table also identifies the entry point location for each source. It is anticipated that the system will be served via five entry point locations. Exhibit B2 – Future System Conditions Map provided in Appendix B illustrates the water source entry point locations, existing and future elevated storage tanks, and future pressure zone configuration.

TABLE 5-1: WATER SOURCES AND ENTRY POINT LOCATIONS

Entry Point Location	Source	AF/Year
Nelson Booster Station	Original Edwards Aquifer (P100-215)	875.06
	Edwards/Uvalde Water (P103--038)	864.6
	Scheele Edwards Permit (P100-716)	312
	Trinity Wells (*Future*)	487
Windmill Booster Station	CRWA Wells Ranch Phase I (Cibolo)	300
	CRWA Wells Ranch Phase II (Cibolo)	441
	CRWA Wells Ranch Phase II (CCSUD)	51.39
	CRWA Lake Dunlap (GBRA Surface Water)	500
	ARWA Phase I *(Online in 2023)*	853
Hays- Caldwell Plant	GBRA Surface Water from Guadalupe River	292
	Baugh/Cummings/Foster Surface Water	208
Offermann Hill Site	ARWA Phase I *(Online in 2023)*	1707
Wilcox Plant	Wilcox Well Field *(Future)*	770
	Total Water Supply Volume	**7,661**

The Nelson Booster Station is supplied by two Edwards Aquifer water wells: Nelson Well No. 1 and Nelson Well No. 2. These sources can contribute up to 2,051 AF of water annually and will serve the (new) Nelson Zone and the Havenwood Zone.

The Windmill Booster Station receives water from the CRWA Lake Dunlap and ARWA sources. The volume of water available through this entry point will be 2,145 AF annually. The Windmill Booster Station has two booster stations and will serve the Boeder and El Camino pressure zones.

The CRWA Hays Caldwell and ARWA Phase I sources will serve the Hays Caldwell Zone through the CRWA Hays-Caldwell Plant and Offerman Hill site, respectively. CRWA Hays Caldwell has a source capacity of 500 AF/Year from two different sets of surface water rights. The first phase ARWA water to be delivered to Offerman Hill can supply up to 1,707 AF of water annually.

The Wilcox Well is a future source that will come in 2 phases. It is anticipated that the first phase of the Wilcox Well Field will yield 247 AF/Year and the second phase will yield 494 AF/Year. The Wilcox Well Field will initially serve its own pressure zone, but in the future, it could potentially contribute to southern portions of both the Boeder and Hays Caldwell Zones. This source was not included in the dynamic modeling analysis because it serves a separate pressure zone without the need for elevated storage.

VI. WaterCAD EPS Model Development

A WaterCAD™ EPS hydraulic model was developed from an existing static model for CCSUD. The extended period simulation (EPS) model was developed to analyze how the existing hydraulic conditions perform over a series of time steps in a day.

A. Piping Network and Node Elevations

Using the WaterCad™ Model Builder tool, the existing static model was built based on the existing pipe network, nodes, and elevated and ground storage tanks. The piping network was obtained from GIS data which consisted of pipe length, location, diameter, and material. Elevations were assigned to each node based on topographic LIDAR data using the WaterCad™ TRex tool.

B. System Demands

As mentioned in section IV of the report, system demands are based on assigning each meter size an equivalent number of LUEs and the demand calculations resulted in a total of 6,510 LUEs. Production data provided by the District was then used to calculate the average daily demand of 331 GPD per LUE or an average daily flow of 0.23 GPM per LUE. The meter sizes were then converted to be equivalent to a demand in GPM per LUE units and entered into the model.

Each node in the WaterCad™ model was assigned a demand based on CCSUD's existing customer meter size data. Based on a growth rate of 2.8% annually, demands were calculated up to the year 2050. Table 6-1 summarizes the system demands.

TABLE 6-1: DEMANDS			
Meter Size	Total LUEs	GPM per LUE	2050 GPM
5/8"	5,878	0.23	0.54
3/4"	37.5	0.46	1.08
1"	55	0.69	1.62
1.5"	25	1.15	2.70
2"	304	1.84	4.32
3"	160	3.68	8.64
6"	50	11.5	27.00
TOTAL	**6,510**		**3,154**

C. Diurnal Curve/ Demand Input

The diurnal curve is a curve that is used to model the demand curve throughout the day. The curve is developed by using a standard set of multipliers throughout a 24-hour period to represent average daily, maximum daily and peak hourly demands. The curve used in the model is shown in Table 6-2 below.

TABLE 6-2: DEMAND MULTIPLIERS							
Time	Multiplier	Time	Multiplier	Time	Multiplier	Time	Multiplier
1:00 a.m.	0.35	7:00 a.m.	1.27	1:00 p.m.	1.18	7:00 p.m.	1.37
2:00 a.m.	0.22	8:00 a.m.	1.58	2:00 p.m.	1.09	8:00 p.m.	1.33
3:00 a.m.	0.20	9:00 a.m.	1.68	3:00 p.m.	1.00	9:00 p.m.	1.21
4:00 a.m.	0.22	10:00 a.m.	1.64	4:00 p.m.	1.00	10:00 p.m.	1.11
5:00 a.m.	0.23	11:00 a.m.	1.50	5:00 p.m.	1.08	11:00 p.m.	0.94
6:00 a.m.	0.60	12:00 p.m.	1.35	6:00 p.m.	1.24	12:00 p.m.	0.65

D. Water Sources

The water sources mentioned in the Future System Conditions section are modeled by reservoirs in the EPS hydraulic model. In addition to the reservoirs, flow control valves (FCVs) are modeled in the outgoing pipes from the reservoirs to dictate the flow limitations in place either based on the contract or known system conditions for each of the sources. The modeled properties for the reservoirs and FCVs are listed below: The properties in which these reservoirs were modeled with and the system conditions implemented are shown in Table 6-3 below:

TABLE 6-3: RESERVOIRS			
Reservoir	Ground Elevation (ft)	Existing Flow Control Valve (gpm)	Future Flow Control Valve (gpm)
CRWA Hays Caldwell	548	850	850
CRWA Lake Dunlap	640	800	800
Nelson Well	760	2,000	2,000
ARWA Windmill	640	n/a	529
ARWA Offerman Hill	630	n/a	1,059

E. Storage Capacities

The objective of the model for this report is to simulate elevated storage within CCSUD CCN for future system conditions. These facilities aid the system by decreasing the impact of demand fluctuations based on the diurnal curve as determined by the demands. The existing tanks have been modeled based on provided record drawing information about their diameter, volume, and height (maximum elevation – base elevation). The minimum elevation set for the GSTs is the same as the base elevation or ground elevation. The minimum elevation for the ESTs were based on the height at the bottom of the bowl. The proposed storage tanks capacities were modeled based on TCEQ design criteria and additional volume due to fire flow requirements. Locations of the EST's were determined for each of the proposed pressure zones based on a number of criteria including site elevation, proximity to existing infrastructure, and prediction of future population growth.

TABLE 6-4: STORAGE TANKS IN THE MODEL (Future Conditions)				
Name	Base Elevation (ft)	Minimum Elevation (ft)	Maximum Elevation (ft)	Capacity (gallons)
Havenwood EST	885	995	1020	250,000
Nelson GST	760	760	796	600,000
El Camino GST	650	650	692	500,000
Kuentsler GST	755	755	785	200,000
Herber EST [1]	715	865	900	750,000
Hays Caldwell EST [1]	650	785	825	1,750,000
Zorn EST [1]	715	860	900	1,000,000
Windmill GST	630	630	665	1,000,000
Offermann GST[1]	630	630	670	1,000,000
Boeder EST	730	838	878	1,000,000

[1] Denotes a proposed storage tank

F. Pump Definitions

All current pumps in the system have been included in the EPS model. The pump curve definitions were retrieved based on their model and motor identification numbers from the manufacturers or record information from the site plans. Pump curves for future pump

upgrades, if needed, were modeled based on a design point dictated by TCEQ and system requirements.

G. TCEQ Design Criteria

The minimum pressure requirement as dictated by TCEQ is 35 psi under peak hourly demands. These pressures are achieved along the main transmission lines, but not at every location in the system. Occasionally, areas of low pressure are observed during peak hourly flow in areas of the system with smaller diameter pipe (occurring in older portions of the distribution system). CCSUD continues to improve these areas with annual Capital Improvement Program (CIP) Projects.

TCEQ also has minimum standards for total storage. The minimum total storage mandated by TCEQ is 200 gallons per connection. Each pressure zone must also have an elevated storage capacity of 100 gallons per connection or a pressure tank capacity of 20 gallons per connection. Furthermore, elevated storage affects the total pumping capacity requirement per TCEQ. The pumping capacity for systems with 200 gallons per connection of elevated storage is 0.6 GPM per connection. Thus, the required minimum volume of the recommended EST utilizes this requirement.

VII. EPS WaterCAD Model Output

A. Various Diurnal Curve Scenarios

Two different scenarios were modeled: Starting Conditions and Final Conditions. Both the starting conditions scenario and the final conditions scenario were analyzed using an extended period simulation of 24-hours. See Table 6-2 for a list of multipliers used to create the 24-hour diurnal curve. The extended period simulation model was used to analyze average daily and maximum daily water demands. The Starting Conditions scenario included two elevated storage tanks: Boeder EST and Havenwood EST. The Final Conditions scenario includes three additional elevated storage tanks: Herber EST, Hays-Caldwell EST, and Zorn EST.

B. Model Output

Resulting water pressures and pipe velocities were analyzed in the Future Conditions scenario to ensure that the system can meet minimum TCEQ criteria at different periods throughout the day. Areas with low pressure (under 35 psi) and high velocities (over 6 feet per second) were identified. The solution for low pressure and high velocities is pump upgrades and pipe upsizing, respectively. The additional upgrades were changed in the EPS model and final results summarized. The identified system improvements (including elevated storage tanks, pipe replacement and pump upgrades) are all summarized in the recommendations section of the report.

C. Future Pressure Zone Configurations and Infrastructure

As part of the Elevated Storage Master Plan, new elevated storage tanks were analyzed throughout the system. As outlined in previous sections of this plan, ground elevations, entry points for future water sources and growth/development patterns all contribute to the future pressure zone configurations. The results include the following future pressure zones: Boeder, Havenwood, Hays-Caldwell, Kuenstler, Nelson and Zorn. As noted earlier in this report, the

future Wilcox pressure zone was not included in the analysis. Each of the future zones listed above were modeled and analyzed based on the estimated projected LUEs that the zones will eventually serve in the year 2050. The future pressure zones are illustrated on Exhibit B2 and described below:

- *Boeder Pressure Zone (New)*
  This zone will encompass the existing Boeder, Ilka, and Dunlap pressure zones in addition to the Navarro Subdivision development. The elevations in the zone range from 445 feet to 745 feet. The new zone will serve approximately 4,200 projected LUEs in the year 2050. This zone will be served by the upgraded Windmill South Pump Station and includes the future 1,000,000-gallon Boeder EST. Both infrastructure improvements are currently in design and expected to be online by end of 2021. The minimum required projected storage for the zone based on TCEQ is 850,000 gallons. The Boeder EST volume of 1,000,000 gallons is sufficient for the anticipated growth and fire flow demands in the new zone. The Boeder EST will supply and pressurize the entire southern portion of the water system. The proposed improvements also allow for the decommissioning of the existing Ilka, Pape and Boeder Booster Pump stations.

- *Havenwood Pressure Zone*
  This zone will be served by the Nelson Booster Station. The water sources for this zone will be conveyed from the two Nelson groundwater wells to the Nelson Booster Station and then pumped to the Havenwood EST. It is estimated to serve approximately 1,255 LUEs at maximum buildout within that pressure zone. Maximum buildout is expected to occur prior to 2050 for this area. There is not space for additional housing or subdivision in this pressure zone unless the CCN boundary is expanded.

  Currently, there is a 250,000-gallon elevated storage tank that serves the zone. Based on TCEQ requirements of 200 gallons per connection, the minimum tank size required to serve this zone at maximum buildout is 251,000 gallons. Therefore, it is anticipated that the tank capacity of Havenwood EST does not need to be increased for the foreseeable future. There are currently two 600 GPM pumps dedicated to the Havenwood Zone. Based on TCEQ requirements these pumps are sufficient to serve the zone.

- *Hays-Caldwell Pressure Zone*
  The Hays-Caldwell Pressure Zone boundary shall generally remain the same except for the portion along Old Bastrop Highway west of El Camino Way. This section of the pressure zone will become part of the reconfigured Zorn Pressure Zone. Secondly, a new elevated storage tank is recommended to replace the Old Bastrop EST. It is recommended that the proposed Hays-Caldwell EST be located along the west side of FM 621 between Kid Ranch Lane and Wheat Field Lane where the ground elevation is approximately 650 feet msl. Water supply from the existing CRWA Hays-Caldwell source and the future ARWA phase I source at Offermann Hill will provide water to fill the recommended elevated tank. This zone is estimated to serve approximately 6,500 LUEs by 2050. The elevations in this zone range from 390 feet to 670 feet. Based on the elevations in the zone an operating range of 135 feet to 175 feet will allow the zone to maintain TCEQ requirements of 35 psi.

  Significant infrastructure improvements are necessary to support an elevated storage tank in this pressure zone. A new booster station along Offermann Hill Road is proposed, including a 1-million-gallon ground storage tank and new booster pumps to store the

delivered ARWA water and pump water to the proposed elevated tank. A transmission main from the new Offermann Booster Station to the new Hays-Caldwell EST is also included in the recommended infrastructure improvements. See Exhibit B3 for the location of the proposed elevated tank, Offermann Booster Station, and necessary pipeline extension within the Hays-Caldwell Zone.

- *Kuenstler Pressure Zone*
  The existing Kuenstler Pressure Zone is to remain the same. Although this booster station only pressurizes a small section of the system, it is at a high elevation point in the system that cannot be pressurized by the nearby proposed Herber Elevated Storage Tank (described below). Conversely, an elevated storage tank at the edge of the water system at Kuenstler is not satisfactory. This location was evaluated as part of this effort. Results showed that a Kuenstler Elevated Storage Tank will not fill without either a dedicated source closer to the site or a dedicated transmission main from Nelson Booster Station. Furthermore, it was not able to meet minimum TCEQ pressure requirements at the far eastern edge of the Nelson pressure zone.

- *Nelson Pressure Zone (Reconfigured)*
  This zone is generally comprised of the existing Nelson pressure zone and will continue to be served by the Nelson Booster Station. The water sources for this zone will be conveyed from the two Nelson groundwater wells to the Nelson Booster Station and pumped into the distribution system to the proposed Herber EST. It is estimated that pressure zone will serve up to 1,850 LUEs in the year 2050. The elevations in the zone range from 525 feet to 750 feet. The minimum required elevated storage for this zone is 500,000 gallons per TCEQ requirements. It is recommended that an elevated storage tank with least 750,000 gallons capacity is constructed to meet TCEQ and fire flow storage requirements. The location of the recommended tank is near the intersection of IH-35 North frontage road and Herber Lane which has an elevation of approximately 715 feet msl. Based on the elevations in the zone an operating range of 150 feet to 185 feet will allow the zone to maintain TCEQ requirements of 35 psi. The elevated storage tank is fed directly by the pumps located at the Nelson Pump Station.

  The pump station at the Nelson Plant site will need to be upgraded in order to supply the proposed elevated storage tank with water. Pump upgrades are currently in design and will be constructed as part of the TWDB Program projects. Another improvement that is required to serve this zone is the installation of approximately 2,000 LF of 12-inch along the IH-35 North frontage road and along Heber Road to the proposed tank location. Additional modifications include decommissioning of the Nelson pressure tank. See Exhibit B3 for the boundary of the New Nelson Zone, recommended elevated storage tank location and pipeline improvements.

- *Zorn Pressure Zone (Reconfigured)*
  The existing El Camino pressure zone will be reconfigured into the Zorn Pressure Zone. The zone boundary will generally remain the same; however, the zone will be supplied solely by the Windmill North Booster Station. The El Camino Booster Station will remain online but inactive to provide a backup supply from Nelson Booster Station if need be. This pressure zone will serve an estimated 4,500 LUEs by 2050. The minimum required elevated storage tank volume that will meet TCEQ and fire flow requirements is 1,000,000 gallons.

The proposed storage tank site has a ground elevation of 720 feet. The operating range of the proposed EST is 125 feet to 165 feet. Other modifications needed to support this pressure zone reconfiguration and proposed EST include the decommissioning of the El Camino pressure tanks, the Windmill North pressure tanks, and the Zorn Standpipe as well as an upgraded 12-inch line to connect the proposed EST to the distribution system. See Exhibit B5 for the location of the proposed elevated tank and necessary pipeline extension within the El Camino Zone.

VIII. Summary of Recommendations and Associated Costs

A. Elevated Storage Tank Recommendations

This report recommends a total of five elevated storage tanks located throughout the Crystal Clear Special Utility District's CCN service area. Each EST is located within an individual pressure zone at a location determined by elevation and projected future population growth. The reconfigured pressure zones are shown in Exhibit B2 and were determined by existing and future water supply volumes and delivery points; ground elevations in the area; and future (2050) LUE projections. Two of the five elevated storage tanks are either being built or already exist – Boeder and Havenwood, respectively. Table 9-1 summarizes information about the five (5) elevated storage tanks and additional details can be found in the paragraphs below.

TABLE 9-1: RECOMMENDED ELEVATED STORAGE TANKS

Name	Proposed Capacity (gallons)	Existing or Future	Additional Infrastructure Needed (Y/N)
Boeder EST	1,000,000	Existing	No
Havenwood EST	250,000	Existing	No
Hays-Caldwell EST	1,750,000	Future	Yes
Herber EST	750,000	Future	Yes
Zorn EST	1,000,000	Future	Yes

Each recommended future elevated tank necessitates some additional infrastructure needs to supply and fill the tank. The additional infrastructure needs are described per zone in Section VII.C above.

B. Cost Estimates for Recommended Improvements

Table 9-2 below summarizes the estimated infrastructure costs for the recommended improvements. Each recommended elevated storage tank will require some additional infrastructure; therefore, the costs are summarized by pressure zone. These cost estimates do not include expenditures associated with easements, land acquisition, permitting, inspection or any other administrative fee.

