NOTICE AND AGENDA
SANTA CLARA CITY COUNCIL WORK MEETING
WEDNESDAY July 19, 2023
TIME: 5:00 PM.
AGENDA

Public Notice is hereby given that the Santa Clara City Council will hold a Work Meeting in the Santa Clara City Council Chambers, located at 2603 Santa Clara Drive, Santa Clara Utah on Wednesday July 19, 2023, commencing at 5:00 PM. The meeting will be broadcast via You Tube linked on our website at **https://sccity.org/meetings.**

1. **Call to Order:**

2. **General Citizen Public Comment:**

3. **Working Agenda:**

   A. General Business:

   1. Discussion regarding the Willowstick groundwater well study.

   2. Discussion regarding updates to the Water Master Plan, Water Rates, & Impact Fees.

4. **Staff Reports:**

5. **Adjournment:**

Note: In compliance with the Americans with Disabilities Act, individuals needing special accommodation during this meeting should notify the city no later than 24 hours in advance of the meeting by calling 435-673-6712. In accordance with State Statute and Council Policy, one or more Council Members may be connected via speakerphone or may by two-thirds vote to go into a closed meeting.

Zoom Meeting Participants: Participants on the Zoom call are limited to City Staff, Council Members, and applicants on the agenda. Email calendar invitations will be sent out in advance of the meeting. Instructions for each meeting will include the meeting ID, and password to join. When joining the meeting your screen name must show your full name. Each applicant will be accepted into the meeting when their item is up for discussion. Please contact Chris Shelley at (435)673-6712 Ext. 203 with any questions regarding public meetings.

The undersigned, duly appointed City Recorder, does hereby certify that the above notice and agenda was posted within the Santa Clara City limits on this 13th day of July 2023 at the Santa Clara City Hall, on the City Hall Notice Board, at the Santa Clara Post Office, on the Utah State Public Notice Website, and on the City Website at http://www.sccity.org. The 2022 meeting schedule was also provided to the Spectrum on January 3, 2023

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Selena Nez – Deputy City Recorder

Mayor
Rick Rosenberg

City Manager
Brock Jacobsen

CITY OF
SANTA CLARA
FOUNDED 1854

City Council
Denny Drake
Leina Mathis
Ben Shakespeare
Jarett Wait
Christa Hinto

CITY COUNCIL

Meeting Date: 7-19-2023 **Agenda Item:** 1

Applicant: Dustin Mouritsen **Requested by:** Dustin Mouritsen

Subject: Discussion regarding the Willowstick groundwater well study.

Recommendation:
Cost:
Legal Approval:
Finance Approval:
Budget Approval:

Attachments:
Yes

Groundwater Well Siting Study

for

City of Santa Clara, Utah

Prepared By:

Val O. Kofoed, P.E.
Principle/Professional Engineer
June 8, 2023

Mike Jessop, PGp
Professional Geophysicist
June 8, 2023

65 East 900 North
Spanish Fork, UT 84660
USA
www.willowstick.com

WST Project No. 23523
Final Report Date: June 8, 2023

TABLE OF CONTENTS

1.0 Introduction and Background 3
1.1 Introduction 3
1.2 Background & Local Geology 3
2.0 Investigative Approach 7
2.1 Geophysical Survey Tools for Pinpoint Targeting 7
2.2 Radiometric Gamma 7
2.3 Resonance Acoustic Profiling (RAP) 7
2.4 Work Schedule and Proceedings 8
3.0 Survey Results 8
3.1 Results of Radiometric Gamma Survey 8
3.2 RAP Seismic Results 13
3.3 Integrated Analysis and Lithology 18
4.0 Conclusion 22
4.1 Summary and Recommendations 22
5.0 References 24

1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

This report presents the results of a geophysical investigation for the City of Santa Clara, Utah (see Figure 1) to search for prospective drill targets having an increased probability of yielding groundwater at higher production rates than typical wells would yield. The overall goal is to aid the city in searching for groundwater sources that could, if developed, help meet the city's culinary water needs with fewer dry or poorly producing wells. This report discusses the approach taken and the geophysical methods used to identify drill targets, followed by the presentation of results and specific recommendations based on the data acquired during April and May of 2023.

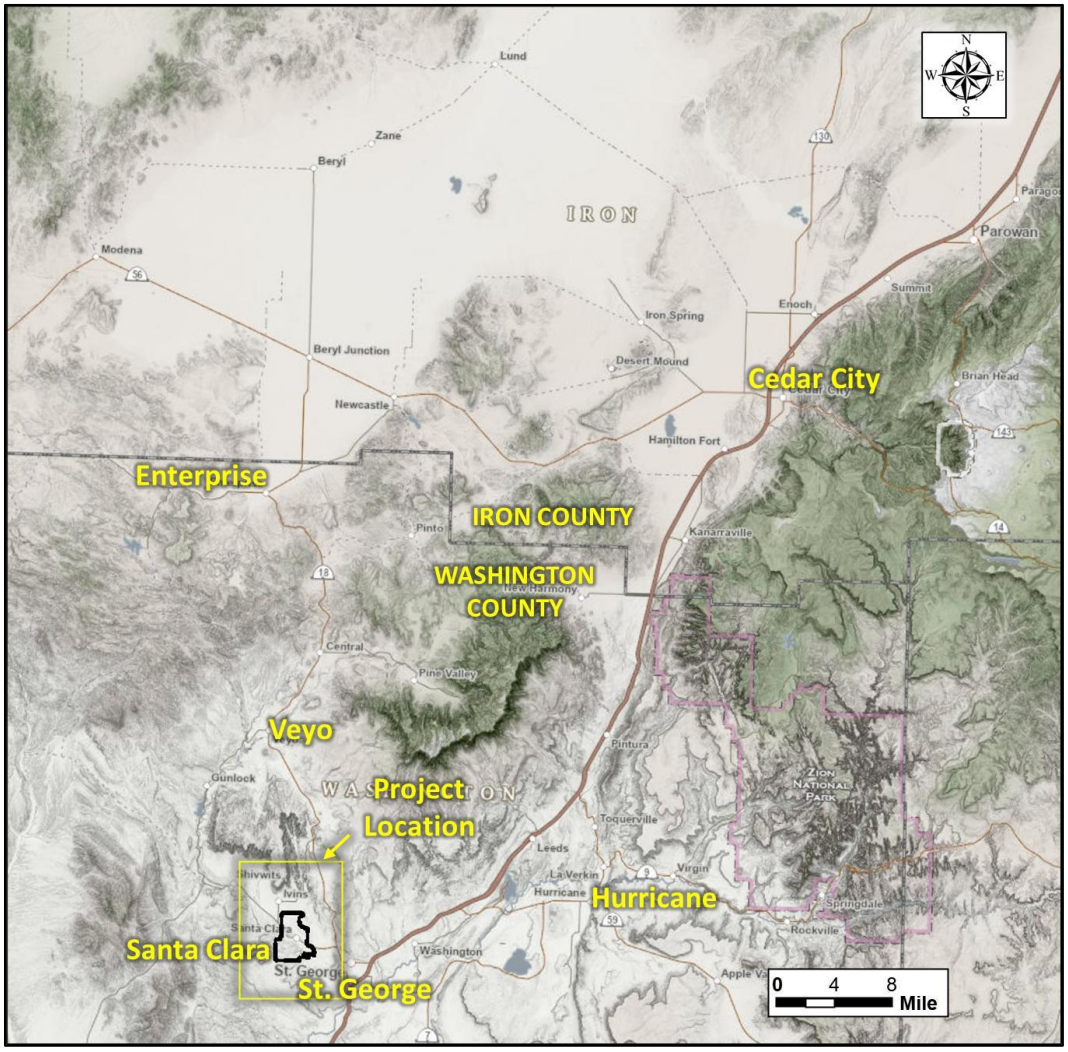


Figure 1 – Project Location

1.2 Background & Local Geology

In and around the City of Santa Clara, groundwater is of major importance given the growing population and the fact that the locality receives only about 9 inches of precipitation annually. The

only perennial stream in the area is the Santa Clara River, flowing from northwest to southeast through the city (see Figure 2). As a supply for agricultural and culinary needs, the Santa Clara River and the adjacent water table are already pushed to their limits.

In this area, most of the groundwater aquifers (well-known and significantly tapped) lie in the Navajo and Kayenta Formations to the north and northeast, especially the Snow Canyon area. The very large and significant Pine Valley Laccolith intrusion forming the Pine Valley Mountains lies further northeast, and it is recognized that the greatest potential for groundwater comes from this direction and is already tapped. Significant pumping of groundwater from the north and northeast occurs in municipal wells supplying St. George and its nearby communities including Santa Clara. These wells lie especially in NNW-SSE trending faults in the Snow Canyon area, and one of these supplies an important water tank and pipeline for Santa Clara, as shown in Figure 2.

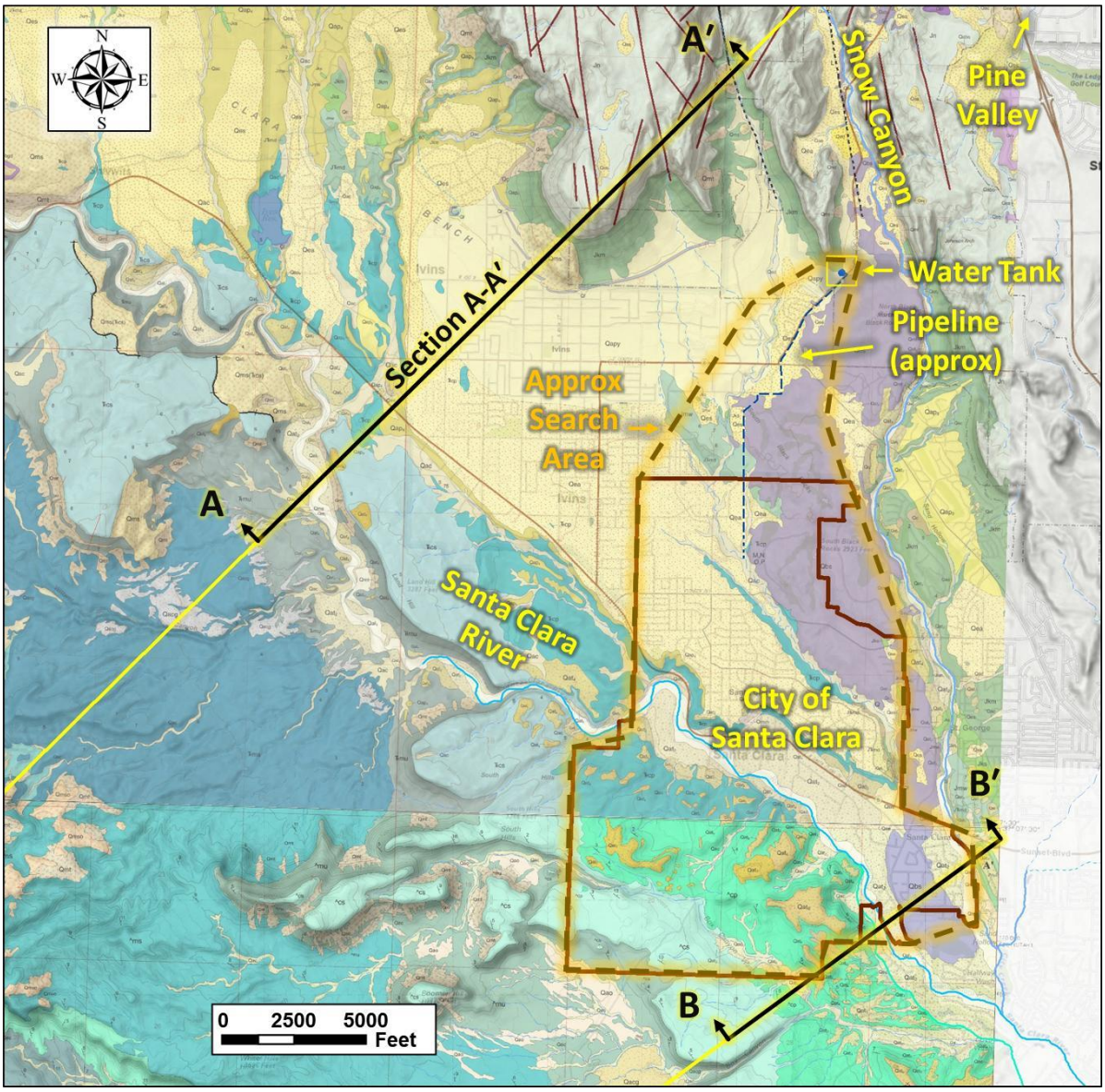


Figure 2 – Local Area Map and Geology with position of Sections A-A′ and B-B′

On the map, Sections A-A′ and B-B′ are subsets of sections published by the Utah Geological Survey showing the general lithology in the region (Willis and Hayden, 2015; Hayden, 2013). These sections are shown in Figure 3. These will be referred to later in the report, as each section helps to visualize the general lithology at recommended drill targets that will be discussed. Note that all beds are gently dipping to the northeast.

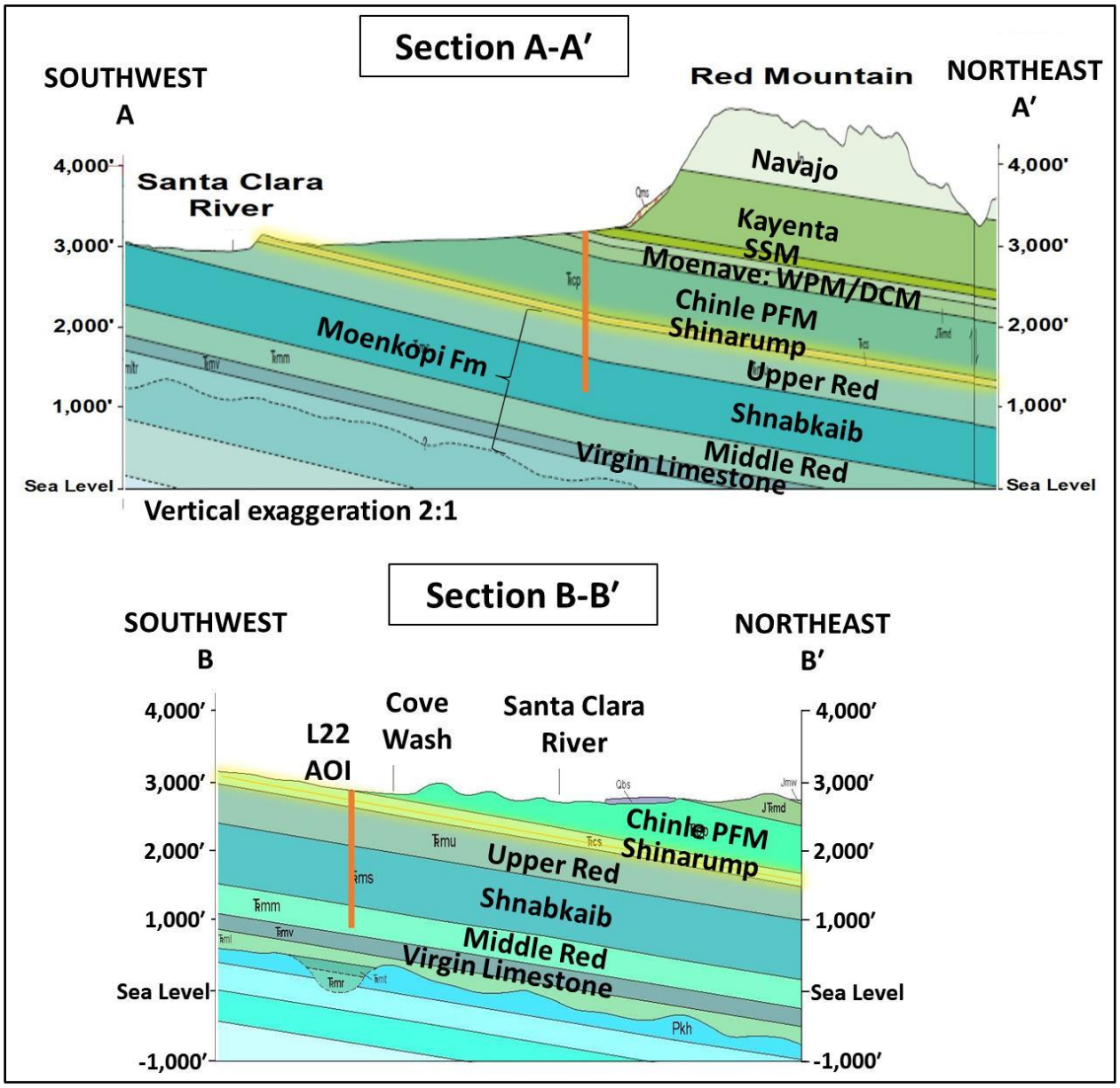
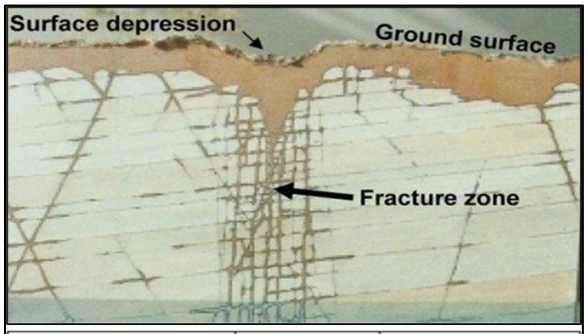


Figure 3 – Geologic Sections A-A′ and B-B′
(adapted from Willis and Hayden, 2015 and 2013)

Given that the Navajo and Kayenta formations are outside the study area, we are limited to potential targets within the underlying formations largely dominated by quart siltstone—an unfavorable lithology in general; yet, there are carbonate intervals and sandstone intervals known to produce water in other regions. One example, the Shinarump conglomerate sandstone, which

supplies much of the water needs for the Apple Valley and Hildale region, is located about 30 miles to the east. Also there are gypsiferous beds in the Moenkopi formation that are permeable and capable, more so in the Shnabkaib member and below than in the Upper Red member.

In this study, we use innovative geophysical tools and methods to search for natural fracture networks deep in the subsurface that could greatly extend the wellbore reach to support commercial volumes of water production. It is commonly observed that wells drilled into fractured bedrock formations usually have much greater yields than average. For example, in a 2013 hydrogeologic study comparing over 90 well logs in a large Utah basin, the conclusions state that wells with highest yield were drilled into "*highly fractured"* volcanic rocks, and "*the greatest potential for water movement is where faulting has bisected the rocks at depth*" (Iron Springs Corporation, 2013). In consolidated bedrock formations, open fracture systems are key. The advantage of targeting fracture zones is further emphasized in an article published on the PennState Extension website titled "Water Well Location by Fracture Trace Mapping" (Swistock and Sharpe, 2015). The following table from the article shows the significant increase in yields recorded in wells across Pennsylvania when fracture detection methods were used before drilling (see Table A).



Rock Type	Avg. Yield (gpm)	Yield from Fractures (gpm)
Crystalline (marble, etc)	1-20	200-500
Sandstone, shale	5-60	100-500
Carbonate (limestone, etc)	5-500	500-3,000
Unconsolidated (gravel, sand)	100-1,000	Not applicable

Table A. Comparison of water yield from typical wells versus fracture-trace wells in various rock types (from Swistock & Sharpe, 2015)

A significant body of evidence—beyond the scope of this report—strongly supports the reasoning for seeking lineaments, fractures, and deeply connected fracture networks for prospective well targets. It has been observed, especially in mountainous regions, that aquifers can be hit and miss—more akin to a "plumbing system" with deeply-rooted sources in fracture systems, where the model of a holding basin does not fit. Precision drilling in such conditions is a must. This investigation uses a unique passive seismic technique to specifically target zones of higher porosity

and permeability such as fractured bedrock or unconsolidated gravel zones. The technique is used in conjunction with a radiometric gamma technique tuned for detecting lineaments and evidence where water vapor "venting" can occur. The combination has proven extremely helpful for optimal drill target selection in many case studies. These techniques are explained in the next section.

2.0 INVESTIGATIVE APPROACH

2.1 Geophysical Survey Tools for Pinpoint Targeting

Since 2004, Willowstick has specialized in groundwater mapping and has completed over 500 groundwater mapping projects worldwide. Willowstick's seepage tracking tool, for example, has been used extensively for nearly 20 years in mining applications, dams, environmental applications and more with numerous published case studies (Jessop et al., 2018; Park and Jessop, 2018) to name a few, as well as patents (Kofoed et al., 2017; Jessop et al., 2014). For this groundwater well siting study, two of Willowstick's unique tools (geophysical techniques) are deployed to determine specific drill targets—namely, Radiometric Gamma and Resonance Acoustic Profiling or RAP, a passive seismic technique. The goal is to find targets that appear highly prospective from multiple sources of information, including lineament studies and subsurface seismic profiles. In the case of bedrock aquifers, we search for fracture networks—especially for anomalies that indicate subvertical zones of open fractures having deep roots extending vertically. These often extend a few kilometers downward and sometimes down to the crystalline basement, and they provide for vertical transfer of fluid in earth's crust (Kouznetsov, 2016). A brief description of each geophysical technique is provided below.

2.2 Radiometric Gamma

The Radiometric Gamma system measures aggregate and spectral gamma signals in a rapid and reliable manner, enabling the generation of gamma maps covering large areas fairly quickly, making it one of the scouting tools of choice. The signals are analyzed for lineaments and patterns that can reveal much about geologic changes and geologic structure such as faults and dikes, including patterns related to groundwater movement in "plumbing-type" aquifer systems mentioned above. It is nearly always used in conjunction with the RAP system when searching for fracture networks or even permeable gravel zones (when searching in valley alluvial zones) that could greatly increase groundwater yield and reduce costs of drilling.

2.3 Resonance Acoustic Profiling (RAP)

The continuous cycle of tidal motion affecting the oceans is common knowledge. Ocean tides are driven by the gravitational tug of the moon and sun. A much lesser-known fact is that the same forces cause tidal movement in the earth's crust which induces continuous microseismic energy (see Kouznetsov, 2016; Wikipedia Contributors, 2022). Earth tides may cause anywhere from 6 to 22 inches of crustal rising and falling motion daily depending on the location. Compared to the earth's 8000-mile diameter, 6 to 22 inches may seem minor; nevertheless, when considering many thousands of feet of rock beneath our feet in constant motion, we can start to appreciate the magnitude of tidal stresses. Stresses that build in the earth's crust from earth tide are accommodated by principal stress-release zones, especially along deep basement faults and subvertical open fracture zones conducive to fluid transport.

The RAP system measures resonance signals induced by microseismic energy in the earth to locate stress relief zones such as fracture networks in bedrock. The technique can also detect layering and porous uncemented gravel zones that may offer ideal targets in alluvial environments. Each RAP measurement is highly sensitive to vertically incident waves from the subsurface, apt for profiling to pinpoint targets for high-accuracy drilling. Depending on settings, the system can reveal details in shallow or deep zones and has been used to study to depths of 6500 feet (2000 m) in deep applications.

2.4 Work Schedule and Proceedings

A desktop study of the area was conducted including geology, faulting, and lineaments from imagery and LiDar topography. Maps of land ownership were studied, and a site visit was made in late March of 2023 to perform the vetting process of accessible land as a critical part of the preliminary investigation. All the fieldwork for the investigation was performed in April and May of 2023. A total of 512 acres of accessible land was scouted out collecting gamma data. The data was used as a guide to detect geologic changes and lineaments and to help locate the RAP seismic lines more effectively. The results are presented in the next Section of this report. A total of 56 miles (90 km) of gamma data was collected and used to create the maps, with 53,723 points of data. RAP data collection took place on 24 lines comprising 714 measurement stations, with the data processed to 2000 feet depth below ground surface (bgs). Field crews coordinated daily with one or more geophysicists in the office to complete the full data collection process. Processing and analysis took place afterwards for several weeks.

All gamma and RAP data were collected in conjunction with GPS coordinates to correlate the findings. Each RAP station location is also marked in the field with a pin flag labeled "L-S" to designate the Line# and Station#. For example, a label of "3-5" would indicate Line 3, Station 5. With the data acquisition, processing and filtering, all results were compiled into a GIS database for analysis, comparison, and interpretation and to facilitate generation of maps, figures, and depth profiles. All 2D and 3D information was used in conjunction to select drill targets.

3.0 SURVEY RESULTS

3.1 Results of Radiometric Gamma Survey

Figure 4 shows an overview of the complete gamma survey results. Note the color-scale used. From low to high, the color scale ranges from dark to light blue to green, yellow, orange, and red. The readings are relative for each area and are interpreted by relative comparison—given different background levels and adjustments for each site. As a result, absolute numbers are not shown but the full range in intensity of gamma emissions was from 40 to 220 CPS or gamma event counts per second. This is a typical range for the mixed alluvium and siltstone formations found in the area. The coverage is divided into five areas labeled A-E for a closer examination.

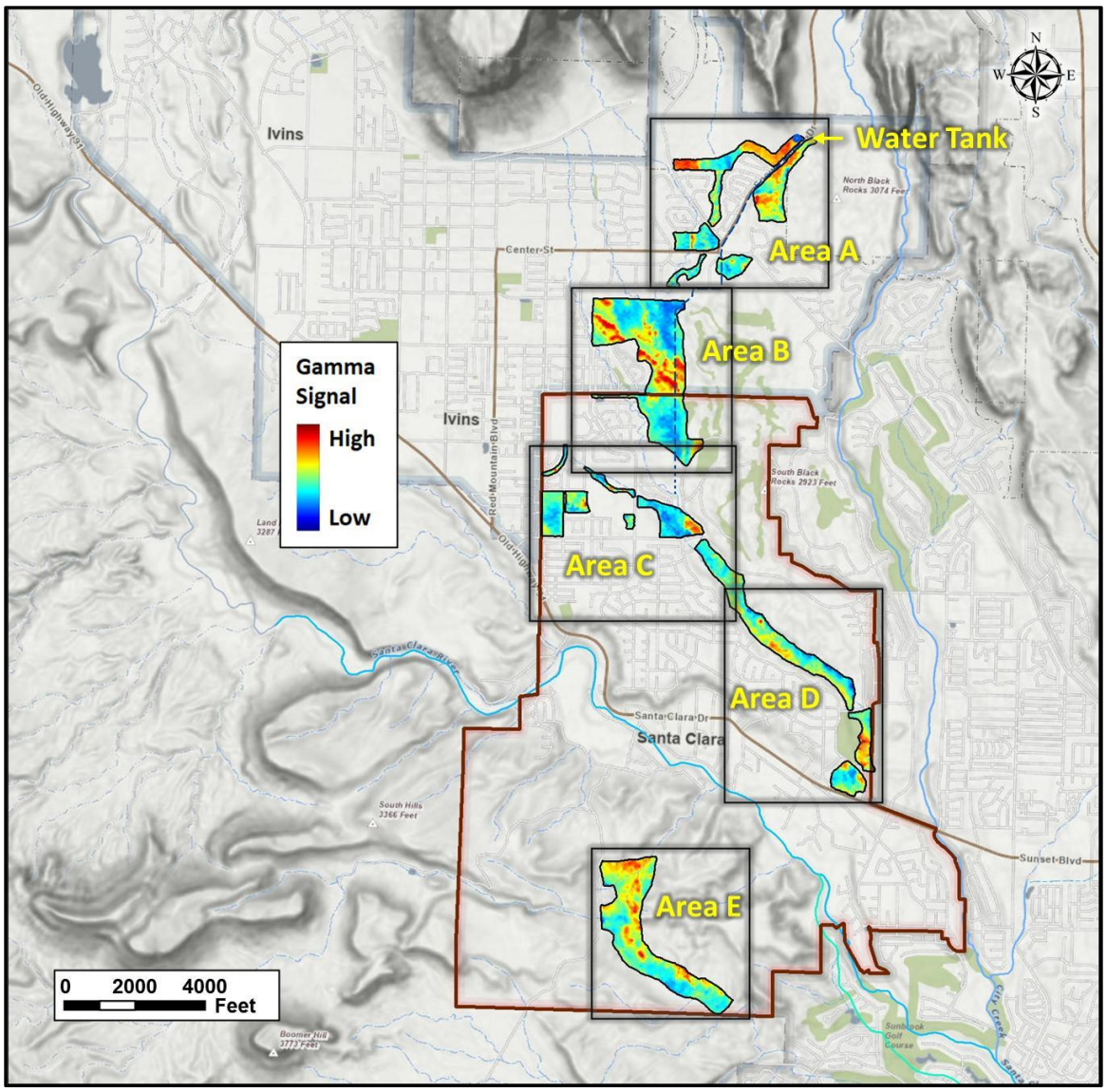


Figure 4 – Gamma Results Overview

The gamma trends and patterns are sensitive to geologic factors including rock and soil type as well as subsurface structure such as faults and dikes. Even in unconsolidated zones (clay, silt, sand, gravel), the gamma signal can detect lineaments or features influenced by deeper faulting which can affect overlying strata and influence groundwater movement (see Gay, 2012). The gamma signal does not provide a direct indication of depth, but it does help to focus the RAP seismic work within areas that appear to have higher propensity for intercepting groundwater, and the RAP data provides estimates of depth of the more porous or fractured zones. Groundwater distribution itself can also impact the level of gamma emission, particularly in "pockets" and lineaments where deep fissures and/or water-filled fracture zones may exist and where it can facilitate "venting" of water vapor from the surface.

Although patterns in the gamma signal provide indicators of groundwater extraction potential, it should be understood that the blue colors (lower readings) do not necessarily indicate groundwater

in a direct manner, and many other factors have to be considered—especially relying on the fracture patterns detected by the RAP. Lineaments and patterns suggesting higher propensity for groundwater in a given area may occur at various gamma color levels, although the low blue colors tend to be more indicative of groundwater. In some instances the low (blue) shaded areas may be skipped for consideration due to manmade disturbances that may affect the natural gamma signals, such as places of excavation or backfill or where such activity is suspected.

The next five figures (5, 6, 7, 8, and 9) show closeup views of Areas A, B, C, D, and E respectively, with placement of RAP lines. The most important areas become Areas B and E. Area A contained some fair prospects but were gradually ruled out in the full analysis. One of these prospective places of interest was around RAP lines 1-4 where the gamma data indicated a possibility of faulting—possibly an extension of a known fault located just north of this map (referring to Figure 5). However the RAP evidence ultimately was not strong enough to endorse the prospect.

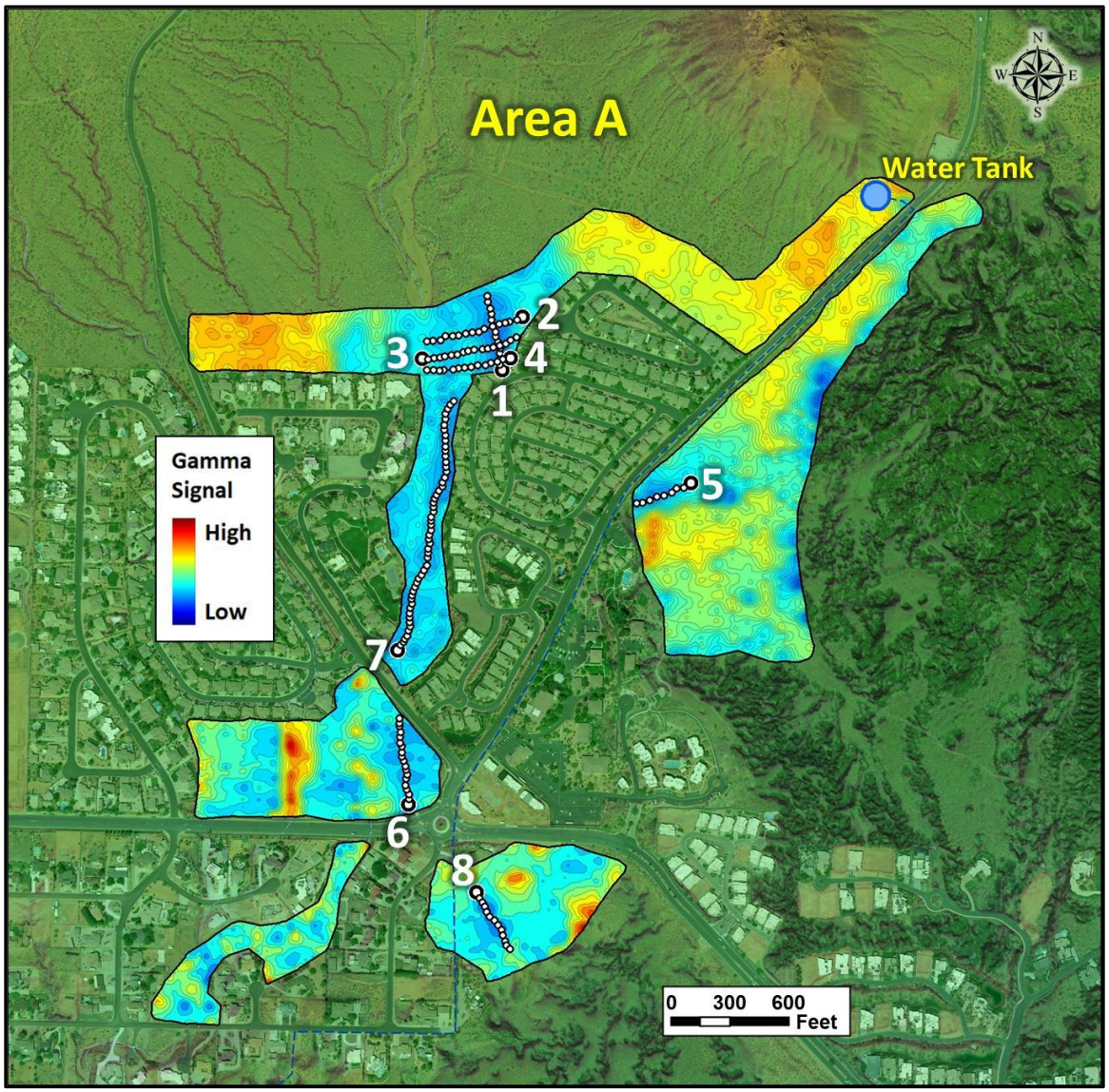


Figure 5 – Area A Gamma Results and placement of RAP lines 1-8

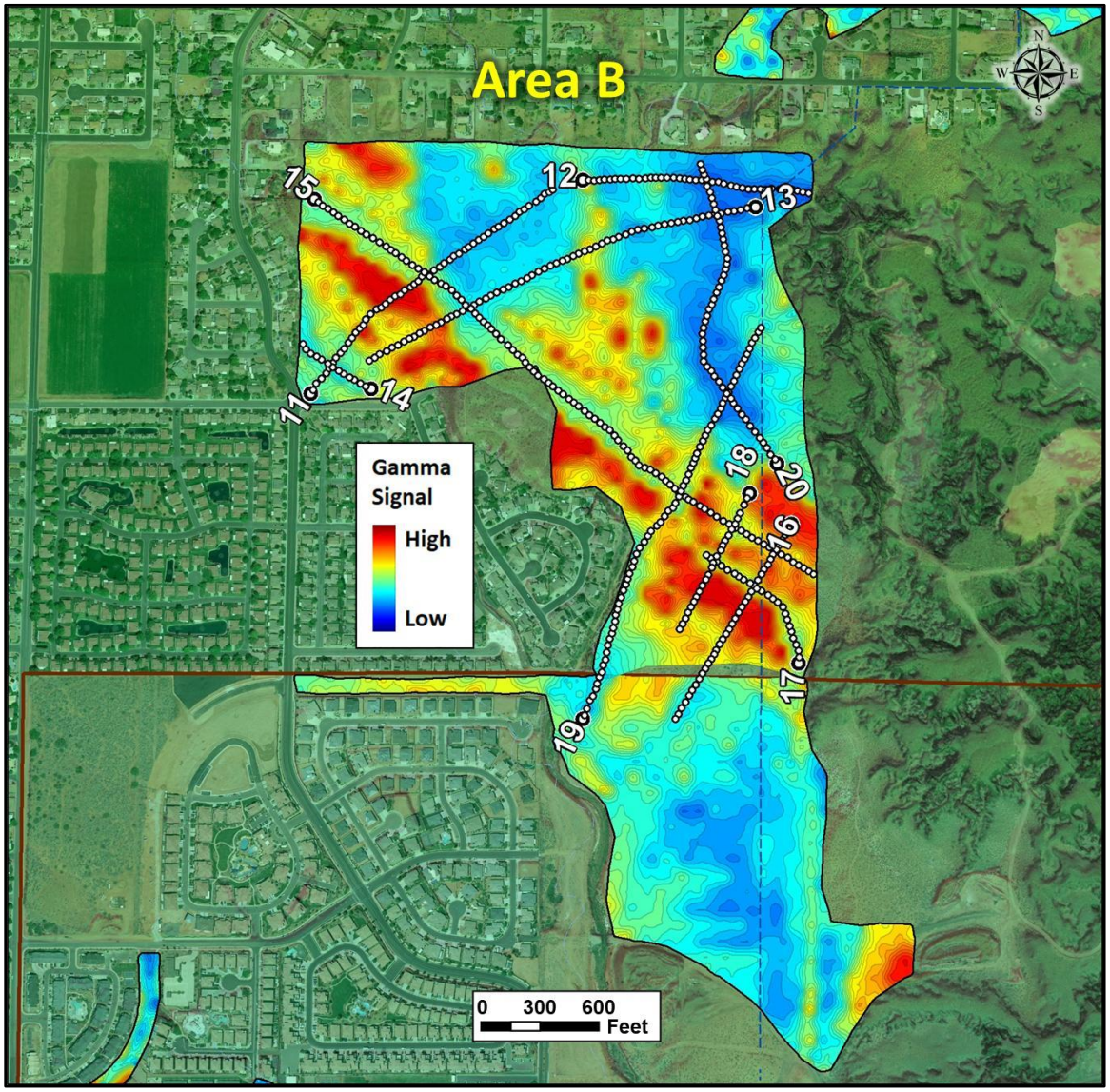


Figure 6 – Area B Gamma Results and placement of RAP lines 11-20

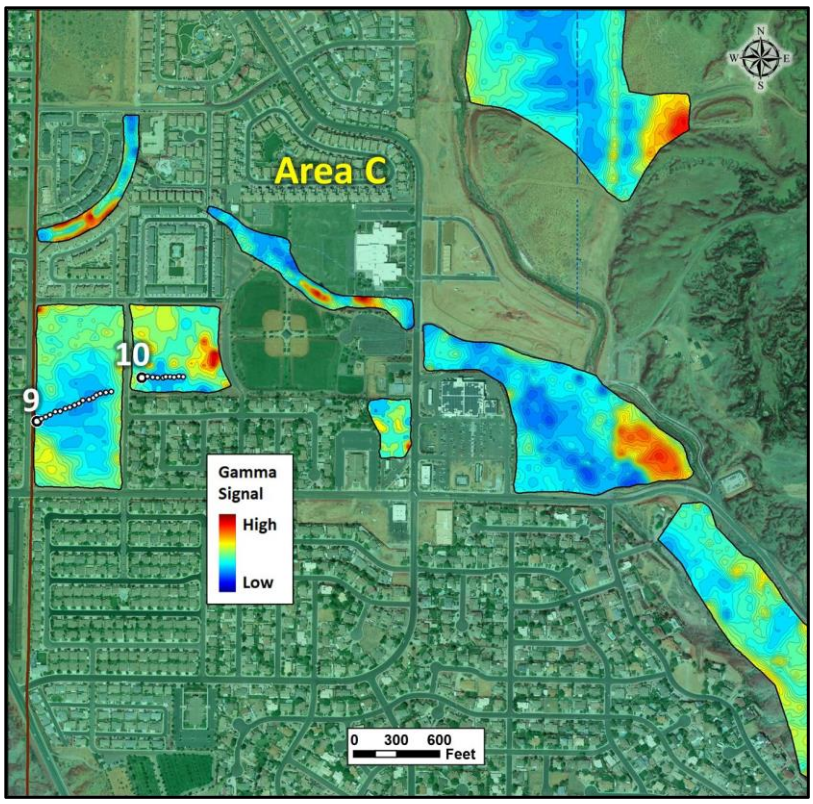


Figure 7 – Area C Gamma Results, with placement of RAP lines 9-10

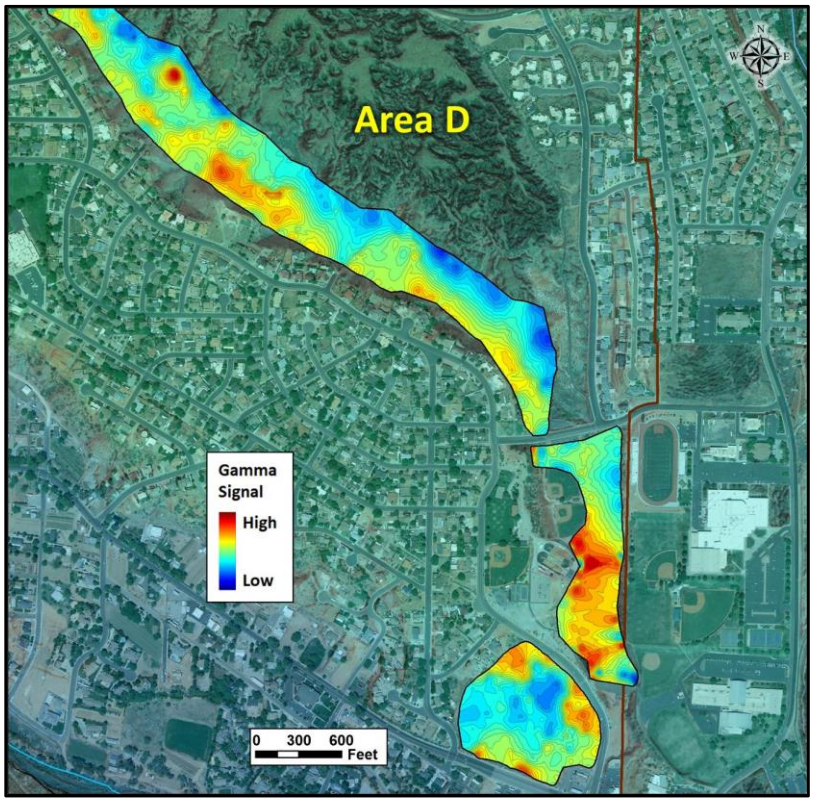


Figure 8 – Area D Gamma Results (no RAP lines)

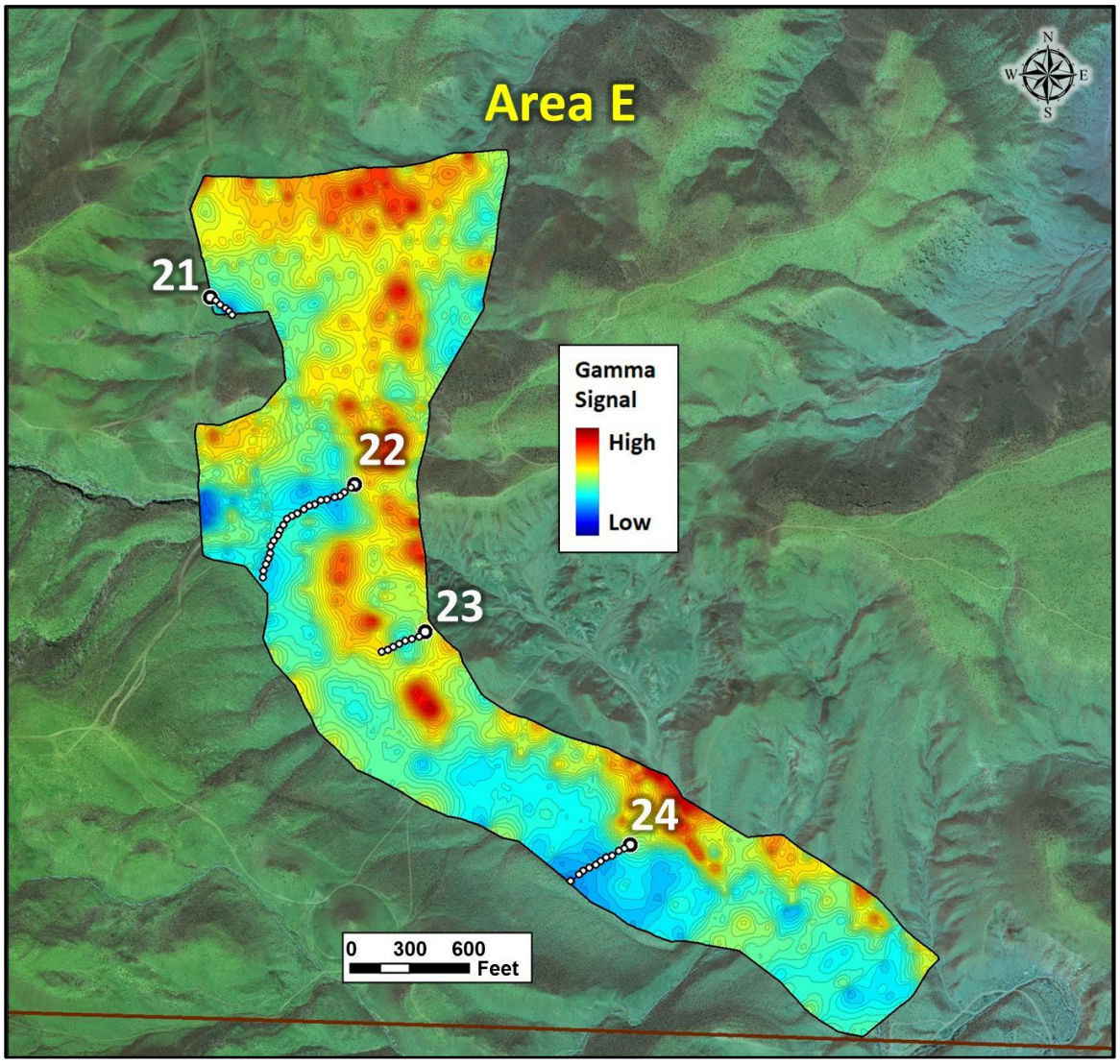


Figure 9 – Area "E" Gamma Results and placement of RAP lines 21-24

3.2 RAP Seismic Results

The RAP data was collected along specific lines labeled in Figures 5-9, the placement of which was based largely on the gamma results. The goal is to search for fracture networks or high porosity zones at depth which correspond with ideal gamma patterns, and to locate and narrow down prospects to select drill targets. On all 24 RAP lines, stations were spaced at 30-foot intervals. Each RAP line is labeled at its *first station* (distance 0), which is also denoted by a larger circle. It is helpful to keep this in mind while viewing the RAP profile sections and correlating each one with its location on the map and with its starting point and orientation.

After initial analysis and quality control assessment of the RAP data, five prospective locations were selected and labeled P1 to P5. These are not ranked in any particular order, only going from north to south. Some prospects in Area A had already been eliminated, but one remained on Line

5 (P1) because it was felt that more data was needed there to qualify or remove it. Three prospective locations were identified in Area B and one strong prospect in Area E.

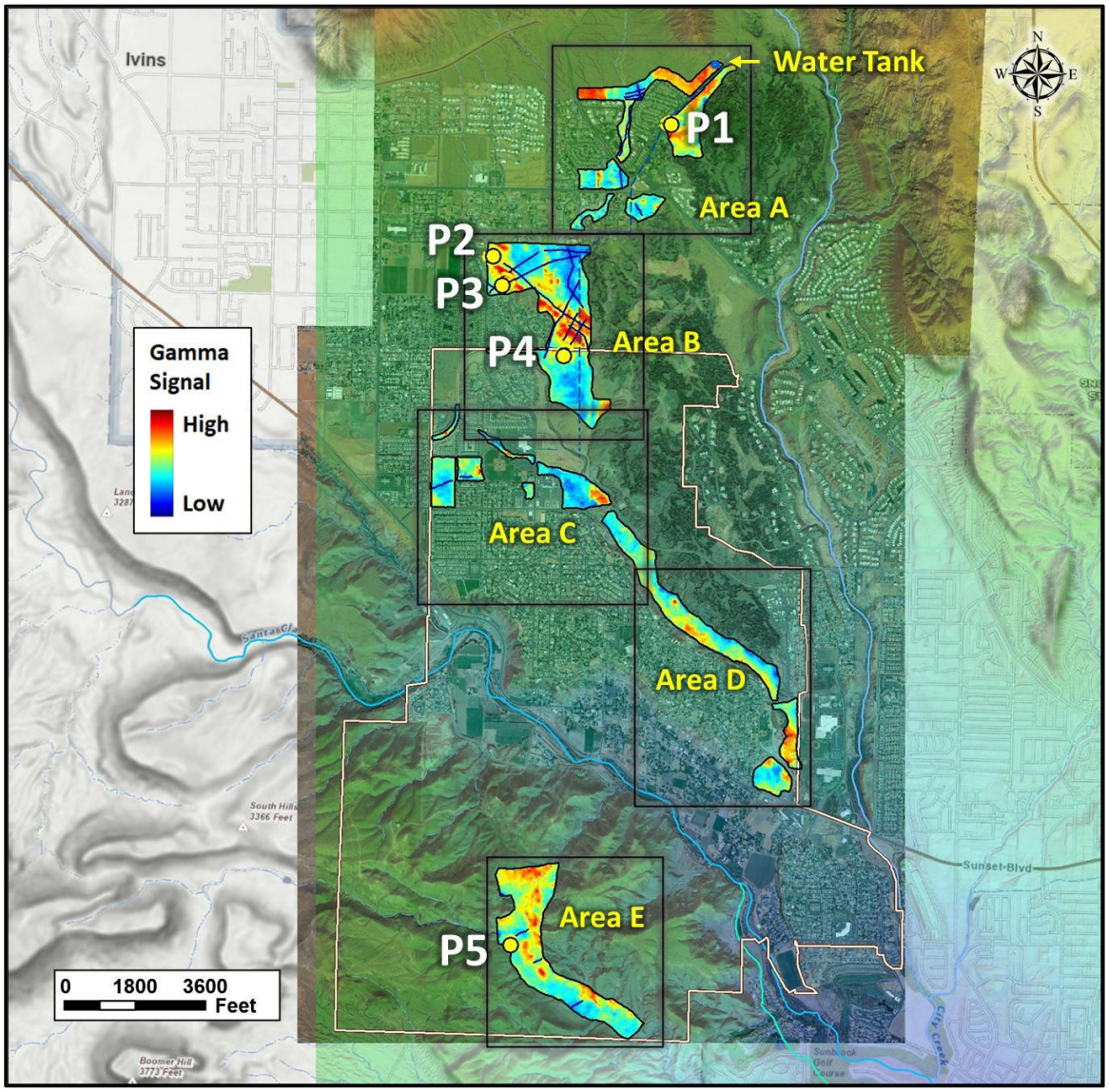


Figure 10 – Five Prospective Areas (P1-P5) after initial RAP analysis

Additional RAP data was collected at each of the five prospective locations using various settings in the RAP equipment to perform a more comprehensive analysis. With the additional data, P1 did not stand up, partly due to ground conditions creating seismic coupling challenges and lower quality of seismic data. Within Area B, P2 and P4 showed the most promise from the seismic standpoint and reduced the status of P3. From the standpoint of surface gamma and the lineaments detected, P4 stood out as the best choice in Area B. P4 is located on private property just within the city limits on RAP Line 16. In Area E, on BLM Land, P5 also qualified strongly as a good candidate, making P4 and P5 the top choices among the original five locations. The RAP results for P4 and P5 are shown in Figures 11 and 12. Green and blue vertical lines are "match lines"

where intersecting cross sections occur (same point on multiple lines). The black lines are the recommended well locations for each, shown from multiple perspectives.

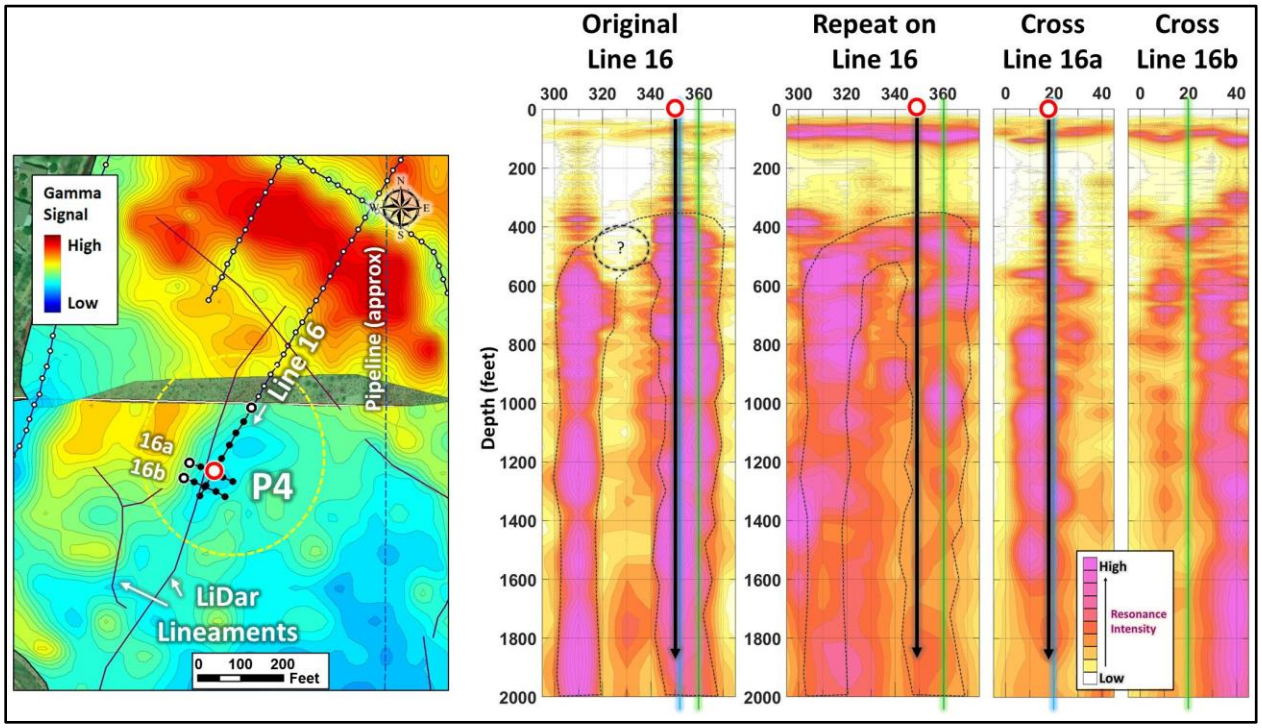


Figure 11 – RAP Seismic Results on Line 16 at P4 (Prospective Location P4)

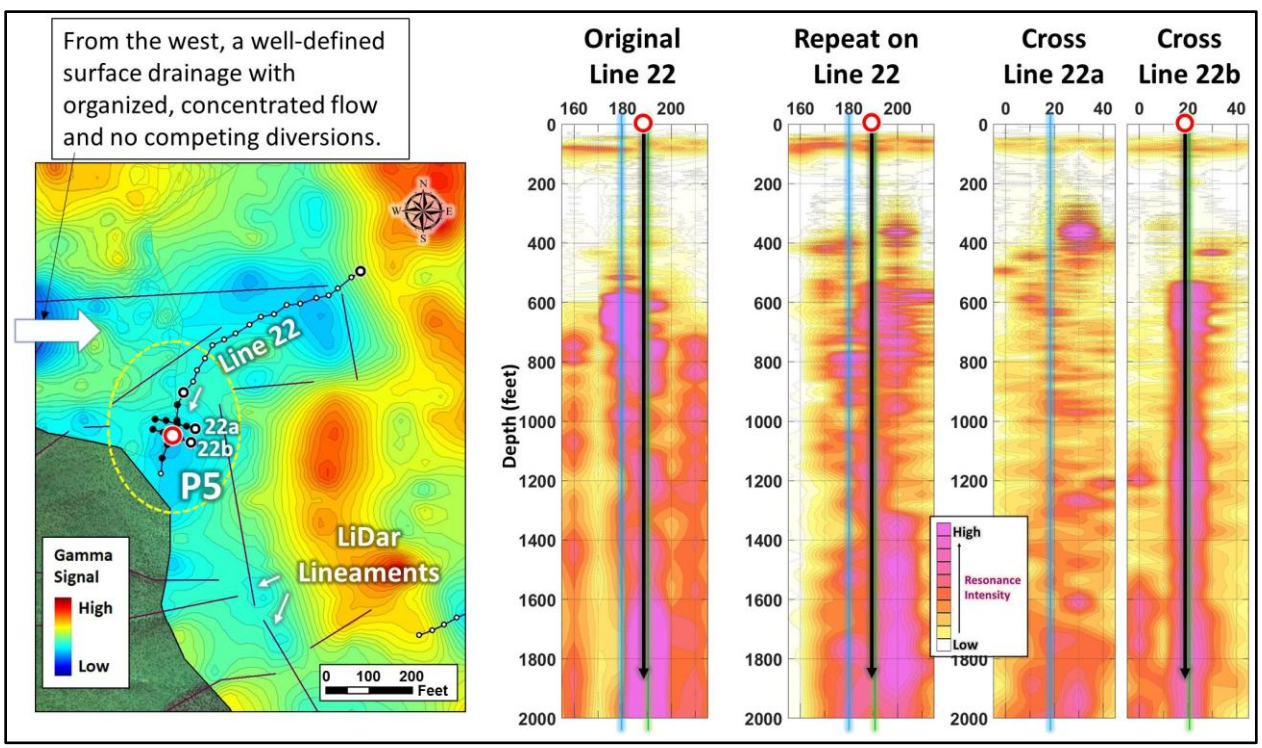


Figure 12 – RAP Seismic Results on Line 22 at P5 (Prospective Location P5)

In Figures 11 and 12, Lidar lineaments along with correlating gamma patterns in the areas of interest suggest subsurface structural changes. The RAP sections have been processed to 2000 feet deep. The actual depth of drilling will be determined by many other factors and will be discussed later. On the RAP sections, the color scale ranges from white to yellow to orange to pink. The white and yellow represent low resonance intensity, while orange to pink colors (going up the scale) represent higher resonance intensity—an indicator of effective transport porosity such as open fractures in bedrock or porous gravel zones in unconsolidated material. Keep in mind that the depth shown in RAP sections is an *estimate* based on averages or typical seismic velocities. In some cases seismic velocities can be very abnormal and less predictable. In such cases the deeper estimates can be off by hundreds of feet—not common but definitely possible. In most cases the depth estimates are accurate to within 20%, and often to within 10%—or 10 ft per 100 ft depth. However, no guarantees on depth can be made.

Prospective location P2 was a strong candidate in terms of its seismic signature, but weaker in terms of lineaments and gamma patterns overall. Both P2 and P3 are also on state trust land (SITLA), making them more of a challenge to develop. Figures 13 and 14 show the results at P2 and P3. At P3 on Line 13 (Figure 14), there are many offroad vehicle trails and the pin flags that our field crews had placed were gone, so repeat measurement stations were close but not perfectly matching the original positions.

