TOWN OF FIRESTONE
POTABLE WATER MASTER PLAN

FIRESTONE

A COMMUNITY IN MOTION

MARCH 2010

COLORADO CIVIL GROUP, INC.

COLORADO CIVIL GROUP, INC.
Engineering Consultants

March 1, 2010

Mr. Wesley LaVanchy, Town Manager
Town of Firestone
151 Grant Avenue
P.O. Box 100
Firestone, CO 80520

Re: Potable Water Master Plan
Project No. 0668.0156.00

Dear Mr. LaVanchy:

We are pleased to submit the Potable Water Master Plan for the Town of Firestone. This report includes our evaluation of the existing water distribution system and analysis pertaining to possible development scenarios. The information presented in the master plan will assist the Town with scheduling Capital Improvement Projects and provide guidance for the expansion of the distribution system.

We look forward to your review and will gladly answer any questions you may have.

Respectfully,

COLORADO CIVIL GROUP, INC.

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1 Introduction

1.1 Project Goals

The Town of Firestone has requested that Colorado Civil Group, Inc. prepare an update to the 2003 Water Master Plan based on the revised Urban Growth Boundary, which was approved on March 17, 2008 as part of the Firestone Master Plan (FMP). The FMP can be found on the Town's website (http://www.ci.firestone.co.us/). The primary goal of this Potable Water Master Plan (PWMP or Master Plan) is to evaluate the existing water system and make recommendations to ensure that improvements are made to support growth as development progresses.

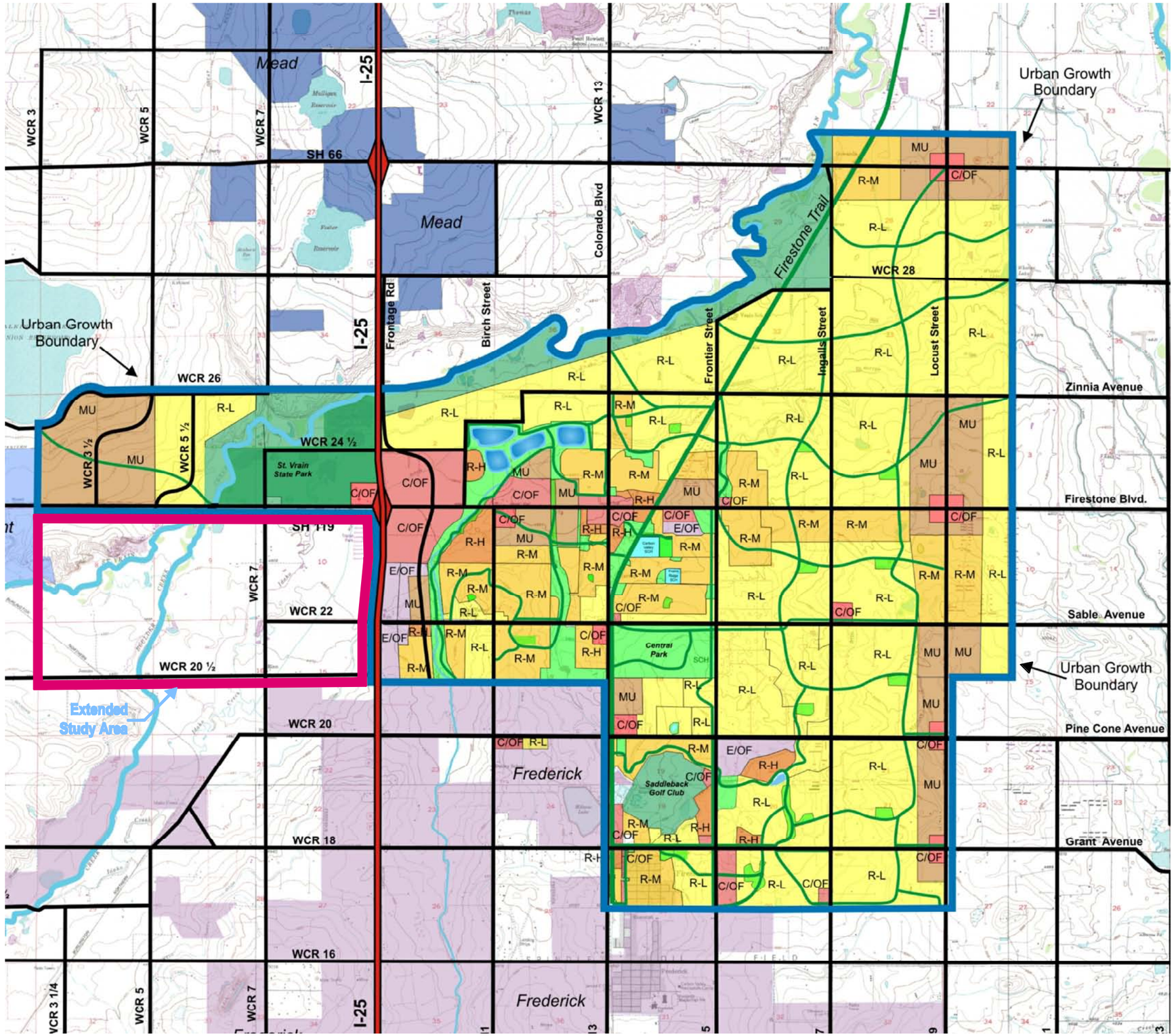
Development areas and land uses considered in the Master Plan include property already annexed to the Town and areas anticipated to be annexed within the Urban Growth Boundary. There is a considerable amount of property within this area that has been annexed and developed. The Urban Growth Boundary was used to determine the limits of this Master Plan, with the exception of the southwest quadrant of I-25 and Firestone Boulevard (Highway 119). This area was part of the I-25 West Infrastructure Master Plan (I-25 WIMP) and also included in this Master Plan. Exhibit 4-2 (Appendix A) from the I-25 WIMP illustrates the additional area and assumed land use designations in this southwest quadrant. The Urban Growth Boundary plus the additional area from Exhibit 4-2 comprise the "Study Area" for this Master Plan as shown in Figure 1.1.

1.2 Project Mapping and Topography

Project mapping was taken from the DRCOG Denver Regional Aerial Photography Project (DRAPP) for the greater Town of Firestone area. Existing topography was generated with Digital Elevation Model (DEM) data found at the GeoCommunity website (http://www.geocomm.com/). This data was used to establish elevations for all of the components within the WaterCAD models.

1.3 Water System Background

The Town of Firestone potable water system relies on the Colorado Big Thompson (CBT) project for all of its potable water. CBT water originates in Lake Granby within the Colorado River Basin. Lake Granby, Grand Lake and Shadow Mountain Reservoir provide storage in the CBT system prior to delivery through Adam's Tunnel to the east slope in Estes Park. From there, water is distributed to several Front Range reservoirs, including Carter Lake. The Town's water is treated by the Central Weld County Water District (CWCWD) at a water treatment plant at the base of Carter Lake. The Town of Firestone owns all the CBT water it uses and transfers it to the CWCWD on an annual basis for treatment and delivery. Firestone and the CWCWD entered into an agreement in 1974 for the CWCWD to be water provider for the Town. The first term of the agreement was twenty (20) years with automatic ten (10) year renewals. The contract was renewed a second time in 2004.



LEGEND

- Urban Growth Boundary
- Major Roadway
- Trails
- Commercial/ Office
- Mixed Use
- Employment/ Office
- Municipal or Government
- Parks
- Community Separator
- Drainage Corridor and Open Space
- Residential Low Density
- Residential Medium Density
- Residential High Density
- Existing/Planned General School Location

N

0 5000 10,000
scale 1" = 5000' feet

FIRESTONE
A COMMUNITY IN MOTION

REVISIONS
DATE
REVISION DESCRIPTION

CCG COLORADO CIVIL GROUP, INC.
ENGINEERING CONSULTANTS
1413 W. 29TH STREET
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TOWN OF FIRESTONE
POTABLE WATER MASTER PLAN
STUDY AREA

FILENAME: 0668.0156.00 STUDY AREA (EXHIBIT1-1)
DESIGNED: C.E.M.
CHECKED: D.B.L.
JOB NO.: 0668.0156.00
SCALE: 1" = 5000'
DATE: MARCH 2010
SHEET NO.:

FIGURE 1.1

The CWCWD treats and delivers water to master meters located at various points within the Town of Firestone. The CWCWD is responsible for treating the raw water, delivering it through its infrastructure, which it owns, operates, and maintains, up to and including the master meters. The Town of Firestone is responsible for operating and maintaining its water system downstream of the master meters to the individual customers. The CWCWD currently has twelve (12) master meters which provide service to the Town. These master meters are further described in Section 2.3. The agreement between the Town of Firestone and the CWCWD states the following:

- The CWCWD is the exclusive provider of potable water to the Town of Firestone.
- Firestone cannot grow more than ten (10) percent from the previous year.
- The Town of Firestone is required to transfer CBT units equal to 120% of the previous year's usage to the CWCWD.
- Maximum flow rates cannot be exceeded at each master meter location (pending).

Consideration of these limitations is critical to understanding how they can impact future growth for the Town of Firestone. Prior to 2009, the Town of Firestone's water system was comprised of six (6) independent potable water systems, each served by one or more CWCWD master meters. In 2009, multiple Capital Improvement Projects (CIP) linked five (5) systems into one potable water system. The Del Rey Subdivision water system will continue to operate independently.

1.4 Scope of Work

The scope of work directed by the Town of Firestone includes water usage evaluation, water demand forecasting, determination of future water ownership and storage requirements, the hydraulic study and modeling, and creation of this Master Plan document. A brief summary of each of the significant tasks is provided below and a more detailed discussion is provided in later sections of this report.

1.4.1 Water Usage Evaluation (2006 - 2008)

For planning purposes, it is very important to understand the historical water usage of the Town. Water records from 2006 – 2008 were evaluated to determine water usage as a function of land use and to forecast water demands in the future. More detailed discussions of all collected data are provided in later sections of this Master Plan.

1.4.2 Water Demand Forecasting

The generation of forecasted water demands is necessary to ensure that as development occurs within the Town, infrastructure considerations have been made so the future growth can be accommodated by the water distribution system. The forecasted water demands are a function of anticipated land uses and population projections.

1.4.3 Future Water Ownership Requirements

Water ownership requirements have been evaluated in the 2003 Water Master Plan and in the Raw Water Master Plan (2007). This PWMP estimates the future water ownership requirements based on population projections.

1.4.4 Future Water Storage Requirements

The future water storage requirements have been evaluated in the 2003 Water Master Plan and the I-25 West Infrastructure Master Plan. This PWMP estimates the future water storage requirements based on population projections.

1.4.5 Hydraulic Study and Modeling

The main component of this Master Plan is the hydraulic study and modeling effort. The hydraulic study ensures that the water system will function properly and operate within established criteria. This Master Plan evaluates three separate scenarios, which described in greater detail in Section 3 and listed below:

- Existing Scenario
- 2035 Scenario
- Future Scenario

Each Scenario consists of a Max Day, Peak Hour, and Fire Flow hydraulic analysis. These evaluations must meet specific criteria regarding the water system operation. The water demand model was prepared using the software program WaterCAD V8i by Bentley.

1.4.6 Capital Improvements Projects

Specific improvements have been identified as Capital Improvement Projects (CIP) for the Town of Firestone. These projects will be installed by the Town to solve existing or anticipated water distribution system issues. Other CIP improvements to the water system may be performed by the Town if they are not anticipated to be constructed with surrounding developments.

1.5 Existing Studies/Reports

There are several studies and reports that have been generated to analyze the Town of Firestone's potable water infrastructure. These reports provide guidance and documentation of existing infrastructure and future requirements for planning purposes.

1.5.1 2003 Water Master Plan (2003 WMP)

A water master plan was prepared for the Town in 2003 by TST, Inc. Consulting Engineers. This report assisted in the design and expansion of the potable water system and identified anticipated infrastructure needs for future development. The 2003 WMP identified 5-year Capital Improvement Projects (CIP) which have been constructed in the past couple of years. The report also provided some analysis for a future raw water irrigation system.

1.5.2 Raw Water Master Plan (2007)

A raw water master plan was prepared for the Town in 2007 by Clear Water Solutions, Inc. This report was prepared to assist the Town in implementing a policy for raw water development and acquisition. The acquisition of water rights native to the Firestone area, would allow for a portion of the Town's CBT water shares to be used for other potable water purposes instead of irrigation.

1.5.3 I-25 West Infrastructure Master Plan (I-25 WIMP)

An infrastructure master plan was prepared in 2008 by Colorado Civil Group, Inc. for the Town's newly adopted Urban Growth Boundary, which was approved on March 17, 2008. The primary goal of this master plan was to analyze existing transportation, drainage, and potable water infrastructure within the Urban Growth Boundary and to set forth infrastructure guidelines as growth occurs west of I-25.

1.5.4 Raw Water Irrigation System Master Plan (RWISMP 2009)

A raw water irrigation master plan was prepared for the Town in 2009 by Colorado Civil Group, Inc. The primary goal of this master plan was to provide a preliminary layout and design of a raw water system that would irrigate a number of public parks, both existing and future. The system was sized to accommodate several Home Owner Association (HOA) parks and open spaces. The master plan provides some explanation of the various irrigation water supply options as well as water rights issues that the Town will need to consider prior to implementing a raw water irrigation system.

1.6 Limitations of Future Projections

The exhibits contained in this Master Plan show the conceptual layout of the future potable water infrastructure. It is important to note that these layouts are conceptual only, and that modifications to the type, configuration, and location of improvements will be necessary as development proceeds and/or as the Town of Firestone Urban Growth Boundary is modified.

Construction of all planned facilities and improvements will be scheduled to allow for proper sizing and phasing to keep pace with the need for service. The majority of this construction should occur with the construction of various developments within the Town. All descriptions of the specific facilities and improvements to be constructed, and their related costs, are estimates only and are subject to modification as engineering, development plans, economics, and construction scheduling may require.

2 Water Usage and Demand Evaluation

2.1 General

The Town of Firestone water system provides a potable supply for residential, office, commercial, industrial, and irrigation (HOA tracts, open space, and parks) customers within the Town limits. Water records from previous years were reviewed to determine water consumption as a function of land use, historical water usage, and to create water forecasting for future development in the Town.

2.2 Water Usage Evaluation (2006 – 2008)

Monthly water usage data was provided by the Town for the calendar years of 2006 – 2008. The water usage was provided as a function of user type and meter size, with the user type being listed under one of the following categories.

- Commercial
- Government
- Industrial
- Irrigation
- Multi-Family
- Residential

The data from the Town was compiled based on the User Type (Land Use) and meter size and is shown in Tables B.1 – B.3 (Appendix B) for the years 2006 – 2008, respectively. The annual usage for each User Type is summarized in Table 2.1.

Table 2.1 - Annual Water Usage Summary (2006-2008)

LAND USE	ANNUAL WATER USAGE		
	2006 (gallons)	2007 (gallons)	2008 (gallons)
COMMERCIAL	40,672,000	43,904,000	57,206,000
GOVERNMENT	59,243,000	61,683,000	68,947,000
INDUSTRIAL	2,398,000	2,372,000	1,678,000
IRRIGATION	47,985,000	43,838,000	48,695,000
MULTI-FAMILY	2,544,000	2,917,000	2,699,000
RESIDENTIAL	417,330,000	410,984,000	427,442,000
TOTAL	**570,172,000**	**565,698,000**	**606,667,000**

The information in Table B.3 for the year 2008 has been used to forecast future water demands and to calibrate the hydraulic models further described in Section 3.5.

2.3 CWCWD Water Usage Evaluation (2006 – 2008)

The CWCWD is the wholesale water provider to the Town of Firestone. Water is delivered by the CWCWD at several master meter locations as described in Section 1.3. The CWCWD also provides water service to a few properties through individual meters for properties that are annexed into the Town of Firestone, but not currently served by the Town's potable water system. The information from the CWCWD is shown in Tables B.4 – B.6 (Appendix B) for the years 2006 – 2008, respectively. The annual usage is summarized in Table 2.2:

Table 2.2 - Annual Water Usage Summary (2006-2008)

CWCWD MASTER METERS	ANNUAL WATER USAGE		
	2006 (gallons)	2007 (gallons)	2008 (gallons)
	593,582,000	573,941,000	612,564,000

The information in Table 2.2 shows that the CWCWD has higher annual water usage records than the Town. This would be expected since the Town's records do not account for water used for construction, fire hydrant flushing, and other minor losses in the Town's system. The CWCWD annual water usage is 1.0% - 4.1% higher than the Town's, which appears to be reasonable.