TABLE 9-2: COST ESTIMATES					
Zone	**Description**	**Unit**	**Total Quantity**	**Unit Price**	**Total Price**
Hays-Caldwell	1,750,000 Gallon Hays-Caldwell EST	GAL	1,750,000	$2.50	$ 4,375,000
	Offermann Hill GST	GAL	1,000,000	$2.00	$ 2,000,000
	Booster Pumps at the Offermann Hill GST	LS	1	$160,000	$ 160,000
	12 – Inch Water line	LF	600	$85	$ 51,000
	12 – Inch Transmission Line	LF	27,000	$85	$ 2,295,000
	12 – Inch Gate Valve and Box	EA	14	$3,000	$ 42,000
				Contingency (20%)	$ 1,784,600
				Engineering (15%)	$ 1,338,450
				Total Hays-Caldwell Zone	$ 12,000,000
Nelson	750,000 Gallon Herber Elevated Tank	GAL	750,000	$3.00	$ 2,250,000
	12-Inch Water Line	LF	2,000	$85	$ 170,000
	12 – Inch Gate Valve and Box	EA	4	$3,000	$ 12,000
				Contingency (20%)	$ 486,400
				Engineering (15%)	$ 364,800
				Total Nelson Zone	$ 3,300,000
Zorn	1,000,000 Gallon Zorn EST	GAL	1,000,000	$3.00	$ 3,000,000
	12 – Inch Water Line	LF	300	$85	$ 25,500
	12 – Inch Gate Valve and Box	EA	2	$3,000	$ 6,000
				Contingency (20%)	$ 606,300
				Engineering (15%)	$ 454,725
				Total El Camino Zone	$ 4,100,000

Appendix A

Current System Maps and Exhibits

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Feet
0 10,000 20,000

HAYS COUNTY
COMAL COUNTY
SAN MARCOS
NEW BRAUNFELS
HAYS COUNTY
GUADALUPE COUNTY
COMAL COUNTY
GUADALUPE COUNTY
SEGUIN

Legend

- CCN Service Area
- Counties
- New Braunfels ETJ
- San Marcos ETJ
- Seguin ETJ

SHEET: EXH A1	JOB: 14CCSUD001	REVISIONS: DATE / DESCRIPTION	Service Area Map
	DATE: 9/2020		
	DRAWN: KJV PM: CP		
	DESIGN: NS DM: BK		
	PEER: OTHER:		

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Date: Nov 06, 2020, 11:46:42 AM User ID: gsharp
File: S:\Active Projects\14CCSUD001 - General Engineering Services\2020-01 Storage Master Plan\GIS\Existing_Map_TB.mxd

Feet
0 10,000 20,000

Havenwood Elevated Tank
Nelson Well
Nelson Booster Station
Kuentsler Booster Station
Old Bastrop Elevated Tank
El Camino Booster Station
CRWA Hays Caldwell
Zorn Standpipe
Crystal Clear Office
CRWA Lake Dunlap
Windmill Booster Station
Pape Booster Station
Boeder Booster Station
Ilka Booster Station
Springs Hill Interconnect

Legend

- CCN Service Area
- Facilities
- Water Sources

Pressure Zones

- Havenwood
- Nelson
- Kuentsler
- Hays- Caldwell
- El Camino
- Dunlap
- Boeder
- Ilka

SHEET: EXH A2

JOB: 14CCSUD001
DATE: 9/2020
DRAWN: KJV | PM: CP
DESIGN: NS | DM: BK
PEER: | OTHER:

REVISIONS:

DATE	DESCRIPTION

Existing System Conditions Map

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Feet
0 10,000 20,000

Havenwood Elevated Tank
Nelson Well
Nelson Booster Station
Kuentsler Booster Station
Old Bastrop Elevated Tank
CRWA Hays Caldwell
El Camino Booster Station
Zorn Standpipe
Crystal Clear Office
CRWA Lake Dunlap
Windmill Booster Station
Pape Booster Station
Boeder Booster Station
Ilka Booster Station
Springs Hill Interconnect

Legend

- Facilities
- Water Sources
- CCN Service Area

Pipelines (DIA)

- 1
- 1.25
- 1.5
- 2
- 2.5
- 3
- 4
- 6
- 8
- 12
- 14
- 16

Pressure Zones

- Havenwood
- Nelson
- Kuentsler
- Hays-Caldwell
- El Camino
- Boeder

SHEET: EXH A3	JOB:14CCSUD001 DATE: 9/2020 DRAWN: KJV PM: CP DESIGN: NS DM: BK PEER: OTHER:	REVISIONS: DATE DESCRIPTION

Starting System Conditions Map

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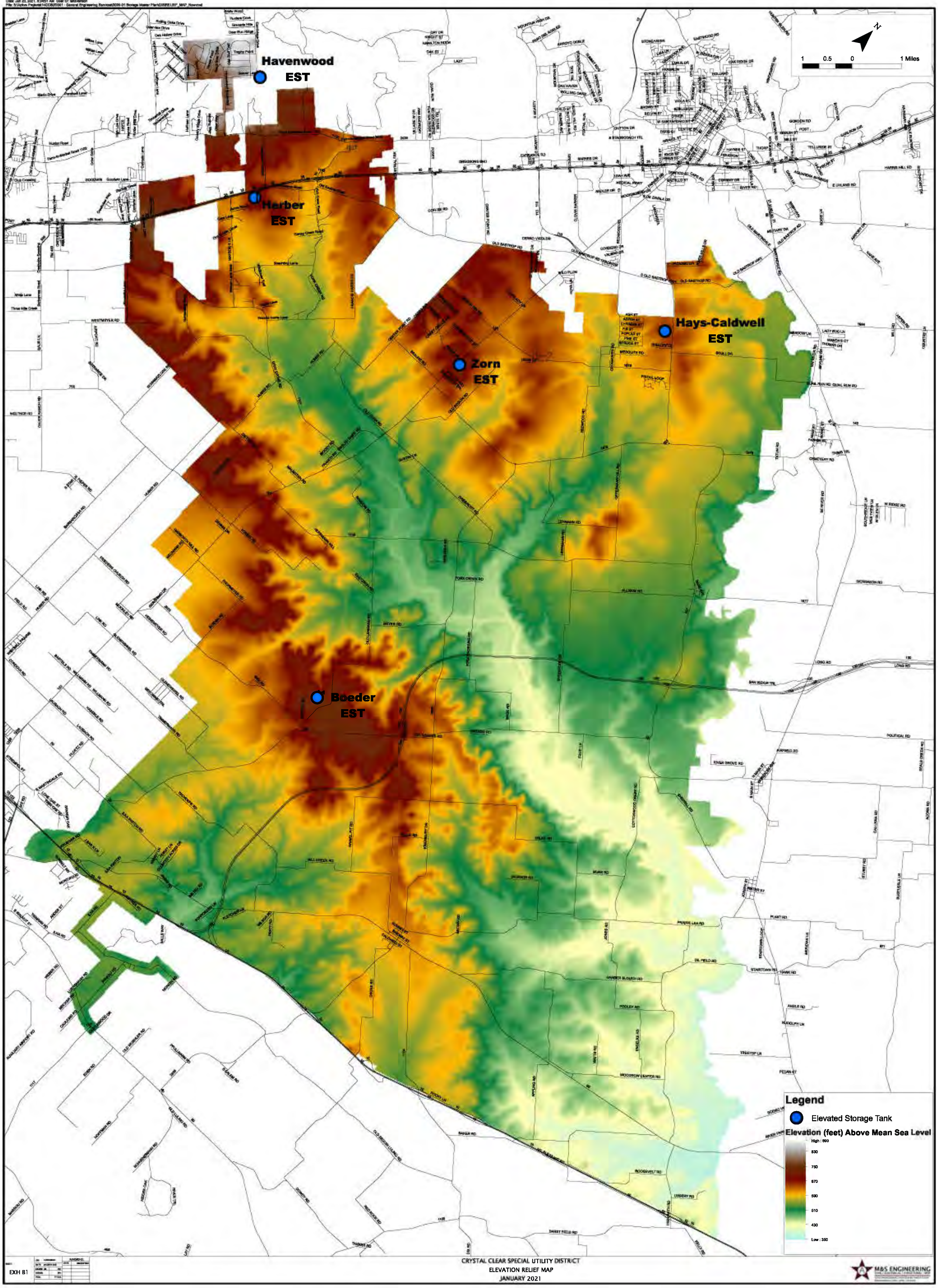
Appendix B

Proposed/Future System Maps and Exhibits


Havenwood
EST
Herber
EST
Zorn
EST
Hays-Caldwell
EST
Boeder
EST
1 0.5 0 1 Miles
Legend
Elevated Storage Tank
Elevation (feet) Above Mean Sea Level
High : 890
830
750
670
590
510
430
Low : 350
EXH B1
CRYSTAL CLEAR SPECIAL UTILITY DISTRICT
ELEVATION RELIEF MAP
JANUARY 2021
M&S ENGINEERING

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Feet
0 10,000 20,000

Havenwood EST

Nelson Booster Station

Kuentsler Booster Station

Herber EST

CRWA Hays Caldwell

Hays-Caldwell Tank

Zorn EST

Windmill Booster Station

Offermann Hill Site

Boeder EST

Wilcox Intake (Future)

Legend

- Water Source Entry Point
- Elevated Storage Tank

Future Pressure Zones

Zone Name

- Boeder
- Havenwood
- Kuenstler
- Nelson
- Hays-Caldwell
- Zorn
- CCN Service Area

SHEET: EXH B2

JOB:14CCSUD001
DATE: JANUARY 2021
DRAWN: KJV PM: CP
DESIGN: NS DM: BK
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REVISIONS:

DATE	DESCRIPTION

Future System Conditions Map

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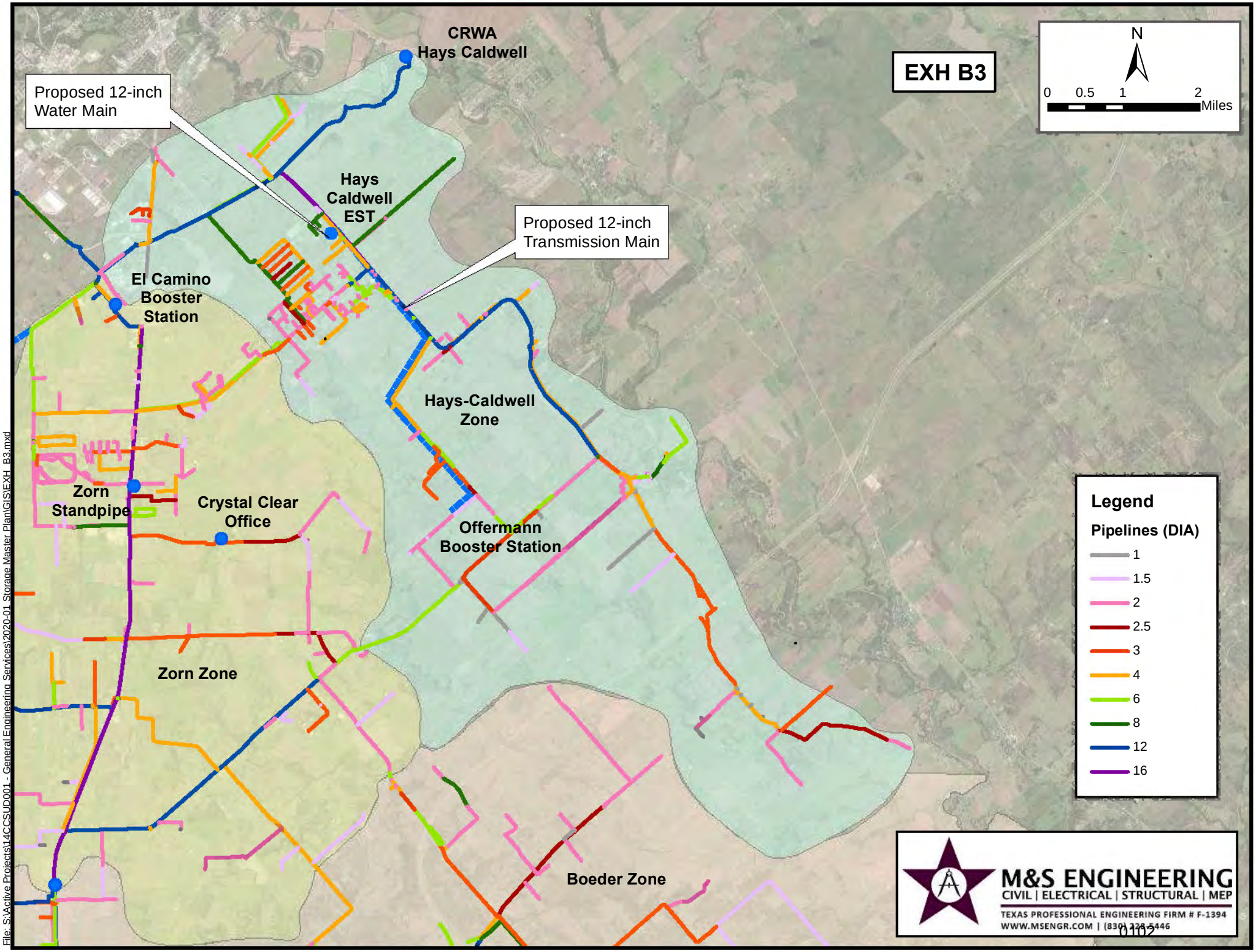
EXH B3
N
0 0.5 1 2
Miles
CRWA
Hays Caldwell
Proposed 12-inch
Water Main
Hays
Caldwell
EST
Proposed 12-inch
Transmission Main
El Camino
Booster
Station
Hays-Caldwell
Zone
Zorn
Standpipe
Crystal Clear
Office
Offermann
Booster Station
Zorn Zone
Boeder Zone
Legend
Pipelines (DIA)
1
1.5
2
2.5
3
4
6
8
12
16
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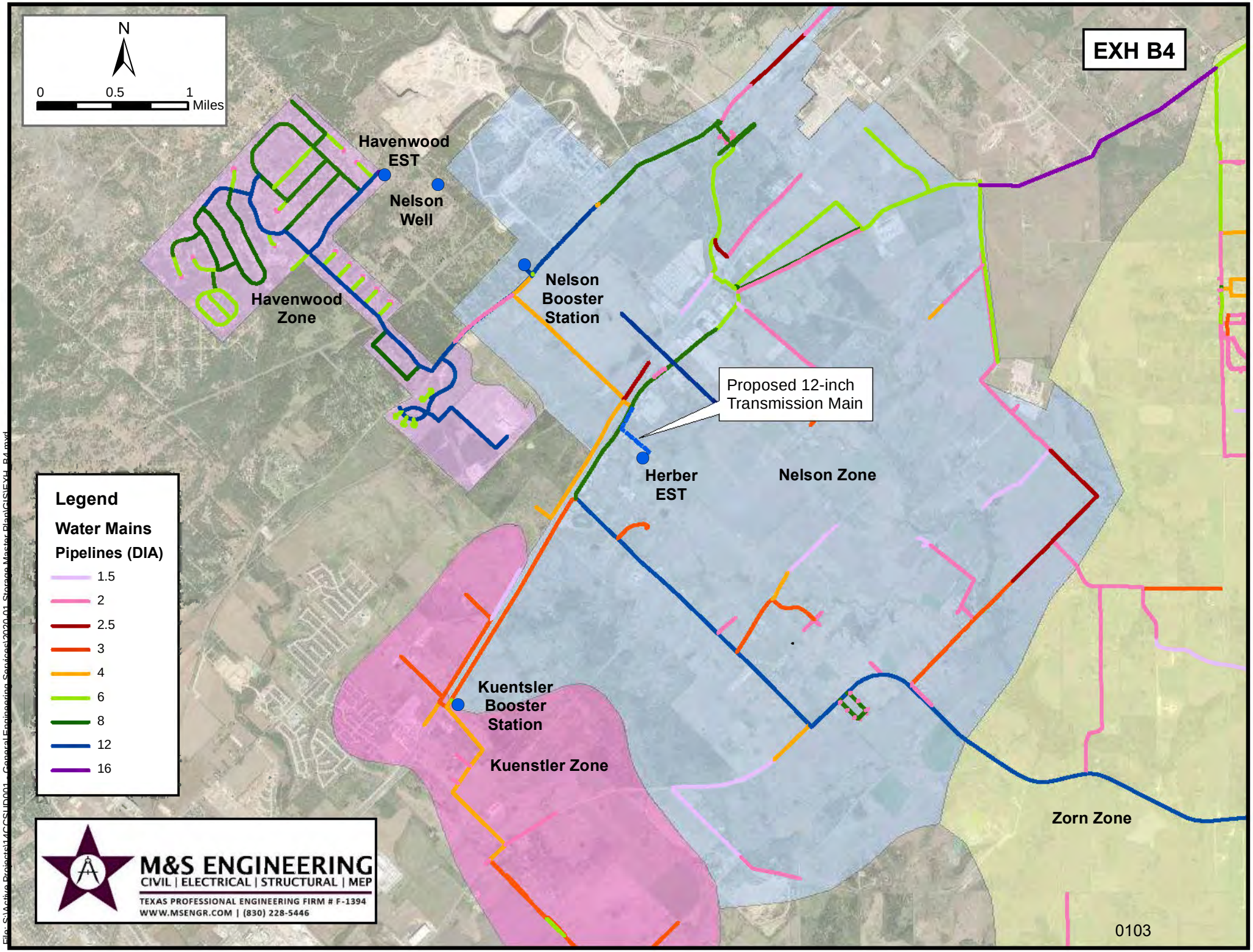
EXH B4
N
0
0.5
1
Miles
Havenwood EST
Nelson Well
Havenwood Zone
Nelson Booster Station
Proposed 12-inch Transmission Main
Herber EST
Nelson Zone
Kuentsler Booster Station
Kuenstler Zone
Zorn Zone
Legend
Water Mains
Pipelines (DIA)
1.5
2
2.5
3
4
6
8
12
16
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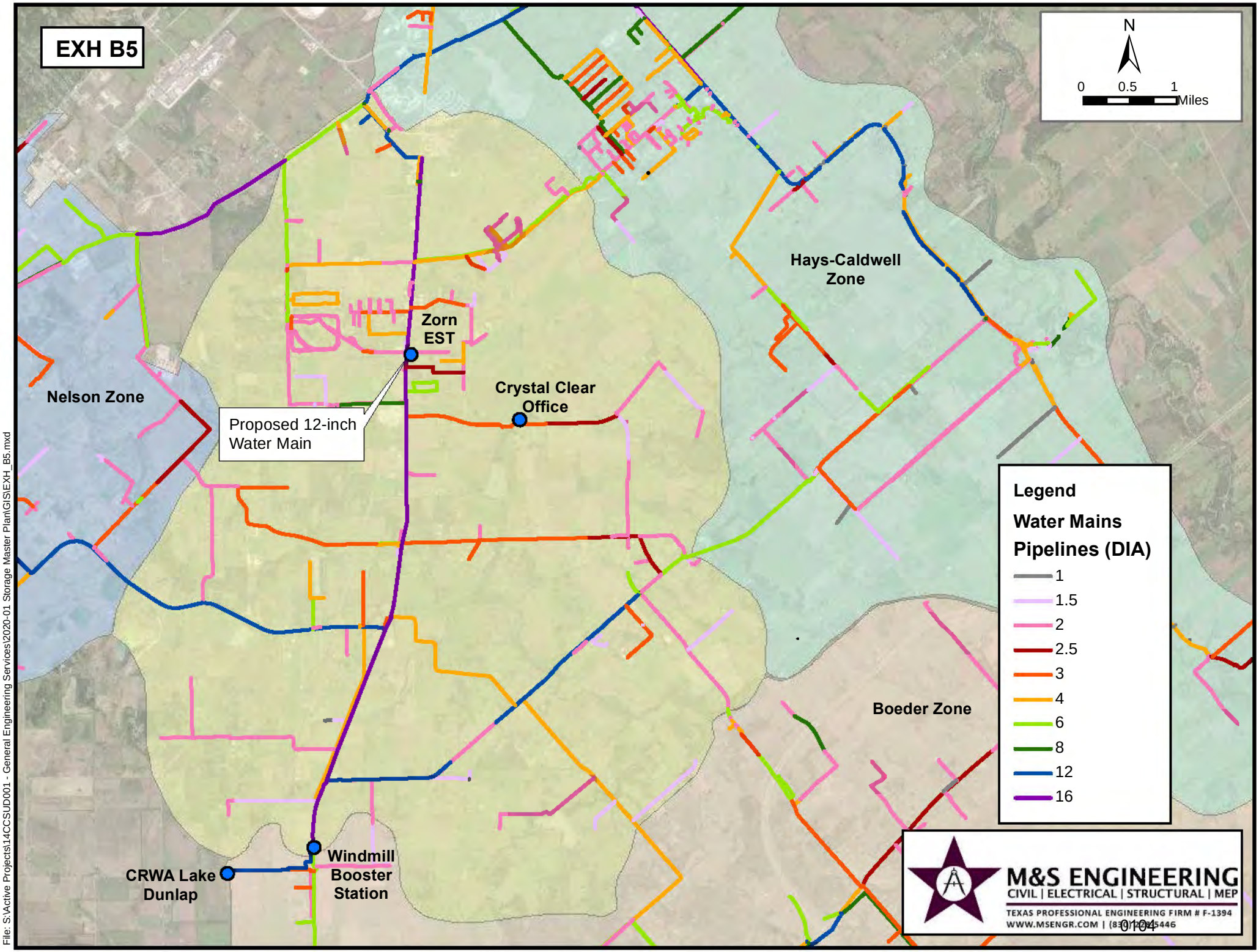
EXH B5
N
0
0.5
1
Miles
Hays-Caldwell Zone
Zorn EST
Crystal Clear Office
Nelson Zone
Proposed 12-inch Water Main
Boeder Zone
Windmill Booster Station
CRWA Lake Dunlap
Legend
Water Mains
Pipelines (DIA)
1
1.5
2
2.5
3
4
6
8
12
16
M&S ENGINEERING
CIVIL | ELECTRICAL | STRUCTURAL | MEP
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CRYSTAL CLEAR SUD LANDUSE MAP 2023

Attachment C

INFORMATION ON THIS MAP IS FOR PLANNING PURPOSES ONLY AND IS NOT INTENDED TO REPLACE OR SUPERSEDE ANY ZONING ESTABLISHED BY OTHERS. CRYSTAL CLEAR SUD DOES NOT POSSESS LAND USE REGULATION AUTHORITY.