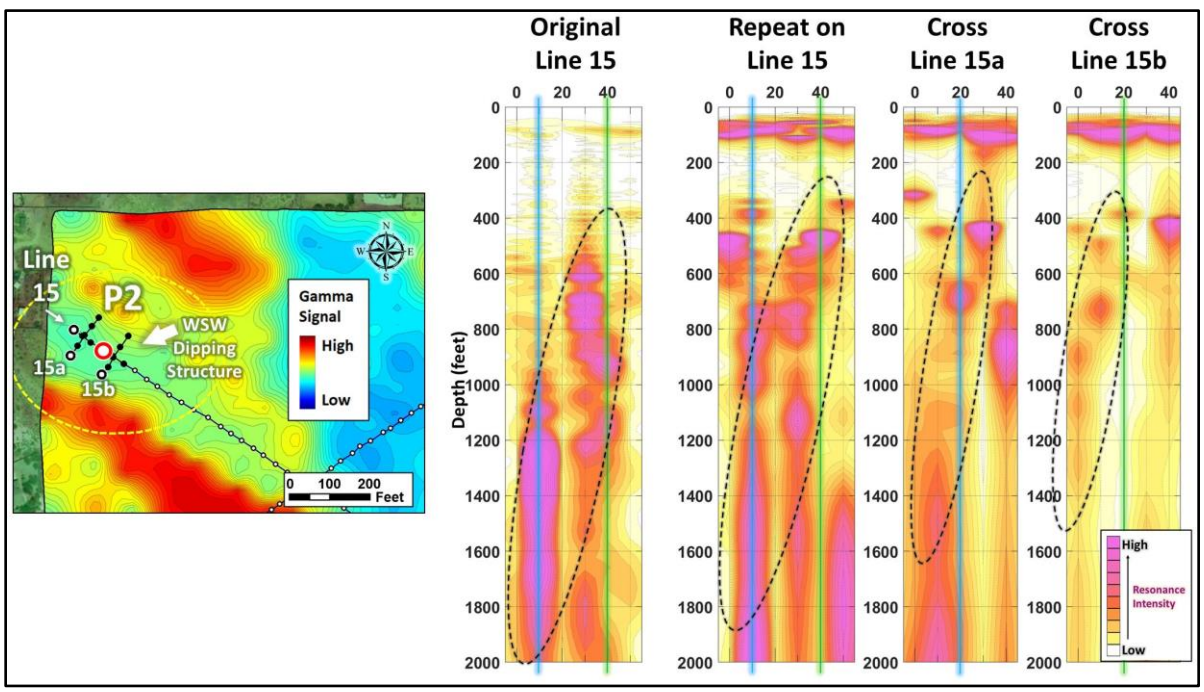


Figure 13 – RAP Seismic Results on Line 15 at P2 (Prospective Location 2)

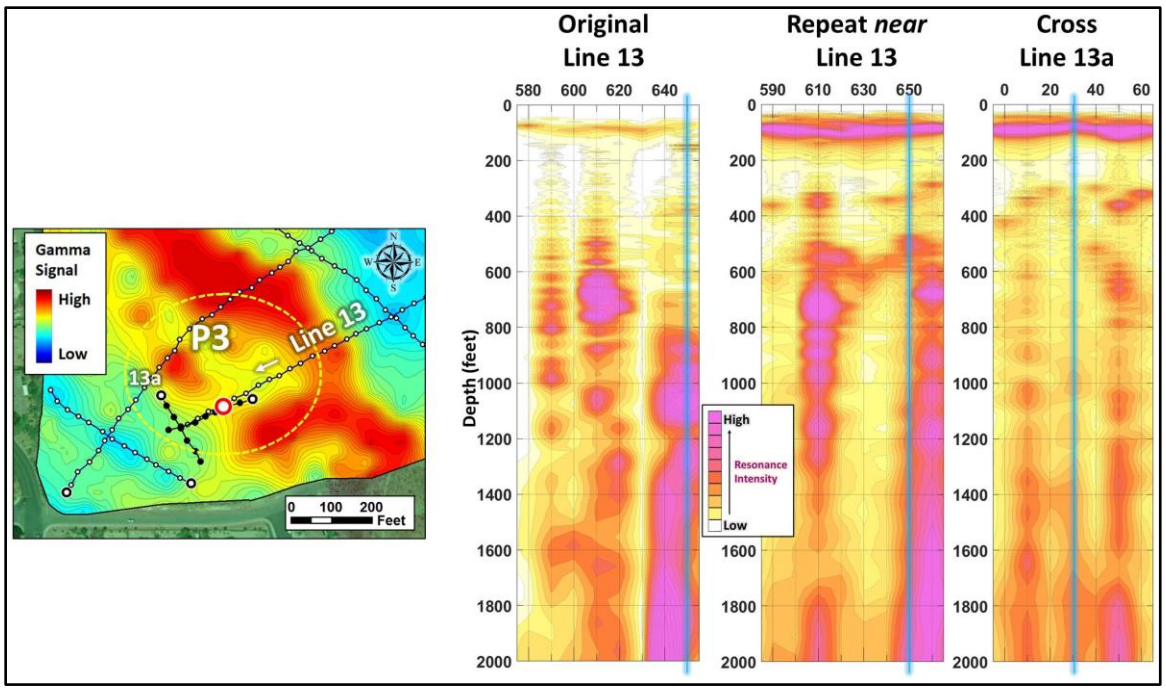


Figure 14 – RAP Seismic Results on Line 13 at P3 (Prospective Location 3)

The RAP results at P1 are shown in Figure 15. This is the one where ground conditions were difficult and created seismic coupling challenges and a lower quality of seismic data, making it more difficult to assess and to get repeatable results, even while trying different settings with the equipment. We did not feel comfortable with P1 in the end analysis.

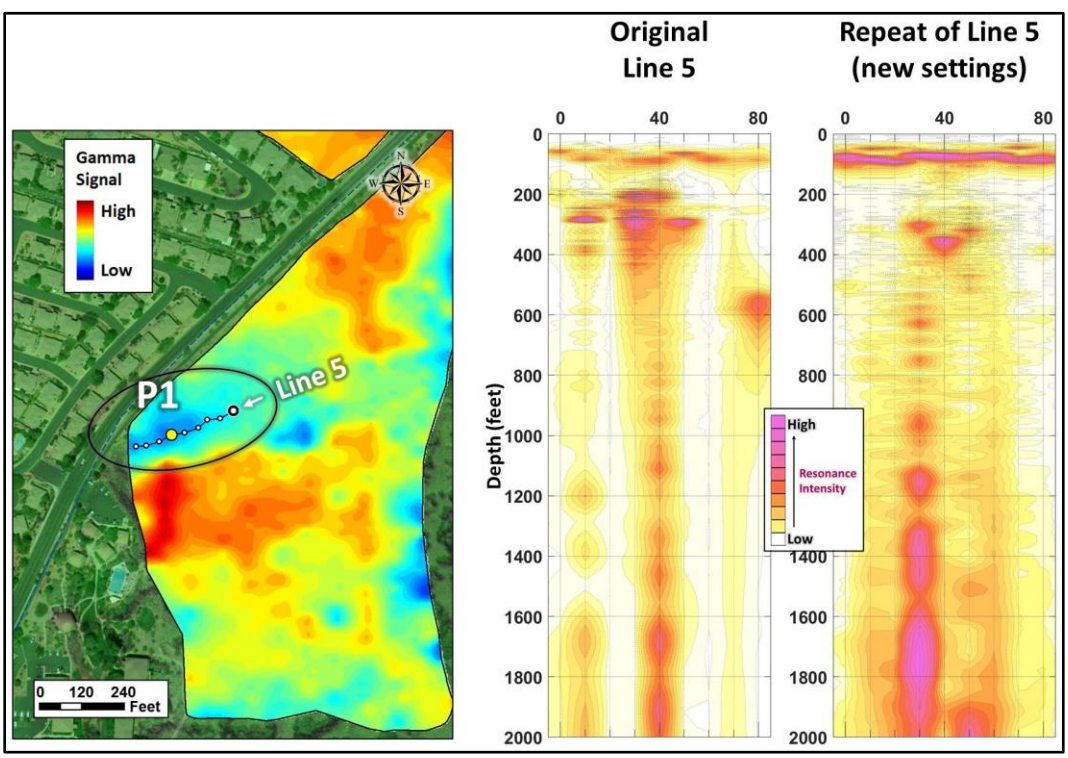


Figure 15 – RAP Seismic Results on Line 5 at P1 (Prospective Location 1)

3.3 Integrated Analysis and Lithology

The two most highly recommended drill targets occur within the prospective areas of interest designated P4 and P5. The specific stations recommended for drilling are at pin-flag positions 16-36 and 22-20. In our final analysis, we rank these and refer to them as T1 and T2—each pin-pointed to a specific station and coordinate—where T1 is the number one recommendation. For reasons which we will discuss, we ultimately ranked the target in P5 area as the number one target (T1) and the target in P4 area as the number two target (T2).

Figure 16 shows the RAP Depth Profiles of resonance detected at T1 and T2, compared to the average from all 714 measurement stations (dotted line). This is an indicator of potential for open fractures to conduct water, though not a direct measurement of groundwater itself. Also keep in mind these plots reflect the station-point only and not those around it, which help to define the extent of the fracture system (better observed in Figures 11 and 12), but they still convey a message.

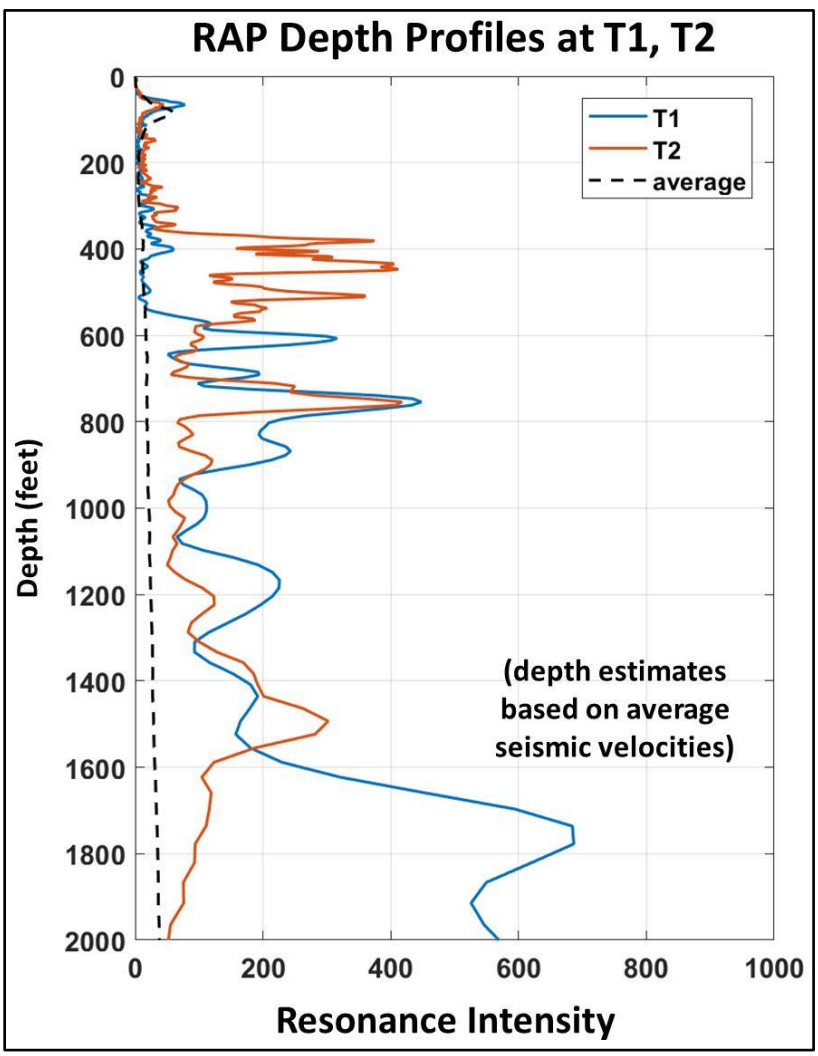


Figure 16 – RAP Depth Profiles at locations T1 (P5) and T2 (P4)

Figure 16 shows that the resonance intensity at T1, which picks up strongly beginning at about 600 feet bgs. At T2, the resonance intensity picks up at about 400 feet bgs. From this standpoint alone we might consider T2 the better choice to find groundwater without drilling as deep; however, it is highly possible that the groundwater could be deeper than where the open fractures first picked up in the higher RAP intensities.

Both prospective targets T1 and T2 share similar stratigraphy, lithology, and structure. Both have similar hydrologic input with subequal catchment areas (see Figure 17). However, T2 is competing with other diversions, especially from the high-volume municipal pumping in Snow Canyon, which may cause a "depletion shadow" to the north and east.

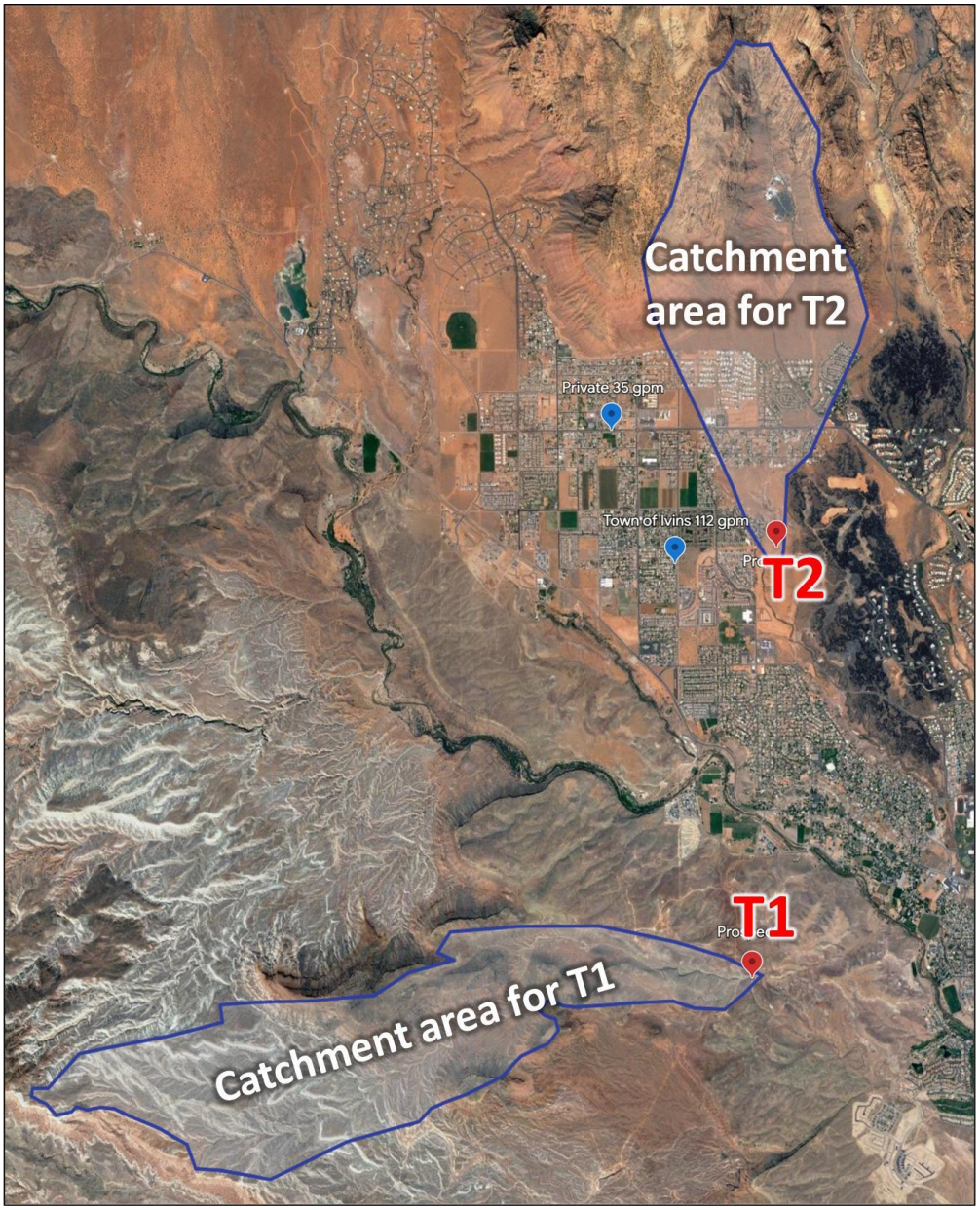


Figure 17 – Catchment areas for T1 and T2

On the other hand, T1 has a well-defined surface drainage with organized, concentrated flow and no competing diversions. This is shown in Figure 18 (primarily west of T1, dashed lineament).

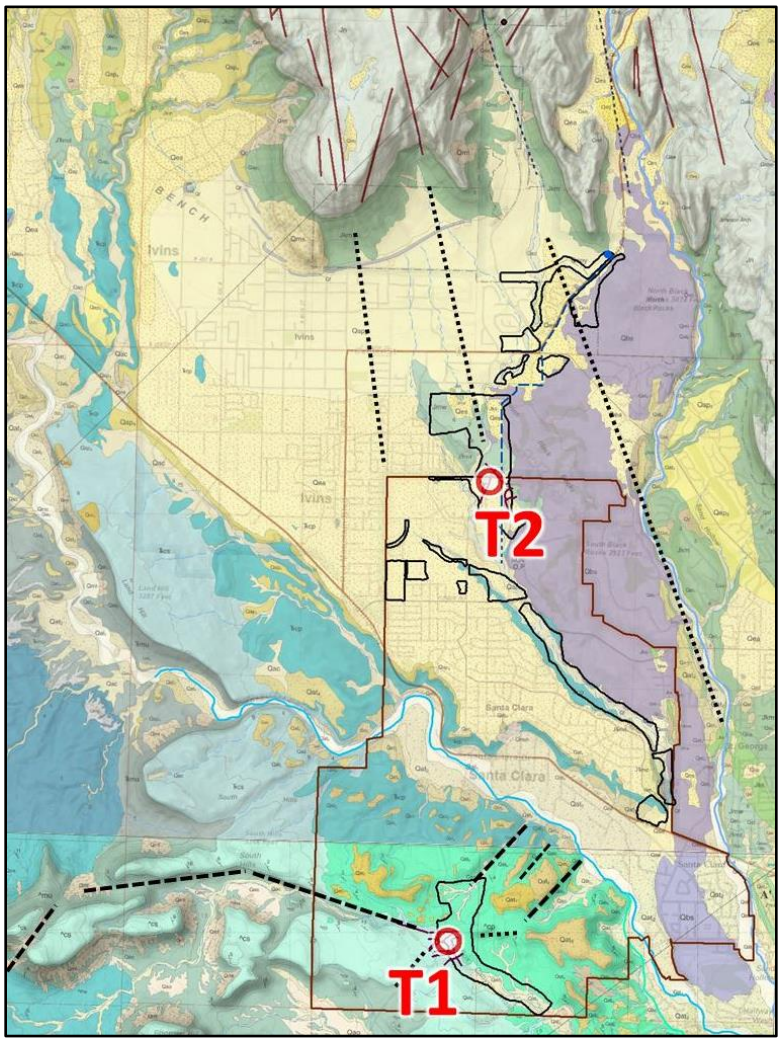


Figure 18 – T1 & T2 locations including some strong lineaments (dashed black lines) and possible continuation of subsurface faulting (dotted lines) based on trends from the north

Figure 19 presents the RAP sections at T1 and T2, each in conjunction with a clip of the lithology from the nearest geologic section. The dominant lithology for drilling is expected to be quartz siltstone (especially the Moenave and much of the Moenkopi), with some carbonate intervals. Overall, the Shinarump conglomerate sandstone and the possible carbonate intervals in the Shnabkaib (and possibly deeper) members are most promising from the lithologic perspective. From this perspective, it would be best to plan on drilling at least 1000 feet depth for T2, unless the anticipated fracture network allows water to migrate to higher levels. At T1 we expect to encounter the Shinarump for the first few hundred feet, then quartz siltstone of the Upper Moenkopi from perhaps 200-800 ft, roughly speaking. Of course, the lithology shown is only approximate.

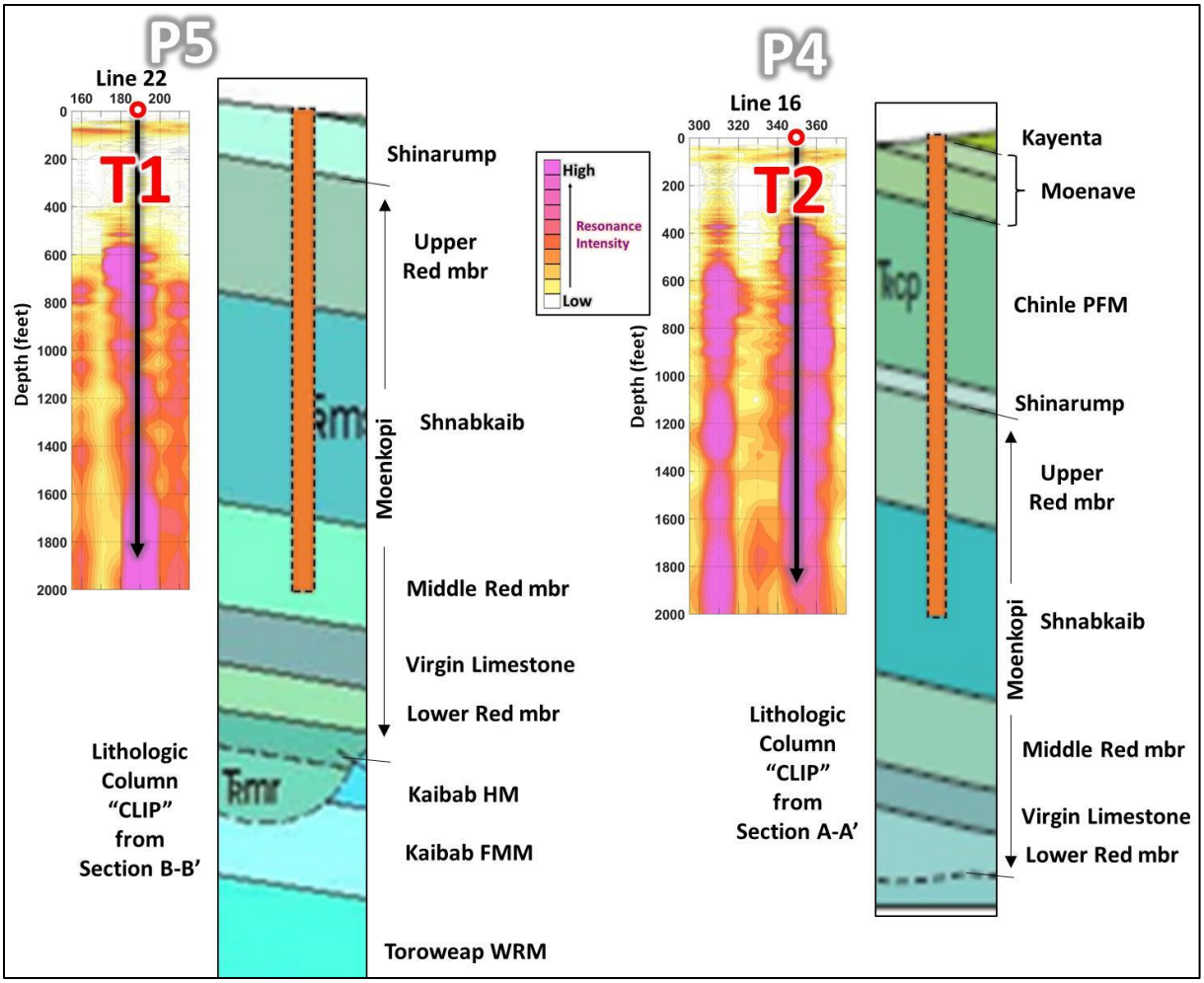


Figure 19 – Approximate Lithology Profiles at Target Locations T1 & T2

While it is always hopeful to encounter significant amounts of water in the shallow zone (such as 100-250 ft) and save tremendously on drilling costs, this region generally requires deeper drilling and we should consider the Shnabkaib and Middle members of the Moenkopi, given that the Upper Moenkopi is less likely to contain beds of carbonates or gypsiferous layers that could prove very beneficial. The Shnabkaib is estimated to begin at 800 feet depth, roughly.

In all of this, a very important consideration is the method of drilling to go after and develop these targets. While we do not claim any expertise in this area, we will share our experience working with Cedar City, Utah—in a very similar situation to the City of Santa Clara. With Cedar City we are searching out new frontiers for groundwater production that would not impact its already over-taxed and depleting valley aquifer. Cedar City is currently drilling its first exploration bore (8-inch diameter) into the same formations—particularly the thick Moenkopi formation—in search of water at a target we specified for them by the same methods presented in this report. So far, the borehole has been drilled to about 800 ft and has encountered significant water from roughly 400 to 800 ft within the Moenkopi formation, but it is unknown as of yet how much production can ultimately be developed from the well for several reasons. Number one, the well has caved in due to the formation characteristic—lightly cemented and very fine sandstone grade—which is easily disrupted by the compressed air drilling method used in this case. Therefore a different drilling

method, probably mud drilling, will be required from this point on to re-open the hole, to widen its diameter, and to put casing in place and finally engineer a screening process. In retrospect, they would have probably chosen the mud drilling method to begin with, if they had known the conditions they would encounter. We can learn a lot from this going forward.

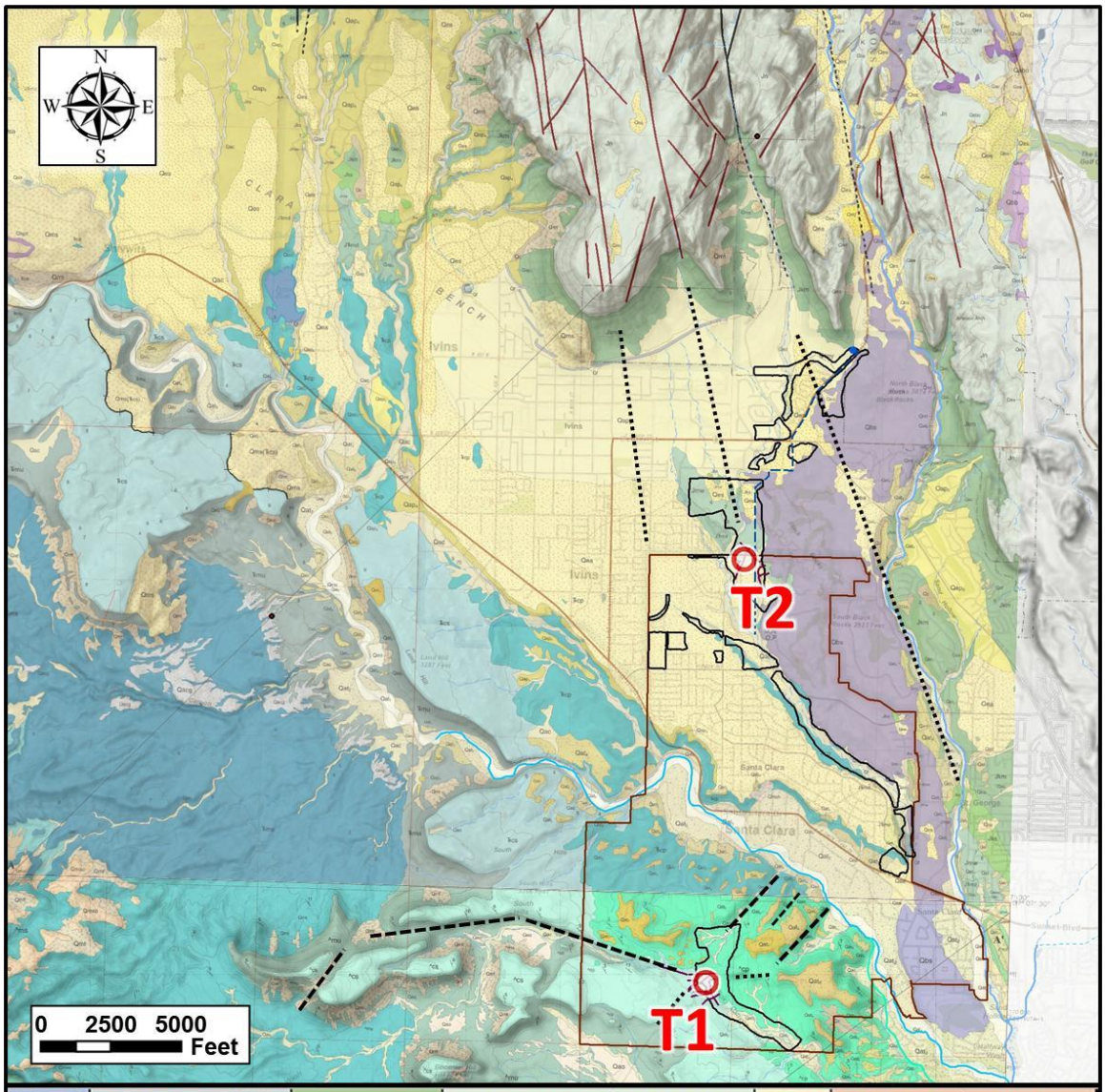
4.0 CONCLUSION

4.1 Summary and Recommendations

This study combined the use of RAP-seismic and Radiometric Gamma in conjunction with traditional geology and lineament studies to ultimately narrow down and pinpoint drill targets within the given study area. This is based largely on microseismic resonance indicators of natural fracture networks that could greatly extend the wellbore reach, especially in subvertical open fracture zones which have been shown in many other Willowstick case studies to support higher-than-average and even commercial volumes of water production. In other words, experience has shown that targets exhibiting the RAP and Gamma patterns described herein tend to yield much higher flow rates of groundwater than average boreholes. The overall goal is to minimize the risks in drilling, although the risks can never be eliminated completely.

The Gamma and RAP tools were deployed to scout out and narrow down specific locations for the most highly prospective drill targets among 512 acres of coverage within the City of Santa Clara and northward to the edge of Snow Canyon. The recommended drill targets are labeled T1 and T2. These are shown in Figure 20 (next page) along with coordinates and estimated depth ranges where strong RAP intensities occur *and* coincide with a more favorable lithology. Pin flags were also placed at each RAP station, and the pin flag numbers at T1 and T2 respectively are 22-20 and 16-36.

It is important to keep in mind that while the tools used for this investigation provide useful data and guidance, there are still many unknowns. We are proposing deep and costly wells, with no prior wells in the area (at least in the case of T1 in the South Hills) to reference. Going forward will be an exploratory venture, where the risks are higher than in most drilling situations. The tools used in this study do not directly detect or prove out water resources, and they cannot detect water quality. Other sources of information should be used as a guide to avoid potential issues with poor quality water. Studying the quality of water extracted from these same formations—namely the Shinarump, Moenave, and Moenkopi Formations—in the nearby regions will help. We have provided some of our experience in relation to that question, in the case of the current Cedar City well we are involved with. In these formations the number one water quality concern for the most part is the fines—the silt and sand. From our experience, the water itself is generally very good if proper screening can be accomplished where it is needed. We are also aware of Uranium mines in northern Arizona which have caused some contamination of groundwater, such as the case of Hildale City's water from the Shinarump conglomerate. But these are highly unlikely sources of contamination for Santa Clara, due to its distance and direction westward.



Target ID	Recommended Depth Range* (ft)	Line#	Shot#	UTM Zone 12 Coordinates (WGS84) Easting m	Northing m	Topo Elev ft	Lat/Lon Coordinates (WGS84) LAT	LON
T1 (P5)	800 to 1800	22	20	263491	4111116	2932	37.116528	-113.661925
T2 (P4)	1000 to 1800	16	36	263895	4115616	2935	37.157154	-113.658802

Figure 20 – Recommended Drill Targets & Coordinates

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SANTA CLARA CITY, UTAH

Water System
Impact Fee Facilities Plan
& Impact Fee Analysis

May 2023

PREPARED BY:

SUNRISE ENGINEERING, INC.
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Water System
Impact Fee Facilities Plan
& Impact Fee Analysis

May 2023

INCLUDES:

FIVE POINT SYSTEM ANALYSIS
RECOMMENDED SYSTEM IMPROVEMENTS
SYSTEM FINANCING PLAN
IMPACT FEE FACILITIES PLAN
IMPACT FEE ANALYSIS

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Contents

I. INTRODUCTION 1

A. PREFACE 1
B. INTRODUCTION 1

II. SYSTEM USERS ANALYSIS 3

A. PROJECTED GROWTH RATE 3
B. LENGTH OF PLANNING PERIOD 5
C. EXISTING WATER CONNECTIONS 6
D. HISTORICAL WATER USAGE 7

III. WATER RIGHTS ANALYSIS 11

A. EXISTING WATER RIGHT 11
B. EXISTING REQUIRED CULLINARY WATER RIGHT 12
C. PROJECTED REQUIRED CULINARY WATER RIGHT 12
D. EXISTING REQUIRED IRRIGATION WATER RIGHTS 14
E. PROJECTED REQUIRED IRRIGATION WATER RIGHTS 15
F. RECOMMENDED IRRIGATION WATER RIGHT IMPROVEMENTS 16

IV. WATER SOURCE CAPACITY ANALYSIS 18

A. EXISTING CULINARY WATER SOURCE CAPACITY 18
B. EXISTING REQUIRED CULINARY WATER SOURCE CAPACITY 18
C. PROJECTED REQUIRED CULINARY WATER SOURCE CAPACITY 19
D. RECOMMENDED CULINARY WATER SOURCE CAPACITY IMPROVEMENTS 20

V. WATER STORAGE CAPACITY ANALYSIS 21

A. EXISTING CULINARY WATER STORAGE CAPACITY 21
B. EXISTING REQUIRED CULINARY WATER STORAGE CAPACITY 21
C. PROJECTED REQUIRED CULINARY WATER STORAGE CAPACITY 22
D. EXISTING ELEVATION CONSTRAINTS 23
E. RECOMMENDED CULINARY WATER STORAGE CAPACITY IMPROVEMENTS 23

VI. WATER TREATMENT REQUIREMENTS 24

A. GENERAL REQUIREMENTS 24
B. RECOMMENDED WATER TREATMENT FACILITY IMPROVEMENTS 24

VII. WATER DISTRIBUTION SYSTEM ANALYSIS 25

A. EXISTING CULINARY DISTRIBUTION SYSTEM ANALYSIS 25
B. PROJECTED CULINARY DISTRIBUTION SYSTEM ANALYSIS 26
C. EXISTING IRRIGATION DISTRIBUTION SYSTEM ANALYSIS 27
D. PROJECTED IRRIGATION DISTRIBUTION SYSTEM ANALYSIS 28
E. RECOMMENDED DISTRIBUTION SYSTEM IMPROVEMENTS 28

VIII. SUMMARY OF RECOMMENDED SYSTEM IMPROVEMENTS 29

A. RECOMMENDED SYSTEM IMPROVEMENTS 29
B. PRELIMINARY ENGINEER'S OPINION OF PROBABLE COST 30
C. PROPOSED FINANCING PLAN 30

IX. WATER RATE ANALYSIS 32

A. GENERAL 32
B. AVERAGE RATE DETERMINATION FOR FY2024 32
C. BASE AND OVERAGE RATE DETERMINATION 34
D. POSSIBLE RATE STRUCTURE 35

E. POSSIBLE DROUGHT RATE STRUCTURES 36
F. SUMMARY 40

X. IMPACT FEES 41

A. IMPACT FEE 41
B. CULINARY & IRRIGATION COMBINED CALCULATION 41
C. VARYING IMPACT FEE CALCULATION 43
D. IRRIGATION INCENTIVIZED CALCULATION 45
E. IMPACT FEE CERTIFICATION 46
F. IMPACT FEE RELATED ITEMS 46

APPENDIX A - MAPS

APPENDIX B - INFOWATER® ANALYSIS

APPENDIX C - WATER RIGHTS INVENTORY

APPENDIX D - OPINION OF PROBABLE COST

APPENDIX E - PROJECTED CASH FLOW

APPENDIX F - IMPACT FEE CERTIFICATION

I. INTRODUCTION

A. PREFACE

The City of Santa Clara (the city) has entered into an agreement with Sunrise Engineering, Inc. to prepare this Culinary and Irrigation Water Master Plan. The plan will provide council members with the information they need to make important decisions relating to water infrastructure as the city continues to grow and develop over the next 20 years. This plan will provide information regarding the existing culinary and irrigation water infrastructure, analyze these facilities for adequacy, and make recommendations in order to meet projected demands.

B. INTRODUCTION

This Water Master Plan has been prepared for Santa Clara City, located west of St. George in Washington County, Utah along Old Highway 91. An area map showing the location of the city has been included as Figure I.B-1.

Santa Clara City has experienced significant growth over the past 30 years. At times, this growth has been somewhat rapid and has required improvements and upgrades to much of the city's public infrastructure to meet the increased demands. The growth slowed in the 2008 recession and has since grown significantly. We are currently seeing a slight slowdown in growth, though it is projected that growth rates will level out over the next several years. This plan is intended to help the city evaluate their ability to meet the increasing demands placed on the system by development, and to identify and correct existing deficiencies in the water system.

The water system has been analyzed according to the Utah Division of Drinking Water regulations and includes a 5-point review of the system consisting of water rights, water source capacity, water storage capacity, water treatment, and water distribution.

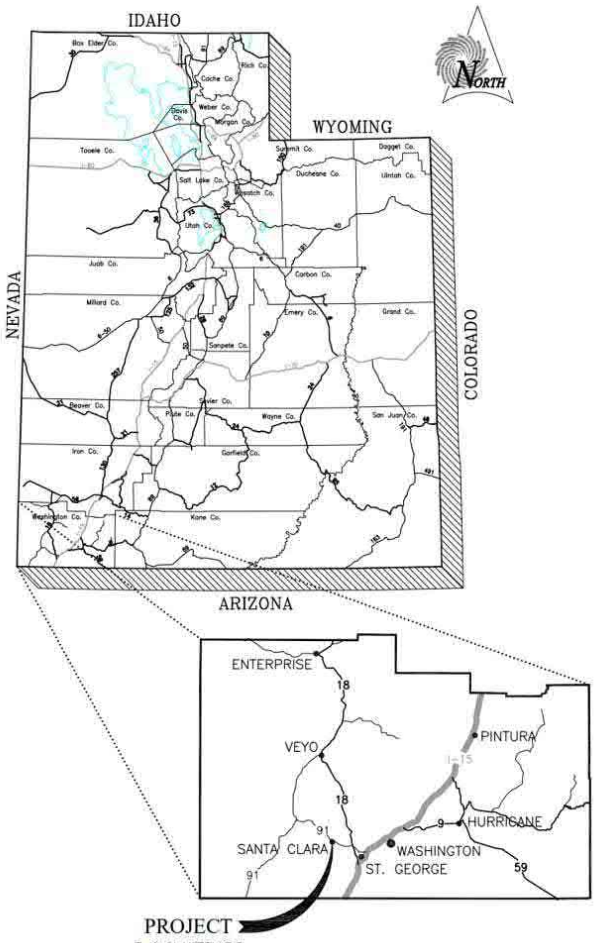


Figure I.B-1: Area Map

As part of the plan, Sunrise Engineering has recommended several improvements to the culinary water system and has developed a sample financing plan as a possible means to fund the recommended improvements.

The existing water rates and impact fees have also been analyzed as a possible means of supporting the recommended system improvements. The recommended water rates and impact fees are fair and reasonable and will allow the city to continue to maintain the level of service that is required of a public water system for the present time and over the planning period.

II. SYSTEM USERS ANALYSIS

A. PROJECTED GROWTH RATE

An important element in the development of a Water Master Plan is the projection of the population growth rate. This projection gives the planner an idea of the future demands on the system throughout the planning period.

Projecting future growth can be subjective but should be grounded in historical trends and current information as much as possible. Table II.A-1 below shows the city's historic growth rates based on official Census data from 1970 to 2010, and the latest population data the city had on record for 2020.

Table II.A-1: Historic Growth

Year	Source	Population	Growth Rate		ERUs
1970	Census	271	-	-	-
1980	Census	1,091	1970-1980	14.9%	-
1990	Census	2,311	1980-1990	7.8%	-
2000	Census	4,630	1990-2000	7.2%	-
2010	Census	6,003	2000-2010	2.6%	-
2020	City	8,685	2010-2020	3.8%	2713
2021	Estimate	9,206	2020-2021	6.0%	3424
2022	Estimate	9,758	2021-2022	6.0%	3629
2023	Estimate	10,149	2022-2023	4.0%	3775

The City of Santa Clara has grown significantly since 1970. During the 1970's it grew at almost 15% per year. During the 1980's and 1990's the city grew at over 7% per year. Despite this rapid population growth, there has been very little commercial development in Santa Clara. The city is primarily a residential community supporting the St. George area. Because it is bounded by lava flows, flood plains, environmentally sensitive areas, and other municipalities, it is not expected to grow as fast as it historically has.

As shown in Table II.A-1 above, the 2020 population was provided by Santa Clara City. This indicated a growth rate of 3.8% since 2010. Sunrise Engineering, Inc. projected the current 2023 population as 10,149 assuming a 6.0% average annual growth rate since 2020 based on the high growth rate recently experienced in the community and a 4.0% growth rate beginning this year.

Recent housing market trends in Southern Utah indicate that Santa Clara is only expected to grow rapidly for a short period. After which, growth will continue at a steady rate. The recent 2020 Santa Clara Public Safety IFFP used a growth rate of 4.0% and to remain consistent, the city chose to use the same growth rate projection for this report, with a slight adjustment to 2021-2022 being at 6.0%. A growth rate of 4.0% is projected through the end of the planning period after 2022. The future growth can be projected using the following compound interest formula:

$$F = P(1+i)^N$$

F = Future Population
P = Present Population
i = Projected Growth Rate
N = Years

Table II.A-2 shown below gives the projected population and number of equivalent residential units (ERUs) throughout the 20-year and 40-year planning periods.

Table II.A-2: Projected Growth

Year	Source	Population	Growth Rate		ERUs
1970	Census	271	-	-	-
1980	Census	1,091	1970-1980	14.9%	-
1990	Census	2,311	1980-1990	7.8%	-
2000	Census	4,630	1990-2000	7.2%	-
2010	Census	6,003	2000-2010	2.6%	-
2020	City	8,685	2010-2020	3.8%	2713
2021	Estimate	9,206	2020-2021	6.0%	3424
2022	Estimate	9,758	2021-2022	6.0%	3629
2023	Estimate	10,149	2022-2023	4.0%	3775
2024	Estimate	10,555		4.0%	3926
2025	Estimate	10,977		4.0%	4083
2026	Estimate	11,416		4.0%	4246
2027	Estimate	11,873		4.0%	4416
2028	Estimate	12,348		4.0%	4592
2029	Estimate	12,841		4.0%	4776
2030	Estimate	13,355		4.0%	4967
2031	Estimate	13,889		4.0%	5166
2032	Estimate	14,445		4.0%	5372
2033	Estimate	15,023		4.0%	5587
2034	Estimate	15,624		4.0%	5811
2035	Estimate	16,249		4.0%	6043
2036	Estimate	16,899		4.0%	6285
2037	Estimate	17,574		4.0%	6536
2038	Estimate	18,277		4.0%	6798
2039	Estimate	19,009		4.0%	7070
2040	Estimate	19,769		4.0%	7353
2041	Estimate	20,560		4.0%	7647
2042	Estimate	21,382		4.0%	7953
2043	Estimate	22,237		4.0%	8271
2044	Estimate	23,127		4.0%	8601
2045	Estimate	24,052		4.0%	8946
2046	Estimate	25,014		4.0%	9303
2047	Estimate	26,014		4.0%	9675
2048	Estimate	27,055		4.0%	10063
2049	Estimate	28,137		4.0%	10465
2050	Estimate	29,263		4.0%	10884
2051	Estimate	30,433		4.0%	11319
2052	Estimate	31,651		4.0%	11772
2053	Estimate	32,917		4.0%	12243
2054	Estimate	34,233		4.0%	12732
2055	Estimate	35,603		4.0%	13242
2056	Estimate	37,027		4.0%	13771
2057	Estimate	38,508		4.0%	14322
2058	Estimate	40,048		4.0%	14895
2059	Estimate	41,650		4.0%	15491
2060	Estimate	43,316		4.0%	16110
2061	Estimate	45,049		4.0%	16755
2062	Estimate	46,851		4.0%	17425
2063	Estimate	48,725		4.0%	18122

Because the City of Santa Clara will eventually develop all its available land, build-out projections have also been considered in this study.

To determine build-out projections, several samples of existing densities were taken from established areas of the city. These samples were then utilized to estimate densities for other zoning types in the community that have not yet been developed. Table II.A-3 below indicates the densities assumed for each zoning type. The zones marked by an asterisk (*) represent the zoning types for which a sample was taken.

Table II.A-3: Zoning Types and Densities

Zone	Description	Density (DU/Acre)
R-1-10	*Single Family Residential	4.4
PDR	*Planned Development (Residential)	4.0
R-A	*Residential Agricultural	0.7
OS	Open Space	4.5
PDC	Planned Development (Commercial)	0
HDMU	Historic District/Mixed Use	0
R-1-6	*Single Family Residential (6,000 sf lots)	5.6
R-1-10/ML	*Single Family Residential (Mixed Lot)	4.0
COM	Commercial	0

These densities were utilized in conjunction with a current zoning map provided by Santa Clara City. Total areas of each zoning type left to develop were determined and multiplied by the densities to calculate a projected number of dwelling units (DUs) left to develop. The city also provided projected townhome development in areas not zoned for multi-family and these numbers were incorporated. Adding these values to the existing number of DUs resulted in 7,505 total projected DUs at build-out. Multiplying this number by 3.26 people per unit according to the 2020 Census figure, provides a total build-out population projection of 24,466 residents. An exhibit highlighting these zoning calculations can be found in Appendix A.

It is important to understand that projected growth rates are not the cornerstone of this plan. If the projected population is reached earlier or later than anticipated, then future improvements to support growth may either come earlier or later. Impact Fees should not be significantly affected if the actual rate of growth varies from the rate used in the plan.

B. LENGTH OF PLANNING PERIOD

This Water Master Plan uses a 20-year planning period beginning in the year 2023 and running through year 2043. Water rights will be evaluated until the anticipated year of build-out. These planning periods are consistent with standard practice and will allow an adequate evaluation of the system for potential infrastructure improvements or other needs. It is assumed build-out will occur approximately at 8,557 ERU's, which at the assumed 4.0% growth rate would occur between 2043-2044.

C. EXISTING WATER CONNECTIONS

Culinary Connections

As of 2021, the city had 3,424 Equivalent Residential Units (ERUs). An ERU value allows the comparison of water use between a residential connection and any other type of connection. For instance, if a business connection has an ERU of 2.5, then it uses 2.5 times the water of an average residential connection. The city is servicing connections separated into residential, commercial, and "other" units and it is assumed that one residential unit is equal to one ERU. Table II.C-1 shows the anticipated number of ERUs at different points of the planning horizon.

Table II.C-1: Culinary Water Connections

Year	Type of ERU			
	Residential	Commercial	Other	Total
Present (2023)	3311	227	237	3,775
10-Year (2033)	4900	336	351	5,587
20-Year (2043)	7254	498	519	8,271
Build-out (~2044)	7505	515	537	8,557

It should be noted that the "other" ERUs account for churches, schools, and city owned and operated facilities.

It should also be noted that while townhome connections are included in the residential connections total, they use approximately one-third the amount of water of a typical residential home. According to Santa Clara City estimates, townhomes will also account for approximately one-third of future residential development.

Irrigation Connections

The City also has an irrigation water system that is used for city owned properties such as the parks, cemeteries, and the town hall. The Rhone Subdivision near the river comprising of Vernon Street and Old Farm Road is also metered for residential use. All other areas of the city that have access to the irrigation system are operated by the Santa Clara Field Canal Company. The system does not feed the entire city, so all other connections use the culinary water system for outdoor use.

The Canal Company provided a sample of 10 residential meter readings from 2021 comprising of some 0.25 acre lots and some 0.5 acre lots. The total number of Canal Company connections was obtained using provided record drawings and it was assumed all these connections were in service. The average usage from this sample was determined to be equal to 1 ERU. With this information the number of ERUs owned and metered by the city was identified. There are currently seven "Other" connections which consist of parks and government properties and 10 residential connections in the Rhone subdivision. The average 2021 usage in the Rhone subdivision was found to be less than the average Canal Company usage. To be conservative the Canal Company

usage was used as the basis for 1 ERU. Table II.C-2 shows the anticipated number of ERUs at different points of the planning horizon.

Table II.C-2: Irrigation Water Connections

Year	ERU's				
	Residential (Metered by Canal Co.)	Residential (Metered by City)	Other (Metered by City)	Total (Metered by City)	Total
Present (2023)	643	4	123	127	770
10-Year (2033) Projects 1-5, Solace	643	348	175	523	1166
20- Year (2043) Black Desert, 4.0% growth rate	643	2043	260	2303	2946

D. HISTORICAL WATER USAGE

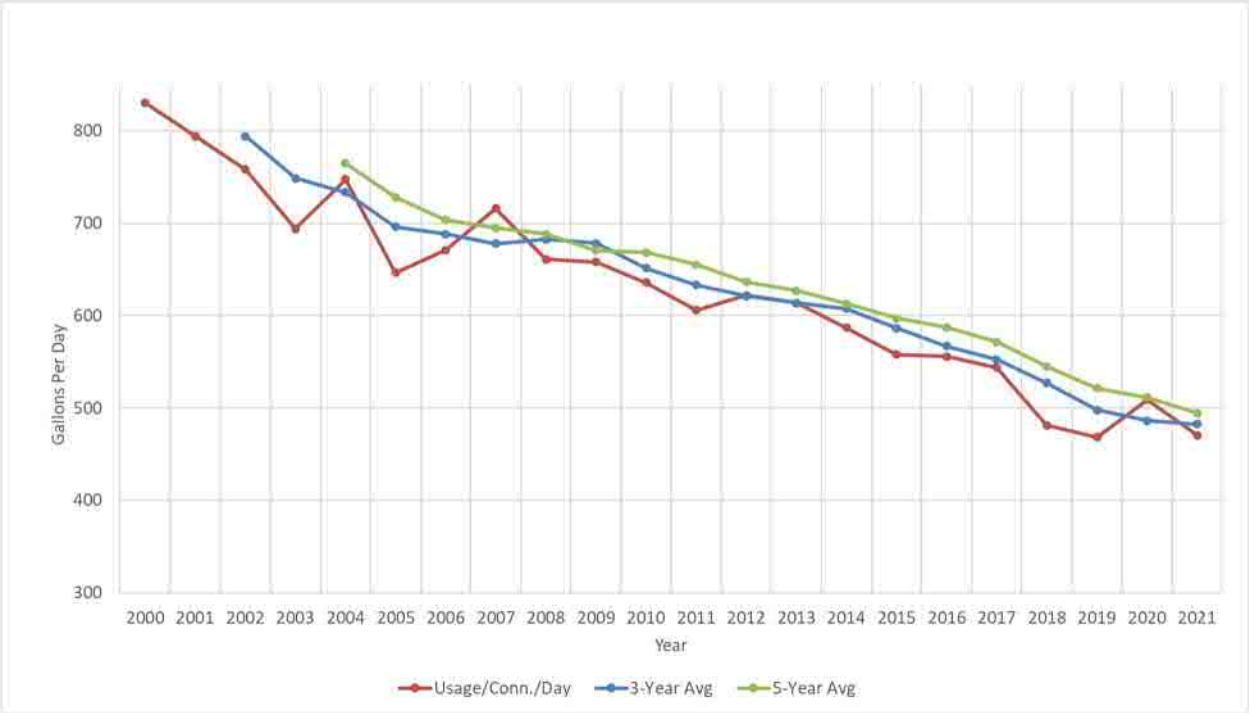
Culinary Usage

Culinary water usage data was also provided by the city for analysis. We were given total yearly water meter usage data from 2000 to 2021. The data has been tabulated and analyzed to determine usage trends for the city including the average usage per connection for the past 10, 5, and 3, years. The results of this analysis have been summarized in Table II.D-1 and Figure II.D-1.

Table II D-1: Average Culinary Water Usage

Residential	**10 year Average**	**5 year Average**	**3 year Average**
Usage (gallons)	475,287,750	500,683,800	510,887,333
Connections	2,386	2,781	2,900
Usage Per Connection (gal/year)	202,346	180,564	176,178
Daily Usage Per Connection (gal/day)	554	495	483
Commercial			
Usage (gallons)	14,430,000	22,314,800	27,273,667
Connections	54	36	39
Usage Per Connection (gal/year)	363,175	603,006	690,236
Daily Usage Per Connection (gal/day)	995	1,652	1,891
Equivalent Residential Unit	1.93	3.36	4.00
Non-Residential ERUs	76	125	155
Other			
Usage (gallons)	47,457,250	43,359,000	42,548,667
Connections	38	46	48
Usage Per Connection (gal/year)	1,573,890	940,419	897,140
Daily Usage Per Connection (gal/day)	4,312	2,576	2,458
Equivalent Residential Unit	7.54	5.21	5.00
Non-Residential ERUs	235	241	243
Total ERUs	2,696	3,147	3,297

Figure II. D-1: Santa Clara Average Residential Water Usage



The usage numbers presented above represent all uses of the culinary system, including outdoor usage for those who do not have irrigation access.

Typical trends in the area show that water usage per ERU has been trending down due to conservation efforts from individuals and usage rate structures promoting conservation. It has been found that Santa Clara usage has been trending down at a rate of approximately 2.5% each year on average.

The 3-year average **of 483 gallons per ERU per day** from 2019-2021 shown in Table II.D-1 above will be used in this analysis for the estimated 2023 usage. Following this conservative estimate, future usage will decrease each year by the historic -2.5% trend for the next five years followed by a 0.5% reduction every five years following (resulting in 2.0% in 2027, 1.5% in 2032, etc.).

Water usage also varies significantly throughout the year. During winter months, water usage typically goes down as outside watering becomes unnecessary. Peak water usage generally corresponds to summer months when outdoor watering is at its peak. To remain consistent with common practice, the peak demand for this report will use a peaking factor of 2.0 to result in a peak day demand of **966 gallons per day** for 2023.

Irrigation Usage

Irrigation water usage was provided by the city for the city metered residential and City Owned (Other) connections for the year 2021. The Canal Company provided meter data for 10 of their connections, which ended up being higher than the 10 residential city metered connections by approximately 2.6 times. Because of this it was assumed each future residential connection will have the same average usage as the existing canal company metered residential connections rather than the existing city metered connections. The data has been analyzed to determine usage trends for the city including the average usage per connection. The results of this analysis have been summarized in Table II.D-2.

Table II D-2: Irrigation Water Usage

Canal Company Residential (Based on Sample)	**2,021**
Usage (gallons)	222,705,751
Connections	643
Usage Per Connection (gal/year)	346,354
Daily Usage Per Connection (gal/day)	949
City Owned Residential	
Usage (gallons)	1,312,000
Connections	10
Usage Per Connection (gal/year)	131,200
Daily Usage Per Connection (gal/day)	359
Equivalent Residential Unit	0.38
ERUs	4
City Owned "Other"	
Usage (gallons)	42,542,000
Connections	7
Usage Per Connection (gal/year)	6,077,429
Daily Usage Per Connection (gal/day)	16,650
Equivalent Residential Unit	17.55
Non-Residential ERUs	123
Total Irrigation ERUs (City Owned/Metered)	127
Total Irrigation ERUs	770

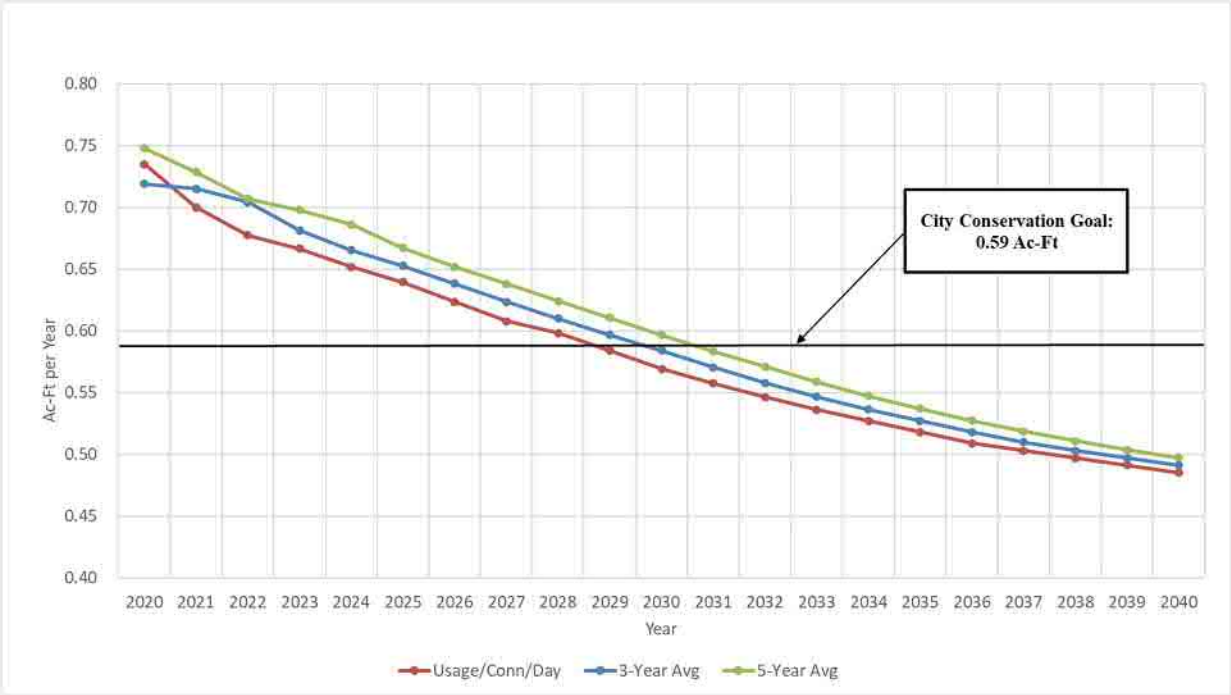
The average usage per residential connection is calculated to be **949 gallons per day**. This value is an average based on the number of active connections metered by the canal company in 2021. Future usage is assumed to follow the same negative trend of 2.5% as the culinary system.

Water usage also varies significantly throughout the year. During winter months, water usage typically goes down as outside watering becomes unnecessary. Peak water usage generally corresponds to summer months when outdoor watering is at its peak. To remain consistent with common practice, the peak demand for this report will use a peaking factor of 2.0 to result in a peak day demand of **1,898 gallons per day** for current irrigation water ERUs.

Combined Usage

The city has a goal to conserve usage to 0.59 ac-ft per connection per year for all culinary and irrigation usage. The 3-year average shows the current total usage to be 0.71 ac-ft per connection per year. With the population growth projection of 4.0% and the usage decrease of 2.5% for the next five years followed by a 0.5% reduction every five years following (resulting in a 2.0% in 2027, 1.5% in 2032, etc.), it is estimated the city goal should be reached by 2030. This is shown in Figure II.D-2 below.

Figure II. D-2: Santa Clara Projected Future Usage



The usage numbers presented above represent all uses of the culinary and irrigation systems, indoor and outdoor.

III. WATER RIGHTS ANALYSIS

A. EXISTING WATER RIGHT

The existing Santa Clara City water rights are identified in Table III.A-1 below. The water rights are listed according to number, source, and flow and separated between Culinary and irrigation sources. Santa Clara currently has an agreement with St. George City in regard to the Springs as a source. St. George has access to the springs for irrigation use, and in return Santa Clara receives a credit to access St. George culinary rights equal to the amount St. George uses in irrigation from the springs. St. George pulls from WR #81-742 and so the flow is not included in the total for this analysis.