2.3.1 Master Meter Locations

As mentioned in Section 1.3, the CWCWD has twelve (12) master meters that currently serve the Town of Firestone. Information for each master meter can be found in Table 2.3, below:

Table 2.3 – CWCWD Master Meter Information

CWCWD MASTER METER ID	PRESSURE ZONE	MASTER METER LOCATION
MM-0	N/A	Del Rey Subdivision
MM-1	1	WCR 17, Tank (T-1) Site
MM-2	1A	Frontier Street and McClure Avenue, SW
MM-3	1	Frontier Street and Grant Avenue, SW
MM-4	1	Frontier Street and Pine Cone Avenue, NW
MM-5	2	St. Vrain Ranch Boulevard and Sable Avenue, NE
MM-6	2	St. Vrain Ranch Boulevard and Frontier Street, NW
MM-7	3	Sable Avenue and Buffalo Street, SE
MM-8	3	Birch Street, Eagle Crest
MM-9	3	Firestone Boulevard and Frontier Street, NW
MM-10	3	I-25 Frontage Road and Firestone Boulevard, NW
MM-11	3	Business Park Circle

The master meter (MM-0) that serves the Del Rey Subdivision in the southeast quadrant of the WCR 20 and WCR 11 intersection was not evaluated in this Master Plan. The revised Urban Growth Boundary does not include any future development in this area. This subdivision is isolated from the Town of Firestone water system and will continue to operate independently. Therefore, master meters MM-1 through MM-11 are evaluated in the WaterCAD model for each of the three scenarios. These master meters are graphically shown on Exhibit C.1 (Appendix C).

2.4 Water Demand

2.4.1 General

The water demands are a function of the land use and existing or anticipated densities. The water demands have been taken from previous master plans or calculated based on water usage information. The I-25 WIMP assumed that approximately 1,767 acres (of the total 4,644 acres) are capable of being developed on the west side of I-25. This area is impacted by existing land uses and the Boulder Creek and St. Vrain River floodplains. Because of these restrictions, the densities and water usage will likely be higher on the west side of the I-25. Demands on the east side of I-25 are anticpated to be similar to the Town's current usage.

2.4.2 Parks

The water demand for the parks is based on calculations provided in the RWISMP 2009. This prior master plan calculated an annual irrigation requirement of 809,220 gallons per acre based on the traditional lawn, average year scenario (Table C2, RWISMP 2009). Because each park contains a combination of parking lots, playgrounds, sidewalks, non-irrigated areas, basketball courts, etc. it was determined that approximately 67.0% of the gross acreage will be irrigated (Section 1.5, RWISMP 2009). The average day parks demand is equal to the following:

$$Park\ Demand = 1.03 \frac{gal}{min - acre}\ (All)$$

2.4.3 Community Separator (CS)

The water demand for the community separator is assumed to negligible since most of these areas are planned to be open space with native vegetation. The average day demand per gross acre is equal to the following:

$$Community\ Separator\ (CS) Demand = 0.00 \frac{gal}{min - acre}\ (All)$$

If portions of the community separator (CS) are irrigated, the areas will be small in comparison to the gross acreage and should not impact the results of this Master Plan.

2.4.4 Drainage Corridor/Open Space (DC/OS)

The water demand for the Drainage Corridor/Open Space (DC/OS) is assumed to negligible since most of these areas are planned to be open space with native vegetation. The average day demand per gross acre is equal to the following:

$$(DC/OS) Demand = 0.00 \frac{gal}{min - acre}\ (All)$$

If portions of the Drainage Corridor/Open Space (DC/OS) are irrigated, the areas will be small in comparison to the gross acreage and should not impact the results of this Master Plan.

2.4.5 Commercial/Office (C/OF)

The Commercial/Office water demands were calculated in Appendix A (I-25WIMP). The average of the water records yielded a demand of 130 gallons per year/square foot.

This category was assumed to be 20% restaurant and 80% retail with a floor area ratio (FAR) is 0.25. The average day demand (gpm) per gross acre was found to be as follows:

$$C/OF\ Demand = 2.69 \frac{gal}{min - acre} (West)$$

This demand was used for the commercial/office category on the west side of I-25. When compared to the 2008 Town of Firestone water records, this demand was found to be significantly higher when compared to existing commercial/office properties. An office building in Del Camino Junction Business Park and the High Plains Marketplace development were used to determine the demand on the east side of I-25. The average demand for these two developed uses was found to be:

$$C/OF\ Demand = 0.96 \frac{gal}{min - acre} (East)$$

2.4.6 Employment/Office (E/OF)

The Employment/Office water demands were calculated in Appendix A (I-25WIMP). The average of the water records yielded a demand of 40 gallons per year/square foot. This category was assumed to be 25% office and 75% industrial with a floor area ratio (FAR) is 0.25. The average day demand (gpm) per gross acre was found to be as follows:

$$\frac{E}{OF} Demand = 0.83 \frac{gal}{min - acre}\ (\text{All})$$

This demand was used for all employment/office land use areas.

2.4.7 Mixed Use

The Town of Firestone currently does not have any mixed use developments, but is anticipating more of these types of projects in the future. The Mixed Use water demands were calculated in Appendix A (I-25WIMP) based on the following combined uses:

- Commercial/Office 15%
- Employment/Office 25%
- Residential Medium Density (R-M) 35%
- Residential High Density (R-H) 25%

$$\text{Mixed Use (M} - \text{U)} Demand = 3.42 \frac{gal}{min - acre}\ (\text{All})$$

This Mixed Use demand will be used for all water demand calculations since no existing developments fall under this category.

2.4.8 Residential Demands

The residential water demand was taken directly from Section 2.3.1 of the 2003 WMP. The residential water demand assumes 3.07 capita per dwelling units and 150 gallons per capita-day. This demand per gross acre is dependent on the specific densities, which are listed in Sections 2.4.8.1 – 2.4.8.3, below.

2.4.8.1 Residential Low Density (R-L)

The residential low density is based on the Town of Firestone Development Regulations, Chapter 16.0 Development Standards. Section 16.1.1 identifies the minimum and maximum dwelling units based on gross acreage. This Master Plan assumes that R-L is equivalent to R-A from the Development Regulations with a density of 0 – 2.3 dwelling units per acre. The density was calculated using two existing R-L developments within the Town, Owl Lake Estates and Sherilynn Circle (Westwind Village). The average density for these two developments is 1.14 dwelling units per acre, which is used for areas east of I-25. Appendix A of the I-25WIMP had assumed that the R-L density is 3.0 dwelling units per acre, which is used for areas west of I-25.

2.4.8.2 Residential Medium Density (R-M)

Following the same procedure from Section 2.4.8.1, this Master Plan assumes that R-H is equivalent to R-C from the Development Regulations with a density of 2.4 – 4 dwelling units per acre. The density was calculated using two existing R-M developments within the Town, Oak Meadows P.U.D. Filing No. 1 and Ridgecrest P.U.D. Filing No. 1. The average density for these two developments is 2.71 dwelling units per acre, which is used for areas east of I-25. Appendix A of the I-25WIMP had assumed that the R-M density is 7.0 dwelling units per acre, which is used for areas west of I-25.

2.4.8.3 Residential High Density (R-H)

Following the same procedure from Section 2.4.8.1, this Master Plan assumes that R-H is equivalent to R-C from the Development Regulations with a density of 4.1 - 30 dwelling units per acre. The density was calculated using two existing R-H developments within the Town, Cimarron Pointe and Eagle Crest P.U.D. The average density for these two developments is 6.30 dwelling units per acre, which is used for areas east of I-25. Appendix A of the I-25WIMP had assumed that the R-H density is 25.0 dwelling units per acre, which is used for areas west of I-25.

2.4.8.4 Residential Demand Summary

The residential demands are converted to gallons per minute (gpm) per gross acre in Table 2.4 for areas east of I-25 and Table 2.5 for areas west of I-25.

Table 2.4 - Residential Water Demands (East)

LAND USE CATEGORY	DENSITY (EAST) (d.u./acre)	CAPITA (cap/d.u.)	DEMAND (gal/cap-day)	AVERAGE DAY DEMAND (gal/day-acre)	(gpm-acre)
R-L	1.14	3.07	150.00	525.71	0.37
R-M	2.71	3.07	150.00	1,246.42	0.87
R-H	6.30	3.07	150.00	2,901.15	2.01

Table 2.5 - Residential Water Demands (West)

LAND USE CATEGORY	DENSITY (WEST) (d.u./acre)	CAPITA (cap/d.u.)	DEMAND (gal/cap-day)	AVERAGE DAY DEMAND (gal/day-acre)	(gpm-acre)
R-L	3.00	3.07	150.00	1,381.50	0.96
R-M	7.00	3.07	150.00	3,223.50	2.24
R-H	25.00	3.07	150.00	11,512.50	7.99

2.4.9 Municipal/Government (M/G)

The municipal/government demands were calculated based on existing water records. The Town currently has two municipal sites that were used, Town Hall and the Public Works Department facility. The average day demand per gross acre was calculated to be approximately:

$$\frac{M}{G} Demand = 0.20 \frac{gal}{min - acre} (\text{All})$$

2.5 Peaking Factors

The maximum day demand is calculated by doubling the average day demand and the peak hour demand is calculated by increasing the maximum day demand by 50%. The water demands for the Average Day, Max Day, and Peak Hour analyses are listed in Table 2.6 for areas east of I-25 and Table 2.7 for areas west of I-25.

Table 2.6 - Water Demands and Peaking Factors (East)

LAND USE CATEGORY	WATER DEMAND (EAST)				
	AVERAGE DAY (gpm/acre)	MAX DAY MULTIPLIER	MAX DAY (gpm/acre)	PEAK HOUR MULTIPLIER	PEAK HOUR (gpm/acre)
PARKS	1.03	2.0	2.06	1.5	3.09
CS	0.00	2.0	0.00	1.5	0.00
DC/OS	0.00	2.0	0.00	1.5	0.00
C/OF	0.96	2.0	1.92	1.5	2.88
E/OF	0.83	2.0	1.66	1.5	2.49
MU	3.42	2.0	6.84	1.5	10.26
R-L	0.37	2.0	0.73	1.5	1.10
R-M	0.87	2.0	1.73	1.5	2.60
R-H	2.01	2.0	4.03	1.5	6.04
M/G	0.20	2.0	0.40	1.5	0.60
SCHOOL	0.67	2.0	1.34	1.5	2.01

Table 2.7 - Water Demands and Peaking Factors (West)

LAND USE CATEGORY	WATER DEMAND (WEST)				
	AVERAGE DAY	MAX DAY		PEAK HOUR	
	(gpm/acre)	MULTIPLIER	(gpm/acre)	MULTIPLIER	(gpm/acre)
PARKS	1.03	2.0	2.06	1.5	3.09
CS	0.00	2.0	0.00	1.5	0.00
DC/OS	0.00	2.0	0.00	1.5	0.00
C/OF	2.69	2.0	5.38	1.5	8.07
E/OF	0.83	2.0	1.66	1.5	2.49
MU	3.42	2.0	6.84	1.5	10.26
R-L	0.96	2.0	1.92	1.5	2.88
R-M	2.24	2.0	4.48	1.5	6.72
R-H	7.99	2.0	15.99	1.5	23.98
M/G	0.20	2.0	0.40	1.5	0.60
SCHOOL	0.67	2.0	1.34	1.5	2.01

The demands listed in Tables 2.6 and 2.7 are multiplied by the gross acreages to establish the appropriate demands for the hydraulic study/modeling effort in Section 3.

2.6 Water Ownership Requirements

The Town of Firestone owns all of the CBT water shares that it uses to provide service to its customers. Through the agreement with the CWCWD, the Town transfers the CBT shares to the District for treatment and delivery back to one of the twelve master meters. One CBT share is equal to 1 acre-foot of water. There are two adjustments that affect the amount of CBT water that is transferred to the CWCWD. The first is that the District requires that 120% of the water needed, must be transferred to account for losses in the CWCWD system. The second is that the Northern Colorado Water Conservancy District (NCWCD), which manages the CBT project, sets the yield for each share. The typical yield set by the NCWCD is approximately 70%, which equates to one CBT share delivering 0.7 acre-feet of water.

Table B.7 (Appendix B) calculates the amount of CBT shares required based on a 70% yield and the 120% transfer requirement. The annual water usage for 2008 (Table B.3) is equivalent to 3,192 CBT shares. Table B.7 determines the linear increase of annual water usage and required CBT shares as a function of the population growth rate. Table B.7 can be used to estimate how many CBT shares will be needed during a particular calendar year. In Section 3.7, the Future Scenario estimated an annual usage of 8,749,663,200 gallons for the full build out of the Town of Firestone Study Area. This is equivalent to approximately 46,040 CBT shares to satisfy the annual water usage requirement. This exercise illustrates that the Town of Firestone will need to pursue other water sources in addition to the CBT system and the Northern Integrated Supply Project (NISP).

2.7 Water Storage Requirements

The purpose of water storage is to ensure that peak hour demand and fire flow demands can be satisfied. The current agreement between the Town and the CWCWD state that the District shall provide storage for twice the average day demand for the previous year, which equals the maximum day demand. It is important to note that this storage is currently available to the Town through the CWCWD, but there is no guarantee that the Town would have access to this storage if there is a need for it elsewhere within the District service area.

Typical storage requirements address two types of storage: equalization demand, which is the amount of water necessary to supplement average demand during peak usage, and fire flow demands. The CWCWD recommends storage based on equalization, fire flow, and emergency storage. The size and configuration of the tank are based on several operational conditions being met during different demand scenarios that are considered standard practice within municipal engineering, including accounting for 2-hour or 4-hour structure fires where the fire suppression flow rates can vary between 1,000 gpm and 4,000 gpm. The general equation used to calculate the storage volume is as follows:

$$Storage\ Tank\ Volume\ = AD + FF + (0.25)MD \qquad \textbf{Equation 2.1}$$

Where: $AD = Average\ Day$ Demand $Volume\ (gallons)\ (24\ hr\ period)$

(Emergency Storage)

$FF = Fire\ Flow$ Demand $(gallons)$ @ $2{,}500\ gpm\ (4\ hr\ period)$

(Fire Fighting Storage)

$MD = 25\%\ of\ Maximum\ Day$ Demand $Volume\ (gallons)\ (6\ hr\ period)$

(Peak Hour Equalization Storage)

Since the CWCWD is required to provide twice the average day volume which is double the District's recommended emergency storage, it is probable that at least a portion of it would be available for the Town to use in the event of an emergency. By using the CWCWD system as the emergency storage, the Town could reduce its storage volume to the following:

$$Storage\ Tank\ Volume\ = FF + (0.25)MD \qquad \textbf{Equation 2.2}$$

Table B.8 (Appendix B) calculates the total storage volume for the Town based on Equation 2.1. Table B.8 also calculates the District storage volume and the Town's reduced storage volume based on Equation 2.2. Table B.8 determines the linear increase of storage volume requirement as a function of the population growth rate and the total estimated storage per year.

The Town currently has a 1.5 MG tank (T-1) on the east side of WCR 17, one and a half miles south of Grant Avenue (WCR 18), that will provide a sufficient reduced storage capacity through 2011. The need for additional capacity after 2011 is dependent on the population growth rates assumed in Table B.8. If the population growth continues near the current rate, then the storage in tank (T-1) will extend well beyond 2011. A second 1.5 MG tank (T-200) is planned at this same location that would extend the sufficient storage capacity through the year 2041. Based on previous projections, tank (T-200) is not planned to be constructed for at least another 10 years and is dependent on when tank (T-400) is constructed. The I-25 WIMP also proposed an elevated tank approximately one mile north of SH 119 and located along WCR 26 between WCR 3 and WCR 5. Tank (T-400) was calculated to have a capacity of 3.7 MG, increasing the total storage to 6.7 MG. The addition of tank (T-400) would extend the sufficient reduced storage capacity through the year 2088.

3 Hydraulic Study and Modeling

3.1 General

The main goal of this Master Plan is to analyze and identify anticipated potable water infrastructure improvements in order to provide adequate service within the Study Area. The analysis presented in this Master Plan can be described as a cursory analysis of the anticipated improvements, which means this information is a starting point for a more thorough analysis to be performed as specific information about each development is acquired.

Data collection included aerial photography, section line and property line information, anticipated land use, and historical water usage data. Forecasted water demands were generated based on existing developments already located within the Growth Boundary, anticipated land use, the ability for a certain piece of land to develop, growth projections for the area, and other master plan documents. This information was then utilized to build a WaterCAD model, which is used to identify needed infrastructure improvements such as water line size and location, pump stations, and water storage tanks. Additionally, the model was used to determine the location of different pressure zones which help in the design and management of the potable water system. This information is presented in further detail in the following sections.

The hydraulic study was performed using the WaterCAD V8i software program by Bentley. The modeling ensures that the water system will function properly and operate within established criteria and tolerances. This Master Plan evaluates three separate scenarios:

- Existing Scenario
- 2035 Scenario
- Future Scenario

Each Scenario consists of a Maximum Day, Peak Hour, and Fire Flow hydraulic system evaluation. Each evaluation must meet specific criteria regarding the operation of the water system.