Legend

Existing Waterlines (size)	Proposed Waterlines
1	Existing Facilities
1.5	Proposed Facility Improvements
2	Proposed Land Uses
2.5	Commercial/Industrial
3	Multi Family
4	Rural/Farmland
6	Single Family - High Density
8	Single Family - Low Density
12	
16	

Facility Name	Existing Peak Daily Flow Capacity (gpd)	Future Peak Daily Flow Capacity (gpd)
Boeder Booster Station	152,458	--
El Camino Booster Station	285,353	774,530
Ilka Booster Station	274,297	341,679
Kuenstler Booster Station	36,836	--
Nelson Booster Station	306,684	510,737
Nelson Booster Station (Havenwood)	333,669	496,090
Windmill North Booster Station	154,371	--
Windmill South Booster Station	426,754	--
Offermann Hill Booster Station	--	949,878

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CRYSTAL CLEAR SUD

ESTIMATED LUE COUNTS PER LAND USE TYPE

1 LUE is equal to one (1) 5/8" standard meter size.

Land Use Type	LUE Count Per Acre	Assumptions
Single Family – High Density	2	1/3 acre lots plus drainage, roadways and open space
Single Family – Low Density	0.2	1 to 10 acre lots
Multi-Family	5.6	8 units per acre; 0.7 LUEs per unit
Commercial/Industrial	0.6	Average of existing commercial customers
Rural/Farmland	.01	1 LUE per 100 acres

Attachment

D

Crystal Clear Special Utility District

Water Supply Reservation Fee Study
Water Distribution Impact Fee Study

WILLDAN

0107

WATER SUPPLY ACQUISITION FEE AND IMPACT FEE STUDY

Crystal Clear Special Utility District

FINAL – March 2022

Dallas Office Address:

5500 Democracy Drive, Ste. 130
Plano, Texas 75024
(972) 378-6588
(972) 378-6988 fax

Project Manager: Dan V. Jackson
Senior Analyst: Dennis Goral

CRYSTAL CLEAR SPECIAL UTILITY DISTRICT
WATER SUPPLY ACQUISITION FEE AND WATER DISTRIBUTION IMPACT FEE STUDY

Table of Contents

Section I

SECTION I

Introduction to Impact Fees

Introduction and Scope

In August 2021 the Crystal Clear Special Utility District ("the District") engaged Willdan Financial Services ("Willdan") to develop a schedule of maximum water supply acquisition fee ("acquisition fee") and water distribution impact fee (collectively called "Fees"). The methodology used to develop the District's water supply acquisition fee and water distribution impact fees is reflective of what is put forth in Texas Local Government Code Title 12, Subtitle C, Chapter 395 ("Chapter 395"). However, the District is not subject to the same approval process as mandated by Chapter 395. Instead, the District is subject to the approval process prescribed in Texas Administrative Code Title 30, Part 1, Subtitle N, Chapter 293 ("Chapter 293"), see Appendix A, for the water distribution impact fee only. The District has determined that the water supply acquisition fee is a separate charge that does not fall under the purview of Chapter 293 approval process.

As part of this process, the District's water supply acquisition and water distribution service area are considered the same. The District's Engineer, M&S Engineering, has developed a land use assumptions map and a capital improvement plan ("CIP") that includes projects planned for water supply/treatment and water distribution system capacity requirements. The Engineer identified projects that will be required both to repair and replace current capacity and to expand total system capacity to meet the needs of new growth over the next decade. The results of this analysis, and the recommended maximum fees for each utility, are presented in this summary report.

In order to be properly calculated and implemented, the impact fee process must adhere to a basic, generally-accepted methodology. This methodology has been closely followed during the course of this study. The used for the water supply acquisition fee methodology is known as the *Total Cost Attribution Method* (Buy-in) method. The water distribution impact fee methodology is known as the *Growth Related Cost Allocation* method. Both methods are considered by the project team to be the most appropriate for their respective fee calculations and closely match the methodology outlined in Texas Chapter 395.

The models for the water supply acquisition fee and water distribution impact fee contained in the appendixes to this report present the impact fee calculation methodology in detail.

Study Methodology

As stated previously, the water supply acquisition fee and water distribution impact fee are calculated using two defined methodologies that are endorsed by industry experts and used by utilities nationwide:

- The Growth-Related Cost Allocation Method is used to calculate the Water Distribution Impact Fee. This method allocates CIP project costs to renewal and replacement costs, growth related costs and then growth related project costs applicable to the impact fee study period (2022 - 2031). The net of growth related costs and credits applicable to the impact fee study period are divided by the units of growth (i.e., LUE) forecast for the impact fee study period.

- The Total Cost Attribution Method (Buy-in) was selected for the Water Supply Acquisition Fee because the District's current water supply capacity includes additional planned capacity to serve new growth. Thus, there is a need to consider growth related costs of both the embedded asset inventory of facilities and water rights and the CIP. The calculation of the Total Cost Attribution Method fee is similar to the Growth-Related Cost Allocation Method. However, the Total Cost Attribution Method accounts for the impact of new development on system wide assets that serve both existing and new development.

In order to calculate water distribution impact fee using the Growth-Related Cost Allocation methodology, the following steps are required:

1. The first step is to examine the District's actual and projected water and wastewater consumption/billing units, system capacity and customer growth. The existing and projected system capabilities are also identified and incorporated into the impact fee assumptions.

2. The second step is to calculate the impact of the District's Capital Improvement Plan ("CIP") on the determination of impact fees for the utility. The total CIP over the next decade must be identified and segregated between those costs devoted to repair and maintain the existing system, and those costs devoted to growth and system expansion.

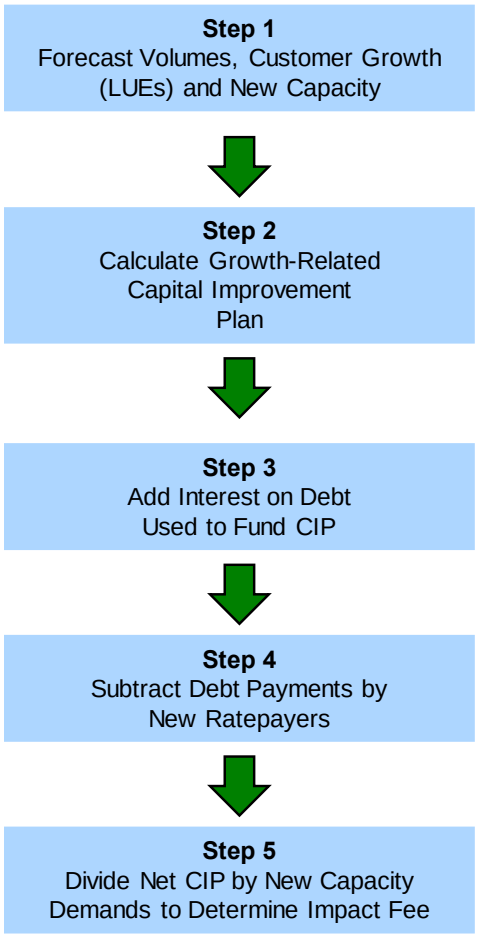
3. The third step is to calculate the amount of debt expected to be issued to fund the capital improvement plan for the District. The amount of debt interest is added to the CIP to develop the total funding eligible to be recovered through an impact fee.

4. The fourth step is to calculate a credit for the amount of debt service expected to be paid by new connections during the planning period through monthly rates. This credit is netted against the total funding eligible to be recovered through an impact fee.

5. The final step is to calculate the impact fee per Living Unit Equivalent (LUE). The impact fee is based on the net cost of the expanded infrastructure as defined in the capital improvement plan, divided by the total new capacity to be provided by the CIP.

This process is illustrated in Figure I-1.

Figure I-1



To calculate water supply Acquisition impact fee using the Total Cost Attribution methodology, steps 2 and 5 listed above are modified to include the additional components required:

1. The first step is to examine the District's actual and projected water and wastewater consumption/billing units, system capacity and customer growth. The existing and projected system capabilities are also identified and incorporated into the impact fee assumptions.

2. The second step is to calculate the impact of the District's Capital Improvement Plan ("CIP") and embedded water supply assets on the determination of water supply acquisition fees for the utility. The total embedded water supply net assets and the CIP over the next decade must be identified and segregated between those costs devoted to repair and maintain the existing system, and those costs devoted to growth and system expansion.

3. The third step is to calculate the amount of debt expected to be issued to fund the capital improvement plan for the District. The amount of debt interest is added to the CIP to develop the total funding eligible to be recovered through an acquisition fee.

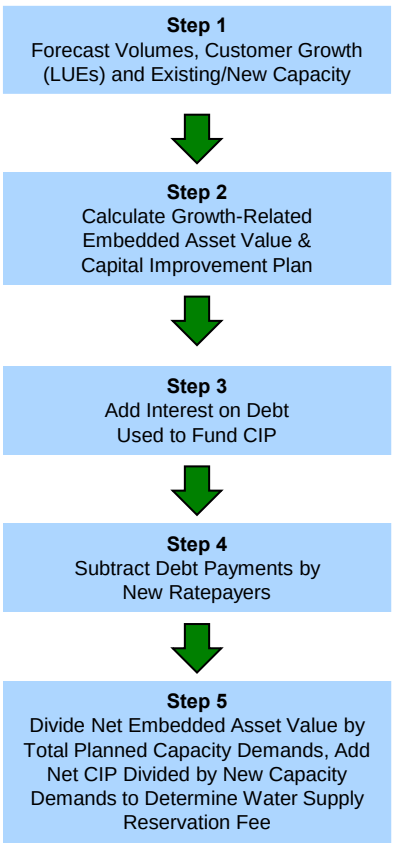
4. The fourth step is to calculate a credit for the amount of debt service expected to be paid by new connections during the planning period through monthly rates. This credit is netted against the total funding eligible to be recovered through an acquisition fee.

5. The final step is to calculate the acquisition fee per Living Unit Equivalent (LUE).

    a. The formula for the Total Cost Attribution method is first based on dividing embedded asset net value by build-out capacity demand.
    b. The acquisition fee is also based on the net cost of the available/expanded infrastructure as defined in the water supply asset inventory and capital improvement plan. This is divided by the total new capacity provided by the water supply assets and CIP.
    c. The final acquisition fee is determined by adding (a) the asset value per total planned buildout capacity demand to (b) new capacity water supply asset value and CIP per new capacity demand.

This process is illustrated in Figure I-2.

Figure I-2



The District's staff and Engineer expended considerable time and effort fulfilling the requests of the project team. All requests were complied with in an efficient, professional manner.

During the course of this study project team members conferred on a regular basis with the District staff. Staff input was solicited and incorporated into the analysis and recommendations.

Background on Acquisition and Impact Fees

Arthur C. Nelson, author of *System Development Charges for Water, Wastewater and Stormwater Facilities*, succinctly defines impact fees as follows:

> "System Development Charges (Acquisition/impact fees) are one-time charges paid by new development to finance the construction of public facilities needed to serve it."

The basic premise of impact fees is that the development of land for residential, commercial or industrial use will have a measurable capacity impact on the public infrastructure systems and services. Therefore, the resulting financial impact of this new capacity should be funded directly by the development itself. Under this premise, existing ratepayers should not be compelled to fund the cost of new development through higher user rates or taxes.

Since impact fees are designed to offset the initial capital requirements associated with servicing growth or development, they cannot be used for personnel, operating, maintenance, repair, alteration or replacement of existing infrastructure. Impact fee calculations that incorporate these expenses may be declared invalid by state or judicial authorities. Hence, the fundamental objective of impact fees is not simply to serve as another source of revenue. The purpose is to ensure that adequate public infrastructure is provided to development in order to maintain public health, safety, and welfare.

Several standards are available by which an impact fee must be measured in order to survive potential legal challenges or pass a test of "fairness". These standards include, but are not limited to, the following:

> Level of Service - New development must not be held to a higher standard for delivery of services than existing development.
>
> Proportionality – The impact fee charged is matched to the projected outlay for infrastructure or services. The fee charged cannot exceed the projected expenditure level.
>
> Universal Application – Impact fees that are implemented must be applicable to all development projects on a non-discriminatory basis.
>
> Rational Nexus – There must be a direct relationship between the impact fee charged and the actual delivery of services. For example, water impact fees may not be used to fund parks and recreation, or other municipal services.

The rational nexus standard is the focus of most legal concerns regarding impact fee ordinances. According to the American Water Works Association (AWWA) manual M-1, *Principles of Water Rates, Fees and Charges*, there are several elements to satisfying the rational nexus when developing impact fees.

The first element is the establishment of a rational basis for the policy implemented through fees. This implies that planning and CIP studies be used to determine the need for new facilities to meet demands of anticipated growth. The second element of rational nexus is identification of the cost of new or expanded facilities needed to serve new development, i.e., establish the burden to the public in providing new facilities to serve new

development and the rational basis to pass the cost of those facilities onto new development. This refers to a precedent set in a court decision outlining seven factors ("Banberry" factors) that determine the proportionate share of costs recovered by new development. These factors are summarized as follows:

1. The cost of existing facilities.
2. The means by which existing facilities have been financed and who paid the costs.
3. The amount new development may have already contributed to the cost of providing existing excess system capacity.
4. The extent existing development will contribute, in the future, to the cost of providing existing facilities used community-wide or non-occupants of new development.
5. The extent to which new development should receive credit for providing at its cost facilities the community has provided in the past without charge to other development in the service area.
6. Extraordinary costs incurred in serving new development.
7. The time-value of money inherent in fair comparisons of the amount of money paid at different times.

The final element is the reasonable apportionment of the costs to new development in proportion to the benefits the new development will reasonably receive.

Texas Impact Fee Statute – Chapter 395 and Chapter 293

In 1987, the Texas State Legislature approved law that that mandated the impact fee approval procedure, calculation, and administration policy for municipal, county and certain other local governments in the state. The law outlines a strict series of guidelines and dates for implementation of new impact fees by municipalities in Texas.

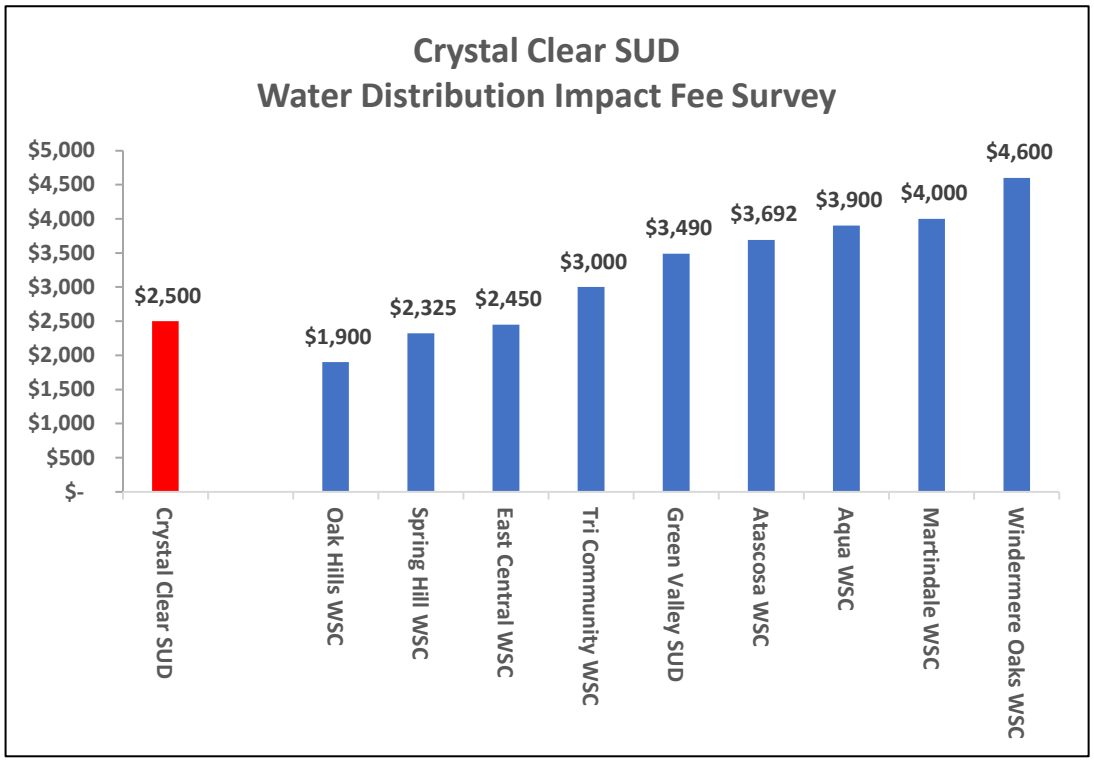
The District's legal counsel has opined that the approval procedures and policies mandated in Chapter 395 are not applicable to the District's impact fee approval process. Instead, only the District's *water distribution impact fee* approval process is dictated in Chapter 293. Chapter 293 approval process is a streamlined process that falls under the Texas Commission of Environmental Quality (TCEQ) purview. Thus, the fee calculation approach described in Chapter 395 was used as a guide in preparing the maximum allowed water supply acquisition fees and water distribution impact fees presented in this study. However, the approval processes the District will go through is prescribed by Chapter 293. The Chapter 293 statute is presented as Appendix A.

The *water supply acquisition fee* is a separate one time charge paid by customers to reserve their applicable allotment of the District's existing and future water supply. The District does not consider this an impact fee; thus, it is not subject to the impact fee approval process.

Current Impact Fee Survey

As a part of this study, Willdan conducted a survey of impact fees charged by neighboring communities. Chart I-3 presents the water impact fee survey results compared to the District's existing water impact fee, $2,500 per LUE, to the surveyed population. To properly compare survey results, the charges gathered were representative of a single residential dwelling, i.e., impact fee per LUE, EDU, 5/8" or ¾" water meter.

Chart I-2



Impact Fee Summary

Table I-4 presents a summary of the water supply acquisition and water distribution impact fees per LUE as presented in this study. This study calculates the following maximum fees:

Water Distribution Impact Fee – using the Pumping and Distribution costs required to meet new demand from system growth.

Water Supply Acquisition Fee – using a combination of Supply/Treatment, Pumping, and Transmission costs required to meet new demand from system growth.