Table III.A-1: Santa Clara Water Rights

Culinary Water Rights		**Flow**		
W.R. #	**Source**	**gpm**	**cfs**	**AcFt.**
81-782	Snow Canyon Compact	224.4	0.50	362.0
81-973	Snow Canyon Compact	439.8	0.98	709.5
81-893	Snow Canyon Wells # 6 & 7	897.6	2.00	1447.9
81-4123	Snow Canyon Wells # 6 & 7	1.7	0.00	2.7
81-4225	Snow Canyon Wells # 6 & 7	12.4	0.03	20.0
81-4226	Snow Canyon Wells # 6 & 7	5.2	0.01	8.4
	WCWCD Regional Supply Agreement			
Sub Total		1,581.2	3.5	2,550.6
81-149	Sheep Spring (Not in Use)	8.1	0.02	13.0
81-741	Miller, Beecham & Gray Springs (Not in Use)	54.7	0.12	88.3
81-742	Miller, Beecham & Gray Springs (St. George Agreement: Not Included in Total)	25.1	0.06	40.5
81-1061	Miller Springs (Not in Use)	4.9	0.01	8.0
Sub Total		67.7	0.2	109.3
Total Culinary		**1581.2**	**3.52**	**2659.8**
Secondary Water Rights		**Flow**		
W.R. #	**Source**	**gpm**	**cfs**	**AcFt.**
81-1496	J. Ross Hurst Entrada Well (Irrigation)	16.3	0.04	26.2
81-4189	Rex Jackson Sunbrook Well (Irrigation)	58.9	0.13	95.0
81-497	Crystal Lakes Sunbrook Well (Irrigation)	74.4	0.17	120.0
81-475	Ralph Hafen Well (Irrigation)	4.7	0.01	7.6
81-4184	McDermitt Well	93.0	0.21	150.0
Sub Total		247.2	0.6	398.8
	Irrigation Company 24 Shares (McDermitt)	0.0	0.00	96.0
	Irrigation Company 25.25 Shares (Santa Clara)	0.0	0.00	101.0
Sub Total		0.0	0.0	197.0
Total Secondary		**247.2**	**0.6**	**595.8**

The city currently participates in the Washington County Water Conservancy District (WCWCD) Regional Water Supply Agreement (RWSA) as a solution for additional culinary water sources. The city also has an agreement with the Santa Clara Field Canal Company as a solution for

additional irrigation water sources. Both agreements provide the mechanism for water to be supplied if there is not enough water right or source necessary for growth.

B. EXISTING REQUIRED CULLINARY WATER RIGHT

The State of Utah Public Administrative Rules for Public Drinking Water Systems, R309-510, states that a community should have adequate water right to supply each culinary ERU with 400 gallons per day for indoor water use, plus an amount for outdoor use as dictated by irrigated acreage and a consumptive use value obtained from the State guidelines. If adequate data exists, the provider is allowed to substitute historical usage data instead. The city historical average usage of 483 gallons per day per ERU will be used in this plan.

By multiplying the average water usage per ERU in the City by the number of existing ERUs, the current required amount of water rights can be determined as shown in Table III.B-1.

Table III.B-1: Current Required Water Right

Average Demand (Total Use)								
3,775	ERU's X	483 gpd / ERU X hr / min.	=	1,266	gpm			
3,775	ERU's X	483 gpd / ERU X Acft. / gal	=	2,042	Acft			
	Total Required Water Right			**2,042**	**Acft**	**1,266**	**gpm**	
	Existing Culinary System Water Right Surplus			**618**	**Acft**	**315**	**gpm**	

The existing water right surplus or deficit is determined by subtracting the current required water right demand of 2,042 ac-ft from the total available water right of 2,660 ac-ft, which yields a surplus of 618 ac-ft. The district currently has access to enough water rights to supply all of its existing culinary ERUs.

C. PROJECTED REQUIRED CULINARY WATER RIGHT

The projected amount of required water rights at the end of the 10-year planning period and at build-out can also be calculated by substituting the projected number of ERUs into the calculation for the current number of ERUs as shown in Table III.C-1 and Table III.C-2.

Table III.C-1: Projected 10-Year Required Water Right

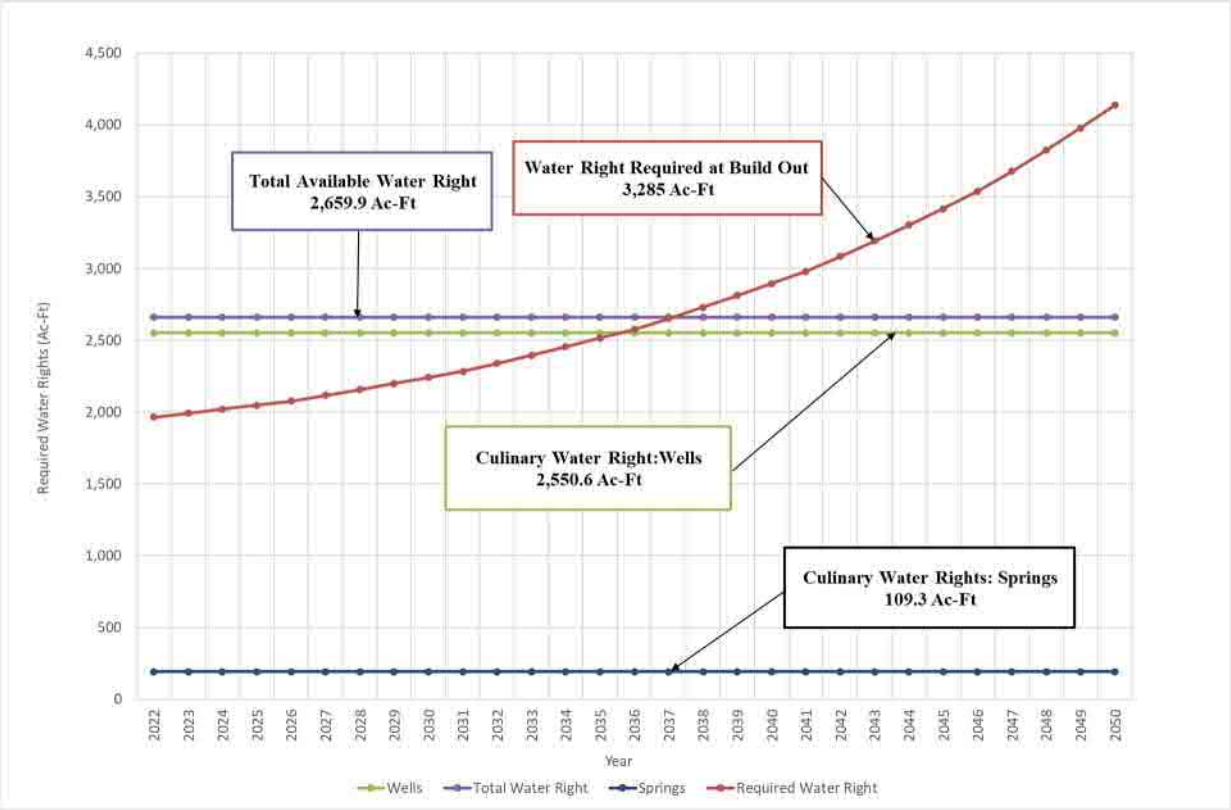
Average Demand (Total Use)								
5,587	ERU's X	383 gpd / ERU X hr / min.	=	1,485	gpm			
5,587	ERU's X	383 gpd / ERU X Acft. / gal	=	2,396	Acft			
	Total Required Water Right			**2,396**	**Acft**	**1,485**	**gpm**	
	Existing Culinary System Water Right Surplus			**264**	**Acft**	**96**	**gpm**	

Table III.C-2: Projected Build-Out Year Required Water Right

Average Demand (Total Use)								
8,557	ERU's X	343 gpd / ERU X hr / min.	=	2,036	gpm			
8,557	ERU's X	343 gpd / ERU X Acft. / gal	=	3,285	Acft			
	Total Required Water Right			**3,285**	**Acft**	**2,036**	**gpm**	
	Existing Culinary System Water Right Deficit			**(734)**	**Acft**	**(455)**	**gpm**	

The projected water right surplus or deficit is determined by subtracting the projected required water right from the total available water right. The 10-year projection results in a surplus of 264 ac-ft, and the build-out projection results in a deficit of 734 ac-ft. Figure III.C-1 shows the projected culinary water right demands vs. the City's existing available water right resources throughout the planning period.

Figure III.C-1: Culinary Water Right Resources vs. Projected Demand



D. EXISTING REQUIRED IRRIGATION WATER RIGHTS

Most of the irrigation system in Santa Clara is owned and operated by the Canal Company. Because of this, the city water rights will only need to service the connections owned by the city. By multiplying the average water usage per ERU in the City by the number of existing ERUs, the current required amount of water rights can be determined as shown in Table III.D-1.

Table III.D-1: Current Required Water Right

Average Demand (Total Use)							
127	ERU's X	949 gpd X hr / ERU min.	=	83	gpm		
127	ERU's X	949 gpd X Acft. / ERU gal	=	135	Acft		
	Total Required Water Right			**135**	**Acft**	**83**	**gpm**
	Existing Culinary System Water Right Surplus			**461**	**Acft**	**164**	**gpm**

The existing water right surplus or deficit is determined by subtracting the current required water right demand of 135 ac-ft from the total available water right of 596 ac-ft, which yields a surplus

of 461 ac-ft. The district currently has access to enough water rights to supply all of its existing ERUs.

E. PROJECTED REQUIRED IRRIGATION WATER RIGHTS

The projected amount of required water rights at the end of the 10-year planning period and at the end of the 20-year planning period can also be calculated by substituting the projected number of ERUs into the calculation for the current number of ERUs as shown in Table III.E-1 and Table III.E-2.

Table III.E-1: Projected 10-Year Required Water Right

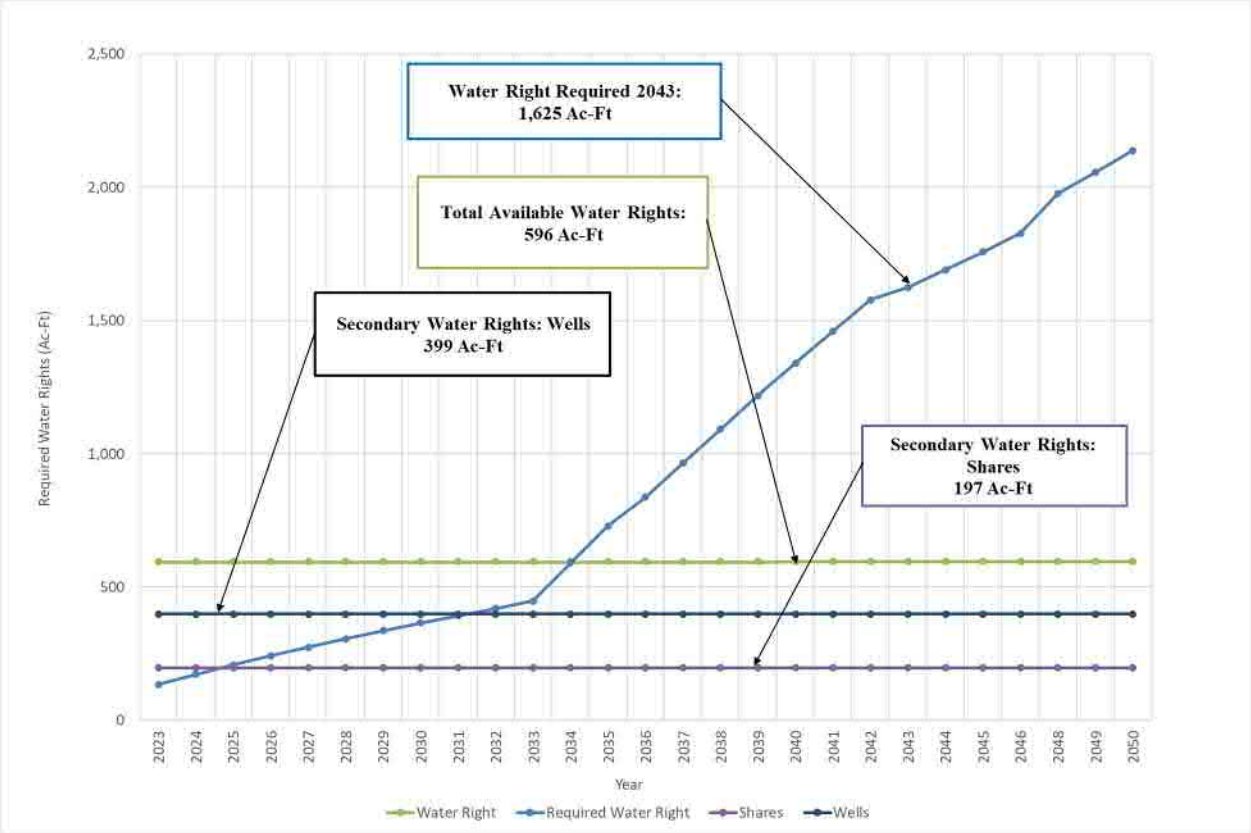
Average Demand (Total Use)								
523	ERU's X	764 gpd X hr / ERU min.	=	278	gpm			
523	ERU's X	764 gpd X Acft. / ERU gal	=	448	Acft			
	Total Required Water Right			**448**	**Acft**	**278**	**gpm**	
	Existing Culinary System Water Right Surplus			**148**	**Acft**	**(30)**	**gpm**	

Table III.E-2: Projected 20- Year Required Water Right

Average Demand (Total Use)								
2,303	ERU's X	630 gpd X hr / ERU min.	=	1,008	gpm			
2,303	ERU's X	630 gpd X Acft. / ERU gal	=	1,625	Acft			
	Total Required Water Right			**1,625**	**Acft**	**1,008**	**gpm**	
	Existing Culinary System Water Right Deficit			**(1,029)**	**Acft**	**(760)**	**gpm**	

The projected water right surplus or deficit is determined by subtracting the projected required water right from the total available water right. The 10-year projection results in a surplus of 148 ac-ft, and the 20-year projection results in a deficit of 1,029 ac-ft. Figure III.C-1 shows the projected irrigation water right demands vs. the City's existing available water right resources throughout the planning period.

Figure III.C-1: Irrigation Water Right Resources vs. Projected Demand



F. RECOMMENDED IRRIGATION WATER RIGHT IMPROVEMENTS

Culinary Recommendation

The projections in this analysis show that the City does not have sufficient water rights to meet the needs of customers over the next 20 years and through the projected year of build-out. However, the RWSA in place provides additional water to the city if needed. It is recommended that Santa Clara City protect all existing water rights not currently being used in their system. It is not in the scope of this report to derive specific recommendations for each individual right or provide detailed analysis of protections or strategies. However, a recent Water Right Report was performed, and the recommendations listed have been included below. Further consultations with a water rights professional to make sure that all the water rights and agreements are protected is recommended.

- WR #81-782: Update the Title from "Town of Santa Clara" to "City of Santa Clara"
- WR #81-973: Update the Title from "Town of Santa Clara" to "City of Santa Clara"
- WR #81-149: Update the Title from "Town of Santa Clara" to "City of Santa Clara"
- WR #81-741: Update the Title from "Town of Santa Clara" to "City of Santa Clara" and have the state update and correct flow rate error

- WR #81-742: Update the Title from "Town of Santa Clara" to "City of Santa Clara" and Proof of Beneficial Use
- WR #81-1061: Update the Title from "Town of Santa Clara" to "City of Santa Clara"

Irrigation Recommendation

The projections in this analysis show that the City has sufficient water rights to meet the needs of customers over the next 10 years if the well water rights are accessed. If the 49.25 shares are the only water rights utilized there are not sufficient water rights to meet the needs of the customers once city projects and planned developments are completed. If the City exceeds its water shares they can purchase water from the irrigation company, but it is recommended that the city obtain additional shares to mitigate the need for this. An opinion of probable cost for purchasing shares to cover growth has been included in the appendix of this report.

It is also recommended that Santa Clara City protect all existing water rights not currently being used in their system. It is not in the scope of this report to derive specific recommendations for each individual right or provide detailed analysis of protections or strategies. However, a recent Water Right Report was performed, and the recommendations listed have been included below. Further consultations with a water rights professional to make sure that all the water rights and agreements are protected is recommended.

- WR #81-475: File a change application for municipal use
- WR #81-497: File a change application for municipal use
- WR #81-1496: File a change application for municipal use
- WR #81-4184: Proof of Beneficial Use is past due
- WR #81-4189: File a change application for municipal use

IV. WATER SOURCE CAPACITY ANALYSIS

A. EXISTING CULINARY WATER SOURCE CAPACITY

To analyze source capacity, all available culinary water sources must first be identified. The City has several shared wells and an agreement that only allows them to have 24.7% of the capacity. Well flows were provided by the city and the total flow incorporating this percentage gives Santa Clara 2,662 gpm of source capacity as shown in Table IV.A-1 below.

Table IV.A-1: Santa Clara Culinary Water Source Capacity

	Total Flow	Santa Clara's 24.7%	
Shared Wells	**gpm**	**CFS**	**gpm**
Snow Canyon #3a	530	0.292	131
Snow Canyon #2	600	0.330	148
Snow Canyon #3	430	0.237	106
Snow Canyon #4	500	0.275	124
Snow Canyon #5	215	0.118	53
Sub-total Shared Wells =		1.252	562
Santa Clara Owned Sources		**CFS**	**gpm**
Snow Canyon Well #6		2.005	900
Snow Canyon Well #7		1.114	500
Regional Water Line / Wash. County water district ?		1.560	700
Sub-total Santa Clara Owned Water =		4.679	2,100
Total Culinary Water Source=		**5.931**	**2,662**

B. EXISTING REQUIRED CULINARY WATER SOURCE CAPACITY

The State of Utah Public Administrative Rules for Public Drinking Water Systems, R309-510, states that a water system should have an adequate water source capacity to supply peak day demand. This is implied to be twice the amount of average day demand. Doubling the historical usage results in a peak day demand of 966 gpd/ERU.

By multiplying the peak day culinary water usage per ERU by the number of existing ERUs, the existing required culinary water source capacity was determined. This calculation is shown below in Table IV.B-1.

Table IV.B-1: Current Required Culinary Water Source Capacity

Required Indoor/Outdoor Source						
3,775 ERU's X	966 gpd / ERU X	1 day / 24 hr X	1 hr / 60 min.	=	2,532	gpm
Total Required Source Capacity					**2,532**	**gpm**
Existing Culinary System Source Capacity Surplus					**130**	**gpm**

The existing source capacity surplus or deficit is determined by subtracting the existing required source capacity of 2,532 gpm from the total available source capacity of 2,662 gpm (as limited by the water right and well share agreement), which yields a surplus of 130 gpm.

C. PROJECTED REQUIRED CULINARY WATER SOURCE CAPACITY

The projected amount of required source capacity at the end of the 10-year planning period and at build-out is determined from the same information and calculations explained in Part B, except the projected number of culinary water ERUs is substituted into the calculations for the current number of ERUs as shown in Table IV.C-1 and Table IV.C-2.

Table IV.C-1: Projected 10-Year Required Culinary Water Source Capacity

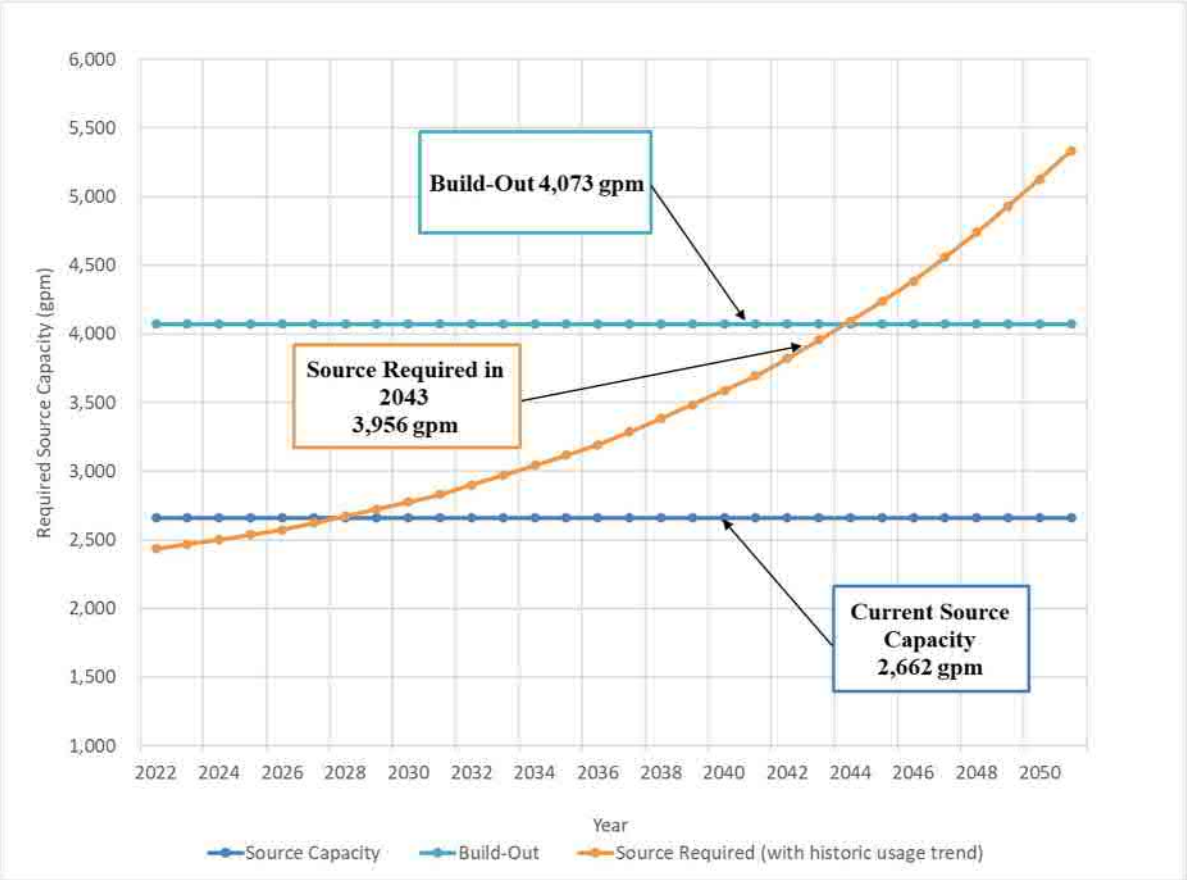
Required Indoor/Outdoor Source								
5,587	ERU's X	766	gpd X	1 day X	1 hr	=	2,971	gpm
			ERU	24 hr	60 min.			
Total Required Source Capacity							**2,971**	**gpm**
Existing Culinary System Source Capacity Deficit							**(309)**	**gpm**

Table IV.C-2: Projected Build-out Required Culinary Water Source Capacity

Required Indoor/Outdoor Source								
8,557	ERU's X	685	gpd X	1 day X	1 hr	=	4,073	gpm
			ERU	24 hr	60 min.			
Total Required Source Capacity							**4,073**	**gpm**
Existing Culinary System Source Capacity Deficit							**(1,411)**	**gpm**

The projected source capacity surplus or deficit is determined by subtracting the projected required source capacity from the total available source capacity. The 10-year projection results in a deficit of 309 ac-ft, and the build-out projection results in a deficit of 1,411 ac-ft. Figure IV.C-1 shows the projected culinary water source capacity demands vs. the City's existing available source capacity resources throughout the planning period.

Figure IV.C-1: Culinary Water Source Capacity Resources vs. Projected Demands



D. RECOMMENDED CULINARY WATER SOURCE CAPACITY IMPROVEMENTS

The projections in this analysis show that the City does not have sufficient source capacity to meet the needs of customers over the next 20 years and through the projected year of build-out. It is recommended that the city drill and equip a new well to increase their source capacity.

V. WATER STORAGE CAPACITY ANALYSIS

A. EXISTING CULINARY WATER STORAGE CAPACITY

To analyze storage capacity, all available culinary water storage must first be identified. The existing storage facilities consist of three concrete tanks. The total storage is 4,100,000 gallons as shown in Table V.A-1 below.

Table V.A-1: Santa Clara Culinary Water Storage Capacity

Existing Storage Capacity:		
Snow Canyon Compact tanks	600,000	gal.
Concrete tank at Snow Canyon	2,500,000	gal.
South Hills Tank	1,000,000	gal.
Total Existing Capacity =	**4,100,000**	**gal.**

B. EXISTING REQUIRED CULINARY WATER STORAGE CAPACITY

Water storage capacity requirements are found in the State of Utah Administrative Rules for Public Drinking Water Systems, R309-510. These regulations require storage for a community's culinary water system to meet one full day's use requirement for all water connections, plus the required fire flows for a minimum of one hour.

As shown in previous sections, the average water use per ERU is 483 gallons per day of culinary water for indoor and outdoor use. Storage requirements for fire protection vary slightly from community to community. In general, fire flow requirements are set by the local Fire Chief or are based on building size and type of construction. The Statewide minimum fire flow is 1,000 gpm for dwellings under 3,600 square feet and 1,500 gpm for larger dwellings. Based on the varying size of homes in the city a fire flow of 1,250 gpm will be used. Based on this information, the current required storage capacity is calculated as shown in Table V.B-1.

Table V.B-1: Current Required Culinary Water Storage Capacity

Required Culinary Water Storage Capacity										
		483	gpd / ERU	X	3,775	ERU		=	1,823,140	gpd
1,250	gpm	X	60 / 1	min / hr	X		2 hr	=	150,000	gal.
								Total Existing Required Storage	1,973,140	gal.
								Total Existing Capacity	4,100,000	gal.
								Existing Capacity Surplus	2,126,860	gal.

The existing water storage capacity surplus or deficit is determined by subtracting the current required water storage capacity of 1,973,140 gallons from the total available water storage capacity of 4,100,000 gallons, which yields an existing surplus of 2,126,860 gallons.

C. PROJECTED REQUIRED CULINARY WATER STORAGE CAPACITY

The projected required culinary water storage capacity at the end of the 10-year planning period and build-out are determined from the same factors explained previously, but the projected number of culinary water ERUs is inserted into the calculations as shown in Table V.C-1 and Table V.C-2.

Table V.C-1: Projected 10-Year Required Culinary Water Storage Capacity

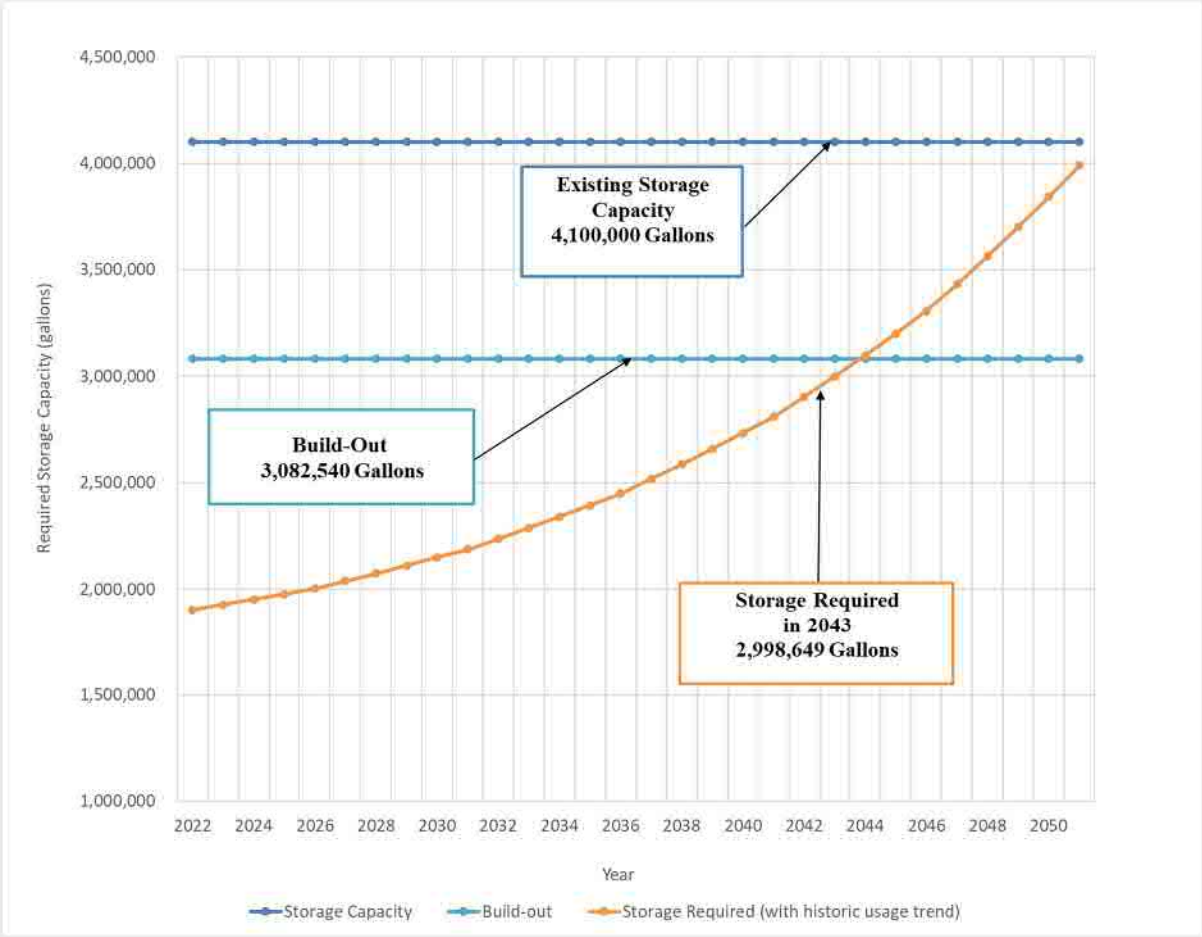
Required Culinary Water Storage Capacity										
		383	gpd	X	5,587	ERU		=	2,138,823	gpd
			ERU							
1,250	gpm	X	60	min	X		2	hr =	150,000	gal.
			1	hr						
								Total Existing Required Storage	2,288,823	gal.
								Total Existing Capacity	4,100,000	gal.
								Existing Capacity Surplus	1,811,177	gal.

Table V.C-2: Projected Build-out Required Culinary Water Storage Capacity

Required Culinary Water Storage Capacity										
		343	gpd	X	8,557	ERU		=	2,932,540	gpd
			ERU							
1,250	gpm	X	60	min	X		2	hr =	150,000	gal.
			1	hr						
								Total Required Storage	3,082,540	gal.
								Total Existing Capacity	4,100,000	gal.
								Future Capacity Surplus	1,017,460	gal.

The projected water storage capacity surplus or deficit is determined by subtracting the projected required water storage capacity. The 10-year projection results in a surplus of 1,811,177 gallons, and the build-out projections results in a surplus of 1,017,460 gallons. Figure V.C-1 shows the projected culinary water storage capacity demands vs. the City's existing available storage capacity resources throughout the planning period.

Figure V.C-1: Culinary Water Storage Capacity vs. Projected Demands



The district has adequate storage for emergency fire flow and average flows for the 20-year planning horizon and until estimated year of build-out.

D. EXISTING ELEVATION CONSTRAINTS

It should be mentioned that, based on minimum pressure requirements at the service connections, the existing tanks have limitations on the development elevations that the tanks can serve. Currently the areas in Santa Clara's zoning map designated for future development do not raise any concerns. However, if the "South Hills" area currently zoned as "Open Space" is ever developed this area will require a new tank to accommodate the higher elevation.

E. RECOMMENDED CULINARY WATER STORAGE CAPACITY IMPROVEMENTS

The projections in this analysis show that the City has sufficient storage capacity to meet the needs of customers until build-out. It is recommended that the city continue to watch usage trends and population growth and prepare accordingly.

VI. WATER TREATMENT REQUIREMENTS

A. GENERAL REQUIREMENTS

Santa Clara City currently does not chlorinate its culinary water as it is already chlorinated by the Snow Canyon Compact. However, the tank facility in the South Hills was designed with the capability to generate and dose water in the tank with sodium hypochlorite should the chlorine level in the tank drop below acceptable levels.

The Snow Canyon Compact wells currently provide water that exceeds the maximum arsenic levels allowed by the E.P.A. for drinking water. The current practice is to treat this water as necessary by dilution with WCWCD Regional Water at the approximate ratio of 63:37 compact water to regional water and mixing with water from Wells 6 and 7. There are no plans to modify this procedure; however, the City of St. George has recently completed an arsenic treatment plant for the Gunlock Well Fields. This may provide an additional treated source for exchange or mixing. There are treatment options available if necessary.

B. RECOMMENDED WATER TREATMENT FACILITY IMPROVEMENTS

No additional water treatment is anticipated with the City's current system. However, continued vigilance is recommended to ensure that the chlorine residual is maintained at various points in the system. Should the water need a chlorine residual, there are several options that the city can consider. One option is to add a sodium hypochlorite plant to generate the chlorine onsite, which can then be injected into the system.

VII. WATER DISTRIBUTION SYSTEM ANALYSIS

A. EXISTING CULINARY DISTRIBUTION SYSTEM ANALYSIS

The State of Utah Administrative Rules for Public Drinking Water Systems, R309-510, require distribution systems to be sized to supply peak instantaneous flows, while maintaining a minimum system pressure of 30 psi. The rule also requires that distribution systems are able to supply peak day flows plus fire flows for a minimum of 1 hour, while maintaining a minimum system pressure of 20 psi. The system also needs to provide peak day flows while maintaining a minimum system pressure of 40 psi. As a general guideline, it is recommended that the system be able to provide a minimum static pressure of 50 psi at every point in the distribution system.

The indoor peak instantaneous demand equation (see Table VII.A-1) is found in the State of Utah Public Administrative Rules for Drinking Water Systems, R309-510. This rule also provides a flow requirement of 9.8 gpm per irrigated acre for use in determining the outdoor peak instantaneous demand. By taking a representative sample of homes/yards in Santa Clara and averaging the area of irrigated landscaping, an average area of 0.13 irrigated acres per ERU was determined and used to estimate the outdoor peak instantaneous demand. The number of outdoor ERUs represents the estimated number of existing ERUs using culinary water for irrigation. This was done by subtracting the number of irrigation ERUs from the total culinary ERUs.

Table VII.A-1: Current Required Distribution Demands

Indoor Peak Instantaneous Demand:						
Q=	10.8 X N^.64		N= Number of ERU's			
Q=	10.8 X (3775) ^.64					
Q=				=	2,102	gpm
Outdoor Peak Instantaneous Demand:						
	2,937 ERU. X	0.13 acre / ERU X	9.8 gpm / irr. acre	=	3,742	gpm
	Current Peak Instantaneous Demand			=	**5,844**	**gpm**
Peak Day Demand & Fire Flow						
3,775	ERU's X	966 gpd / ERU X	1 day / 24 hr	1 hr / 60 min. =	2532	gpm
	Fire Flow			=	1,250	gpm
	Current Peak Day Demand + Fire Flow			=	**3,782**	**gpm**

As previously discussed, the peak day demand is twice the average amount of historical usage, or 966 gpd/ERU. The State regulation for fire flow requires a minimum of 1,000 gpm, but the City

has identified 1,250 gpm as a goal for all hydrants throughout the City and therefore 1,250 gpm has been used for this analysis. State regulations require all fire hydrants to be served from 8-inch diameter or larger pipelines unless it can be proven through the use of modeling that 6-inch lines are sufficient.

The existing Santa Clara culinary water distribution system has been modeled for these demands using the computer program infowater® by Innovyze®. The main network of Santa Clara City's distribution system appears to be providing good service to the majority of connections. At the existing peak day demand, the model shows that all the junctions in the system are able to produce the required fire flows while maintaining the minimum required pressure of 20 psi at all other connections. The system was capable of maintaining pressures of 30 psi at all nodes while experiencing peak instantaneous demands and 40 psi while experiencing peak day demands.

B. PROJECTED CULINARY DISTRIBUTION SYSTEM ANALYSIS

The projected distribution system analysis is performed using the same assumptions as in the existing system analysis, except that the projected number of ERUs in 2043 are inserted into the calculations. Table VII.B-1 subtracts the projected number of irrigation ERUs in 2043 without the irrigation recommended improvements and Table VII.B-2 subtracts the projected number of irrigation ERUs in 2043 with the recommended irrigation improvement projects. These recommendations have been made to aid in conservation and can be seen in the following section VIII.

Table VII.B-1: Projected 20-Year Required Distribution Demands without Irrigation Projects

Indoor Peak Instantaneous Demand:						
Q=	10.8 X N^.64		N= Number of ERU's			
Q=	10.8 X 8,271 ^.64					
Q=					=	3,473 gpm
Outdoor Peak Instantaneous Demand:						
	3,162 ERU. X	0.13 acre X / conn.	9.8 gpm / irr. acre		=	4,028 gpm
	Projected Peak Instantaneous Demand				=	**7,501 gpm**
Peak Day Demand & Fire Flow						
8,271	ERU's X	689 gpd X / ERU	1 day / 24 hr	1 hr / 60 min.	=	3,956 gpm
	Fire Flow				=	1,250 gpm
	Projected Peak Day Demand + Fire Flow				=	**5,206 gpm**

Table VII.B-2: Projected 20-Year Required Distribution Demands with Irrigation Projects

Indoor Peak Instantaneous Demand:						
Q=	10.8 X N^.64		N= Number of ERU's			
Q=	10.8 X	8,271 ^.64				
Q=					=	3,473 gpm
Outdoor Peak Instantaneous Demand:						
	2,714 ERU. X	0.13 acre X / conn.	9.8 gpm / irr. acre		=	3,457 gpm
	Projected Peak Instantaneous Demand				=	**6,930 gpm**
Peak Day Demand & Fire Flow						
8,271	ERU's X	689 gpd X / ERU	1 day / 24 hr	1 hr / 60 min.	=	3,956 gpm
	Fire Flow				=	1,250 gpm
	Projected Peak Day Demand + Fire Flow				=	**5,206 gpm**

Modeling the future system without any improvements projected that the system is capable of maintaining pressures of 30 psi at all nodes while experiencing peak instantaneous demands and 40 psi while experiencing peak day demands. The system is also capable of providing the minimum required pressure of 20 psi while producing the required fire flow. However, there were areas in the system where pipe flow velocities are anticipated to be above 5 ft/s. Recommendations have been made to decrease flows in these areas.

A final model incorporating the recommended culinary distribution system improvements has also been created. This system was modeled using the projected 2043 system demands with and without irrigation improvements. With these modifications, the system will be able to meet all state requirements and protect pipes by decreasing velocity.

C. EXISTING IRRIGATION DISTRIBUTION SYSTEM ANALYSIS

Unlike Culinary water systems, there are no State irrigation system requirements regarding pressure. However, the same general guideline Sunrise recommends for culinary systems was used for the irrigation distribution system analysis. Namely, that the system be able to provide a minimum static pressure of 50 psi at every point in the distribution system.

The peak day demand, which is twice the average usage of 719 gpd/ERU has been used in this analysis and shown Table VII.C-1.

Table VII.C-1: Current Required Distribution Demands

$$127 \text{ ERU's} \times \frac{1{,}898 \text{ gpd}}{\text{ERU}} \times \frac{1 \text{ day}}{24 \text{ hr}} \times \frac{1 \text{ hr}}{60 \text{ min.}} = 167 \text{ gpm}$$

The existing Santa Clara irrigation water distribution system has been modeled for these demands using the computer program infowater® by Innovyze®. The main network of Santa Clara City's distribution system appears to be providing sufficient service to all of the connections. At the existing average day demand and peak day demand, the model shows that all the junctions in the system are able to produce the recommended 50 psi.

D. PROJECTED IRRIGATION DISTRIBUTION SYSTEM ANALYSIS

The projected distribution system analysis is performed using the same assumptions as in the existing system analysis, except that the projected number of ERUs in 2043 are inserted into the calculations. The projected peak day demand is calculated in Table VII.D-1 below.

Table VII.D-1: Projected 20-Year Required Distribution Demands

$$2{,}303 \text{ ERU's} \times \frac{1{,}260 \text{ gpd}}{\text{ERU}} \times \frac{1 \text{ day}}{24 \text{ hr}} \times \frac{1 \text{ hr}}{60 \text{ min.}} = 2{,}015 \text{ gpm}$$

Modeling the future system with the included expansion projects shows that the system is capable of maintaining pressures of 50 psi at all nodes while experiencing peak demands. More infowater analysis information can be found in Appendix B.

E. RECOMMENDED DISTRIBUTION SYSTEM IMPROVEMENTS

In an effort to meet the State requirements for future demands and improve conservation efforts the following distribution system improvements are recommended. The recommendations exhibits are shown in Appendix A.

- New 12" line connecting North Hamblin Parkway to North Town Road
- 10" to 12" PRV Enlargement
- 12" Line to connect Wells 6/7 to the Snow Canyon Tank
- New 8" irrigation line along Riesling Avenue
- New of 8" irrigation line along Crestview Drive
- New 8" irrigation line to connect Villa Bonita subdivision
- New 8" line along North Town Road
- New 8" line along Sycamore Drive

VIII. SUMMARY OF RECOMMENDED SYSTEM IMPROVEMENTS

A. RECOMMENDED SYSTEM IMPROVEMENTS

Based on the findings from Sections III - VII, showing immediate system needs as well as requirements for growth projected over the next 20 years and build-out, it is recommended that the City proceed with a construction project to implement improvements as required to bring the system into conformance with State rules and maintain the same level of service. Table VIII.A-1 summarizes the recommended improvements.

Table VIII.A-1: Recommended System Improvements

RECOMMENDED WATER SYSTEM IMPROVEMENTS	
ANALYSIS	RECOMMENDED IMPROVEMENTS
1. Water Rights	Recommendations given in the Water Rights Report including: 1. Application changes 2. Title changes 3. Proof of Beneficial Use 4. State flow correction 5. Purchase additional Water Shares
2. Water Source Capacity	A new well
3. Water Storage Capacity	No Improvements
4. Water Treatment	Continue to monitor chlorine residual in system
5. Distribution System	1. New 12" line connecting North Hamblin Parkway to North Town Road 2. 10" to 12" PRV Enlargement 3. New 12" Line to connect Wells 6/7 to the Snow Canyon Tank 4. New 8" irrigation line along Riesling Avenue 5. New of 8" irrigation line along Crestview Drive 6. New 8" irrigation line to connect Villa Bonita subdivision 7. New 8" line along North Town Road 8. New 8" line along Sycamore Drive

B. PRELIMINARY ENGINEER'S OPINION OF PROBABLE COST

An Engineer's Opinion of Probable Cost (EOPC) for the recommended water system improvements has been provided in Appendix D.

The EOPC includes all anticipated construction costs, contingency budgets, and all other normal project costs such as survey, administration, engineering, legal services, fiscal costs, rights-of-way, etc. A summary of the project cost estimates is included in Table VIII.B-1.

Table VIII.B-1: Project Cost Summary

Project Description	Total Cost
Culinary: Water Right Recommendations	$ 18,000
Culinary: North Hamblin Pkwy to North Town Rd 12" Line	$ 292,400
Culinary: 10" to 12" PRV Enlargement	$ 208,550
Culinary: 12" Line Well Connection to Snow Canyon Tank	$ 4,170,000
Culinary: New Well	$ 2,114,350
Irrigation: Riesling Avenue 8" Line	$ 136,140
Irrigation: Crestview Drive 8" Line	$ 505,230
Irrigation: Villa Bonita 8" Line	$ 99,900
Irrigation: North Town Road 8" Line	$ 579,665
Irrigation: Sycamore Drive 8" Line	$ 124,470
Irrigation: Claude Drive 8" Line	$ 124,470
Irrigation:Additional Water Share Purchase	$ 363,600
TOTAL PROJECT COSTS	$ 8,736,775

C. PROPOSED FINANCING PLAN

The City plans to self-fund the proposed projects. Table VIII.C-1 outlines a sample financing scenario for the recommended improvements starting in fiscal year 2024/25. It is assumed that no grants will be received and that all projects will be completed within 14 years.

TABLE VIII.C-1
PROPOSED FINANCING PLAN

PROJECT COST 2024/25			**$ 624,055**
FY 2024/25 EXPENSES			
Proposed Funding:	**Rate**	**Term in Yrs.**	**Principal**
Self Participation			624,055
TOTAL PROJECT FUNDING:			**$624,055**
EXPENSES: (First Year of New Debt Serv. Pmt.)			
Salaries, Wages, & Benefits (100's)			$659,545
Materials & Supplies (200's)			$444,095
Professional & Technical Services (300's)			$51,577
Special Dept. Materials & Supplies (400's)			$70,481
Other Charges (500's)			$28,411
Capital Expenses (700's)			$178,115
Others (900's)			$658,344
Subtotal Operations and Maintenance:			**$2,090,567**
EXISTING DEBT SERVICE	**Not Impact Fee Eligible**		
Debt Payment to Water District	58%		$36,888
All other Debt			$165,719
Subtotal Existing Annual Debt Service:			**$202,607**
Renewal and Replacement Fund			$156,349
GRAND TOTAL EXPENSES:			**$3,073,578**
ANNUAL INCOME			
Other Operating Revenues			58,460.89
Interest Income			41,554.41
Connection Fees			36,885.00
Impact Fees			480,022.65
Total Number Of ERU's			3,926
Average Monthly Water User Rate/ERU (Without WCWCD Surcharge)			**$52.15**
WCWCD Surcharge			**$1.75**
Average Monthly Water User Rate/ERU (With WCWCD Surcharge)			**$53.90**
TOTAL ANNUAL INCOME:			**$3,073,578**

IX. WATER RATE ANALYSIS

A. GENERAL

Generally, water rates are a combination of base rates and overage rates wherein a base amount of water is provided for the base rate charge. The base rate is charged to all connections in the system whether or not water is used and should cover all fixed costs of the system. Overage rates are normally set to encourage water conservation but should always cover all variable costs of the system. The City has established the following service fee rate structures shown in Table IX.A-1 and Table IX.A-2:

Table IX.A-1: Existing Culinary Water Rates

Current Overage Rates (Per 1,000 Gallons)		Monthly Base Rate	
		Meter Size	$/month
5001-9000	$ 0.80	5/8" & 3/4"	$ 32.00
9001-16000	$ 1.33	1"	$ 57.60
16001-23000	$ 1.58	1-1/2"	$ 128.00
23001-30000	$ 2.02	2"	$ 224.00
30001-45000	$ 2.46	3"	$ 512.00
45001-60000	$ 3.02	4"	$ 928.00
60001 & UP	$ 3.65	6"	$ 2,048.00

Table IX.A-2: Existing Irrigation Water Rates

Current Overage Rates (Per 1,000 Gallons)		Monthly Base Rate	
		Meter Size	$/month
9000-16,000	$ 0.74	All Meters	$ 22.00
16,001-23,000	$ 0.92		
23,000-30,000	$ 1.23		
30,001 & UP	$ 1.46		

B. AVERAGE RATE DETERMINATION FOR FY2024

Culinary Rate

Table IX.B-1 shows a method used to determine the average water rate per ERU which should be divided among all system customers. The table uses data for the year of the new debt service (2024) and uses the existing and new debt service as part of the equation.

Annual revenues must be sufficient to cover the expenses incurred by the construction, maintenance, and administration of the water system. These expenses could include items such as debt service, personnel services, operation & maintenance, insurance, and other supplies & expenses. It is strongly recommended that the city maintain a funded depreciation account or a replacement fund to provide the money necessary for replacement and repair of water department facilities and pipelines.

Based on the calculations shown in Table VIII.C-1, the average water rate per residential connection (1 ERU) for any newly adopted rate structure for the year 2024 would need to be approximately $52.15. It should be noted that this assumes that the system has grown to 3,926 ERUs and that the district has chosen to pursue construction of the proposed improvements. It is estimated that this rate would allow the city to pay the debt and operations costs associated with the culinary water system. The existing average monthly user rate revenue per residential connection in 2021 was calculated to be $41.45 and determined to be insufficient to meet the $52.15 per ERU that was calculated. A rate increase of $10.70 is estimated to be needed to cover the anticipated expenses; however, rates should be looked at annually as expenses increase in a typical year.

Table IX.B-1: Culinary Fixed Rate Analysis

FIXED RATE ANALYSIS			
Estimated FY 2024 Expenses	**Fixed**	**Variable**	**Total**
Salaries, Wages, & Benefits (100's)	$ 461,682	$ 197,864	$ 659,545
Materials & Supplies (200's)	$ 310,867	$ 133,229	$ 444,095
Professional & Technical Services (300's)	$ 36,104	$ 15,473	$ 51,577
Special Dept. Materials & Supplies (400's)	$ 49,337	$ 21,144	$ 70,481
Other Charges (500's)	$ 19,888	$ 8,523	$ 28,411
Capital Expenses (700's)	$ 124,680	$ 53,434	$ 178,115
Others (900's)	$ 460,841	$ 197,503	$ 658,344
EXISTING DEBT SERVICE	$ -		
Debt Payment to Water District	$ 36,888	$ -	$36,888
All other Debt	$ 165,719	$ -	$165,719
	$ -		
NEW DEBT SERVICE	$ -		
Division of Water Resources	$ -	$ -	$ -
Revenue Bond Reserves 10%	$ -	$ -	$ -
Estimated FY 2024 Revenue (Excluding User Fees)			
Other Operating Revenues	$ 40,923	$ 17,538	$ 58,461
Connection Fees	$ 9,221	$ 27,664	$ 36,885
Impact Fees	$ 120,006	$ 360,017	$ 480,023
Interest Income	$ 10,589	$ 31,767	$ 42,356
Total Expenses:	$ 2,165,248	$ 908,330	**$ 3,073,578**
Total Revenue:	$ 180,738	$ 436,986	**$ 617,724**
Total Projected System ERUs in FY2024	3,926		3,926
Monthly Cost/ERU in FY2024	$42.15	$10.01	**$52.15**

Irrigation Rate

A similar method to determine culinary water rates was used for irrigation. However, all the proposed projects for the irrigation system have been included as culinary projects because they minimize future culinary outdoor usage. Because of this, the only costs incorporated in the irrigation system rate determination is an anticipated cost of $50,000 for maintaining and operating the system. This value was assumed based on comparison of the city culinary system expenses and size in relation to the irrigation system size. Because the usage between residential and "other" connections is so different in the irrigation system, rates were also determined based on connection type rather than ERUs. This is shown in Table IX.B-2 below.

Table IX.B-2: Irrigation Fixed Rate Analysis

FIXED RATE ANALYSIS			
Estimated Annual Expenses FY 2023/24	**Fixed**	**Variable**	**Total**
Operating Expenses	$ 40,000	$ 10,000	$50,000
Project Cost	$ -	$ -	$ -
Renewal and Replacement Fund	$ -	$ 2,500	$2,500
Total Expenses:	$ 40,000	$ 12,500	**$ 52,500**
Estimated Annual Revenue FY 2023/24			
Residential Connections			54
"Other" Connections			8
Monthly Cost/Res Connection	$17.15	$5.36	**$22.51**
Monthly Cost/"Other" Connection	$300.93	$94.04	**$394.97**

C. BASE AND OVERAGE RATE DETERMINATION

This study includes separating the average user rate into base and overage rates and investigates possible rate structures that would promote conservation and work hand-in-hand with drought management policies. In order to determine a base and overage schedule, the projected expenses of the water system for 2024 have been separated into fixed and variable expenses (Table IX.B-1). It is recommended that the base rate should cover the fixed expenses of the system. Tables IX.B-1 and XI.B-2 above suggest possible scenarios for determining base and overage rates for the city. Fixed costs are covered by the base rate and variable costs are covered by the overage rates. This rate scenario simply identifies base and overage rates that should satisfy the revenue requirements based on estimated operation and maintenance (O&M) expenses and on projected water usage. The city is able to set the rate structure to any amount it deems to be fair. However, the rates should be such that the system remains financially viable. The city may decide to lower the base rate and increase variable costs in order to promote further conservation.

The city should have a rate schedule that will result in revenues that will provide the necessary culinary water system improvements as recommended in this Plan and maintain the current level of O&M. The base and overage rates should be examined each year to ensure that enough revenue is being generated to cover the expenses.

D. POSSIBLE RATE STRUCTURE

Culinary Rate Structure

Table IX.D-1 illustrates a possible rate structure based on the base and overage rates suggested in Section C and city council preference. This rate structure is designed to have an average bill of $52.15+ per ERU each month. The average bill was determined using the average monthly water use of approximately 14,700 gallons which is based on the historical average usage of 483 gpd. The way to confirm that the average rate produced will cover annual expenses is to implement the structure and evaluate the results after a full year of use.

Calculations based on the City's financial data show that the proposed rate structures should provide an average rate revenue sufficient to sustain the system. It is recommended that, if in a given year there are excess funds generated by the existing rate, these funds be saved in an interest-bearing Renewal and Replacement account for expenditures on future projects.

Table IX.D-1: Possible Culinary Rate Structure with no Water Included

Proposed Overage Rates (Per 1,000 Gallons)		Monthly Base Rate		Average Rate Based on Usage
		Meter Size	$/month	
0000-9000	$ 0.92	5/8" & 3/4"	$ 37.25	$ 53.80
9001-16000	$ 1.45	1"	$ 62.85	$ 225.65
16001-23000	$ 1.70	1-1/2"	$ 133.25	$ 296.05
23001-30000	$ 3.14	2"	$ 229.25	$ 463.67
30001-36000	$ 3.58	3"	$ 517.25	$ 751.67
36001-& UP	$ 4.14	4"	$ 933.25	$ 1,167.67

Irrigation Rate Structure

Tables IX.D-2 illustrates a possible rate structure based on the base and overage rates suggested in Section C and city council preference. The overage rate structures are stepped to promote conservation by charging a higher amount for excessive water usage. The structure has also been split by meter size. This was done to better monitor high users (classified as "other" ERUs) because one residential ERU is equivalent to 17.55 "other" ERUs and it is predicted that they will contribute to more than half of the ERUs, but only 10 actual meters by 2033. Because of this, the current average of $313.52/month per "other" connection is not sufficient and will need to be increased to $394.97/month.

Table IX.D-2: Possible Irrigation Rate Structure

Meter Size	Base Rate	Tiered Rate above Base (per 1,000 gal)	Gallon Range for Tiered Rate	Max Rate Per Range	Avergae Rate Based on Usage
3/4"-1"	$ 20.00	$ 0.25	0 to 5000	$ 21.25	$ 24.43
		$ 0.50	5000 to 10000	$ 23.75	
		$ 0.75	10001 to 15000	$ 27.50	
		$ 1.00	15001 to 20000	$ 32.50	
		$ 1.25	20001 & UP	$ 32.50 +	
1 1/2"	$ 20.00	$ 0.30	0 to 5000	$ 21.50	$ 309.00
		$ 0.40	5000 to 10000	$ 23.50	
		$ 0.50	10001 to 15000	$ 26.00	
		$ 0.60	15001 to 20000	$ 29.00	
		$ 0.70	20001 & UP	$ 29.00 +	
2"	$ 22.00	$ 0.30	0 to 10000	$ 25.00	$ 368.70
		$ 0.40	10001 to 15000	$ 27.00	
		$ 0.50	15001 to 20000	$ 29.50	
		$ 0.60	20001 to 30000	$ 35.50	
		$ 0.70	30001 & UP	$ 35.50 +	
3"	$ 50.00	$ 0.30	0 to 10000	$ 53.00	$ 396.70
		$ 0.40	10001 to 15000	$ 55.00	
		$ 0.50	15001 to 20000	$ 57.50	
		$ 0.60	20001 to 30000	$ 63.50	
		$ 0.70	30001 & UP	$ 63.50 +	
4"	$ 100.00	$ 0.30	0 to 10000	$ 103.00	$ 444.60
		$ 0.40	10001 to 15000	$ 105.00	
		$ 0.50	15001 to 20000	$ 107.50	
		$ 0.60	20001 to 30000	$ 113.50	
		$ 0.70	30001 & UP	$ 113.50 +	

Calculations based on the City's financial data show that the proposed rate structures should provide an average rate revenue sufficient to sustain the system. It is recommended that, if in a given year there are excess funds generated by the existing rate, these funds be saved in an interest-bearing Renewal and Replacement account for expenditures on future projects.

E. POSSIBLE DROUGHT RATE STRUCTURES

Culinary Drought Rate Structure

WCWCD has implemented a drought contingency plan consisting of 5 stages: Conserve, Caution, Concern, Crisis, and Catastrophic. Each of these stages represent increasing degrees of drought severity and identify how a city should act in each stage. For example, in the "Catastrophic" Stage all outdoor water usage should be halted, and indoor usage should be reduced by 30%. The "Conserve" stage is assumed to be the current Santa Clara stage and the proposed rate structure represents these efforts. Should the other 4 stages ever be implemented in the city the following rate structures are recommended. This will ensure the city still receives the necessary funds to maintain and operate the system even with the reduction in water usage.

Table IX.E-1: Possible Culinary Drought Rate Structure- Caution Stage

Proposed Overage Rates (Per 1,000 Gallons)		Monthly Base Rate		Average Rate Based on Usage
		Meter Size	$/month	
0000-9000	$ 1.03	5/8" & 3/4"	$ 37.25	$ 52.18
9001-16000	$ 1.56	1"	$ 62.85	$ 200.68
16001-23000	$ 1.81	1-1/2"	$ 133.25	$ 271.08
23001-30000	$ 3.25	2"	$ 229.25	$ 431.68
30001-36000	$ 3.69	3"	$ 517.25	$ 719.68
36001-& UP	$ 4.25	4"	$ 933.25	$ 1,135.68

Table IX.E-2: Possible Culinary Drought Rate Structure- Concern Stage

Proposed Overage Rates (Per 1,000 Gallons)		Monthly Base Rate		Average Rate Based on Usage
		Meter Size	$/month	
0000-9000	$ 1.35	5/8" & 3/4"	$ 37.25	$ 52.22
9001-16000	$ 1.88	1"	$ 62.85	$ 174.51
16001-23000	$ 2.13	1-1/2"	$ 133.25	$ 244.91
23001-30000	$ 3.57	2"	$ 229.25	$ 397.12
30001-36000	$ 4.01	3"	$ 517.25	$ 685.12
36001-& UP	$ 4.57	4"	$ 933.25	$ 1,101.12

Table IX.E-3: Possible Culinary Drought Rate Structure- Crisis Stage

Proposed Overage Rates (Per 1,000 Gallons)		Monthly Base Rate		Average Rate Based on Usage
		Meter Size	$/month	
0000-9000	$ 2.57	5/8" & 3/4"	$ 37.25	$ 52.16
9001-16000	$ 3.10	1"	$ 62.85	$ 123.09
16001-23000	$ 3.35	1-1/2"	$ 133.25	$ 193.49
23001-30000	$ 4.79	2"	$ 229.25	$ 316.21
30001-36000	$ 5.23	3"	$ 517.25	$ 604.21
36001-& UP	$ 5.79	4"	$ 933.25	$ 1,020.21

Table IX.E-4: Possible Culinary Drought Rate Structure- Catastrophic Stage

Proposed Overage Rates (Per 1,000 Gallons)		Monthly Base Rate		Average Rate Based on Usage
		Meter Size	$/month	
0000-9000	$ 3.93	5/8" & 3/4"	$ 37.25	$ 52.18
9001-16000	$ 4.46	1"	$ 62.85	$ 124.53
16001-23000	$ 4.71	1-1/2"	$ 133.25	$ 194.93
23001-30000	$ 6.15	2"	$ 229.25	$ 311.85
30001-36000	$ 6.59	3"	$ 517.25	$ 599.85
36001-& UP	$ 7.15	4"	$ 933.25	$ 1,015.85

Irrigation Drought Rate Structure

The irrigation rate structures recommended in a drought follow the same stages as the culinary system. The "Conserve" stage is assumed to be the current Santa Clara stage and the proposed rate structure represents these efforts. Should the other 4 stages ever be implemented in the city the following rate structures are recommended. This will ensure the city still receives the necessary funds to maintain and operate the system even with the reduction in water usage.