3.2 WaterCAD Model Convention

The potable water system was initially created based on current infrastructure, which is the Existing Scenario. Most of the 5-Year Capital Improvement Projects (CIP) recommended in the 2003 WMP have been installed and are incorporated in this WaterCAD model. In areas where the existing water system is extensive (i.e. residential subdivisions), only a portion of the infrastructure (main spine) is represented in the WaterCAD model. A majority of the redundant water lines in these areas are needed to provide service to every customer and not for capacity. For these reasons, not all existing water lines are included in the WaterCAD model. In undeveloped areas (2035 and Future Scenarios), the infrastructure generally follows section lines and quarter section lines to approximate the anticipated potable water distribution system. The WaterCAD model consists of the following components:

- CWCWD Master Meter (MM-*)
- Flow Control Valve (FCV-*)
- Junction (J-*)
- Pipe (P-*)
- Pressure Reducing Valve (PRV-*)

- Pump (PMP-*)
- Tank (T-*)

All components in the WaterCAD model follow the same convention, which is as follows:

- (*)≤199, existing component
- 200≤(*)≤ 399, future component east of I-25
- (*)≥400, future component west of I-25
-

Areas of land use within each section were determined within the Study Area. Each section is approximately 640 acres in size and they are organized by Township and Range. There are four quadrants within the UGB with the axis at the intersection of Colorado Boulevard (WCR 13) and Zinnia Avenue (WCR 26). The four quadrants are identified as follows:

- Township 03 North, Range 67 West
- Township 02 North, Range 67 West
- Township 03 North, Range 68 West
- Township 02 North, Range 68 West

Each scenario lists the amount of land, classified by land use, within each section.

3.3 Water System Criteria

A water line analysis was performed to determine probable line sizes throughout the spine of the distribution system. Variables such as velocity, capacity, pressure, and headloss aid in determining the optimal line sizes throughout the system. Low velocities (1 to 2 feet per second or less) indicate that the water is not moving quickly enough to maintain proper chlorination, and high velocities (greater than 10 fps) raises issues of cavitation which can destroy a water line. Headloss within the water lines also plays a large part in the sizing of water lines in the distribution system. Headloss increases as velocity increases, which results in a drop in pressure and capacity in the line. Table 3.1 presents the critical design criteria used for configuring the pressure zones.

Table 3.1 - Distribution System Criteria

STATIC CONDITION SCENARIO	Value	Unit
Maximum Pressure (Pressure Zones 1-3)	110	psi
Maximum Pressure (Pressure Zone 1A)	95	psi
MAX DAY SCENARIO		
Minium Pressure	65	psi
Maximum Velocity (Main Spine Only)	5	ft/sec
MAX DAY + FIRE FLOW SCENARIO		
Minium Pressure	20	psi
Maximum Velocity (Main Spine Only)	10	ft/sec
PEAK HOUR SCENARIO		
Minium Pressure	40	psi
Maximum Velocity (Main Spine Only)	7.5	ft/sec

The maximum preferred static pressure of 90 – 95 psi for the Old Town area and 100 – 110 psi for the remaining water system was provided by the Town of Firestone Public Works Department.

3.4 Pressure Zones

The 2003 WMP established three separate pressure zones, which exist due to the installation of two PRV vaults (PRV-1 and PRV-2) in 2009. These pressure zones were established to ensure that the water system would meet minimum pressure requirements under dynamic conditions while not exceeding maximum pressure limits under static conditions, as defined in Table 3.1. The pressure zones from the 2003 WMP were used as a starting point to ensure that adequate water service can be provided for all three modeling scenarios. Pressure Zone 1 has a hydraulic grade line that is controlled by Tank (T-1) with a maximum elevation of 5,197.50 feet. The HGL for Pressure Zones 2 and 3 are controlled by the CWCWD master meters and PRV vaults.

The I-25 WIMP consisted of two conceptual pressure zones. The lower pressure zone is the same as Pressure Zone 3 from the 2003 WMP. The higher zone is Pressure Zone 2W and is on the west side of future PRV-400 and PRV-401. This pressure zone has a hydraulic grade line of 5,150.00 and will be controlled by future Tank (T-400). The hydraulic parameters of Pressure Zone 2W are between Pressure Zones 1 and 2 on the east side. A fifth pressure zone has been added to protect the Old Town area of Firestone. Pressure Zone 1A is generally south and west of Grant Avenue (WCR 18) and Frontier Street (WCR 15). This zone also includes the existing commercial and municipal land uses in the northeast quadrant of the Grant Avenue and Colorado Boulevard (WCR 13) intersection. Pressure Zone 1A has elevations that range from 5,030 – 4,948 feet which is equivalent to a pressure differential of 35.5 psi. Using the maximum static pressure of 95 psi (Table 3.1), the pressure near the elevation of 5,030 will be less than the required 65 psi for Max Day Analysis, which has been acknowledged by the Public Works Department. A sixth pressure zone (Pressure Zone 4) may be added at the very north end of Pressure Zone 3 near the St. Vrain River. This zone may be added to keep static pressures below 110 psi for Pressure Zone 3. Since development in this area, is beyond the 2035 scenario, this potential pressure zone was not incorporated in the WaterCAD models. This pressure zone could easily be added to a Master Plan update if required by the Town of Firestone Public Works Department.

Table 3.2 lists the HGL settings for each of the CWCWD master meters. Table 3.2 includes these settings as shown in the 2003 WMP and for each of the modeling scenarios. It is noted that with the later scenarios, as the demands on the water distribution system increase, the HGLs are raised to satisfy these demands.

Table 3.2 – CWCWD Master Meter Hydraulic Grade Settings

CWCWD MASTER METER	PRESSURE ZONE	HYDRAULIC GRADE LINE (HGL)			
		2003 WMP (feet)	EXISTING (feet)	2035 (feet)	FUTURE (feet)
MM-1	1	N/A	5,152	5,152	5,152
MM-2	1A	5,152	5,165	5,180	5,190
MM-3	1	5,152	5,152	5,180	5,190
MM-4	1	5,152	5,152	5,180	5,190
MM-5	2	5,090	5,105	5,105	5,115
MM-6	2	5,090	5,105	5,105	5,115
MM-7	3	5,060	5,070	5,070	5,075
MM-8	3	5,050	5,070	5,070	5,075
MM-9	3	5,050	5,105	5,070	5,075
MM-10	3	5,050	5,070	5,070	5,075
MM-11	3	5,050	5,070	5,070	5,075
MM-200	3	INACTIVE	INACTIVE	INACTIVE	5,075
MM-201	1	INACTIVE	INACTIVE	INACTIVE	5,190
MM-202	3	INACTIVE	INACTIVE	5,075	5,075
MM-203	1	INACTIVE	INACTIVE	INACTIVE	5,190
MM-204	1	INACTIVE	INACTIVE	INACTIVE	5,190
MM-205	2	INACTIVE	INACTIVE	5,105	5,115

Table 3.3 lists the HGL settings for each of the PRV vaults. It is noted that with the later scenarios, as the demands on the water distribution system increase, the HGLs should be raised to satisfy these demands, similar to the CWCWD master meters.

Table 3.3 – PRV Vault Hydraulic Grade Settings

PRV	PRESSURE ZONE ID	HYDRAULIC GRADE LINE (HGL)			
		2003 WMP (feet)	EXISTING (feet)	2035 (feet)	FUTURE (feet)
PRV-1	1-2	INACTIVE	5,107.5	5,105	5,115
PRV-2	2-3	INACTIVE	5,072.5	5,070	5,075
PRV-200	1-2	INACTIVE	INACTIVE	5,105	5,115
PRV-201	2-3	INACTIVE	INACTIVE	INACTIVE	5,075
PRV-202	1-2	INACTIVE	INACTIVE	INACTIVE	5,115
PRV-203	1-2	INACTIVE	INACTIVE	INACTIVE	5,115
PRV-204	2-3	INACTIVE	INACTIVE	INACTIVE	5,075
PRV-205	2-3	INACTIVE	INACTIVE	5,070	5,075
PRV-206	2-3	INACTIVE	INACTIVE	5,070	5,075
PRV-207	1A	INACTIVE	INACTIVE	5,165	5,165
PRV-208	1A	INACTIVE	INACTIVE	5,165	5,165
PRV-209	2-3	INACTIVE	INACTIVE	5,070	5,075
PRV-210	2-3	INACTIVE	INACTIVE	5,070	5,075
PRV-211	2-3	INACTIVE	INACTIVE	5,070	5,075
PRV-400	2-3	INACTIVE	INACTIVE	5,000	5,010
PRV-401	2-3	INACTIVE	INACTIVE	INACTIVE	5,010

3.5 Existing Scenario

The initial WaterCAD model was created to represent the current condition and is referenced as the Existing Scenario. This scenario has been used to check the existing potable water distribution system and to calibrate the model. **All supporting documentation for the Existing Scenario can be found in Appendix C.** Figure 3.1 (on the following page) and Table C.1 identifies all of the areas (of land use) for the Existing Scenario and has a total developed area of 1,320.1 acres. Table C.2 calculates the Average Day water demand and also distributes the demand to one or more junctions (nodes) for each of the individual land use areas. The demand per node is used to load the WaterCAD junctions, which are listed in Table C.3. Depending on the location, some junctions do not support any water demands while other junctions support multiple demands. The total water demands for the Existing Scenario are as follows:

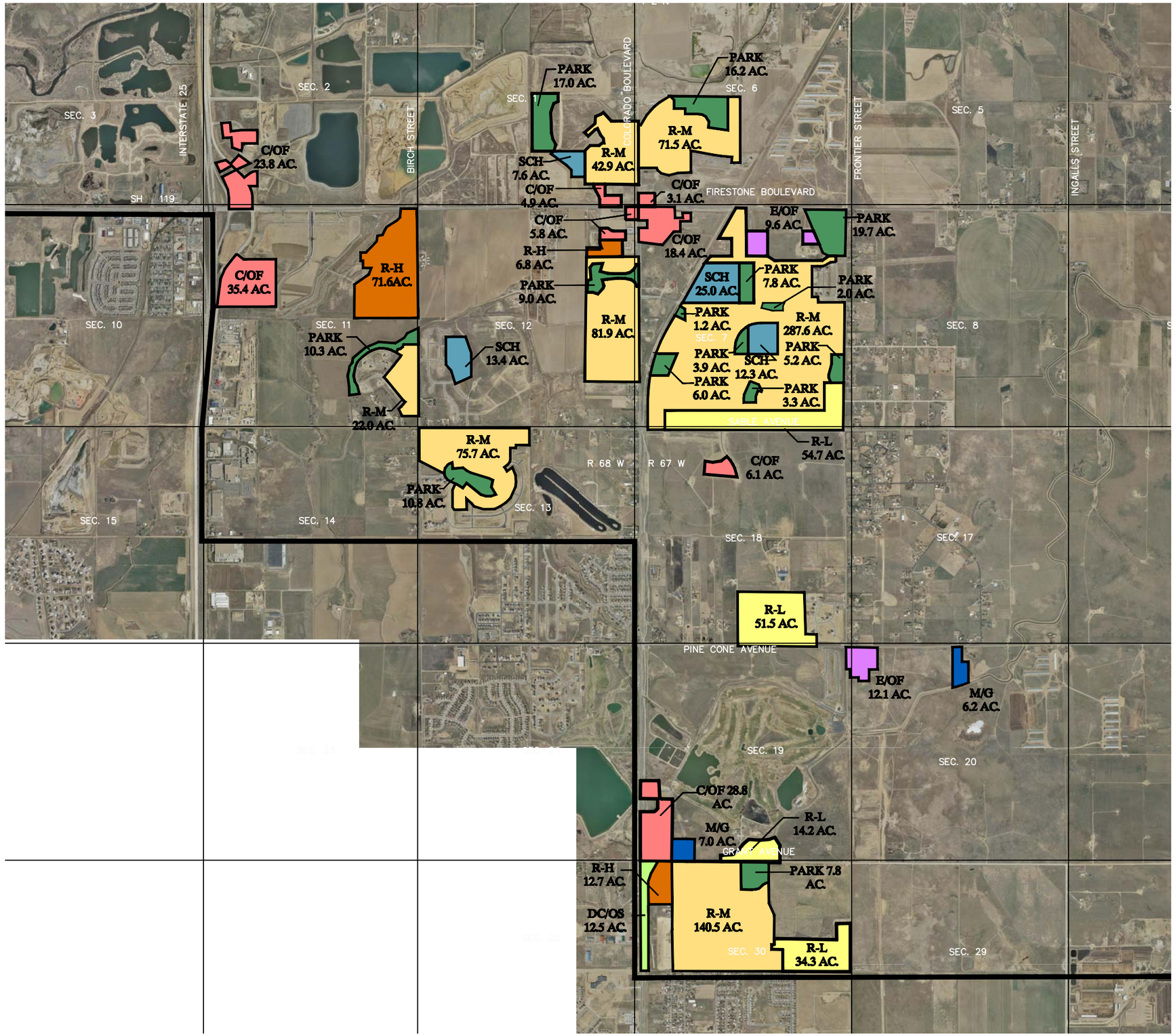
- Average Day = 1,169.8 gpm
- Max Day = 2,339.6 gpm
- Peak Hour = 3,509.4 gpm

The Average Day requirement is equivalent to an annual usage of 614,846,880 gallons, which is 1.34% higher than the 2008 water usage of 606,667,000 from Table B.3 (Appendix B). This comparison was used to check the Existing Scenario model calibration and ensure that it is representative of actual water usage records. Exhibit C.1, illustrates the configuration of the Existing Scenario WaterCAD model.

3.5.1 Max Day Analysis

Table C.4 lists the junction results for the Max Day analysis. Junctions J-1, J-2, J-3, and J-61 are located near the existing tank site (T-1) do not meet the minimum pressure of 65 psi. Since these junctions are not within the service area, they do not need to meet this pressure requirement. Junction J-4 does not meet the mnimum pressure requirement because the tank (T-1) HGL is set at 5,165.00 feet. This junction will meet the pressure requirement after PRV-208 is installed to create Pressure Zone 1A, which will allow for a higher HGL in the tank (T-1). Junction J-11 is located near the high elevation in Pressure Zone 1A and will not meet the minimum pressure of 65 psi due as explained in Section 3.4.

Table C.5 lists the pipe results for the Max Day analysis. Pipes P-88 and P-89 exceed the maximum velocity of 5.0 fps. These pipes are within the existing pump station (PMP-1) where higher velocities are anticipated due to the small diameter (4 and 6-inch). Table C.6 lists the CWCWD master meter results for the Max Day analysis. The total outflow for all eleven (11) master meters is 2,079.8 gpm, which is less than the Max Day demand for Existing Scenario. Table C.7 lists the operating parameters for the two PRV vaults.



LEGEND

R-L	RESIDENTIAL LOW DENSITY
R-M	RESIDENTIAL MEDIUM DENSITY
R-H	RESIDENTIAL HIGH DENSITY
C/OF	COMMERCIAL/OFFICE
E/OF	EMPLOYMENT/OFFICE
M/G	MUNICIPAL OR GOVERNMENT
SCH	SCHOOL
DC/OS	DRAINAGE CORRIDOR/ OPEN SPACE
PARK	PARK
	SECTION LINES
FIRESTONE BLVD.	TOWN ROAD NAMES

N

0 2500 5,000
scale 1" = 2500' feet

FIRESTONE
A COMMUNITY IN MOTION

DATE	REVISION DESCRIPTION

CCG COLORADO CIVIL GROUP, INC. ENGINEERING CONSULTANTS
1413 W. 29TH STREET
LOVELAND, COLORADO 80538
(970) 278-0029

TOWN OF FIRESTONE
POTABLE WATER MASTER PLAN
LAND USES - EXISTING SCENARIO WATERCAD MODEL CALIBRATION

FILENAME: EXHIBIT X-X (WD MODEL EXISTING)
DESIGNED: C.E.M.
CHECKED: D.B.L.
JOB NO.: 0868.0156.00
SCALE: 1" = 2500'
DATE: MARCH 2010

SHEET NO.: FIGURE 3.1

Table C.8 and C.9 list the tank and pump results for the Max Day analysis. The tank (T-1) has a HGL at an elevation of 5,165.00 and PMP-1 is operating at a flow rate of 500 gpm.

3.5.2 Peak Hour Analysis

Table C.10 lists the junction results for the Peak Hour analysis. Junctions J-1, J-2, J-3, and J-61 are located near the existing tank site (T-1) do not meet the minimum pressure of 40 psi. Since these junctions are not within the service area, they do not need to meet this pressure requirement.

Table C.11 lists the pipe results for the Peak Hour analysis. Pipe P-89 exceeds the maximum velocity of 7.5 fps. This pipe is within the existing pump station (PMP-1) where higher velocities are anticipated due to the small diameter (4-inch). Table C.12 lists the CWCWD master meter results for the Peak Hour analysis. The total outflow for all eleven (11) master meters is 3,187.1 gpm. Although this exceeds the Max Day demand of 2,339.6 gpm, the installation of PRV-208 will allow the tank (T-1) HGL to be increased to 5,197.50. This will allow for the tank (T-1) to satisfy more of the Peak Hour demands instead of the CWCWD master meters. Table C.13 lists the operating parameters for the two PRV vaults.

Table C.14 and C.15 lists the tank and pump results for the Max Day analysis. The tank (T-1) has a HGL at an elevation of 5,165.00 and PMP-1 is operating at a flow rate of 500 gpm.