The maximum water supply acquisition and water distribution impact fees as shown in Table I-4 was determined using the District's asset inventory and the approved 2021 Capital Improvement Plan prepared by M&S Engineering. Backup and supporting documentation are contained in Sections II and III of this report.

Table I-4

Crystal Clear Special Utility District
WATER ACQUISITION AND IMPACT FEE BY METER SIZE

		MAXIMUM Water Acquisition Fee	MAXIMUM Water Impact Fee	MAXIMUM Water Total Fee
Maximum Fee per LUE		**$ 2,626**	**$ 2,896**	**$ 5,522**
Maximum Fee by Water Meter Size				
5/8" -- 3/4"	1.00	**2,626**	**2,896**	**5,522**
3/4"	1.50	**3,939**	**4,343**	**8,282**
1"	2.50	**6,566**	**7,239**	**13,805**
1 1/2"	5.00	**13,131**	**14,478**	**27,609**
2"	8.00	**21,010**	**23,165**	**44,175**

Section II

SECTION II

Water Distribution Impact Fees

Introduction

Section I of this study presented a five-step summary of the calculation of the water distribution impact fee. These five steps are as follows:

1. Determine the District's actual and forecast connections and LUEs.
2. Calculate the percentage of the District's Capital Improvement Plan costs devoted to system growth, as opposed to repair and maintenance of the existing system.
3. Determine the amount of growth-related CIP that is expected to be financed through the issuance of long-term debt and determine total interest expense over the forecast period.
4. Calculate the credit to be paid by new connections during the planning period for debt issued to fund the CIP.
5. Calculate the maximum water distribution impact fee per LUE.

What follows in this section of the report is a presentation of the water maximum impact fee calculation using these five basic steps. Detail spreadsheet schedules supporting the calculations are provided in Appendix B.

Historical and Forecast Demand – Living Unit Equivalents (LUE)

After consultation with the District's engineer and staff, the project team determined that the District's forecast growth in LUE's over the period 2022 through 2031 is 6,109 LUEs. This is an average annual increase of approximately 6.5%. The Distribution column in Table II-1 presents the annual increase and total estimated LUEs used to calculate the water distribution impact fee.

Table II-1

Crystal Clear SUD
FORECAST WASTEWATER LUEs

	WATER CUSTOMER CLASS		
	Water Supply	Distribution	Other
Water LUEs			
Total LUEs -- Current Year (1)			
2021	6,510	6,510	-
Forecast Annual Total			
2022	7,151	7,151	-
2023	7,791	7,791	-
2024	8,432	8,432	-
2025	9,072	9,072	-
2026	9,713	9,713	-
2027	10,353	10,353	-
2028	10,994	10,994	-
2029	11,634	11,634	-
2030	12,275	12,275	-
2031	12,619	12,619	-
Forecast Annual New Water LUEs			
2022	641	641	-
2023	641	641	-
2024	641	641	-
2025	641	641	-
2026	641	641	-
2027	641	641	-
2028	641	641	-
2029	641	641	-
2030	641	641	-
2031	344	344	-

Water System Capacity

The District's Engineer has determined the existing and forecast system capacity needs as part of the preparation of the water system CIP. Using the Texas Commission on Environmental Quality (TCEQ) design criteria of 331 gallons/LUE/day the Engineer determined the existing and forecast water system capacity requirements. Table II-2 presents the existing and forecast capacity needed to meet customer demand through the impact fee period (2022 – 2031).

Table II-2

Crystal Clear SUD
CURRENT AND FORECAST CAPACITY

	WATER TREATMENT/SUPPLY	
	Water Capacity (gallons/day)	Water Capacity (LUEs)
Gallons Per Day Per LUE		331
2021	3,345,999	10,109
2022	3,345,999	10,109
2023	4,400,774	13,295
2024	4,400,774	13,295
2025	4,400,774	13,295
2026	4,400,774	13,295
2027	4,400,774	13,295
2028	4,400,774	13,295
2029	5,565,803	16,815
2030	5,565,803	16,815
2031	6,300,530	19,035
Ending Capacity	6,300,530	19,035
Beginning Capacity	3,345,999	10,109
Total Increase	**2,954,531**	**8,926**

Capital Improvement Plan (CIP)

Table II-3 is a summary of the CIP prepared for the District and used in the calculation of the water maximum impact fee. This table presents the total CIP cost, CIP related to growth, and CIP related to growth in the 10-year impact fee period 2022 – 2031.

Table II-3

CRYSTAL CLEAR SPECIAL UTILITY DISTRICT
WATER DISTRIBUTION CAPITAL IMPROVEMENT PLAN

Asset	Total Cost*	Percent Growth Related	Total Growth-Related CIP	2022 - 2031 Growth-Related CIP	Total Replacement CIP
Water System					
Water Distribution	$ 29,848,546	56.6%	$ 16,893,708	$ 16,893,708	$ 12,954,838
Total Water Distribution Capital Improv	**29,848,546**		**16,893,708**	**16,893,708**	**12,954,838**
			56.6%	**56.6%**	**43.4%**

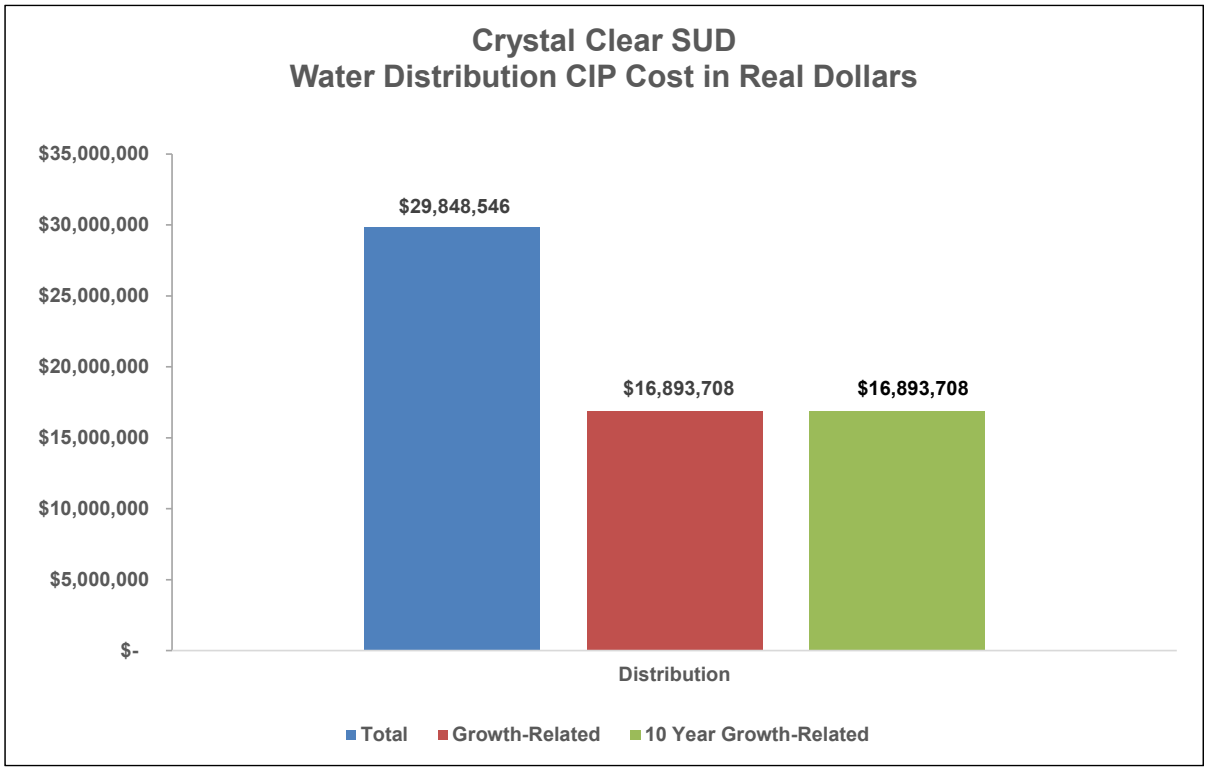
* Adjusted for inflation

The CIP developed by the District's Engineers classified projects as either supply/treatment, pumping, transmission or distribution. Each project line item in the CIP includes cost, date of completion, total number of LUEs the project is designed to serve and number of new LUEs each project is designed to serve. The total CIP cost estimate for distribution in nominal dollars is $26,846,700, for the period 2022 – 2031. The "real" cost (adjusted for time value of money) is $29,848,546 for the same period. Cost of projects related to growth LUEs in "real" dollars is $16,893,708.

The CIP projects designed to serve system growth include growth in LUEs expected after 2031, i.e., after the end of the 10-year period designated for impact fee calculation by Chapter 395. Adjusting the CIP to reflect only CIP project costs related to new LUEs added between 2022 and 2031 does not change the real dollar value of the CIP ($16,893,708).

Chart II-4 is a bar chart that presents the total CIP costs for all water distribution projects, CIP costs related to growth, and CIP costs related to growth added between 2022 and 2031.

Chart II-4



Current and Future Water System Debt Payments

Table II-5 present the annual summary of principal and interest payments forecast for the impact fee period for the water distribution impact fee. These annual payments are discounted to reflect the payment values in today's dollars. A discount rate of 3.0% was used which mirrors the estimated inflation rate in this study and in the District's recently completed water rate study.

Table II-5

CRYSTAL CLEAR SPECIAL UTILITY DISTRICT
Water Distribution Debt Payments
FY2022 - FY2031

YEAR	Principal Payment	Interest Payment	Total Payment
2022	$ 846,885	$ 620,849	$ 1,467,735
2023	892,103	648,761	1,540,864
2024	914,399	626,031	1,540,430
2025	1,087,573	840,993	1,928,566
2026	1,117,314	808,508	1,925,823
2027	1,197,410	845,979	2,043,389
2028	1,237,208	807,841	2,045,049
2029	1,272,325	767,275	2,039,600
2030	1,319,824	724,882	2,044,706
2031	1,363,772	680,356	2,044,127
Treatment		-	-
Distribution		7,371,476	18,620,289
TOTAL	11,248,813	7,371,476	18,620,289
NPV Treatment		-	-
NPV Distribution		6,264,678	15,734,164
NPV		6,264,678	15,734,164

The net present value (NPV) of the interest payments is added to the 10-year growth related CIP cost in the calculation of the maximum water distribution impact fees.

Debt Service Credit

Chapter 395 requirements include a credit for debt service that will be paid by new growth through water rates. This is to eliminate double charging debt payments to new customers: once in the impact fee, then again as part of their monthly water bills. In using Chapter 395 as a guide to calculate impact fees, the District has two options in determining this credit:

1. Use a 50% credit of the total project cost of capital for all projects; or
2. Calculate the credit for utility service revenues generated by new service units during the program period that is used for payment of improvements through water rate payments.

The District has opted to calculate the credit paid by new service units in water rates. Table II-7 presents a summary of the credit calculation for the water distribution impact fee.

Table II-7

CRYSTAL CLEAR SPECIAL UTILITY DISTRICT
TOTAL DEBT CREDIT

	Water Distribution
WATER Debt Credit	
Planning Period Debt Service	
Total Principal and Interest	$ 15,734,164
Funded through User Rates:	
Percent	100.0%
Total	15,734,164
Credit Per Current LUE Per Month	
Current LUEs	6,510
Planning Period LUE	34,934
Monthly Bills from Current LUEs during Planning Period	1,200,404
Planning Period Credit per Current LUE Per Month	**$ 13.11**
Cumulative Credit	
Cumulative Monthly Bills from New LUEs	419,204
Credit per Current LUE Per Month	$ 13.11
Cumulative Credit	**$ 5,494,674**

Maximum Water Acquisition and Water Impact Fee Calculation

Table II-9 presents the calculation of the DISTRICT's maximum water impact fee per LUE using each of the components previously described in this report for the water distribution impact fee.

Table II-9

Cystal Clear SUD
Maximum Water Distribution Impact Fee Calculations

	Water Distribution
Water Supply Planning Period Growth	
CIP Value of 2022 - 2031 Growth-Related Improvements	$ 16,893,708
Impact Fee Study Preparation Expenses	25,000
Interest Expense Allocated to Planning Period	6,264,678
Sub-Total	$ 23,183,386
Less Credit for Debt Paid by New Accounts	5,494,674
New Value of Assets & CIP to be Paid from Reservation Fees	$ 17,688,712
Forecast New LUE Growth 2022 - 2031	6,109
Growth-Related Fee Per LUE	**$ 2,896**
Net Maximum Water Distribution Impact Fee	**$ 2,896**

Table II-10 is the estimated annual water distribution impact fee revenue recovered from new/growth related service units over the 2022 – 2031 impact fee period.

Table II-10

Crystal Clear SUD
Impact Fee Model

	Water Development Impact Fee
Forecast Revenues	
2022	$ 1,855,049
2023	1,855,049
2024	1,855,049
2025	1,855,049
2026	1,855,049
2027	1,855,049
2028	1,855,049
2029	1,855,049
2030	1,855,049
2031	995,355
Total Period	**17,690,795**

NOTE: The total $2,896 is the maximum water distribution impact fee per LUE. The actual water distribution impact fee District's Board may adopt can range from $0 per LUE up to but not exceeding the calculated maximum of $2,896 per LUE. The approved impact fee could be anywhere in this range depending on the Board's desire to recover the majority growth related capital costs through impact fees weighted against its desire to remain competitive with neighbors and encourage local development.

Section III

SECTION III

Water Supply Acquisition Fees

Introduction

Section I of this study presented a five-step summary of the calculation of the water supply acquisition fee. These five steps are as follows:

1. Determine the District's actual and forecast connections and LUEs.
2. Calculate the percentage of the District's Asset and Capital Improvement Plan costs devoted to system growth, as opposed to repair and maintenance of the existing system.
3. Determine the amount of growth-related CIP that is expected to be financed through the issuance of long-term debt and determine total interest expense over the forecast period.
4. Calculate the credit to be paid by new connections during the planning period for debt issued to fund the CIP.
5. Calculate the maximum water supply acquisition fee per LUE.

What follows in this section of the report is a presentation of the maximum water supply Acquisition fee calculation using these five basic steps. Detail spreadsheet schedules supporting the calculations are provided in Appendix B.

Historical and Forecast Demand – Living Unit Equivalents (LUE)

After consultation with the District's Engineer and staff, the project team determined that the District's estimated LUEs at buildout (2050) is 16,417 and growth in LUE's over the period 2022 through 2031 is 6,109. This is an average annual increase of approximately 6.5%. The Water Supply column in Table III-1 presents the annual increase and total estimated LUEs used to determine the water supply acquisition fee.

Table III-1

Crystal Clear SUD
FORECAST WASTEWATER LUEs

	WATER CUSTOMER CLASS		
	Water Supply	Distribution	Other
Water LUEs			
Total LUEs -- Current Year (1)			
2021	6,510	6,510	-
Forecast Annual Total			
2022	7,151	7,151	-
2023	7,791	7,791	-
2024	8,432	8,432	-
2025	9,072	9,072	-
2026	9,713	9,713	-
2027	10,353	10,353	-
2028	10,994	10,994	-
2029	11,634	11,634	-
2030	12,275	12,275	-
2031	12,619	12,619	-
Forecast Annual New Water LUEs			
2022	641	641	-
2023	641	641	-
2024	641	641	-
2025	641	641	-
2026	641	641	-
2027	641	641	-
2028	641	641	-
2029	641	641	-
2030	641	641	-
2031	344	344	-

Water System Capacity

The District's Engineer has determined the existing and forecast system capacity needs as part of the preparation of the water system CIP. Using the Texas Commission on Environmental Quality (TCEQ) design criteria of 331 gallons/LUE/day the Engineer determined the existing and forecast water system capacity requirements. Table III-2 presents the existing and forecast capacity needed to meet water supply customer demand through the fee period (2022 – 2031).

Table III-2

Crystal Clear SUD
CURRENT AND FORECAST CAPACITY

	WATER TREATMENT/SUPPLY	
	Water Capacity (gallons/day)	**Water Capacity (LUEs)**
Gallons Per Day Per LUE		331
2021	3,345,999	10,109
2022	3,345,999	10,109
2023	4,400,774	13,295
2024	4,400,774	13,295
2025	4,400,774	13,295
2026	4,400,774	13,295
2027	4,400,774	13,295
2028	4,400,774	13,295
2029	5,565,803	16,815
2030	5,565,803	16,815
2031	6,300,530	19,035
Ending Capacity	6,300,530	19,035
Beginning Capacity	3,345,999	10,109
Total Increase	**2,954,531**	**8,926**

Embedded Water Supply Facilities and Water Rights

Table III-3 is a summary of the District's water supply asset inventory. The table presents the book value (original cost less accumulated depreciation) and replacement value of these assets. It further allocates the asset values to assets serving existing system demand and assets serving new development. This table is used in the calculation of the water supply acquisition fee.

Table III-3

Crystal Clear SUD
CURRENT AND FORECAST CAPACITY

	WATER TREATMENT/SUPPLY			
	2021 Book Value	2022 Replacement Value*	Serving Existing Demand	Serving Growth Demand
Wells & Facilities	$ 2,347,132	$ 3,082,725	$ 1,985,263	$ 1,097,462
Water Rights	7,079,526	9,570,577	6,163,414	3,407,163
Total Asset Value	**9,426,659**	**12,653,302**	**8,148,677**	**4,504,625**

Capital Improvement Plan (CIP)

Table III-4 is a summary of the CIP prepared for the District and used in the calculation of the maximum water supply acquisition fee. This table presents the total CIP cost, CIP related to growth, and CIP related to growth in the 10-year fee period 2022 – 2031.