Table IX.E-5: Possible Irrigation Drought Rate Structure- Caution Stage

Meter Size	Base Rate	Tiered Rate above Base (per 1,000 gal)	Gallon Range for Tiered Rate	Max Rate Per Range	Avergae Rate Based on Usage
3/4"-1"	$ 20.00	$ 0.35	0 to 5000	$ 21.75	$ 23.97
		$ 0.60	5000 to 10000	$ 24.75	
		$ 0.85	10001 to 15000	$ 29.00	
		$ 1.10	15001 to 20000	$ 34.50	
		$ 1.35	20001 & UP	$ 34.50 +	
1 1/2"	$ 20.00	$ 0.40	0 to 5000	$ 22.00	$ 283.80
		$ 0.50	5000 to 10000	$ 24.50	
		$ 0.60	10001 to 15000	$ 27.50	
		$ 0.70	15001 to 20000	$ 31.00	
		$ 0.80	20001 & UP	$ 31.00 +	
2"	$ 22.00	$ 0.40	0 to 10000	$ 26.00	$ 338.34
		$ 0.50	10001 to 15000	$ 28.50	
		$ 0.60	15001 to 20000	$ 31.50	
		$ 0.70	20001 to 30000	$ 38.50	
		$ 0.80	30001 & UP	$ 38.50 +	
3"	$ 50.00	$ 0.40	0 to 10000	$ 54.00	$ 366.34
		$ 0.50	10001 to 15000	$ 56.50	
		$ 0.60	15001 to 20000	$ 59.50	
		$ 0.70	20001 to 30000	$ 66.50	
		$ 0.80	30001 & UP	$ 66.50 +	
4"	$ 100.00	$ 0.40	0 to 10000	$ 104.00	$ 414.42
		$ 0.50	10001 to 15000	$ 106.50	
		$ 0.60	15001 to 20000	$ 109.50	
		$ 0.70	20001 to 30000	$ 116.50	
		$ 0.80	30001 & UP	$ 116.50 +	

Table IX.E-6: Possible Irrigation Drought Rate Structure- Concern Stage

Meter Size	Base Rate	Tiered Rate above Base (per 1,000 gal)	Gallon Range for Tiered Rate	Max Rate Per Range	Avergae Rate Based on Usage
3/4"-1"	$ 20.00	$ 0.50	0 to 5000	$ 22.50	$ 23.63
		$ 0.75	5000 to 10000	$ 26.25	
		$ 1.00	10001 to 15000	$ 31.25	
		$ 1.25	15001 to 20000	$ 37.50	
		$ 1.50	20001 & UP	$ 37.50 +	
1 1/2"	$ 20.00	$ 0.65	0 to 5000	$ 23.25	$ 279.60
		$ 0.75	5000 to 10000	$ 27.00	
		$ 0.85	10001 to 15000	$ 31.25	
		$ 0.95	15001 to 20000	$ 36.00	
		$ 1.05	20001 & UP	$ 36.00 +	
2"	$ 22.00	$ 0.65	0 to 10000	$ 28.50	$ 333.28
		$ 0.75	10001 to 15000	$ 32.25	
		$ 0.85	15001 to 20000	$ 36.50	
		$ 0.95	20001 to 30000	$ 46.00	
		$ 1.05	30001 & UP	$ 46.00 +	
3"	$ 50.00	$ 0.65	0 to 10000	$ 56.50	$ 361.28
		$ 0.75	10001 to 15000	$ 60.25	
		$ 0.85	15001 to 20000	$ 64.50	
		$ 0.95	20001 to 30000	$ 74.00	
		$ 1.05	30001 & UP	$ 74.00 +	
4"	$ 100.00	$ 0.65	0 to 10000	$ 106.50	$ 409.39
		$ 0.75	10001 to 15000	$ 110.25	
		$ 0.85	15001 to 20000	$ 114.50	
		$ 0.95	20001 to 30000	$ 124.00	
		$ 1.05	30001 & UP	$ 124.00 +	

Table IX.E-7: Possible Irrigation Drought Rate Structure- Crisis Stage

Meter Size	Base Rate	Tiered Rate above Base (per 1,000 gal)	Gallon Range for Tiered Rate	Max Rate Per Range	Avergae Rate Based on Usage
3/4"-1"	$ 20.00	$ 2.50	0 to 5000	$ 32.50	$ 22.75
		$ 2.75	5000 to 10000	$ 46.25	
		$ 3.00	10001 to 15000	$ 61.25	
		$ 3.25	15001 to 20000	$ 77.50	
		$ 3.50	20001 & UP	$ 77.50 +	
1 1/2"	$ 20.00	$ 5.00	0 to 5000	$ 45.00	$ 289.00
		$ 5.50	5000 to 10000	$ 72.50	
		$ 6.00	10001 to 15000	$ 102.50	
		$ 6.50	15001 to 20000	$ 135.00	
		$ 7.00	20001 & UP	$ 135.00 +	
2"	$ 22.00	$ 5.00	0 to 10000	$ 72.00	$ 338.70
		$ 5.50	10001 to 15000	$ 99.50	
		$ 6.00	15001 to 20000	$ 129.50	
		$ 6.50	20001 to 30000	$ 194.50	
		$ 7.00	30001 & UP	$ 194.50 +	
3"	$ 50.00	$ 5.00	0 to 10000	$ 100.00	$ 366.70
		$ 5.50	10001 to 15000	$ 127.50	
		$ 6.00	15001 to 20000	$ 157.50	
		$ 6.50	20001 to 30000	$ 222.50	
		$ 7.00	30001 & UP	$ 222.50 +	
4"	$ 100.00	$ 5.00	0 to 10000	$ 150.00	$ 414.60
		$ 5.50	10001 to 15000	$ 177.50	
		$ 6.00	15001 to 20000	$ 207.50	
		$ 6.50	20001 to 30000	$ 272.50	
		$ 7.00	30001 & UP	$ 272.50 +	

Table IX.E-8: Possible Irrigation Drought Rate Structure- Catastrophic Stage

Meter Size	Base Rate	Tiered Rate above Base (per 1,000 gal)	Gallon Range for Tiered Rate	Max Rate Per Range	Avergae Rate Based on Usage
3/4"-1"	$ 22.50	$ 2.50	0 to 5000	$ 35.00	$ 22.50
		$ 2.75	5000 to 10000	$ 48.75	
		$ 3.00	10001 to 15000	$ 63.75	
		$ 3.25	15001 to 20000	$ 80.00	
		$ 3.50	20001 & UP	$ 80.00 +	
1 1/2"	$ 200.00	$ 5.00	0 to 5000	$ 225.00	$ 200.00
		$ 5.50	5000 to 10000	$ 252.50	
		$ 6.00	10001 to 15000	$ 282.50	
		$ 6.50	15001 to 20000	$ 315.00	
		$ 7.00	20001 & UP	$ 315.00 +	
2"	$ 250.00	$ 5.00	0 to 10000	$ 300.00	$ 250.00
		$ 5.50	10001 to 15000	$ 327.50	
		$ 6.00	15001 to 20000	$ 357.50	
		$ 6.50	20001 to 30000	$ 422.50	
		$ 7.00	30001 & UP	$ 422.50 +	
3"	$ 400.00	$ 5.00	0 to 10000	$ 450.00	$ 400.00
		$ 5.50	10001 to 15000	$ 477.50	
		$ 6.00	15001 to 20000	$ 507.50	
		$ 6.50	20001 to 30000	$ 572.50	
		$ 7.00	30001 & UP	$ 572.50 +	
4"	$ 500.00	$ 5.00	0 to 10000	$ 550.00	$ 500.00
		$ 5.50	10001 to 15000	$ 577.50	
		$ 6.00	15001 to 20000	$ 607.50	
		$ 6.50	20001 to 30000	$ 672.50	
		$ 7.00	30001 & UP	$ 672.50 +	

The drought rate structures only change the overage rates from the proposed rate structure with the exception of the irrigation "Catastrophic" stage. This stage completely eliminates any outdoor usage, so changing overage rates would be ineffective and so Base rates were updated to ensure necessary funds can still be obtained.

F. SUMMARY

Based on the District's financial data and the information presented in this Plan, the existing rates have been determined to be insufficient to meet the $52.15 per culinary ERU and $394.97 per irrigation "other" connection that is needed per the Financing Plan. A rate increase of $10.70 and $81.45, respectively, is estimated to be needed to cover the anticipated expenses. Water rates and fees should be reviewed by the city periodically to ensure that they keep up with inflation rates and increased costs for system maintenance. The Cash Flow Projection included in Appendix E assumes a yearly rate increase of 1.25% based on inflation.

The city does not have to adopt the amounts shown in the rate analysis. However, the rates suggested are calculated to be enough to ensure that the water fund remains viable while paying for the existing debt service and the projected debt based on the recommendations in this plan.

X. IMPACT FEES

A. IMPACT FEE

This report constitutes a capital fee facilities plan to determine the public facilities requirement to serve development resulting from new development activity. An impact fee that is charged by a community may be used to pay for the debt service associated with surplus capacity built into the system. The surplus capacity in the water system has been designed for growth, and for this reason, impact fees should pay for that portion of the debt service associated with the system surplus capacity. The impact fee should also be used to pay for the cost of improvements to the system that are required to support new growth as new connections are added to the system.

B. CULINARY & IRRIGATION COMBINED CALCULATION

The total cost that is eligible for the impact fee assessment is equal to the existing debt service from previous water improvements projects that can be attributed to new growth plus the portion of any planned water improvements project that will be constructed to accommodate new growth. The combined total cost that is due to new growth is divided by the projected number of new ERUs that will be added to the system within the service area.

Currently the system meets all requirements and community demands for a culinary system except for the Water Right analysis recommendations which are needed regardless of new growth. This means that all other improvements are recommended to benefit new growth and are therefore 100% impact fee eligible. The impact fee calculation resulting from culinary and irrigation projects being analyzed together can be found in Table X.B-1.

TABLE X.B-1

IMPACT FEE ANALYSIS FY2023/2024

WATER MASTER PLAN

SANTA CLARA CITY

22-May-23

EXISTING DEBT SERVICE		P&I	% Eligible	% Water Dept.		Eligible
Debt Payment to Water District	$	1,272,000	58%		$	737,760
All other Debt	$	5,714,440	58%		$	3,314,375
Existing/Past Projects Impact Fee Eligible Costs:					**$**	**4,052,135**

PROPOSED IMPROVEMENT PROJECTS

		Total Cost	% Eligible		Impact Fee Eligible
Culinary: Water Right Recommendations	$	18,000	0%	$	-
Culinary: North Hamblin Pkwy to North Town Rd 1	$	292,400	100%		$292,400
Culinary: 10" to 12" PRV Enlargement	$	208,550	100%		$208,550
Culinary: 12" Line Well Connection to Snow Cany	$	4,170,000	100%		$4,170,000
Culinary: New Well	$	2,114,350	100%		$2,114,350
Irrigation: Riesling Avenue 8" Line	$	136,140	100%		$136,140
Irrigation: Crestview Drive 8" Line	$	505,230	100%		$505,230
Irrigation: Villa Bonita 8" Line	$	99,900	100%		$99,900
Irrigation: North Town Road 8" Line	$	579,665	100%		$579,665
Irrigation: Sycamore Drive 8" Line	$	124,470	100%		$124,470
Irrigation: Claude Drive 8" Line	$	124,470	100%		$124,470
Irrigation:Additional Water Share Purchase	$	363,600	100%		$363,600
Total Estimated New Project Cost	$	8,736,775	99.8%	$	8,718,775
% Of New Projects Cost Due to New Growth				$	8,718,775
Impact Fee Eligible Cost				$	8,718,775
No. of ERUs (2023/2024)					3,775
20-Year Projected ERUs					7,953
No. of New ERUs Due to Growth					4,178
Total Impact Fee Eligible Cost				$	12,770,910

Maximum Water Impact Fee = Total Eligible Cost / New ERU's $ 3,056.75 /ERU.

Proposed Water Impact Fee for Santa Clara (2023/2024) = **$ 3,057** /ERU.

WCWCD Impact Fee (2023) $ 8,417 /ERU.

Total Potential Culinary Water Impact Fee (2023) **$ 11,474** /ERU.

Meter Size	X-Sectional Area (in^2)	% Area Increase	Impact Fee
3/4"	0.44	0%	$ 3,057
1"	0.79	80%	$ 5,489
1 1/2"	1.77	302%	$ 12,297
2"	3.14	614%	$ 21,816
3"	7.07	1507%	$ 49,120
4"	12.57	2757%	$ 87,333
6"	28.27	6325%	$ 196,412

P:\Santa Clara City\08401 Water & Irrigation IFFPA & IFA\06 Design\[Financial- Culinary.xlsx]Impact Fee

Table X.B-1 shows that the maximum impact fee that the city may assess each new ERU is $3,057. The current fee is $1,973, resulting in a potential increase of $1,084.

New Connections will also pay an additional WCWCD fee, currently $8,417 for a total of $11,474.

It is important to note that these impact fees are for the improvements suggested in Section VII and do not provide for the district to design and build anything beyond the proposed projects.

All new additions to the system will need to be considered in the impact fee calculations. Otherwise, the developer should be required to make the improvements.

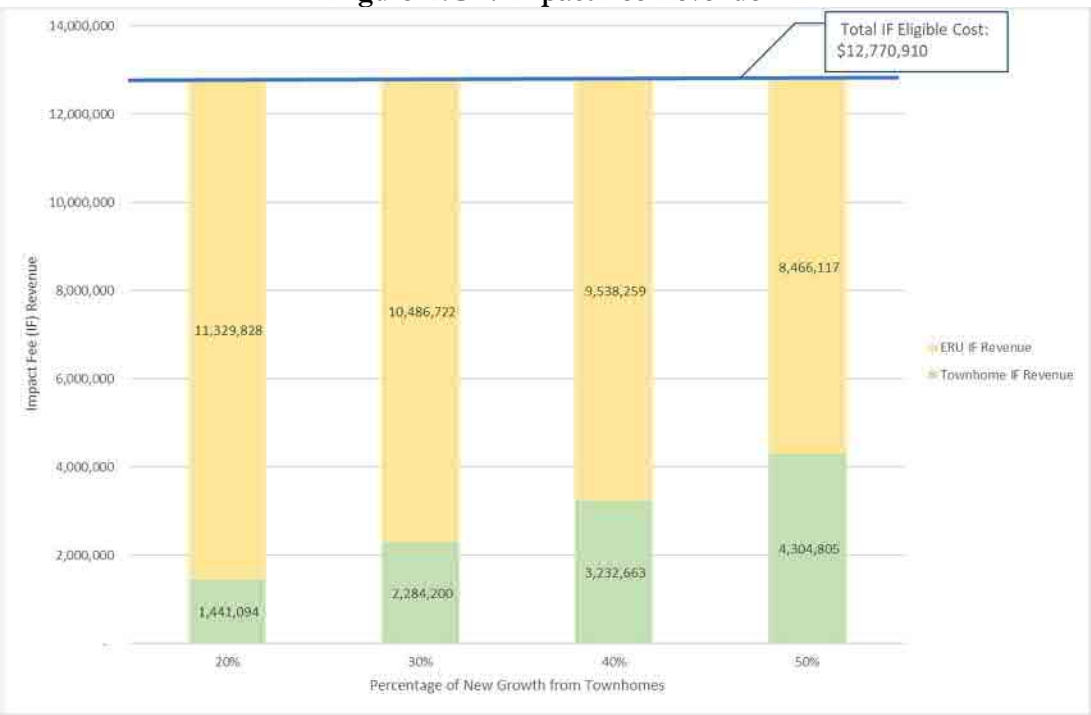
C. VARYING IMPACT FEE CALCULATION

Because water usage traditionally varies based on the size and type of the residential unit, the city requested further analysis of impact fee dues based on different dwelling unit impact, specifically townhomes, apartments, and single-family usage based on square footage.

Townhome Impact Fee Analysis

As stated in Section II.C, townhomes use one-third the amount of water of a typical residential unit. Because of this, it may seem reasonable to charge a new townhome less in impact fees than an average ERU. To ensure impact fees for a traditional ERU and a townhome are both fair, while still covering the necessary total of $12,770,910 as shown in Table X.B-1, calculations based on usage and growth ratios were performed. Figure X.C-1 below presents these results.

Figure X.C-1: Impact Fee Revenue



Santa Clara City provided estimations of future townhome development. These values incorporated with zoning densities suggested an estimated 30% of new growth may be due to townhomes. If this is the case, the city could charge a maximum impact fee of $1,823 per townhome and $3,585 per traditional ERU. If the city chooses to charge a different impact fee for townhomes and ERUs instead of the base maximum per ERU presented in Table X.B-1 of $3,057, it is recommended that the city reevaluate fees should townhome growth vary from estimates or if future townhome usage increases. The City is free to charge less than the maximum in either scenario if it decides to do so but should ensure that collected impact fees are sufficient to cover future culinary water system impacts due to growth.

Apartment Complex Impact Fee Analysis

Usage data was not obtained for apartment buildings, but estimated usage should be provided by developers before city approval. This usage can then be used to identify how many ERUs the complex will account for. For example, if the developer estimates a total usage of 15,000 gpd one would simply divide this by the average usage of 483 gpd to find that this complex is equivalent to approximately 31 ERUs. Therefore, they should be charged 31 times the traditional ERU impact fee. Table X.C-2 shows some theoretical fees assuming 200 gpd per unit using this method.

Table X.C-2: Example Apartment Impact Fee

With ERU IF of $3,057					With ERU IF of $3,585 (due to Townhome IF)				
Number of Units	Example Usage per Unit (gpd)	Usage for Complex (gpd)	ERUs	Impact Fee	Number of Units	Example Usage per Unit (gpd)	Usage for Complex (gpd)	ERUs	Impact Fee
10	*200	2,000	4.14	$ 12,658	10	*200	2,000	4.14	$ 14,845
25	*200	5,000	10.35	$ 31,646	25	*200	5,000	10.35	$ 37,112
50	*200	10,000	20.70	$ 63,292	50	*200	10,000	20.70	$ 74,224
75	*200	15,000	31.06	$ 94,938	75	*200	15,000	31.06	$ 111,335
100	*200	20,000	41.41	$ 126,584	100	*200	20,000	41.41	$ 148,447
150	*200	30,000	62.11	$ 189,876	150	*200	30,000	62.11	$ 222,671

* Usage per apartment unit is an estimate, actual apartment gpd calculations will be submitted by developer and used to calculate impact fee.

Square Footage Impact Fee Analysis

City staff have estimated the average residential unit to be approximately 2,200 square feet. This is what has been identified as one ERU for this report. Because usage may vary depending on dwelling unit size, the city requested potential varying fees based on square footage. The city can consider charging new developments based on the equivalent proportion to the average ERU. For example, if a new home is 10% smaller than the average 2,200 square feet, they may qualify for a 10% reduction in impact fees. Table X.C-3 shows some potential fees based on varying home sizes.

Table X.C-3: Square Footage Impact Fee

With ERU IF of $3,057					With ERU IF of $3,585 (due to Townhome IF)				
Size (sf)	Average Size (sf)	Percent +/-	Reduction/ Increase	Impact Fee	Size (sf)	Average Size (sf)	Percent +/-	Reduction/ Increase	Impact Fee
1,400	2,200	36.4%	$ 1,112	$ 1,945	1,400	2,200	36.4%	$ 1,304	$ 1,753
1,600	2,200	27.3%	$ 834	$ 2,223	1,600	2,200	27.3%	$ 978	$ 2,079
1,800	2,200	18.2%	$ 556	$ 2,501	1,800	2,200	18.2%	$ 652	$ 2,405
2,000	2,200	9.1%	$ 278	$ 2,779	2,000	2,200	9.1%	$ 326	$ 2,731
2,200	2,200	0.0%	$ -	$ 3,057	2,200	2,200	0.0%	$ -	$ 3,057
2,400	2,200	-9.1%	$ (278)	$ 3,335	2,400	2,200	-9.1%	$ (326)	$ 3,383
2,600	2,200	-18.2%	$ (556)	$ 3,613	2,600	2,200	-18.2%	$ (652)	$ 3,709
2,800	2,200	-27.3%	$ (834)	$ 3,891	2,800	2,200	-27.3%	$ (978)	$ 4,035
3,000	2,200	-36.4%	$ (1,112)	$ 4,169	3,000	2,200	-36.4%	$ (1,304)	$ 4,361

Using a square footage method to compare dwellings does not account for different lot sizes. The city does have ordinances in place to restrict the amount of water that can be used per household; however, it should be noted that some variability in usage will occur due to lot sizing.

D. IRRIGATION INCENTIVIZED CALCULATION

The previous calculations charge users the same impact fee whether or not they are connected to irrigation. To incentivize new users to connect to irrigation, additional potential impact fee calculations have been performed. This was done by using the percent of the total project cost attributed to irrigation infrastructure as an impact fee reduction percentage. Table X.D-1 below shows this reduction would be 22.2%.

Table X.D-1: Infrastructure Breakdown

Project Description	Total Cost	Impact Fee Eligible (%)	Impact Fee Eligible Cost
Irrigation Project Costs	$ 1,933,475	100%	$ 1,933,475
Culinary Project Costs	$ 6,803,300	99.7%	$ 6,785,300
Total Project Costs	$ 8,736,775	99.8%	$ 8,718,775
% Irrigation Infrastructure	22.1%		22.2%
% Culinary Infrastructure	77.9%		77.8%

To incorporate this reduction while still ensuring the total fee of $12,770,910 is covered this reduction of 22.2% was applied to the ERU's that could have both irrigation and culinary connections with the recommended irrigation system improvements. The maximum impact fee for those with both a culinary and irrigation connection and those with just culinary was found to be $2,689and $3,456, respectively. Table X.D-2 below shows this analysis.

TABLE X.D-2
IMPACT FEE ANALYSIS FY2023/2024
WATER MASTER PLAN
SANTA CLARA CITY

	23-May-23
No. of Water ERUs (2023/2024)	3,775
20-Year Water Projected ERUs	7,953
No. of New Water ERUs Due to Growth	4,178
No. of Irrigation Incentivized ERUs (2023/2024)	127
20-Year Projected Irrigation Incentivized ERUs	2,303
No. of New Irrigation Incentivized Due to Growth	2,176
No. of Water ERUs (2023/2024)	3,648
20-Year Water Projected ERUs	5,650
No. of New Water ERUs Due to Growth	2,002
Total Impact Fee Eligible Cost	$ 12,770,910

Maximum Water Impact Fee = Total Eligible Cost / Total New ERU's	$ 3,057	/ERU.
Maximum Irrigation Reduced Impact Fee (22.2%)	$ 2,689	/ERU.
Maximum Water Impact Fee without Reduction	$ 3,456	/ERU.

WCWCD Impact Fee (2023)	$ 8,417	/ERU.
Total Potential Culinary Water Impact Fee (2023)	**$ 11,873**	/ERU.

Meter Size	X-Sectional Area (in^2)	% Area Increase	Impact Fee
3/4"	0.44	0%	$ 3,456
1"	0.79	80%	$ 6,206
1 1/2"	1.77	302%	$ 13,904
2"	3.14	614%	$ 24,666
3"	7.07	1507%	$ 55,538
4"	12.57	2757%	$ 98,743
6"	28.27	6325%	$ 222,073

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It is important to note that these impact fees are for the improvements suggested in Section VII and do not provide for the district to design and build anything beyond the proposed projects.

All new additions to the system will need to be considered in the impact fee calculations. Otherwise, the developer should be required to make the improvements.

E. IMPACT FEE CERTIFICATION

The Impact Fee Certification is included as Appendix F.

F. IMPACT FEE RELATED ITEMS

There are a few items related to Impact Fees that City council should keep in mind when planning for, collecting, and expending Impact Fees.

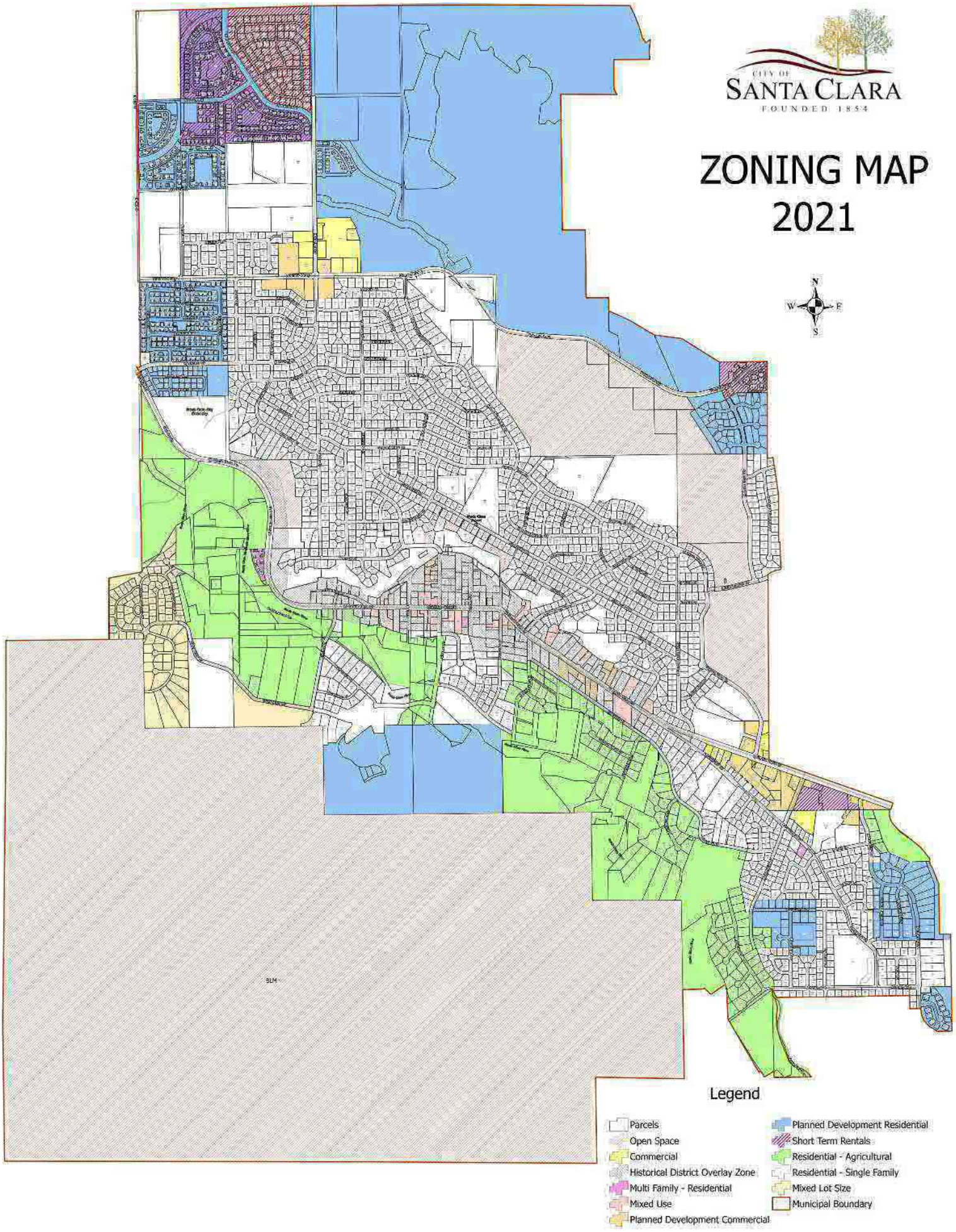
Generally, it is a good idea to update this plan at least every five years, or more frequently if occasion arises.

Council members should be made aware that, in conformance with Utah Code 11-36a-602, Impact Fees can generally only be expended for a system improvement that is identified in the Impact Fee Facilities Plan and that is for the specific public facility type for which the fee was collected (i.e. transportation impact fees cannot be used for water or sewer projects). Also, Impact Fees in Utah must be expended or encumbered for a permissible use within six years of their receipt unless 11-36a-602(2)(b) applies.

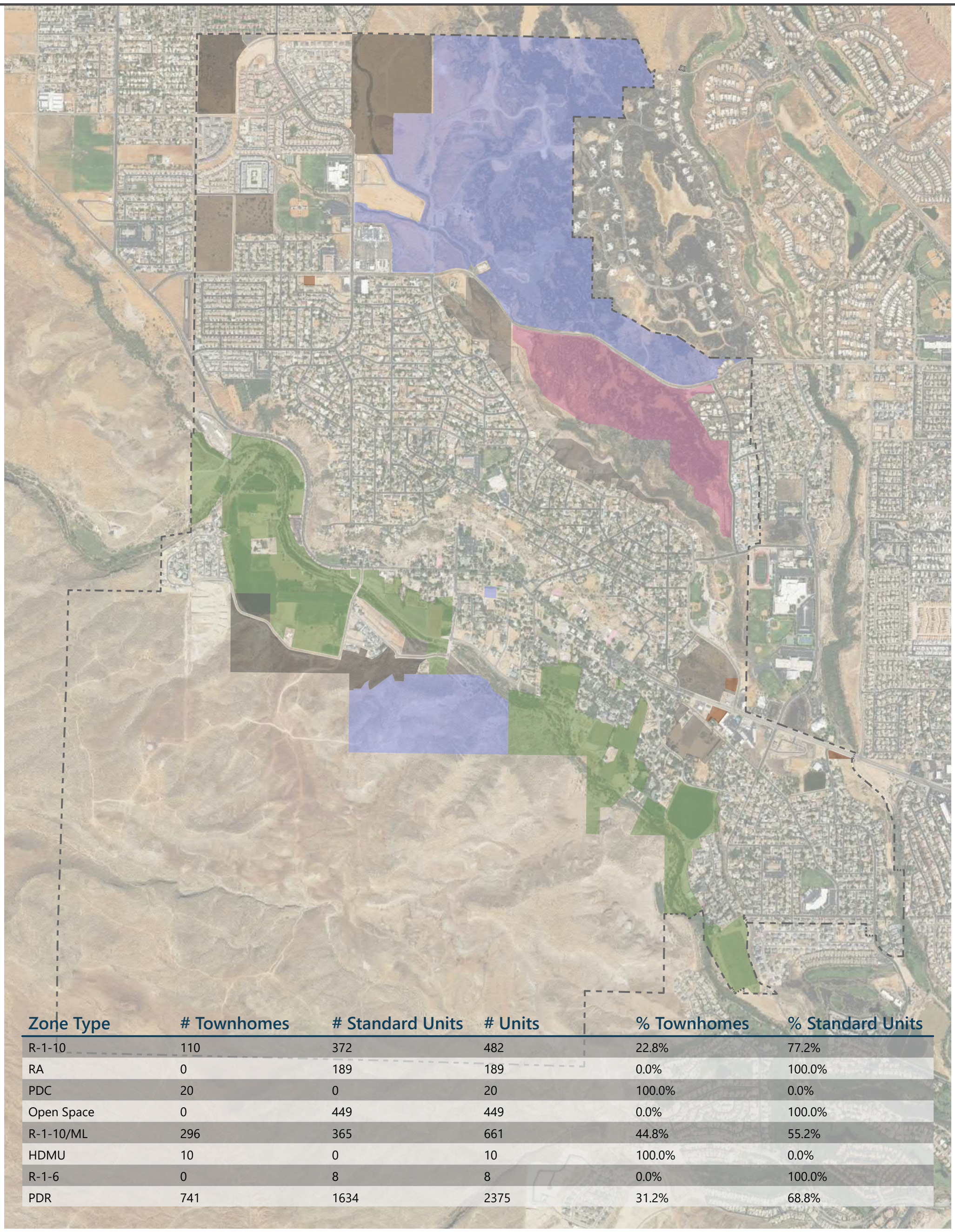
City Council members should also ensure that proper accounting of the Impact Fees occurs (track each fee in and out). See Utah Code 11-36a-601.

APPENDIX A

MAPS


CITY OF
SANTA CLARA
FOUNDED 1854
ZONING MAP
2021
N
W
E
S
BLM
Legend
Parcels
Open Space
Commercial
Historical District Overlay Zone
Multi Family - Residential
Mixed Use
Planned Development Commercial
Planned Development Residential
Short Term Rentals
Residential - Agricultural
Residential - Single Family
Mixed Lot Size
Municipal Boundary

POTENTIAL FUTURE DEVELOPMENT



Zone Type	# Townhomes	# Standard Units	# Units	% Townhomes	% Standard Units
R-1-10	110	372	482	22.8%	77.2%
RA	0	189	189	0.0%	100.0%
PDC	20	0	20	100.0%	0.0%
Open Space	0	449	449	0.0%	100.0%
R-1-10/ML	296	365	661	44.8%	55.2%
HDMU	10	0	10	100.0%	0.0%
R-1-6	0	8	8	0.0%	100.0%
PDR	741	1634	2375	31.2%	68.8%

MAP LEGEND

NORTH

0 750 1,500

1 In = 1,500 Feet

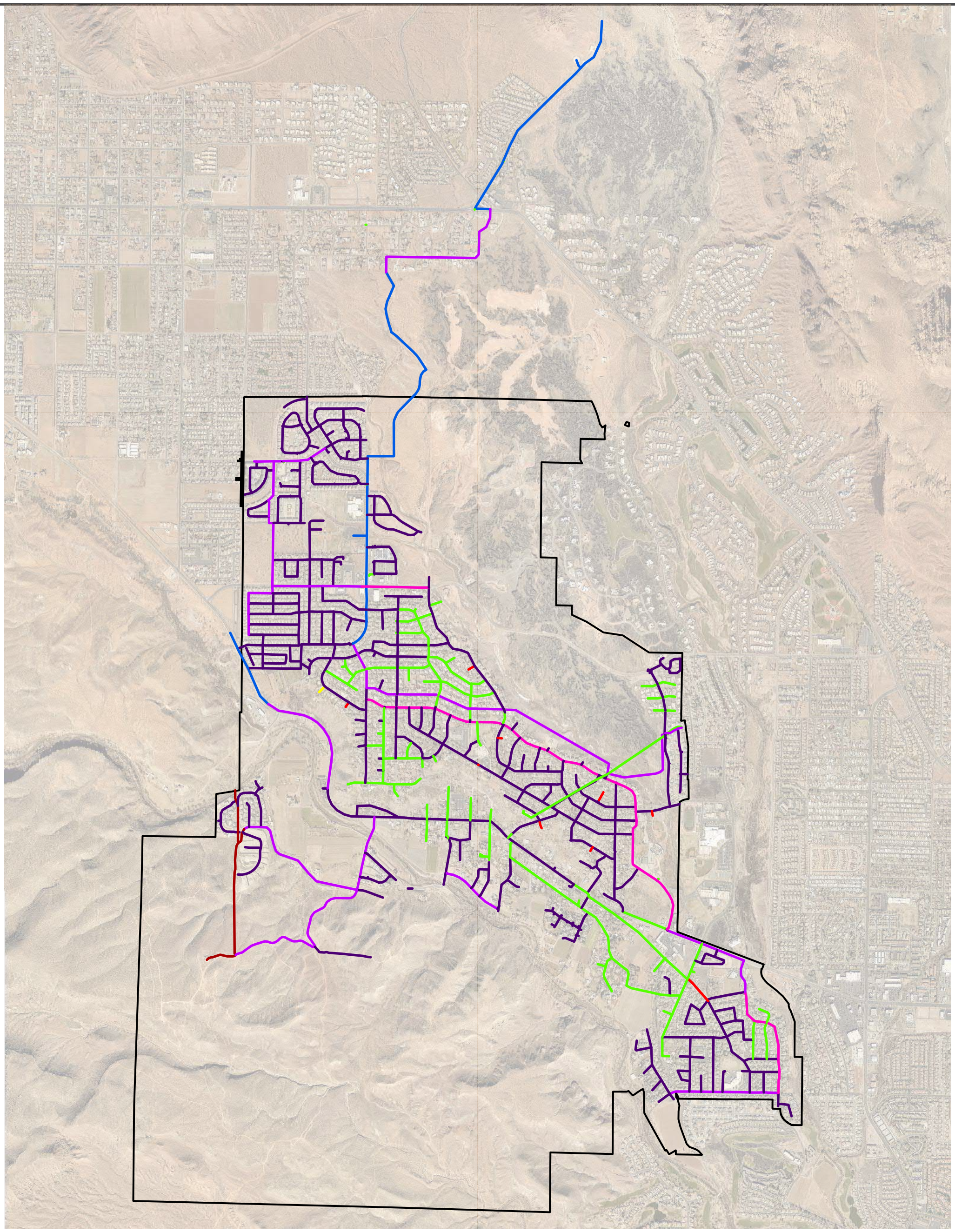
- OS - OPEN SPACE
- HDMU - HISTORIC DISTRICT/MIXED USE
- PDC - PLANNED DEVELOPMENT COMMERCIAL
- PDR - PLANNED DEVELOPMENT RESIDENTIAL
- RA - RESIDENTIAL AGRICULTURE
- R-1-6 - SINGLE-FAMILY RESIDENTIAL
- R-1-10 - SINGLE-FAMILY RESIDENTIAL
- R-1-10/ML - MIXED LOT SIZE
- Santa Clara City Boundary

CITY OF SANTA CLARA FOUNDED 1854

SUNRISE ENGINEERING

Map Date: 5/30/2023

EXISTING SANTA CLARA WATER SYSTEM



MAP LEGEND

NORTH

0 1,250 2,500

1 In = 1,900 Feet

Water Mains

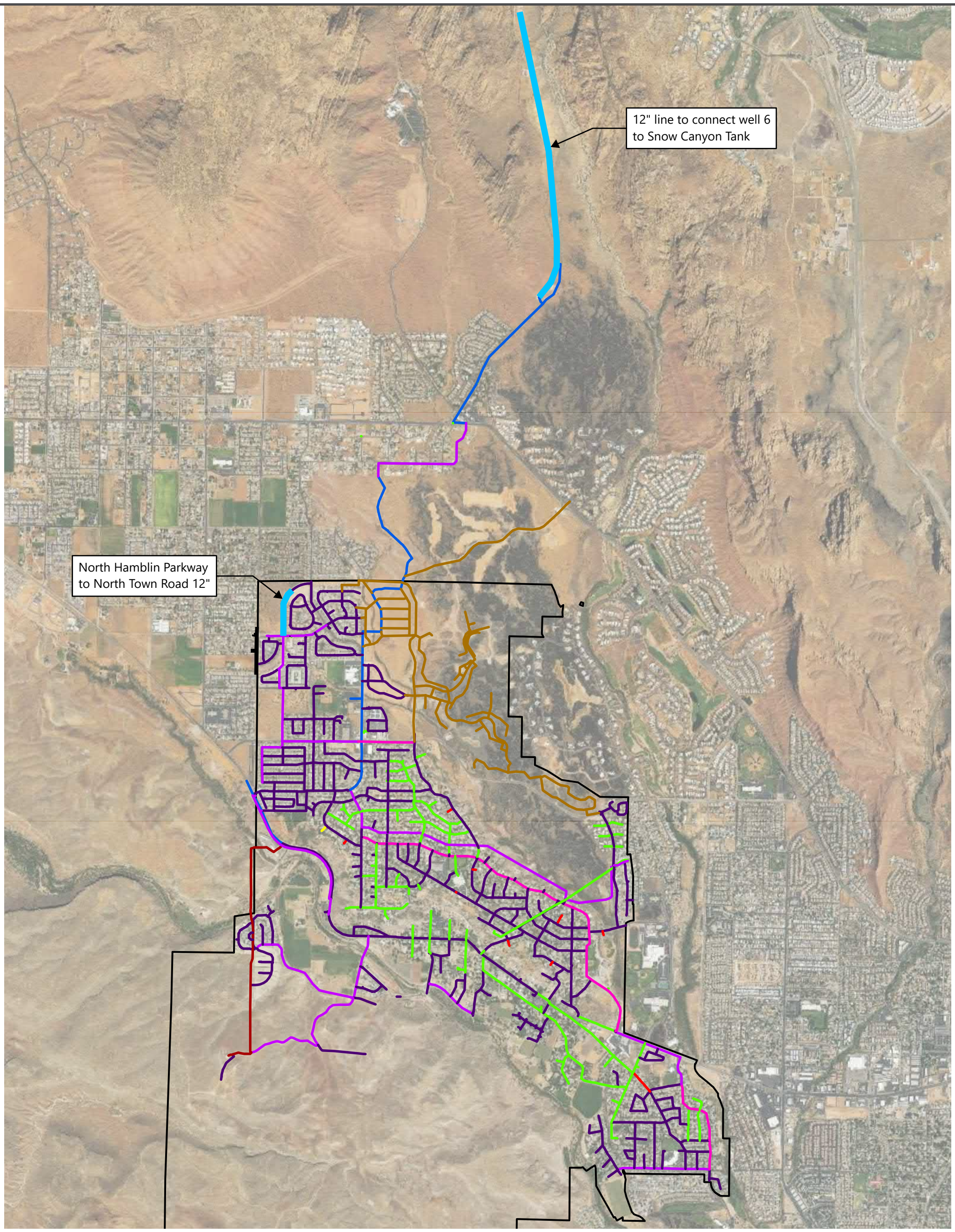
- 2"
- 4"
- 6"
- 8"
- 10"
- 12"
- 16"
- 20"
- Unknown
- City Boundary

Map Date: 12/14/2022

CITY OF SANTA CLARA FOUNDED 1854

SUNRISE ENGINEERING

PROPOSED FUTURE PROJECTS



MAP LEGEND

NORTH

0 1,250 2,500

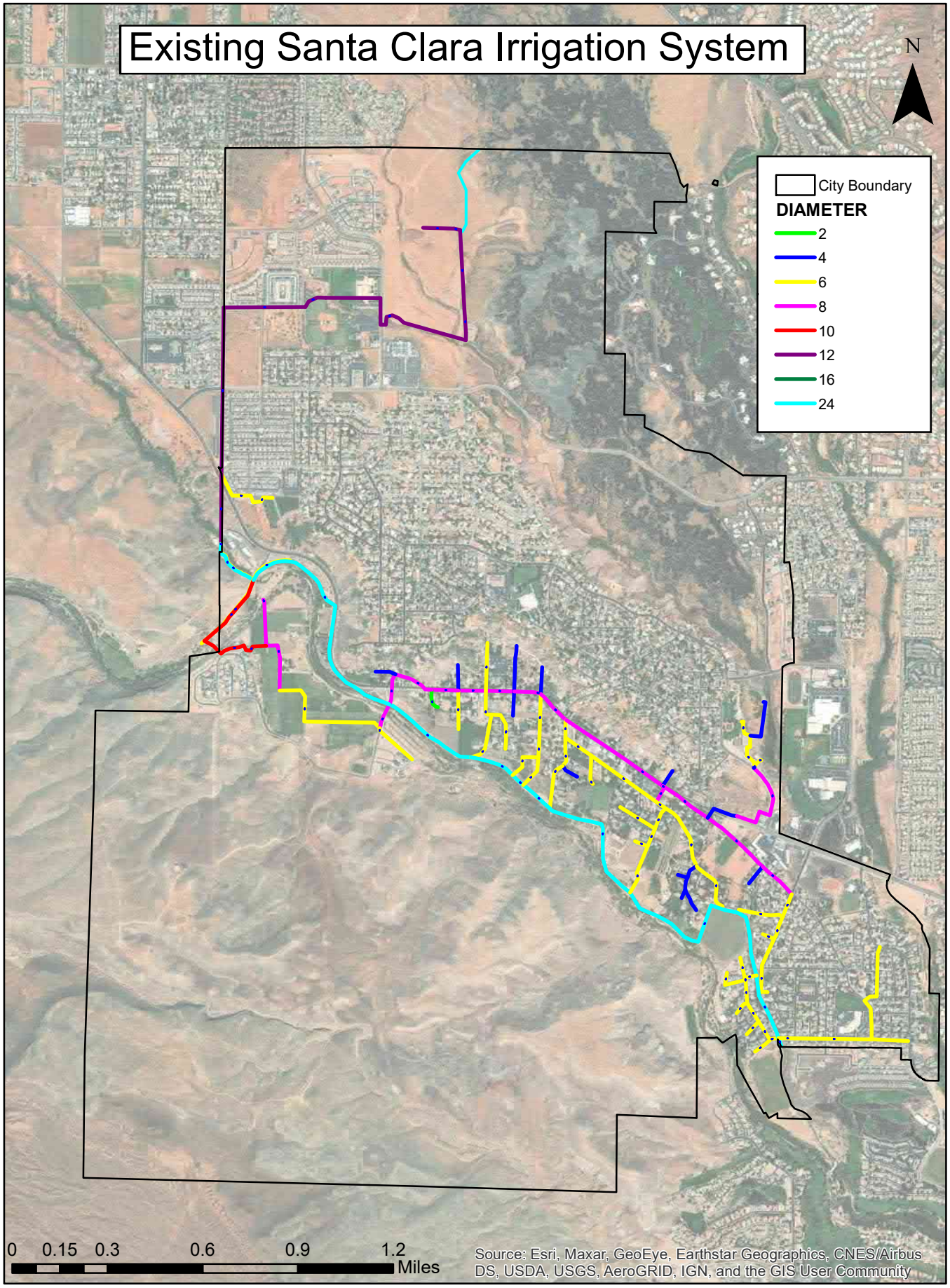
1 In = 2,250 Feet

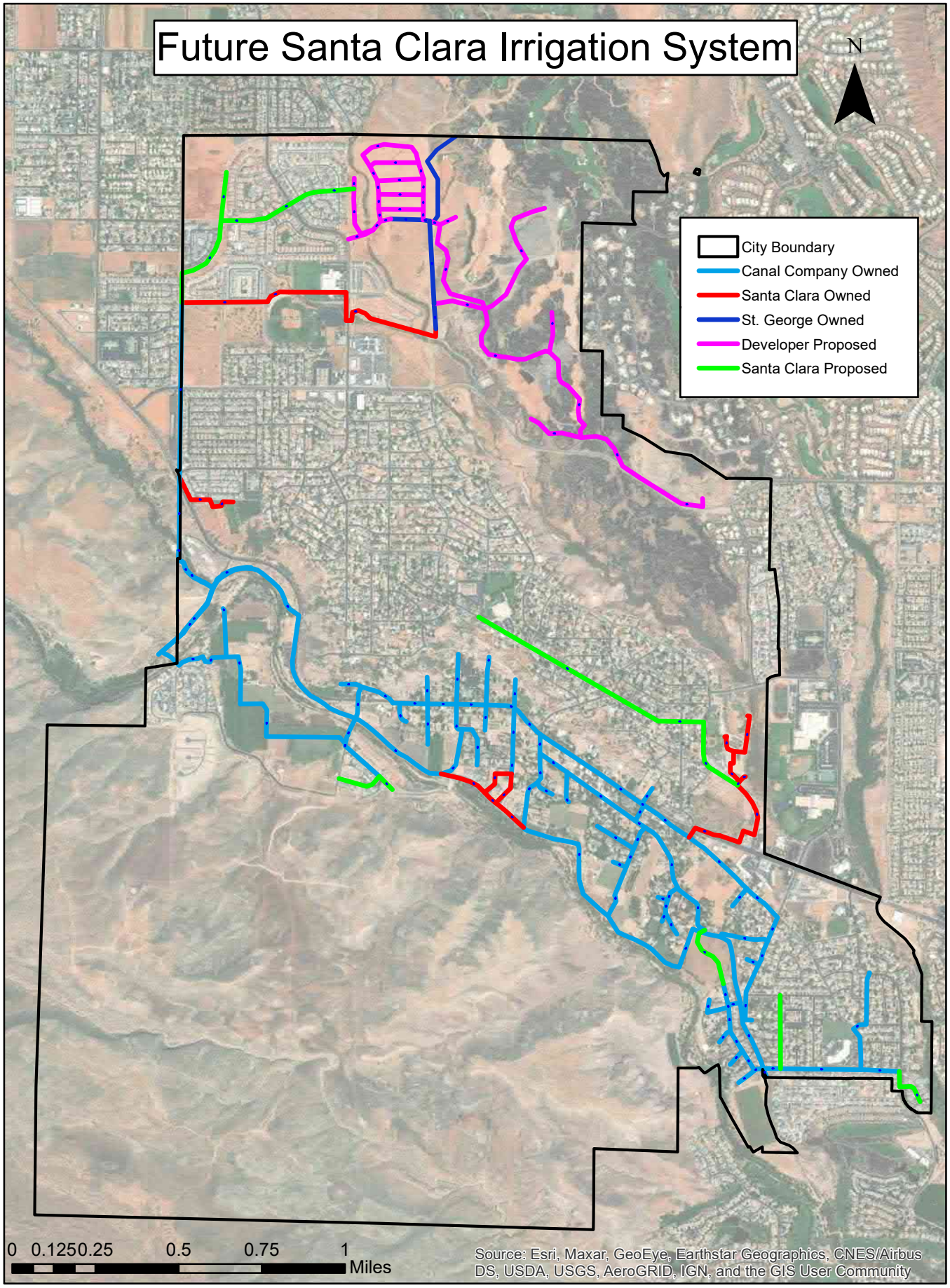
Water Mains
- 2"
- 4"
- 6"
- 8"
- 10"
- 12"
- 16"
- 20"
- Unknown
- Proposed Future Projects
- Developer Proposed
- City Boundary

Map Date: 3/8/2023

CITY OF SANTA CLARA FOUNDED 1854

SUNRISE ENGINEERING


Existing Santa Clara Irrigation System
N
City Boundary
DIAMETER
2
4
6
8
10
12
16
24
0 0.15 0.3 0.6 0.9 1.2
Miles
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


Future Santa Clara Irrigation System
N
City Boundary
Canal Company Owned
Santa Clara Owned
St. George Owned
Developer Proposed
Santa Clara Proposed
0 0.1250.25 0.5 0.75 1
Miles
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

APPENDIX B

INFOWATER ® ANALYSIS

Average Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
1		J-100FH	4.11	2,876.00	3,041.25	71.60
2		J-101	4.11	2,865.00	3,094.67	99.51
3		J-102FH	4.11	2,868.00	3,094.80	98.27
4		J-103FH	4.11	2,871.00	3,094.85	96.99
5		J-104	4.11	2,839.00	3,041.71	87.83
6		J-105FH	4.11	2,875.00	3,094.90	95.28
7		J-106FH	4.11	2,877.00	3,094.70	94.33
8		J-107FH	4.11	2,936.00	3,096.14	69.39
9		J-108	4.11	2,876.00	3,094.80	94.81
10		J-109FH	4.11	2,875.00	3,094.85	95.26
11		J-10FH	4.11	2,741.00	2,934.30	83.76
12		J-110	4.11	2,879.00	3,094.90	93.55
13		J-111	4.11	2,899.50	3,094.99	84.70
14		J-112	4.11	2,879.00	3,094.99	93.59
15		J-113	4.11	2,885.00	3,095.22	91.09
16		J-114FH	4.11	2,885.50	3,095.01	90.78
17		J-115	4.11	2,885.00	3,095.01	91.00
18		J-116FH	4.11	2,881.00	3,095.68	93.02
19		J-117	4.11	2,897.00	3,095.04	85.81
20		J-118FH	4.11	2,891.00	3,095.20	88.48
21		J-119FH	4.11	2,889.00	3,095.36	89.42
22		J-11FH	4.11	2,740.00	2,934.20	84.15
23		J-12	4.11	2,766.00	2,934.51	73.02
24		J-120	4.11	2,887.00	3,095.56	90.37
25		J-1208	4.11	2,822.00	3,043.12	95.81
26		J-121	4.11	2,878.00	3,095.88	94.41
27		J-1210	3.54	2,760.00	3,212.46	196.05
28		J-122FH	4.11	2,880.00	3,095.98	93.58
29		J-123	4.11	2,870.00	3,095.88	97.87
30		J-124	4.11	2,892.00	3,095.59	88.22
31		J-125	4.11	2,892.00	3,095.59	88.22
32		J-1254	3.54	3,000.00	3,166.00	71.93
33		J-1268	3.54	3,200.00	3,298.26	42.57
34		J-1269	3.54	3,200.00	3,300.95	43.74
35		J-126FH	4.11	2,901.00	3,095.70	84.37
36		J-127	4.11	2,901.00	3,095.81	84.41
37		J-1273	4.11	2,823.00	3,212.45	168.75
38		J-128FH	4.11	2,935.00	3,096.14	69.82
39		J-129	4.11	2,899.00	3,095.54	85.16
40		J-13	4.11	2,751.00	3,040.66	125.51
41		J-130	4.11	2,932.00	3,096.14	71.12
42		J-131FH	4.11	2,901.00	3,095.36	84.22
43		J-132FH	4.11	2,925.00	3,096.13	74.15
44		J-133FH	4.11	2,903.00	3,095.17	83.27
45		J-134FH	4.11	2,927.00	3,096.13	73.29
46		J-135	4.11	2,905.00	3,095.06	82.35
47		J-136FH	4.11	2,910.00	3,094.96	80.15
48		J-137	4.11	2,901.00	3,094.96	84.04
49		J-138FH	4.11	2,902.00	3,094.96	83.61
50		J-139FH	4.11	2,877.00	3,094.97	94.44

Average Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
51		J-140	4.11	2,885.00	3,094.85	90.93
52		J-141FH	4.11	2,900.00	3,094.85	84.43
53		J-142	4.11	2,885.00	3,094.85	90.93
54		J-143FH	4.11	2,890.00	3,094.80	88.74
55		J-144FH	4.11	2,897.00	3,094.68	85.65
56		J-145FH	4.11	2,889.00	3,094.68	89.12
57		J-146	4.11	2,888.00	3,094.67	89.55
58		J-147FH	4.11	2,891.00	3,094.66	88.25
59		J-148	4.11	2,908.00	3,094.81	80.94
60		J-149FH	4.11	2,905.00	3,094.67	82.18
61		J-14FH	4.11	2,750.00	2,935.00	80.16
62		J-150	4.11	2,909.00	3,094.67	80.45
63		J-151FH	4.11	2,893.00	3,094.67	87.38
64		J-152	4.11	2,874.00	3,041.24	72.46
65		J-153FH	4.11	2,892.50	3,094.61	87.58
66		J-154	4.11	2,892.00	3,094.61	87.79
67		J-155	4.11	2,894.00	3,094.59	86.91
68		J-156FH	4.11	2,894.00	3,094.59	86.91
69		J-157	4.11	2,870.00	3,094.54	97.29
70		J-158FH	4.11	2,900.00	3,094.59	84.31
71		J-159	4.11	2,896.00	3,094.58	86.04
72		J-15FH	4.11	2,753.00	2,934.99	78.86
73		J-160FH	4.11	2,903.50	3,094.59	82.80
74		J-161FH	4.11	2,897.00	3,094.57	85.61
75		J-162FH	4.11	2,880.00	3,094.50	92.94
76		J-163	4.11	2,885.00	3,094.43	90.75
77		J-164FH	4.11	2,910.00	3,094.66	80.01
78		J-165FH	4.11	2,915.00	3,094.63	77.83
79		J-166	4.11	2,915.00	3,094.62	77.83
80		J-167FH	4.11	2,909.00	3,094.82	80.51
81		J-168FH	4.11	2,917.00	3,094.83	77.05
82		J-169FH	4.11	2,921.00	3,096.13	75.88
83		J-16FH	4.11	2,640.00	2,935.32	127.96
84		J-170FH	4.11	2,917.00	3,095.68	77.42
85		J-171	4.11	2,916.00	3,094.62	77.39
86		J-172	4.11	2,909.00	3,094.82	80.51
87		J-173FH	4.11	2,920.00	3,094.34	75.54
88		J-174	4.11	2,921.00	3,094.34	75.11
89		J-175FH	4.11	2,915.00	3,093.78	77.46
90		J-176	4.11	2,915.00	3,093.78	77.46
91		J-177FH	4.11	2,929.00	3,094.93	71.90
92		J-178	4.11	2,920.00	3,094.92	75.79
93		J-179	4.11	2,920.00	3,094.95	75.81
94		J-17FH	4.11	2,638.00	2,935.31	128.82
95		J-18	4.11	2,637.00	2,935.31	129.26
96		J-180	4.11	2,933.00	3,094.87	70.14
97		J-181	4.11	2,915.00	3,094.63	77.83
98		J-182	4.11	2,915.00	3,094.44	77.75
99		J-183FH	4.11	2,915.00	3,094.44	77.75
100		J-184FH	4.11	2,915.00	3,092.99	77.12

Average Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
101		J-185	4.11	2,920.00	3,093.90	75.35
102		J-186FH	4.11	2,910.00	3,094.65	80.01
103		J-187	4.11	2,915.00	3,095.09	78.03
104		J-188	4.11	2,909.00	3,094.32	80.30
105		J-189FH	4.11	2,915.00	3,093.67	77.42
106		J-191	4.11	2,915.00	3,095.12	78.04
107		J-192	4.11	2,910.00	3,095.13	80.22
108		J-193FH	4.11	2,917.00	3,095.12	77.18
109		J-194	4.11	2,917.00	3,094.53	76.93
110		J-195	4.11	2,916.50	3,094.53	77.14
111		J-196	4.11	2,909.00	3,094.48	80.37
112		J-197	4.11	2,908.00	3,094.48	80.80
113		J-198FH	4.11	2,900.00	3,094.44	84.25
114		J-199	4.11	2,902.00	3,094.37	83.35
115		J-19FH	4.11	2,636.00	2,935.31	129.69
116		J-1FH	4.11	2,720.00	2,934.25	92.83
117		J-2	4.11	2,720.00	2,934.25	92.83
118		J-200	4.11	2,895.00	3,094.45	86.42
119		J-201	4.11	2,890.00	3,094.43	88.58
120		J-202	4.11	2,892.00	3,094.42	87.71
121		J-203	4.11	2,883.00	3,094.41	91.61
122		J-204FH	4.11	2,880.00	3,094.43	92.91
123		J-205	4.11	2,885.00	3,094.36	90.72
124		J-206	4.11	2,890.00	3,094.36	88.55
125		J-207	4.11	2,883.00	3,094.36	91.58
126		J-208	4.11	2,939.00	3,094.87	67.54
127		J-209	4.11	2,825.00	3,048.10	96.67
128		J-20FH	4.11	2,745.00	2,936.82	83.12
129		J-21	4.11	2,745.00	2,936.55	83.00
130		J-210	4.11	2,937.00	3,095.80	68.81
131		J-211FH	4.11	2,830.00	3,048.10	94.50
132		J-212FH	4.11	2,824.00	3,048.10	97.10
133		J-213	4.11	2,825.00	3,051.04	97.94
134		J-214FH	4.11	2,835.00	3,051.04	93.61
135		J-215FH	4.11	2,825.00	3,051.04	97.94
136		J-216	4.11	2,830.00	3,054.20	97.15
137		J-217	4.11	2,830.00	3,055.96	97.91
138		J-218FH	4.11	2,838.00	3,054.20	93.68
139		J-219	4.11	2,830.00	3,054.20	97.14
140		J-22	4.11	2,920.00	3,094.71	75.70
141		J-220	4.11	2,924.00	3,094.39	73.83
142		J-221FH	4.11	2,748.00	2,937.13	81.95
143		J-222FH	4.11	2,732.00	2,937.39	89.00
144		J-223	4.11	2,720.00	2,937.12	94.08
145		J-224	4.11	2,750.00	2,937.54	81.26
146		J-225FH	4.11	2,752.00	2,937.69	80.46
147		J-226	4.11	2,740.00	2,937.67	85.65
148		J-227FH	4.11	2,845.00	3,041.24	85.03
149		J-228	4.11	2,755.00	2,937.69	79.16
150		J-229FH	4.11	2,753.00	2,937.91	80.12