3.5.3 Fire Flow Analysis

Table C.16 lists the results for the Fire Flow (Residential) analysis. A residential fire flow of 1,500 gpm was simulated at every junction with the exception of a few locations. Junctions J-1, J-2, J-3, and J-61 are located near the existing tank site (T-1) and not within the service area. Junctions J-67 and J-68 are not in service with the Existing Scenario. The fire flow requirement of 1,500 gpm is in addition to the Max Day demands at the individual junctions. All of the analyzed junctions were capable of delivering the 1,500 gpm fire flow while maintaining a residual pressure of at least 20 psi.

Table C.17 lists the results for the Fire Flow (Commercial) analysis. A commercial fire flow of 3,000 gpm was simulated at every junction where commercial land uses exist or are anticipated. The fire flow requirement of 3,000 gpm is in addition to the Max Day demands at the individual junctions. All of the analyzed junctions were capable of delivering the 3,000 gpm fire flow while maintaining a residual pressure of at least 20 psi, with the exception of Junctions J-44, J-45, and J-48 – J-50. Currently these, junctions can provide a fire flow between 1,600 – 1,700 gpm. These flows were limited since a 1,000 gpm maximum flow rate was applied to each CWCWD master meter in the WaterCAD model by a flow control valve (FCV). These FCVs were used to help limit and balance the flows from the CWCWD master meters. The available fire flows will be greatly increased when the 16-inch PVC water line (P-94 – P-96) is put into service in 2010 along Firestone Boulevard between Center Street and Jake Jabs Boulevard. This water line will be put into service after PRV-210 and PRV-211 are installed.

3.5.4 24-Hour Time Step Analysis

A 24-Hour Time Step Analysis was performed for the Existing Scenario to review the operation of the existing pump (PMP-1) and tank (T-1). This time step analysis was performed for the average day demands using diurnal curves. The diurnal curves distribute the demands as a function of the time of day. This variation mimics typical usage patterns throughout a 24-hour

period. Table C.18 is the residential diurnal curve and has been applied to all residential land uses. Table C.19 is the commercial diurnal curve and has been applied to the commercial/office and employment/office land uses. Parks, municipal/government, and school water demands were all fixed in the time step analysis.

The diurnal curves were applied to specific demands to generate the demand distribution over a 24-hour period. This was used to calculate the age of the water within the distribution system for the Average Day analysis. Table C.20 shows that Junction J-42 has the longest water residence time of 47.3 hours, which is just less than two (2) days. Junctions J-22, J-43, J-69, and J-70 are at the end of the distribution system and have no demands. Because no demands exist, the water age at these locations represents the end of the water age simulation, 336 hours.

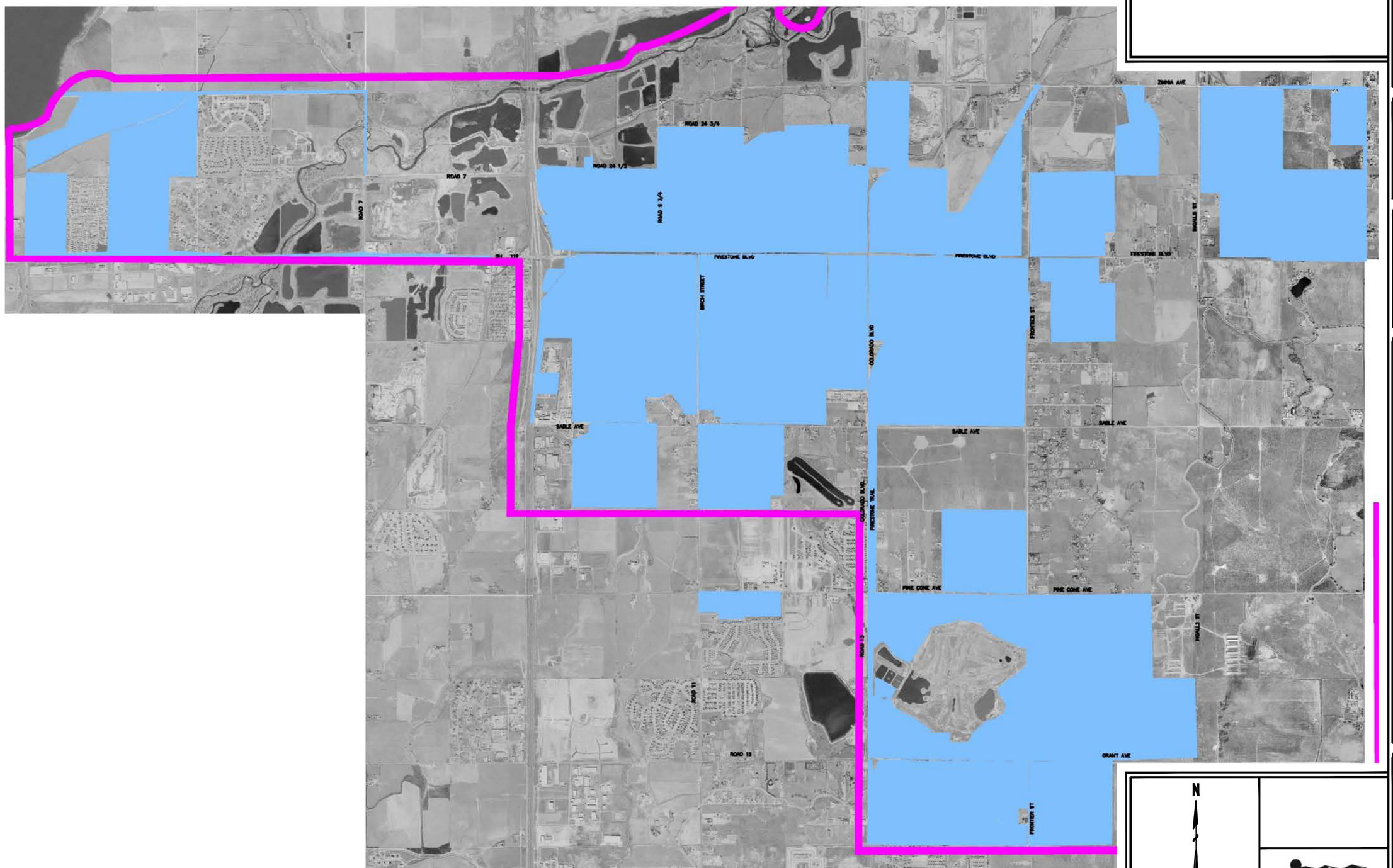
Chart C.1 shows the tank (T-1) water level as it fluctuates over an average day along with the pump (PMP-1) filling cycle. This simulation shows that pump (PMP-1) is capable of filling the tank at the end of the 24-hour analysis to the HGL of 5,165.00.

3.6 2035 Scenario

A second WaterCAD model was evaluated to represent an intermediate condition (2035 Scenario) between the Existing and Future Scenarios. This scenario has been created to show the anticipated areas of development. This scenario is similar to growth information that the Town of Firestone has provided for the Denver Regional Council of Governments (DRCOG) 2035 Metro Vision Regional Plan. Figure 3.2 shows where development may occur between the years 2010 – 2035. **All supporting documentation for the 2035 Scenario can be found in Appendix D.** Table D.1 identifies all of the areas of land use per section for the 2035 Scenario and has a developed area of 1,606.6 acres (this is in addition to the Existing Scenario). The total developed area for the 2035 Scenario is 2,926.7 acres. Table D.2 calculates the Average Day water demand and also distributes the demand to one or more junctions (nodes) for each of the additional land use areas. The demand per node is used to load the WaterCAD junctions which are listed in Table D.3. Table D.3 also includes the demands from the Existing Scenario. Depending on the location, some junctions do not support any water demands while other junctions support multiple demands. The total water demands for the 2035 Scenario are as follows:

- Average Day = 3,022.2 gpm
- Max Day = 6,044.4 gpm
- Peak Hour = 9,066.6 gpm

The total Average Day water demand for the 2035 Scenario is 3,022.2 gallons per minute (gpm) which is equivalent to an annual usage of 1,588,468,320 gallons. The annual usage based on population projections is 1,531,979,102 gallons for the 2035 calendar year (Table B.7, Appendix B). The annual water usage for the 2035 Scenario is approximately 3.7% greater than that of the population projections.



LEGEND

Urbanized Area (2035)

Town Growth Boundary

N

0 3000 6000

scale 1" = 3000' feet

FIRESTONE

A COMMUNITY IN MOTION

REVISIONS	
DATE	REVISION DESCRIPTION

CCG COLORADO CIVIL GROUP, INC. ENGINEERING CONSULTANTS

1413 W. 29TH STREET
LOVELAND, COLORADO 80538
(970) 278-0239

TOWN OF FIRESTONE
POTABLE WATER MASTER PLAN
2035 SCENARIO DEVELOPMENT MAP

FILENAME: 0668.0156.00 STUDY AREA (EXHIBIT1-1)

DESIGNED: C.E.M.

CHECKED: D.S.L.

JOB NO.: 0668.0156.00

SCALE: 1" = 3000'

DATE: MARCH 2010

SHEET NO.: **FIGURE 3.2**

3.6.1 Max Day Analysis

Table D.4 lists the junction results for the Max Day analysis. Junctions J-1, J-2, J-3, and J-61 are located near the existing tank site (T-1) do not meet the minimum pressure of 65 psi. Since these junctions are not within the service area, they do not need to meet this pressure requirement. Junction J-11 is located near the high elevation in Pressure Zone 1A and will not meet the minimum pressure of 65 psi due as explained in Section 3.4. Junction J-54 has a pressure of 63.5 psi and is near the highest elevation within Pressure Zone 3, which is difficult to maintain 65 psi while meeting other criteria during the Max Day analysis. Junction J-407 is near the base of tank (T-400). The pressure at this junction is dependent on the tank (T-400) HGL, and will likely be less than 65 psi during the Max Day demands.

Table D.5 lists the pipe results for the Max Day analysis. Pipes P-88 and P-89 exceed the maximum velocity of 5.0 fps. These pipes are within the existing pump station (PMP-1) where higher velocities are anticipated due to the small diameter (4 and 6-inch). Table D.6 lists the CWCWD master meter results for the Max Day analysis. The total outflow for all thirteen (13) master meters is 5,860.0 gpm, which is less than the Max Day demand for 2035 Scenario. Table D.7 lists the operating parameters for the eleven (11) PRV vaults.

Tables D.8 and D.9 lists the tank and pump results for the Max Day analysis. Tank (T-1) has a HGL of 5,192.50 and tank (T-400) has a HGL at an elevation of 5,145.00 Pump PMP-1 is operating at a flowrate of 500 gpm and pump PMP-400 is operating at a flowrate of 1,400 gpm, approximately half of its capacity.

3.6.2 Peak Hour Analysis

Table D.10 lists the junction results for the Peak Hour analysis. Junction J-3 is located near the existing tank site (T-1) does not meet the minimum pressure of 40 psi. Since this junction is not within the service area, it does not need to meet this pressure requirement.

Table D.11 lists the pipe results for the Peak Hour analysis. Pipes P-2 and P-89 exceed the maximum velocity of 7.5 fps. These pipes are within the existing pump station (PMP-1) where higher velocities are anticipated due to the diameters (4-inch and 12-inch) and high flow rates. Table D.12 lists the CWCWD master meter results for the Peak Hour analysis. The total outflow for all thirteen (13) master meters is 6,407.4 gpm, which exceeds the Max Day demand of 6,044.4 gpm by 6.0%. Minor adjustments can be made to get this to keep the total outflow for all of the CWCWD master meters below the Max Day demand. Table D.13 lists the operating parameters for the eleven (11) PRV vaults.

Tables D.14 and D.15 list the tank and pump results for the Peak Hour analysis. Tank (T-1) has a HGL of 5,192.50 and tank (T-400) has a HGL at an elevation of 5,145.00 Pump PMP-1 is pumping at 500 gpm and pump PMP-400 is pumping at 1,400 gpm.

3.6.3 Fire Flow Analysis

Table D.16 lists the results for the Fire Flow (Residential) analysis. A residential fire flow of 1,500 gpm was simulated at every junction with the exception of a few locations. Junctions J-1, J-2, J-3, and J-61 are located near the existing tank site (T-1) and not within the service area. All junctions with a (N/A) are not part of the 2035 Scenario. The fire flow requirement of 1,500 gpm is in addition to the Max Day demands at the individual junctions. All of the analyzed junctions

were capable of delivering the 1,500 gpm fire flow while maintaining a residual pressure of at least 20 psi.

Table C.17 lists the results for the Fire Flow (Commercial) analysis. A commercial fire flow of 3,000 gpm was simulated at every junction where commercial land uses exist or are anticipated. The fire flow requirement of 3,000 gpm is in addition to the Max Day demands at the individual junctions. All of the analyzed junctions were capable of delivering the 3,000 gpm fire flow while maintaining a residual pressure of at least 20 psi, with the exception of Junctions J-8, J-11, J-47, and J-62. Currently these, junctions can provide a fire flow between 2,165 – 2,723 gpm. These flows were limited since maximum flow rate were applied to most of CWCWD master meters in the WaterCAD model. Since these limitations are based on assumptions for the 2035 Scenario, the Fire Flow (Commercial) analysis can be evaluated as development occurs and specific land uses are determined.

3.7 Future Scenario

The final WaterCAD model was created to represent the future build out of the Study Area (Future Scenario). **All supporting documentation for the Future Scenario can be found in Appendix E.** Table E.1 identifies all of the areas of land use per section for the Future Scenario and has a developed area of 17,497.2 acres (this is in addition to the Existing Scenario). The total developed area for the Future Scenario is 18,817.3 acres. Table E.2 calculates the Average Day water demand and also distributes the demand to one or more junctions (nodes) for each of the additional land use areas. The demand per node is used to load the WaterCAD junctions which are listed in Table E.3. Table E.3 also includes the demands from the Existing Scenario. Depending on the location, some junctions do not support any water demands while other junctions support multiple demands. The total water demands for the Future Scenario are as follows:

- Average Day = 16,647.0 gpm
- Max Day = 33,294.0 gpm
- Peak Hour = 49,941.0 gpm

The total Average Day water demand for the Future Scenario is 16,647.0 gallons per minute (gpm) which is equivalent to an annual usage of 8,749,663,200 gallons. The annual usage based on population projections is 8,751,206,986 gallons for the 2123 calendar year (Table B.7, Appendix B).

3.7.1 Max Day Analysis

Table E.4 lists the junction results for the Max Day analysis. Junctions J-1, J-2, J-3, and J-61 are located near the existing tank site (T-1) do not meet the minimum pressure of 65 psi. Since these junctions are not within the service area, they do not need to meet this pressure requirement. Junctions J-54, J-66, J-219, J-222 – J-225, and J-407 do not meet the minimum pressure requirement, however they are all above 60 psi.

Table E.5 lists the pipe results for the Max Day analysis. There are several pipes that exceed the maximum velocity of 5.0 fps, however most of these pipes represent the modeled connection to the CWCWD master meters and are not a concern to the Town of Firestone. Other pipes that exceed the maximum velocity should be decreased with additional water system looping. Table E.6 lists the CWCWD master meter results for the Max Day analysis. The total outflow for all

seventeen (17) master meters is 28,794.8 gpm, which is less than the Max Day demand for Future Scenario. Table E.7 lists the operating parameters for the sixteen (16) PRV vaults.

Tables E.8 and E.9 lists the tank and pump results for the Max Day analysis. Tanks (T-1) and (T-200) have a HGL of 5,192.50 and tank (T-400) has a HGL at an elevation of 5,145.00. Pump PMP-1 and PMP-200 are operating at a flowrate of 500 gpm and pump PMP-400 is operating at a flowrate of 2,800 gpm.

3.7.2 Peak Hour Analysis

Table E.10 lists the junction results for the Peak Hour analysis. Junctions J-2 and J-3 are located near the existing tank site (T-1) do not meet the minimum pressure of 40 psi. Since these junctions are not within the service area, it does not need to meet this pressure requirement.

Table E.11 lists the pipe results for the Peak Hour analysis. There are several pipes that exceed the maximum velocity of 7.5 fps, however the velocity in these pipes should be decreased with additional water system looping. Table E.12 lists the CWCWD master meter results for the Peak Hour analysis. The total outflow for all seventeen (17) master meters is 32,007.7 gpm, which is less than the Max Day demand. Table E.13 lists the operating parameters for the sixteen (16) PRV vaults.

Tables E.14 and E.15 list the tank and pump results for the Peak Hour analysis. Tanks (T-1) and (T-200) have a HGL of 5,192.50 and tank (T-400) has a HGL at an elevation of 5,145.00. Pump PMP-1 and PMP-200 are operating at a flowrate of 500 gpm and pump PMP-400 is operating at a flowrate of 2,800 gpm.

3.7.3 Fire Flow Analysis

Table E.16 lists the results for the Fire Flow (Residential) analysis. A residential fire flow of 1,500 gpm was simulated at every junction with the exception of a few locations. Junctions J-1, J-2, J-3, and J-61 are located near the existing tank site (T-1) and not within the service area. The fire flow requirement of 1,500 gpm is in addition to the Max Day demands at the individual junctions. All of the analyzed junctions were capable of delivering the 1,500 gpm fire flow while maintaining a residual pressure of at least 20 psi.