Table III-4

CRYSTAL CLEAR SPECIAL UTILITY DISTRICT
WATER SUPPLY CAPITAL IMPROVEMENT PLAN

Asset	Total Cost*	Percent Growth Related	Total Growth-Related CIP	2022 - 2031 Growth-Related CIP	Total Replacement CIP
Water System					
Water Supply	$ 42,883,618	100.0%	$ 42,883,618	$ 8,429,287	$ -
Total Water Supply Capital Improvements	**42,883,618**		**42,883,618**	**8,429,287**	**-**
			100.0%	**19.7%**	**0.0%**

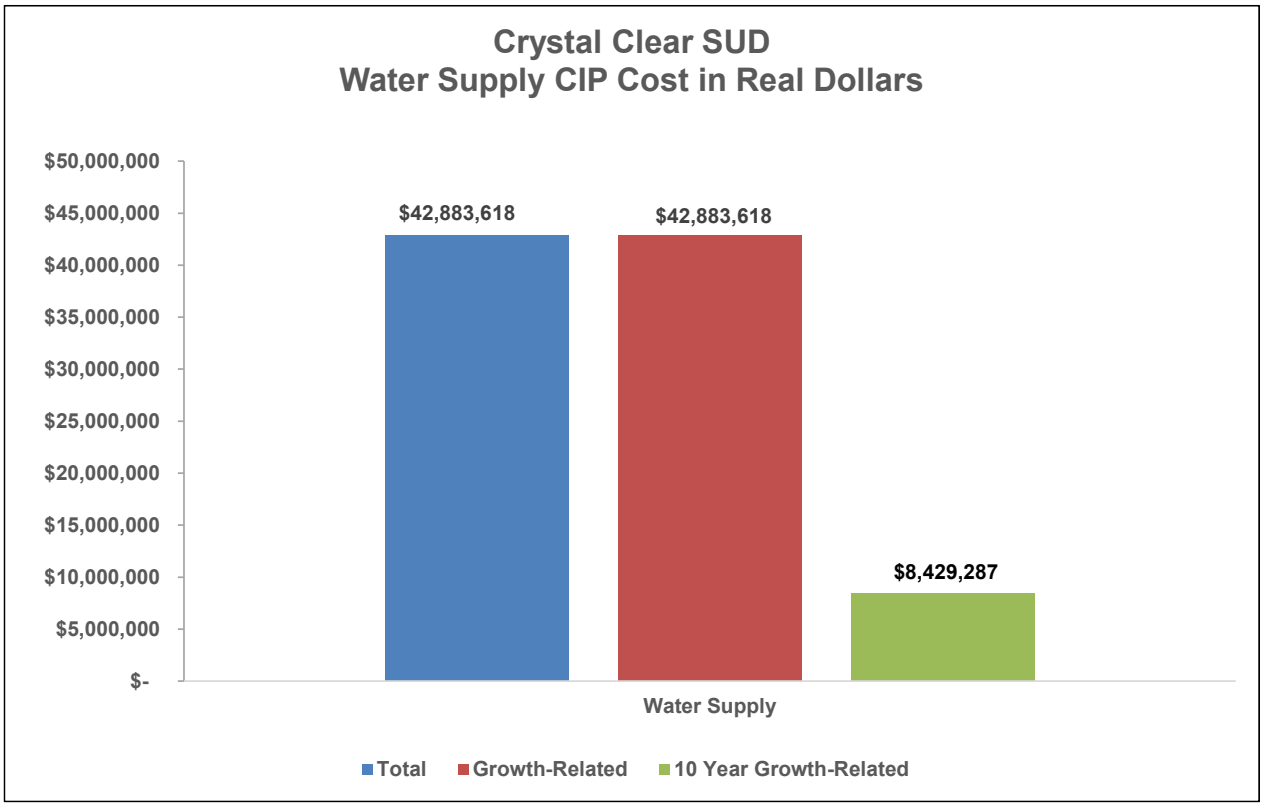
* Adjusted for inflation

The CIP developed by the District's Engineers classified projects as either supply/treatment, pumping, transmission or distribution. Each project line item in the CIP includes cost, date of completion, total number of LUEs the project is designed to serve and number of new LUEs each project is designed to serve. The total water supply CIP cost estimate in nominal dollars is $34,662,100, for the period 2022 – 2031. The "real" cost (adjusted for time value of money) is $42,883,618 for the same period. Cost of projects related to growth LUEs in "real" dollars is also $42,883,618.

The CIP projects designed to serve system growth include growth in LUEs expected after 2031, i.e., after the end of the 10-year period designated for fee calculation by Chapter 395. Adjusting the CIP to reflect only CIP project costs related to new LUEs added between 2022 and 2031 reduces the real dollar value of the CIP to $8,429,287.

Chart III-5 is a bar chart that presents the total CIP costs for supply and treatment (collectively "water supply"), CIP costs related to growth, and CIP costs related to growth added between 2022 and 2031.

Chart III-5



Current and Future Water System Debt Payments

Table III-6 present the annual summary of principal and interest payments forecast for the impact fee period for the water supply acquisition fee. These annual payments are discounted to reflect the payment values in today's

dollars. A discount rate of 3.0% was used which mirrors the estimated inflation rate in this study and in the District's recently completed water rate study.

Table III-6

CRYSTAL CLEAR SPECIAL UTILITY DISTRICT
Water Supply Debt Payments
FY2022 - FY2031

YEAR	Principal Payment	Interest Payment	Total Payment
2022	**$ -**	**$ -**	**$ -**
2023	**-**	**-**	**-**
2024	**-**	**-**	**-**
2025	**-**	**-**	**-**
2026	**-**	**-**	**-**
2027	**-**	**-**	**-**
2028	**-**	**-**	**-**
2029	**-**	**-**	**-**
2030	**15,009**	**25,003**	**40,012**
2031	**80,649**	**132,747**	**213,396**
Treatment		157,750	253,408
Distribution		-	-
TOTAL	**95,658**	**157,750**	**253,408**
NPV Treatment		**117,939**	**189,452**
NPV Distribution		**-**	**-**
NPV	**71,514**	**117,939**	**189,452**

The net present value (NPV) of the interest payments is added to the 10-year growth related CIP cost in the calculation of the maximum water supply Acquisition fees.

Debt Service Credit

Chapter 395 requirements include a credit for debt service that will be paid by new growth through water rates. This is to eliminate double charging debt payments to new customers: once in the fee, then again as part of their monthly water bills. In using Chapter 395 as a guide to calculate fees, the District has two options in determining this credit:

1. Use a 50% credit of the total project cost of capital for all projects; or

2. Calculate the credit for utility service revenues generated by new service units during the program period that is used for payment of improvements through water rate payments.

The District has opted to calculate the credit paid by new service units in water rates. Table II-7 presents a summary of the credit calculation for the water supply acquisition fee.

Table II-7

CRYSTAL CLEAR SPECIAL UTILITY DISTRICT
TOTAL DEBT CREDIT

	Water Supply
Planning Period Debt Service	
Total Principal and Interest	$ 189,452
Funded through User Rates:	
Percent	100.0%
Total	189,452
Credit Per Current LUE Per Month	
Current LUEs	6,510
Planning Period LUE	34,934
Monthly Bills from Curruent LUEs during Planning Period	1,200,404
Planning Period Credit per Current LUE Per Month	**$ 0.16**
Cumulative Credit	
Cumulative Monthly Bills from New LUEs	419,204
Credit per Current LUE Per Month	$ 0.16
Cumulative Credit	**$ 66,160**

Maximum Water Acquisition Fee Calculation

Table II-8 presents the calculation of the District's maximum fee per LUE using each of the components previously described in this report for the water supply acquisition fee.

Table III-8

Cystal Clear SUD
Maximum Water Supply Acquisition Fee Calculations

	Water Supply
I. Current and Forecast Demand (LUEs)	
Existing Demand	6,510
New Growth 2022 - 2031	6,109
Total Forecast Demand 2031	12,619
Forecast Demand 2032 - 2050	3,798
Total Existing and Forecast Demand 2050	16,417
II. Water Supply Acquisition Fee per LUE	
IIA. Water Supply Existing System	
Existing System Asset Replacement Value	$ 8,148,677
Existing System CIP	-
Total Existing System	$ 8,148,677
Total Planned LUEs Through 2050	16,417
Existing System Fee Per LUE	**$ 496**
IIB. Water Supply Planning Period Growth	
Existing System Replacement Value for Growth	$ 4,504,625
CIP Value of 2022 - 2031 Growth-Related Improvements	$ 8,429,287
Fee Study Preparation Expenses	25,000
Interest Expense Allocated to Planning Period	117,939
Sub-Total	$ 13,076,851
Less Credit for Debt Paid by New Accounts	66,160
New Value of Assets & CIP to be Paid from Acquisition Fees	$ 13,010,690
Forecast New LUE Growth 2022 - 2031	6,109
Growth-Related Fee Per LUE	**$ 2,130**
Net Maximum Water Supply Acquisition Fee	**$ 2,626**

Table III-11 is the estimated annual water supply acquisition fee revenue recovered from new/growth related service units over the 2022 – 2031 fee period.

Table II-11

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model
Forecast Revenues

	Acquisition Fee
Forecast Revenues	
2022	$ 1,682,099
2023	1,682,099
2024	1,682,099
2025	1,682,099
2026	1,682,099
2027	1,682,099
2028	1,682,099
2029	1,682,099
2030	1,682,099
2031	902,556
Total Period	**16,041,446**

NOTE: The total $2,626 is the maximum water supply acquisition fee per LUE. The actual water supply acquisition fee the District's Board may adopt can range from $0 per LUE up to but not exceeding the calculated maximum of $2,626 per LUE. The approved impact fee could be anywhere in this range depending on the Board's desire to recover the majority growth related capital costs through impact fees weighted against its desire to remain competitive with neighbors and encourage local development.

Notes on Acquisition and Impact Fee Recommendations

The project team has relied upon the extensive data supplied by the Crystal Clear SUD. Thus, the integrity of the study is largely dependent upon the accuracy of this financial, engineering and customer data. Every effort has been made by the project team to validate and confirm the information contained herein prior to the preparation of the final study documents. This report presents no assurance or guarantee that the forecast contained herein will be consistent with actual results or performances. These represent forecasts based on a series of assumptions about future behavior and are not guarantees. Any changes in assumptions or actual events may result in significant revisions to the forecast and its conclusions.

The forecast and recommendations presented in this study represent a combination of the best information available from the Crystal Clear SUD, its Engineers and the project team's expertise. However, this forecast relies in part on assumptions about future events and events beyond the control of the project team (such as account growth rates within the District). The forecast and recommendations contained in this study may be subject to revision if any of the following events occurs:

- Actual growth in accounts and consumed volumes is less than (or significantly greater than) forecast.
- Capital improvement plan and funding costs increase significantly due to the rising cost of materials or other factors.
- An unforeseen event impacts the District, such as an extended recession, natural catastrophe or terrorist attack.
- Increases or decreases in interest rates or reserve requirements for long-term debt.
- The Crystal Clear District priorities change significantly from those forecast in this study.

It should be noted that none of these events are foreseen by the project team or the Crystal Clear SUD at this time.

If any of these events occur, the District may be compelled to consider further adjustments to its water supply Acquisition and water distribution impact fees.

APPENDIX A

CHAPTER 1344

S.B. No. 1116

AN ACT

relating to the creation, administration, powers, duties, functions, operations, and financing of the Crystal Clear Special Utility District; providing authority to issue bonds; granting a limited power of eminent domain.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF TEXAS:

SECTION 1. Subtitle C, Title 6, Special District Local Laws Code, is amended by adding Chapter 7206 to read as follows:

CHAPTER 7206. CRYSTAL CLEAR SPECIAL UTILITY DISTRICT

SUBCHAPTER A. GENERAL PROVISIONS

Sec. 7206.001. DEFINITIONS. In this chapter:

(1) "Board" means the district's board of directors.

(2) "[redacted]

(3) "Corporation" means the Crystal Clear Water Supply Corporation.

(4) "Director" means a board member.

(5) "District" means the Crystal Clear Special Utility District.

Sec. 7206.002. NATURE OF DISTRICT. The district is a special utility district in Comal, Guadalupe, and Hays Counties created under and essential to accomplish the purposes of Section 59, Article XVI, Texas Constitution. The district is created to serve a public use and benefit.

Sec. 7206.003. CONFIRMATION ELECTION REQUIRED. If the creation of the district is not confirmed at a confirmation and initial directors' election held before September 1, 2016:

(1) the district is dissolved on September 1, 2016, except that the district shall:

(A) pay any debts incurred;

(B) transfer to Comal, Guadalupe, or Hays County, as appropriate, any assets of the district that remain after the payment of debts; and

(C) maintain the organization of the district until all debts are paid and remaining assets are transferred; and

(2) this chapter expires September 1, 2017.

Sec. 7206.004. APPLICABILITY OF OTHER LAW. Except as otherwise provided by this chapter, Chapters 49 and 65, Water Code, apply to the district.

Sec. 7206.005. INITIAL DISTRICT TERRITORY. (a) The district is initially composed of the territory described by Section 2 of the Act creating this chapter.

(b) The boundaries and field notes contained in Section 2 of the Act creating this chapter form a closure. A mistake made in the field notes or in copying the field notes in the legislative process does not affect:

(1) the organization, existence, or validity of the district;

(2) the right of the district to issue any type of bond, including a refunding bond, for a purpose for which the district is created or to pay the principal of and interest on a

bond; or

(3) the legality or operation of the district or the board of directors of the district.

SUBCHAPTER A-1. TEMPORARY PROVISIONS

Sec. 7206.021. TEMPORARY DIRECTORS. (a) The temporary board of directors of the district is composed of:

(1) Dennis R. Krackau;

(2) Jackie E. Carson;

(3) Carroll U. Hoffmann;

(4) Richard A. Hanz;

(5) Jarold R. Hildebrand;

(6) James R. Stewart; and

(7) Michael L. Cox.

(b) Each temporary director shall qualify for office as provided by Section 49.055, Water Code.

(c) If a temporary director fails to qualify for office, the temporary directors who have qualified shall appoint a person to fill the vacancy. If at any time there are fewer than four qualified temporary directors, the commission shall appoint the necessary number of directors to fill all vacancies on the board.

(d) Temporary directors serve until the earlier of:

(1) the date initial directors are elected under Section 7206.022; or

(2) the date this chapter expires under Section 7206.003.

(e) As soon as practicable after all the temporary directors have qualified under Section 49.055, Water Code, the temporary

directors shall convene the organizational meeting of the district and elect officers from among the temporary directors.

Sec. 7206.022. CONFIRMATION AND INITIAL DIRECTORS' ELECTION. (a) Before September 1, 2016, the temporary directors shall hold an election to confirm the creation of the district and to elect seven initial directors in accordance with Chapters 49 and 65, Water Code.

(b) The temporary board of directors shall determine the method for determining the initial term of each person on the initial board of directors. The terms must be clearly stated on the ballot for the confirmation and directors' election.

(c) Section 41.001(a), Election Code, does not apply to a confirmation and directors' election held as provided by this section.

(d) The initial directors shall continue to serve until the district directors elected at the first regularly scheduled election of directors under Section 7206.052 qualify for office.

Sec. 7206.023. AMENDMENT OF CERTIFICATE OF CONVENIENCE AND NECESSITY; TRANSFER OF ASSETS; DISSOLUTION. (a) On the effective date of the Act enacting this chapter, all the territory described by Section 3 of the Act creating this chapter is removed from the territory covered by Certificate of Convenience and Necessity No. 10297. The commission shall revise its records to reflect the removal of the described territory from that certificate's coverage, effective on that date, without further application, notice, or hearing. A person does not have any right of protest, objection, or administrative review of the revision prescribed by

this subsection. The revision to Certificate of Convenience and Necessity No. 10297 is not contingent on the confirmation of the district under Section 7206.022.

(b) If the creation of the district is confirmed under Section 7206.022, the corporation shall transfer the assets, debts, and contractual rights and obligations of the corporation to the district. Following the transfer of assets:

(1) Certificate of Convenience and Necessity No. 10297, as revised in accordance with Subsection (a), is considered to be held by the district;

(2) the board of directors of the corporation shall begin dissolution proceedings of the corporation; and

(3) the board of directors of the corporation shall notify the commission of the transfer of Certificate of Convenience and Necessity No. 10297 to the district.

(c) On receipt of notice under Subsection (b)(3), the commission shall note in its records that Certificate of Convenience and Necessity No. 10297, as revised in accordance with Subsection (a), is held by the district and shall reissue the certificate in the name of the district without further application, notice, or hearing. A person does not have any right of protest, objection, or administrative review of the transfer prescribed by this section.

Sec. 7206.024. EXPIRATION OF SUBCHAPTER. This subchapter expires September 1, 2017.

SUBCHAPTER B. BOARD OF DIRECTORS

Sec. 7206.051. DIRECTORS. (a) The district shall be

governed by a board of not fewer than 5 and not more than 11 directors, elected in accordance with Section 65.101, Water Code.

(b) The directors of the district serve staggered three-year terms.

Sec. 7206.052. ELECTION OF DIRECTORS. After the district is confirmed under Section 7206.022, the district shall hold an election on the uniform election date in November of each year to elect the appropriate number of directors.

SUBCHAPTER C. POWERS AND DUTIES

Sec. 7206.101. GENERAL POWERS. (a) Except as otherwise provided by Subsection (b) and this chapter, the district has all of the rights, powers, privileges, authority, functions, and duties provided by the general law of this state, including Chapters 49 and 65, Water Code, applicable to special utility districts created under Section 59, Article XVI, Texas Constitution.

(b) Land included in the territory described by Section 4 of the Act creating this chapter may not be added to the district unless the landowner provides written consent.

[redacted]. (a) The district may charge a water service impact fee that is not greater than the capital recovery fee charged by the corporation on December 31, 2012, under the corporation's tariff.

(b) Chapter 395, Local Government Code, does not apply to an initial water service impact fee set under Subsection (a).

(c) The district may increase the water service impact fee authorized under Subsection (a) only as provided by Chapter 395, Local Government Code, as approved by the commission, or as

otherwise provided by law.

Sec. 7206.103. EMINENT DOMAIN. (a) Except as provided by Subsection (b), the district has all the power and authority of a special utility district under Chapters 49 and 65, Water Code, to acquire by condemnation any land, easement, or other property located inside or outside the boundaries of the district for any district project or purpose.

(b) The district may not exercise the power of eminent domain to condemn land, easements, or other property located outside the boundaries of the district for sanitary sewer purposes.

Sec. 7206.104. SERVICES TO BE PROVIDED BY DISTRICT OR CITY OF NEW BRAUNFELS. (a) A structure constructed by the district in the corporate limits or extraterritorial jurisdiction of the City of New Braunfels must comply with any applicable codes and ordinances of the city.

(b) The district may enter into an interlocal contract with the City of New Braunfels to provide governmental services, including drainage, solid waste, or fire protection services.

(c) The district may not provide solid waste collection services in the corporate limits of the City of New Braunfels unless the governing body of the city consents by resolution or ordinance.

(d) The district may not provide fire protection services in the corporate limits or extraterritorial jurisdiction of the City of New Braunfels unless the governing body of the city consents by resolution or ordinance.