Average Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
151		J-23	4.11	2,751.00	3,040.98	125.65
152		J-230	4.11	2,755.00	2,937.91	79.26
153		J-231	4.11	2,750.00	2,937.92	81.43
154		J-232FH	4.11	2,755.00	2,938.15	79.36
155		J-233	4.11	2,750.00	2,937.97	81.45
156		J-234	4.11	2,770.00	2,938.15	72.86
157		J-235FH	4.11	2,765.00	2,938.46	75.16
158		J-236	4.11	2,768.00	2,938.46	73.86
159		J-237	4.11	2,765.00	2,938.46	75.16
160		J-238	4.11	2,778.00	2,938.72	69.64
161		J-24	4.11	2,800.00	3,041.04	104.44
162		J-240	4.11	2,778.00	2,938.76	69.66
163		J-241	4.11	2,780.00	2,938.64	68.74
164		J-242	4.11	2,760.00	2,939.48	77.77
165		J-243	4.11	2,924.00	3,094.65	73.94
166		J-244	4.11	2,770.00	2,939.48	73.44
167		J-245	4.11	2,770.00	2,939.48	73.44
168		J-246	4.11	2,878.00	3,041.24	70.73
169		J-247FH	4.11	2,857.50	3,041.24	79.62
170		J-248	4.11	2,920.00	3,093.41	75.14
171		J-249	4.11	2,920.00	3,093.25	75.07
172		J-250FH	4.11	2,750.00	2,937.97	81.45
173		J-251	4.11	2,750.00	2,937.95	81.44
174		J-252	4.11	2,750.00	2,937.94	81.43
175		J-253	4.11	2,745.00	2,937.94	83.60
176		J-254	4.11	2,735.00	2,936.24	87.20
177		J-255FH	4.11	2,728.00	2,936.23	90.22
178		J-256	4.11	2,728.00	2,936.22	90.22
179		J-257	4.11	2,725.00	2,934.25	90.67
180		J-258FH	4.11	2,735.00	2,934.18	86.30
181		J-259	4.11	2,735.00	2,934.15	86.29
182		J-25FH	4.11	2,758.00	3,041.02	122.63
183		J-26	4.11	2,760.00	3,041.02	121.76
184		J-260FH	4.11	2,735.00	2,934.14	86.29
185		J-261	4.11	2,735.00	2,934.14	86.29
186		J-262	4.11	2,735.00	2,934.13	86.28
187		J-263	4.11	2,720.00	2,934.13	92.78
188		J-264	4.11	2,710.00	2,934.11	97.11
189		J-265	4.11	2,700.00	2,934.04	101.41
190		J-266FH	4.11	2,700.00	2,934.04	101.41
191		J-267FH	4.11	2,751.00	2,934.62	79.56
192		J-268	4.11	2,700.00	2,934.07	101.42
193		J-269FH	4.11	2,700.00	2,934.07	101.42
194		J-27	4.11	2,770.00	3,041.05	117.44
195		J-270FH	4.11	2,700.00	2,934.11	101.44
196		J-271FH	4.11	2,735.00	2,934.14	86.29
197		J-272	4.11	2,824.00	3,043.49	95.11
198		J-273FH	4.11	2,705.00	2,934.15	99.29
199		J-274FH	4.11	2,705.00	2,934.16	99.29
200		J-275FH	4.11	2,785.00	3,040.86	110.86

Average Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
201		J-277	4.11	2,920.00	3,093.67	75.25
202		J-278FH	4.11	2,740.00	2,934.42	84.24
203		J-279FH	4.11	2,730.00	2,934.35	88.54
204		J-28	4.11	2,807.00	3,041.16	101.46
205		J-280FH	4.11	2,741.00	2,934.33	83.77
206		J-281FH	4.11	2,703.00	2,934.16	100.16
207		J-282	4.11	2,720.00	2,934.17	92.80
208		J-283FH	4.11	2,715.00	2,934.17	94.97
209		J-284FH	4.11	2,720.00	2,934.21	92.82
210		J-285	4.11	2,720.00	2,934.17	92.80
211		J-286	4.11	2,720.00	2,934.21	92.82
212		J-287	4.11	2,720.00	2,934.23	92.83
213		J-288FH	4.11	2,720.00	2,934.17	92.80
214		J-289	4.11	2,720.00	2,934.18	92.81
215		J-290	4.11	2,720.00	2,934.18	92.81
216		J-291FH	4.11	2,921.00	3,095.36	75.55
217		J-292FH	4.11	2,705.00	2,934.16	99.30
218		J-293FH	4.11	2,755.00	3,040.76	123.82
219		J-294	4.11	2,913.00	3,100.10	81.07
220		J-295	4.11	2,946.00	3,165.32	95.03
221		J-296	3.54	2,990.00	3,165.43	76.01
222		J-297FH	4.11	2,705.00	2,934.16	99.30
223		J-298	4.11	2,760.00	2,939.15	77.63
224		J-299	4.11	2,770.00	2,939.46	73.43
225		J-29FH	4.11	2,815.00	3,041.24	98.03
226		J-3	4.11	2,730.00	2,934.34	88.54
227		J-300	4.11	2,915.00	3,093.67	77.42
228		J-301FH	4.11	2,800.00	3,092.19	126.61
229		J-302FH	4.11	2,705.00	2,934.16	99.30
230		J-303FH	4.11	2,730.00	2,934.18	88.47
231		J-304	3.54	3,000.00	3,165.83	71.85
232		J-305FH	4.11	2,877.50	3,041.25	70.95
233		J-306	4.11	2,877.50	3,094.71	94.12
234		J-307FH	4.11	2,740.00	2,934.19	84.14
235		J-308	3.54	3,042.00	3,089.00	20.37
236		J-309	4.11	2,760.00	2,939.50	77.78
237		J-30FH	4.11	2,816.00	3,041.32	97.63
238		J-31	4.11	2,815.00	3,041.39	98.10
239		J-310	4.11	2,930.00	3,095.62	71.76
240		J-311	44.15	2,925.00	3,102.23	76.79
241		J-312	4.11	2,870.00	3,096.79	98.27
242		J-313	4.11	2,800.00	3,041.71	104.73
243		J-314	4.11	2,780.00	3,041.77	113.42
244		J-315FH	4.11	2,930.00	3,096.14	71.99
245		J-316	4.11	2,843.00	3,041.24	85.90
246		J-317FH	4.11	2,902.00	3,094.36	83.35
247		J-318FH	4.11	2,922.00	3,093.35	74.25
248		J-319FH	4.11	2,924.00	3,093.92	73.62
249		J-32	4.11	2,800.00	3,041.66	104.71
250		J-320	4.11	2,922.00	3,094.06	74.55

Average Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
251		J-321FH	4.11	2,924.00	3,094.32	73.80
252		J-322FH	4.11	2,936.00	3,095.28	69.02
253		J-323FH	4.11	2,930.00	3,094.84	71.43
254		J-324FH	4.11	2,926.00	3,094.65	73.08
255		J-325FH	4.11	2,924.00	3,094.39	73.83
256		J-326FH	4.11	2,928.00	3,094.48	72.14
257		J-327FH	4.11	2,928.00	3,094.84	72.29
258		J-328FH	4.11	2,933.00	3,094.95	70.17
259		J-329FH	4.11	2,934.00	3,094.94	69.74
260		J-330	4.11	2,934.00	3,094.84	69.69
261		J-331	4.11	2,923.00	3,094.31	74.23
262		J-333	4.11	2,885.00	3,094.36	90.72
263		J-334	4.11	2,885.00	3,094.36	90.72
264		J-335	4.11	2,745.00	2,936.88	83.14
265		J-336	4.11	2,745.00	2,936.88	83.14
266		J-33FH	4.11	2,820.00	3,041.45	95.96
267		J-34	4.11	2,830.00	3,041.48	91.63
268		J-35	4.11	2,827.00	3,041.35	92.88
269		J-36	4.11	2,820.00	3,041.36	95.92
270		J-37	4.11	2,825.00	3,041.30	93.72
271		J-38FH	4.11	2,821.00	3,041.24	95.43
272		J-39FH	4.11	2,836.00	3,041.32	88.97
273		J-4	4.11	2,729.00	2,934.34	88.97
274		J-40	4.11	2,839.00	3,041.32	87.66
275		J-41	4.11	2,837.00	3,041.31	88.53
276		J-42	4.11	2,835.00	3,041.28	89.38
277		J-43	4.11	2,833.00	3,041.24	90.23
278		J-44FH	4.11	2,805.00	3,041.16	102.33
279		J-45	4.11	2,805.00	3,041.17	102.33
280		J-46	4.11	2,780.00	3,041.16	113.16
281		J-47	4.11	2,760.00	3,041.16	121.82
282		J-48	4.11	2,780.00	3,041.16	113.16
283		J-49	4.11	2,801.00	3,041.21	104.08
284		J-5	4.11	2,751.00	2,934.45	79.49
285		J-50	4.11	2,803.00	3,041.17	103.20
286		J-51	4.11	2,800.00	3,041.21	104.51
287		J-52	4.11	2,839.00	3,041.56	87.77
288		J-53	4.11	2,842.00	3,041.46	86.43
289		J-54	4.11	2,920.00	3,095.09	75.87
290		J-55	4.11	2,842.00	3,041.45	86.42
291		J-56	4.11	2,847.00	3,041.37	84.22
292		J-57	4.11	2,850.00	3,041.37	82.92
293		J-58	4.11	2,837.00	3,041.32	88.53
294		J-59	4.11	2,860.00	3,092.00	100.52
295		J-6	4.11	2,757.00	2,934.48	76.90
296		J-61	4.11	2,847.00	3,041.31	84.19
297		J-63FH	4.11	2,839.00	3,041.31	87.66
298		J-64	4.11	2,839.00	3,041.28	87.65
299		J-65	4.11	2,851.50	3,041.29	82.24
300		J-66FH	4.11	2,847.00	3,041.27	84.18

Average Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
301		J-67	4.11	2,842.00	3,041.27	86.34
302		J-68FH	4.11	2,839.00	3,041.27	87.64
303		J-69FH	4.11	2,839.00	3,041.25	87.63
304		J-7	4.11	2,754.00	2,934.47	78.20
305		J-70	4.11	2,837.00	3,041.25	88.50
306		J-71	4.11	2,839.50	3,041.25	87.42
307		J-73FH	4.11	2,830.00	3,041.24	91.53
308		J-74	4.11	2,843.00	3,041.25	85.90
309		J-75	4.11	2,845.00	3,041.25	85.04
310		J-76	4.11	2,849.00	3,041.25	83.30
311		J-77FH	4.11	2,914.00	3,096.40	79.04
312		J-78	4.11	2,940.00	3,095.62	67.43
313		J-79	4.11	2,842.00	3,041.24	86.33
314		J-80FH	4.11	2,940.00	3,096.14	67.65
315		J-81FH	4.11	2,841.00	3,041.24	86.76
316		J-82	4.11	2,921.00	3,096.13	75.88
317		J-83	4.11	2,760.00	2,937.54	76.93
318		J-84	4.11	2,760.00	3,041.24	121.86
319		J-85FH	4.11	2,849.50	3,041.26	83.09
320		J-86	4.11	2,851.50	3,041.26	82.22
321		J-87	4.11	2,852.00	3,041.26	82.01
322		J-88	4.11	2,854.00	3,041.25	81.14
323		J-89	4.11	2,857.00	3,041.27	79.84
324		J-8FH	4.11	2,752.00	2,934.47	79.06
325		J-9	4.11	2,757.00	2,934.49	76.91
326		J-90	4.11	2,857.00	3,041.27	79.84
327		J-91	4.11	2,857.00	3,041.26	79.84
328		J-92	4.11	2,861.00	3,041.25	78.10
329		J-93FH	4.11	2,858.00	3,041.25	79.40
330		J-94	4.11	2,857.00	3,041.25	79.83
331		J-95	4.11	2,863.50	3,041.25	77.02
332		J-956	3.54	2,847.00	3,063.94	94.00
333		J-958	3.54	2,856.00	3,067.09	91.46
334		J-96	4.11	2,863.00	3,041.25	77.24
335		J-97FH	4.11	2,936.00	3,096.14	69.39
336		J-98	4.11	2,866.75	3,041.25	75.61
337		J-99	4.11	2,866.50	3,041.25	75.72
338		J1000	3.54	2,903.00	3,098.54	84.73
339		J1002	3.54	2,892.00	3,098.46	89.46
340		J1004	3.54	2,939.00	3,097.74	68.78
341		J1006	3.54	2,937.00	3,097.73	69.65
342		J1008	3.54	2,940.00	3,097.74	68.35
343		J100FH	4.11	2,933.00	3,094.15	69.83
344		J1010	3.54	2,941.00	3,097.74	67.91
345		J1012	3.54	2,941.00	3,097.76	67.92
346		J1014	3.54	2,942.00	3,097.76	67.49
347		J1016	3.54	2,943.00	3,097.72	67.04
348		J1018	3.54	2,940.00	3,097.74	68.35
349		J1020	3.54	2,944.00	3,098.88	67.11
350		J1022	3.54	2,947.00	3,098.88	65.81

Average Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
351		J1024	3.54	2,941.00	3,098.88	68.41
352		J1026	3.54	2,953.00	3,089.30	59.06
353		J1028	3.54	2,868.00	3,089.30	95.89
354		J102FH	4.11	2,936.00	3,095.40	69.07
355		J1030	3.54	2,890.00	3,089.30	86.36
356		J1032	3.54	2,873.00	3,089.30	93.72
357		J1034	3.54	2,915.00	3,089.30	75.52
358		J1036	3.54	2,761.00	2,934.49	75.17
359		J1038	3.54	2,764.00	2,934.48	73.87
360		J1040	3.54	2,764.00	2,934.49	73.87
361		J1042	3.54	2,766.00	2,934.48	73.00
362		J1044	3.54	2,768.00	2,934.48	72.14
363		J1048	3.54	3,000.00	3,165.84	71.86
364		J104FH	4.11	2,929.00	3,095.90	72.32
365		J1050	3.54	2,861.00	3,212.44	152.28
366		J1054	0.00	2,940.00	3,118.39	77.30
367		J1056	0.00	2,929.50	3,099.67	73.73
368		J1058	0.00	3,007.70	3,211.75	88.42
369		J1062	0.00	3,000.00	3,165.43	71.68
370		J1064	0.00	2,935.51	3,109.31	75.31
371		J1068	3.54	3,138.90	3,166.00	11.74
372		J106FH	4.11	2,923.00	3,095.89	74.91
373		J108FH	4.11	2,921.00	3,096.24	75.93
374		J10FH	4.11	2,845.00	3,058.51	92.51
375		J110FH	4.11	2,914.00	3,096.10	78.91
376		J112FH	4.11	2,934.00	3,094.78	69.67
377		J114FH	4.11	2,932.00	3,094.82	70.55
378		J116FH	4.11	2,925.00	3,095.34	73.81
379		J118FH	4.11	2,929.00	3,094.47	71.70
380		J12	4.11	2,845.00	3,058.73	92.61
381		J120FH	4.11	2,930.00	3,094.68	71.36
382		J122FH	4.11	2,930.00	3,094.76	71.39
383		J124FH	4.11	2,922.00	3,095.53	75.19
384		J126FH	32.49	2,899.00	3,096.55	85.60
385		J128FH	4.11	2,902.00	3,095.81	83.98
386		J130FH	32.49	2,881.00	3,096.70	93.46
387		J132FH	4.11	2,887.00	3,095.95	90.54
388		J134FH	4.11	2,894.00	3,095.63	87.37
389		J136FH	4.11	2,898.00	3,095.55	85.60
390		J138FH	4.11	2,924.00	3,095.09	74.13
391		J140FH	4.11	2,920.00	3,095.08	75.86
392		J142FH	4.11	2,923.00	3,094.95	74.51
393		J144FH	4.11	2,808.00	3,092.19	123.14
394		J146FH	4.11	2,810.00	3,092.20	122.28
395		J148FH	4.11	2,816.00	3,092.20	119.68
396		J14FH	4.11	2,845.00	3,058.11	92.34
397		J150FH	4.11	2,868.00	3,091.91	97.02
398		J152FH	4.11	2,932.00	3,093.26	69.87
399		J154FH	4.11	2,929.00	3,094.06	71.52
400		J156FH	4.11	2,929.00	3,094.11	71.54

Average Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
401		J158FH	4.11	2,928.00	3,094.64	72.20
402		J16	4.11	2,849.00	3,058.10	90.60
403		J160FH	4.11	2,912.00	3,094.52	79.08
404		J162FH	4.11	2,918.00	3,094.84	76.62
405		J164FH	4.11	2,911.00	3,094.80	79.64
406		J166FH	4.11	2,911.00	3,095.06	79.75
407		J168FH	4.11	2,905.00	3,095.18	82.40
408		J170FH	4.11	2,882.00	3,095.41	92.47
409		J172FH	4.11	2,884.00	3,095.17	91.50
410		J174FH	4.11	2,877.00	3,095.03	94.47
411		J176FH	4.11	2,881.00	3,094.92	92.69
412		J178FH	4.11	2,888.00	3,094.85	89.63
413		J180FH	4.11	2,880.00	3,094.80	93.07
414		J182FH	4.11	2,863.00	3,094.80	100.44
415		J184FH	4.11	2,863.00	3,094.70	100.40
416		J186	4.11	2,788.00	2,939.48	65.64
417		J188FH	4.11	2,775.00	2,939.48	71.27
418		J18FH	4.11	2,844.00	3,058.10	92.77
419		J190FH	4.11	2,893.00	3,094.36	87.25
420		J192FH	4.11	2,766.00	2,939.49	75.17
421		J194FH	4.11	2,780.00	2,939.39	69.06
422		J196FH	4.11	2,763.00	2,939.38	76.42
423		J198FH	4.11	2,776.00	2,939.26	70.74
424		J200FH	4.11	2,783.00	2,938.82	67.52
425		J202FH	4.11	2,760.00	2,938.46	77.33
426		J204FH	4.11	2,777.00	2,938.15	69.82
427		J206FH	4.11	2,889.00	3,094.36	88.98
428		J208FH	4.11	2,879.00	3,094.40	93.33
429		J20FH	4.11	2,850.00	3,058.10	90.17
430		J210FH	4.11	2,892.00	3,094.44	87.72
431		J212FH	4.11	2,881.00	3,094.46	92.49
432		J214FH	4.11	2,738.00	2,937.94	86.63
433		J216FH	4.11	2,743.00	2,937.67	84.35
434		J218FH	4.11	2,722.00	2,937.12	93.21
435		J22	4.11	2,852.00	3,058.10	89.30
436		J220FH	4.11	2,725.00	2,937.12	91.91
437		J222FH	4.11	2,732.00	2,937.12	88.88
438		J224	4.11	2,730.00	2,937.12	89.75
439		J226FH	4.11	2,736.00	2,937.12	87.15
440		J228FH	4.11	2,738.00	2,936.95	86.21
441		J230FH	4.11	2,747.00	2,937.18	82.41
442		J232FH	4.11	2,723.00	2,936.22	92.39
443		J234FH	4.11	2,728.00	2,936.22	90.22
444		J236FH	4.11	2,738.00	2,936.70	86.09
445		J238FH	4.11	2,745.00	2,936.97	83.18
446		J240FH	4.11	2,720.00	2,934.91	93.12
447		J242FH	4.11	2,742.00	2,935.44	83.82
448		J244FH	4.11	2,755.00	3,040.71	123.80
449		J246FH	4.11	2,835.00	3,054.20	94.98
450		J248FH	4.11	2,740.00	2,936.11	84.97

Average Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
451		J24FH	4.11	2,842.00	3,058.10	93.64
452		J250FH	4.11	2,749.00	2,936.65	81.31
453		J252FH	4.11	2,743.00	2,936.18	83.70
454		J254FH	4.11	2,743.00	2,936.04	83.65
455		J256FH	4.11	2,804.00	3,041.18	102.77
456		J258FH	4.11	2,778.00	3,041.16	114.03
457		J260FH	4.11	2,797.00	3,041.11	105.77
458		J262FH	4.11	2,796.00	3,041.04	106.18
459		J264FH	4.11	2,799.00	3,041.00	104.86
460		J266FH	4.11	2,812.00	3,041.24	99.33
461		J268FH	4.11	2,810.00	3,041.22	100.19
462		J26FH	4.11	2,849.00	3,058.10	90.60
463		J270FH	4.11	2,807.00	3,041.16	101.46
464		J272FH	4.11	2,824.00	3,041.38	94.19
465		J274FH	4.11	2,804.00	3,041.42	102.87
466		J276FH	4.11	2,818.00	3,041.24	96.73
467		J278FH	4.11	2,824.00	3,041.28	94.15
468		J28	4.11	2,922.00	3,093.67	74.39
469		J280FH	4.11	2,819.00	3,041.29	96.32
470		J282FH	4.11	2,841.00	3,041.43	86.85
471		J284FH	4.11	2,843.00	3,041.35	85.94
472		J286FH	4.11	2,844.00	3,041.28	85.48
473		J288FH	4.11	2,849.00	3,041.26	83.31
474		J290FH	4.11	2,794.00	3,041.24	107.13
475		J292FH	4.11	2,856.00	3,041.24	80.27
476		J294FH	4.11	2,845.00	3,041.25	85.03
477		J296FH	4.11	2,843.00	3,041.25	85.90
478		J298FH	4.11	2,852.00	3,041.25	82.00
479		J300FH	4.11	2,875.00	3,041.24	72.03
480		J302FH	4.11	2,871.00	3,041.24	73.76
481		J304FH	4.11	2,872.00	3,041.24	73.33
482		J306FH	4.11	2,864.00	3,041.25	76.80
483		J308FH	4.11	2,858.00	3,041.25	79.40
484		J310FH	4.11	2,752.00	2,934.40	79.03
485		J312FH	4.11	2,739.00	2,934.21	84.59
486		J314FH	4.11	2,743.00	2,934.34	82.91
487		J316FH	4.11	2,734.00	2,934.27	86.78
488		J318FH	4.11	2,720.00	2,934.21	92.82
489		J320FH	4.11	2,716.00	2,934.19	94.54
490		J322FH	4.11	2,721.00	2,934.19	92.38
491		J324FH	4.11	2,727.00	2,934.20	89.78
492		J326FH	4.11	2,729.00	2,934.19	88.91
493		J328FH	4.11	2,736.00	2,934.16	85.86
494		J330FH	4.11	2,727.00	2,934.16	89.76
495		J332FH	4.11	2,736.00	2,934.17	85.87
496		J334FH	4.11	2,739.00	2,934.18	84.57
497		J336FH	4.11	2,733.00	2,934.29	87.22
498		J338FH	4.11	2,725.00	2,934.22	90.65
499		J340FH	4.11	2,739.00	2,934.29	84.62
500		J342FH	4.11	2,728.00	2,934.36	89.41

Average Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
501		J344FH	4.11	2,736.00	2,934.29	85.92
502		J346FH	4.11	2,740.00	2,934.30	84.19
503		J348FH	4.11	2,746.00	2,934.39	81.63
504		J34FH	4.11	2,922.00	3,093.54	74.33
505		J350FH	4.11	2,746.00	2,934.40	81.63
506		J352FH	4.11	2,735.00	2,934.47	86.43
507		J354FH	4.11	2,749.00	2,934.58	80.41
508		J356FH	4.11	2,721.00	2,934.57	92.54
509		J358FH	4.11	2,733.00	2,934.46	87.29
510		J36	4.11	2,906.00	3,092.80	80.94
511		J360FH	4.11	2,705.00	2,934.05	99.25
512		J362FH	4.11	2,705.00	2,934.09	99.26
513		J364FH	4.11	2,718.00	2,934.14	93.65
514		J366FH	4.11	2,721.00	2,934.14	92.35
515		J368FH	4.11	2,717.00	2,934.13	94.08
516		J370FH	4.11	2,731.00	2,934.15	88.02
517		J372FH	4.11	2,731.00	2,934.15	88.02
518		J374FH	4.11	2,704.00	2,934.16	99.73
519		J376FH	4.11	2,705.00	2,934.16	99.30
520		J380FH	4.11	2,947.00	3,097.19	65.08
521		J382FH	4.11	2,948.00	3,097.15	64.63
522		J384FH	4.11	2,945.00	3,097.11	65.91
523		J388	4.11	2,946.00	3,097.02	65.44
524		J38FH	4.11	2,913.00	3,094.35	78.58
525		J392	4.11	2,952.00	3,097.02	62.84
526		J394	4.11	2,945.00	3,096.97	65.85
527		J396	4.11	2,942.00	3,097.35	67.31
528		J398FH	4.11	2,943.00	3,097.26	66.84
529		J40	4.11	2,916.00	3,094.35	77.28
530		J400	4.11	2,902.00	3,097.74	84.82
531		J402FH	32.49	2,912.00	3,097.52	80.39
532		J404FH	4.11	2,917.00	3,097.38	78.16
533		J406FH	4.11	2,921.00	3,097.42	76.44
534		J408	4.11	2,918.00	3,097.42	77.74
535		J410FH	4.11	2,922.00	3,097.18	75.90
536		J412FH	4.11	2,929.00	3,096.76	72.69
537		J414	4.11	2,928.00	3,093.85	71.86
538		J416FH	4.11	2,928.00	3,093.38	71.66
539		J418FH	4.11	2,926.00	3,093.38	72.52
540		J420FH	4.11	2,918.00	3,093.31	75.96
541		J422FH	4.11	2,928.00	3,093.48	71.70
542		J424FH	4.11	2,928.00	3,093.47	71.70
543		J426FH	4.11	2,927.00	3,093.46	72.13
544		J42FH	4.11	2,919.00	3,094.34	75.98
545		J430	4.11	2,923.00	3,093.28	73.78
546		J432	4.11	2,924.00	3,093.28	73.35
547		J434FH	4.11	2,926.00	3,093.28	72.48
548		J436	4.11	2,922.00	3,093.28	74.21
549		J438	4.11	2,923.00	3,093.28	73.78
550		J440FH	4.11	2,925.00	3,093.46	72.99

Average Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
551		J442FH	4.11	2,926.00	3,093.42	72.54
552		J444FH	4.11	2,930.00	3,094.08	71.10
553		J446	4.11	2,909.00	3,093.12	79.78
554		J448	4.11	2,923.00	3,093.31	73.80
555		J44FH	4.11	2,918.00	3,094.35	76.41
556		J450FH	4.11	2,918.00	3,099.05	78.45
557		J452FH	32.49	2,915.00	3,098.43	79.48
558		J454	4.11	2,841.00	3,041.25	86.77
559		J456FH	4.11	2,706.00	2,934.02	98.80
560		J458FH	4.11	2,709.00	2,934.02	97.50
561		J46	4.11	2,896.00	3,094.36	85.95
562		J460FH	4.11	2,713.00	2,934.02	95.77
563		J462FH	4.11	2,713.00	2,934.02	95.77
564		J464	4.11	2,711.00	2,934.02	96.64
565		J466	4.11	2,707.00	2,934.02	98.37
566		J468	4.11	2,712.00	2,934.02	96.20
567		J470	4.11	2,712.00	2,934.03	96.21
568		J472	4.11	2,712.00	2,934.02	96.20
569		J474	4.11	2,712.00	2,934.02	96.20
570		J476	3.54	2,815.00	3,085.36	117.15
571		J478FH	4.11	2,816.00	3,085.45	116.75
572		J48	4.11	2,900.00	3,094.45	84.26
573		J480FH	4.11	2,796.00	3,086.12	125.71
574		J482FH	63.98	2,796.00	3,086.87	126.03
575		J484FH	4.11	2,811.00	3,087.65	119.87
576		J486FH	4.11	2,840.00	3,088.73	107.77
577		J488FH	4.11	2,820.00	3,088.78	116.46
578		J490FH	4.11	2,818.00	3,088.84	117.36
579		J492FH	4.11	2,820.00	3,088.90	116.52
580		J494FH	63.98	2,818.00	3,088.88	117.37
581		J496FH	4.11	2,815.00	3,089.09	118.76
582		J500FH	4.11	2,823.00	3,089.28	115.38
583		J508FH	4.11	2,847.00	3,089.31	104.99
584		J50FH	4.11	2,695.00	2,934.16	103.63
585		J510FH	4.11	2,856.00	3,089.35	101.11
586		J512	4.11	2,872.00	3,089.35	94.18
587		J514FH	4.11	2,869.00	3,089.39	95.49
588		J516	4.11	2,867.00	3,089.40	96.37
589		J518FH	4.11	2,865.00	3,089.44	97.25
590		J52	4.11	2,742.00	2,934.29	83.32
591		J522FH	4.11	2,824.00	3,089.28	114.95
592		J524	4.11	2,815.00	3,089.24	118.83
593		J526FH	4.11	2,840.00	3,089.33	108.04
594		J528FH	4.11	2,854.00	3,089.39	102.00
595		J532FH	4.11	2,858.00	3,089.46	100.29
596		J534	4.11	2,860.00	3,089.48	99.43
597		J536	778.30	2,914.00	3,085.35	74.25
598		J538	0.00	3,052.00	2,888.57	-70.82
599		J54	4.11	2,738.00	2,934.29	85.05
600		J540	44.15	2,927.00	3,102.70	76.13

Average Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
601		J542	0.00	3,125.00	2,888.57	-102.45
602		J544	0.00	2,949.00	2,888.57	-26.19
603		J546	3.54	2,760.00	3,212.46	196.05
604		J548	3.54	2,760.00	3,212.45	196.05
605		J550	3.54	2,760.00	3,212.44	196.04
606		J552	3.54	2,760.00	3,212.44	196.04
607		J554	3.54	2,760.00	3,212.45	196.05
608		J556	3.54	2,760.00	3,212.45	196.05
609		J558	3.54	2,760.00	3,212.45	196.05
610		J560	4.11	2,875.00	3,094.66	95.18
611		J562	3.54	2,865.00	3,094.67	99.52
612		J564	4.11	2,820.00	3,041.24	95.86
613		J566FH	4.11	2,922.00	3,099.88	77.08
614		J568FH	4.11	2,928.00	3,099.61	74.36
615		J56FH	4.11	2,740.00	2,934.23	84.16
616		J570FH	4.11	2,929.00	3,099.61	73.93
617		J572	4.11	2,939.00	3,099.21	69.42
618		J574	4.11	2,937.00	3,099.34	70.34
619		J576	4.11	2,942.00	3,099.18	68.10
620		J578	4.11	2,940.00	3,099.05	68.92
621		J580FH	4.11	2,939.00	3,099.05	69.35
622		J582	4.11	2,922.00	3,099.85	77.06
623		J584FH	4.11	2,842.00	3,089.06	107.05
624		J586	4.11	2,865.00	3,089.30	97.19
625		J588	4.11	2,857.00	3,089.31	100.66
626		J58FH	4.11	2,734.00	2,934.20	86.75
627		J590FH	4.11	2,833.00	3,089.05	110.95
628		J594FH	4.11	2,826.00	3,089.05	113.98
629		J596FH	4.11	2,803.00	3,088.88	123.87
630		J60	4.11	2,728.00	2,934.19	89.34
631		J600FH	4.11	2,846.00	3,089.35	105.44
632		J602	4.11	2,846.00	3,089.35	105.44
633		J604	4.11	2,945.00	3,099.10	66.77
634		J606FH	4.11	2,950.00	3,099.01	64.57
635		J608	4.11	2,943.00	3,099.10	67.64
636		J610FH	4.11	2,936.00	3,099.56	70.87
637		J612FH	4.11	2,931.00	3,099.73	73.11
638		J614	4.11	2,931.00	3,099.62	73.06
639		J616	44.15	2,933.00	3,099.58	72.18
640		J618	3.54	3,143.00	3,169.29	11.39
641		J62	4.11	2,723.00	2,934.19	91.51
642		J620	4.11	2,865.00	3,041.25	76.37
643		J622FH	4.11	2,826.00	3,043.12	94.08
644		J624FH	4.11	2,835.00	3,043.11	90.18
645		J626FH	4.11	2,805.00	3,042.60	102.95
646		J630FH	4.11	2,825.00	3,043.11	94.51
647		J634FH	4.11	2,831.00	3,043.11	91.91
648		J638FH	4.11	2,790.00	3,042.28	109.31
649		J64	4.11	2,742.00	2,934.18	83.27
650		J640FH	4.11	2,930.00	3,099.57	73.47

Average Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
651		J642FH	4.11	2,929.00	3,099.65	73.94
652		J646FH	4.11	2,934.00	3,099.58	71.74
653		J648FH	4.11	2,799.00	3,084.75	123.81
654		J650FH	4.11	2,790.00	3,084.50	127.61
655		J652FH	4.11	2,774.00	3,084.17	134.40
656		J654FH	4.11	2,772.00	3,084.29	135.32
657		J656FH	4.11	2,779.00	3,084.43	132.34
658		J658FH	4.11	2,784.00	3,084.45	130.19
659		J660FH	4.11	2,774.00	3,084.44	134.51
660		J662FH	71.73	2,765.00	3,084.40	138.40
661		J664FH	4.11	2,784.00	3,084.53	130.22
662		J666FH	4.11	2,792.00	3,084.65	126.81
663		J668	71.73	2,805.00	3,084.53	121.12
664		J66FH	4.11	2,733.00	2,934.14	87.15
665		J670	4.11	2,746.42	2,937.67	82.87
666		J672FH	4.11	2,747.00	2,937.67	82.62
667		J674	4.11	2,931.48	3,097.04	71.74
668		J676FH	4.11	2,935.42	3,097.06	70.04
669		J678FH	4.11	2,934.28	3,097.15	70.57
670		J680FH	4.11	2,931.09	3,097.25	72.00
671		J682	4.11	2,926.25	3,097.31	74.12
672		J684FH	4.11	2,930.42	3,097.26	72.29
673		J686FH	4.11	2,929.00	3,097.16	72.86
674		J688	4.11	2,924.95	3,097.15	74.61
675		J68FH	4.11	2,743.00	2,934.14	82.82
676		J690	4.11	2,925.00	3,097.15	74.59
677		J692FH	4.11	2,932.10	3,097.09	71.49
678		J694	4.11	2,923.00	3,097.41	75.57
679		J696	4.11	2,935.00	3,098.26	70.74
680		J698	4.11	2,929.52	3,097.98	72.99
681		J700FH	4.11	2,936.95	3,097.98	69.77
682		J702	4.11	2,925.68	3,097.54	74.47
683		J704FH	4.11	2,926.37	3,097.54	74.17
684		J706FH	4.11	2,934.71	3,097.54	70.55
685		J708FH	4.11	2,930.45	3,097.98	72.59
686		J70FH	4.11	2,731.00	2,934.15	88.03
687		J710FH	4.11	2,935.73	3,098.19	70.39
688		J712	4.11	2,721.80	2,936.22	92.91
689		J714FH	4.11	2,726.17	2,936.22	91.02
690		J716	4.11	2,720.00	2,936.22	93.69
691		J718FH	4.11	2,723.42	2,936.22	92.21
692		J72	4.11	2,724.00	2,936.22	91.96
693		J720FH	4.11	2,781.00	3,041.98	113.08
694		J724	4.11	2,934.00	3,098.99	71.49
695		J728	4.11	2,932.00	3,099.00	72.36
696		J730FH	4.11	2,932.00	3,099.00	72.36
697		J732	4.11	2,930.00	3,099.06	73.25
698		J736	4.11	2,922.00	3,099.34	76.84
699		J738FH	4.11	2,924.00	3,099.26	75.94
700		J74	4.11	2,911.00	3,095.81	80.08

Average Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
701		J740FH	4.11	2,916.00	3,099.54	79.53
702		J742FH	4.11	2,938.00	3,098.87	69.71
703		J744	4.11	2,942.00	3,098.70	67.90
704		J746	4.11	2,944.00	3,098.91	67.12
705		J748	44.15	2,950.00	3,098.89	64.51
706		J750FH	4.11	2,941.00	3,098.90	68.42
707		J752	44.15	2,946.00	3,098.88	66.24
708		J754	4.11	2,944.00	3,098.90	67.12
709		J756	4.11	2,948.00	3,099.01	65.43
710		J758	4.11	2,952.00	3,099.01	63.70
711		J76	4.11	2,886.00	3,096.12	91.05
712		J774	4.11	2,738.00	2,934.14	84.99
713		J776	4.11	2,736.00	2,934.14	85.86
714		J778	4.11	2,771.00	3,084.35	135.78
715		J780	4.11	2,770.00	3,084.35	136.21
716		J782	4.11	2,812.00	3,041.40	99.40
717		J784FH	4.11	2,774.00	3,084.19	134.40
718		J786FH	4.11	2,781.00	3,041.94	113.06
719		J788FH	4.11	2,921.00	3,096.13	75.88
720		J78FH	4.11	2,932.00	3,095.92	71.03
721		J790FH	4.11	2,926.00	3,099.10	75.01
722		J792	44.15	2,943.00	3,097.80	67.08
723		J794	403.93	2,907.00	3,103.56	85.17
724		J796	43.58	2,889.00	3,098.43	90.75
725		J798	67.62	2,955.00	3,084.73	56.21
726		J800	0.00	2,913.00	3,084.67	74.39
727		J802	4.11	2,774.00	2,940.15	71.99
728		J804	4.11	2,799.00	3,084.92	123.89
729		J806	0.00	2,757.00	3,084.40	141.86
730		J80FH	4.11	2,925.00	3,095.88	74.04
731		J814	3.54	2,981.00	3,212.48	100.30
732		J816	3.54	2,963.00	3,099.01	58.93
733		J818	3.54	2,954.00	3,099.01	62.83
734		J820	0.00	2,960.45	3,204.14	105.59
735		J822	0.00	2,966.52	3,207.90	104.59
736		J824	0.00	2,980.76	3,210.29	99.46
737		J826	0.00	2,987.71	3,210.07	96.35
738		J828	0.00	2,996.13	3,210.50	92.88
739		J82FH	4.11	2,917.00	3,095.78	77.47
740		J830	0.00	2,995.21	3,210.38	93.23
741		J832	0.00	2,990.88	3,210.19	95.03
742		J834	0.00	3,009.18	3,211.69	87.75
743		J836	0.00	3,002.40	3,210.38	90.12
744		J838	3.54	3,004.53	3,211.88	89.84
745		J840	0.00	2,944.90	3,209.06	114.46
746		J842	0.00	2,940.71	3,209.06	116.28
747		J844	0.00	2,968.00	3,210.17	104.93
748		J846	0.00	2,967.45	3,210.15	105.16
749		J848	0.00	2,961.29	3,210.09	107.81
750		J84FH	4.11	2,922.00	3,095.78	75.30

Average Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
751		J850	0.00	2,960.78	3,210.07	108.02
752		J852	0.00	2,968.68	3,210.34	104.71
753		J854	0.00	2,975.04	3,210.32	101.94
754		J856	0.00	2,978.19	3,210.31	100.58
755		J858	0.00	2,888.43	3,073.45	80.17
756		J86	4.11	2,925.00	3,095.34	73.81
757		J860	0.00	2,898.05	3,081.12	79.32
758		J862	0.00	2,899.49	3,084.16	80.02
759		J864	0.00	2,884.62	3,081.12	85.14
760		J866	0.00	2,902.06	3,088.37	80.73
761		J868	0.00	2,926.83	3,092.62	71.84
762		J870	0.00	2,920.55	3,091.94	74.26
763		J872	0.00	2,903.55	3,091.85	81.59
764		J874	0.00	2,922.53	3,091.85	73.36
765		J876	0.00	2,923.74	3,091.85	72.84
766		J878	0.00	2,918.62	3,091.85	75.06
767		J88	4.11	2,916.00	3,095.09	77.60
768		J880	0.00	2,905.87	3,091.85	80.58
769		J882	0.00	2,896.80	3,091.94	84.55
770		J884	0.00	2,893.57	3,098.02	88.59
771		J886	0.00	2,911.70	3,098.02	80.73
772		J888	0.00	2,908.12	3,098.36	82.43
773		J890	0.00	2,912.56	3,098.32	80.49
774		J892	0.00	2,899.90	3,098.36	85.99
775		J894	0.00	2,919.68	3,098.40	77.44
776		J896	0.00	2,914.64	3,097.79	79.36
777		J898	0.00	2,915.94	3,097.82	78.81
778		J90	4.11	2,922.00	3,095.34	75.11
779		J900	0.00	2,920.41	3,097.82	76.87
780		J902	0.00	2,916.53	3,098.26	78.74
781		J904	0.00	2,942.70	3,098.17	67.37
782		J906	0.00	2,941.03	3,098.19	68.10
783		J908	0.00	2,927.52	3,098.20	73.96
784		J910	0.00	2,938.15	3,098.20	69.35
785		J912	0.00	2,933.82	3,098.20	71.23
786		J914	0.00	2,941.49	3,098.20	67.90
787		J916	0.00	2,940.75	3,098.20	68.22
788		J918	0.00	2,962.00	3,098.17	59.00
789		J920	0.00	2,963.07	3,098.17	58.54
790		J922	0.00	2,951.49	3,098.17	63.56
791		J924	0.00	2,964.29	3,098.17	58.01
792		J926	0.00	2,943.69	3,098.17	66.94
793		J928	0.00	2,951.57	3,098.17	63.52
794		J92FH	4.11	2,948.00	3,094.99	63.69
795		J930	0.00	2,951.82	3,098.17	63.41
796		J932	0.00	2,948.36	3,098.17	64.91
797		J934	0.00	2,944.53	3,098.17	66.57
798		J936	0.00	2,942.91	3,098.17	67.28
799		J938	0.00	2,918.30	3,103.21	80.12
800		J940	0.00	2,926.09	3,103.21	76.74

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
801		J942	3.54	2,907.00	3,098.85	83.13
802		J944	0.00	2,929.59	3,209.06	121.10
803		J946	3.54	2,983.37	3,211.95	99.04
804		J948	3.54	2,946.00	3,118.39	74.70
805		J94FH	4.11	2,950.00	3,095.84	63.19
806		J950	0.00	2,937.89	3,116.36	77.33
807		J952	0.00	2,939.75	3,119.05	77.69
808		J954	3.54	2,847.00	3,062.25	93.27
809		J960	3.54	2,851.00	3,065.05	92.75
810		J962	3.54	2,855.00	3,066.61	91.69
811		J964	3.54	2,861.00	3,068.66	89.98
812		J966	3.54	2,861.00	3,070.00	90.56
813		J968	3.54	2,915.00	3,100.10	80.21
814		J96FH	4.11	2,941.00	3,095.06	66.76
815		J970	3.54	2,924.00	3,099.87	76.20
816		J972	3.54	2,917.00	3,100.55	79.53
817		J974	3.54	2,919.00	3,100.11	78.48
818		J976	3.54	2,926.00	3,099.87	75.34
819		J978	3.54	2,934.00	3,103.51	73.45
820		J980	3.54	2,934.00	3,103.40	73.40
821		J982	3.54	2,928.00	3,103.13	75.88
822		J984	3.54	2,944.00	3,113.94	73.63
823		J986	3.54	2,923.00	3,107.98	80.15
824		J988	3.54	2,921.00	3,105.33	79.87
825		J98FH	4.11	2,936.00	3,094.42	68.65
826		J990	3.54	2,916.00	3,104.03	81.47
827		J992	3.54	2,923.00	3,103.54	78.23
828		J994	3.54	2,946.00	3,119.05	74.98
829		J996	3.54	2,910.00	3,098.97	81.88
830		J998	3.54	2,908.00	3,098.46	82.52

Peak Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
1		J-100FH	8.25	2,876.00	2,995.23	51.66
2		J-101	8.25	2,865.00	3,028.74	70.95
3		J-102FH	8.25	2,868.00	3,036.53	73.03
4		J-103FH	8.25	2,871.00	3,037.36	72.08
5		J-104	8.25	2,839.00	2,987.87	64.51
6		J-105FH	8.25	2,875.00	3,037.98	70.62
7		J-106FH	8.25	2,877.00	3,032.56	67.40
8		J-107FH	8.25	2,936.00	3,046.41	47.84
9		J-108	8.25	2,876.00	3,036.63	69.60
10		J-109FH	8.25	2,875.00	3,037.43	70.38
11		J-10FH	8.25	2,741.00	2,930.90	82.28
12		J-110	8.25	2,879.00	3,037.98	68.88
13		J-111	8.25	2,899.50	3,038.73	60.33
14		J-112	8.25	2,879.00	3,038.72	69.21
15		J-113	8.25	2,885.00	3,040.61	67.43
16		J-114FH	8.25	2,885.50	3,039.68	66.80
17		J-115	8.25	2,885.00	3,039.67	67.02
18		J-116FH	8.25	2,881.00	3,041.87	69.71
19		J-117	8.25	2,897.00	3,039.97	61.95
20		J-118FH	8.25	2,891.00	3,040.67	64.85
21		J-119FH	8.25	2,889.00	3,041.29	65.99
22		J-11FH	8.25	2,740.00	2,930.55	82.56
23		J-12	8.25	2,766.00	2,932.79	72.27
24		J-120	8.25	2,887.00	3,041.80	67.08
25		J-1208	8.25	2,822.00	2,989.07	72.39
26		J-121	8.25	2,878.00	3,042.28	71.18
27		J-1210	7.10	2,760.00	3,155.99	171.58
28		J-122FH	8.25	2,880.00	3,042.48	70.40
29		J-123	8.25	2,870.00	3,042.28	74.65
30		J-124	8.25	2,892.00	3,041.94	64.97
31		J-125	8.25	2,892.00	3,041.94	64.97
32		J-1254	7.10	3,000.00	3,165.47	71.70
33		J-1268	7.10	3,200.00	3,300.58	43.58
34		J-1269	7.10	3,200.00	3,300.99	43.76
35		J-126FH	8.25	2,901.00	3,042.41	61.27
36		J-127	8.25	2,901.00	3,042.49	61.31
37		J-1273	8.25	2,823.00	3,149.17	141.33
38		J-128FH	8.25	2,935.00	3,046.38	48.26
39		J-129	8.25	2,899.00	3,041.81	61.88
40		J-13	8.25	2,751.00	2,978.68	98.65
41		J-130	8.25	2,932.00	3,046.35	49.55
42		J-131FH	8.25	2,901.00	3,041.30	60.79
43		J-132FH	8.25	2,925.00	3,046.16	52.50
44		J-133FH	8.25	2,903.00	3,040.86	59.73
45		J-134FH	8.25	2,927.00	3,046.16	51.63
46		J-135	8.25	2,905.00	3,040.39	58.67
47		J-136FH	8.25	2,910.00	3,039.75	56.22
48		J-137	8.25	2,901.00	3,039.68	60.09
49		J-138FH	8.25	2,902.00	3,039.68	59.66
50		J-139FH	8.25	2,877.00	3,039.58	70.45

Peak Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
51		J-140	8.25	2,885.00	3,037.67	66.15
52		J-141FH	8.25	2,900.00	3,037.67	59.65
53		J-142	8.25	2,885.00	3,037.52	66.09
54		J-143FH	8.25	2,890.00	3,037.06	63.72
55		J-144FH	8.25	2,897.00	3,034.57	59.61
56		J-145FH	8.25	2,889.00	3,033.55	62.63
57		J-146	8.25	2,888.00	3,034.45	63.46
58		J-147FH	8.25	2,891.00	3,033.46	61.73
59		J-148	8.25	2,908.00	3,038.10	56.37
60		J-149FH	8.25	2,905.00	3,034.98	56.32
61		J-14FH	8.25	2,750.00	2,931.23	78.53
62		J-150	8.25	2,909.00	3,035.49	54.81
63		J-151FH	8.25	2,893.00	3,034.90	61.48
64		J-152	8.25	2,874.00	3,001.37	55.19
65		J-153FH	8.25	2,892.50	3,034.24	61.42
66		J-154	8.25	2,892.00	3,034.24	61.63
67		J-155	8.25	2,894.00	3,034.81	61.01
68		J-156FH	8.25	2,894.00	3,034.88	61.04
69		J-157	8.25	2,870.00	3,034.89	71.45
70		J-158FH	8.25	2,900.00	3,035.24	58.60
71		J-159	8.25	2,896.00	3,035.24	60.33
72		J-15FH	8.25	2,753.00	2,931.23	77.23
73		J-160FH	8.25	2,903.50	3,035.55	57.22
74		J-161FH	8.25	2,897.00	3,035.53	60.02
75		J-162FH	8.25	2,880.00	3,035.00	67.16
76		J-163	8.25	2,885.00	3,035.39	65.17
77		J-164FH	8.25	2,910.00	3,036.41	54.77
78		J-165FH	8.25	2,915.00	3,036.84	52.79
79		J-166	8.25	2,915.00	3,037.76	53.19
80		J-167FH	8.25	2,909.00	3,038.82	56.25
81		J-168FH	8.25	2,917.00	3,039.45	53.06
82		J-169FH	8.25	2,921.00	3,046.15	54.23
83		J-16FH	8.25	2,640.00	2,930.68	125.95
84		J-170FH	8.25	2,917.00	3,044.14	55.09
85		J-171	8.25	2,916.00	3,038.09	52.90
86		J-172	8.25	2,909.00	3,038.82	56.25
87		J-173FH	8.25	2,920.00	3,038.12	51.18
88		J-174	8.25	2,921.00	3,037.81	50.61
89		J-175FH	8.25	2,915.00	3,039.46	53.93
90		J-176	8.25	2,915.00	3,039.45	53.93
91		J-177FH	8.25	2,929.00	3,045.79	50.60
92		J-178	8.25	2,920.00	3,041.05	52.45
93		J-179	8.25	2,920.00	3,041.31	52.56
94		J-17FH	8.25	2,638.00	2,930.66	126.81
95		J-18	8.25	2,637.00	2,930.66	127.24
96		J-180	8.25	2,933.00	3,046.93	49.37
97		J-181	8.25	2,915.00	3,042.48	55.24
98		J-182	8.25	2,915.00	3,042.61	55.29
99		J-183FH	8.25	2,915.00	3,042.61	55.29
100		J-184FH	8.25	2,915.00	3,041.69	54.89

Peak Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
101		J-185	8.25	2,920.00	3,043.23	53.40
102		J-186FH	8.25	2,910.00	3,043.58	57.88
103		J-187	8.25	2,915.00	3,041.13	54.65
104		J-188	8.25	2,909.00	3,045.14	58.99
105		J-189FH	8.25	2,915.00	3,051.58	59.18
106		J-191	8.25	2,915.00	3,041.02	54.60
107		J-192	8.25	2,910.00	3,040.96	56.74
108		J-193FH	8.25	2,917.00	3,041.02	53.74
109		J-194	8.25	2,917.00	3,036.55	51.80
110		J-195	8.25	2,916.50	3,036.55	52.02
111		J-196	8.25	2,909.00	3,036.39	55.20
112		J-197	8.25	2,908.00	3,036.39	55.63
113		J-198FH	8.25	2,900.00	3,036.30	59.06
114		J-199	8.25	2,902.00	3,036.57	58.31
115		J-19FH	8.25	2,636.00	2,930.66	127.67
116		J-1FH	8.25	2,720.00	2,930.45	91.19
117		J-2	8.25	2,720.00	2,930.45	91.19
118		J-200	8.25	2,895.00	3,035.74	60.98
119		J-201	8.25	2,890.00	3,035.67	63.12
120		J-202	8.25	2,892.00	3,035.67	62.25
121		J-203	8.25	2,883.00	3,035.65	66.14
122		J-204FH	8.25	2,880.00	3,035.39	67.33
123		J-205	8.25	2,885.00	3,036.00	65.43
124		J-206	8.25	2,890.00	3,036.25	63.37
125		J-207	8.25	2,883.00	3,035.97	66.28
126		J-208	8.25	2,939.00	3,047.79	47.14
127		J-209	8.25	2,825.00	2,991.89	72.31
128		J-20FH	8.25	2,745.00	2,931.35	80.75
129		J-21	8.25	2,745.00	2,931.02	80.60
130		J-210	8.25	2,937.00	3,046.26	47.34
131		J-211FH	8.25	2,830.00	2,991.89	70.15
132		J-212FH	8.25	2,824.00	2,991.89	72.75
133		J-213	8.25	2,825.00	2,998.90	75.35
134		J-214FH	8.25	2,835.00	2,998.90	71.02
135		J-215FH	8.25	2,825.00	2,998.90	75.35
136		J-216	8.25	2,830.00	3,006.87	76.64
137		J-217	8.25	2,830.00	3,011.54	78.66
138		J-218FH	8.25	2,838.00	3,006.86	73.17
139		J-219	8.25	2,830.00	3,006.86	76.63
140		J-22	8.25	2,920.00	3,045.49	54.37
141		J-220	8.25	2,924.00	3,049.66	54.45
142		J-221FH	8.25	2,748.00	2,931.26	79.41
143		J-222FH	8.25	2,732.00	2,931.60	86.49
144		J-223	8.25	2,720.00	2,931.21	91.52
145		J-224	8.25	2,750.00	2,931.41	78.60
146		J-225FH	8.25	2,752.00	2,931.23	77.66
147		J-226	8.25	2,740.00	2,931.15	82.82
148		J-227FH	8.25	2,845.00	2,986.81	61.44
149		J-228	8.25	2,755.00	2,931.23	76.36
150		J-229FH	8.25	2,753.00	2,931.05	77.15

Peak Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
151		J-23	8.25	2,751.00	2,981.08	99.69
152		J-230	8.25	2,755.00	2,931.04	76.28
153		J-231	8.25	2,750.00	2,931.00	78.43
154		J-232FH	8.25	2,755.00	2,930.92	76.22
155		J-233	8.25	2,750.00	2,930.94	78.40
156		J-234	8.25	2,770.00	2,930.89	69.72
157		J-235FH	8.25	2,765.00	2,930.80	71.84
158		J-236	8.25	2,768.00	2,930.79	70.54
159		J-237	8.25	2,765.00	2,930.78	71.83
160		J-238	8.25	2,778.00	2,930.72	66.17
161		J-24	8.25	2,800.00	2,982.78	79.20
162		J-240	8.25	2,778.00	2,930.71	66.17
163		J-241	8.25	2,780.00	2,930.28	65.11
164		J-242	8.25	2,760.00	2,930.56	73.91
165		J-243	8.25	2,924.00	3,047.15	53.36
166		J-244	8.25	2,770.00	2,930.56	69.57
167		J-245	8.25	2,770.00	2,930.56	69.57
168		J-246	8.25	2,878.00	3,001.36	53.45
169		J-247FH	8.25	2,857.50	2,994.38	59.31
170		J-248	8.25	2,920.00	3,055.47	58.70
171		J-249	8.25	2,920.00	3,056.40	59.10
172		J-250FH	8.25	2,750.00	2,930.94	78.40
173		J-251	8.25	2,750.00	2,930.95	78.41
174		J-252	8.25	2,750.00	2,930.96	78.41
175		J-253	8.25	2,745.00	2,930.95	80.57
176		J-254	8.25	2,735.00	2,930.77	84.83
177		J-255FH	8.25	2,728.00	2,930.72	87.84
178		J-256	8.25	2,728.00	2,930.71	87.83
179		J-257	8.25	2,725.00	2,930.46	89.02
180		J-258FH	8.25	2,735.00	2,930.39	84.66
181		J-259	8.25	2,735.00	2,930.31	84.63
182		J-25FH	8.25	2,758.00	2,982.11	97.11
183		J-26	8.25	2,760.00	2,982.11	96.24
184		J-260FH	8.25	2,735.00	2,930.28	84.62
185		J-261	8.25	2,735.00	2,930.28	84.61
186		J-262	8.25	2,735.00	2,930.27	84.61
187		J-263	8.25	2,720.00	2,930.24	91.10
188		J-264	8.25	2,710.00	2,930.18	95.40
189		J-265	8.25	2,700.00	2,929.92	99.63
190		J-266FH	8.25	2,700.00	2,929.92	99.63
191		J-267FH	8.25	2,751.00	2,934.42	79.48
192		J-268	8.25	2,700.00	2,930.02	99.67
193		J-269FH	8.25	2,700.00	2,930.02	99.67
194		J-27	8.25	2,770.00	2,982.78	92.20
195		J-270FH	8.25	2,700.00	2,930.18	99.74
196		J-271FH	8.25	2,735.00	2,930.29	84.62
197		J-272	8.25	2,824.00	2,989.28	71.62
198		J-273FH	8.25	2,705.00	2,930.37	97.65
199		J-274FH	8.25	2,705.00	2,930.38	97.66
200		J-275FH	8.25	2,785.00	2,980.85	84.86

Peak Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
201		J-277	8.25	2,920.00	3,051.58	57.02
202		J-278FH	8.25	2,740.00	2,931.92	83.16
203		J-279FH	8.25	2,730.00	2,931.41	87.27
204		J-28	8.25	2,807.00	2,984.49	76.91
205		J-280FH	8.25	2,741.00	2,931.00	82.33
206		J-281FH	8.25	2,703.00	2,930.38	98.53
207		J-282	8.25	2,720.00	2,930.45	91.19
208		J-283FH	8.25	2,715.00	2,930.48	93.37
209		J-284FH	8.25	2,720.00	2,930.66	91.28
210		J-285	8.25	2,720.00	2,930.48	91.20
211		J-286	8.25	2,720.00	2,930.67	91.28
212		J-287	8.25	2,720.00	2,930.79	91.33
213		J-288FH	8.25	2,720.00	2,930.46	91.19
214		J-289	8.25	2,720.00	2,930.49	91.21
215		J-290	8.25	2,720.00	2,930.49	91.21
216		J-291FH	8.25	2,921.00	3,043.81	53.21
217		J-292FH	8.25	2,705.00	2,930.42	97.67
218		J-293FH	8.25	2,755.00	2,979.81	97.41
219		J-294	8.25	2,913.00	3,045.00	57.19
220		J-295	8.25	2,946.00	3,098.20	65.95
221		J-296	7.10	2,990.00	3,109.24	51.67
222		J-297FH	8.25	2,705.00	2,930.40	97.67
223		J-298	8.25	2,760.00	2,930.63	73.93
224		J-299	8.25	2,770.00	2,930.56	69.57
225		J-29FH	8.25	2,815.00	2,985.03	73.67
226		J-3	8.25	2,730.00	2,930.58	86.91
227		J-300	8.25	2,915.00	3,051.58	59.18
228		J-301FH	8.25	2,800.00	3,066.09	115.30
229		J-302FH	8.25	2,705.00	2,930.40	97.67
230		J-303FH	8.25	2,730.00	2,930.46	86.86
231		J-304	7.10	3,000.00	3,149.64	64.84
232		J-305FH	8.25	2,877.50	2,996.23	51.44
233		J-306	8.25	2,877.50	3,030.10	66.12
234		J-307FH	8.25	2,740.00	2,930.48	82.53
235		J-308	7.10	3,042.00	3,086.44	19.25
236		J-309	8.25	2,760.00	2,930.57	73.91
237		J-30FH	8.25	2,816.00	2,985.59	73.48
238		J-31	8.25	2,815.00	2,985.80	74.01
239		J-310	8.25	2,930.00	3,047.22	50.79
240		J-311	89.12	2,925.00	3,045.49	52.21
241		J-312	8.25	2,870.00	3,043.90	75.35
242		J-313	8.25	2,800.00	2,987.87	81.40
243		J-314	8.25	2,780.00	2,985.79	89.17
244		J-315FH	8.25	2,930.00	3,046.17	50.34
245		J-316	8.25	2,843.00	2,986.81	62.31
246		J-317FH	8.25	2,902.00	3,036.61	58.33
247		J-318FH	8.25	2,922.00	3,055.27	57.75
248		J-319FH	8.25	2,924.00	3,052.59	55.72
249		J-32	8.25	2,800.00	2,985.79	80.50
250		J-320	8.25	2,922.00	3,051.99	56.32