Table E.17 lists the results for the Fire Flow (Commercial) analysis. A commercial fire flow of 3,000 gpm was simulated at every junction where commercial land uses exist or are anticipated. The fire flow requirement of 3,000 gpm is in addition to the Max Day demands at the individual junctions. All of the analyzed junctions were capable of delivering the 3,000 gpm fire flow while maintaining a residual pressure of at least 20 psi, with the exception of Junction J-62. This junction has an available fire flow of 2,898.9 gpm, which is acceptable for the Future Scenario.

4 Capital Improvement Projects

The cost and ability to fund the anticipated infrastructure improvements can be a significant issue. This section outlines some preliminary estimates on the cost of the proposed infrastructure and the ways in which funding may be obtained for construction. Operations and maintenance of potable water systems shall be met by appropriate water rates. The purpose of this Master Plan is to evaluate the existing infrastructure within the Study Area and determine which improvements to the existing infrastructure may be needed as development occurs.

There are a few capital improvement projects (CIP) that are planned to be constructed in 2010, which include the installation of PRV-208, PRV-210, and PRV-211. The only CIP currently scheduled for 2011 is the installation of Pump PMP-200 for Tank (T-1). PMP-200 will not add filling capacity to this pump station, but will provide a redundant pump so that Pump PMP-1 can be serviced. Pump PMP-200 will be used to fill Tank (T-200), which may be needed for storage as soon as 2012. Population growth rates over the next few years will dictate exactly when tank (T-200) will be needed. Table 4.1 shows the opinion of cost for these projects. The Town of Firestone 5-Year CIP Calendar does not currently list any water CIPs for the years 2012 – 2014.

Table 4.1 – Capital Improvement Projects Opinion of Cost

YEAR	PROJECT	COST[1]
2010	PRV-208 INSTALLATION	$149,500.00
2010	PRV-210 & PRV-211 INSTALLATION	$251,250.00
2011	PMP-200 INSTALLATION	$40,500.00
2012	1.5 MG TANK T-200 INSTALLLATION	$1,190,000.00

[1] 2010-2011 costs are based on the Town of Firestone 5-Year CIP Calendar

Other CIPs are dependent on when and where developments occur. As individual projects move through the development process in the future, the recommendations in this Master Plan will need to be reviewed to determine which components will be the responsibility of the developer and what components will be constructed by the Town as part of a CIP regional improvement.

4.1 Infrastructure Funding Sources

As previously mentioned, the primary funding source for infrastructure construction and improvements is the developer. However, the Town may require the design and construction of regional infrastructure that improves operation of the potable water system, so additional funding mechanisms are available if needed. Construction impact fees and monthly utility rates are two additional funding mechanisms at the Town's disposal should infrastructure funding be needed in addition to the developers funding. As construction costs increase, the impact fees and monthly utility rates should be evaluated to ensure they are providing an adequate funding source for future improvements.

5 References

2003 Water Master Plan, TST, Inc. Consulting Engineers, October 28, 2003

2010 Engineering CIP and Budgets Population Projection, Colorado Civil Group, Inc., November 2009

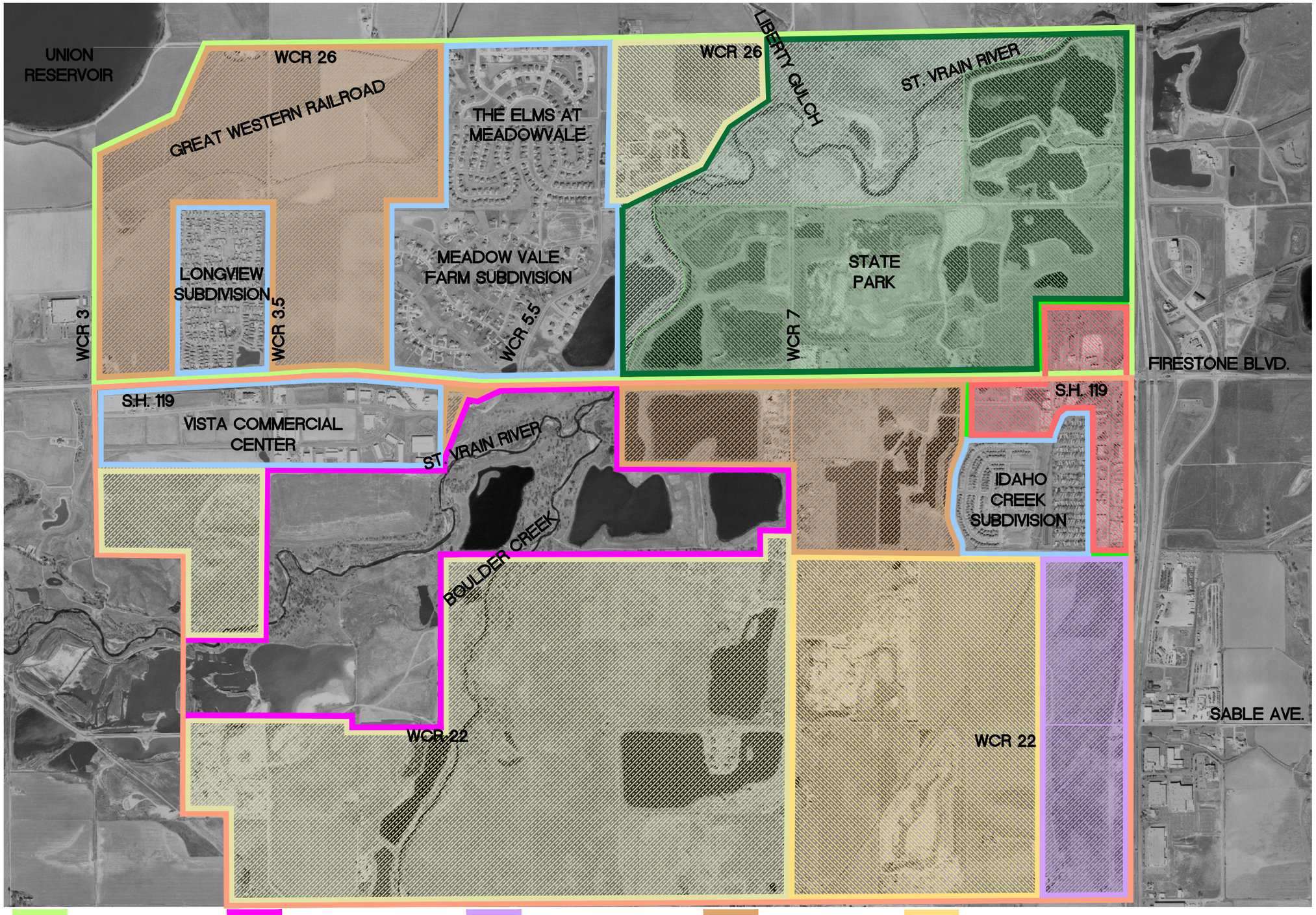
I-25 West Infrastructure Master Plan, Colorado Civil Group, Inc., August 2008

Raw Water Irrigation Master Plan, Colorado Civil Group, Inc., December 2009

Raw Water Master Plan, Clear Water Solutions, Inc., August 2007

Water System Master Plan for Central Weld County Water District (DRAFT), The Engineering Co., February 2007

Appendix A:
Base Mapping



LEGEND

- TOWN OF FIRESTONE GROWTH BOUNDARY
- EXTENDED STUDY AREA
- EXCLUDED CITY OF LONGMONT OWNED LAND
- EXCLUDED SUBDIVISIONS AND DEVELOPMENTS
- EMPLOYMENT/OFFICE LAND USE
- PARK AND COMMUNITY SEPARATOR LAND USE
- MIXED USE LAND USE
- RESIDENTIAL LOW LAND USE
- RESIDENTIAL MEDIUM LAND USE
- COMMERCIAL/RETAIL LAND USE

0 1500 3000
scale 1" = 1500' feet

REVISIONS	
DATE	REVISION DESCRIPTION

CCG COLORADO CIVIL GROUP, INC.
ENGINEERING CONSULTANTS
1413 W. 29TH STREET
LOVELAND, COLORADO 80538
(970) 278-0029

TOWN OF FIRESTONE
I-25 WEST INFRASTRUCTURE MASTER PLAN
ANTICIPATED LAND USES WEST OF I-25
EXHIBIT 4-2

FILENAME: 0280_01_LAND USE
DESIGNED: D.A.H.
CHECKED: D.B.L.
JOB NO.: 0668.0280.01
SCALE: H: 1" = 1500'
DATE: JULY 2008

EXHIBIT NO.: 4 - 2

Appendix B:
Water Usage Data

POTABLE WATER MASTER PLAN
TABLE B.1
2006 WATER USAGE

LAND USE	TAP SIZE (inches)	MONTHLY WATER USAGE												ANNUAL USAGE (gallons)
		JANUARY (gallons)	FEBRUARY (gallons)	MARCH (gallons)	APRIL (gallons)	MAY (gallons)	JUNE (gallons)	JULY (gallons)	AUGUST (gallons)	SEPTEMBER (gallons)	OCTOBER (gallons)	NOVEMBER (gallons)	DECEMBER (gallons)	
COMMERCIAL	5/8	119,000	109,000	143,000	195,000	425,000	636,000	515,000	569,000	414,000	238,000	169,000	141,000	**3,673,000**
	3/4	48,000	47,000	56,000	120,000	232,000	291,000	340,000	253,000	223,000	118,000	61,000	45,000	**1,834,000**
	1	108,000	110,000	152,000	572,000	989,000	1,277,000	1,232,000	1,290,000	911,000	447,000	175,000	158,000	**7,421,000**
	1 1/2	216,000	260,000	328,000	346,000	645,000	799,000	783,000	916,000	638,000	403,000	323,000	220,000	**5,877,000**
	2	190,000	174,000	167,000	187,000	206,000	276,000	258,000	259,000	220,000	193,000	269,000	220,000	**2,619,000**
	3	98,000	111,000	124,000	203,000	1,783,000	3,831,000	3,768,000	3,973,000	3,537,000	1,494,000	165,000	161,000	**19,248,000**
	SUBTOTAL	**779,000**	**811,000**	**970,000**	**1,623,000**	**4,280,000**	**7,110,000**	**6,896,000**	**7,260,000**	**5,943,000**	**2,893,000**	**1,162,000**	**945,000**	**40,672,000**
GOVERNMENT	5/8	0	0	0	96,000	120,000	206,000	216,000	192,000	87,000	70,000	0	0	**987,000**
	3/4	2,000	4,000	3,000	111,000	135,000	243,000	214,000	197,000	97,000	692,000	4,000	5,000	**1,707,000**
	1	0	0	2,000	457,000	753,000	1,224,000	1,255,000	1,040,000	903,000	346,000	21,000	0	**6,001,000**
	1 1/2	0	0	0	787,000	1,950,000	3,613,000	3,893,000	3,463,000	1,949,000	1,949,000	32,000	0	**17,636,000**
	2	7,000	5,000	6,000	2,353,000	5,261,000	6,121,000	6,119,000	5,869,000	4,548,000	2,261,000	358,000	4,000	**32,912,000**
	SUBTOTAL	**9,000**	**9,000**	**11,000**	**3,804,000**	**8,219,000**	**11,407,000**	**11,697,000**	**10,761,000**	**7,584,000**	**5,318,000**	**415,000**	**9,000**	**59,243,000**
IND	5/8	84,000	70,000	71,000	100,000	112,000	125,000	118,000	138,000	100,000	83,000	114,000	84,000	**1,199,000**
	1 1/2	56,000	57,000	60,000	76,000	114,000	155,000	162,000	164,000	219,000	68,000	37,000	31,000	**1,199,000**
	SUBTOTAL	**140,000**	**127,000**	**131,000**	**176,000**	**226,000**	**280,000**	**280,000**	**302,000**	**319,000**	**151,000**	**151,000**	**115,000**	**2,398,000**
IRRIGATION	5/8	0	0	0	0	0	0	1,000	1,000	0	1,000	0	0	**3,000**
	3/4	0	0	0	48,000	223,000	513,000	710,000	717,000	621,000	177,000	0	0	**3,009,000**
	1	0	0	0	450,000	1,177,000	2,587,000	2,842,000	2,862,000	2,090,000	583,000	0	0	**12,591,000**
	1 1/2	0	0	20,000	432,000	2,234,000	4,401,000	4,138,000	4,300,000	2,591,000	840,000	0	0	**18,956,000**
	2	2,000	0	4,000	585,000	1,738,000	2,246,000	2,572,000	2,764,000	2,554,000	849,000	112,000	0	**13,426,000**
	SUBTOTAL	**2,000**	**0**	**24,000**	**1,515,000**	**5,372,000**	**9,747,000**	**10,263,000**	**10,644,000**	**7,856,000**	**2,450,000**	**112,000**	**0**	**47,985,000**
M-F	3/4	111,000	154,000	125,000	168,000	210,000	244,000	260,000	308,000	210,000	149,000	160,000	147,000	**2,246,000**
	1	0	1,000	2,000	13,000	24,000	40,000	35,000	35,000	40,000	33,000	38,000	37,000	**298,000**
	SUBTOTAL	**111,000**	**155,000**	**127,000**	**181,000**	**234,000**	**284,000**	**295,000**	**343,000**	**250,000**	**182,000**	**198,000**	**184,000**	**2,544,000**
R	5/8	11,479,000	11,577,000	11,329,000	29,812,000	46,242,000	68,665,000	58,821,000	61,245,000	44,697,000	24,129,000	13,020,000	11,414,000	**392,430,000**
	6	610,000	900,000	825,000	1,790,000	2,830,000	5,015,000	4,175,000	3,555,000	2,590,000	1,200,000	775,000	635,000	**24,900,000**
	SUBTOTAL	12,089,000	12,477,000	12,154,000	31,602,000	49,072,000	73,680,000	62,996,000	64,800,000	47,287,000	25,329,000	13,795,000	12,049,000	**417,330,000**
	TOTAL	**12,520,000**	**12,679,000**	**12,592,000**	**37,111,000**	**64,573,000**	**97,493,000**	**88,252,000**	**90,555,000**	**66,649,000**	**35,123,000**	**15,058,000**	**12,667,000**	**570,172,000**

POTABLE WATER MASTER PLAN
TABLE B.2
2007 WATER USAGE

LAND USE	TAP SIZE (inches)	MONTHLY WATER USAGE												ANNUAL USAGE (gallons)
		JANUARY (gallons)	FEBRUARY (gallons)	MARCH (gallons)	APRIL (gallons)	MAY (gallons)	JUNE (gallons)	JULY (gallons)	AUGUST (gallons)	SEPTEMBER (gallons)	OCTOBER (gallons)	NOVEMBER (gallons)	DECEMBER (gallons)	
COMMERCIAL	5/8	204,000	139,000	168,000	214,000	366,000	439,000	570,000	498,000	434,000	314,000	154,000	91,000	**3,591,000**
	3/4	54,000	52,000	51,000	67,000	157,000	191,000	240,000	213,000	177,000	133,000	44,000	38,000	**1,417,000**
	1	155,000	171,000	173,000	283,000	1,150,000	1,164,000	1,444,000	1,235,000	1,346,000	856,000	208,000	179,000	**8,364,000**
	1 1/2	428,000	419,000	409,000	452,000	875,000	971,000	1,363,000	1,355,000	943,000	718,000	505,000	593,000	**9,031,000**
	2	252,000	231,000	225,000	263,000	299,000	283,000	333,000	279,000	265,000	269,000	218,000	187,000	**3,104,000**
	3	164,000	160,000	179,000	679,000	2,688,000	3,006,000	3,517,000	3,003,000	2,150,000	2,281,000	423,000	147,000	**18,397,000**
	SUBTOTAL	**1,257,000**	**1,172,000**	**1,205,000**	**1,958,000**	**5,535,000**	**6,054,000**	**7,467,000**	**6,583,000**	**5,315,000**	**4,571,000**	**1,552,000**	**1,235,000**	**43,904,000**
GOVERNMENT	5/8	0	0	0	84,000	132,000	182,000	189,000	163,000	118,000	62,000	0	0	**930,000**
	3/4	5,000	7,000	10,000	78,000	127,000	363,000	233,000	212,000	131,000	37,000	4,000	6,000	**1,213,000**
	1	0	0	12,000	444,000	809,000	1,223,000	787,000	809,000	457,000	429,000		0	**4,970,000**
	1 1/2	0	0	129,000	1,393,000	2,647,000	3,696,000	3,714,000	4,921,000	4,674,000	1,842,000	0	0	**23,016,000**
	2	3,000	6,000	241,000	1,790,000	4,103,000	5,197,000	5,947,000	4,762,000	4,875,000	4,629,000	0	1,000	**31,554,000**
	SUBTOTAL	**8,000**	**13,000**	**392,000**	**3,789,000**	**7,818,000**	**10,661,000**	**10,870,000**	**10,867,000**	**10,255,000**	**6,999,000**	**4,000**	**7,000**	**61,683,000**
IND	5/8	98,000	77,000	97,000	126,000	101,000	111,000	130,000	131,000	119,000	136,000	110,000	89,000	**1,325,000**
	1 1/2	31,000	32,000	35,000	38,000	135,000	181,000	238,000	119,000	103,000	69,000	37,000	29,000	**1,047,000**
	SUBTOTAL	**129,000**	**109,000**	**132,000**	**164,000**	**236,000**	**292,000**	**368,000**	**250,000**	**222,000**	**205,000**	**147,000**	**118,000**	**2,372,000**
IRRIGATION	5/8	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	3/4	0	0	1,000	25,000	301,000	424,000	478,000	647,000	730,000	316,000	0	0	**2,922,000**
	1	0	0	0	241,000	1,172,000	2,046,000	2,708,000	2,835,000	2,139,000	983,000	0	0	**12,124,000**
	1 1/2	0	0	16,000	213,000	1,273,000	2,927,000	4,261,000	4,110,000	2,786,000	912,000	37,000	0	**16,535,000**
	2	0	0	0	75,000	1,106,000	2,189,000	3,150,000	2,814,000	2,262,000	661,000	0	0	**12,257,000**
	SUBTOTAL	**0**	**0**	**17,000**	**554,000**	**3,852,000**	**7,586,000**	**10,597,000**	**10,406,000**	**7,917,000**	**2,872,000**	**37,000**	**0**	**43,838,000**
M-F	3/4	162,000	137,000	135,000	189,000	236,000	283,000	317,000	265,000	217,000	185,000	157,000	151,000	**2,434,000**
	1	38,000	38,000	34,000	40,000	43,000	42,000	41,000	42,000	40,000	44,000	42,000	39,000	**483,000**
	SUBTOTAL	**200,000**	**175,000**	**169,000**	**229,000**	**279,000**	**325,000**	**358,000**	**307,000**	**257,000**	**229,000**	**199,000**	**190,000**	**2,917,000**
R	5/8	13,337,000	11,535,000	11,895,000	20,252,000	45,436,000	56,860,000	69,067,000	53,525,000	49,707,000	31,084,000	13,382,000	11,039,000	**387,119,000**
	6	765,000	640,000	600,000	985,000	2,555,000	3,830,000	4,685,000	3,245,000	2,735,000	1,675,000	765,000	1,385,000	**23,865,000**
	SUBTOTAL	**14,102,000**	**12,175,000**	**12,495,000**	**21,237,000**	**47,991,000**	**60,690,000**	**73,752,000**	**56,770,000**	**52,442,000**	**32,759,000**	**14,147,000**	**12,424,000**	**410,984,000**
	TOTAL	**14,931,000**	**13,004,000**	**13,810,000**	**26,946,000**	**63,156,000**	**81,778,000**	**98,727,000**	**81,938,000**	**73,673,000**	**45,960,000**	**15,321,000**	**12,589,000**	**565,698,000**