SECTION 2. The Crystal Clear Special Utility District initially includes all the territory contained in the following

APPENDIX B

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model
Forecast Revenues

		Acquisition Fee	Water Development Impact Fee	Total
	Fee:	**2021 01 31 Report**		
Maximum Fee		**$ 2,626**	**$ 2,896**	**$ 5,522**
Forecast New Accounts				
2022		641	641	
2023		641	641	
2024		641	641	
2025		641	641	
2026		641	641	
2027		641	641	
2028		641	641	
2029		641	641	
2030		641	641	
2031		344	344	
Total Period		**6,109**	**6,109**	
Forecast Revenues				
2022		$ 1,682,099	$ 1,855,049	$ 3,537,148
2023		1,682,099	1,855,049	3,537,148
2024		1,682,099	1,855,049	3,537,148
2025		1,682,099	1,855,049	3,537,148
2026		1,682,099	1,855,049	3,537,148
2027		1,682,099	1,855,049	3,537,148
2028		1,682,099	1,855,049	3,537,148
2029		1,682,099	1,855,049	3,537,148
2030		1,682,099	1,855,049	3,537,148
2031		902,556	995,355	1,897,911
Total Period		**16,041,446**	**17,690,795**	**33,732,241**

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Summary Schedule -- Calculation of Acquisition Fee
Calculated Fee: **2021 01 31 Report**

	Description		Total	
	I. Current and Forecast Demand (LUEs)			
I.1	Existing Demand		6,510	(1)
I.2	New Growth 2022 - 2031		6,109	(1)
I.3	Total Forecast Demand 2031		12,619	
I.4	Forecast Demand 2032 - 2050		3,798	(2)
I.5	Total Existing and Forecast Demand 2050		16,417	(2)
I.6	Forecast Expanded Demand 2022-2050		9,907	I.2+I.4
	II. Fee per LUE			
	IIA. Existing System Buy In			
II.A.1	Existing System Asset Replacement Value	$	8,148,677	(3)
II.A.2	Existing System CIP		-	(3)
II.A.3	Total Existing System	$	8,148,677	
II.A.4	Total Planned LUEs Through 2050		16,417	I.5
II.A.5	**Existing System Fee Per LUE**	**$**	**496.36**	II.A.3/II.A.4
	IIB. Planning Period System Growth			
II.B.1	Existing System Replacement Value for Growth	$	4,504,625	(3)
II.B.2	CIP Value of Growth-Related Improvements	$	8,429,287	(4)
II.B.3	Fee Study Preparation Expenses		25,000	(5)
II.B.4	Interest Expense Allocated to Planning Period		117,939	(6)
	Sub-Total	$	13,076,851	
II.B.5	Less CIP Credit		66,160	(7)
II.B.6	New Value of CIP to be Paid from Fees	$	13,010,690	
II.B.7	Total Forecast 10 Year Demand (LUEs)		6,109	I.6
II.B.8	**Growth-Related Fee Per LUE**	**$**	**2,130**	II.B.6/II.B.7
II.B.9	**Total Fee Per LUE**	**$**	**2,626**	II.A.5+II.B.8

III. Fee by Water Meter Size

Water Meter Size	AWWA Meter Ratio	MAXIMUM Acquisition Fee
5/8" -- 3/4"	1.0	$ 2,626
3/4"	1.5	3,939
1"	2.5	6,566
1 1/2"	5.0	13,131
2"	8.0	21,010
3"	35.0	91,918
4"	65.0	170,704
6"	140.0	367,671
8"	240.0	630,292

Sources:
(1) -- Demand Input
(2) -- M&E Elevated Storage Master Plan Table 4-3
(3) -- Existing Asset Input
(4) -- CIP Input
(5) -- Project Team Estimate
(6) -- Debt Interest Input
(7) -- CIP Credit Input

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Summary Schedule -- Calculation of Impact Fee
Scenario: **2021 01 31 Report**

	Description		Total		Water Meter Size	AWWA Meter Ratio	MAXIMUM IMPACT Fee
	I. Current and Forecast Demand (LUEs)				**III. Fee by Water Meter Size**		
I.1	Existing Demand		6,510	(1)			
I.2	New Growth 2022 - 2031		6,109	(1)	5/8" -- 3/4"	1.0	$ 2,896
I.3	Total Forecast Demand 2031		12,619				
I.4	Forecast Demand 2032 - 2050		3,798	(2)	3/4"	1.5	4,343
I.5	Total Existing and Forecast Demand 2050		16,417	(2)			
					1"	2.5	7,239
I.6	Forecast Expanded Demand 2022-2050		9,907	I.2+I.4			
					1 1/2"	5.0	14,478
					2"	8.0	23,165
	II. Fee per LUE						
					3"	35.0	101,348
	II Planning Period System Growth				4"	65.0	188,218
					6"	140.0	405,392
II.1	CIP Value of Growth-Related Improvements	$	16,893,708	(3)			
					8"	240.0	694,958
II.2	Fee Study Preparation Expenses		25,000	(4)			
II.3	Interest Expense Allocated to Planning Period		6,264,678	(5)			
	Sub-Total	$	23,183,386				
II.4	Less CIP Credit		5,494,674	(6)			
II.5	New Value of CIP to be Paid from Fees	$	17,688,712				
II.6	Total Forecast 10 Year Demand (LUEs)		6,109	I.6			
II.7	**Growth-Related Fee Per LUE**	**$**	**2,896**	II.B.6/II.B.7			
II.8	**Total Fee Per LUE**	**$**	**2,896**	II.A.5+II.B.8			

Sources:
(1) -- Demand Input
(2) -- M&E Elevated Storage Master Plan Table 4-3
(3) -- CIP Input
(4) -- Project Team Estimate
(5) -- Debt Interest Input
(6) -- CIP Credit Input

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Input Area -- Existing Fixed Asset Schedule

Utility	**Crystal Clear SUD**	
Model	**Water Acquistion Fee and Impact Fee Model**	
Scenario	**2021 01 31 Report**	
Test Year	**2022**	
Forecast Period	**2022 - 2031**	
Weighted Avg. Change in ENR Index	**1.35186683**	
Inflator	**3.0%**	

	Forecast 2022 - 2031	Treatment/ Dist/Admin/ Customer	Vintage Year	NPV Period	2021 Asset Book Value	2021 Asset Life	2021 Percent Depreciation	2022 Replacement Value	Replacement Value % Existing	Replacement Value Existing	% Growth	Replacement Value Growth
	Well & Facilities											
1	Nelson Wells (CWIP)	Treat/Supply	2020	2	$ 251,435	50	2.0%	$ 333,109	64.4%	$ 214,521	35.6%	$ 118,588
2	Trinity Well #3	Treat/Supply	2016	6	126,814	50	2.0%	168,006	64.4%	108,195	35.6%	59,811
3	Wilcox Well Field	Treat/Supply	2017	5	444,164	25	4.0%	576,433	64.4%	371,220	35.6%	205,212
4	Trinity Well - Kutscher	Treat/Supply	2016	6	740,908	50	2.0%	981,577	64.4%	632,132	35.6%	349,445
5	Kurchoff & Meghee Well	Treat/Supply	2017	5	103,367	20	5.0%	132,751	64.4%	85,491	35.6%	47,260
6	Txl Trinity Well #1	Treat/Supply	2016	6	278,700	50	2.0%	369,230	64.4%	237,783	35.6%	131,447
7	2016 Nelson Well & Plant Rehab	Treat/Supply	2017	5	169,208	20	5.0%	217,309	64.4%	139,946	35.6%	77,363
8	McCarty Wells	Treat/Supply	2017	5	30,054	20	5.0%	38,597	64.4%	24,857	35.6%	13,741
9	TXI Trinity Well #2	Treat/Supply	2013	9	139,790	50	2.0%	185,198	64.4%	119,267	35.6%	65,931
10	2017 Wilcox Wellfield	Treat/Supply	2017	5	62,693	20	5.0%	80,515	64.4%	51,851	35.6%	28,664
11												
12	**Water Rights**											
13	Scheel Water Rights	Treat/Supply	2020	2	4,556,898	-	0.0%	6,160,319	64.4%	3,967,221	35.6%	2,193,098
14	Previous Water Rights	Treat/Supply	2009	13	2,522,628	-	0.0%	3,410,258	64.4%	2,196,193	35.6%	1,214,065
15	Other	Treat/Supply	2020		-	-	0.0%	-	64.4%	-	35.6%	-
	Net Depreciated Value							**12,653,302**		**8,148,677**		**4,504,625**
	Inflation Adjusted Net Depreciated Value (Ten Year Average FV)							**12,483,620**				

TOTAL WATER Assets Original Cost (Inflation Adjusted) **12,483,620**

Allocation to:

Treatment	100.0%	12,483,620
Distribution	0.0%	-
Administration	0.0%	-
Customer	0.0%	-
Total	100.0%	**12,483,620**

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Forecast
2022 - 2031

Net Asset Value after Depreciation

	0	1	2	3	4	5	6	7	8	9
	2022	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**

Input Area -- Existing Fixed Asset Schedule

Utility	**Crystal Clear**
Model	**Water Acquis**
Scenario	**2021 01 31 R**
Test Year	**2022**
Forecast Period	**2022 - 2031**
Weighted Avg. Change in ENR Index	**1.35186683**
Inflator	**3.0%**

	Well & Facilities										
1	Nelson Wells (CWIP)	$ 261,412	$ 256,184	$ 251,061	$ 246,039	$ 241,119	$ 236,296	$ 231,570	$ 226,939	$ 222,400	$ 217,952
2	Trinity Well #3	148,394	145,426	142,517	139,667	136,874	134,136	131,453	128,824	126,248	123,723
3	Wilcox Well Field	494,311	474,539	455,557	437,335	419,842	403,048	386,926	371,449	356,591	342,328
4	Trinity Well - Kutscher	866,989	849,649	832,656	816,003	799,683	783,690	768,016	752,655	737,602	722,850
5	Kurchoff & Meghee Well	113,839	108,147	102,740	97,603	92,723	88,087	83,682	79,498	75,523	71,747
6	TxI Trinity Well #1	326,127	319,604	313,212	306,948	300,809	294,793	288,897	283,119	277,457	271,907
7	2016 Nelson Well & Plant Rehab	186,351	177,033	168,181	159,772	151,784	144,195	136,985	130,136	123,629	117,447
8	McCarty Wells	33,099	31,444	29,872	28,378	26,959	25,611	24,331	23,114	21,958	20,860
9	TXI Trinity Well #2	178,746	175,171	171,668	168,235	164,870	161,573	158,341	155,174	152,071	149,029
10	2017 Wilcox Wellfield	69,044	65,592	62,312	59,197	56,237	53,425	50,754	48,216	45,805	43,515
11											
12	**Water Rights**										
13	Scheel Water Rights	4,834,413	4,834,413	4,834,413	4,834,413	4,834,413	4,834,413	4,834,413	4,834,413	4,834,413	4,834,413
14	Previous Water Rights	3,704,565	3,704,565	3,704,565	3,704,565	3,704,565	3,704,565	3,704,565	3,704,565	3,704,565	3,704,565
15	Other	-	-	-	-	-	-	-	-	-	-
	Net Depreciated Value	**11,217,291**	**11,141,768**	**11,068,755**	**10,998,155**	**10,929,876**	**10,863,831**	**10,799,933**	**10,738,103**	**10,678,262**	**10,620,337**
	Inflation Adjusted Net Depreciated Value (Ten Year Averag	**11,217,291**	**11,476,021**	**11,742,842**	**12,017,981**	**12,301,672**	**12,594,157**	**12,895,685**	**13,206,512**	**13,526,903**	**13,857,132**
	TOTAL WATER Assets Original Cost (Inflation Adjusted)	**11,217,291**	**11,476,021**	**11,742,842**	**12,017,981**	**12,301,672**	**12,594,157**	**12,895,685**	**13,206,512**	**13,526,903**	**13,857,132**
	Allocation to:										
	Treatment	11,217,291	11,476,021	11,742,842	12,017,981	12,301,672	12,594,157	12,895,685	13,206,512	13,526,903	13,857,132
	Distribution	-	-	-	-	-	-	-	-	-	-
	Administration	-	-	-	-	-	-	-	-	-	-
	Customer	-	-	-	-	-	-	-	-	-	-
	Total	**11,217,291**	**11,476,021**	**11,742,842**	**12,017,981**	**12,301,672**	**12,594,157**	**12,895,685**	**13,206,512**	**13,526,903**	**13,857,132**

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Input Area -- 10 Year Water System Forecast Demand
Scenario: ***2021 01 31 Report***

		Water System	Total LUEs in System: Distribution	Other	Other	Treatment Total	Distribution Total
		Annual Growth Rate (1)	2.8%				
		Total LUEs -- Current Year (1)					
	Total	6,510	6,510	-	-		
		Forecast Annual Growth Rate					
	2022	9.84%	9.84%	0.00%	0.00%		
	2023	8.96%	8.96%	0.00%	0.00%		
	2024	8.22%	8.22%	0.00%	0.00%		
	2025	7.60%	7.60%	0.00%	0.00%		
	2026	7.06%	7.06%	0.00%	0.00%		
	2027	6.59%	6.59%	0.00%	0.00%		
	2028	6.19%	6.19%	0.00%	0.00%		
	2029	5.83%	5.83%	0.00%	0.00%		
	2030	5.51%	5.51%	0.00%	0.00%		
	2031	2.80%	2.80%	0.00%	0.00%		
		Forecast Annual Total					
	2022	7,151	7,151	-	-		
	2023	7,791	7,791	-	-		
	2024	8,432	8,432	-	-		
	2025	9,072	9,072	-	-		
	2026	9,713	9,713	-	-		
	2027	10,353	10,353	-	-		
	2028	10,994	10,994	-	-		
	2029	11,634	11,634	-	-		
	2030	**12,275**	**12,275**	-	-	6.5%	
	2031	12,619	12,619	-	-		
		Forecast Annual New Water LUEs (1)					
1	2022	641	641	-	-	641	641
2	2023	641	641	-	-	1,281	1,281
3	2024	641	641	-	-	1,922	1,922
4	2025	641	641	-	-	2,562	2,562
5	2026	641	641	-	-	3,203	3,203
6	2027	641	641	-	-	3,843	3,843
7	2028	641	641	-	-	4,484	4,484
8	2029	641	641	-	-	5,124	5,124
9	2030	641	641	-	-	5,765	5,765
10	2031	344	344	-	-	6,109	6,109
		6,109	6,109	-	-	**34,934**	**34,934**

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

	Total LUEs in System				Treatment	Distribution
	Water Supply	Distribution	Other	Other	Total	Total

Input Area -- 10 Year Water System Forecast Demand
Scenario: ***2021 01 31 Report***

	Meter Equivalents/Equivalent Residential Units (LUEs)					
Conversion Factor	1.0	1.0	1.0	1.0		
Most Recent Month	6,510	6,510	-	-	**781,200**	**781,200**
	Forecast Meter Equiv/LUEs					
2022	7,151	7,151	-	-	6,692	
2023	7,791	7,791	-	-	7,351	
2024	8,432	8,432	-	-	8,009	
2025	9,072	9,072	-	-	8,668	
2026	9,713	9,713	-	-	9,326	
2027	10,353	10,353	-	-	9,985	
2028	10,994	10,994	-	-	10,643	
2029	11,634	11,634	-	-	11,302	
2030	12,275	12,275	-	-	11,960	
2031	12,619	12,619	-	-	12,619	
	Forecast Annual New Meter Equiv/LUEs					
2022	641	641	-	-	641	641
2023	641	641	-	-	1,281	1,281
2024	641	641	-	-	1,922	1,922
2025	641	641	-	-	2,562	2,562
2026	641	641	-	-	3,203	3,203
2027	641	641	-	-	3,843	3,843
2028	641	641	-	-	4,484	4,484
2029	641	641	-	-	5,124	5,124
2030	641	641	-	-	5,765	5,765
2031	344	344	-	-	6,109	6,109
Total	**6,109**	**6,109**	**-**	**-**		
	Forecast Monthly Bills -- Total LUEs				**New LUEs**	**New LUEs**
2022	85,807	85,807	-	-	7,687	7,687
2023	93,493	93,493	-	-	15,373	15,373
2024	101,180	101,180	-	-	23,060	23,060
2025	108,867	108,867	-	-	30,747	30,747
2026	116,553	116,553	-	-	38,433	38,433
2027	124,240	124,240	-	-	46,120	46,120
2028	131,927	131,927	-	-	53,807	53,807
2029	139,613	139,613	-	-	61,493	61,493
2030	147,300	147,300	-	-	69,180	69,180
2031	151,424	151,424	-	-	73,304	73,304
Total	**1,200,404**	**1,200,404**	**-**	**-**	**419,204**	**419,204**

(1) From Water Elevated Storage Master Plan - M&S Engineering.

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Project #	Treatment/Distribution	Year of Implementatior	Acre Feet	Total Gallons Per Year	Total Gallons Per Day	Total LUEs Total Capacity	Total LUEs Currently Used Capacity	Total LUEs LUEs Additional Capacity	Total LUEs % Additional Capacity	Total LUEs 2022 - 2031 Additional Capacity	Total LUEs 2022 - 2031 % Growth
	Input Area -- Capacity Input										
	Scenario: 2021 01 31 Report										
	Input Variables										
	Gallons per Acre Foot	325,851									
	Average Treated Gallons Per Day Per LUE/Connection	331.0	(1)								
	Existing Supply/Capacity										
	Existing Supply		3,448	1,123,534,248	3,078,176	**9,300**					
	Supplemental Supply		300	97,755,300	267,823	**809**					
	Sub-Total		3,748	1,221,289,548	3,345,999	**10,109**	6,510	3,599	35.6%	3,599	35.6%
	Future Capacity										
SMP-003	Offerman Pump Station & Transmission Main	2023	1,182	384,992,957	1,054,775	3,187	-	3,187	100.0%	1,427	44.8%
WS-001	Trinity Well Fields Development	2028	1,305	425,235,555	1,165,029	3,520	-	3,520	100.0%	755	21.5%
WS-002	Wilcox Well Field Development	2030	823	268,175,373	734,727	2,220	-	2,220	100.0%	328	14.8%
	Project	0	-	-	-	-	-	-	0.0%	-	0.0%
	Total		**7,058**	**2,299,693,433**	**6,300,530**	**19,035**	**6,510**	**12,525**		**6,109**	**32.1%**
										6,109	
	Distribution System										
1	Zorn Elevated & Fill Line	2022				2,415	920	1,495	61.9%	1,495	61.9%
2	Center Point & Huber Rd 4" Line	2023				100	22	78	78.0%	78	78.0%
3	IH-35 Bore 8" Line	2023				2,288	788	1,500	65.6%	1,500	65.6%
4		2023				-	-	-	0.0%	-	0.0%
5	Herber Tank & Fill Line	2023				1,251	697	554	44.3%	554	44.3%
6	Bylerpool 2" & 4" Line	2024				100	57	43	43.0%	43	43.0%
7	Hays Caldwell Tank & Fill Line	2024				2,585	1,760	825	31.9%	825	31.9%
8	Tschoepe Rd 6" Line	2024				250	35	215	86.0%	215	86.0%
9	Crest Dr - Ridge Dr 4" & 6" Line	2025				250	150	100	40.0%	100	40.0%
10	FM 621	2025				250	116	134	53.6%	134	53.6%
11	Kingsbury Pipeline Phase II 8" Line	2025				761	261	500	65.7%	500	65.7%
12		2026					-	-	0.0%	-	0.0%
13	El Camino Pump Replacement	2026				1,273	920	353	27.7%	353	27.7%
14	3353, FM 1979, & 244A 4" Line	2026				100	76	24	24.0%	24	24.0%
15	Swanson/Huber 4" Line	2026				100	13	87	87.0%	87	87.0%
16	Redwood - FM 1978 12" Line	2026				1,244	244	1,000	80.4%	1,000	80.4%
17	FM 3353 4" Line	2026				101	31	70	69.3%	70	69.3%
18	Birmensdorff 6" Line	2026				250	141	109	43.6%	109	43.6%
19	Watts Rd 4" Line	2027				100	13	87	87.0%	87	87.0%
20	Ilka Station Rehab	2027				1,184	855	329	27.8%	329	27.8%
21	Old Lehman Rd 8" Line	2027				1,957	457	1,500	76.6%	1,500	76.6%
22	FM 1104 6" Line	2027				250	29	221	88.4%	221	88.4%
23	FM 2623 4" Line	2027				100	28	72	72.0%	72	72.0%
24	Redwood - Emerald Acres 4" Line	2027				100	22	78	78.0%	78	78.0%
25	Redwood - Crossover Rd 4" Line	2027				100	73	27	27.0%	27	27.0%
26	Redwood - Mesquite 4" Line	2027				100	35	65	65.0%	65	65.0%
27	Redwood - Fir 4" Line	2027				100	11	89	89.0%	89	89.0%
28	Dreidbrodt 6" Line	2027				251	191	60	23.9%	60	23.9%
29	Allison Rd 4" Line	2027				100	35	65	65.0%	65	65.0%
30	Grant Harris	2028				100	10	90	90.0%	90	90.0%
31	FM 3353 & 1339 12" Line	2028				1,026	26	1,000	97.5%	1,000	97.5%
32		2028				-	-	-	0.0%	-	0.0%
33	Country Acres 4" & 6" Line	2029				250	129	121	48.4%	121	48.4%
34		2030				-	-	-	0.0%	-	0.0%
35	Gravel Pit	2031				100	21	79	79.0%	79	79.0%
36	Woodrow Center 4" Line	2031				100	9	91	91.0%	91	91.0%
37	Project					-	-	-	0.0%		0.0%
38	Project					-	-	-	0.0%		0.0%
	Total					**19,236**		**11,061**		**11,061**	**57.5%**
								8,175			

(1) Source: City Engineers M&S Engineering - Elevated Storage Master Plan, January 2021

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Forecast
2022 - 2031

Input Area -- Capital Improvement Plan -- Water
Scenario: 2021 01 31 Report
CRYSTAL CLEAR SPECIAL UTILITY DISTRICT