Peak Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
251		J-321FH	8.25	2,924.00	3,050.31	54.73
252		J-322FH	8.25	2,936.00	3,047.96	48.51
253		J-323FH	8.25	2,930.00	3,048.75	51.46
254		J-324FH	8.25	2,926.00	3,049.76	53.62
255		J-325FH	8.25	2,924.00	3,050.71	54.90
256		J-326FH	8.25	2,928.00	3,049.89	52.82
257		J-327FH	8.25	2,928.00	3,049.16	52.50
258		J-328FH	8.25	2,933.00	3,048.56	50.07
259		J-329FH	8.25	2,934.00	3,048.53	49.63
260		J-330	8.25	2,934.00	3,048.62	49.66
261		J-331	8.25	2,923.00	3,050.31	55.16
262		J-333	8.25	2,885.00	3,035.98	65.42
263		J-334	8.25	2,885.00	3,035.98	65.42
264		J-335	8.25	2,745.00	2,931.37	80.76
265		J-336	8.25	2,745.00	2,931.37	80.76
266		J-33FH	8.25	2,820.00	2,986.78	72.26
267		J-34	8.25	2,830.00	2,987.04	68.05
268		J-35	8.25	2,827.00	2,986.25	69.00
269		J-36	8.25	2,820.00	2,986.23	72.03
270		J-37	8.25	2,825.00	2,985.76	69.66
271		J-38FH	8.25	2,821.00	2,985.25	71.17
272		J-39FH	8.25	2,836.00	2,986.32	65.13
273		J-4	8.25	2,729.00	2,930.58	87.35
274		J-40	8.25	2,839.00	2,986.30	63.83
275		J-41	8.25	2,837.00	2,986.38	64.73
276		J-42	8.25	2,835.00	2,986.17	65.50
277		J-43	8.25	2,833.00	2,985.72	66.17
278		J-44FH	8.25	2,805.00	2,984.57	77.81
279		J-45	8.25	2,805.00	2,984.84	77.93
280		J-46	8.25	2,780.00	2,984.56	88.64
281		J-47	8.25	2,760.00	2,984.56	97.30
282		J-48	8.25	2,780.00	2,984.56	88.64
283		J-49	8.25	2,801.00	2,985.27	79.84
284		J-5	8.25	2,751.00	2,930.77	77.89
285		J-50	8.25	2,803.00	2,984.84	78.79
286		J-51	8.25	2,800.00	2,985.27	80.28
287		J-52	8.25	2,839.00	2,987.75	64.45
288		J-53	8.25	2,842.00	2,987.83	63.19
289		J-54	8.25	2,920.00	3,042.71	53.17
290		J-55	8.25	2,842.00	2,987.74	63.15
291		J-56	8.25	2,847.00	2,988.80	61.44
292		J-57	8.25	2,850.00	2,988.80	60.14
293		J-58	8.25	2,837.00	2,986.80	64.91
294		J-59	8.25	2,860.00	3,066.09	89.30
295		J-6	8.25	2,757.00	2,931.05	75.42
296		J-61	8.25	2,847.00	2,986.80	60.57
297		J-63FH	8.25	2,839.00	2,986.80	64.04
298		J-64	8.25	2,839.00	2,986.80	64.04
299		J-65	8.25	2,851.50	2,989.76	59.91
300		J-66FH	8.25	2,847.00	2,989.64	61.80

Peak Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
301		J-67	8.25	2,842.00	2,987.98	63.25
302		J-68FH	8.25	2,839.00	2,986.87	64.07
303		J-69FH	8.25	2,839.00	2,986.65	63.98
304		J-7	8.25	2,754.00	2,930.74	76.58
305		J-70	8.25	2,837.00	2,985.87	64.51
306		J-71	8.25	2,839.50	2,986.89	63.86
307		J-73FH	8.25	2,830.00	2,984.38	66.89
308		J-74	8.25	2,843.00	2,987.52	62.62
309		J-75	8.25	2,845.00	2,987.66	61.81
310		J-76	8.25	2,849.00	2,988.02	60.24
311		J-77FH	8.25	2,914.00	3,044.43	56.52
312		J-78	8.25	2,940.00	3,047.22	46.46
313		J-79	8.25	2,842.00	2,985.55	62.20
314		J-80FH	8.25	2,940.00	3,046.69	46.23
315		J-81FH	8.25	2,841.00	2,986.23	62.93
316		J-82	8.25	2,921.00	3,046.16	54.23
317		J-83	8.25	2,760.00	2,931.41	74.27
318		J-84	8.25	2,760.00	2,977.52	94.25
319		J-85FH	8.25	2,849.50	2,990.75	61.21
320		J-86	8.25	2,851.50	2,990.75	60.34
321		J-87	8.25	2,852.00	2,991.94	60.64
322		J-88	8.25	2,854.00	2,992.93	60.20
323		J-89	8.25	2,857.00	2,991.28	58.18
324		J-8FH	8.25	2,752.00	2,930.74	77.45
325		J-9	8.25	2,757.00	2,931.23	75.49
326		J-90	8.25	2,857.00	2,991.28	58.18
327		J-91	8.25	2,857.00	2,991.98	58.49
328		J-92	8.25	2,861.00	2,994.13	57.69
329		J-93FH	8.25	2,858.00	2,992.93	58.47
330		J-94	8.25	2,857.00	2,994.16	59.43
331		J-95	8.25	2,863.50	2,995.18	57.06
332		J-956	7.10	2,847.00	3,021.96	75.81
333		J-958	7.10	2,856.00	3,024.47	73.00
334		J-96	8.25	2,863.00	2,995.18	57.27
335		J-97FH	8.25	2,936.00	3,046.45	47.86
336		J-98	8.25	2,866.75	2,995.55	55.81
337		J-99	8.25	2,866.50	2,995.55	55.92
338		J1000	7.10	2,903.00	3,044.67	61.39
339		J1002	7.10	2,892.00	3,044.51	66.08
340		J1004	7.10	2,939.00	3,044.75	45.82
341		J1006	7.10	2,937.00	3,044.75	46.69
342		J1008	7.10	2,940.00	3,044.75	45.39
343		J100FH	8.25	2,933.00	3,051.33	51.27
344		J1010	7.10	2,941.00	3,044.75	44.95
345		J1012	7.10	2,941.00	3,044.75	44.95
346		J1014	7.10	2,942.00	3,044.75	44.52
347		J1016	7.10	2,943.00	3,044.76	44.09
348		J1018	7.10	2,940.00	3,044.75	45.39
349		J1020	7.10	2,944.00	3,043.58	43.15
350		J1022	7.10	2,947.00	3,043.59	41.85

Peak Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
351		J1024	7.10	2,941.00	3,043.58	44.45
352		J1026	7.10	2,953.00	3,075.75	53.19
353		J1028	7.10	2,868.00	3,075.75	90.02
354		J102FH	8.25	2,936.00	3,046.89	48.05
355		J1030	7.10	2,890.00	3,075.75	80.48
356		J1032	7.10	2,873.00	3,075.75	87.85
357		J1034	7.10	2,915.00	3,075.75	69.65
358		J1036	7.10	2,761.00	2,932.26	74.21
359		J1038	7.10	2,764.00	2,932.36	72.95
360		J1040	7.10	2,764.00	2,932.28	72.92
361		J1042	7.10	2,766.00	2,932.33	72.07
362		J1044	7.10	2,768.00	2,932.31	71.19
363		J1048	7.10	3,000.00	3,150.49	65.21
364		J104FH	8.25	2,929.00	3,044.99	50.26
365		J1050	7.10	2,861.00	3,104.18	105.37
366		J1054	0.00	2,940.00	3,089.20	64.65
367		J1056	0.00	2,929.50	3,044.82	49.97
368		J1062	0.00	3,000.00	3,109.24	47.33
369		J1068	0.00	3,138.90	3,165.89	11.69
370		J106FH	8.25	2,923.00	3,044.60	52.69
371		J108FH	8.25	2,921.00	3,044.83	53.65
372		J10FH	8.25	2,845.00	3,017.77	74.86
373		J110FH	8.25	2,914.00	3,044.30	56.46
374		J112FH	8.25	2,934.00	3,048.12	49.45
375		J114FH	8.25	2,932.00	3,046.97	49.82
376		J116FH	8.25	2,925.00	3,044.77	51.90
377		J118FH	8.25	2,929.00	3,049.32	52.13
378		J12	8.25	2,845.00	3,017.94	74.94
379		J120FH	8.25	2,930.00	3,047.11	50.74
380		J122FH	8.25	2,930.00	3,045.54	50.07
381		J124FH	8.25	2,922.00	3,043.98	52.86
382		J126FH	65.58	2,899.00	3,044.13	62.89
383		J128FH	8.25	2,902.00	3,042.48	60.87
384		J130FH	65.58	2,881.00	3,043.96	70.61
385		J132FH	8.25	2,887.00	3,042.62	67.43
386		J134FH	8.25	2,894.00	3,042.12	64.18
387		J136FH	8.25	2,898.00	3,041.81	62.31
388		J138FH	8.25	2,924.00	3,042.04	51.15
389		J140FH	8.25	2,920.00	3,040.91	52.39
390		J142FH	8.25	2,923.00	3,040.92	51.10
391		J144FH	8.25	2,808.00	3,066.09	111.83
392		J146FH	8.25	2,810.00	3,066.09	110.96
393		J148FH	8.25	2,816.00	3,066.09	108.37
394		J14FH	8.25	2,845.00	3,017.47	74.73
395		J150FH	8.25	2,868.00	3,066.10	85.83
396		J152FH	8.25	2,932.00	3,040.88	47.18
397		J154FH	8.25	2,929.00	3,043.96	49.81
398		J156FH	8.25	2,929.00	3,042.96	49.38
399		J158FH	8.25	2,928.00	3,042.87	49.77
400		J16	8.25	2,849.00	3,017.45	72.99

Peak Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
401		J160FH	8.25	2,912.00	3,036.50	53.95
402		J162FH	8.25	2,918.00	3,038.44	52.19
403		J164FH	8.25	2,911.00	3,037.63	54.87
404		J166FH	8.25	2,911.00	3,040.31	56.03
405		J168FH	8.25	2,905.00	3,040.79	58.84
406		J170FH	8.25	2,882.00	3,041.12	68.95
407		J172FH	8.25	2,884.00	3,040.21	67.69
408		J174FH	8.25	2,877.00	3,039.09	70.24
409		J176FH	8.25	2,881.00	3,038.35	68.18
410		J178FH	8.25	2,888.00	3,037.49	64.77
411		J180FH	8.25	2,880.00	3,036.79	67.94
412		J182FH	8.25	2,863.00	3,036.59	75.22
413		J184FH	8.25	2,863.00	3,031.69	73.09
414		J186	8.25	2,788.00	2,930.56	61.77
415		J188FH	8.25	2,775.00	2,930.56	67.40
416		J18FH	8.25	2,844.00	3,017.45	75.16
417		J190FH	8.25	2,893.00	3,035.97	61.95
418		J192FH	8.25	2,766.00	2,930.56	71.31
419		J194FH	8.25	2,780.00	2,930.57	65.24
420		J196FH	8.25	2,763.00	2,930.59	72.62
421		J198FH	8.25	2,776.00	2,930.59	66.98
422		J200FH	8.25	2,783.00	2,930.70	64.00
423		J202FH	8.25	2,760.00	2,930.78	74.00
424		J204FH	8.25	2,777.00	2,930.90	66.68
425		J206FH	8.25	2,889.00	3,036.30	63.82
426		J208FH	8.25	2,879.00	3,035.75	67.92
427		J20FH	8.25	2,850.00	3,017.45	72.56
428		J210FH	8.25	2,892.00	3,035.69	62.26
429		J212FH	8.25	2,881.00	3,035.21	66.82
430		J214FH	8.25	2,738.00	2,930.95	83.61
431		J216FH	8.25	2,743.00	2,931.17	81.53
432		J218FH	8.25	2,722.00	2,931.21	90.65
433		J22	8.25	2,852.00	3,017.45	71.69
434		J220FH	8.25	2,725.00	2,931.22	89.35
435		J222FH	8.25	2,732.00	2,931.23	86.33
436		J224	8.25	2,730.00	2,931.22	87.19
437		J226FH	8.25	2,736.00	2,931.22	84.59
438		J228FH	8.25	2,738.00	2,931.16	83.70
439		J230FH	8.25	2,747.00	2,931.50	79.95
440		J232FH	8.25	2,723.00	2,930.71	90.00
441		J234FH	8.25	2,728.00	2,930.71	87.83
442		J236FH	8.25	2,738.00	2,931.06	83.65
443		J238FH	8.25	2,745.00	2,931.41	80.77
444		J240FH	8.25	2,720.00	2,930.69	91.29
445		J242FH	8.25	2,742.00	2,931.25	82.00
446		J244FH	8.25	2,755.00	2,979.25	97.17
447		J246FH	8.25	2,835.00	3,006.86	74.47
448		J248FH	8.25	2,740.00	2,930.75	82.65
449		J24FH	8.25	2,842.00	3,017.45	76.02
450		J250FH	8.25	2,749.00	2,931.33	79.00

Peak Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
451		J252FH	8.25	2,743.00	2,931.29	81.58
452		J254FH	8.25	2,743.00	2,931.28	81.58
453		J256FH	8.25	2,804.00	2,984.98	78.42
454		J258FH	8.25	2,778.00	2,984.56	89.50
455		J260FH	8.25	2,797.00	2,983.76	80.92
456		J262FH	8.25	2,796.00	2,982.78	80.93
457		J264FH	8.25	2,799.00	2,982.35	79.45
458		J266FH	8.25	2,812.00	2,985.43	75.15
459		J268FH	8.25	2,810.00	2,985.02	75.84
460		J26FH	8.25	2,849.00	3,017.45	72.99
461		J270FH	8.25	2,807.00	2,984.09	76.73
462		J272FH	8.25	2,824.00	2,986.44	70.38
463		J274FH	8.25	2,804.00	2,986.37	79.02
464		J276FH	8.25	2,818.00	2,985.76	72.69
465		J278FH	8.25	2,824.00	2,986.34	70.34
466		J28	8.25	2,922.00	3,051.59	56.15
467		J280FH	8.25	2,819.00	2,985.90	72.32
468		J282FH	8.25	2,841.00	2,988.13	63.75
469		J284FH	8.25	2,843.00	2,989.05	63.28
470		J286FH	8.25	2,844.00	2,990.41	63.44
471		J288FH	8.25	2,849.00	2,991.96	61.95
472		J290FH	8.25	2,794.00	2,979.09	80.20
473		J292FH	8.25	2,856.00	2,990.32	58.20
474		J294FH	8.25	2,845.00	2,987.71	61.83
475		J296FH	8.25	2,843.00	2,987.92	62.79
476		J298FH	8.25	2,852.00	2,992.66	60.95
477		J300FH	8.25	2,875.00	3,007.80	57.54
478		J302FH	8.25	2,871.00	3,003.74	57.52
479		J304FH	8.25	2,872.00	3,001.36	56.05
480		J306FH	8.25	2,864.00	2,994.39	56.50
481		J308FH	8.25	2,858.00	2,994.14	58.99
482		J310FH	8.25	2,752.00	2,931.80	77.91
483		J312FH	8.25	2,739.00	2,930.58	83.01
484		J314FH	8.25	2,743.00	2,931.24	81.56
485		J316FH	8.25	2,734.00	2,930.99	85.35
486		J318FH	8.25	2,720.00	2,930.67	91.28
487		J320FH	8.25	2,716.00	2,930.58	92.98
488		J322FH	8.25	2,721.00	2,930.57	90.81
489		J324FH	8.25	2,727.00	2,930.60	88.22
490		J326FH	8.25	2,729.00	2,930.51	87.32
491		J328FH	8.25	2,736.00	2,930.34	84.21
492		J330FH	8.25	2,727.00	2,930.33	88.10
493		J332FH	8.25	2,736.00	2,930.37	84.22
494		J334FH	8.25	2,739.00	2,930.44	82.95
495		J336FH	8.25	2,733.00	2,930.88	85.74
496		J338FH	8.25	2,725.00	2,930.43	89.01
497		J340FH	8.25	2,739.00	2,930.88	83.14
498		J342FH	8.25	2,728.00	2,930.62	87.79
499		J344FH	8.25	2,736.00	2,930.88	84.44
500		J346FH	8.25	2,740.00	2,930.88	82.71

Peak Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
501		J348FH	8.25	2,746.00	2,931.08	80.19
502		J34FH	8.25	2,922.00	3,053.26	56.87
503		J350FH	8.25	2,746.00	2,931.09	80.20
504		J352FH	8.25	2,735.00	2,930.74	84.81
505		J354FH	8.25	2,749.00	2,931.23	78.96
506		J356FH	8.25	2,721.00	2,930.72	90.87
507		J358FH	8.25	2,733.00	2,930.75	85.69
508		J36	8.25	2,906.00	3,041.27	58.61
509		J360FH	8.25	2,705.00	2,929.97	97.48
510		J362FH	8.25	2,705.00	2,930.10	97.53
511		J364FH	8.25	2,718.00	2,930.28	91.98
512		J366FH	8.25	2,721.00	2,930.28	90.68
513		J368FH	8.25	2,717.00	2,930.26	92.40
514		J370FH	8.25	2,731.00	2,930.32	86.37
515		J372FH	8.25	2,731.00	2,930.34	86.38
516		J374FH	8.25	2,704.00	2,930.38	98.09
517		J376FH	8.25	2,705.00	2,930.41	97.67
518		J380FH	8.25	2,947.00	3,046.33	43.04
519		J382FH	8.25	2,948.00	3,046.33	42.61
520		J384FH	8.25	2,945.00	3,046.33	43.91
521		J388	8.25	2,946.00	3,046.33	43.47
522		J38FH	8.25	2,913.00	3,036.99	53.73
523		J392	8.25	2,952.00	3,046.33	40.87
524		J394	8.25	2,945.00	3,046.33	43.91
525		J396	8.25	2,942.00	3,046.33	45.21
526		J398FH	8.25	2,943.00	3,046.33	44.77
527		J40	8.25	2,916.00	3,037.51	52.65
528		J400	8.25	2,902.00	3,044.65	61.81
529		J402FH	65.58	2,912.00	3,044.61	57.46
530		J404FH	8.25	2,917.00	3,044.59	55.28
531		J406FH	8.25	2,921.00	3,044.87	53.67
532		J408	8.25	2,918.00	3,044.87	54.97
533		J410FH	8.25	2,922.00	3,045.08	53.33
534		J412FH	8.25	2,929.00	3,045.49	50.48
535		J414	8.25	2,928.00	3,053.07	54.19
536		J416FH	8.25	2,928.00	3,055.14	55.09
537		J418FH	8.25	2,926.00	3,055.14	55.96
538		J420FH	8.25	2,918.00	3,055.70	59.67
539		J422FH	8.25	2,928.00	3,054.41	54.78
540		J424FH	8.25	2,928.00	3,054.36	54.75
541		J426FH	8.25	2,927.00	3,054.33	55.17
542		J42FH	8.25	2,919.00	3,037.51	51.35
543		J430	8.25	2,923.00	3,055.76	57.52
544		J432	8.25	2,924.00	3,055.74	57.08
545		J434FH	8.25	2,926.00	3,055.75	56.22
546		J436	8.25	2,922.00	3,055.74	57.95
547		J438	8.25	2,923.00	3,055.74	57.52
548		J440FH	8.25	2,925.00	3,054.30	56.03
549		J442FH	8.25	2,926.00	3,054.69	55.76
550		J444FH	8.25	2,930.00	3,051.97	52.85

Peak Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
551		J446	8.25	2,909.00	3,057.35	64.28
552		J448	8.25	2,923.00	3,055.70	57.50
553		J44FH	8.25	2,918.00	3,036.99	51.56
554		J450FH	8.25	2,918.00	3,044.81	54.95
555		J452FH	65.58	2,915.00	3,044.71	56.20
556		J454	8.25	2,841.00	2,987.89	63.65
557		J456FH	8.25	2,706.00	2,929.86	97.00
558		J458FH	8.25	2,709.00	2,929.86	95.70
559		J46	8.25	2,896.00	3,036.61	60.93
560		J460FH	8.25	2,713.00	2,929.86	93.96
561		J462FH	8.25	2,713.00	2,929.87	93.97
562		J464	8.25	2,711.00	2,929.87	94.83
563		J466	8.25	2,707.00	2,929.86	96.57
564		J468	8.25	2,712.00	2,929.86	94.40
565		J470	8.25	2,712.00	2,929.89	94.41
566		J472	8.25	2,712.00	2,929.86	94.40
567		J474	8.25	2,712.00	2,929.87	94.40
568		J476	7.10	2,815.00	3,074.56	112.47
569		J478FH	8.25	2,816.00	3,074.57	112.04
570		J48	8.25	2,900.00	3,035.74	58.81
571		J480FH	8.25	2,796.00	3,074.70	120.76
572		J482FH	129.17	2,796.00	3,074.85	120.83
573		J484FH	8.25	2,811.00	3,075.11	114.44
574		J486FH	8.25	2,840.00	3,075.48	102.03
575		J488FH	8.25	2,820.00	3,075.47	110.70
576		J490FH	8.25	2,818.00	3,075.47	111.56
577		J492FH	8.25	2,820.00	3,075.46	110.69
578		J494FH	129.17	2,818.00	3,075.39	111.53
579		J496FH	8.25	2,815.00	3,075.57	112.91
580		J500FH	8.25	2,823.00	3,075.69	109.49
581		J508FH	8.25	2,847.00	3,075.71	99.10
582		J50FH	8.25	2,695.00	2,930.38	101.99
583		J510FH	8.25	2,856.00	3,075.74	95.21
584		J512	8.25	2,872.00	3,075.74	88.28
585		J514FH	8.25	2,869.00	3,075.78	89.60
586		J516	8.25	2,867.00	3,075.79	90.47
587		J518FH	8.25	2,865.00	3,075.83	91.35
588		J52	8.25	2,742.00	2,930.88	81.84
589		J522FH	8.25	2,824.00	3,075.70	109.06
590		J524	8.25	2,815.00	3,075.67	112.95
591		J526FH	8.25	2,840.00	3,075.74	102.14
592		J528FH	8.25	2,854.00	3,075.79	96.10
593		J532FH	8.25	2,858.00	3,075.86	94.40
594		J534	8.25	2,860.00	3,075.89	93.54
595		J54	8.25	2,738.00	2,930.88	83.57
596		J540	89.12	2,927.00	3,045.88	51.51
597		J546	7.10	2,760.00	3,156.38	171.75
598		J548	7.10	2,760.00	3,154.30	170.85
599		J550	7.10	2,760.00	3,149.79	168.90
600		J552	7.10	2,760.00	3,147.00	167.69

Peak Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
601		J554	7.10	2,760.00	3,149.17	168.63
602		J556	7.10	2,760.00	3,150.89	169.37
603		J558	7.10	2,760.00	3,154.40	170.89
604		J560	8.25	2,875.00	3,027.95	66.27
605		J562	7.10	2,865.00	3,028.74	70.95
606		J564	8.25	2,820.00	2,984.37	71.22
607		J566FH	8.25	2,922.00	3,044.93	53.27
608		J568FH	8.25	2,928.00	3,044.87	50.64
609		J56FH	8.25	2,740.00	2,930.64	82.60
610		J570FH	8.25	2,929.00	3,044.87	50.21
611		J572	8.25	2,939.00	3,044.79	45.84
612		J574	8.25	2,937.00	3,044.79	46.71
613		J576	8.25	2,942.00	3,044.65	44.48
614		J578	8.25	2,940.00	3,044.79	45.41
615		J580FH	8.25	2,939.00	3,044.79	45.84
616		J582	8.25	2,922.00	3,044.91	53.26
617		J584FH	8.25	2,842.00	3,075.65	101.24
618		J586	8.25	2,865.00	3,075.77	91.33
619		J588	8.25	2,857.00	3,075.78	94.80
620		J58FH	8.25	2,734.00	2,930.55	85.16
621		J590FH	8.25	2,833.00	3,075.64	105.14
622		J594FH	8.25	2,826.00	3,075.64	108.17
623		J596FH	8.25	2,803.00	3,075.39	118.03
624		J60	8.25	2,728.00	2,930.51	87.75
625		J600FH	8.25	2,846.00	3,075.75	99.55
626		J602	8.25	2,846.00	3,075.75	99.55
627		J604	8.25	2,945.00	3,044.38	43.06
628		J606FH	8.25	2,950.00	3,044.04	40.75
629		J608	8.25	2,943.00	3,044.38	43.93
630		J610FH	8.25	2,936.00	3,044.80	47.14
631		J612FH	8.25	2,931.00	3,044.85	49.33
632		J614	8.25	2,931.00	3,044.79	49.30
633		J616	89.12	2,933.00	3,044.77	48.43
634		J618	7.10	3,143.00	3,167.43	10.59
635		J62	8.25	2,723.00	2,930.52	89.92
636		J620	8.25	2,865.00	2,995.23	56.43
637		J622FH	8.25	2,826.00	2,989.07	70.66
638		J624FH	8.25	2,835.00	2,989.06	66.75
639		J626FH	8.25	2,805.00	2,989.07	79.76
640		J630FH	8.25	2,825.00	2,989.06	71.09
641		J634FH	8.25	2,831.00	2,989.05	68.49
642		J638FH	8.25	2,790.00	2,989.06	86.25
643		J64	8.25	2,742.00	2,930.40	81.63
644		J640FH	8.25	2,930.00	3,044.78	49.74
645		J642FH	8.25	2,929.00	3,044.81	50.18
646		J646FH	8.25	2,934.00	3,044.77	48.00
647		J648FH	8.25	2,799.00	2,930.53	56.99
648		J650FH	8.25	2,790.00	2,930.52	60.89
649		J652FH	8.25	2,774.00	2,930.52	67.82
650		J654FH	8.25	2,772.00	2,930.43	68.65

Peak Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
651		J656FH	8.25	2,779.00	2,930.37	65.59
652		J658FH	8.25	2,784.00	2,930.42	63.45
653		J660FH	8.25	2,774.00	2,930.17	67.67
654		J662FH	144.82	2,765.00	2,930.03	71.51
655		J664FH	8.25	2,784.00	2,930.17	63.33
656		J666FH	8.25	2,792.00	2,930.37	59.95
657		J668	144.82	2,805.00	2,929.98	54.15
658		J66FH	8.25	2,733.00	2,930.31	85.49
659		J670	8.25	2,746.42	2,931.15	80.04
660		J672FH	8.25	2,747.00	2,931.14	79.79
661		J674	8.25	2,931.48	3,046.11	49.67
662		J676FH	8.25	2,935.42	3,046.08	47.95
663		J678FH	8.25	2,934.28	3,045.87	48.35
664		J680FH	8.25	2,931.09	3,045.69	49.65
665		J682	8.25	2,926.25	3,045.59	51.71
666		J684FH	8.25	2,930.42	3,045.65	49.93
667		J686FH	8.25	2,929.00	3,045.80	50.61
668		J688	8.25	2,924.95	3,045.82	52.37
669		J68FH	8.25	2,743.00	2,930.29	81.15
670		J690	8.25	2,925.00	3,045.82	52.35
671		J692FH	8.25	2,932.10	3,045.97	49.34
672		J694	8.25	2,923.00	3,045.47	53.07
673		J696	8.25	2,935.00	3,044.80	47.57
674		J698	8.25	2,929.52	3,044.96	50.02
675		J700FH	8.25	2,936.95	3,044.96	46.80
676		J702	8.25	2,925.68	3,045.32	51.84
677		J704FH	8.25	2,926.37	3,045.32	51.54
678		J706FH	8.25	2,934.71	3,045.32	47.93
679		J708FH	8.25	2,930.45	3,044.96	49.62
680		J70FH	8.25	2,731.00	2,930.31	86.36
681		J710FH	8.25	2,935.73	3,044.83	47.27
682		J712	8.25	2,721.80	2,930.70	90.52
683		J714FH	8.25	2,726.17	2,930.70	88.62
684		J716	8.25	2,720.00	2,930.70	91.30
685		J718FH	8.25	2,723.42	2,930.70	89.82
686		J72	8.25	2,724.00	2,930.71	89.57
687		J720FH	8.25	2,781.00	2,985.78	88.73
688		J724	8.25	2,934.00	3,044.81	48.01
689		J728	8.25	2,932.00	3,044.81	48.88
690		J730FH	8.25	2,932.00	3,044.81	48.88
691		J732	8.25	2,930.00	3,044.81	49.75
692		J736	8.25	2,922.00	3,044.86	53.23
693		J738FH	8.25	2,924.00	3,044.84	52.36
694		J74	8.25	2,911.00	3,042.48	56.97
695		J740FH	8.25	2,916.00	3,044.90	55.85
696		J742FH	8.25	2,938.00	3,044.80	46.28
697		J744	8.25	2,942.00	3,044.80	44.54
698		J746	8.25	2,944.00	3,043.68	43.19
699		J748	89.12	2,950.00	3,043.59	40.55
700		J750FH	8.25	2,941.00	3,043.63	44.47

Peak Day Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
701		J752	89.12	2,946.00	3,043.57	42.28
702		J754	8.25	2,944.00	3,043.63	43.17
703		J756	8.25	2,948.00	3,044.04	41.61
704		J758	8.25	2,952.00	3,044.04	39.88
705		J76	8.25	2,886.00	3,042.78	67.93
706		J774	8.25	2,738.00	2,930.32	83.33
707		J776	8.25	2,736.00	2,930.32	84.20
708		J778	8.25	2,771.00	2,930.39	69.06
709		J780	8.25	2,770.00	2,930.39	69.50
710		J782	8.25	2,812.00	2,986.19	75.47
711		J784FH	8.25	2,774.00	2,930.51	67.82
712		J786FH	8.25	2,781.00	2,985.78	88.73
713		J788FH	8.25	2,921.00	3,046.15	54.23
714		J78FH	8.25	2,932.00	3,045.64	49.24
715		J790FH	8.25	2,926.00	3,044.82	51.49
716		J792	89.12	2,943.00	3,044.76	44.09
717		J794	815.81	2,907.00	3,044.68	59.66
718		J796	87.97	2,889.00	3,044.35	67.31
719		J802	8.25	2,774.00	2,930.53	67.82
720		J804	8.25	2,799.00	3,074.47	119.36
721		J80FH	8.25	2,925.00	3,044.20	51.65
722		J814	7.10	2,981.00	3,162.87	78.81
723		J816	7.10	2,963.00	3,044.03	35.11
724		J818	7.10	2,954.00	3,044.04	39.01
725		J82FH	8.25	2,917.00	3,043.23	54.70
726		J838	7.10	3,004.53	3,164.00	69.10
727		J84FH	8.25	2,922.00	3,043.23	52.53
728		J86	8.25	2,925.00	3,044.77	51.90
729		J88	8.25	2,916.00	3,041.13	54.22
730		J90	8.25	2,922.00	3,044.78	53.20
731		J92FH	8.25	2,948.00	3,048.74	43.65
732		J942	7.10	2,907.00	3,044.40	59.53
733		J946	7.10	2,983.37	3,163.30	77.96
734		J948	7.10	2,946.00	3,089.20	62.05
735		J94FH	8.25	2,950.00	3,047.00	42.03
736		J954	7.10	2,847.00	3,020.65	75.24
737		J960	7.10	2,851.00	3,022.82	74.45
738		J962	7.10	2,855.00	3,024.06	73.25
739		J964	7.10	2,861.00	3,025.73	71.38
740		J966	7.10	2,861.00	3,026.84	71.86
741		J968	7.10	2,915.00	3,045.00	56.33
742		J96FH	8.25	2,941.00	3,048.31	46.50
743		J970	7.10	2,924.00	3,044.90	52.38
744		J972	7.10	2,917.00	3,045.10	55.51
745		J974	7.10	2,919.00	3,045.00	54.60
746		J976	7.10	2,926.00	3,044.90	51.52
747		J978	7.10	2,934.00	3,046.85	48.90
748		J980	7.10	2,934.00	3,046.70	48.83
749		J982	7.10	2,928.00	3,046.35	51.28
750		J984	7.10	2,944.00	3,062.18	51.21

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
751		J986	7.10	2,923.00	3,051.32	55.60
752		J988	7.10	2,921.00	3,047.63	54.87
753		J98FH	8.25	2,936.00	3,050.36	49.55
754		J990	7.10	2,916.00	3,045.99	56.32
755		J992	7.10	2,923.00	3,045.06	52.89
756		J994	7.10	2,946.00	3,089.76	62.29
757		J996	7.10	2,910.00	3,044.79	58.40
758		J998	7.10	2,908.00	3,044.68	59.22

Peak Instantaneous Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
1		J-100FH	9.23	2,876.00	2,996.53	52.23
2		J-101	9.23	2,865.00	3,066.44	87.28
3		J-102FH	9.23	2,868.00	3,071.35	88.11
4		J-103FH	9.23	2,871.00	3,071.64	86.94
5		J-104	9.23	2,839.00	2,997.06	68.49
6		J-105FH	9.23	2,875.00	3,071.89	85.31
7		J-106FH	9.23	2,877.00	3,069.94	83.60
8		J-107FH	9.23	2,936.00	3,076.07	60.69
9		J-108	9.23	2,876.00	3,071.37	84.65
10		J-109FH	9.23	2,875.00	3,071.65	85.21
11		J-10FH	9.23	2,741.00	2,930.24	82.00
12		J-110	9.23	2,879.00	3,071.89	83.58
13		J-111	9.23	2,899.50	3,072.22	74.84
14		J-112	9.23	2,879.00	3,072.21	83.72
15		J-113	9.23	2,885.00	3,073.14	81.52
16		J-114FH	9.23	2,885.50	3,072.62	81.08
17		J-115	9.23	2,885.00	3,072.62	81.29
18		J-116FH	9.23	2,881.00	3,073.90	83.58
19		J-117	9.23	2,897.00	3,072.77	76.16
20		J-118FH	9.23	2,891.00	3,073.15	78.93
21		J-119FH	9.23	2,889.00	3,073.50	79.94
22		J-11FH	9.23	2,740.00	2,929.80	82.24
23		J-12	9.23	2,766.00	2,932.46	72.13
24		J-120	9.23	2,887.00	3,073.82	80.95
25		J-1208	9.23	2,822.00	3,004.64	79.14
26		J-121	9.23	2,878.00	3,074.18	85.01
27		J-1210	9.23	2,760.00	3,106.87	150.30
28		J-122FH	9.23	2,880.00	3,074.33	84.20
29		J-123	9.23	2,870.00	3,074.18	88.47
30		J-124	9.23	2,892.00	3,073.89	78.81
31		J-125	9.23	2,892.00	3,073.89	78.81
32		J-1254	9.23	3,000.00	3,162.99	70.62
33		J-1268	9.23	3,200.00	3,301.00	43.76
34		J-1269	9.23	3,200.00	3,301.00	43.76
35		J-126FH	9.23	2,901.00	3,074.19	75.04
36		J-127	9.23	2,901.00	3,074.26	75.07
37		J-1273	9.23	2,823.00	3,007.70	80.03
38		J-128FH	9.23	2,935.00	3,076.06	61.12
39		J-129	9.23	2,899.00	3,073.82	75.75
40		J-13	9.23	2,751.00	2,985.35	101.54
41		J-130	9.23	2,932.00	3,076.05	62.42
42		J-131FH	9.23	2,901.00	3,073.50	74.74
43		J-132FH	9.23	2,925.00	3,075.99	65.42
44		J-133FH	9.23	2,903.00	3,073.23	73.76
45		J-134FH	9.23	2,927.00	3,075.99	64.56
46		J-135	9.23	2,905.00	3,072.97	72.78
47		J-136FH	9.23	2,910.00	3,072.64	70.47
48		J-137	9.23	2,901.00	3,072.61	74.36
49		J-138FH	9.23	2,902.00	3,072.60	73.92
50		J-139FH	9.23	2,877.00	3,072.57	84.74

Peak Instantaneous Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
51		J-140	9.23	2,885.00	3,071.73	80.91
52		J-141FH	9.23	2,900.00	3,071.73	74.41
53		J-142	9.23	2,885.00	3,071.67	80.89
54		J-143FH	9.23	2,890.00	3,071.48	78.64
55		J-144FH	9.23	2,897.00	3,070.27	75.08
56		J-145FH	9.23	2,889.00	3,070.00	78.43
57		J-146	9.23	2,888.00	3,070.12	78.91
58		J-147FH	9.23	2,891.00	3,069.50	77.34
59		J-148	9.23	2,908.00	3,071.84	70.99
60		J-149FH	9.23	2,905.00	3,070.39	71.66
61		J-14FH	9.23	2,750.00	2,930.70	78.30
62		J-150	9.23	2,909.00	3,070.57	70.01
63		J-151FH	9.23	2,893.00	3,070.33	76.84
64		J-152	9.23	2,874.00	3,002.78	55.80
65		J-153FH	9.23	2,892.50	3,069.74	76.80
66		J-154	9.23	2,892.00	3,069.74	77.02
67		J-155	9.23	2,894.00	3,069.94	76.23
68		J-156FH	9.23	2,894.00	3,069.97	76.25
69		J-157	9.23	2,870.00	3,069.95	86.64
70		J-158FH	9.23	2,900.00	3,070.13	73.72
71		J-159	9.23	2,896.00	3,070.13	75.45
72		J-15FH	9.23	2,753.00	2,930.70	77.00
73		J-160FH	9.23	2,903.50	3,070.30	72.27
74		J-161FH	9.23	2,897.00	3,070.26	75.07
75		J-162FH	9.23	2,880.00	3,069.97	82.31
76		J-163	9.23	2,885.00	3,070.07	80.19
77		J-164FH	9.23	2,910.00	3,070.91	69.72
78		J-165FH	9.23	2,915.00	3,071.06	67.62
79		J-166	9.23	2,915.00	3,071.46	67.79
80		J-167FH	9.23	2,909.00	3,072.15	70.69
81		J-168FH	9.23	2,917.00	3,072.43	67.35
82		J-169FH	9.23	2,921.00	3,075.98	67.15
83		J-16FH	9.23	2,640.00	2,930.06	125.68
84		J-170FH	9.23	2,917.00	3,075.13	68.52
85		J-171	9.23	2,916.00	3,071.61	67.42
86		J-172	9.23	2,909.00	3,072.15	70.69
87		J-173FH	9.23	2,920.00	3,071.60	65.69
88		J-174	9.23	2,921.00	3,071.41	65.17
89		J-175FH	9.23	2,915.00	3,072.19	68.11
90		J-176	9.23	2,915.00	3,072.18	68.11
91		J-177FH	9.23	2,929.00	3,075.42	63.44
92		J-178	9.23	2,920.00	3,073.24	66.40
93		J-179	9.23	2,920.00	3,073.38	66.46
94		J-17FH	9.23	2,638.00	2,930.04	126.54
95		J-18	9.23	2,637.00	2,930.04	126.97
96		J-180	9.23	2,933.00	3,075.78	61.87
97		J-181	9.23	2,915.00	3,073.76	68.79
98		J-182	9.23	2,915.00	3,073.79	68.80
99		J-183FH	9.23	2,915.00	3,073.78	68.80
100		J-184FH	9.23	2,915.00	3,073.22	68.56

Peak Instantaneous Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
101		J-185	9.23	2,920.00	3,073.99	66.72
102		J-186FH	9.23	2,910.00	3,074.36	71.22
103		J-187	9.23	2,915.00	3,073.33	68.61
104		J-188	9.23	2,909.00	3,074.90	71.88
105		J-189FH	9.23	2,915.00	3,076.92	70.16
106		J-191	9.23	2,915.00	3,073.28	68.58
107		J-192	9.23	2,910.00	3,073.26	70.74
108		J-193FH	9.23	2,917.00	3,073.28	67.72
109		J-194	9.23	2,917.00	3,070.77	66.63
110		J-195	9.23	2,916.50	3,070.77	66.85
111		J-196	9.23	2,909.00	3,070.63	70.03
112		J-197	9.23	2,908.00	3,070.62	70.47
113		J-198FH	9.23	2,900.00	3,070.55	73.90
114		J-199	9.23	2,902.00	3,070.65	73.08
115		J-19FH	9.23	2,636.00	2,930.03	127.40
116		J-1FH	9.23	2,720.00	2,929.70	90.86
117		J-2	9.23	2,720.00	2,929.70	90.86
118		J-200	9.23	2,895.00	3,070.28	75.95
119		J-201	9.23	2,890.00	3,070.20	78.08
120		J-202	9.23	2,892.00	3,070.19	77.21
121		J-203	9.23	2,883.00	3,070.18	81.10
122		J-204FH	9.23	2,880.00	3,070.07	82.36
123		J-205	9.23	2,885.00	3,070.30	80.29
124		J-206	9.23	2,890.00	3,070.44	78.19
125		J-207	9.23	2,883.00	3,070.27	81.14
126		J-208	9.23	2,939.00	3,076.17	59.43
127		J-209	9.23	2,825.00	3,006.07	78.46
128		J-20FH	9.23	2,745.00	2,931.00	80.59
129		J-21	9.23	2,745.00	2,930.57	80.41
130		J-210	9.23	2,937.00	3,075.98	60.22
131		J-211FH	9.23	2,830.00	3,006.07	76.29
132		J-212FH	9.23	2,824.00	3,006.07	78.89
133		J-213	9.23	2,825.00	3,009.83	80.09
134		J-214FH	9.23	2,835.00	3,009.83	75.75
135		J-215FH	9.23	2,825.00	3,009.83	80.09
136		J-216	9.23	2,830.00	3,014.29	79.85
137		J-217	9.23	2,830.00	3,017.05	81.05
138		J-218FH	9.23	2,838.00	3,014.29	76.39
139		J-219	9.23	2,830.00	3,014.28	79.85
140		J-22	9.23	2,920.00	3,075.20	67.25
141		J-220	9.23	2,924.00	3,076.61	66.12
142		J-221FH	9.23	2,748.00	2,930.93	79.26
143		J-222FH	9.23	2,732.00	2,931.38	86.39
144		J-223	9.23	2,720.00	2,930.87	91.37
145		J-224	9.23	2,750.00	2,931.21	78.52
146		J-225FH	9.23	2,752.00	2,931.05	77.58
147		J-226	9.23	2,740.00	2,930.94	82.74
148		J-227FH	9.23	2,845.00	2,993.11	64.18
149		J-228	9.23	2,755.00	2,931.05	76.28
150		J-229FH	9.23	2,753.00	2,930.89	77.08

Peak Instantaneous Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
151		J-23	9.23	2,751.00	2,988.17	102.77
152		J-230	9.23	2,755.00	2,930.89	76.21
153		J-231	9.23	2,750.00	2,930.85	78.36
154		J-232FH	9.23	2,755.00	2,930.79	76.17
155		J-233	9.23	2,750.00	2,930.80	78.34
156		J-234	9.23	2,770.00	2,930.76	69.66
157		J-235FH	9.23	2,765.00	2,930.70	71.80
158		J-236	9.23	2,768.00	2,930.69	70.50
159		J-237	9.23	2,765.00	2,930.68	71.79
160		J-238	9.23	2,778.00	2,930.65	66.14
161		J-24	9.23	2,800.00	2,990.20	82.41
162		J-240	9.23	2,778.00	2,930.64	66.14
163		J-241	9.23	2,780.00	2,930.11	65.04
164		J-242	9.23	2,760.00	2,930.55	73.90
165		J-243	9.23	2,924.00	3,075.80	65.78
166		J-244	9.23	2,770.00	2,930.55	69.56
167		J-245	9.23	2,770.00	2,930.55	69.56
168		J-246	9.23	2,878.00	3,002.76	54.06
169		J-247FH	9.23	2,857.50	2,997.18	60.52
170		J-248	9.23	2,920.00	3,078.29	68.59
171		J-249	9.23	2,920.00	3,078.56	68.70
172		J-250FH	9.23	2,750.00	2,930.80	78.34
173		J-251	9.23	2,750.00	2,930.80	78.34
174		J-252	9.23	2,750.00	2,930.81	78.34
175		J-253	9.23	2,745.00	2,930.80	80.51
176		J-254	9.23	2,735.00	2,930.24	84.60
177		J-255FH	9.23	2,728.00	2,930.17	87.60
178		J-256	9.23	2,728.00	2,930.15	87.59
179		J-257	9.23	2,725.00	2,929.71	88.70
180		J-258FH	9.23	2,735.00	2,929.61	84.33
181		J-259	9.23	2,735.00	2,929.52	84.28
182		J-25FH	9.23	2,758.00	2,989.39	100.26
183		J-26	9.23	2,760.00	2,989.39	99.39
184		J-260FH	9.23	2,735.00	2,929.48	84.27
185		J-261	9.23	2,735.00	2,929.47	84.26
186		J-262	9.23	2,735.00	2,929.46	84.26
187		J-263	9.23	2,720.00	2,929.43	90.75
188		J-264	9.23	2,710.00	2,929.35	95.04
189		J-265	9.23	2,700.00	2,929.04	99.24
190		J-266FH	9.23	2,700.00	2,929.03	99.24
191		J-267FH	9.23	2,751.00	2,934.38	79.46
192		J-268	9.23	2,700.00	2,929.16	99.30
193		J-269FH	9.23	2,700.00	2,929.16	99.29
194		J-27	9.23	2,770.00	2,990.18	95.40
195		J-270FH	9.23	2,700.00	2,929.35	99.38
196		J-271FH	9.23	2,735.00	2,929.48	84.27
197		J-272	9.23	2,824.00	3,004.74	78.32
198		J-273FH	9.23	2,705.00	2,929.58	97.31
199		J-274FH	9.23	2,705.00	2,929.59	97.32
200		J-275FH	9.23	2,785.00	2,987.92	87.92

Peak Instantaneous Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
201		J-277	9.23	2,920.00	3,076.92	67.99
202		J-278FH	9.23	2,740.00	2,931.43	82.95
203		J-279FH	9.23	2,730.00	2,930.83	87.02
204		J-28	9.23	2,807.00	2,992.06	80.19
205		J-280FH	9.23	2,741.00	2,930.36	82.05
206		J-281FH	9.23	2,703.00	2,929.60	98.19
207		J-282	9.23	2,720.00	2,929.68	90.85
208		J-283FH	9.23	2,715.00	2,929.71	93.03
209		J-284FH	9.23	2,720.00	2,929.93	90.96
210		J-285	9.23	2,720.00	2,929.71	90.87
211		J-286	9.23	2,720.00	2,929.94	90.97
212		J-287	9.23	2,720.00	2,930.08	91.03
213		J-288FH	9.23	2,720.00	2,929.70	90.86
214		J-289	9.23	2,720.00	2,929.73	90.88
215		J-290	9.23	2,720.00	2,929.73	90.88
216		J-291FH	9.23	2,921.00	3,074.83	66.65
217		J-292FH	9.23	2,705.00	2,929.64	97.34
218		J-293FH	9.23	2,755.00	2,986.68	100.39
219		J-294	9.23	2,913.00	3,076.79	70.97
220		J-295	9.23	2,946.00	3,115.97	73.65
221		J-296	9.23	2,990.00	3,124.09	58.10
222		J-297FH	9.23	2,705.00	2,929.62	97.33
223		J-298	9.23	2,760.00	2,930.59	73.92
224		J-299	9.23	2,770.00	2,930.55	69.57
225		J-29FH	9.23	2,815.00	2,992.97	77.11
226		J-3	9.23	2,730.00	2,929.88	86.61
227		J-300	9.23	2,915.00	3,076.92	70.16
228		J-301FH	9.23	2,800.00	3,081.61	122.02
229		J-302FH	9.23	2,705.00	2,929.62	97.33
230		J-303FH	9.23	2,730.00	2,929.69	86.53
231		J-304	9.23	3,000.00	3,153.89	66.68
232		J-305FH	9.23	2,877.50	2,996.53	51.58
233		J-306	9.23	2,877.50	3,069.80	83.32
234		J-307FH	9.23	2,740.00	2,929.71	82.20
235		J-308	9.23	3,042.00	3,088.18	20.01
236		J-309	9.23	2,760.00	2,930.56	73.90
237		J-30FH	9.23	2,816.00	2,993.85	77.06
238		J-31	9.23	2,815.00	2,994.49	77.77
239		J-310	9.23	2,930.00	3,076.23	63.36
240		J-311	9.23	2,925.00	3,077.59	66.12
241		J-312	9.23	2,870.00	3,075.44	89.02
242		J-313	9.23	2,800.00	2,997.06	85.39
243		J-314	9.23	2,780.00	2,996.75	93.92
244		J-315FH	9.23	2,930.00	3,076.01	63.26
245		J-316	9.23	2,843.00	2,993.11	65.04
246		J-317FH	9.23	2,902.00	3,070.67	73.09
247		J-318FH	9.23	2,922.00	3,078.17	67.67
248		J-319FH	9.23	2,924.00	3,077.45	66.49
249		J-32	9.23	2,800.00	2,996.10	84.97
250		J-320	9.23	2,922.00	3,077.30	67.29

Peak Instantaneous Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
251		J-321FH	9.23	2,924.00	3,076.81	66.21
252		J-322FH	9.23	2,936.00	3,076.36	60.82
253		J-323FH	9.23	2,930.00	3,076.49	63.47
254		J-324FH	9.23	2,926.00	3,076.75	65.32
255		J-325FH	9.23	2,924.00	3,076.98	66.29
256		J-326FH	9.23	2,928.00	3,076.73	64.44
257		J-327FH	9.23	2,928.00	3,076.61	64.39
258		J-328FH	9.23	2,933.00	3,076.46	62.16
259		J-329FH	9.23	2,934.00	3,076.43	61.72
260		J-330	9.23	2,934.00	3,076.44	61.72
261		J-331	9.23	2,923.00	3,076.80	66.64
262		J-333	9.23	2,885.00	3,070.28	80.28
263		J-334	9.23	2,885.00	3,070.28	80.28
264		J-335	9.23	2,745.00	2,931.03	80.61
265		J-336	9.23	2,745.00	2,931.03	80.61
266		J-33FH	9.23	2,820.00	2,995.20	75.91
267		J-34	9.23	2,830.00	2,995.45	71.69
268		J-35	9.23	2,827.00	2,994.37	72.52
269		J-36	9.23	2,820.00	2,994.43	75.58
270		J-37	9.23	2,825.00	2,993.83	73.15
271		J-38FH	9.23	2,821.00	2,993.06	74.55
272		J-39FH	9.23	2,836.00	2,994.27	68.58
273		J-4	9.23	2,729.00	2,929.88	87.04
274		J-40	9.23	2,839.00	2,994.25	67.27
275		J-41	9.23	2,837.00	2,994.23	68.13
276		J-42	9.23	2,835.00	2,993.87	68.84
277		J-43	9.23	2,833.00	2,993.15	69.40
278		J-44FH	9.23	2,805.00	2,992.12	81.08
279		J-45	9.23	2,805.00	2,992.35	81.18
280		J-46	9.23	2,780.00	2,992.11	91.91
281		J-47	9.23	2,760.00	2,992.11	100.57
282		J-48	9.23	2,780.00	2,992.11	91.91
283		J-49	9.23	2,801.00	2,992.73	83.08
284		J-5	9.23	2,751.00	2,930.12	77.61
285		J-50	9.23	2,803.00	2,992.35	82.05
286		J-51	9.23	2,800.00	2,992.73	83.51
287		J-52	9.23	2,839.00	2,996.24	68.13
288		J-53	9.23	2,842.00	2,995.94	66.70
289		J-54	9.23	2,920.00	3,074.14	66.79
290		J-55	9.23	2,842.00	2,995.79	66.64
291		J-56	9.23	2,847.00	2,995.89	64.51
292		J-57	9.23	2,850.00	2,995.89	63.21
293		J-58	9.23	2,837.00	2,994.38	68.19
294		J-59	9.23	2,860.00	3,081.61	96.02
295		J-6	9.23	2,757.00	2,930.46	75.16
296		J-61	9.23	2,847.00	2,994.35	63.85
297		J-63FH	9.23	2,839.00	2,994.35	67.31
298		J-64	9.23	2,839.00	2,994.14	67.22
299		J-65	9.23	2,851.50	2,995.87	62.55
300		J-66FH	9.23	2,847.00	2,995.50	64.35

Peak Instantaneous Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
301		J-67	9.23	2,842.00	2,994.46	66.06
302		J-68FH	9.23	2,839.00	2,994.14	67.22
303		J-69FH	9.23	2,839.00	2,993.69	67.03
304		J-7	9.23	2,754.00	2,930.09	76.30
305		J-70	9.23	2,837.00	2,993.13	67.65
306		J-71	9.23	2,839.50	2,993.78	66.85
307		J-73FH	9.23	2,830.00	2,991.02	69.77
308		J-74	9.23	2,843.00	2,994.03	65.44
309		J-75	9.23	2,845.00	2,994.10	64.60
310		J-76	9.23	2,849.00	2,994.19	62.91
311		J-77FH	9.23	2,914.00	3,075.55	70.00
312		J-78	9.23	2,940.00	3,076.23	59.03
313		J-79	9.23	2,842.00	2,992.02	65.01
314		J-80FH	9.23	2,940.00	3,076.18	59.01
315		J-81FH	9.23	2,841.00	2,992.61	65.69
316		J-82	9.23	2,921.00	3,075.98	67.15
317		J-83	9.23	2,760.00	2,931.20	74.18
318		J-84	9.23	2,760.00	2,983.42	96.81
319		J-85FH	9.23	2,849.50	2,995.75	63.37
320		J-86	9.23	2,851.50	2,995.74	62.50
321		J-87	9.23	2,852.00	2,996.03	62.41
322		J-88	9.23	2,854.00	2,996.24	61.63
323		J-89	9.23	2,857.00	2,996.00	60.23
324		J-8FH	9.23	2,752.00	2,930.09	77.17
325		J-9	9.23	2,757.00	2,930.68	75.25
326		J-90	9.23	2,857.00	2,996.00	60.23
327		J-91	9.23	2,857.00	2,996.07	60.26
328		J-92	9.23	2,861.00	2,996.36	58.65
329		J-93FH	9.23	2,858.00	2,996.24	59.90
330		J-94	9.23	2,857.00	2,996.54	60.46
331		J-95	9.23	2,863.50	2,996.44	57.60
332		J-956	9.23	2,847.00	3,023.57	76.51
333		J-958	9.23	2,856.00	3,025.29	73.35
334		J-96	9.23	2,863.00	2,996.44	57.82
335		J-97FH	9.23	2,936.00	3,076.09	60.70
336		J-98	9.23	2,866.75	2,996.53	56.23
337		J-99	9.23	2,866.50	2,996.52	56.34
338		J1000	9.23	2,903.00	3,076.29	75.09
339		J1002	9.23	2,892.00	3,076.28	79.85
340		J1004	9.23	2,939.00	3,076.21	59.45
341		J1006	9.23	2,937.00	3,076.21	60.32
342		J1008	9.23	2,940.00	3,076.21	59.02
343		J100FH	9.23	2,933.00	3,077.10	62.44
344		J1010	9.23	2,941.00	3,076.21	58.58
345		J1012	9.23	2,941.00	3,076.21	58.59
346		J1014	9.23	2,942.00	3,076.21	58.15
347		J1016	9.23	2,943.00	3,076.21	57.72
348		J1018	9.23	2,940.00	3,076.21	59.02
349		J1020	9.23	2,944.00	3,076.20	57.28
350		J1022	9.23	2,947.00	3,076.20	55.98

Peak Instantaneous Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
351		J1024	9.23	2,941.00	3,076.20	58.58
352		J1026	9.23	2,953.00	3,084.71	57.07
353		J1028	9.23	2,868.00	3,084.72	93.91
354		J102FH	9.23	2,936.00	3,076.05	60.68
355		J1030	9.23	2,890.00	3,084.72	84.37
356		J1032	9.23	2,873.00	3,084.72	91.74
357		J1034	9.23	2,915.00	3,084.71	73.54
358		J1036	9.23	2,761.00	2,931.84	74.02
359		J1038	9.23	2,764.00	2,931.95	72.77
360		J1040	9.23	2,764.00	2,931.87	72.74
361		J1042	9.23	2,766.00	2,931.91	71.89
362		J1044	9.23	2,768.00	2,931.89	71.01
363		J1048	9.23	3,000.00	3,154.51	66.95
364		J104FH	9.23	2,929.00	3,075.54	63.49
365		J1050	9.23	2,861.00	3,048.14	81.09
366		J1054	0.00	2,940.00	3,109.50	73.45
367		J1056	0.00	2,929.50	3,076.59	63.73
368		J1062	0.00	3,000.00	3,124.09	53.77
369		J1068	0.00	3,138.90	3,165.37	11.47
370		J106FH	9.23	2,923.00	3,075.38	66.03
371		J108FH	9.23	2,921.00	3,075.63	67.00
372		J10FH	9.23	2,845.00	3,020.80	76.18
373		J110FH	9.23	2,914.00	3,075.36	69.92
374		J112FH	9.23	2,934.00	3,076.24	61.63
375		J114FH	9.23	2,932.00	3,075.79	62.30
376		J116FH	9.23	2,925.00	3,075.22	65.09
377		J118FH	9.23	2,929.00	3,076.52	63.92
378		J12	9.23	2,845.00	3,020.92	76.22
379		J120FH	9.23	2,930.00	3,075.80	63.17
380		J122FH	9.23	2,930.00	3,075.24	62.93
381		J124FH	9.23	2,922.00	3,074.99	66.29
382		J126FH	9.23	2,899.00	3,075.50	76.48
383		J128FH	9.23	2,902.00	3,074.26	74.64
384		J130FH	9.23	2,881.00	3,075.46	84.26
385		J132FH	9.23	2,887.00	3,074.39	81.20
386		J134FH	9.23	2,894.00	3,074.00	77.99
387		J136FH	9.23	2,898.00	3,073.82	76.18
388		J138FH	9.23	2,924.00	3,073.79	64.90
389		J140FH	9.23	2,920.00	3,073.22	66.39
390		J142FH	9.23	2,923.00	3,073.19	65.08
391		J144FH	9.23	2,808.00	3,081.61	118.55
392		J146FH	9.23	2,810.00	3,081.61	117.69
393		J148FH	9.23	2,816.00	3,081.61	115.09
394		J14FH	9.23	2,845.00	3,020.61	76.09
395		J150FH	9.23	2,868.00	3,081.61	92.56
396		J152FH	9.23	2,932.00	3,072.84	61.03
397		J154FH	9.23	2,929.00	3,074.33	62.97
398		J156FH	9.23	2,929.00	3,073.89	62.78
399		J158FH	9.23	2,928.00	3,073.97	63.25
400		J16	9.23	2,849.00	3,020.59	74.35

Peak Instantaneous Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
401		J160FH	9.23	2,912.00	3,070.73	68.78
402		J162FH	9.23	2,918.00	3,072.01	66.73
403		J164FH	9.23	2,911.00	3,071.68	69.62
404		J166FH	9.23	2,911.00	3,072.93	70.16
405		J168FH	9.23	2,905.00	3,073.20	72.88
406		J170FH	9.23	2,882.00	3,073.44	82.95
407		J172FH	9.23	2,884.00	3,072.94	81.87
408		J174FH	9.23	2,877.00	3,072.39	84.66
409		J176FH	9.23	2,881.00	3,072.04	82.78
410		J178FH	9.23	2,888.00	3,071.67	79.58
411		J180FH	9.23	2,880.00	3,071.41	82.94
412		J182FH	9.23	2,863.00	3,071.36	90.28
413		J184FH	9.23	2,863.00	3,069.81	89.61
414		J186	9.23	2,788.00	2,930.55	61.77
415		J188FH	9.23	2,775.00	2,930.55	67.40
416		J18FH	9.23	2,844.00	3,020.58	76.51
417		J190FH	9.23	2,893.00	3,070.27	76.81
418		J192FH	9.23	2,766.00	2,930.55	71.30
419		J194FH	9.23	2,780.00	2,930.55	65.23
420		J196FH	9.23	2,763.00	2,930.57	72.61
421		J198FH	9.23	2,776.00	2,930.56	66.97
422		J200FH	9.23	2,783.00	2,930.63	63.97
423		J202FH	9.23	2,760.00	2,930.68	73.96
424		J204FH	9.23	2,777.00	2,930.76	66.62
425		J206FH	9.23	2,889.00	3,070.47	78.63
426		J208FH	9.23	2,879.00	3,070.20	82.85
427		J20FH	9.23	2,850.00	3,020.58	73.91
428		J210FH	9.23	2,892.00	3,070.23	77.23
429		J212FH	9.23	2,881.00	3,070.01	81.90
430		J214FH	9.23	2,738.00	2,930.80	83.54
431		J216FH	9.23	2,743.00	2,930.97	81.45
432		J218FH	9.23	2,722.00	2,930.87	90.51
433		J22	9.23	2,852.00	3,020.58	73.05
434		J220FH	9.23	2,725.00	2,930.88	89.21
435		J222FH	9.23	2,732.00	2,930.89	86.18
436		J224	9.23	2,730.00	2,930.88	87.04
437		J226FH	9.23	2,736.00	2,930.88	84.44
438		J228FH	9.23	2,738.00	2,930.79	83.53
439		J230FH	9.23	2,747.00	2,931.23	79.83
440		J232FH	9.23	2,723.00	2,930.15	89.76
441		J234FH	9.23	2,728.00	2,930.15	87.59
442		J236FH	9.23	2,738.00	2,930.63	83.47
443		J238FH	9.23	2,745.00	2,931.09	80.63
444		J240FH	9.23	2,720.00	2,930.06	91.02
445		J242FH	9.23	2,742.00	2,930.75	81.79
446		J244FH	9.23	2,755.00	2,986.03	100.10
447		J246FH	9.23	2,835.00	3,014.28	77.68
448		J248FH	9.23	2,740.00	2,930.20	82.41
449		J24FH	9.23	2,842.00	3,020.58	77.38
450		J250FH	9.23	2,749.00	2,930.96	78.84