POTABLE WATER MASTER PLAN
TABLE B.3
2008 WATER USAGE

LAND USE	TAP SIZE (inches)	MONTHLY WATER USAGE												ANNUAL USAGE (gallons)
		JANUARY (gallons)	FEBRUARY (gallons)	MARCH (gallons)	APRIL (gallons)	MAY (gallons)	JUNE (gallons)	JULY (gallons)	AUGUST (gallons)	SEPTEMBER (gallons)	OCTOBER (gallons)	NOVEMBER (gallons)	DECEMBER (gallons)	
COMMERCIAL	5/8	256,000	158,000	178,000	283,000	329,000	427,000	645,000	497,000	397,000	359,000	158,000	161,000	**3,848,000**
	3/4	60,000	46,000	43,000	117,000	194,000	281,000	298,000	187,000	126,000	94,000	37,000	40,000	**1,523,000**
	1	227,000	217,000	239,000	407,000	1,332,000	1,741,000	2,487,000	2,094,000	1,489,000	1,291,000	383,000	317,000	**12,224,000**
	1 1/2	947,000	799,000	714,000	743,000	1,134,000	1,462,000	1,524,000	1,382,000	1,324,000	1,165,000	517,000	720,000	**12,431,000**
	2	257,000	282,000	227,000	238,000	343,000	1,159,000	1,683,000	1,362,000	1,025,000	709,000	215,000	210,000	**7,710,000**
	3	331,000	332,000	356,000	755,000	2,069,000	2,798,000	4,087,000	3,321,000	2,786,000	1,903,000	423,000	309,000	**19,470,000**
	SUBTOTAL	**2,078,000**	**1,834,000**	**1,757,000**	**2,543,000**	**5,401,000**	**7,868,000**	**10,724,000**	**8,843,000**	**7,147,000**	**5,521,000**	**1,733,000**	**1,757,000**	**57,206,000**
GOVERNMENT	5/8	0	0	0	16,000	65,000	135,000	242,000	217,000	177,000	61,000	0	0	**913,000**
	3/4	8,000	7,000	11,000	81,000	110,000	219,000	298,000	273,000	199,000	69,000	6,000	7,000	**1,288,000**
	1	0	0	0	119,000	297,000	603,000	1,161,000	746,000	477,000	195,000	0	0	**3,598,000**
	1 1/2	0	0	10,000	681,000	2,677,000	4,475,000	6,247,000	5,448,000	4,237,000	1,814,000	110,000	0	**25,699,000**
	2	0	1,000	0	1,289,000	2,616,000	6,922,000	9,681,000	8,290,000	5,984,000	2,666,000	0	0	**37,449,000**
	SUBTOTAL	**8,000**	**8,000**	**21,000**	**2,186,000**	**5,765,000**	**12,354,000**	**17,629,000**	**14,974,000**	**11,074,000**	**4,805,000**	**116,000**	**7,000**	**68,947,000**
IND	5/8	101,000	90,000	76,000	48,000	69,000	78,000	109,000	82,000	52,000	49,000	41,000	43,000	**838,000**
	1 1/2	29,000	27,000	33,000	54,000	152,000	123,000	132,000	126,000	76,000	33,000	34,000	21,000	**840,000**
	SUBTOTAL	**130,000**	**117,000**	**109,000**	**102,000**	**221,000**	**201,000**	**241,000**	**208,000**	**128,000**	**82,000**	**75,000**	**64,000**	**1,678,000**
IRRIGATION	5/8	0	0	3,000	0	0	11,000	18,000	15,000	15,000	15,000	0	0	**77,000**
	3/4	0	0	0	187,000	400,000	465,000	699,000	549,000	570,000	224,000	0	0	**3,094,000**
	1	0	0	0	356,000	1,702,000	2,204,000	4,391,000	3,818,000	2,886,000	769,000	0	0	**16,126,000**
	1 1/2	0	0	0	294,000	2,635,000	3,679,000	5,583,000	4,941,000	3,448,000	476,000	0	0	**21,056,000**
	2	0	0	0	38,000	1,111,000	1,366,000	2,520,000	1,557,000	1,246,000	438,000	66,000	0	**8,342,000**
	SUBTOTAL	**0**	**0**	**3,000**	**875,000**	**5,848,000**	**7,725,000**	**13,211,000**	**10,880,000**	**8,165,000**	**1,922,000**	**66,000**	**0**	**48,695,000**
M-F	3/4	182,000	137,000	126,000	152,000	170,000	187,000	181,000	187,000	290,000	175,000	102,000	135,000	**2,024,000**
	1	49,000	46,000	51,000	63,000	52,000	47,000	63,000	61,000	57,000	68,000	58,000	60,000	**675,000**
	SUBTOTAL	**231,000**	**183,000**	**177,000**	**215,000**	**222,000**	**234,000**	**244,000**	**248,000**	**347,000**	**243,000**	**160,000**	**195,000**	**2,699,000**
R	5/8	14,379,000	11,518,000	12,284,000	24,538,000	40,265,000	58,131,000	79,613,000	57,523,000	44,974,000	30,459,000	12,959,000	13,524,000	**400,167,000**
	6	3,445,000	865,000	720,000	1,695,000	2,325,000	3,765,000	5,380,000	3,290,000	2,260,000	1,590,000	860,000	1,080,000	**27,275,000**
	SUBTOTAL	17,824,000	12,383,000	13,004,000	26,233,000	42,590,000	61,896,000	84,993,000	60,813,000	47,234,000	32,049,000	13,819,000	14,604,000	**427,442,000**
	TOTAL	**16,826,000**	**13,660,000**	**14,351,000**	**30,459,000**	**57,722,000**	**86,513,000**	**121,662,000**	**92,676,000**	**71,835,000**	**43,032,000**	**15,109,000**	**15,547,000**	**606,667,000**

POTABLE WATER MASTER PLAN
TABLE B.4
2006 CWCWD WATER USAGE

MASTER METER I.D.	MONTHLY WATER USAGE 2006												ANNUAL USAGE (gallons)
	JANUARY (gallons)	FEBRUARY (gallons)	MARCH (gallons)	APRIL (gallons)	MAY (gallons)	JUNE (gallons)	JULY (gallons)	AUGUST (gallons)	SEPTEMBER (gallons)	OCTOBER (gallons)	NOVEMBER (gallons)	DECEMBER (gallons)	
North Meter	902,000	245,000	510,000	1,180,000	852,000	1,318,000	822,000	1,361,000	965,000	459,000	178,000	117,000	**8,909,000**
South Meter	3,549,000	2,829,000	3,560,000	4,405,000	9,477,000	14,602,000	11,992,000	15,034,000	11,014,000	6,269,000	2,798,000	3,423,000	**88,952,000**
#9018 Wendy's	2,000	1,000	7,000	1,000	4,000	45,000	288,000	198,000	3,000	0	11,000	0	**560,000**
#9020 Ridge Crest	548,000	330,000	504,000	4,234,000	15,618,000	21,236,000	17,345,000	11,596,000	14,669,000	9,448,000	961,000	2,069,000	**98,558,000**
#9019 Oak Meadows	0	0	16,000	3,091,000	20,818,000	34,636,000	12,476,000	18,290,000	12,722,000	7,213,000	483,000	244,000	**109,989,000**
#9035 St. Vrain Ranch	9,925,000	7,930,000	9,033,000	15,195,000	10,225,000	10,362,000	18,880,000	24,930,000	34,392,000	1,425,000	10,577,000	9,103,000	**161,977,000**
#9036 DCJBP	331,000	264,000	363,000	504,000	2,358,000	3,124,000	2,628,000	1,492,000	12,000	1,000	13,000	0	**11,090,000**
#9014 Hall	5,000	5,000	4,000	6,000	8,000	17,000	24,000	50,000	11,000	15,000	6,000	6,000	**157,000**
#9026 Del Ray	35,000	24,000	24,000	53,000	297,000	520,000	523,000	479,000	372,000	196,000	26,000	26,000	**2,575,000**
#9037 Eagle Crest	1,898,000	1,567,000	1,767,000	2,404,000	7,227,000	7,239,000	4,512,000	7,151,000	5,554,000	4,322,000	2,473,000	1,975,000	**48,089,000**
#9040 Maint	0	0	0	0	0	0	0	0	0	0	0	0	**0**
#9041 Gillespie	393,000	326,000	464,000	1,292,000	2,626,000	5,328,000	4,342,000	2,487,000	2,232,000	1,523,000	246,000	298,000	**21,557,000**
#880	3,000	2,000	4,000	9,000	15,000	40,000	18,000	32,000	13,000	14,000	1,000	2,000	**153,000**
#900	56,000	47,000	98,000	51,000	198,000	243,000	231,000	288,000	236,000	167,000	89,000	74,000	**1,778,000**
#910	0	0	0	0	0	0	0	0	0	0	0	0	**0**
#938	0	0	0	1,000	0	1,000	1,000	0	1,000	0	0	0	**4,000**
#949	129,000	102,000	136,000	117,000	157,000	209,000	222,000	434,000	831,000	66,000	3,000	5,000	**2,411,000**
#1059	2,000	4,000	6,000	14,000	16,000	46,000	24,000	37,000	29,000	14,000	4,000	3,000	**199,000**
#9010 Shaw	0	10,000	0	13,000	12,000	28,000	21,000	31,000	22,000	7,000	1,000	0	**145,000**
#9055 Stoneridge		443,000	114,000	881,000	2,526,000	4,146,000	4,845,000	9,429,000	8,516,000	4,699,000	343,000	537,000	**36,479,000**
SUBTOTAL	**17,778,000**	**14,129,000**	**16,610,000**	**33,451,000**	**72,434,000**	**103,140,000**	**79,194,000**	**93,319,000**	**91,594,000**	**35,838,000**	**18,213,000**	**17,882,000**	**593,582,000**

POTABLE WATER MASTER PLAN
TABLE B.5
2007 CWCWD WATER USAGE

MASTER METER I.D.	MONTHLY WATER USAGE												ANNUAL USAGE (gallons)
	JANUARY (gallons)	FEBRUARY (gallons)	MARCH (gallons)	APRIL (gallons)	MAY (gallons)	JUNE (gallons)	JULY (gallons)	AUGUST (gallons)	SEPTEMBER (gallons)	OCTOBER (gallons)	NOVEMBER (gallons)	DECEMBER (gallons)	
North Meter	104,000	86,000	99,000	226,000	671,000	1,006,000	1,699,000	1,106,000	1,022,000	783,000	237,000	108,000	**7,147,000**
South Meter	3,338,000	3,125,000	3,349,000	4,287,000	8,457,000	9,094,000	8,376,000	4,268,000	7,764,000	3,201,000	3,407,000	3,108,000	**61,774,000**
#9018 Wendy's	166,000	244,000	188,000	399,000	509,000	754,000	1,839,000	439,000	211,000	4,000	2,000	0	**4,755,000**
#9020 Ridge Crest	3,558,000	5,781,000	6,748,000	12,904,000	17,256,000	18,848,000	17,030,000	3,074,000	2,787,000	0	0	1,000	**87,987,000**
#9019 Oak Meadows	0	0	0	0	60,000	366,000	2,571,000	988,000	942,000	30,000	0	1,619,000	**6,576,000**
#9035 St. Vrain Ranch	4,402,000	4,091,000	4,446,000	8,847,000	21,017,000	24,013,000	29,564,000	51,238,000	57,868,000	31,306,000	11,785,000	8,175,000	**256,752,000**
#9036 DCJBP	0	1,000	0	0	0	2,024,000	10,151,000	7,271,000	7,034,000	9,777,000	3,313,000	2,407,000	**41,978,000**
#9014 Hall	3,000	21,000	5,000	7,000	8,000	7,000	20,000	47,000	36,000	-11,000	7,000	5,000	**155,000**
#9026 Del Ray	26,000	23,000	23,000	80,000	271,000	389,000	563,000	329,000	385,000	193,000	38,000	20,000	**2,340,000**
#9037 Eagle Crest	1,949,000	2,119,000	1,748,000	984,000	829,000	1,125,000	4,554,000	1,465,000	1,153,000	154,000	11,000	1,000	**16,092,000**
#9040 Maint	0	0	0	0	0	0	0	0	0	0	0	0	**0**
#9041 Gillespie	288,000	263,000	231,000	708,000	2,027,000	2,349,000	12,538,000	6,101,000	9,440,000	3,415,000	410,000	431,000	**38,201,000**
#880	3,000	2,000	2,000	2,000	12,000	22,000	40,000	15,000	19,000	8,000	3,000	5,000	**133,000**
#900	5,094,000	69,000	80,000	93,000	101,000	130,000	212,000	160,000	167,000	79,000	86,000	43,000	**6,314,000**
#910	0	0	0	0	0	0	0	0	0	0	0	0	**0**
#938	0	0	0	0	0	1,000	0	1,000	0	0	0	0	**2,000**
#949	4,000	21,000	9,000	13,000	40,000	44,000	108,000	68,000	36,000	14,000	13,000	12,000	**382,000**
#1059	3,000	3,000	3,000	14,000	12,000	51,000	42,000	32,000	29,000	17,000	3,000	2,000	**211,000**
#9010 Shaw	2,000	0	2,000	0	13,000	18,000	37,000	22,000	30,000	19,000	2,000	3,000	**148,000**
#9055 Stoneridge	85,000	20,000	92,000	2,048,000	8,306,000	11,124,000	8,128,000	7,828,000	5,102,000	245,000	16,000	0	**42,994,000**
SUBTOTAL	**19,025,000**	**15,869,000**	**17,025,000**	**30,612,000**	**59,589,000**	**71,365,000**	**97,472,000**	**84,452,000**	**94,025,000**	**49,234,000**	**19,333,000**	**15,940,000**	**573,941,000**