Input Area - Growth vs. Replacement

Inflator **3.0%**

			Treatment/ Dist/Admin/ Customer	Depreciable Lifespan (Years)	Percent Grant Funded	Total Percent Growth	2022 - 2031 Percent Growth	2022 - 2031 Percent Replacement	Total Lifespan Total CIP	Total Lifespan Total Growth	2022 - 2031 Total Growth	2022 - 2031 Total Replacement
		Water Supply										
2023	1	Offerman Pump Station & Transmission Main	Treat/Supply	50	0.0%	100.0%	44.8%	0.0%	$ 3,214,000	$ 3,214,000	$ 1,438,988	$ -
2028	2	Trinity Well Fields Development	Treat/Supply	50	0.0%	100.0%	21.5%	0.0%	10,880,000	10,880,000	2,334,197	-
2030	3	Wilcox Well Field Development	Treat/Supply	50	0.0%	100.0%	14.8%	0.0%	20,568,100	20,568,100	3,040,064	-
	4	Project	Treat/Supply	50	0.0%	100.0%	0.0%	0.0%	-	-	-	-
	5	Project	Treat/Supply	50	0.0%	100.0%	0.0%	0.0%	-	-	-	-
	6	Project	Treat/Supply	50	0.0%	100.0%	0.0%	0.0%	-	-	-	-
	7	Project	Treat/Supply	50	0.0%	100.0%	0.0%	0.0%	-	-	-	-
	8	Project	Treat/Supply	50	0.0%	100.0%	0.0%	0.0%	-	-	-	-
	9	Project	Treat/Supply	50	0.0%	100.0%	0.0%	0.0%	-	-	-	-
	10	Project	Treat/Supply	50	0.0%	100.0%	0.0%	0.0%	-	-	-	-
		Subtotal							**34,662,100**	**34,662,100**	**6,813,249**	**-**
		Inflation Adjusted Subtotal							**42,883,618**	**42,883,618**	**8,429,287**	**-**
										100.0%	**19.7%**	**0.0%**
		Water Distribution										
2022	1	Zorn Elevated & Fill Line	Distribution	50	0.0%	61.9%	61.9%	38.1%	2,800,000	1,733,333	1,733,333	1,066,667
2023	2	Center Point & Huber Rd 4" Line	Distribution	50	0.0%	78.0%	78.0%	22.0%	679,400	529,932	529,932	149,468
2023	3	IH-35 Bore 8" Line	Distribution	50	0.0%	65.6%	65.6%	34.4%	279,600	183,304	183,304	96,296
2023	4	0	Distribution	50	0.0%	0.0%	0.0%	100.0%	-	-	-	-
2023	5	Herber Tank & Fill Line	Distribution	50	0.0%	44.3%	44.3%	55.7%	1,119,000	495,544	495,544	623,456
2024	6	Bylerpool 2" & 4" Line	Distribution	50	0.0%	43.0%	43.0%	57.0%	1,582,700	680,561	680,561	902,139
2024	7	Hays Caldwell Tank & Fill Line	Distribution	50	0.0%	31.9%	31.9%	68.1%	2,319,800	740,362	740,362	1,579,438
2024	8	Tschoepe Rd 6" Line	Distribution	50	0.0%	86.0%	86.0%	14.0%	778,400	669,424	669,424	108,976
2025	9	Crest Dr - Ridge Dr 4" & 6" Line	Distribution	50	0.0%	40.0%	40.0%	60.0%	1,763,600	705,440	705,440	1,058,160
2025	10	FM 621	Distribution	50	0.0%	53.6%	53.6%	46.4%	2,309,100	1,237,678	1,237,678	1,071,422
2025	11	Kingsbury Pipeline Phase II 8" Line	Distribution	50	0.0%	65.7%	65.7%	34.3%	448,000	294,350	294,350	153,650
2026	12	0	Distribution	50	0.0%	0.0%	0.0%	100.0%	-	-	-	-
2026	13	El Camino Pump Replacement	Distribution	30	0.0%	27.7%	27.7%	72.3%	743,700	206,226	206,226	537,474
2026	14	3353, FM 1979, & 244A 4" Line	Distribution	50	0.0%	24.0%	24.0%	76.0%	878,400	210,816	210,816	667,584
2026	15	Swanson/Huber 4" Line	Distribution	50	0.0%	87.0%	87.0%	13.0%	840,500	731,235	731,235	109,265
2026	16	Redwood - FM 1978 12" Line	Distribution	50	0.0%	80.4%	80.4%	19.6%	1,116,800	897,749	897,749	219,051
2026	17	FM 3353 4" Line	Distribution	50	0.0%	69.3%	69.3%	30.7%	758,800	525,901	525,901	232,899
2026	18	Birmensdorff 6" Line	Distribution	50	0.0%	43.6%	43.6%	56.4%	353,300	154,039	154,039	199,261
2027	19	Watts Rd 4" Line	Distribution	50	0.0%	87.0%	87.0%	13.0%	620,800	540,096	540,096	80,704
2027	20	Ilka Station Rehab	Distribution	50	0.0%	27.8%	27.8%	72.2%	510,400	141,826	141,826	368,574
2027	21	Old Lehman Rd 8" Line	Distribution	50	0.0%	76.6%	76.6%	23.4%	101,900	78,104	78,104	23,796
2027	22	FM 1104 6" Line	Distribution	50	0.0%	88.4%	88.4%	11.6%	462,200	408,585	408,585	53,615
2027	23	FM 2623 4" Line	Distribution	50	0.0%	72.0%	72.0%	28.0%	432,400	311,328	311,328	121,072
2027	24	Redwood - Emerald Acres 4" Line	Distribution	50	0.0%	78.0%	78.0%	22.0%	142,900	111,462	111,462	31,438
2027	25	Redwood - Crossover Rd 4" Line	Distribution	50	0.0%	27.0%	27.0%	73.0%	285,800	77,166	77,166	208,634
2027	26	Redwood - Mesquite 4" Line	Distribution	50	0.0%	65.0%	65.0%	35.0%	165,800	107,770	107,770	58,030
2027	27	Redwood - Fir 4" Line	Distribution	50	0.0%	89.0%	89.0%	11.0%	263,100	234,159	234,159	28,941
2027	28	Dreidbrodt 6" Line	Distribution	50	0.0%	23.9%	23.9%	76.1%	1,244,700	297,538	297,538	947,162
2027	29	Allison Rd 4" Line	Distribution	50	0.0%	65.0%	65.0%	35.0%	787,700	512,005	512,005	275,695
2028	30	Grant Harris	Distribution	50	0.0%	90.0%	90.0%	10.0%	154,800	139,320	139,320	15,480
2028	31	FM 3353 & 1339 12" Line	Distribution	50	0.0%	97.5%	97.5%	2.5%	246,400	240,156	240,156	6,244
2028	32	0	Distribution	50	0.0%	0.0%	0.0%	100.0%	-	-	-	-
2029	33	Country Acres 4" & 6" Line	Distribution	50	0.0%	48.4%	48.4%	51.6%	538,200	260,489	260,489	277,711

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Forecast 2022 - 2031			Treatment/ Dist/Admin/ Customer	Depreciable Lifespan (Years)	Percent Grant Funded	Total Percent Growth	2022 - 2031 Percent Growth	2022 - 2031 Percent Replacement	Total Lifespan Total CIP	Total Lifespan Total Growth	2022 - 2031 Total Growth	2022 - 2031 Total Replacement
Input Area -- Capital Improvement Plan -- Water												
Scenario:		***2021 01 31 Report***										
CRYSTAL CLEAR SPECIAL UTILITY DISTRICT			**Input Area - Growth vs. Replacement**									
2030	34	0	Distribution	50	0.0%	0.0%	0.0%	100.0%	-	-	-	-
2031	35	Gravel Pit	Distribution	50	0.0%	79.0%	79.0%	21.0%	1,575,100	1,244,329	1,244,329	330,771
2031	36	Woodrow Center 4" Line	Distribution	50	0.0%	91.0%	91.0%	9.0%	543,400	494,494	494,494	48,906
0	37	Project	Distribution	50	0.0%	0.0%	0.0%	100.0%	-	-	-	-
0	38	Project	Distribution	50	0.0%	0.0%	0.0%	100.0%	-	-	-	-
									26,846,700	**15,194,720**	**15,194,720**	**11,651,980**
									29,848,546	**16,893,708**	**16,893,708**	**12,954,838**
TOTAL WATER DISTRIBUTION CIP (Inflation Adjusted)									**29,848,546**	**16,893,708**	- **16,893,708**	**12,954,838**
Allocation to:												
Treatment								0.0%	-	-	-	-
Distribution								100.0%	29,848,546	16,893,708	16,893,708	12,954,838
Administration								0.0%	-	-	-	-
Customer								0.0%	-	-	-	-
Total								100.0%	**29,848,546**	**16,893,708**	**16,893,708**	**12,954,838**
										56.6%	**56.6%**	**43.4%**
								CIP in Nominal $	**61,508,800**			

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Forecast
2022 - 2031

			0	1	2	3	4	5	6	7	8	9
			2022	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
		Input Area -- Capital Improvement Plan -- Water										
		Scenario: ***2021 01 31 Report***										
		CRYSTAL CLEAR SPECIAL UTILITY DISTRICT	**Input Area - Annual Capital Expenditures**									
		Inflator **3.0%**										
		Water Supply										
2023	1	Offerman Pump Station & Transmission Main	-	$ 3,214,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2028	2	Trinity Well Fields Development	-	-	-	-	-	-	5,930,400	4,949,600	-	-
2030	3	Wilcox Well Field Development	-	-	-	-	-	-	-	-	11,370,100	9,198,000
	4	Project	-	-	-	-	-	-	-	-	-	-
	5	Project	-	-	-	-	-	-	-	-	-	-
	6	Project	-	-	-	-	-	-	-	-	-	-
	7	Project	-	-	-	-	-	-	-	-	-	-
	8	Project	-	-	-	-	-	-	-	-	-	-
	9	Project	-	-	-	-	-	-	-	-	-	-
	10	Project	-	-	-	-	-	-	-	-	-	-
		Subtotal	**-**	**3,214,000**	**-**	**-**	**-**	**-**	**5,930,400**	**4,949,600**	**11,370,100**	**9,198,000**
		Inflation Adjusted Subtotal	**-**	**3,310,420**	**-**	**-**	**-**	**-**	**7,081,208**	**6,087,384**	**14,403,303**	**12,001,304**
		Water Distribution										
2022	1	Zorn Elevated & Fill Line	2,800,000	-	-	-	-	-	-	-	-	-
2023	2	Center Point & Huber Rd 4" Line	-	679,400	-	-	-	-	-	-	-	-
2023	3	IH-35 Bore 8" Line	-	279,600	-	-	-	-	-	-	-	-
2023	4	0	-	-	-	-	-	-	-	-	-	-
2023	5	Herber Tank & Fill Line		1,119,000								
2024	6	Bylerpool 2" & 4" Line	-	-	1,582,700	-	-	-	-	-	-	-
2024	7	Hays Caldwell Tank & Fill Line	-	-	2,319,800	-	-	-	-	-	-	-
2024	8	Tschoepe Rd 6" Line	-	-	778,400	-	-	-	-	-	-	-
2025	9	Crest Dr - Ridge Dr 4" & 6" Line	-	-	-	1,763,600	-	-	-	-	-	-
2025	10	FM 621	-	-	-	2,309,100	-	-	-	-	-	-
2025	11	Kingsbury Pipeline Phase II 8" Line	-	-	-	448,000	-	-	-	-	-	-
2026	12	0	-	-	-	-	-	-	-	-	-	-
2026	13	El Camino Pump Replacement	-	-	-	-	743,700	-	-	-	-	-
2026	14	3353, FM 1979, & 244A 4" Line	-	-	-	-	878,400	-	-	-	-	-
2026	15	Swanson/Huber 4" Line	-	-	-	-	840,500	-	-	-	-	-
2026	16	Redwood - FM 1978 12" Line	-	-	-	-	1,116,800	-	-	-	-	-
2026	17	FM 3353 4" Line	-	-	-	-	758,800	-	-	-	-	-
2026	18	Birmensdorff 6" Line	-	-	-	-	353,300	-	-	-	-	-
2027	19	Watts Rd 4" Line	-	-	-	-	-	620,800	-	-	-	-
2027	20	Ilka Station Rehab	-	-	-	-	-	510,400	-	-	-	-
2027	21	Old Lehman Rd 8" Line	-	-	-	-	-	101,900	-	-	-	-
2027	22	FM 1104 6" Line	-	-	-	-	-	462,200	-	-	-	-
2027	23	FM 2623 4" Line	-	-	-	-	-	432,400	-	-	-	-
2027	24	Redwood - Emerald Acres 4" Line	-	-	-	-	-	142,900	-	-	-	-
2027	25	Redwood - Crossover Rd 4" Line	-	-	-	-	-	285,800	-	-	-	-
2027	26	Redwood - Mesquite 4" Line	-	-	-	-	-	165,800	-	-	-	-
2027	27	Redwood - Fir 4" Line	-	-	-	-	-	263,100	-	-	-	-
2027	28	Dreidbrodt 6" Line	-	-	-	-	-	1,244,700	-	-	-	-
2027	29	Allison Rd 4" Line	-	-	-	-	-	787,700	-	-	-	-
2028	30	Grant Harris	-	-	-	-	-	-	154,800	-	-	-
2028	31	FM 3353 & 1339 12" Line	-	-	-	-	-	-	246,400	-	-	-
2028	32	0	-	-	-	-	-	-	-	-	-	-
2029	33	Country Acres 4" & 6" Line	-	-	-	-	-	-	-	538,200	-	-

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Forecast
2022 - 2031

			0	1	2	3	4	5	6	7	8	9
			2022	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
		Input Area -- Capital Improvement Plan -- Water										
		Scenario: 2021 01 31 Report										
		CRYSTAL CLEAR SPECIAL UTILITY DISTRICT	**Input Area - Annual Capital Expenditures**									
2030	34	0	-	-	-	-	-	-	-	-	-	-
2031	35	Gravel Pit	-	-	-	-	-	-	-	-	-	1,575,100
2031	36	Woodrow Center 4" Line	-	-	-	-	-	-	-	-	-	543,400
0	37	Project	-	-	-	-	-	-	-	-	-	-
0	38	Project	-	-	-	-	-	-	-	-	-	-
			2,800,000	**2,078,000**	**4,680,900**	**4,520,700**	**4,691,500**	**5,017,700**	**401,200**	**538,200**	**-**	**2,118,500**
			2,800,000	**2,140,340**	**4,965,967**	**4,939,891**	**5,280,325**	**5,816,890**	**479,054**	**661,918**	**-**	**2,764,162**
		TOTAL WATER DISTRIBUTION CIP (Inflation Adjusted)	**2,800,000**	**2,140,340**	**4,965,967**	**4,939,891**	**5,280,325**	**5,816,890**	**479,054**	**661,918**	**-**	**2,764,162**
		Allocation to:										
		Treatment	-	-	-	-	-	-	-	-	-	-
		Distribution	2,800,000	2,140,340	4,965,967	4,939,891	5,280,325	5,816,890	479,054	661,918	-	2,764,162
		Administration	-	-	-	-	-	-	-	-	-	-
		Customer	-	-	-	-	-	-	-	-	-	-
		Total	**2,800,000**	**2,140,340**	**4,965,967**	**4,939,891**	**5,280,325**	**5,816,890**	**479,054**	**661,918**	**-**	**2,764,162**

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Input Area -- Acquisition Fee CIP Debt Funding Assumptions
Scenario: 2021 01 31 Report

		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total Period
Reserve Fund												
Reserve Fund Beginning Balance		$ -	$ 1,682,099	$ 70,599	$ 1,753,404	$ 3,453,037	$ 5,169,666	$ 6,903,461	$ 1,573,387	$ 183,836	$ 464,471	
Plus Interest	1.0%	-	16,821	706	17,534	34,530	51,697	69,035	15,734	1,838	4,645	
Plus Contributions from Water Acquisition Fee		1,682,099	1,682,099	1,682,099	1,682,099	1,682,099	1,682,099	1,682,099	1,682,099	1,682,099	902,556	
Plus Amount Funded by Other Sources (Grants, Other)		-	-	-	-	-	-	-	-	-	-	
Plus Amount Funded by Long-Term Debt		-	-	-	-	-	-	-	3,000,000	13,000,000	11,000,000	
Total Funds Available		1,682,099	3,381,019	1,753,404	3,453,037	5,169,666	6,903,461	8,654,595	6,271,220	14,867,773	12,371,672	
Less Capital Improvement Plan		-	3,310,420	-	-	-	-	7,081,208	6,087,384	14,403,303	12,001,304	
Reserve Fund Ending Balance		1,682,099	70,599	1,753,404	3,453,037	5,169,666	6,903,461	1,573,387	183,836	464,471	370,368	
Forecast Debt Issues												
Principal (1)		-	-	-	-	-	-	-	3,000,000	13,000,000	11,000,000	$ 27,000,000
Closing Costs/Reserves (1)		6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	
Total		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 3,180,000**	**$ 13,780,000**	**$ 11,660,000**	**$ 28,620,000**
Growth-Related Debt Service												
Percent Growth-Related		19.7%	19.7%	19.7%	19.7%	19.7%	19.7%	19.7%	19.7%	19.7%	19.7%	19.7%
Total Growth-Related Debt		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 625,067	$ 2,708,623	$ 2,291,912	$ 5,625,602
Funding Assumptions												
Year of Issuance		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
Interest Rate		4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Term (Years)		25	25	25	25	25	25	25	25	25	25	
Total Interest (3)												
Total Interest -- Actual		-	-	-	-	-	-	-	49,405	108,345	-	157,750
Total Interest -- NPV		-	-	-	-	-	-	-	49,405	108,345	-	157,750
Growth-Related Interest												
Total Interest -- Actual		-	-	-	-	-	-	-	9,711	21,296	-	**31,008**
Total Interest -- NPV		-	-	-	-	-	-	-	9,711	21,296	-	**31,008**

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Input Area -- Acquisition Fee Forecast Debt Service
Scenario: 2021 01 31 Report

Series	2022
Total Water Principal Funding Growth During Impact Fee Period	$ -
Term of Debt	25
Interest Rate	4.0%

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE
2022	$ -				$ -		
2023	-	-	-	-	-		
2024	-	-	-	-	-		
2025	-	-	-	-	-		
2026	-	-	-	-	-		
2027	-	-	-	-	-		
2028	-	-	-	-	-		
2029	-	-	-	-	-		
2030	-	-	-	-	-		
2031	-	-	-	-	-		
2032							
Treatment	100.0%		-	-			
Distribution	0.0%		-	-			
TOTAL	100.0%		-	-			
NPV		-	-	-		6,109	-

Series	2023
Total Water Principal Funding Growth During Impact Fee Period	$ -
Term of Debt	25
Interest Rate	4.0%

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE
2022							
2023	$ -	-	-	-	-		
2024	-	-	-	-	-		
2025	-	-	-	-	-		
2026	-	-	-	-	-		
2027	-	-	-	-	-		
2028	-	-	-	-	-		
2029	-	-	-	-	-		
2030	-	-	-	-	-		
2031	-	-	-	-	-		
2032							
Treatment	100.0%		-	-			
Distribution	0.0%		-	-			
TOTAL			-	-			
NPV		-	-	-		6,109	-

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE

Input Area -- Acquisition Fee Forecast Debt Service
Scenario: 2021 01 31 Report

Series		2024
Total Water Principal Funding Growth During Impact Fee Period	$	-
Term of Debt		25
Interest Rate		4.0%