Peak Instantaneous Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
451		J252FH	9.23	2,743.00	2,930.86	81.40
452		J254FH	9.23	2,743.00	2,930.84	81.39
453		J256FH	9.23	2,804.00	2,992.48	81.67
454		J258FH	9.23	2,778.00	2,992.11	92.77
455		J260FH	9.23	2,797.00	2,991.26	84.17
456		J262FH	9.23	2,796.00	2,990.19	84.14
457		J264FH	9.23	2,799.00	2,989.69	82.62
458		J266FH	9.23	2,812.00	2,993.09	78.47
459		J268FH	9.23	2,810.00	2,992.76	79.19
460		J26FH	9.23	2,849.00	3,020.58	74.35
461		J270FH	9.23	2,807.00	2,991.81	80.08
462		J272FH	9.23	2,824.00	2,994.63	73.93
463		J274FH	9.23	2,804.00	2,994.81	82.68
464		J276FH	9.23	2,818.00	2,993.15	75.89
465		J278FH	9.23	2,824.00	2,993.94	73.63
466		J28	9.23	2,922.00	3,076.92	67.13
467		J280FH	9.23	2,819.00	2,993.84	75.76
468		J282FH	9.23	2,841.00	2,995.92	67.13
469		J284FH	9.23	2,843.00	2,995.88	66.24
470		J286FH	9.23	2,844.00	2,995.92	65.83
471		J288FH	9.23	2,849.00	2,996.05	63.72
472		J290FH	9.23	2,794.00	2,985.16	82.83
473		J292FH	9.23	2,856.00	2,995.26	60.34
474		J294FH	9.23	2,845.00	2,994.08	64.60
475		J296FH	9.23	2,843.00	2,994.22	65.52
476		J298FH	9.23	2,852.00	2,996.18	62.47
477		J300FH	9.23	2,875.00	3,007.99	57.63
478		J302FH	9.23	2,871.00	3,004.70	57.93
479		J304FH	9.23	2,872.00	3,002.76	56.66
480		J306FH	9.23	2,864.00	2,996.53	57.43
481		J308FH	9.23	2,858.00	2,996.46	59.99
482		J310FH	9.23	2,752.00	2,931.29	77.69
483		J312FH	9.23	2,739.00	2,929.85	82.69
484		J314FH	9.23	2,743.00	2,930.64	81.30
485		J316FH	9.23	2,734.00	2,930.32	85.07
486		J318FH	9.23	2,720.00	2,929.94	90.97
487		J320FH	9.23	2,716.00	2,929.83	92.65
488		J322FH	9.23	2,721.00	2,929.82	90.48
489		J324FH	9.23	2,727.00	2,929.86	87.90
490		J326FH	9.23	2,729.00	2,929.76	86.99
491		J328FH	9.23	2,736.00	2,929.56	83.87
492		J330FH	9.23	2,727.00	2,929.54	87.76
493		J332FH	9.23	2,736.00	2,929.59	83.88
494		J334FH	9.23	2,739.00	2,929.67	82.62
495		J336FH	9.23	2,733.00	2,930.22	85.45
496		J338FH	9.23	2,725.00	2,929.67	88.68
497		J340FH	9.23	2,739.00	2,930.22	82.85
498		J342FH	9.23	2,728.00	2,929.92	87.49
499		J344FH	9.23	2,736.00	2,930.22	84.15
500		J346FH	9.23	2,740.00	2,930.22	82.42

Peak Instantaneous Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
501		J348FH	9.23	2,746.00	2,930.47	79.93
502		J34FH	9.23	2,922.00	3,077.48	67.37
503		J350FH	9.23	2,746.00	2,930.49	79.94
504		J352FH	9.23	2,735.00	2,930.09	84.53
505		J354FH	9.23	2,749.00	2,930.68	78.72
506		J356FH	9.23	2,721.00	2,930.08	90.59
507		J358FH	9.23	2,733.00	2,930.11	85.41
508		J36	9.23	2,906.00	3,072.71	72.23
509		J360FH	9.23	2,705.00	2,929.09	97.10
510		J362FH	9.23	2,705.00	2,929.25	97.17
511		J364FH	9.23	2,718.00	2,929.47	91.63
512		J366FH	9.23	2,721.00	2,929.47	90.33
513		J368FH	9.23	2,717.00	2,929.45	92.05
514		J370FH	9.23	2,731.00	2,929.53	86.02
515		J372FH	9.23	2,731.00	2,929.55	86.03
516		J374FH	9.23	2,704.00	2,929.60	97.75
517		J376FH	9.23	2,705.00	2,929.63	97.33
518		J380FH	9.23	2,947.00	3,076.18	55.98
519		J382FH	9.23	2,948.00	3,076.18	55.54
520		J384FH	9.23	2,945.00	3,076.18	56.84
521		J388	9.23	2,946.00	3,076.18	56.41
522		J38FH	9.23	2,913.00	3,070.90	68.42
523		J392	9.23	2,952.00	3,076.18	53.81
524		J394	9.23	2,945.00	3,076.18	56.84
525		J396	9.23	2,942.00	3,076.19	58.15
526		J398FH	9.23	2,943.00	3,076.19	57.71
527		J40	9.23	2,916.00	3,071.21	67.25
528		J400	9.23	2,902.00	3,076.04	75.41
529		J402FH	9.23	2,912.00	3,075.96	71.04
530		J404FH	9.23	2,917.00	3,075.90	68.85
531		J406FH	9.23	2,921.00	3,076.02	67.17
532		J408	9.23	2,918.00	3,076.02	68.47
533		J410FH	9.23	2,922.00	3,076.01	66.73
534		J412FH	9.23	2,929.00	3,076.01	63.70
535		J414	9.23	2,928.00	3,077.60	64.82
536		J416FH	9.23	2,928.00	3,078.13	65.05
537		J418FH	9.23	2,926.00	3,078.13	65.92
538		J420FH	9.23	2,918.00	3,078.32	69.46
539		J422FH	9.23	2,928.00	3,077.91	64.96
540		J424FH	9.23	2,928.00	3,077.87	64.94
541		J426FH	9.23	2,927.00	3,077.85	65.36
542		J42FH	9.23	2,919.00	3,071.21	65.95
543		J430	9.23	2,923.00	3,078.30	67.29
544		J432	9.23	2,924.00	3,078.29	66.85
545		J434FH	9.23	2,926.00	3,078.30	65.99
546		J436	9.23	2,922.00	3,078.29	67.72
547		J438	9.23	2,923.00	3,078.29	67.29
548		J440FH	9.23	2,925.00	3,077.84	66.23
549		J442FH	9.23	2,926.00	3,077.97	65.85
550		J444FH	9.23	2,930.00	3,077.30	63.83

Peak Instantaneous Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
551		J446	9.23	2,909.00	3,078.85	73.59
552		J448	9.23	2,923.00	3,078.32	67.30
553		J44FH	9.23	2,918.00	3,070.89	66.25
554		J450FH	9.23	2,918.00	3,076.45	68.66
555		J452FH	9.23	2,915.00	3,076.26	69.87
556		J454	9.23	2,841.00	2,994.23	66.39
557		J456FH	9.23	2,706.00	2,928.96	96.61
558		J458FH	9.23	2,709.00	2,928.96	95.31
559		J46	9.23	2,896.00	3,070.67	75.69
560		J460FH	9.23	2,713.00	2,928.96	93.57
561		J462FH	9.23	2,713.00	2,928.97	93.58
562		J464	9.23	2,711.00	2,928.97	94.44
563		J466	9.23	2,707.00	2,928.96	96.17
564		J468	9.23	2,712.00	2,928.96	94.01
565		J470	9.23	2,712.00	2,929.00	94.02
566		J472	9.23	2,712.00	2,928.96	94.01
567		J474	9.23	2,712.00	2,928.97	94.01
568		J476	9.23	2,815.00	3,084.61	116.82
569		J478FH	9.23	2,816.00	3,084.61	116.39
570		J48	9.23	2,900.00	3,070.28	73.78
571		J480FH	9.23	2,796.00	3,084.63	125.06
572		J482FH	9.23	2,796.00	3,084.65	125.07
573		J484FH	9.23	2,811.00	3,084.68	118.59
574		J486FH	9.23	2,840.00	3,084.72	106.04
575		J488FH	9.23	2,820.00	3,084.71	114.70
576		J490FH	9.23	2,818.00	3,084.71	115.57
577		J492FH	9.23	2,820.00	3,084.71	114.70
578		J494FH	9.23	2,818.00	3,084.71	115.57
579		J496FH	9.23	2,815.00	3,084.72	116.87
580		J500FH	9.23	2,823.00	3,084.72	113.41
581		J508FH	9.23	2,847.00	3,084.73	103.01
582		J50FH	9.23	2,695.00	2,929.60	101.65
583		J510FH	9.23	2,856.00	3,084.73	99.11
584		J512	9.23	2,872.00	3,084.73	92.18
585		J514FH	9.23	2,869.00	3,084.74	93.48
586		J516	9.23	2,867.00	3,084.75	94.35
587		J518FH	9.23	2,865.00	3,084.77	95.22
588		J52	9.23	2,742.00	2,930.22	81.56
589		J522FH	9.23	2,824.00	3,084.73	112.97
590		J524	9.23	2,815.00	3,084.72	116.87
591		J526FH	9.23	2,840.00	3,084.74	106.04
592		J528FH	9.23	2,854.00	3,084.75	99.98
593		J532FH	9.23	2,858.00	3,084.78	98.26
594		J534	9.23	2,860.00	3,084.79	97.40
595		J54	9.23	2,738.00	2,930.22	83.29
596		J540	9.23	2,927.00	3,077.91	65.39
597		J546	9.23	2,760.00	3,109.45	151.42
598		J548	9.23	2,760.00	3,099.40	147.06
599		J550	9.23	2,760.00	3,083.33	140.10
600		J552	9.23	2,760.00	3,078.90	138.18

Peak Instantaneous Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
601		J554	9.23	2,760.00	3,030.48	117.20
602		J556	9.23	2,760.00	3,067.09	133.06
603		J558	9.23	2,760.00	3,096.16	145.66
604		J560	9.23	2,875.00	3,065.55	82.57
605		J562	9.23	2,865.00	3,066.44	87.28
606		J564	9.23	2,820.00	2,991.00	74.09
607		J566FH	9.23	2,922.00	3,076.69	67.03
608		J568FH	9.23	2,928.00	3,076.59	64.39
609		J56FH	9.23	2,740.00	2,929.91	82.29
610		J570FH	9.23	2,929.00	3,076.59	63.95
611		J572	9.23	2,939.00	3,076.45	59.56
612		J574	9.23	2,937.00	3,076.49	60.44
613		J576	9.23	2,942.00	3,076.41	58.24
614		J578	9.23	2,940.00	3,076.42	59.11
615		J580FH	9.23	2,939.00	3,076.42	59.54
616		J582	9.23	2,922.00	3,076.67	67.02
617		J584FH	9.23	2,842.00	3,084.74	105.18
618		J586	9.23	2,865.00	3,084.75	95.22
619		J588	9.23	2,857.00	3,084.77	98.69
620		J58FH	9.23	2,734.00	2,929.80	84.84
621		J590FH	9.23	2,833.00	3,084.74	109.08
622		J594FH	9.23	2,826.00	3,084.74	112.11
623		J596FH	9.23	2,803.00	3,084.71	122.07
624		J60	9.23	2,728.00	2,929.76	87.42
625		J600FH	9.23	2,846.00	3,084.74	103.45
626		J602	9.23	2,846.00	3,084.74	103.45
627		J604	9.23	2,945.00	3,076.34	56.91
628		J606FH	9.23	2,950.00	3,076.26	54.71
629		J608	9.23	2,943.00	3,076.34	57.78
630		J610FH	9.23	2,936.00	3,076.55	60.90
631		J612FH	9.23	2,931.00	3,076.62	63.10
632		J614	9.23	2,931.00	3,076.57	63.08
633		J616	9.23	2,933.00	3,076.56	62.20
634		J618	9.23	3,143.00	3,300.99	68.46
635		J62	9.23	2,723.00	2,929.76	89.59
636		J620	9.23	2,865.00	2,996.52	56.99
637		J622FH	9.23	2,826.00	3,005.94	77.97
638		J624FH	9.23	2,835.00	3,005.93	74.06
639		J626FH	9.23	2,805.00	3,001.62	85.20
640		J630FH	9.23	2,825.00	3,005.92	78.39
641		J634FH	9.23	2,831.00	3,005.92	75.79
642		J638FH	9.23	2,790.00	2,999.77	90.89
643		J64	9.23	2,742.00	2,929.62	81.30
644		J640FH	9.23	2,930.00	3,076.56	63.50
645		J642FH	9.23	2,929.00	3,076.58	63.95
646		J646FH	9.23	2,934.00	3,076.56	61.77
647		J648FH	9.23	2,799.00	2,930.55	57.00
648		J650FH	9.23	2,790.00	2,930.55	60.90
649		J652FH	9.23	2,774.00	2,930.55	67.83
650		J654FH	9.23	2,772.00	2,930.53	68.69

Peak Instantaneous Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
651		J656FH	9.23	2,779.00	2,930.53	65.66
652		J658FH	9.23	2,784.00	2,930.54	63.49
653		J660FH	9.23	2,774.00	2,930.53	67.82
654		J662FH	9.23	2,765.00	2,930.53	71.72
655		J664FH	9.23	2,784.00	2,930.53	63.49
656		J666FH	9.23	2,792.00	2,930.54	60.03
657		J668	9.23	2,805.00	2,930.53	54.39
658		J66FH	9.23	2,733.00	2,929.51	85.15
659		J670	9.23	2,746.42	2,930.94	79.95
660		J672FH	9.23	2,747.00	2,930.94	79.70
661		J674	9.23	2,931.48	3,076.17	62.70
662		J676FH	9.23	2,935.42	3,076.17	60.99
663		J678FH	9.23	2,934.28	3,076.17	61.48
664		J680FH	9.23	2,931.09	3,076.17	62.86
665		J682	9.23	2,926.25	3,076.17	64.96
666		J684FH	9.23	2,930.42	3,076.17	63.15
667		J686FH	9.23	2,929.00	3,076.17	63.77
668		J688	9.23	2,924.95	3,076.17	65.52
669		J68FH	9.23	2,743.00	2,929.48	80.80
670		J690	9.23	2,925.00	3,076.17	65.50
671		J692FH	9.23	2,932.10	3,076.17	62.42
672		J694	9.23	2,923.00	3,076.17	66.37
673		J696	9.23	2,935.00	3,076.28	61.22
674		J698	9.23	2,929.52	3,076.23	63.57
675		J700FH	9.23	2,936.95	3,076.23	60.35
676		J702	9.23	2,925.68	3,076.18	65.21
677		J704FH	9.23	2,926.37	3,076.18	64.91
678		J706FH	9.23	2,934.71	3,076.18	61.30
679		J708FH	9.23	2,930.45	3,076.23	63.17
680		J70FH	9.23	2,731.00	2,929.52	86.02
681		J710FH	9.23	2,935.73	3,076.27	60.90
682		J712	9.23	2,721.80	2,930.15	90.28
683		J714FH	9.23	2,726.17	2,930.15	88.38
684		J716	9.23	2,720.00	2,930.15	91.06
685		J718FH	9.23	2,723.42	2,930.15	89.58
686		J72	9.23	2,724.00	2,930.15	89.33
687		J720FH	9.23	2,781.00	2,998.01	94.03
688		J724	9.23	2,934.00	3,076.41	61.70
689		J728	9.23	2,932.00	3,076.40	62.57
690		J730FH	9.23	2,932.00	3,076.40	62.57
691		J732	9.23	2,930.00	3,076.42	63.44
692		J736	9.23	2,922.00	3,076.52	66.95
693		J738FH	9.23	2,924.00	3,076.49	66.07
694		J74	9.23	2,911.00	3,074.26	70.74
695		J740FH	9.23	2,916.00	3,076.61	69.59
696		J742FH	9.23	2,938.00	3,076.38	59.96
697		J744	9.23	2,942.00	3,076.36	58.22
698		J746	9.23	2,944.00	3,076.21	57.29
699		J748	9.23	2,950.00	3,076.21	54.69
700		J750FH	9.23	2,941.00	3,076.21	58.58

Peak Instantaneous Demand

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
701		J752	9.23	2,946.00	3,076.20	56.42
702		J754	9.23	2,944.00	3,076.21	57.29
703		J756	9.23	2,948.00	3,076.26	55.57
704		J758	9.23	2,952.00	3,076.26	53.84
705		J76	9.23	2,886.00	3,074.55	81.70
706		J774	9.23	2,738.00	2,929.52	82.99
707		J776	9.23	2,736.00	2,929.52	83.85
708		J778	9.23	2,771.00	2,930.53	69.13
709		J780	9.23	2,770.00	2,930.53	69.56
710		J782	9.23	2,812.00	2,994.64	79.14
711		J784FH	9.23	2,774.00	2,930.54	67.83
712		J786FH	9.23	2,781.00	2,997.75	93.92
713		J788FH	9.23	2,921.00	3,075.98	67.15
714		J78FH	9.23	2,932.00	3,075.81	62.31
715		J790FH	9.23	2,926.00	3,076.44	65.18
716		J792	9.23	2,943.00	3,076.22	57.73
717		J794	9.23	2,907.00	3,077.53	73.89
718		J796	9.23	2,889.00	3,076.28	81.15
719		J802	9.23	2,774.00	2,930.55	67.83
720		J804	9.23	2,799.00	3,084.60	123.75
721		J80FH	9.23	2,925.00	3,075.23	65.09
722		J814	9.23	2,981.00	3,147.86	72.30
723		J816	9.23	2,963.00	3,076.25	49.07
724		J818	9.23	2,954.00	3,076.25	52.97
725		J82FH	9.23	2,917.00	3,074.65	68.31
726		J838	9.23	3,004.53	3,154.46	64.97
727		J84FH	9.23	2,922.00	3,074.65	66.14
728		J86	9.23	2,925.00	3,075.22	65.09
729		J88	9.23	2,916.00	3,073.33	68.17
730		J90	9.23	2,922.00	3,075.22	66.39
731		J92FH	9.23	2,948.00	3,076.52	55.69
732		J942	9.23	2,907.00	3,076.45	73.42
733		J946	9.23	2,983.37	3,150.38	72.36
734		J948	9.23	2,946.00	3,109.50	70.85
735		J94FH	9.23	2,950.00	3,076.21	54.69
736		J954	9.23	2,847.00	3,022.70	76.13
737		J960	9.23	2,851.00	3,024.14	75.02
738		J962	9.23	2,855.00	3,024.98	73.65
739		J964	9.23	2,861.00	3,026.14	71.56
740		J966	9.23	2,861.00	3,026.93	71.90
741		J968	9.23	2,915.00	3,076.79	70.10
742		J96FH	9.23	2,941.00	3,076.40	58.67
743		J970	9.23	2,924.00	3,076.67	66.15
744		J972	9.23	2,917.00	3,076.96	69.31
745		J974	9.23	2,919.00	3,076.79	68.37
746		J976	9.23	2,926.00	3,076.67	65.28
747		J978	9.23	2,934.00	3,078.61	62.66
748		J980	9.23	2,934.00	3,078.50	62.61
749		J982	9.23	2,928.00	3,078.25	65.10
750		J984	9.23	2,944.00	3,089.78	63.17

		ID	Demand (gpm)	Elevation (ft)	Head (ft)	Pressure (psi)
751		J986	9.23	2,923.00	3,081.88	68.84
752		J988	9.23	2,921.00	3,079.23	68.56
753		J98FH	9.23	2,936.00	3,076.86	61.04
754		J990	9.23	2,916.00	3,078.10	70.24
755		J992	9.23	2,923.00	3,077.59	66.98
756		J994	9.23	2,946.00	3,109.91	71.02
757		J996	9.23	2,910.00	3,076.42	72.11
758		J998	9.23	2,908.00	3,076.27	72.91

Peak Day Demand with Fire Flow

		ID	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)
1	☐	J-100FH	51.73	2,995.39	1,250.00	48.14	4,018.22
2	☐	J-102FH	86.00	3,066.48	1,250.00	77.72	6,622.10
3	☐	J-103FH	84.81	3,066.72	1,250.00	76.22	5,765.79
4	☐	J-105FH	83.15	3,066.89	1,250.00	74.52	5,453.24
5	☐	J-106FH	81.71	3,065.58	1,250.00	72.60	6,058.99
6	☐	J-107FH	57.80	3,069.40	1,250.00	49.85	3,764.46
7	☐	J-109FH	83.09	3,066.76	1,250.00	74.69	5,679.39
8	☐	J-10FH	82.80	2,932.09	1,250.00	76.98	4,155.00
9	☐	J-110	81.41	3,066.89	1,250.00	71.58	4,504.34
10	☐	J-111	72.62	3,067.10	1,250.00	63.26	4,254.65
11	☐	J-112	81.50	3,067.09	1,250.00	19.05	1,247.42
12	☐	J-113	79.16	3,067.69	1,250.00	71.54	5,784.80
13	☐	J-115	79.04	3,067.42	1,250.00	58.45	2,374.33
14	☐	J-116FH	81.07	3,068.09	1,250.00	73.81	6,109.61
15	☐	J-117	73.89	3,067.53	1,250.00	66.38	5,615.20
16	☐	J-118FH	76.57	3,067.72	1,250.00	69.42	6,134.48
17	☐	J-119FH	77.52	3,067.91	1,250.00	68.70	4,658.88
18	☐	J-11FH	83.08	2,931.73	1,250.00	76.43	3,983.18
19	☐	J-12	72.54	2,933.41	1,250.00	70.12	4,573.51
20	☐	J-120	78.46	3,068.07	1,250.00	70.62	5,417.31
21	☐	J-121	82.43	3,068.23	1,250.00	75.31	6,305.91
22	☐	J-122FH	81.59	3,068.30	1,250.00	74.68	6,495.11
23	☐	J-123	85.89	3,068.23	1,250.00	66.03	2,577.70
24	☐	J-124	76.31	3,068.10	1,250.00	66.20	3,964.05
25	☐	J-125	76.31	3,068.10	1,250.00	61.93	2,941.61
26	☐	J-126FH	72.48	3,068.28	1,250.00	65.88	6,232.66
27	☐	J-127	72.49	3,068.30	1,250.00	64.93	5,237.13
28	☐	J-128FH	58.23	3,069.40	1,250.00	50.26	3,781.18
29	☐	J-129	73.26	3,068.08	1,250.00	66.29	5,852.70
30	☐	J-131FH	72.33	3,067.92	1,250.00	65.36	5,840.20
31	☐	J-132FH	62.55	3,069.36	1,250.00	52.58	3,299.41
32	☐	J-133FH	71.41	3,067.80	1,250.00	64.80	6,381.23
33	☐	J-134FH	61.69	3,069.36	1,250.00	47.37	2,451.24
34	☐	J-135	70.49	3,067.69	1,250.00	63.86	6,350.92
35	☐	J-136FH	68.26	3,067.53	1,250.00	61.42	5,928.19

Peak Day Demand with Fire Flow

		ID	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)
36	☐	J-137	72.14	3,067.49	1,250.00	64.18	5,065.44
37	☐	J-138FH	71.71	3,067.49	1,250.00	49.06	2,059.40
38	☐	J-139FH	82.52	3,067.44	1,250.00	74.33	5,533.45
39	☐	J-140	78.79	3,066.85	1,250.00	69.33	4,491.07
40	☐	J-141FH	72.29	3,066.84	1,250.00	43.59	1,790.13
41	☐	J-142	78.78	3,066.81	1,250.00	69.96	4,993.10
42	☐	J-143FH	76.59	3,066.76	1,250.00	69.33	6,682.80
43	☐	J-144FH	73.36	3,066.31	1,250.00	65.27	5,933.36
44	☐	J-145FH	76.72	3,066.05	1,250.00	68.21	5,948.47
45	☐	J-147FH	75.90	3,066.17	1,250.00	67.32	5,507.36
46	☐	J-149FH	69.94	3,066.42	1,250.00	61.91	5,567.47
47	☐	J-14FH	79.25	2,932.91	1,250.00	72.39	3,943.79
48	☐	J-151FH	75.14	3,066.40	1,250.00	66.58	5,389.97
49	☐	J-153FH	75.29	3,066.25	1,250.00	65.85	4,633.39
50	☐	J-156FH	74.67	3,066.34	1,250.00	65.23	4,566.15
51	☐	J-158FH	72.11	3,066.41	1,250.00	62.38	4,212.04
52	☐	J-15FH	77.95	2,932.90	1,250.00	53.27	2,024.80
53	☐	J-160FH	70.62	3,066.49	1,250.00	61.41	4,419.26
54	☐	J-161FH	73.43	3,066.47	1,250.00	63.41	4,132.84
55	☐	J-162FH	80.74	3,066.33	1,250.00	63.03	2,727.78
56	☐	J-164FH	67.94	3,066.79	1,250.00	60.53	5,943.87
57	☐	J-165FH	65.84	3,066.94	1,250.00	58.40	5,535.77
58	☐	J-167FH	68.65	3,067.43	1,250.00	62.02	6,559.27
59	☐	J-168FH	65.29	3,067.67	1,250.00	58.92	6,558.09
60	☐	J-169FH	64.28	3,069.36	1,250.00	46.45	2,188.90
61	☐	J-16FH	126.76	2,932.55	1,250.00	99.70	2,713.44
62	☐	J-170FH	65.87	3,069.02	1,250.00	60.64	7,996.35
63	☐	J-173FH	63.94	3,067.57	1,250.00	56.52	5,116.95
64	☐	J-175FH	66.70	3,068.93	1,250.00	58.91	4,691.25
65	☐	J-177FH	60.89	3,069.53	1,250.00	55.03	5,786.65
66	☐	J-178	64.19	3,068.15	1,250.00	58.17	6,809.14
67	☐	J-179	64.22	3,068.22	1,250.00	58.28	6,892.59
68	☐	J-17FH	127.62	2,932.53	1,250.00	87.77	2,191.91
69	☐	J-181	66.68	3,068.89	1,250.00	58.21	4,064.94
70	☐	J-182	66.77	3,069.10	1,250.00	55.95	3,233.31

Peak Day Demand with Fire Flow

		ID	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)
71	☐	J-183FH	66.77	3,069.10	1,250.00	45.65	2,015.12
72	☐	J-184FH	67.67	3,071.17	1,250.00	62.33	7,395.65
73	☐	J-186FH	68.93	3,069.08	1,250.00	63.00	6,509.13
74	☐	J-187	66.27	3,067.94	1,250.00	59.52	5,634.77
75	☐	J-188	69.64	3,069.73	1,250.00	64.30	7,692.84
76	☐	J-189FH	67.41	3,070.56	1,250.00	57.89	3,535.56
77	☐	J-191	66.24	3,067.88	1,250.00	58.82	5,017.97
78	☐	J-192	68.40	3,067.85	1,250.00	60.94	5,151.97
79	☐	J-19FH	128.48	2,932.52	1,250.00	60.25	1,625.14
80	☐	J-1FH	91.75	2,931.74	1,250.00	77.85	2,986.45
81	☐	J-204FH	80.75	3,066.37	1,250.00	49.31	1,856.82
82	☐	J-20FH	82.05	2,934.36	1,250.00	78.69	6,404.92
83	☐	J-211FH	73.92	3,000.59	1,250.00	53.44	2,253.71
84	☐	J-212FH	76.52	3,000.59	1,250.00	57.89	2,461.94
85	☐	J-214FH	73.23	3,004.01	1,250.00	47.94	1,981.32
86	☐	J-215FH	77.57	3,004.01	1,250.00	54.90	2,225.13
87	☐	J-217	77.99	3,009.99	1,250.00	67.13	4,029.95
88	☐	J-218FH	73.57	3,007.80	1,250.00	45.52	1,888.45
89	☐	J-22	64.81	3,069.57	1,250.00	59.48	7,166.36
90	☐	J-221FH	80.84	2,934.56	1,250.00	69.11	3,200.56
91	☐	J-222FH	88.00	2,935.09	1,250.00	86.50	9,360.84
92	☐	J-225FH	79.53	2,935.54	1,250.00	77.91	9,267.35
93	☐	J-227FH	64.17	2,993.09	1,250.00	52.51	2,876.26
94	☐	J-229FH	79.25	2,935.90	1,250.00	77.62	9,757.61
95	☐	J-232FH	78.56	2,936.31	1,250.00	76.88	10,063.90
96	☐	J-235FH	74.47	2,936.87	1,250.00	72.65	10,037.60
97	☐	J-247FH	59.11	2,993.91	1,250.00	53.58	4,448.55
98	☐	J-250FH	80.58	2,935.96	1,250.00	77.51	6,671.74
99	☐	J-255FH	88.95	2,933.27	1,250.00	69.01	2,587.16
100	☐	J-258FH	85.19	2,931.60	1,250.00	77.66	3,881.29
101	☐	J-25FH	100.65	2,990.30	1,250.00	86.93	4,612.82
102	☐	J-260FH	85.13	2,931.48	1,250.00	76.40	3,627.40
103	☐	J-266FH	100.14	2,931.11	1,250.00	75.84	2,431.07
104	☐	J-267FH	79.51	2,934.49	1,250.00	79.18	5,144.39
105	☐	J-269FH	100.19	2,931.21	1,250.00	80.73	2,717.58

Peak Day Demand with Fire Flow

		ID	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)
106	☐	J-270FH	100.25	2,931.37	1,250.00	85.60	3,129.92
107	☐	J-271FH	85.13	2,931.48	1,250.00	77.44	3,872.02
108	☐	J-273FH	98.16	2,931.54	1,250.00	91.05	4,408.29
109	☐	J-274FH	98.17	2,931.55	1,250.00	91.06	4,403.74
110	☐	J-275FH	88.27	2,988.71	1,250.00	73.05	4,336.93
111	☐	J-278FH	83.54	2,932.79	1,250.00	79.65	4,686.86
112	☐	J-279FH	87.70	2,932.41	1,250.00	83.12	4,677.86
113	☐	J-280FH	82.84	2,932.19	1,250.00	77.37	4,259.64
114	☐	J-281FH	99.03	2,931.56	1,250.00	91.83	4,395.87
115	☐	J-283FH	93.87	2,931.64	1,250.00	87.09	4,332.06
116	☐	J-284FH	91.77	2,931.79	1,250.00	62.86	2,054.38
117	☐	J-288FH	91.70	2,931.63	1,250.00	84.50	4,138.31
118	☐	J-291FH	64.10	3,068.94	1,250.00	58.77	7,658.93
119	☐	J-292FH	98.18	2,931.59	1,250.00	91.20	4,423.90
120	☐	J-293FH	100.86	2,987.76	1,250.00	83.75	4,448.55
121	☐	J-294	67.98	3,069.89	1,250.00	62.62	8,019.93
122	☐	J-295	66.59	3,099.69	1,250.00	58.11	6,050.40
123	☐	J-297FH	98.18	2,931.58	1,250.00	90.80	4,312.03
124	☐	J-29FH	76.72	2,992.06	1,250.00	68.80	6,102.85
125	☐	J-301FH	118.17	3,072.72	1,250.00	111.00	7,124.98
126	☐	J-302FH	98.18	2,931.58	1,250.00	90.92	4,344.66
127	☐	J-303FH	87.37	2,931.63	1,250.00	79.79	3,902.37
128	☐	J-305FH	51.48	2,996.31	1,250.00	51.08	5,670.75
129	☐	J-307FH	83.05	2,931.66	1,250.00	76.52	4,042.64
130	☐	J-30FH	76.47	2,992.48	1,250.00	69.16	6,360.89
131	☐	J-311	63.14	3,070.72	1,250.00	57.68	7,694.31
132	☐	J-312	86.16	3,068.85	1,250.00	80.46	8,965.73
133	☐	J-315FH	60.39	3,069.38	1,250.00	53.96	5,194.52
134	☐	J-317FH	71.41	3,066.80	1,250.00	61.11	3,896.61
135	☐	J-318FH	64.62	3,071.14	1,250.00	59.86	8,232.14
136	☐	J-319FH	63.53	3,070.62	1,250.00	58.67	8,111.22
137	☐	J-321FH	63.35	3,070.19	1,250.00	57.95	6,624.63
138	☐	J-322FH	57.93	3,069.70	1,250.00	52.81	6,931.81
139	☐	J-323FH	60.60	3,069.86	1,250.00	55.00	6,036.97
140	☐	J-324FH	62.42	3,070.05	1,250.00	57.35	7,474.75

Peak Day Demand with Fire Flow

		ID	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)
141	☐	J-325FH	63.36	3,070.24	1,250.00	58.35	7,748.33
142	☐	J-326FH	61.57	3,070.10	1,250.00	56.05	6,219.25
143	☐	J-327FH	61.50	3,069.93	1,250.00	56.37	7,209.64
144	☐	J-328FH	59.28	3,069.82	1,250.00	53.96	6,463.98
145	☐	J-329FH	58.85	3,069.82	1,250.00	53.20	5,842.67
146	☐	J-33FH	74.98	2,993.03	1,250.00	68.08	6,385.54
147	☐	J-38FH	74.18	2,992.20	1,250.00	66.66	6,041.14
148	☐	J-39FH	67.94	2,992.80	1,250.00	60.53	5,056.27
149	☐	J-44FH	80.91	2,991.72	1,250.00	70.90	4,787.48
150	☐	J-54	64.40	3,068.62	1,250.00	58.85	7,412.60
151	☐	J-63FH	66.71	2,992.97	1,250.00	60.16	5,571.78
152	☐	J-66FH	63.55	2,993.66	1,250.00	58.32	5,658.68
153	☐	J-68FH	66.72	2,992.99	1,250.00	60.62	5,886.02
154	☐	J-69FH	66.72	2,992.99	1,250.00	60.37	5,496.21
155	☐	J-73FH	70.61	2,992.95	1,250.00	62.33	4,250.19
156	☐	J-77FH	67.21	3,069.11	1,250.00	62.06	8,290.30
157	☐	J-80FH	56.09	3,069.45	1,250.00	50.60	6,162.22
158	☐	J-81FH	65.89	2,993.05	1,250.00	57.80	4,032.40
159	☐	J-82	64.28	3,069.36	1,250.00	51.39	2,752.75
160	☐	J-85FH	62.56	2,993.87	1,250.00	57.02	4,779.79
161	☐	J-8FH	78.09	2,932.22	1,250.00	63.11	2,596.96
162	☐	J-93FH	59.03	2,994.23	1,250.00	49.41	2,877.70
163	☐	J-956	75.16	3,020.46	1,250.00	65.73	3,955.22
164	☐	J-958	73.12	3,024.74	1,250.00	64.90	3,542.28
165	☐	J-97FH	57.81	3,069.41	1,250.00	51.29	4,894.43
166	☐	J1000	72.09	3,069.39	1,250.00	65.86	6,304.47
167	☐	J1002	76.76	3,069.16	1,250.00	70.58	6,814.93
168	☐	J1004	56.49	3,069.37	1,250.00	48.96	4,057.76
169	☐	J1006	57.36	3,069.37	1,250.00	50.15	4,373.18
170	☐	J1008	56.05	3,069.37	1,250.00	46.93	3,258.43
171	☐	J100FH	59.52	3,070.37	1,250.00	53.30	4,996.74
172	☐	J1010	55.62	3,069.37	1,250.00	46.17	3,128.55
173	☐	J1012	55.62	3,069.37	1,250.00	44.74	2,758.35
174	☐	J1014	55.19	3,069.37	1,250.00	47.59	3,903.43
175	☐	J1016	54.76	3,069.37	1,250.00	48.46	5,126.64

Peak Day Demand with Fire Flow

		ID	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)
176	☐	J1018	56.05	3,069.37	1,250.00	45.01	2,748.37
177	☐	J1020	53.84	3,068.26	1,250.00	33.12	1,741.22
178	☐	J1022	52.54	3,068.26	1,250.00	31.24	1,663.50
179	☐	J1024	55.14	3,068.25	1,250.00	33.58	1,734.75
180	☐	J1026	53.80	3,077.16	1,250.00	32.88	1,654.73
181	☐	J1028	90.63	3,077.16	1,250.00	80.01	3,843.85
182	☐	J102FH	57.86	3,069.54	1,250.00	51.94	5,367.58
183	☐	J1030	81.09	3,077.16	1,250.00	66.99	2,944.12
184	☐	J1032	88.46	3,077.16	1,250.00	74.58	3,166.46
185	☐	J1034	70.26	3,077.16	1,250.00	52.89	2,316.34
186	☐	J1036	74.57	2,933.09	1,250.00	71.16	4,402.08
187	☐	J1038	73.28	2,933.12	1,250.00	70.31	4,491.10
188	☐	J1040	73.27	2,933.10	1,250.00	69.66	4,243.77
189	☐	J1042	72.41	2,933.11	1,250.00	68.97	4,262.44
190	☐	J1044	71.54	2,933.11	1,250.00	67.04	3,860.45
191	☐	J104FH	60.73	3,069.17	1,250.00	53.48	4,367.26
192	☐	J106FH	63.30	3,069.10	1,250.00	56.30	4,806.30
193	☐	J108FH	64.20	3,069.17	1,250.00	58.91	7,386.23
194	☐	J10FH	72.88	3,013.20	1,250.00	61.71	3,796.39
195	☐	J110FH	67.19	3,069.07	1,250.00	62.00	8,214.97
196	☐	J112FH	58.84	3,069.79	1,250.00	53.00	5,521.08
197	☐	J114FH	59.65	3,069.67	1,250.00	53.49	5,279.32
198	☐	J116FH	62.48	3,069.20	1,250.00	54.68	4,079.87
199	☐	J118FH	61.10	3,070.02	1,250.00	55.32	5,817.00
200	☐	J12	73.01	3,013.50	1,250.00	61.84	3,801.00
201	☐	J120FH	60.54	3,069.72	1,250.00	54.46	5,426.33
202	☐	J122FH	60.47	3,069.56	1,250.00	54.37	5,445.65
203	☐	J124FH	63.69	3,068.98	1,250.00	58.40	7,660.96
204	☐	J126FH	73.64	3,068.95	1,250.00	68.01	7,873.80
205	☐	J128FH	72.06	3,068.30	1,250.00	62.90	4,151.37
206	☐	J130FH	81.41	3,068.87	1,250.00	75.68	8,464.36
207	☐	J132FH	78.58	3,068.35	1,250.00	70.96	5,551.61
208	☐	J134FH	75.47	3,068.17	1,250.00	65.28	3,888.01
209	☐	J136FH	73.69	3,068.07	1,250.00	63.95	3,970.18
210	☐	J138FH	62.54	3,068.33	1,250.00	56.00	5,494.78

Peak Day Demand with Fire Flow

		ID	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)
211	☐	J140FH	64.07	3,067.86	1,250.00	56.89	5,063.90
212	☐	J142FH	62.85	3,068.04	1,250.00	53.17	3,445.30
213	☐	J144FH	114.70	3,072.72	1,250.00	108.31	7,922.28
214	☐	J146FH	113.84	3,072.72	1,250.00	108.49	10,047.21
215	☐	J148FH	111.24	3,072.72	1,250.00	106.65	13,423.59
216	☐	J14FH	72.65	3,012.67	1,250.00	61.50	3,789.02
217	☐	J150FH	88.99	3,073.37	1,250.00	85.27	14,298.34
218	☐	J152FH	59.95	3,070.35	1,250.00	52.96	4,814.83
219	☐	J154FH	61.06	3,069.93	1,250.00	55.22	5,745.58
220	☐	J156FH	60.94	3,069.65	1,250.00	50.53	3,049.29
221	☐	J158FH	61.07	3,068.95	1,250.00	51.44	3,300.42
222	☐	J16	70.91	3,012.65	1,250.00	56.25	2,979.58
223	☐	J160FH	67.05	3,066.75	1,250.00	53.02	2,768.50
224	☐	J162FH	64.66	3,067.24	1,250.00	57.53	5,428.76
225	☐	J164FH	67.58	3,066.98	1,250.00	60.50	6,064.56
226	☐	J166FH	67.88	3,067.65	1,250.00	60.56	5,315.86
227	☐	J168FH	70.53	3,067.78	1,250.00	63.07	5,313.82
228	☐	J170FH	80.53	3,067.85	1,250.00	72.45	5,368.62
229	☐	J172FH	79.54	3,067.56	1,250.00	71.12	5,170.05
230	☐	J174FH	82.42	3,067.21	1,250.00	73.04	4,749.73
231	☐	J178FH	77.47	3,066.79	1,250.00	68.39	4,735.92
232	☐	J180FH	80.87	3,066.63	1,250.00	73.28	6,771.06
233	☐	J182FH	88.19	3,066.53	1,250.00	80.23	7,094.89
234	☐	J184FH	87.64	3,065.26	1,250.00	78.10	6,217.59
235	☐	J188FH	70.97	2,938.78	1,250.00	65.65	7,289.04
236	☐	J18FH	73.08	3,012.65	1,250.00	55.99	2,731.85
237	☐	J190FH	75.17	3,066.49	1,250.00	41.78	1,693.45
238	☐	J192FH	74.87	2,938.79	1,250.00	72.64	12,783.82
239	☐	J194FH	68.72	2,938.60	1,250.00	61.17	3,805.96
240	☐	J196FH	76.08	2,938.59	1,250.00	74.19	12,744.04
241	☐	J198FH	70.34	2,938.34	1,250.00	61.76	3,509.56
242	☐	J200FH	66.96	2,937.53	1,250.00	65.03	10,100.01
243	☐	J202FH	76.63	2,936.85	1,250.00	57.75	2,316.61
244	☐	J204FH	69.02	2,936.29	1,250.00	38.58	1,637.30
245	☐	J208FH	81.22	3,066.45	1,250.00	66.04	3,095.05

Peak Day Demand with Fire Flow

		ID	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)
246	☐	J20FH	70.48	3,012.65	1,250.00	55.09	2,864.32
247	☐	J212FH	80.31	3,066.35	1,250.00	61.47	2,599.54
248	☐	J214FH	85.76	2,935.92	1,250.00	79.72	4,853.92
249	☐	J216FH	83.40	2,935.48	1,250.00	57.54	2,072.58
250	☐	J218FH	92.08	2,934.51	1,250.00	66.55	2,250.63
251	☐	J22	69.61	3,012.65	1,250.00	52.65	2,648.03
252	☐	J220FH	90.78	2,934.52	1,250.00	68.39	2,404.13
253	☐	J222FH	87.76	2,934.53	1,250.00	70.90	2,769.28
254	☐	J226FH	86.02	2,934.52	1,250.00	63.68	2,315.17
255	☐	J228FH	85.06	2,934.31	1,250.00	67.22	2,608.16
256	☐	J230FH	81.38	2,934.82	1,250.00	79.00	7,509.23
257	☐	J232FH	91.11	2,933.27	1,250.00	62.66	2,124.30
258	☐	J234FH	88.94	2,933.27	1,250.00	63.43	2,228.21
259	☐	J236FH	84.92	2,933.99	1,250.00	67.61	2,661.08
260	☐	J238FH	82.13	2,934.54	1,250.00	79.11	6,769.13
261	☐	J240FH	92.02	2,932.37	1,250.00	67.36	2,299.77
262	☐	J242FH	82.86	2,933.23	1,250.00	75.30	3,966.02
263	☐	J244FH	100.64	2,987.26	1,250.00	82.60	4,297.09
264	☐	J246FH	74.87	3,007.80	1,250.00	51.23	2,149.98
265	☐	J248FH	83.72	2,933.21	1,250.00	65.87	2,627.31
266	☐	J24FH	73.94	3,012.65	1,250.00	55.56	2,617.12
267	☐	J250FH	80.25	2,934.21	1,250.00	75.73	5,337.56
268	☐	J252FH	82.68	2,933.81	1,250.00	76.06	4,369.70
269	☐	J254FH	82.63	2,933.70	1,250.00	75.64	4,221.01
270	☐	J256FH	81.47	2,992.01	1,250.00	71.22	4,464.04
271	☐	J258FH	92.60	2,991.71	1,250.00	75.61	3,172.69
272	☐	J260FH	84.14	2,991.19	1,250.00	73.47	4,953.64
273	☐	J262FH	84.27	2,990.49	1,250.00	72.64	4,693.31
274	☐	J264FH	82.79	2,990.07	1,250.00	70.80	4,855.43
275	☐	J266FH	78.14	2,992.34	1,250.00	69.72	5,173.96
276	☐	J268FH	78.88	2,992.04	1,250.00	70.28	5,577.77
277	☐	J26FH	70.91	3,012.65	1,250.00	52.39	2,526.23
278	☐	J270FH	79.90	2,991.39	1,250.00	70.46	5,619.68
279	☐	J272FH	73.17	2,992.87	1,250.00	65.96	5,781.19
280	☐	J274FH	81.84	2,992.87	1,250.00	74.77	6,554.70

Peak Day Demand with Fire Flow

		ID	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)
281	☐	J276FH	75.68	2,992.65	1,250.00	68.50	5,808.16
282	☐	J278FH	73.13	2,992.79	1,250.00	66.31	5,837.83
283	☐	J280FH	75.22	2,992.59	1,250.00	67.41	5,343.80
284	☐	J282FH	66.07	2,993.49	1,250.00	60.15	6,136.77
285	☐	J284FH	65.26	2,993.62	1,250.00	59.71	5,844.56
286	☐	J286FH	64.94	2,993.87	1,250.00	60.10	5,871.44
287	☐	J288FH	62.91	2,994.20	1,250.00	58.04	5,093.51
288	☐	J290FH	86.20	2,992.95	1,250.00	72.25	3,267.05
289	☐	J292FH	59.56	2,993.45	1,250.00	53.41	4,396.36
290	☐	J294FH	64.19	2,993.14	1,250.00	57.41	4,689.28
291	☐	J296FH	65.08	2,993.19	1,250.00	58.20	4,670.30
292	☐	J298FH	61.62	2,994.20	1,250.00	56.58	4,725.53
293	☐	J300FH	51.51	2,993.89	1,250.00	36.39	1,938.22
294	☐	J302FH	53.25	2,993.89	1,250.00	40.84	2,268.34
295	☐	J304FH	52.81	2,993.88	1,250.00	28.29	1,487.07
296	☐	J306FH	56.59	2,994.61	1,250.00	52.51	4,605.84
297	☐	J308FH	59.19	2,994.61	1,250.00	54.90	4,669.27
298	☐	J310FH	78.30	2,932.71	1,250.00	74.23	4,433.69
299	☐	J312FH	83.52	2,931.76	1,250.00	75.99	3,761.64
300	☐	J314FH	82.03	2,932.32	1,250.00	76.16	4,035.37
301	☐	J316FH	85.82	2,932.06	1,250.00	80.11	4,311.82
302	☐	J318FH	91.77	2,931.79	1,250.00	81.25	3,401.08
303	☐	J320FH	93.47	2,931.72	1,250.00	86.64	4,281.37
304	☐	J322FH	91.30	2,931.71	1,250.00	79.62	3,226.59
305	☐	J324FH	88.72	2,931.75	1,250.00	79.78	3,603.31
306	☐	J326FH	87.82	2,931.69	1,250.00	80.49	3,959.43
307	☐	J328FH	84.73	2,931.54	1,250.00	75.98	3,588.80
308	☐	J330FH	88.63	2,931.54	1,250.00	80.10	3,762.30
309	☐	J332FH	84.74	2,931.57	1,250.00	76.53	3,697.32
310	☐	J334FH	83.47	2,931.63	1,250.00	76.52	3,947.06
311	☐	J336FH	86.26	2,932.07	1,250.00	75.08	3,160.75
312	☐	J338FH	89.56	2,931.68	1,250.00	81.31	3,834.14
313	☐	J340FH	83.66	2,932.07	1,250.00	73.20	3,195.74
314	☐	J342FH	88.39	2,932.00	1,250.00	80.44	3,863.67
315	☐	J344FH	84.96	2,932.07	1,250.00	74.45	3,223.68

Peak Day Demand with Fire Flow

		ID	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)
316	☐	J346FH	83.23	2,932.07	1,250.00	74.95	3,567.32
317	☐	J348FH	80.74	2,932.33	1,250.00	75.22	4,162.63
318	☐	J34FH	64.48	3,070.81	1,250.00	59.03	6,472.77
319	☐	J350FH	80.75	2,932.35	1,250.00	75.27	4,178.50
320	☐	J352FH	85.46	2,932.22	1,250.00	72.76	3,005.93
321	☐	J354FH	79.57	2,932.64	1,250.00	74.59	4,401.06
322	☐	J356FH	91.53	2,932.25	1,250.00	76.73	2,948.48
323	☐	J358FH	86.32	2,932.23	1,250.00	78.52	3,865.99
324	☐	J360FH	98.00	2,931.16	1,250.00	79.74	2,784.73
325	☐	J362FH	98.05	2,931.29	1,250.00	85.06	3,325.08
326	☐	J364FH	92.50	2,931.47	1,250.00	82.86	3,654.37
327	☐	J366FH	91.20	2,931.47	1,250.00	81.79	3,665.31
328	☐	J368FH	92.92	2,931.45	1,250.00	84.72	4,000.50
329	☐	J370FH	86.88	2,931.52	1,250.00	78.34	3,702.17
330	☐	J372FH	86.89	2,931.52	1,250.00	79.63	4,020.36
331	☐	J374FH	98.60	2,931.56	1,250.00	87.99	3,611.03
332	☐	J376FH	98.18	2,931.58	1,250.00	90.89	4,331.91
333	☐	J380FH	53.03	3,069.38	1,250.00	45.30	3,620.21
334	☐	J382FH	52.59	3,069.38	1,250.00	44.99	3,656.07
335	☐	J384FH	53.89	3,069.38	1,250.00	47.77	5,198.75
336	☐	J388	53.46	3,069.38	1,250.00	47.42	5,246.11
337	☐	J392	50.86	3,069.38	1,250.00	44.04	4,022.08
338	☐	J394	53.90	3,069.38	1,250.00	47.91	5,357.55
339	☐	J396	55.19	3,069.38	1,250.00	48.93	5,172.68
340	☐	J398FH	54.76	3,069.38	1,250.00	48.54	5,174.17
341	☐	J400	72.50	3,069.33	1,250.00	67.30	8,657.23
342	☐	J402FH	68.15	3,069.29	1,250.00	62.95	8,234.79
343	☐	J404FH	65.98	3,069.26	1,250.00	60.78	7,938.41
344	☐	J406FH	64.27	3,069.33	1,250.00	54.63	3,450.29
345	☐	J408	65.57	3,069.33	1,250.00	58.35	4,817.12
346	☐	J410FH	63.84	3,069.33	1,250.00	55.82	4,109.10
347	☐	J412FH	60.81	3,069.34	1,250.00	52.40	3,729.49
348	☐	J416FH	62.01	3,071.11	1,250.00	54.73	4,198.02
349	☐	J418FH	62.88	3,071.11	1,250.00	57.36	6,116.10
350	☐	J420FH	66.39	3,071.23	1,250.00	60.69	6,152.30

Peak Day Demand with Fire Flow

		ID	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)
351	☐	J422FH	61.95	3,070.98	1,250.00	57.05	7,376.36
352	☐	J424FH	61.95	3,070.97	1,250.00	56.02	5,524.52
353	☐	J426FH	62.38	3,070.97	1,250.00	56.57	5,729.05
354	☐	J42FH	64.23	3,067.25	1,250.00	52.58	3,087.85
355	☐	J434FH	62.92	3,071.22	1,250.00	55.06	3,960.82
356	☐	J440FH	63.25	3,070.97	1,250.00	58.15	7,134.18
357	☐	J442FH	62.84	3,071.04	1,250.00	57.81	7,304.57
358	☐	J444FH	60.87	3,070.49	1,250.00	55.95	7,707.70
359	☐	J44FH	64.55	3,066.98	1,250.00	52.18	2,963.18
360	☐	J450FH	65.68	3,069.59	1,250.00	60.45	7,893.73
361	☐	J452FH	66.91	3,069.43	1,250.00	61.71	8,102.57
362	☐	J456FH	97.51	2,931.05	1,250.00	64.17	2,023.86
363	☐	J458FH	96.21	2,931.05	1,250.00	64.31	2,054.49
364	☐	J46	74.01	3,066.80	1,250.00	61.87	3,421.88
365	☐	J460FH	94.48	2,931.05	1,250.00	61.80	2,004.18
366	☐	J462FH	94.49	2,931.06	1,250.00	67.64	2,226.12
367	☐	J478FH	109.95	3,069.76	1,250.00	103.99	10,409.40
368	☐	J480FH	119.15	3,070.98	1,250.00	113.42	11,347.00
369	☐	J482FH	119.74	3,072.34	1,250.00	114.43	12,207.76
370	☐	J484FH	113.90	3,073.87	1,250.00	109.20	12,769.49
371	☐	J486FH	102.25	3,075.98	1,250.00	98.79	15,121.86
372	☐	J488FH	110.95	3,076.05	1,250.00	106.25	8,945.29
373	☐	J490FH	111.85	3,076.13	1,250.00	106.57	7,915.15
374	☐	J492FH	111.02	3,076.22	1,250.00	105.55	7,637.90
375	☐	J494FH	111.85	3,076.15	1,250.00	104.23	6,007.91
376	☐	J496FH	113.37	3,076.63	1,250.00	108.33	8,268.78
377	☐	J500FH	110.09	3,077.07	1,250.00	105.27	8,197.42
378	☐	J508FH	99.71	3,077.13	1,250.00	94.77	7,395.44
379	☐	J50FH	102.50	2,931.56	1,250.00	86.92	3,034.65
380	☐	J510FH	95.86	3,077.23	1,250.00	91.07	7,354.19
381	☐	J512	88.93	3,077.23	1,250.00	82.75	5,546.87
382	☐	J514FH	90.27	3,077.32	1,250.00	85.84	7,558.18
383	☐	J516	91.14	3,077.35	1,250.00	86.85	7,845.47
384	☐	J518FH	92.05	3,077.45	1,250.00	88.45	9,598.10
385	☐	J522FH	109.66	3,077.08	1,250.00	105.28	9,083.50

Peak Day Demand with Fire Flow

		ID	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)
386	☐	J526FH	102.78	3,077.20	1,250.00	98.52	8,825.45
387	☐	J528FH	96.77	3,077.33	1,250.00	92.93	9,376.98
388	☐	J532FH	95.11	3,077.51	1,250.00	92.24	13,815.27
389	☐	J534	94.27	3,077.57	1,250.00	91.96	21,711.63
390	☐	J536	67.46	3,069.68	1,250.00	61.74	8,160.93
391	☐	J540	62.37	3,070.95	1,250.00	56.83	7,530.15
392	☐	J566FH	64.03	3,069.77	1,250.00	58.47	7,202.39
393	☐	J568FH	61.37	3,069.64	1,250.00	55.63	6,536.27
394	☐	J56FH	83.12	2,931.82	1,250.00	76.65	4,015.40
395	☐	J570FH	60.94	3,069.64	1,250.00	53.00	4,064.21
396	☐	J572	56.53	3,069.47	1,250.00	50.71	5,960.66
397	☐	J574	57.41	3,069.49	1,250.00	50.98	5,139.21
398	☐	J576	55.17	3,069.33	1,250.00	48.10	4,498.04
399	☐	J578	56.09	3,069.46	1,250.00	50.24	5,854.47
400	☐	J580FH	56.53	3,069.46	1,250.00	49.97	4,944.74
401	☐	J582	64.01	3,069.74	1,250.00	57.91	6,098.18
402	☐	J584FH	101.68	3,076.66	1,250.00	98.61	16,682.37
403	☐	J588	95.41	3,077.19	1,250.00	92.74	18,273.68
404	☐	J58FH	85.68	2,931.73	1,250.00	78.79	4,003.97
405	☐	J590FH	105.58	3,076.66	1,250.00	98.80	6,005.70
406	☐	J594FH	108.61	3,076.66	1,250.00	99.01	4,696.81
407	☐	J596FH	118.35	3,076.15	1,250.00	108.51	5,007.40
408	☐	J600FH	100.20	3,077.24	1,250.00	95.09	7,161.42
409	☐	J602	100.20	3,077.24	1,250.00	96.04	8,873.01
410	☐	J604	53.75	3,069.06	1,250.00	44.05	3,117.30
411	☐	J606FH	51.44	3,068.72	1,250.00	38.12	2,291.58
412	☐	J608	54.62	3,069.06	1,250.00	42.63	2,592.72
413	☐	J610FH	57.86	3,069.53	1,250.00	51.21	4,967.96
414	☐	J612FH	60.07	3,069.64	1,250.00	53.72	5,468.28
415	☐	J614	60.03	3,069.55	1,250.00	51.63	3,837.91
416	☐	J616	59.15	3,069.52	1,250.00	50.70	3,853.53
417	☐	J620	56.50	2,995.38	1,250.00	35.80	1,724.95
418	☐	J622FH	73.20	2,994.93	1,250.00	65.85	5,377.70
419	☐	J624FH	69.30	2,994.92	1,250.00	55.24	2,797.95
420	☐	J626FH	81.99	2,994.21	1,250.00	72.19	4,511.89