POTABLE WATER MASTER PLAN
TABLE B.6
2008 CWCWD WATER USAGE

MASTER METER I.D.	MONTHLY WATER USAGE												ANNUAL USAGE (gallons)
	JANUARY (gallons)	FEBRUARY (gallons)	MARCH (gallons)	APRIL (gallons)	MAY (gallons)	JUNE (gallons)	JULY (gallons)	AUGUST (gallons)	SEPTEMBER (gallons)	OCTOBER (gallons)	NOVEMBER (gallons)	DECEMBER (gallons)	
North Meter	103,000	279,000	87,000	177,000	1,155,000	1,846,000	2,839,000	1,703,000	1,423,000	1,132,000	151,000	190,000	**11,085,000**
South Meter	4,030,000	3,368,000	2,711,000	4,128,000	6,003,000	10,211,000	13,970,000	4,151,000	5,612,000	167,000	220,000	118,000	**54,689,000**
#9018 Wendy's	0	0	6,000	1,000	44,000	223,000	69,000	603,000	-595,000	0	1,000	0	**352,000**
#9020 Ridge Crest	0	0	5,000,000	0	0	18,332,000	46,861,000	27,902,000	36,243,000	29,200,000	11,107,000	8,727,000	**183,372,000**
#9019 Oak Meadows	12,383,000	8,258,000	9,678,000	5,601,000	14,900,000	432,000	11,612,000	5,800,000	5,110,000	3,069,000	4,000	0	**76,847,000**
#9035 St. Vrain Ranch	91,000	33,000	475,000	8,170,000	27,036,000	27,496,000	18,747,000	14,283,000	16,350,000	7,845,000	37,000	0	**120,563,000**
#9036 DCJBP	5,213,000	2,574,000	2,294,000	4,040,000	9,223,000	12,267,000	9,498,000	6,361,000	8,435,000	4,750,000	2,406,000	2,685,000	**69,746,000**
#9014 Hall	10,000	6,000	7,000	6,000	5,000	7,000	35,000	35,000	5,000	3,000	0	0	**119,000**
#9026 Del Ray	34,000	24,000	31,000	60,000	192,000	425,000	622,000	373,000	337,000	185,000	56,000	32,000	**2,371,000**
#9037 Eagle Crest	1,000	0	2,000	1,000	183,000	364,000	173,000	54,000	20,000	14,000	16,000	67,000	**895,000**
#9040 Maint	0	0	0	0	0	0	0	0	0	0	0	0	**0**
#9041 Gillespie	4,299,000	774,000	383,000	0	1,644,000	3,033,000	7,201,000	1,980,000	667,000	329,000	514,000	65,000	**20,889,000**
#880	1,000	2,000	2,000	5,000	3,000	30,000	38,000	15,000	12,000	1,000	0	0	**109,000**
#900	91,000	75,000	75,000	131,000	136,000	226,000	209,000	198,000	199,000	156,000	85,000	50,000	**1,631,000**
#910	0	0	0	0	0	0	0	0	0	0	0	0	**0**
#938	0	0	0	0	0	0	0	0	0	0	0	0	**0**
#949	3,000	4,000	2,000	5,000	10,000	34,000	74,000	27,000	35,000	23,000	14,000	9,000	**240,000**
#1059	4,000	3,000	4,000	6,000	13,000	35,000	37,000	53,000	12,000	0	0	2,000	**169,000**
#9010 Shaw	1,000	0	2,000	4,000	6,000	16,000	43,000	14,000	8,000	6,000	6,000	5,000	**111,000**
#9055 Stoneridge	0	0	1,000	1,000	220,000	6,846,000	17,798,000	31,000	11,180,000	4,589,000	674,000	176,000	**41,516,000**
#9075 New Tank								3,464,000	12,124,000	6,218,000	2,657,000	3,397,000	**27,860,000**
SUBTOTAL	**26,264,000**	**15,400,000**	**20,760,000**	**22,336,000**	**60,773,000**	**81,823,000**	**129,826,000**	**67,047,000**	**97,177,000**	**57,687,000**	**17,948,000**	**15,523,000**	**612,564,000**

POTABLE WATER MASTER PLAN
TABLE B.7
WATER OWNERSHIP REQUIREMENTS

NO. OF YEARS	YEAR	GROWTH RATE[1]	POPULATION	ANNUAL WATER USAGE (gallons)	ANNUAL WATER USAGE (acre-feet)	REQUIRED CBT SHARES
	2,008	2.25%	9,535	606,667,000	1,862	3,192
	2,009	2.25%	9,750	620,317,008	1,904	3,264
0	2,010	2.25%	9,969	634,274,140	1,947	3,337
1	2,011	3.50%	10,318	656,473,735	2,015	3,454
2	2,012	5.00%	10,834	689,297,422	2,116	3,627
3	2,013	10.00%	11,918	758,227,164	2,327	3,989
4	2,014	10.00%	13,109	834,049,880	2,560	4,388
5	2,015	8.00%	14,158	900,773,871	2,765	4,739
6	2,016	7.00%	15,149	963,828,042	2,958	5,071
7	2,017	6.00%	16,058	1,021,657,724	3,136	5,375
8	2,018	4.00%	16,701	1,062,524,033	3,261	5,590
9	2,019	3.00%	17,202	1,094,399,754	3,359	5,758
10	2,020	3.00%	17,718	1,127,231,747	3,460	5,931
11	2,021	3.00%	18,249	1,161,048,699	3,563	6,109
12	2,022	2.00%	18,614	1,184,269,673	3,635	6,231
13	2,023	2.00%	18,986	1,207,955,067	3,707	6,355
14	2,024	2.00%	19,366	1,232,114,168	3,781	6,483
15	2,025	2.00%	19,753	1,256,756,451	3,857	6,612
16	2,026	2.00%	20,148	1,281,891,580	3,934	6,744
17	2,027	2.00%	20,551	1,307,529,412	4,013	6,879
18	2,028	2.00%	20,962	1,333,680,000	4,093	7,017
19	2,029	2.00%	21,382	1,360,353,600	4,175	7,157
20	2,030	2.00%	21,809	1,387,560,672	4,259	7,300
21	2,031	2.00%	22,246	1,415,311,886	4,344	7,446
22	2,032	2.00%	22,690	1,443,618,124	4,431	7,595
23	2,033	2.00%	23,144	1,472,490,486	4,519	7,747
24	2,034	2.00%	23,607	1,501,940,296	4,610	7,902
25	2,035	2.00%	24,079	1,531,979,102	4,702	8,060
26	2,036	2.00%	24,561	1,562,618,684	4,796	8,221
27	2,037	2.00%	25,052	1,593,871,057	4,892	8,386
28	2,038	2.00%	25,553	1,625,748,478	4,990	8,554
29	2,039	2.00%	26,064	1,658,263,448	5,089	8,725
30	2,040	2.00%	26,585	1,691,428,717	5,191	8,899
31	2,041	2.00%	27,117	1,725,257,291	5,295	9,077
32	2,042	2.00%	27,660	1,759,762,437	5,401	9,259
33	2,043	2.00%	28,213	1,794,957,686	5,509	9,444
34	2,044	2.00%	28,777	1,830,856,840	5,619	9,633
35	2,045	2.00%	29,353	1,867,473,976	5,731	9,825
36	2,046	2.00%	29,940	1,904,823,456	5,846	10,022
37	2,047	2.00%	30,538	1,942,919,925	5,963	10,222
38	2,048	2.00%	31,149	1,981,778,324	6,082	10,427

POTABLE WATER MASTER PLAN
TABLE B.7
WATER OWNERSHIP REQUIREMENTS

NO. OF YEARS	YEAR	GROWTH RATE[1]	POPULATION	ANNUAL WATER USAGE (gallons)	ANNUAL WATER USAGE (acre-feet)	REQUIRED CBT SHARES
39	2,049	2.00%	31,772	2,021,413,890	6,204	10,635
40	2,050	2.00%	32,408	2,061,842,168	6,328	10,848
41	2,051	2.00%	33,056	2,103,079,011	6,455	11,065
42	2,052	2.00%	33,717	2,145,140,591	6,584	11,286
43	2,053	2.00%	34,391	2,188,043,403	6,715	11,512
44	2,054	2.00%	35,079	2,231,804,271	6,850	11,742
45	2,055	2.00%	35,781	2,276,440,357	6,987	11,977
46	2,056	2.00%	36,496	2,321,969,164	7,126	12,217
47	2,057	2.00%	37,226	2,368,408,547	7,269	12,461
48	2,058	2.00%	37,971	2,415,776,718	7,414	12,710
49	2,059	2.00%	38,730	2,464,092,252	7,563	12,964
50	2,060	2.00%	39,505	2,513,374,098	7,714	13,224
51	2,061	2.00%	40,295	2,563,641,579	7,868	13,488
52	2,062	2.00%	41,101	2,614,914,411	8,025	13,758
53	2,063	2.00%	41,923	2,667,212,699	8,186	14,033
54	2,064	2.00%	42,761	2,720,556,953	8,350	14,314
55	2,065	2.00%	43,616	2,774,968,092	8,517	14,600
56	2,066	2.00%	44,489	2,830,467,454	8,687	14,892
57	2,067	2.00%	45,378	2,887,076,803	8,861	15,190
58	2,068	2.00%	46,286	2,944,818,339	9,038	15,494
59	2,069	2.00%	47,212	3,003,714,706	9,219	15,803
60	2,070	2.00%	48,156	3,063,789,000	9,403	16,120
61	2,071	2.00%	49,119	3,125,064,780	9,591	16,442
62	2,072	2.00%	50,101	3,187,566,076	9,783	16,771
63	2,073	2.00%	51,103	3,251,317,397	9,979	17,106
64	2,074	2.00%	52,126	3,316,343,745	10,178	17,448
65	2,075	2.00%	53,168	3,382,670,620	10,382	17,797
66	2,076	2.00%	54,231	3,450,324,033	10,589	18,153
67	2,077	2.00%	55,316	3,519,330,513	10,801	18,516
68	2,078	2.00%	56,422	3,589,717,124	11,017	18,887
69	2,079	2.00%	57,551	3,661,511,466	11,238	19,264
70	2,080	2.00%	58,702	3,734,741,695	11,462	19,650
71	2,081	2.00%	59,876	3,809,436,529	11,692	20,043
72	2,082	2.00%	61,073	3,885,625,260	11,925	20,443
73	2,083	2.00%	62,295	3,963,337,765	12,164	20,852
74	2,084	2.00%	63,541	4,042,604,520	12,407	21,269
75	2,085	2.00%	64,812	4,123,456,611	12,655	21,695
76	2,086	2.00%	66,108	4,205,925,743	12,908	22,129
77	2,087	2.00%	67,430	4,290,044,258	13,167	22,571
78	2,088	2.00%	68,779	4,375,845,143	13,430	23,023
79	2,089	2.00%	70,154	4,463,362,046	13,698	23,483

POTABLE WATER MASTER PLAN
TABLE B.7
WATER OWNERSHIP REQUIREMENTS

NO. OF YEARS	YEAR	GROWTH RATE[1]	POPULATION	ANNUAL WATER USAGE (gallons)	ANNUAL WATER USAGE (acre-feet)	REQUIRED CBT SHARES
80	2,090	2.00%	71,557	4,552,629,287	13,972	23,953
81	2,091	2.00%	72,988	4,643,681,872	14,252	24,432
82	2,092	2.00%	74,448	4,736,555,510	14,537	24,920
83	2,093	2.00%	75,937	4,831,286,620	14,828	25,419
84	2,094	2.00%	77,456	4,927,912,353	15,124	25,927
85	2,095	2.00%	79,005	5,026,470,600	15,427	26,446
86	2,096	2.00%	80,585	5,127,000,012	15,735	26,975
87	2,097	2.00%	82,197	5,229,540,012	16,050	27,514
88	2,098	2.00%	83,841	5,334,130,812	16,371	28,065
89	2,099	2.00%	85,517	5,440,813,428	16,698	28,626
90	2,100	2.00%	87,228	5,549,629,697	17,032	29,198
91	2,101	2.00%	88,972	5,660,622,291	17,373	29,782
92	2,102	2.00%	90,752	5,773,834,737	17,720	30,378
93	2,103	2.00%	92,567	5,889,311,431	18,075	30,985
94	2,104	2.00%	94,418	6,007,097,660	18,436	31,605
95	2,105	2.00%	96,307	6,127,239,613	18,805	32,237
96	2,106	2.00%	98,233	6,249,784,405	19,181	32,882
97	2,107	2.00%	100,197	6,374,780,094	19,565	33,540
98	2,108	2.00%	102,201	6,502,275,695	19,956	34,210
99	2,109	2.00%	104,245	6,632,321,209	20,355	34,895
100	2,110	2.00%	106,330	6,764,967,634	20,762	35,593
101	2,111	2.00%	108,457	6,900,266,986	21,178	36,304
102	2,112	2.00%	110,626	7,038,272,326	21,601	37,031
103	2,113	2.00%	112,838	7,179,037,772	22,033	37,771
104	2,114	2.00%	115,095	7,322,618,528	22,474	38,527
105	2,115	2.00%	117,397	7,469,070,898	22,923	39,297
106	2,116	2.00%	119,745	7,618,452,316	23,382	40,083
107	2,117	2.00%	122,140	7,770,821,363	23,849	40,885
108	2,118	2.00%	124,583	7,926,237,790	24,326	41,702
109	2,119	2.00%	127,074	8,084,762,546	24,813	42,536
110	2,120	2.00%	129,616	8,246,457,797	25,309	43,387
111	2,121	2.00%	132,208	8,411,386,953	25,815	44,255
112	2,122	2.00%	134,852	8,579,614,692	26,332	45,140
113	2,123	2.00%	137,549	8,751,206,986	26,858	46,043

[1]Growth Rates Source: 2010 Engineeering CIP Population Projections

POTABLE WATER MASTER PLAN
TABLE B.8
WATER STORAGE REQUIREMENTS

NO. OF YEARS	YEAR	GROWTH RATE[1]	CAPITA	ANNUAL WATER USAGE (gallons)	WATER DEMAND			TOTAL STORAGE[2] (gallons)	CWCWD STORAGE (gallons)	REDUCED STORAGE[2] (gallons)
					AVG DAY (gpm)	MAX DAY (gpm)	PEAK HOUR (gpm)			
	2,008	2.25%	9,535	606,667,000	1,154	2,308	3,463	3,093,152	1,662,101	1,431,051
	2,009	2.25%	9,750	620,317,008	1,180	2,360	3,541	3,149,248	1,699,499	1,449,749
0	2,010	2.25%	9,969	634,274,140	1,207	2,414	3,620	3,206,606	1,737,737	1,468,869
1	2,011	3.50%	10,318	656,473,735	1,249	2,498	3,747	3,297,837	1,798,558	1,499,279
2	2,012	5.00%	10,834	689,297,422	1,311	2,623	3,934	3,432,729	1,888,486	1,544,243
3	2,013	10.00%	11,918	758,227,164	1,443	2,885	4,328	3,716,002	2,077,335	1,638,667
4	2,014	10.00%	13,109	834,049,880	1,587	3,174	4,761	4,027,602	2,285,068	1,742,534
5	2,015	8.00%	14,158	900,773,871	1,714	3,428	5,141	4,301,810	2,467,874	1,833,937
6	2,016	7.00%	15,149	963,828,042	1,834	3,668	5,501	4,560,937	2,640,625	1,920,312
7	2,017	6.00%	16,058	1,021,657,724	1,944	3,888	5,831	4,798,593	2,799,062	1,999,531
8	2,018	4.00%	16,701	1,062,524,033	2,022	4,043	6,065	4,966,537	2,911,025	2,055,512
9	2,019	3.00%	17,202	1,094,399,754	2,082	4,164	6,247	5,097,533	2,998,355	2,099,178
10	2,020	3.00%	17,718	1,127,231,747	2,145	4,289	6,434	5,232,459	3,088,306	2,144,153
11	2,021	3.00%	18,249	1,161,048,699	2,209	4,418	6,627	5,371,433	3,180,955	2,190,478
12	2,022	2.00%	18,614	1,184,269,673	2,253	4,506	6,760	5,466,862	3,244,574	2,222,287
13	2,023	2.00%	18,986	1,207,955,067	2,298	4,596	6,895	5,564,199	3,309,466	2,254,733
14	2,024	2.00%	19,366	1,232,114,168	2,344	4,688	7,033	5,663,483	3,375,655	2,287,828
15	2,025	2.00%	19,753	1,256,756,451	2,391	4,782	7,173	5,764,753	3,443,168	2,321,584
16	2,026	2.00%	20,148	1,281,891,580	2,439	4,878	7,317	5,868,048	3,512,032	2,356,016
17	2,027	2.00%	20,551	1,307,529,412	2,488	4,975	7,463	5,973,409	3,582,272	2,391,136
18	2,028	2.00%	20,962	1,333,680,000	2,537	5,075	7,612	6,080,877	3,653,918	2,426,959
19	2,029	2.00%	21,382	1,360,353,600	2,588	5,176	7,765	6,190,494	3,726,996	2,463,498
20	2,030	2.00%	21,809	1,387,560,672	2,640	5,280	7,920	6,302,304	3,801,536	2,500,768
21	2,031	2.00%	22,246	1,415,311,886	2,693	5,386	8,078	6,416,350	3,877,567	2,538,783
22	2,032	2.00%	22,690	1,443,618,124	2,747	5,493	8,240	6,532,677	3,955,118	2,577,559
23	2,033	2.00%	23,144	1,472,490,486	2,802	5,603	8,405	6,651,331	4,034,221	2,617,110
24	2,034	2.00%	23,607	1,501,940,296	2,858	5,715	8,573	6,772,357	4,114,905	2,657,452