2022							
2023							
2024	$ -				-		
2025	-	-	-	-	-		
2026	-	-	-	-	-		
2027	-	-	-	-	-		
2028	-	-	-	-	-		
2029	-	-	-	-	-		
2030	-	-	-	-	-		
2031	-	-	-	-	-		
2032							
Treatment	100.0%		-	-			
Distribution	0.0%		-	-			
TOTAL			-	-			
NPV		-	-	-		6,109	-

Series		2025
Total Water Principal	$	-
Term of Debt		25
% Growth During Impact Fee Period		20%
Interest Rate		4.0%

2022							
2023							
2024							
2025	$ -				-		
2026	-	-	-	-	-		
2027	-	-	-	-	-		
2028	-	-	-	-	-		
2029	-	-	-	-	-		
2030	-	-	-	-	-		
2031	-	-	-	-	-		
2032							
Treatment	100.0%		-	-			
Distribution	0.0%		-	-			
TOTAL			-	-			
NPV		-	-	-		6,109	-

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE

Input Area -- Acquisition Fee Forecast Debt Service
Scenario: 2021 01 31 Report

Series		2026
Total Water Principal	$	-
Term of Debt		25
% Growth During Impact Fee Period		20%
Interest Rate		4.0%

2022							
2023							
2024							
2025							
2026	$ -				-		
2027	-	-	-	-	-		
2028	-	-	-	-	-		
2029	-	-	-	-	-		
2030	-	-	-	-	-		
2031	-	-	-	-	-		
2032							
Treatment	100.0%		-	-			
Distribution	0.0%		-	-			
TOTAL			-	-			
NPV		-	-	-		6,109	-

Series		2027
Total Water Principal	$	-
Term of Debt		25
% Growth During Impact Fee Period		20%
Interest Rate		4.0%

2022							
2023							
2024							
2025							
2026							
2027	$ -				-		
2028	-	-	-	-	-		
2029	-	-	-	-	-		
2030	-	-	-	-	-		
2031	-	-	-	-	-		
2032							
Treatment	100.0%		-	-			
Distribution	0.0%		-	-			
TOTAL			-	-			
NPV		-	-	-		6,109	-

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE

Input Area -- Acquisition Fee Forecast Debt Service
Scenario: 2021 01 31 Report

Series		2028
Total Water Principal	$	-
Term of Debt		25
% Growth During Impact Fee Period		20%
Interest Rate		4.0%

2022							
2023							
2024							
2025							
2026							
2027							
2028	$ -				-		
2029	-	-	-	-	-		
2030	-	-	-	-	-		
2031	-	-	-	-	-		
2032							
Treatment	100.0%		-	-			
Distribution	0.0%		-	-			
TOTAL			-	-			
NPV		-	-	-		6,109	-

Series		2029
Total Water Principal	$	3,180,000
% Growth During Impact Fee Period		20%
Term of Debt		25
Interest Rate		4.0%

2022							
2023							
2024							
2025							
2026							
2027							
2028							
2029	$ 625,067				625,067		
2030	625,067	15,009	25,003	40,012	610,058		
2031	610,058	15,609	24,402	40,012	594,448		
2032							
Treatment	100.0%		49,405	80,024			
Distribution	0.0%		-	-			
TOTAL			49,405	80,024			
NPV		30,619	49,405	80,024		6,109	8.09

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE

Input Area -- Acquisition Fee Forecast Debt Service
Scenario: 2021 01 31 Report

Series		2030
Total Water Principal	$	13,780,000
% Growth During Impact Fee Period		20%
Term of Debt		25
Interest Rate		4.0%

2022							
2023							
2024							
2025							
2026							
2027							
2028							
2029							
2030	$ 2,708,623				2,708,623		
2031	2,708,623	65,039	108,345	173,384	2,643,584		
2032							
Treatment	100.0%		108,345	173,384			
Distribution	0.0%		-	-			
TOTAL			108,345	173,384			
NPV		65,039	108,345	173,384		6,109	17.74

Series		2031
Total Water Principal	$	11,660,000
% Growth During Impact Fee Period		20%
Term of Debt		25
Interest Rate		4.00%

2022							
2023							
2024							
2025							
2026							
2027							
2028							
2029							
2030							
2031							
2032	$ 2,291,912				2,291,912		
Treatment	0.0%		-	-			
Distribution	100.0%		-	-			
TOTAL			-	-			
NPV		-	-	-		6,109	-

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE
Input Area -- Acquisition Fee Forecast Debt Service							
Scenario:	***2021 01 31 Report***						
			Series				
			Total Water Principal				
			Term of Debt				
			Interest Rate				
2022	$ -	$ -	$ -	$ -	$ -		
2023	-	-	-	-	-		
2024	-	-	-	-	-		
2025	-	-	-	-	-		
2026	-	-	-	-	-		
2027	-	-	-	-	-		
2028	-	-	-	-	-		
2029	-	-	-	-	-		
2030	-	-	-	-	-		
2031	-	-	-	-	-		
2032	-	-	-	-	-		
Treatment	100.0%		-	-			
Distribution	0.0%		-	-			
TOTAL			-	-			
NPV		-	-	-		6,109	-

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE
			Series				
			Total Water Principal				
			Term of Debt				
			Interest Rate				
2022	$ -	$ -	$ -	$ -	$ -		
2023	-	-	-	-	-		
2024	-	-	-	-	-		
2025	-	-	-	-	-		
2026	-	-	-	-	-		
2027	-	-	-	-	-		
2028	-	-	-	-	-		
2029	-	-	-	-	-		
2030	-	-	-	-	-		
2031	-	-	-	-	-		
2032							
Treatment	100.0%		-				
Distribution	0.0%		-				
TOTAL			-	-			
NPV		-	-	-		6,109	-

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Input Area -- Acquisition Fee Forecast Debt Service
Scenario: 2021 01 31 Report

Total

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE
Series							TOTAL
Discount Rate							3.0%
2022		$ -	$ -	$ -			
2023		-	-	-			
2024		-	-	-			
2025		-	-	-			
2026		-	-	-			
2027		-	-	-			
2028		-	-	-			
2029		-	-	-			
2030		15,009	25,003	40,012			
2031		80,649	132,747	213,396			
2032		-	-	-			
Treatment			157,750	253,408			
Distribution			-	-			
TOTAL		95,658	157,750	253,408			
NPV		71,514	117,939	189,452		$	25.82

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Input Area -- Acquisition Fee Debt Credit
Scenario: 2021 01 31 Report

Planning Period Debt Service			
	Total Principal and Interest	$	189,452
	Funded through User Rates:		
	Percent		100.0%
	Total		189,452
Credit Per LUE Per Month			
	Monthly Bills from Total LUEs during Planning Period		1,200,404
	Planning Period Credit per LUE Per Month	**$**	**0.16**
Cumulative Credit			
	Cumulative New LUE Monthly Bills		419,204
	Credit per EDU Per Month	$	0.16
	Cumulative Credit		**66,160**

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Input Area -- Impact Fee CIP Debt Funding Assumptions
Scenario: 2021 01 31 Report

		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total Period
Reserve Fund												
Reserve Fund Beginning Balance		$ -	$ 1,055,049	$ 780,308	$ 7,677,193	$ 4,669,123	$ 4,290,539	$ 371,604	$ 1,751,315	$ 2,961,959	$ 4,846,627	
Plus Interest	1.0%	-	10,550	7,803	76,772	46,691	42,905	3,716	17,513	29,620	48,466	
Plus Contributions from Water Fee		1,855,049	1,855,049	1,855,049	1,855,049	1,855,049	1,855,049	1,855,049	1,855,049	1,855,049	995,355	
Plus Amount Funded by Other Sources (Grants, Other		-	-	-	-	-	-	-	-	-	-	
Plus Amount Funded by Long-Term Debt		2,000,000	-	10,000,000	-	3,000,000	-	-	-	-	-	
Total Funds Available		3,855,049	2,920,648	12,643,160	9,609,014	9,570,863	6,188,493	2,230,369	3,623,877	4,846,627	5,890,449	
Less Capital Improvement Plan		2,800,000	2,140,340	4,965,967	4,939,891	5,280,325	5,816,890	479,054	661,918	-	2,764,162	
Reserve Fund Ending Balance		1,055,049	780,308	7,677,193	4,669,123	4,290,539	371,604	1,751,315	2,961,959	4,846,627	3,126,287	
Forecast Debt Issues												
Principal (1)		2,000,000	-	10,000,000	-	3,000,000	-	-	-	-	-	$ 15,000,000
Closing Costs/Reserves (1)		6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	
Total		**$ 2,120,000**	**$ -**	**$ 10,600,000**	**$ -**	**$ 3,180,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 15,900,000**
Growth-Related Debt Service												
Percent Growth-Related		56.6%	56.6%	56.6%	56.6%	56.6%	56.6%	56.6%	56.6%	56.6%	56.6%	56.6%
Total Growth-Related Debt		$ 1,199,880	$ -	$ 5,999,398	$ -	$ 1,799,819	$ -	$ -	$ -	$ -	$ -	$ 8,999,097
Funding Assumptions												
Year of Issuance		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
Interest Rate		4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Term (Years)		25	25	25	25	25	25	25	25	25	25	
Total Interest (3)												
Total Interest -- Actual		386,354	5,092,725	1,550,426	-	341,972	-	-	-	-	-	7,371,476
Total Interest -- NPV		386,354	5,092,725	1,550,426	-	341,972	-	-	-	-	-	7,371,476
Growth-Related Interest												
Total Interest -- Actual		218,669	2,882,385	877,511	-	193,549	-	-	-	-	-	**4,172,115**
Total Interest -- NPV		218,669	2,882,385	877,511	-	193,549	-	-	-	-	-	**4,172,115**

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Input Area -- Forecast Impact Fee Debt Service
Scenario: 2021 01 31 Report

Series	2022
Total Water Principal Funding Growth During Impact Fee Period	$ 1,199,880
Term of Debt	25
Interest Rate	4.0%

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE
2022	$ 1,199,880				$ 1,199,880		
2023	1,199,880	28,811	47,995	76,807	1,171,068		
2024	1,171,068	29,964	46,843	76,807	1,141,104		
2025	1,141,104	31,162	45,644	76,807	1,109,942		
2026	1,109,942	32,409	44,398	76,807	1,077,533		
2027	1,077,533	33,705	43,101	76,807	1,043,827		
2028	1,043,827	35,054	41,753	76,807	1,008,774		
2029	1,008,774	36,456	40,351	76,807	972,318		
2030	972,318	37,914	38,893	76,807	934,404		
2031	934,404	39,430	37,376	76,807	894,974		
2032							
Treatment	0.0%		-	-			
Distribution	100.0%		386,354	691,260			
TOTAL	100.0%		386,354	691,260			
NPV		249,330	386,354	691,260		11,061	34.93

Series	Outstanding Debt
Total Water Principal Funding Growth During Impact Fee Period	$ -
Term of Debt	25
Interest Rate	4.0%

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE
2022	$ 22,267,626	$ 846,885	$ 620,849	1,467,735	21,420,741		
2023	21,420,741	863,292	600,766	1,464,058	20,557,449		
2024	20,557,449	884,435	579,189	1,463,624	19,673,014		
2025	19,673,014	912,353	555,373	1,467,726	18,760,661		
2026	18,760,661	935,086	529,897	1,464,983	17,825,575		
2027	17,825,575	964,675	502,665	1,467,339	16,860,901		
2028	16,860,901	995,164	473,835	1,468,999	15,865,737		
2029	15,865,737	1,020,599	442,951	1,463,550	14,845,138		
2030	14,845,138	1,058,029	410,627	1,468,656	13,787,109		
2031	13,787,109	1,091,505	376,573	1,468,077	12,695,604		
2032							
Treatment	0.0%		-	-			
Distribution	100.0%		5,092,725	14,664,747			
TOTAL			5,092,725	14,664,747			
NPV		9,572,022	5,092,725	14,664,747		11,061	460.42

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Input Area -- Forecast Impact Fee Debt Service
Scenario: 2021 01 31 Report

Series		2024
Total Water Principal Funding Growth During Impact Fee Period	$	5,999,398
Term of Debt		25
Interest Rate		4.0%

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE
2022							
2023							
2024	$ 5,999,398				5,999,398		
2025	5,999,398	144,057	239,976	384,033	5,855,341		
2026	5,855,341	149,820	234,214	384,033	5,705,521		
2027	5,705,521	155,812	228,221	384,033	5,549,709		
2028	5,549,709	162,045	221,988	384,033	5,387,664		
2029	5,387,664	168,527	215,507	384,033	5,219,137		
2030	5,219,137	175,268	208,765	384,033	5,043,869		
2031	5,043,869	182,278	201,755	384,033	4,861,591		
2032							
Treatment	0.0%		-	-			
Distribution	100.0%		1,550,426	2,688,233			
TOTAL			1,550,426	2,688,233			
NPV		1,137,807	1,550,426	2,688,233		11,061	140.17

Series		2025
Total Water Principal	$	-
Term of Debt		25
% Growth During Impact Fee Period		57%
Interest Rate		4.0%

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE
2022							
2023							
2024							
2025	$ -				-		
2026	-	-	-	-	-		
2027	-	-	-	-	-		
2028	-	-	-	-	-		
2029	-	-	-	-	-		
2030	-	-	-	-	-		
2031	-	-	-	-	-		
2032							
Treatment	0.0%		-	-			
Distribution	100.0%		-	-			
TOTAL			-	-			
NPV		-	-	-		11,061	-

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Input Area -- Forecast Impact Fee Debt Service
Scenario: 2021 01 31 Report

Series		2026
Total Water Principal	$	3,180,000
Term of Debt		25
% Growth During Impact Fee Period		57%
Interest Rate		4.0%

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE
2022							
2023							
2024							
2025							
2026	$ 1,799,819				1,799,819		
2027	1,799,819	43,217	71,993	115,210	1,756,602		
2028	1,756,602	44,946	70,264	115,210	1,711,656		
2029	1,711,656	46,744	68,466	115,210	1,664,913		
2030	1,664,913	48,613	66,597	115,210	1,616,299		
2031	1,616,299	50,558	64,652	115,210	1,565,741		
2032							
Treatment	0.0%		-	-			
Distribution	100.0%		341,972	576,050			
TOTAL			341,972	576,050			
NPV		234,078	341,972	576,050		11,061	30.92

Series		2027
Total Water Principal	$	-
Term of Debt		25
% Growth During Impact Fee Period		57%
Interest Rate		4.0%

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE
2022							
2023							
2024							
2025							
2026							
2027	$ -				-		
2028	-	-	-	-	-		
2029	-	-	-	-	-		
2030	-	-	-	-	-		
2031	-	-	-	-	-		
2032							
Treatment	0.0%		-	-			
Distribution	100.0%		-	-			
TOTAL			-	-			
NPV		-	-	-		11,061	-

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Input Area -- Forecast Impact Fee Debt Service
Scenario: 2021 01 31 Report

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE
2022							
2023							
2024							
2025							
2026							
2027							
2028	$ -				-		
2029	-	-	-	-	-		
2030	-	-	-	-	-		
2031	-	-	-	-	-		
2032							
Treatment	0.0%		-	-			
Distribution	100.0%		-	-			
TOTAL			-	-			
NPV		-	-	-		11,061	-

Series		2028
Total Water Principal	$	-
Term of Debt		25
% Growth During Impact Fee Period		57%
Interest Rate		4.0%

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE
2022							
2023							
2024							
2025							
2026							
2027							
2028							
2029	$ -				-		
2030	-	-	-	-	-		
2031	-	-	-	-	-		
2032							
Treatment	0.0%		-	-			
Distribution	100.0%		-	-			
TOTAL			-	-			
NPV		-	-	-		11,061	-

Series		2029
Total Water Principal	$	-
% Growth During Impact Fee Period		57%
Term of Debt		25
Interest Rate		4.0%

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE
Input Area -- Forecast Impact Fee Debt Service							
Scenario:	***2021 01 31 Report***						
Series						2030	
Total Water Principal					$	-	
% Growth During Impact Fee Period						57%	
Term of Debt						25	
Interest Rate						4.0%	
2022							
2023							
2024							
2025							
2026							
2027							
2028							
2029							
2030	$ -				-		
2031	-	-	-	-	-		
2032							
Treatment	0.0%		-	-			
Distribution	100.0%		-	-			
TOTAL			-	-			
NPV		-	-	-		11,061	-

Series						2031	
Total Water Principal					$	-	
% Growth During Impact Fee Period						57%	
Term of Debt						25	
Interest Rate						4.00%	
2022							
2023							
2024							
2025							
2026							
2027							
2028							
2029							
2030							
2031							
2032	$ -				-		
Treatment	0.0%		-	-			
Distribution	100.0%		-	-			
TOTAL			-	-			
NPV		-	-	-		11,061	-

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE
Input Area -- Forecast Impact Fee Debt Service							
Scenario:	***2021 01 31 Report***						
			Series				
			Total Water Principal				
			Term of Debt				
			Interest Rate				
2022	$ -	$ -	$ -	$ -	$ -		
2023	-	-	-	-	-		
2024	-	-	-	-	-		
2025	-	-	-	-	-		
2026	-	-	-	-	-		
2027	-	-	-	-	-		
2028	-	-	-	-	-		
2029	-	-	-	-	-		
2030	-	-	-	-	-		
2031	-	-	-	-	-		
2032	-	-	-	-	-		
Treatment	0.0%		-	-			
Distribution	100.0%		-	-			
TOTAL			-	-			
NPV		-	-	-		11,061	-

			Series				
			Total Water Principal				
			Term of Debt				
			Interest Rate				
2022	$ -	$ -	$ -	$ -	$ -		
2023	-	-	-	-	-		
2024	-	-	-	-	-		
2025	-	-	-	-	-		
2026	-	-	-	-	-		
2027	-	-	-	-	-		
2028	-	-	-	-	-		
2029	-	-	-	-	-		
2030	-	-	-	-	-		
2031	-	-	-	-	-		
2032							
Treatment	0.0%		-				
Distribution	100.0%		-				
TOTAL			-	-			
NPV		-	-	-		11,061	-

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Input Area -- Forecast Impact Fee Debt Service
Scenario: 2021 01 31 Report

Total

Year	Beginning Principal	Principal Payment	Interest Payment	Total Payment	Ending Principal	Total New Capacity LUEs	Interest Expense Per LUE
Series						TOTAL	
Discount Rate						3.0%	
2022		$ 846,885	$ 620,849	$ 1,467,735			
2023		892,103	648,761	1,540,864			
2024		914,399	626,031	1,540,430			
2025		1,087,573	840,993	1,928,566			
2026		1,117,314	808,508	1,925,823			
2027		1,197,410	845,979	2,043,389			
2028		1,237,208	807,841	2,045,049			
2029		1,272,325	767,275	2,039,600			
2030		1,319,824	724,882	2,044,706			
2031		1,363,772	680,356	2,044,127			
2032		-	-	-			
Treatment			-	-			
Distribution			7,371,476	18,620,289			
TOTAL		11,248,813	7,371,476	18,620,289			
NPV Treatment			**-**	**-**			
NPV Distribution			**6,264,678**	**15,734,164**			
NPV		9,469,486	6,264,678	15,734,164		$	526.27

Crystal Clear SUD
Water Acquistion Fee and Impact Fee Model

Calculation Year
2022

Input Area -- Impact Fee Debt Credit
Scenario: 2021 01 31 Report

Planning Period Debt Service			
	Total Principal and Interest	$	15,734,164
	Funded through User Rates:		
	Percent		100.0%
	Total		15,734,164
Credit Per LUE Per Month			
	Monthly Bills from Total LUEs during Planning Period		1,200,404
	Planning Period Credit per LUE Per Month	**$**	**13.11**
Cumulative Credit			
	Cumulative New LUE Monthly Bills		419,204
	Credit per EDU Per Month	$	13.11
	Cumulative Credit		**5,494,674**

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