Peak Day Demand with Fire Flow

		ID	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)
421	☐	J630FH	73.63	2,994.92	1,250.00	53.92	2,270.34
422	☐	J634FH	71.03	2,994.92	1,250.00	47.05	1,954.16
423	☐	J638FH	88.30	2,993.78	1,250.00	77.93	4,533.67
424	☐	J640FH	60.46	3,069.53	1,250.00	52.64	4,189.55
425	☐	J642FH	60.91	3,069.57	1,250.00	52.82	4,047.02
426	☐	J646FH	58.72	3,069.52	1,250.00	49.64	3,471.71
427	☐	J648FH	116.61	3,068.11	1,250.00	109.08	9,120.27
428	☐	J650FH	120.26	3,067.55	1,250.00	112.00	8,635.89
429	☐	J652FH	126.89	3,066.85	1,250.00	117.44	8,071.02
430	☐	J654FH	127.84	3,067.04	1,250.00	117.43	6,737.89
431	☐	J656FH	124.91	3,067.28	1,250.00	115.59	7,493.28
432	☐	J658FH	122.79	3,067.38	1,250.00	113.39	7,267.69
433	☐	J660FH	127.08	3,067.29	1,250.00	117.22	7,053.97
434	☐	J662FH	130.92	3,067.15	1,250.00	117.16	5,070.77
435	☐	J664FH	122.83	3,067.47	1,250.00	113.51	7,271.52
436	☐	J666FH	119.51	3,067.82	1,250.00	110.49	7,245.74
437	☐	J66FH	86.01	2,931.50	1,250.00	78.57	3,955.59
438	☐	J672FH	81.66	2,935.45	1,250.00	28.57	1,366.55
439	☐	J674	59.75	3,069.37	1,250.00	53.06	5,093.78
440	☐	J676FH	58.04	3,069.37	1,250.00	50.96	4,536.40
441	☐	J678FH	58.53	3,069.36	1,250.00	50.14	3,702.13
442	☐	J680FH	59.91	3,069.36	1,250.00	51.62	3,850.72
443	☐	J682	62.01	3,069.36	1,250.00	54.27	4,356.04
444	☐	J684FH	60.20	3,069.36	1,250.00	51.94	3,897.40
445	☐	J686FH	60.82	3,069.36	1,250.00	52.22	3,763.24
446	☐	J688	62.57	3,069.36	1,250.00	54.01	3,890.56
447	☐	J68FH	81.67	2,931.47	1,250.00	69.69	2,986.63
448	☐	J690	62.55	3,069.36	1,250.00	52.91	3,446.47
449	☐	J692FH	59.48	3,069.36	1,250.00	51.49	3,981.76
450	☐	J694	63.42	3,069.36	1,250.00	55.57	4,375.48
451	☐	J696	58.24	3,069.40	1,250.00	52.25	5,866.02
452	☐	J698	60.60	3,069.38	1,250.00	53.42	4,705.20
453	☐	J700FH	57.38	3,069.38	1,250.00	47.93	3,221.30
454	☐	J702	62.26	3,069.36	1,250.00	54.37	4,263.54
455	☐	J704FH	61.96	3,069.36	1,250.00	53.43	3,874.66

Peak Day Demand with Fire Flow

		ID	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)
456	☐	J706FH	58.34	3,069.36	1,250.00	45.65	2,561.48
457	☐	J708FH	60.20	3,069.38	1,250.00	52.38	4,137.77
458	☐	J70FH	86.88	2,931.52	1,250.00	75.79	3,242.90
459	☐	J710FH	57.92	3,069.40	1,250.00	51.56	5,312.51
460	☐	J714FH	89.73	2,933.26	1,250.00	66.26	2,359.02
461	☐	J718FH	90.92	2,933.26	1,250.00	63.89	2,187.26
462	☐	J720FH	92.03	2,993.39	1,250.00	81.79	4,713.84
463	☐	J724	58.71	3,069.50	1,250.00	50.47	3,730.29
464	☐	J728	59.58	3,069.50	1,250.00	51.67	3,970.21
465	☐	J730FH	59.58	3,069.50	1,250.00	49.09	3,021.22
466	☐	J732	60.45	3,069.52	1,250.00	52.45	3,976.56
467	☐	J736	63.97	3,069.64	1,250.00	57.74	5,786.55
468	☐	J738FH	63.09	3,069.60	1,250.00	56.64	5,467.21
469	☐	J74	68.16	3,068.30	1,250.00	57.10	3,307.17
470	☐	J740FH	66.61	3,069.73	1,250.00	61.35	8,008.67
471	☐	J742FH	56.97	3,069.47	1,250.00	50.46	4,979.45
472	☐	J744	55.22	3,069.44	1,250.00	49.35	5,740.16
473	☐	J746	53.88	3,068.35	1,250.00	35.56	1,904.34
474	☐	J748	51.24	3,068.27	1,250.00	31.13	1,770.52
475	☐	J750FH	55.16	3,068.30	1,250.00	32.42	1,670.18
476	☐	J752	52.97	3,068.25	1,250.00	31.37	1,745.45
477	☐	J754	53.86	3,068.30	1,250.00	33.62	1,771.48
478	☐	J756	52.31	3,068.72	1,250.00	36.96	2,078.36
479	☐	J758	50.57	3,068.72	1,250.00	31.20	1,689.80
480	☐	J76	79.04	3,068.42	1,250.00	72.63	6,990.13
481	☐	J778	128.32	3,067.15	1,250.00	118.19	6,911.60
482	☐	J784FH	126.90	3,066.87	1,250.00	117.22	7,677.32
483	☐	J786FH	92.00	2,993.33	1,250.00	81.84	4,745.42
484	☐	J788FH	64.28	3,069.36	1,250.00	48.45	2,373.67
485	☐	J78FH	59.49	3,069.30	1,250.00	54.24	6,875.19
486	☐	J790FH	62.20	3,069.54	1,250.00	53.86	3,905.13
487	☐	J792	54.76	3,069.37	1,250.00	48.49	5,239.79
488	☐	J794	71.08	3,071.04	1,250.00	65.46	9,079.16
489	☐	J796	77.97	3,068.93	1,250.00	72.30	8,549.20
490	☐	J798	48.92	3,067.91	1,250.00	36.97	2,435.36

Peak Day Demand with Fire Flow

		ID	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)
491	☐	J800	67.06	3,067.77	1,250.00	54.90	3,107.15
492	☐	J80FH	62.41	3,069.03	1,250.00	57.20	7,645.93
493	☐	J814	100.50	3,212.95	1,250.00	100.45	113,673.48
494	☐	J816	45.80	3,068.71	1,250.00	9.33	1,020.72
495	☐	J818	49.71	3,068.71	1,250.00	28.70	1,569.08
496	☐	J820	106.17	3,205.47	1,250.00	98.93	8,714.78
497	☐	J822	105.60	3,210.23	1,250.00	101.81	11,471.18
498	☐	J824	99.91	3,211.33	1,250.00	97.82	14,039.81
499	☐	J826	96.77	3,211.04	1,250.00	93.55	10,732.08
500	☐	J828	93.26	3,211.38	1,250.00	90.16	9,748.71
501	☐	J82FH	65.70	3,068.62	1,250.00	58.86	5,326.75
502	☐	J830	93.62	3,211.29	1,250.00	89.91	8,399.48
503	☐	J832	95.44	3,211.13	1,250.00	91.73	8,584.76
504	☐	J834	88.02	3,212.33	1,250.00	86.35	13,120.27
505	☐	J836	90.51	3,211.29	1,250.00	83.73	5,006.63
506	☐	J838	90.10	3,212.48	1,250.00	89.05	18,185.05
507	☐	J840	115.20	3,210.76	1,250.00	107.45	5,348.15
508	☐	J842	117.01	3,210.76	1,250.00	106.24	4,362.85
509	☐	J844	105.41	3,211.26	1,250.00	101.33	7,853.18
510	☐	J846	105.64	3,211.25	1,250.00	100.74	6,799.67
511	☐	J848	108.30	3,211.23	1,250.00	103.12	6,649.17
512	☐	J84FH	63.53	3,068.62	1,250.00	51.91	2,950.70
513	☐	J850	108.52	3,211.22	1,250.00	103.73	7,070.75
514	☐	J852	105.14	3,211.34	1,250.00	102.85	14,042.08
515	☐	J854	102.39	3,211.34	1,250.00	99.74	10,566.45
516	☐	J856	101.02	3,211.34	1,250.00	98.43	10,617.90
517	☐	J858	62.87	3,033.54	1,250.00	58.80	3,586.73
518	☐	J86	62.48	3,069.20	1,250.00	53.04	3,394.58
519	☐	J860	63.32	3,044.19	1,250.00	55.71	3,425.89
520	☐	J862	64.53	3,048.41	1,250.00	55.24	3,494.72
521	☐	J864	69.14	3,044.19	1,250.00	48.14	1,977.34
522	☐	J866	65.95	3,054.25	1,250.00	55.05	3,694.79
523	☐	J868	57.78	3,060.17	1,250.00	46.82	3,596.84
524	☐	J870	60.08	3,059.22	1,250.00	48.29	3,331.49
525	☐	J872	67.40	3,059.09	1,250.00	55.51	3,631.65

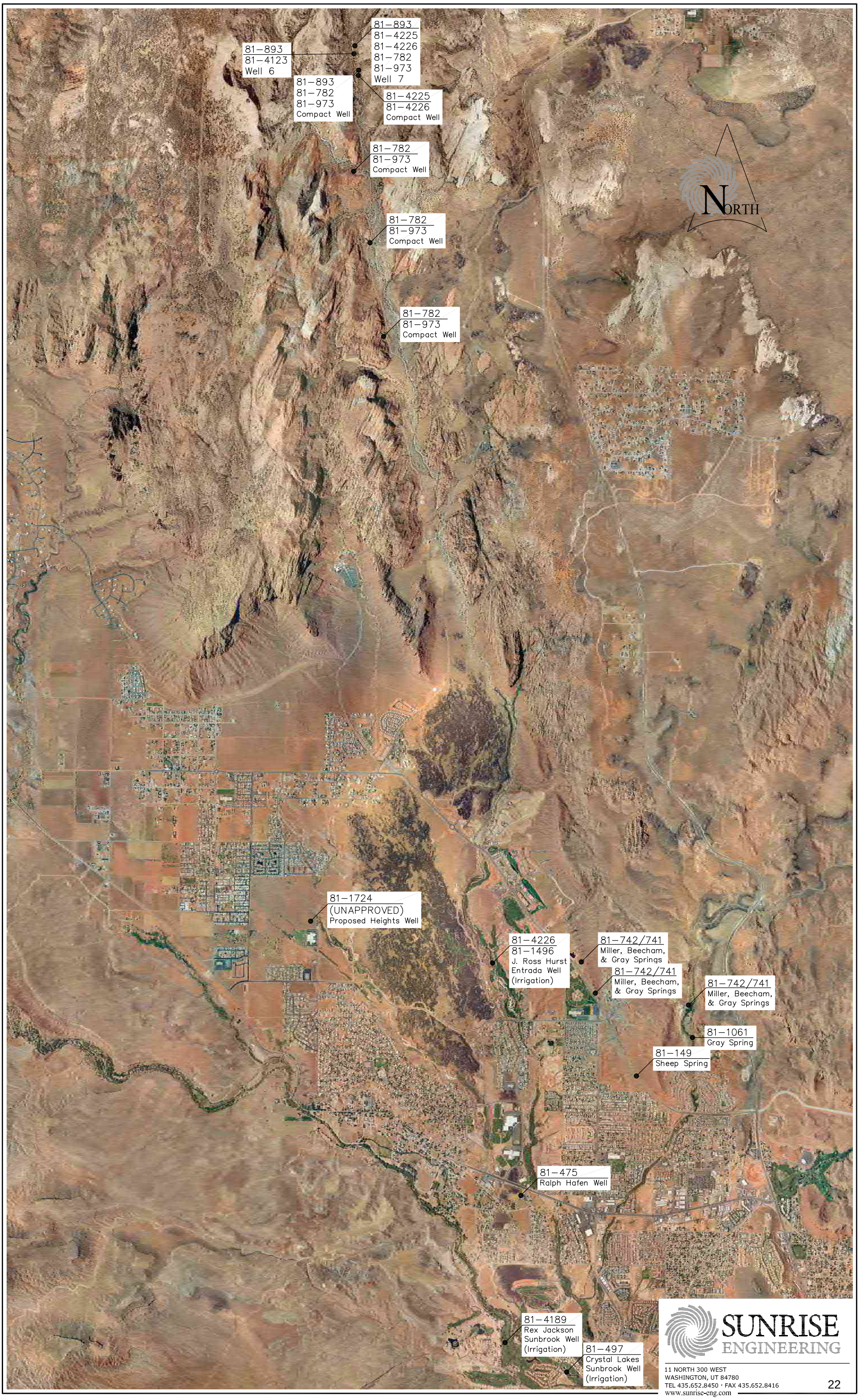
Peak Day Demand with Fire Flow

		ID	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)
526	☐	J874	59.17	3,059.09	1,250.00	45.82	2,877.56
527	☐	J876	58.65	3,059.09	1,250.00	39.14	2,103.28
528	☐	J878	60.86	3,059.09	1,250.00	37.56	1,896.17
529	☐	J88	65.83	3,067.94	1,250.00	57.77	4,388.06
530	☐	J880	66.39	3,059.09	1,250.00	46.11	2,260.41
531	☐	J882	70.37	3,059.22	1,250.00	55.81	3,095.93
532	☐	J884	75.48	3,067.76	1,250.00	57.96	2,581.87
533	☐	J886	67.62	3,067.76	1,250.00	60.09	5,430.79
534	☐	J888	69.50	3,068.52	1,250.00	62.70	6,034.98
535	☐	J890	67.49	3,068.31	1,250.00	60.69	6,076.72
536	☐	J892	73.06	3,068.52	1,250.00	62.42	3,767.36
537	☐	J894	64.41	3,068.32	1,250.00	57.86	6,207.82
538	☐	J896	66.17	3,067.35	1,250.00	58.81	5,851.61
539	☐	J898	65.62	3,067.39	1,250.00	55.95	3,988.59
540	☐	J90	63.78	3,069.20	1,250.00	57.48	5,451.01
541	☐	J900	63.68	3,067.39	1,250.00	55.61	4,822.76
542	☐	J902	65.60	3,067.93	1,250.00	58.54	6,001.23
543	☐	J904	54.22	3,067.82	1,250.00	45.33	3,654.87
544	☐	J906	54.95	3,067.85	1,250.00	46.36	3,849.17
545	☐	J908	60.81	3,067.86	1,250.00	52.42	4,343.23
546	☐	J910	56.20	3,067.86	1,250.00	44.80	2,822.94
547	☐	J912	58.08	3,067.86	1,250.00	49.04	3,820.00
548	☐	J914	54.75	3,067.85	1,250.00	45.64	3,590.65
549	☐	J916	55.07	3,067.85	1,250.00	43.57	2,734.28
550	☐	J918	45.85	3,067.82	1,250.00	33.15	2,036.17
551	☐	J920	45.39	3,067.82	1,250.00	28.11	1,601.60
552	☐	J922	50.41	3,067.82	1,250.00	37.19	2,196.43
553	☐	J924	44.86	3,067.82	1,250.00	29.78	1,739.35
554	☐	J926	53.79	3,067.82	1,250.00	42.35	2,678.97
555	☐	J928	50.37	3,067.82	1,250.00	39.42	2,593.38
556	☐	J92FH	52.80	3,069.85	1,250.00	47.60	6,047.42
557	☐	J930	50.26	3,067.82	1,250.00	37.05	2,189.45
558	☐	J932	51.76	3,067.82	1,250.00	40.93	2,706.41
559	☐	J934	53.42	3,067.82	1,250.00	32.23	1,658.07
560	☐	J936	54.13	3,067.82	1,250.00	44.58	3,363.44

		ID	Static Pressure (psi)	Static Head (ft)	Fire-Flow Demand (gpm)	Residual Pressure (psi)	Hydrant Available Flow (gpm)
561	☐	J938	66.09	3,070.83	1,250.00	59.32	5,731.62
562	☐	J940	62.71	3,070.83	1,250.00	51.80	3,125.03
563	☐	J942	70.19	3,069.00	1,250.00	64.48	7,637.58
564	☐	J944	121.83	3,210.76	1,250.00	109.42	4,104.32
565	☐	J946	99.30	3,212.54	1,250.00	98.53	25,054.83
566	☐	J948	58.20	3,080.32	1,250.00	51.41	6,753.42
567	☐	J94FH	51.79	3,069.51	1,250.00	46.45	5,880.22
568	☐	J950	61.16	3,079.04	1,250.00	54.13	6,724.93
569	☐	J952	61.08	3,080.72	1,250.00	52.66	4,512.55
570	☐	J954	74.18	3,018.19	1,250.00	63.74	3,875.93
571	☐	J960	74.07	3,021.94	1,250.00	64.42	3,537.15
572	☐	J962	73.25	3,024.06	1,250.00	64.14	3,362.43
573	☐	J964	71.88	3,026.88	1,250.00	65.07	3,496.53
574	☐	J966	72.68	3,028.74	1,250.00	69.66	4,179.28
575	☐	J968	67.12	3,069.90	1,250.00	61.82	8,076.51
576	☐	J96FH	55.80	3,069.77	1,250.00	49.38	4,566.79
577	☐	J970	63.14	3,069.72	1,250.00	56.37	5,186.79
578	☐	J972	66.32	3,070.07	1,250.00	60.99	7,980.61
579	☐	J974	65.38	3,069.89	1,250.00	60.01	7,708.01
580	☐	J976	62.27	3,069.72	1,250.00	52.66	3,404.90
581	☐	J978	59.54	3,071.41	1,250.00	53.81	6,735.23
582	☐	J980	59.51	3,071.34	1,250.00	53.83	6,895.69
583	☐	J982	62.04	3,071.18	1,250.00	56.42	7,307.87
584	☐	J984	57.89	3,077.60	1,250.00	51.12	6,518.76
585	☐	J986	65.41	3,073.96	1,250.00	59.00	7,115.55
586	☐	J988	65.56	3,072.31	1,250.00	59.59	7,168.83
587	☐	J98FH	58.14	3,070.17	1,250.00	51.39	4,428.65
588	☐	J990	67.35	3,071.44	1,250.00	61.66	7,518.53
589	☐	J992	64.15	3,071.05	1,250.00	58.61	7,566.67
590	☐	J994	58.37	3,080.72	1,250.00	51.62	6,839.72
591	☐	J996	69.14	3,069.56	1,250.00	63.18	6,508.39
592	☐	J998	69.93	3,069.39	1,250.00	64.19	6,989.38

APPENDIX C

WATER RIGHTS INVENTORY



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APPENDIX D

OPINION OF PROBABLE COST

S U N R I S E E N G I N E E R I N G I N C.

11 North 300 West, Washington, Utah 84780

Tel: (435) 652-8450

Engineer's Opinion of Probable Cost

SANTA CLARA CITY WATER FACILITY PLAN PROJECTS

NW/MG 11/15/2022

NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
Water Right Recommendations							
32	Change Application	4	EA	$ 2,000	$ 8,000	0%	$ -
33	Title Change	6	EA	$ 250	$ 1,500	0%	$ -
34	Proof of Beneficial Use form	2	EA	$ 250	$ 500	0%	$ -
33	Flow Data Correction	1	EA	$ -	$ -	0%	$ -
35	Legal advice regarding Agreements	1	LS	$ 5,000	$ 5,000	0%	$ -
			SUBTOTAL		$ 15,000	0%	$ -
			CONTINGENCY	20%	$ 3,000	0%	$ -
			TOTAL PROJECT COST		**$ 18,000**	**0%**	**$ -**

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SANTA CLARA CITY WATER FACILITY PLAN PROJECTS

NW/MG 11/15/2022

NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
North Hamblin Pkwy to North Town Rd 12" Line							
1	Mobilization	1	LS	$ 8,200	$ 8,200	100%	$ 8,200
2	Traffic Control	1	LS	$ 5,000	$ 5,000	100%	$ 5,000
3	Materials Sampling & Testing	1	LS	$ 5,000	$ 5,000	100%	$ 5,000
4	12" PVC Line, Fittings, Bedding, Backfill & Tracer Wire (C900, Class 150, SDR 18: or C909 PC150)	1,000	LN FT.	$ 100	$ 100,000	100%	$ 100,000
5	12" Gate Valve Assembly	4	Each	$ 5,000	$ 20,000	100%	$ 20,000
6	2.5" Bituminous Patch w/ Base	8,800	SF	$ 5.00	$ 44,000	100%	$ 44,000
			SUBTOTAL		$ 182,200	100%	$ 182,200
			CONTINGENCY	20%	$ 37,000	100%	$ 37,000.00
			CONSTRUCTION TOTAL		$ 219,200		$ 219,200
	INCIDENTALS						
7	Administration		LS	1%	$ 2,200	100%	$ 2,200
8	Engineering Design		LS	12.5%	$ 27,400	100%	$ 27,400
9	Engineering Construction Services		HOURLY	8%	$ 17,600	100%	$ 17,600
10	Legal & Fiscal/ROW	1	EST.		$ 20,000	100%	$ 20,000
11	Miscellaneous	1	EST.		$ 5,000	100%	$ 5,000
12	GIS Mapping	1	EST.		$ 1,000	100%	$ 1,000
							$ -
			TOTAL PROJECT COST		**$ 292,400**	**100%**	**$292,400**

S U N R I S E E N G I N E E R I N G I N C.

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Engineer's Opinion of Probable Cost

SANTA CLARA CITY WATER FACILITY PLAN PROJECTS

NW/MG 11/15/2022

NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
10" to 12" PRV Enlargement							
13	Mobilization	1	LS	$ 6,250	$ 6,250	100%	$ 6,250
14	Traffic Control	1	LS	$ 5,000	$ 5,000	100%	$ 5,000
15	Materials Sampling & Testing	1	LS	$ 5,000	$ 5,000	100%	$ 5,000
16	12" PVC Line, Fittings, Bedding, Backfill & Tracer Wire (C900, Class 150, SDR 18: or C909 PC150)	100	LN FT.	$ 100.00	$ 10,000	100%	$ 10,000
17	12" PRV	1	EA	$ 15,000.00	$ 15,000	100%	$ 15,000
18	PRV Station w/ Appurtenances	1	EA	$ 100,000	$ 100,000	100%	$ 100,000
			SUBTOTAL		$ 141,250	100%	$ 141,250
			CONTINGENCY	20%	$ 29,000	100%	$ 29,000
			CONSTRUCTION TOTAL		$ 170,250		$ 170,250
	INCIDENTALS						
17	Administration		LS	1%	$ 1,800	100%	$ 1,800
19	Engineering Design		LS	12.5%	$ 21,300	100%	$ 21,300
20	Engineering Construction Services		HOURLY	8%	$ 13,700	100%	$ 13,700
21	GIS Mapping	0	EST.		$ 1,500	100%	$ 1,500
							$ -
			TOTAL PROJECT COST		**$ 208,550**	**100%**	**$208,550**

S U N R I S E E N G I N E E R I N G I N C.

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SANTA CLARA CITY WATER FACILITY PLAN PROJECTS

NW/MG 11/15/2022

NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
12" Line Well Connection to Snow Canyon Tank							
22	Mobilization	1	LS	$ 137,500	$ 137,500	100%	$ 137,500
23	Traffic Control	1	LS	$ 5,000	$ 5,000	100%	$ 5,000
24	Materials Sampling & Testing	1	LS	$ 5,000	$ 5,000	100%	$ 5,000
23	12" PVC Line, Fittings, Bedding, Backfill & Tracer Wire (C900, Class 150, SDR 18: or C909 PC150)	26,000	LF	$ 100	$ 2,600,000	100%	$ 2,600,000
25	Misc fittings,pipe, and valve assembly	1	LS	$ 150,000	$ 150,000	100%	$ 150,000
			SUBTOTAL		$ 2,897,500	100%	$ 2,897,500
			CONTINGENCY	20%	$ 580,000	100%	$ 580,000
			CONSTRUCTION TOTAL		$ 3,477,500		$ 3,477,500
	INCIDENTALS						
26	Administration		LS	1%	$ 34,800	100%	$ 34,800
27	Engineering Design		LS	9.0%	$ 313,000	100%	$ 313,000
28	Engineering Construction Services		HOURLY	8%	$ 278,200	100%	$ 278,200
29	Legal & Fiscal/Environmental	0	EST.		$ 50,000	100%	$ 50,000
30	Miscellaneous	0	EST.		$ 15,000	100%	$ 15,000
31	GIS Mapping	0	EST.		$ 1,500	100%	$ 1,500
							$ -
			TOTAL PROJECT COST		**$ 4,170,000**		**$ 4,170,000**

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Engineer's Opinion of Probable Cost

SANTA CLARA CITY WATER FACILITY PLAN PROJECTS

NW/MG 11/15/2022

NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
New Well							
45	Mobilization	1	LS	$ 68,350	$ 68,350	100%	$ 68,350
46	Traffic Control	1	LS	$ 5,000	$ 5,000	100%	$ 5,000
47	Materials Sampling & Testing	1	LS	$ 5,000	$ 5,000	100%	$ 5,000
46	Conductor Casing	1	LS	$ 40,000	$ 40,000	100%	$ 40,000
48	20" Diameter Well Drilling	1,200	LF	$ 200	$ 240,000	100%	$ 240,000
49	GeoPhysical Logging	1	LS	$ 5,000	$ 5,000	100%	$ 5,000
50	18" Diameter Well Casing	1,200	LF	$ 250	$ 300,000	100%	$ 300,000
51	18" Diameter Stainless Steel Screen	1,200	LF	$ 200	$ 240,000	100%	$ 240,000
52	Misc pipes, fittings, etc	1	LS	$ 50,000	$ 50,000	100%	$ 50,000
53	Conductor Casing Removal	1	LS	$ 10,000	$ 10,000	100%	$ 10,000
54	Pea Gravel (Disinefected)	600	LF	$ 15	$ 9,000	100%	$ 9,000
55	Disenfection	1	LS	$ 5,000	$ 5,000	100%	$ 5,000
56	Well Drillers Report	1	LS	$ 3,000	$ 3,000	100%	$ 3,000
57	Well Equipping	1	LS	$ 175,000	$ 175,000	100%	$ 175,000
58	Well House Building	1	LS	$ 175,000	$ 175,000	100%	$ 175,000
59	Well Site Electrical	1	LS	$ 100,000	$ 100,000	100%	$ 100,000
60	Metering Manhole	1	EA	$ 15,000.00	$ 15,000	100%	$ 15,000
			SUBTOTAL		$ 1,445,350	100%	$ 1,445,350
			CONTINGENCY	20%	$ 290,000	100%	$ 290,000
			CONSTRUCTION TOTAL		$ 1,735,350		$ 1,735,350
	INCIDENTALS						
61	Administration		LS	1%	$ 17,400	100%	$ 17,400
62	Engineering Design		LS	9.0%	$ 156,200	100%	$ 156,200
63	Engineering Construction Services		HOURLY	8%	$ 138,900	100%	$ 138,900
64	Legal & Fiscal/Environmental	0	EST.		$ 50,000	100%	$ 50,000
65	Miscellaneous	0	EST.		$ 15,000	100%	$ 15,000
66	GIS Mapping	0	EST.		$ 1,500	100%	$ 1,500
							$ -
			TOTAL PROJECT COST		**$ 2,114,350**		**$ 2,114,350**

S U N R I S E E N G I N E E R I N G I N C.

11 North 300 West, Washington, Utah 84780

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Engineer's Opinion of Probable Cost

SANTA CLARA CITY WATER FACILITY PLAN PROJECTS

NW/MG 11/15/2022

NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
Irrigation: Riesling Avenue 8" Line							
1	Mobilization	1	LS	$ 4,440	$ 4,440	100%	$ 4,440
2	8" PVC Irrigation Line (DR-18), Bedding, Backfill, Tracer Wire, Etc.	1,200	LF	$ 60	$ 72,000	100%	$ 72,000
3	Misc Connections and Tie Ins	1	LS	$ 2,400	$ 2,400	100%	$ 2,400
4	2.5" Bituminous Surface Coarse	3,600	SF	$ 3.00	$ 10,800	100%	$ 10,800
5	6" Untreated Base Course	3,600	SF	$ 1.00	$ 3,600	100%	$ 3,600
6			**SUBTOTAL**		$ 93,240	100%	$ 93,240
7			**CONTINGENCY**	20%	$ 19,000	100%	$ 19,000.00
8			**CONSTRUCTION TOTAL**		$ 112,240		$ 112,240
9	INCIDENTALS						
10	Administration		LS	1%	$ 1,200	100%	$ 1,200
11	Engineering Design		LS	11.3%	$ 12,700	100%	$ 12,700
12	Engineering Construction Services		HOURLY	8%	$ 9,000	100%	$ 9,000
13	GIS Mapping		EST.		$ 1,000	100%	$ 1,000
						100%	
			TOTAL PROJECT COST		**$ 136,140**	**100%**	**$ 136,140**

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Engineer's Opinion of Probable Cost

SANTA CLARA CITY WATER FACILITY PLAN PROJECTS

NW/MG 11/15/2022

NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
Irrigation: Crestview Drive 8" Line							
1	Mobilization	1	LS	$ 16,430	$ 16,430	100%	$ 16,430
2	8" PVC Irrigation Line (DR-18), Bedding, Backfill, Tracer Wire, Etc.	5,300	LF	$ 60.00	$ 318,000	100%	$ 318,000
3	Misc Connections and Tie Ins	1	LS	$ 10,600.00	$ 10,600	100%	$ 10,600
4	2.5" Bituminous Surface Coarse	15,900	SF	$ 3.00	$ 47,700	100%	$ 47,700
5	6" Untreated Base Course	15,900	SF	$ 1.00	$ 15,900	100%	$ 15,900
			SUBTOTAL		$ 345,030	100%	$345,030
			CONTINGENCY	20%	$ 70,000	100%	$ 70,000.00
			CONSTRUCTION TOTAL		$ 415,030		$ 415,030
	INCIDENTALS						
6	Administration		LS	1%	$ 4,200	100%	$ 4,200
14	Engineering Design		LS	12.5%	$ 51,900	100%	$ 51,900
15	Engineering Construction Services		HOURLY	8%	$ 33,300	100%	$ 33,300
16	Legal & Fiscal/Interim Financing	0	EST.			100%	$ -
17	Miscellaneous	0	EST.			100%	$ -
18	GIS Mapping	0	EST.		$ 800	100%	$ 800
						100%	
			TOTAL PROJECT COST		**$ 505,230**	**100%**	**$ 505,230**

S U N R I S E E N G I N E E R I N G I N C.

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Engineer's Opinion of Probable Cost

SANTA CLARA CITY WATER FACILITY PLAN PROJECTS

NW/MG 11/15/2022

NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
Irrigation: Villa Bonita 8" Line							
19	Mobilization	1	LS	$ 3,300	$ 3,300	100%	$ 3,300
20	8" PVC Irrigation Line (DR-18), Bedding, Backfill, Tracer Wire, Etc.	750	LF	$ 60	$ 45,000	100%	$ 45,000
21	Misc Connections and Tie Ins	1	LS	$ 1,500	$ 12,000	100%	$ 12,000
22	2.5" Bituminous Surface Coarse	2,250	SF	$ 3.00	$ 6,750	100%	$ 6,750
23	6" Untreated Base Course	2,250	SF	$ 1.00	$ 2,250	100%	$ 2,250
			SUBTOTAL		$ 69,300	100%	$ 69,300
			CONTINGENCY	20%	$ 14,000	100%	$ 14,000.00
			CONSTRUCTION TOTAL		$ 83,300		$ 83,300
	INCIDENTALS						$ -
24	Administration		LS	1%	$ 900	100%	$ 900
25	Engineering Design		LS	9.5%	$ 8,000	100%	$ 8,000
26	Engineering Construction Services		HOURLY	8%	$ 6,700	100%	$ 6,700
27	GIS Mapping	0	EST.		$ 1,000	100%	$ 1,000
						100%	
			TOTAL PROJECT COST		**$ 99,900**	**100%**	**$ 99,900**

S U N R I S E E N G I N E E R I N G I N C.

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Engineer's Opinion of Probable Cost

SANTA CLARA CITY WATER FACILITY PLAN PROJECTS

NW/MG 11/15/2022

NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
Irrigation: North Town Road 8" Line							
28	Mobilization	1	LS	$ 18,075	$ 18,075	100%	$ 18,075
29	8" PVC Irrigation Line (DR-18), Bedding, Backfill, Tracer Wire, Etc.	4,885	LF	$ 60	$ 293,100	100%	$ 293,100
30	Misc Connections and Tie Ins	1	LS	$ 9,770	$ 9,770	100%	$ 9,770
31	2.5" Bituminous Surface Coarse	14,655	SF	$ 3.00	$ 43,965	100%	$ 43,965
32	6" Untreated Base Course	14,655	SF	$ 1.00	$ 14,655	100%	$ 14,655
			SUBTOTAL		$ 379,565	100%	$ 379,565
			CONTINGENCY	20%	$ 76,000	100%	$ 76,000.00
			CONSTRUCTION TOTAL		$ 455,565		$ 455,565
	INCIDENTALS						
33	Administration		LS	1%	$ 4,600	100%	$ 4,600
34	Engineering Design		LS	12.5%	$ 57,000	100%	$ 57,000
35	Engineering Construction Services		HOURLY	8%	$ 36,500	100%	$ 36,500
36	Legal & Fiscal/ROW	0	EST.		$ 20,000	100%	$ 20,000
37	Miscellaneous	0	EST.		$ 5,000	100%	$ 5,000
38	GIS Mapping	0	EST.		$ 1,000	100%	$ 1,000
							$ -
			TOTAL PROJECT COST		**$ 579,665**	**100%**	**$ 579,665**

S U N R I S E E N G I N E E R I N G I N C.

11 North 300 West, Washington, Utah 84780

Tel: (435) 652-8450

Engineer's Opinion of Probable Cost

SANTA CLARA CITY WATER FACILITY PLAN PROJECTS

NW/MG 11/15/2022

NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
Irrigation: Sycamore Drive 8" Line							
39	Mobilization	1	LS	$ 4,070	$ 4,070	100%	$ 4,070
40	8" PVC Irrigation Line (DR-18), Bedding, Backfill, Tracer Wire, Etc.	1,100	LF	$ 60	$ 66,000	100%	$ 66,000
41	Misc Connections and Tie Ins	1	LS	$ 2,200	$ 2,200	100%	$ 2,200
42	2.5" Bituminous Surface Coarse	3,300	SF	$ 3.00	$ 9,900	100%	$ 9,900
43	6" Untreated Base Course	3,300	SF	$ 1.00	$ 3,300	100%	$ 3,300
			SUBTOTAL		$ 85,470	100%	$ 85,470
			CONTINGENCY	20%	$ 18,000	100%	$ 18,000.00
			CONSTRUCTION TOTAL		$ 103,470		$ 103,470
	INCIDENTALS						
44	Administration		LS	1%	$ 1,100	100%	$ 1,100
45	Engineering Design		LS	9.7%	$ 10,100	100%	$ 10,100
46	Engineering Construction Services		HOURLY	8%	$ 8,300	100%	$ 8,300
47	GIS Mapping	0	EST.		$ 1,500	100%	$ 1,500
							$ -
			TOTAL PROJECT COST		**$ 124,470**	**100%**	**$ 124,470**

S U N R I S E E N G I N E E R I N G I N C.

11 North 300 West, Washington, Utah 84780

Tel: (435) 652-8450

Engineer's Opinion of Probable Cost

SANTA CLARA CITY WATER FACILITY PLAN PROJECTS

NW/MG 11/15/2022

NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
Irrigation: Claude Drive 8" Line							
48	Mobilization	1	LS	$ 4,070	$ 4,070	100%	$ 4,070
49	8" PVC Irrigation Line (DR-18), Bedding, Backfill, Tracer Wire, Etc.	1,100	LF	$ 60	$ 66,000	100%	$ 66,000
50	Misc Connections and Tie Ins	1	LS	$ 2,200	$ 2,200	100%	$ 2,200
51	2.5" Bituminous Surface Coarse	3,300	SF	$ 3.00	$ 9,900	100%	$ 9,900
52	6" Untreated Base Course	3,300	SF	$ 1.00	$ 3,300	100%	$ 3,300
			SUBTOTAL		$ 85,470	100%	$ 85,470
			CONTINGENCY	20%	$ 18,000	100%	$ 18,000.00
			CONSTRUCTION TOTAL		$ 103,470		$ 103,470
	INCIDENTALS						
53	Administration		LS	1%	$ 1,100	100%	$ 1,100
54	Engineering Design		LS	9.7%	$ 10,100	100%	$ 10,100
55	Engineering Construction Services		HOURLY	8%	$ 8,300	100%	$ 8,300
56	GIS Mapping	0	EST.		$ 1,500	100%	$ 1,500
							$ -
			TOTAL PROJECT COST		**$ 124,470**	**100%**	**$ 124,470**

S U N R I S E E N G I N E E R I N G I N C.

11 North 300 West, Washington, Utah 84780

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Engineer's Opinion of Probable Cost

SANTA CLARA CITY WATER FACILITY PLAN PROJECTS

NW/MG 5/10/2023

NO.	DESCRIPTION	Est Quantity	Units	Unit Price	TOTAL COST	I.F. Eligible	Impact Fee Eligible Cost
Irrigation:Additional Water Share Purchase							
57	Water Share (4ac-ft)	20	EA	$ 15,000	$ 300,000	100%	$ 300,000
			SUBTOTAL		$ 300,000	100%	$ 300,000
			CONTINGENCY	20%	$ 60,000	100%	$ 60,000.00
			CONSTRUCTION TOTAL		$ 360,000		$ 360,000
	INCIDENTALS						
58	Administration/ Legal Services		LS	1%	$ 3,600	100%	$ 3,600
							$ -
			TOTAL PROJECT COST		**$ 363,600**	**100%**	**$ 363,600**

APPENDIX E

PROJECTED CASH FLOW

CASHFLOW PROJECTIONS

CULINARY WATER MASTER PLAN
CITY OF SANTA CLARA

			Actual	Actual	Budget	Budget											
5	**Fiscal Year Beginning July**	**0**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
6		**0**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**
7																	
8	Average Rate ERU	$0.00	$44.47	$46.71	$52.07	$49.68	$51.61	$51.61	$52.15	$52.80	$53.46	$54.13	$54.81	$55.49	$56.19	$56.89	$57.60
9	Connection Fee	$0	$172	$631	$215	$215	$221	$228	$235	$242	$249	$257	$264	$272	$281	$289	$298
10	Impact fee	$1,973	$1,973	$1,973	$1,973	$1,973	$ 3,057	$3,057	$3,057	$3,057	$3,057	$3,057	$3,057	$3,057	$3,057	$3,057	$3,057
11	WCWCD Surcharge Rate/ERU	$1.75	$1.75	$1.75	$1.75	$1.75	$1.75	$1.75	$1.75	$1.75	$1.75	$1.75	$1.75	$1.75	$1.75	$1.75	$1.75
1	**System Users:**																
2	Total Existing ERU's	2,414	3,068	3,216	3,252	3,424	3,629	3,775	3,926	4,083	4,246	4,416	4,592	4,776	4,967	5,166	5,372
3	New ERU's:	654	148	36	172	205	145	151	157	163	170	177	184	191	199	207	215
4																	
5	**REVENUES:**																
6	User Fees	0	1,637,198	1,802,728	2,031,985	2,041,250	2,292,740	2,384,450	2,505,775	2,638,581	2,778,426	2,925,682	3,080,743	3,244,023	3,415,956	3,597,002	3,787,643
7	Other Operating Revenues	0	139,998	84,942	158,000	53,500	55,105	56,758	58,461	60,215	62,021	63,882	65,798	67,772	69,805	71,900	74,057
8	Connection Fees	0	25,484	22,714	44,390	22,160	32,110	34,442	36,885	39,443	42,371	45,440	48,654	52,020	55,825	59,811	63,986
9	Impact Fees	1,290,342	227,663	191,619	346,860	167,840	443,808	461,560	480,023	499,224	519,192	539,960	561,559	584,021	607,382	631,677	656,944
10	Interest Income	0	17,491	13,434	10,000	7,500	6,576	23,339	42,356	35,963	22,723	9,826	10,433	10,499	18,622	6,839	11,556
11	Gain on Disposal	0	0	-6,026	32,000	0	0	0	0	0	0	0	0	0	0	0	0
12	WCWCD Surcharge	57,561															
	Estimated Irrigation User Fee																
13	***TOTAL REVENUE:***	**$1,347,903**	**$2,047,834**	**$2,109,411**	**$2,623,235**	**$2,292,250**	**$2,830,339**	**$2,960,550**	**$3,123,499**	**$3,273,425**	**$3,424,734**	**$3,584,790**	**$3,767,187**	**$3,958,335**	**$4,167,590**	**$4,367,228**	**$4,594,186**
14																	
15	**EXPENSES:** (Inc. O&M & Debt Serv.)	4.50%		3.00%		6.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
16	Salaries, Wages, & Benefits (100's)	0	579,020	564,331	566,416	569,740	598,227	628,138	659,545	692,523	727,149	763,506	801,681	841,765	883,854	928,046	974,449
17	Materials & Supplies (200's)	0	291,295	331,395	404,650	406,410	418,602	431,160	444,095	457,418	471,141	485,275	499,833	514,828	530,273	546,181	562,566
18	Professional & Technical Services (300's)	0	33,184	32,210	43,500	47,200	48,616	50,074	51,577	53,124	54,718	56,359	58,050	59,792	61,585	63,433	65,336
19	Special Dept. Materials & Supplies (400's)	0	68,410	42,571	139,500	64,500	66,435	68,428	70,481	72,595	74,773	77,016	79,327	81,707	84,158	86,683	89,283
20	Other Charges (500's)	0	573,277	499,653	501,000	26,000	26,780	27,583	28,411	29,263	30,141	31,045	31,977	32,936	33,924	34,942	35,990
21	Capital Expenses (700's)	0	3,213	11,892	898,500	163,000	167,890	172,927	178,115	183,458	188,962	194,631	200,469	206,484	212,678	219,058	225,630
22	Others (900's)	0	144,575	183,356	206,521	602,478	620,552	639,169	658,344	678,094	698,437	719,390	740,972	763,201	786,097	809,680	833,970
	Irrigation System Expenses								50,000	51,500	53,045	54,636	56,275	57,964	59,703	61,494	63,339
23	***Sub-Total Operation & Maintainance***	**$0**	**$1,692,973**	**$1,665,408**	**$2,760,087**	**$1,879,328**	**$1,947,103**	**$2,017,480**	**$2,140,567**	**$2,217,975**	**$2,298,365**	**$2,381,859**	**$2,468,585**	**$2,558,676**	**$2,652,272**	**$2,749,517**	**$2,850,563**
24																	
25	**EXISTING DEBT SERVICE (800's)**																
26	Debt Payment to Water District	0	54,081	54,310	63,600	63,600	63,600	63,600	63,600	63,600	63,600	63,600	63,600	63,600	63,600	63,600	63,600
27	All other Debt	0	50,941	46,826	381,834	285,722	285,722	285,722	285,722	285,722	285,722	285,722	285,722	285,722	285,722	285,722	285,722
28	***Sub-Total Existing Debt Service***	**$0**	**$105,022**	**$101,136**	**$445,434**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**
29																	
30	**NEW DEBT SERVICE**																
31	Division of Water Resources	0					0	0	0	0	0	0	0	0	0	0	0
32	Revenue Bond Reserves 10%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	***Sub-Total New Debt Service***	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
34	***Total Debt Service***	**$0**	**$105,022**	**$101,136**	**$445,434**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**
35	**PROPOSED PROJECT EXPENSES**																
	Culinary: Water Right Recommendations									**18,000**							
	Culinary: North Hamblin Pkwy to North Town Rd 12" Line								**292,400**								
	Culinary: 10" to 12" PRV Enlargement								**208,550**								
	Culinary: 12" Line Well Connection to Snow Canyon Tank									**$595,714**	**$595,714**	**$595,714**	**$595,714**	**$595,714**	**$595,714**	**$595,714**	
	Culinary: New Well															**$352,392**	**$352,392**
	Irrigation: Riesling Avenue 8" Line							**$**	**136,140**								
	Irrigation: Crestview Drive 8" Line									**$252,615**	**$252,615**						
	Irrigation: Villa Bonita 8" Line												**$99,900**				
	Irrigation: North Town Road 8" Line														**$579,665**		
	Irrigation: Sycamore Drive 8" Line																**$124,470**
	Irrigation: Claude Drive 8" Line																**$124,470**
	Irrigation:Additional Water Share Purchase										**$72,720**	**$72,720**	**$72,720**	**$72,720**	**$72,720**		
36	Renewal and Replacement Fund		0	0	645,886	0	114,821	118,340	156,349	170,781	178,437	169,981	179,312	178,822	212,485	202,347	190,061
37	***TOTAL EXPENSES:***		**$1,797,995**	**$1,766,544**	**$3,851,407**	**$2,228,650**	**$2,411,246**	**$2,485,142**	**$3,283,328**	**$3,604,408**	**$3,747,173**	**$3,569,596**	**$3,765,553**	**$3,755,254**	**$4,462,177**	**$4,249,292**	**$3,991,278**
38																	
39	***Net Cashflow***		**$249,839**	**$342,867**	**($1,228,172)**	**$63,600**	**$419,094**	**$475,408**	**($159,829)**	**($330,983)**	**($322,439)**	**$15,193**	**$1,634**	**$203,081**	**($294,587)**	**$117,936**	**$602,908**
40	Project Self Participation																
41																	
42	**CASH ON HAND**																
43	*Fund Balance	736,259	986,098	1,328,965	100,793	164,393	583,487	1,058,894	899,065	568,082	245,643	260,836	262,471	465,551	170,964	288,900	891,807
44	Renewal and Replacement Account Balance:	0	0	0	645,886	645,886	760,707	879,047	1,035,396	1,206,178	1,384,614	1,554,595	1,733,907	1,912,729	2,125,214	2,327,561	2,517,622
45	***Total***	**$736,259**	**$986,098**	**$1,328,965**	**$746,679**	**$810,279**	**$1,344,194**	**$1,937,942**	**$1,934,461**	**$1,774,260**	**$1,630,257**	**$1,815,432**	**$1,996,378**	**$2,378,280**	**$2,296,178**	**$2,616,461**	**$3,409,429**
46	**Fund Balance is obtained by adding the previous year's*																
47	*balance to the net cash flow, minus any self funded portion*																
48	*of future projects.*																

CASHFLOW PROJECTIONS

CULINARY WATER MASTER PLAN
CITY OF SANTA CLARA

4										
5	**Fiscal Year Beginning July**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**
6		**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**
7										
8	Average Rate ERU	$59.05	$59.79	$60.53	$61.29	$62.06	$62.83	$63.62	$64.41	$65.22
9	Connection Fee	$316	$325	$335	$345	$355	$366	$377	$388	$400
10	Impact fee	$3,057	$3,057	$3,057	$3,057	$3,057	$3,057	$3,057	$3,057	$3,057
11	WCWCD Surcharge Rate/ERU	$1.75	$1.75	$1.75	$1.75	$1.75	$1.75	$1.75	$1.75	$1.75
1	**System Users:**									
2	Total Existing ERU's	5,811	6,043	6,285	6,536	6,798	7,070	7,353	7,647	7,953
3	New ERU's:	232	242	251	261	272	283	294	306	318
4										
5	**REVENUES:**									
6	User Fees	4,199,772	4,422,360	4,656,745	4,903,553	5,163,441	5,437,103	5,725,270	6,028,709	6,348,231
7	Other Operating Revenues	78,567	80,924	83,351	85,852	88,427	91,080	93,813	96,627	96,627
8	Connection Fees	73,250	78,700	84,076	90,048	96,659	103,585	110,839	118,824	127,188
9	Impact Fees	710,551	738,973	768,532	799,273	831,244	864,494	899,073	935,036	972,438
10	Interest Income	76,143	123,485	178,309	241,245	327,791	424,488	532,148	651,638	783,896
11	Gain on Disposal	0	0	0	0	0	0	0	0	0
12	WCWCD Surcharge									
	Estimated Irrigation User Fee									
13	***TOTAL REVENUE:***	**$5,138,283**	**$5,444,442**	**$5,771,013**	**$6,119,970**	**$6,507,562**	**$6,920,750**	**$7,361,143**	**$7,830,834**	**$8,328,380**
14										
15	**EXPENSES:** (Inc. O&M & Debt Serv.)	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
16	Salaries, Wages, & Benefits (100's)	1,074,330	1,128,046	1,184,449	1,243,671	1,305,855	1,371,147	1,439,705	1,511,690	1,587,274
17	Materials & Supplies (200's)	596,827	614,732	633,174	652,169	671,734	691,886	712,642	734,022	756,042
18	Professional & Technical Services (300's)	69,315	71,394	73,536	75,742	78,014	80,355	82,765	85,248	87,806
19	Special Dept. Materials & Supplies (400's)	94,720	97,562	100,489	103,504	106,609	109,807	113,101	116,494	119,989
20	Other Charges (500's)	38,182	39,327	40,507	41,722	42,974	44,263	45,591	46,959	48,368
21	Capital Expenses (700's)	239,371	246,552	253,949	261,567	269,414	277,497	285,821	294,396	303,228
22	Others (900's)	884,759	911,302	938,641	966,800	995,804	1,025,678	1,056,449	1,088,142	1,120,787
	Irrigation System Expenses	67,196	69,212	71,288	73,427	75,629	77,898	80,235	82,642	85,122
23	***Sub-Total Operation & Maintainance***	**$3,064,700**	**$3,178,127**	**$3,296,032**	**$3,418,602**	**$3,546,033**	**$3,678,532**	**$3,816,310**	**$3,959,594**	**$4,108,615**
24										
25	**EXISTING DEBT SERVICE (800's)**									
26	Debt Payment to Water District	63,600	63,600	63,600	63,600	63,600	63,600	63,600	63,600	63,600
27	All other Debt	285,722	285,722	285,722	285,722	285,722	285,722	285,722	285,722	285,722
28	***Sub-Total Existing Debt Service***	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**
29										
30	**NEW DEBT SERVICE**									
31	Division of Water Resources	0	0	0	0	0	0	0	0	0
32	Revenue Bond Reserves 10%	0	0	0	0	0	0	0	0	0
33	***Sub-Total New Debt Service***	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
34	***Total Debt Service***	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**	**$349,322**
35	**PROPOSED PROJECT EXPENSES**									
	Culinary: Water Right Recommendations									
	Culinary: North Hamblin Pkwy to North Town Rd 12" Line									
	Culinary: 10" to 12" PRV Enlargement									
	Culinary: 12" Line Well Connection to Snow Canyon Tank									
	Culinary: New Well	**$352,392**	**$352,392**	**$352,392**						
	Irrigation: Riesling Avenue 8" Line				**$ -**					
	Irrigation: Crestview Drive 8" Line									
	Irrigation: Villa Bonita 8" Line									
	Irrigation: North Town Road 8" Line									
	Irrigation: Sycamore Drive 8" Line									
	Irrigation: Claude Drive 8" Line									
	Irrigation:Additional Water Share Purchase									
36	Renewal and Replacement Fund	188,321	193,992	199,887	188,396	194,768	201,393	208,282	215,446	222,897
37	***TOTAL EXPENSES:***	**$3,954,734**	**$4,073,833**	**$4,197,633**	**$3,956,320**	**$4,090,123**	**$4,229,246**	**$4,373,914**	**$4,524,362**	**$4,680,834**
38										
39	***Net Cashflow***	**$1,183,549**	**$1,370,609**	**$1,573,380**	**$2,163,650**	**$2,417,438**	**$2,691,504**	**$2,987,229**	**$3,306,473**	**$3,647,546**
40	Project Self Participation									
41										
42	**CASH ON HAND**									
43	*Fund Balance	3,087,128	4,457,737	6,031,117	8,194,767	10,612,206	13,303,710	16,290,939	19,597,412	23,244,958
44	Renewal and Replacement Account Balance:	2,888,806	3,082,798	3,282,686	3,471,082	3,665,850	3,867,242	4,075,524	4,290,970	4,513,867
45	***Total***	**$5,975,934**	**$7,540,535**	**$9,313,803**	**$11,665,849**	**$14,278,055**	**$17,170,952**	**$20,366,463**	**$23,888,381**	**$27,758,824**
46	**Fund Balance is obtained by adding the previous year's*									
47	*balance to the net cash flow, minus any self funded portion*									
48	*of future projects.*									

APPENDIX F

IMPACT FEE CERTIFICATION

CERTIFICATION OF IMPACT FEE ANALYSIS BY CONSULTANT

In accordance with Utah Code Annotated, § 11-36a-306 Nathan Wallentine, P.E., on behalf of Sunrise Engineering, Inc., makes the following certification:

I certify that the attached impact fee facilities plan and impact fee analysis:

1. Includes only the costs for qualifying public facilities that are:
    a. Allowed under the Impact Fees Act; and
    b. Actually incurred; or
    c. Projected to be incurred or encumbered within six years after each impact fee is paid;
2. Does not include:
    a. costs of operation and maintenance of public facilities;
    b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents;
    c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and that methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement; and
3. Offsets costs with grants or other alternate sources of payment (if grants or other sources of payment have been applied for and received and such information was made available when the Impact Fee Analysis was prepared); and
4. Complies in each and every relevant respect with the Impact Fees Act.

Nathan Wallentine, P.E. makes this certification with the following qualifications:

1. All of the recommendations for implementations of the Impact Fee Facilities Plan ("IFFP") made in the IFFP documents or in the Impact Fee Analysis documents are followed in their entirety by Santa Clara City staff and elected officials.
2. If all or a portion of the IFFP's or Impact Fee Analyses are modified or amended, this certification is no longer valid.
3. All information provided to Sunrise Engineering, Inc., its contractors or suppliers is assumed to be correct, complete and accurate. This includes information provided by the City and outside sources.

4. The undersigned is trained and licensed as a professional engineer and has not been trained or licensed as a lawyer. Nothing in the foregoing certification shall be deemed an opinion of law or an opinion of compliance with law which under applicable professional licensing laws or regulations or other laws or regulations must be rendered by a lawyer licensed in the State of Utah.
5. The foregoing Certification is an expression of professional opinion based on the undersigned's best knowledge, information and belief and shall not be construed as a warranty or guaranty of any fact or circumstance.
6. The foregoing certification is made only to Santa Clara City and may not be used or relied upon by any other person or entity without the expressed written authorization of the undersigned.

Sunrise Engineering, Inc.

By: _____

Dated: _____

TABLE X.D-2
IMPACT FEE ANALYSIS FY2023/2024
WATER MASTER PLAN
SANTA CLARA CITY

	23-May-23
No. of Water ERUs (2023/2024)	3,775
20-Year Water Projected ERUs	7,953
No. of New Water ERUs Due to Growth	4,178
No. of Irrigation Incentivized ERUs (2023/2024)	127
20-Year Projected Irrigation Incentivized ERUs	2,303
No. of New Irrigation Incentivized Due to Growth	2,176
No. of Water ERUs (2023/2024)	3,648
20-Year Water Projected ERUs	5,650
No. of New Water ERUs Due to Growth	2,002
Total Impact Fee Eligible Cost	$ 12,770,910

Maximum Water Impact Fee = Total Eligible Cost / Total New ERU's	$ 3,057	/ERU.
Maximum Irrigation Reduced Impact Fee (22.2%)	$ 2,689	/ERU.
Maximum Water Impact Fee without Reduction	$ 3,456	/ERU.

WCWCD Impact Fee (2023)	$ 8,417	/ERU.
Total Potential Culinary Water Impact Fee (2023)	**$ 11,873**	/ERU.

Meter Size	X-Sectional Area (in^2)	% Area Increase	Impact Fee
3/4"	0.44	0%	$ 3,456
1"	0.79	80%	$ 6,206
1 1/2"	1.77	302%	$ 13,904
2"	3.14	614%	$ 24,666
3"	7.07	1507%	$ 55,538
4"	12.57	2757%	$ 98,743
6"	28.27	6325%	$ 222,073

P:\Santa Clara City\08401 Water & Irrigation IFFPA & IFA\06 Design\[Financial- Culinary.xlsx]Impact Fee Irrigation reduc (2)

It is important to note that these impact fees are for the improvements suggested in Section VII and do not provide for the district to design and build anything beyond the proposed projects.

All new additions to the system will need to be considered in the impact fee calculations. Otherwise, the developer should be required to make the improvements.

E. FIXTURE-BASED CALCULATION

The City also requested an impact fee analysis based on how many water fixtures a home has. An average residential unit in Santa Clara consists of 3 bedrooms and 2.5 bathrooms. It can then be assumed that 1 ERU has 12 water fixtures, as shown in table X.E-1 below.

Table X.E-1: Water Fixture Breakdown

Fixture Type	Average Amount per ERU	Average Usage (gpd) (Based on City Average Usage)
Toilet	3	120.75
Sink	4	161
Shower	2	80.5
Bath	1	40.25
Laundry Hookup	1	40.25
Dishwasher	1	40.25
Total	12	483

With the assumption of 12 water fixtures per ERU, the previous Impact Fee per new ERU can be converted to an Impact Fee per water fixture by dividing the Maximum Impact Fee of $3,057 by 12 for a value of $254.75 per fixture. Table X.E-2 gives a breakdown of how this could be charged to new developments.

Table X.E-2: Example Fixture Impact Fee Breakdown

Number of Fixtures	ERUs	Impact Fee
8	0.67	$ 2,038.00
9	0.75	$ 2,292.75
10	0.83	$ 2,547.50
11	0.92	$ 2,802.25
12	1.00	$ 3,057.00
13	1.08	$ 3,311.75
14	1.17	$ 3,566.50
15	1.25	$ 3,821.25

F. IMPACT FEE CERTIFICATION

The Impact Fee Certification is included as Appendix F.

G. IMPACT FEE RELATED ITEMS

There are a few items related to Impact Fees that City council should keep in mind when planning for, collecting, and expending Impact Fees.

Generally, it is a good idea to update this plan at least every five years, or more frequently if occasion arises.

Council members should be made aware that, in conformance with Utah Code 11-36a-602, Impact Fees can generally only be expended for a system improvement that is identified in the Impact Fee Facilities Plan and that is for the specific public facility type for which the fee was collected

Desert Village		12 Months Usage	Ave. Usage
2520 School Way	Units 1-4	132	11
	Units 5-8	60	5
	Units 9-12	73	6
	Units 13-16	117	10
	Units 17-20	123	10
	Units 21-24	94	8
	Units 25-28	87	7
	Units 29-32	61	5
	Units 33-36	NA	NA
	Units 37-40	44	4
	Units 41-44	79	7
	Units 45-48	144	12
	Units 49-52	NA	NA
	Units 53-56	NA	NA
	Units 57-60	NA	NA
	Units 61-64	NA	NA

44 Units	
Yearly Avg.	24,000
Monthly Avg.	2,000
Daily Avg.	67
Ac. Ft.	0.08

Tuscany	3,000 Avg. Monthly
Blackhawk	5,000 Avg. Monthly
Swiss Village	3,000 Avg. Monthly

Snow Canyon Estates		12 Months Usage	Ave Usage
1722 Desert Heights	1189601	218	18
1700 Desert Heights	1189402	181	15
1684 Deserts Heights	1188602	173	14
1660 Deserts Heights	1189002	286	24
1648 Deserts Heights	1188801	88	7
1642 Deserts Heights	1189203	216	18
1620 Deserts Heights	1188402	101	8
1588 Deserts Heights	1188202	224	19
1566 Deserts Heights	1188001	280	23
1562 Deserts Heights	2001410	261	21
1528 Deserts Heights	1186802	175	14
1563 Deserts Heights	1187001	103	8
1567 Deserts Heights	1187402	129	11
1589 Deserts Heights	2001422	140	12
1621 Deserts Heights	1186402	215	18
1633 Deserts Heights	2001348	125	10
1663 Deserts Heights	1185801	218	18
1669 Deserts Heights	1185602	242	20
1721 Deserts Heights	1185202	145	12
1741 Deserts Heights	1184602	145	12
2503 Stefanie Lane	1190202	150	12
2482 Stefanie Lane	1190802	276	23
2508 Stefanie Lane	1190602	271	22
2536 Stefanie Lane	1190402	227	19

24 Homes	4.5 mi
Yearly Avg.	191,208
Monthly Avg.	15,750
Daily avg.	525
Ac. Ft.	.59

		Usage 2022	Ave Usage
3775 Bella Sol Dr	2001279	62	5
3766 Bella Sol Dr	1075202	104	9
2779 Kenzies Wy	1068902	192	16
2759 Kenzies Wy	2001181	83	7
2733 North Town Rd	1062602	130	11
2735 North Town Rd	1069602	149	12
2774 Monte Vista Dr	1061602	166	14
2786 Monte Vista Dr	1072202	65	5
2716 Coopers Ct	1065602	207	17
2716 Coopers Ct	1065802	94	8
3715 Kenzies Wy	1067802	136	11
3772 Bella Sol Dr	1072502	127	10

12 Homes	1,515,000
yearly avg.	126,000
monthly avg.	10,000
daily avg.	333
Ac. Ft.	0.39