POTABLE WATER MASTER PLAN
TABLE B.8
WATER STORAGE REQUIREMENTS

NO. OF YEARS	YEAR	GROWTH RATE[1]	CAPITA	ANNUAL WATER USAGE (gallons)	WATER DEMAND			TOTAL STORAGE[2] (gallons)	CWCWD STORAGE (gallons)	REDUCED STORAGE[2] (gallons)
					AVG DAY (gpm)	MAX DAY (gpm)	PEAK HOUR (gpm)			
25	2,035	2.00%	24,079	1,531,979,102	2,915	5,829	8,744	6,895,805	4,197,203	2,698,602
26	2,036	2.00%	24,561	1,562,618,684	2,973	5,946	8,919	7,021,721	4,281,147	2,740,574
27	2,037	2.00%	25,052	1,593,871,057	3,032	6,065	9,097	7,150,155	4,366,770	2,783,385
28	2,038	2.00%	25,553	1,625,748,478	3,093	6,186	9,279	7,281,158	4,454,105	2,827,053
29	2,039	2.00%	26,064	1,658,263,448	3,155	6,310	9,465	7,414,781	4,543,188	2,871,594
30	2,040	2.00%	26,585	1,691,428,717	3,218	6,436	9,654	7,551,077	4,634,051	2,917,026
31	2,041	2.00%	27,117	1,725,257,291	3,282	6,565	9,847	7,690,098	4,726,732	2,963,366
32	2,042	2.00%	27,660	1,759,762,437	3,348	6,696	10,044	7,831,900	4,821,267	3,010,633
33	2,043	2.00%	28,213	1,794,957,686	3,415	6,830	10,245	7,976,538	4,917,692	3,058,846
34	2,044	2.00%	28,777	1,830,856,840	3,483	6,967	10,450	8,124,069	5,016,046	3,108,023
35	2,045	2.00%	29,353	1,867,473,976	3,553	7,106	10,659	8,274,551	5,116,367	3,158,184
36	2,046	2.00%	29,940	1,904,823,456	3,624	7,248	10,872	8,428,042	5,218,694	3,209,347
37	2,047	2.00%	30,538	1,942,919,925	3,697	7,393	11,090	8,584,602	5,323,068	3,261,534
38	2,048	2.00%	31,149	1,981,778,324	3,771	7,541	11,312	8,744,294	5,429,530	3,314,765
39	2,049	2.00%	31,772	2,021,413,890	3,846	7,692	11,538	8,907,180	5,538,120	3,369,060
40	2,050	2.00%	32,408	2,061,842,168	3,923	7,846	11,769	9,073,324	5,648,883	3,424,441
41	2,051	2.00%	33,056	2,103,079,011	4,001	8,003	12,004	9,242,790	5,761,860	3,480,930
42	2,052	2.00%	33,717	2,145,140,591	4,081	8,163	12,244	9,415,646	5,877,098	3,538,549
43	2,053	2.00%	34,391	2,188,043,403	4,163	8,326	12,489	9,591,959	5,994,639	3,597,320
44	2,054	2.00%	35,079	2,231,804,271	4,246	8,492	12,739	9,771,798	6,114,532	3,657,266
45	2,055	2.00%	35,781	2,276,440,357	4,331	8,662	12,993	9,955,234	6,236,823	3,718,411
46	2,056	2.00%	36,496	2,321,969,164	4,418	8,835	13,253	10,142,339	6,361,559	3,780,780
47	2,057	2.00%	37,226	2,368,408,547	4,506	9,012	13,518	10,333,186	6,488,791	3,844,395
48	2,058	2.00%	37,971	2,415,776,718	4,596	9,192	13,789	10,527,850	6,618,566	3,909,283
49	2,059	2.00%	38,730	2,464,092,252	4,688	9,376	14,064	10,726,407	6,750,938	3,975,469
50	2,060	2.00%	39,505	2,513,374,098	4,782	9,564	14,346	10,928,935	6,885,956	4,042,978
51	2,061	2.00%	40,295	2,563,641,579	4,878	9,755	14,633	11,135,513	7,023,676	4,111,838

POTABLE WATER MASTER PLAN
TABLE B.8
WATER STORAGE REQUIREMENTS

NO. OF YEARS	YEAR	GROWTH RATE[1]	CAPITA	ANNUAL WATER USAGE (gallons)	WATER DEMAND			TOTAL STORAGE[2] (gallons)	CWCWD STORAGE (gallons)	REDUCED STORAGE[2] (gallons)
					AVG DAY (gpm)	MAX DAY (gpm)	PEAK HOUR (gpm)			
52	2,062	2.00%	41,101	2,614,914,411	4,975	9,950	14,925	11,346,224	7,164,149	4,182,075
53	2,063	2.00%	41,923	2,667,212,699	5,075	10,149	15,224	11,561,148	7,307,432	4,253,716
54	2,064	2.00%	42,761	2,720,556,953	5,176	10,352	15,528	11,780,371	7,453,581	4,326,790
55	2,065	2.00%	43,616	2,774,968,092	5,280	10,559	15,839	12,003,978	7,602,652	4,401,326
56	2,066	2.00%	44,489	2,830,467,454	5,385	10,770	16,156	12,232,058	7,754,705	4,477,353
57	2,067	2.00%	45,378	2,887,076,803	5,493	10,986	16,479	12,464,699	7,909,799	4,554,900
58	2,068	2.00%	46,286	2,944,818,339	5,603	11,206	16,808	12,701,993	8,067,995	4,633,998
59	2,069	2.00%	47,212	3,003,714,706	5,715	11,430	17,144	12,944,033	8,229,355	4,714,678
60	2,070	2.00%	48,156	3,063,789,000	5,829	11,658	17,487	13,190,914	8,393,942	4,796,971
61	2,071	2.00%	49,119	3,125,064,780	5,946	11,891	17,837	13,442,732	8,561,821	4,880,911
62	2,072	2.00%	50,101	3,187,566,076	6,065	12,129	18,194	13,699,587	8,733,058	4,966,529
63	2,073	2.00%	51,103	3,251,317,397	6,186	12,372	18,558	13,961,578	8,907,719	5,053,859
64	2,074	2.00%	52,126	3,316,343,745	6,310	12,619	18,929	14,228,810	9,085,873	5,142,937
65	2,075	2.00%	53,168	3,382,670,620	6,436	12,872	19,307	14,501,386	9,267,591	5,233,795
66	2,076	2.00%	54,231	3,450,324,033	6,565	13,129	19,694	14,779,414	9,452,943	5,326,471
67	2,077	2.00%	55,316	3,519,330,513	6,696	13,392	20,088	15,063,002	9,642,001	5,421,001
68	2,078	2.00%	56,422	3,589,717,124	6,830	13,660	20,489	15,352,262	9,834,841	5,517,421
69	2,079	2.00%	57,551	3,661,511,466	6,966	13,933	20,899	15,647,307	10,031,538	5,615,769
70	2,080	2.00%	58,702	3,734,741,695	7,106	14,211	21,317	15,948,254	10,232,169	5,716,085
71	2,081	2.00%	59,876	3,809,436,529	7,248	14,496	21,743	16,255,219	10,436,812	5,818,406
72	2,082	2.00%	61,073	3,885,625,260	7,393	14,785	22,178	16,568,323	10,645,549	5,922,774
73	2,083	2.00%	62,295	3,963,337,765	7,541	15,081	22,622	16,887,689	10,858,460	6,029,230
74	2,084	2.00%	63,541	4,042,604,520	7,691	15,383	23,074	17,213,443	11,075,629	6,137,814
75	2,085	2.00%	64,812	4,123,456,611	7,845	15,690	23,536	17,545,712	11,297,141	6,248,571
76	2,086	2.00%	66,108	4,205,925,743	8,002	16,004	24,006	17,884,626	11,523,084	6,361,542
77	2,087	2.00%	67,430	4,290,044,258	8,162	16,324	24,487	18,230,319	11,753,546	6,476,773
78	2,088	2.00%	68,779	4,375,845,143	8,325	16,651	24,976	18,582,925	11,988,617	6,594,308

POTABLE WATER MASTER PLAN
TABLE B.8
WATER STORAGE REQUIREMENTS

NO. OF YEARS	YEAR	GROWTH RATE[1]	CAPITA	ANNUAL WATER USAGE (gallons)	WATER DEMAND			TOTAL STORAGE[2] (gallons)	CWCWD STORAGE (gallons)	REDUCED STORAGE[2] (gallons)
					AVG DAY (gpm)	MAX DAY (gpm)	PEAK HOUR (gpm)			
79	2,089	2.00%	70,154	4,463,362,046	8,492	16,984	25,476	18,942,584	12,228,389	6,714,195
80	2,090	2.00%	71,557	4,552,629,287	8,662	17,324	25,985	19,309,435	12,472,957	6,836,478
81	2,091	2.00%	72,988	4,643,681,872	8,835	17,670	26,505	19,683,624	12,722,416	6,961,208
82	2,092	2.00%	74,448	4,736,555,510	9,012	18,023	27,035	20,065,297	12,976,864	7,088,432
83	2,093	2.00%	75,937	4,831,286,620	9,192	18,384	27,576	20,454,603	13,236,402	7,218,201
84	2,094	2.00%	77,456	4,927,912,353	9,376	18,752	28,127	20,851,695	13,501,130	7,350,565
85	2,095	2.00%	79,005	5,026,470,600	9,563	19,127	28,690	21,256,728	13,771,152	7,485,576
86	2,096	2.00%	80,585	5,127,000,012	9,755	19,509	29,264	21,669,863	14,046,575	7,623,288
87	2,097	2.00%	82,197	5,229,540,012	9,950	19,899	29,849	22,091,260	14,327,507	7,763,753
88	2,098	2.00%	83,841	5,334,130,812	10,149	20,297	30,446	22,521,086	14,614,057	7,907,029
89	2,099	2.00%	85,517	5,440,813,428	10,352	20,703	31,055	22,959,507	14,906,338	8,053,169
90	2,100	2.00%	87,228	5,549,629,697	10,559	21,117	31,676	23,406,697	15,204,465	8,202,232
91	2,101	2.00%	88,972	5,660,622,291	10,770	21,540	32,309	23,862,831	15,508,554	8,354,277
92	2,102	2.00%	90,752	5,773,834,737	10,985	21,970	32,956	24,328,088	15,818,725	8,509,363
93	2,103	2.00%	92,567	5,889,311,431	11,205	22,410	33,615	24,802,650	16,135,100	8,667,550
94	2,104	2.00%	94,418	6,007,097,660	11,429	22,858	34,287	25,286,703	16,457,802	8,828,901
95	2,105	2.00%	96,307	6,127,239,613	11,658	23,315	34,973	25,780,437	16,786,958	8,993,479
96	2,106	2.00%	98,233	6,249,784,405	11,891	23,782	35,672	26,284,046	17,122,697	9,161,349
97	2,107	2.00%	100,197	6,374,780,094	12,129	24,257	36,386	26,797,726	17,465,151	9,332,575
98	2,108	2.00%	102,201	6,502,275,695	12,371	24,742	37,113	27,321,681	17,814,454	9,507,227
99	2,109	2.00%	104,245	6,632,321,209	12,619	25,237	37,856	27,856,115	18,170,743	9,685,372
100	2,110	2.00%	106,330	6,764,967,634	12,871	25,742	38,613	28,401,237	18,534,158	9,867,079
101	2,111	2.00%	108,457	6,900,266,986	13,128	26,257	39,385	28,957,262	18,904,841	10,052,421
102	2,112	2.00%	110,626	7,038,272,326	13,391	26,782	40,173	29,524,407	19,282,938	10,241,469
103	2,113	2.00%	112,838	7,179,037,772	13,659	27,317	40,976	30,102,895	19,668,597	10,434,298
104	2,114	2.00%	115,095	7,322,618,528	13,932	27,864	41,796	30,692,953	20,061,969	10,630,984
105	2,115	2.00%	117,397	7,469,070,898	14,211	28,421	42,632	31,294,812	20,463,208	10,831,604

POTABLE WATER MASTER PLAN
TABLE B.8
WATER STORAGE REQUIREMENTS

NO. OF YEARS	YEAR	GROWTH RATE[1]	CAPITA	ANNUAL WATER USAGE (gallons)	WATER DEMAND			TOTAL STORAGE[2] (gallons)	CWCWD STORAGE (gallons)	REDUCED STORAGE[2] (gallons)
					AVG DAY (gpm)	MAX DAY (gpm)	PEAK HOUR (gpm)			
106	2,116	2.00%	119,745	7,618,452,316	14,495	28,990	43,484	31,908,708	20,872,472	11,036,236
107	2,117	2.00%	122,140	7,770,821,363	14,785	29,569	44,354	32,534,882	21,289,922	11,244,961
108	2,118	2.00%	124,583	7,926,237,790	15,080	30,161	45,241	33,173,580	21,715,720	11,457,860
109	2,119	2.00%	127,074	8,084,762,546	15,382	30,764	46,146	33,825,052	22,150,034	11,675,017
110	2,120	2.00%	129,616	8,246,457,797	15,690	31,379	47,069	34,489,553	22,593,035	11,896,518
111	2,121	2.00%	132,208	8,411,386,953	16,003	32,007	48,010	35,167,344	23,044,896	12,122,448
112	2,122	2.00%	134,852	8,579,614,692	16,323	32,647	48,970	35,858,691	23,505,794	12,352,897
113	2,123	2.00%	137,549	8,751,206,986	16,650	33,300	49,950	36,563,864	23,975,910	12,587,955

[1]Growth Rates Source: 2010 Engineeering CIP Population Projections

[2]Fire Storage = 600,000 gallons

Appendix C:
Existing Scenario – WaterCAD Model

POTABLE WATER MASTER PLAN
TABLE C.1
AREA BY LAND USE (EXISTING SCENARIO)

TOWNSHIP RANGE	SECTION I.D.	LAND USE CATEGORY											
		PARKS (acres)	CS (acres)	DC/OS (acres)	C/OF (acres)	E/OF (acres)	MU (acres)	R-L (acres)	R-M (acres)	R-H (acres)	M/G (acres)	SCHOOL (acres)	TOTAL (acres)
T03N R 67W	20												0.0
	21												0.0
	22												0.0
	27												0.0
	28												0.0
	29												0.0
	31												0.0
	32												0.0
	33												0.0
	34												0.0
T02N R67W	3												0.0
	4												0.0
	5												0.0
	6	16.2			3.1				71.5				90.8
	7	49.1			18.4	9.6		54.7	287.6			37.3	456.7
	8												0.0
	9												0.0
	10												0.0
	15												0.0
	16												0.0
	17												0.0
	18				6.1			51.5					57.6
	19				28.8			14.2			7.0		50.0
	20					12.1					6.2		18.3
	21												0.0
	28												0.0
	29												0.0
	30	7.8	0.0	12.5	0.0	0.0	0.0	34.3	140.5	12.7	0.0	0.0	207.8

POTABLE WATER MASTER PLAN
TABLE C.1
AREA BY LAND USE (EXISTING SCENARIO)

TOWNSHIP RANGE	SECTION I.D.	LAND USE CATEGORY											
		PARKS (acres)	CS (acres)	DC/OS (acres)	C/OF (acres)	E/OF (acres)	MU (acres)	R-L (acres)	R-M (acres)	R-H (acres)	M/G (acres)	SCHOOL (acres)	TOTAL (acres)
T03N 68W	35												0.0
	36												0.0
T02N R68W	1	17.0			4.9				42.9			7.6	72.4
	2				23.8								23.8
	3												0.0
	4												0.0
	5												0.0
	8												0.0
	9												0.0
	10												0.0
	11	10.3	0.0	0.0	35.4				22.0	71.6			139.3
	12	9.0			5.8				81.9	6.8		13.4	116.9
	13	10.8							75.7				86.5
	14												0.0
	15												0.0
	16												0.0
	17												0.0
	TOTAL	**120.2**	**0.0**	**12.5**	**126.3**	**21.7**	**0.0**	**154.7**	**722.1**	**91.1**	**13.2**	**58.3**	**1,320.1**

POTABLE WATER MASTER PLAN
TABLE C.2
WATER DEMAND (EXISTING SCENARIO)

TS RANGE	SECTION I.D.	LAND USE CATEGORY																							
		PARKS				CS				DC/OS				C/OF				E/OF				MU			
		AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)
T03N R 67W	20	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	21	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	22	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	27	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	28	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	29	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	31	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	32	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	33	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	34	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
T02N R67W	3	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	4	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	5	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	6	16.2	16.7	2.0	8.3	0.0	0.0		0.0	0.0	0.0		0.0	3.1	3.0	1.0	3.0	0.0	0.0		0.0	0.0	0.0		0.0
	7	49.1	50.6	4.0	12.6	0.0	0.0		0.0	0.0	0.0		0.0	18.4	17.7	2.0	8.8	9.6	8.0	1.0	8.0	0.0	0.0		0.0
	8	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	9	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	10	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	15	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	16	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	17	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	18	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	6.1	5.9	1.0	5.9	0.0	0.0		0.0	0.0	0.0		0.0
	19	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	28.8	27.6	1.0	27.6	0.0	0.0		0.0	0.0	0.0		0.0
	20	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	12.1	10.0	1.0	10.0	0.0	0.0		0.0
	21	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	28	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	29	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	30	7.8	8.0	1.0	8.0	0.0	0.0		0.0	12.5	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
T03N 68W	35	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	36	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0

POTABLE WATER MASTER PLAN
TABLE C.2
WATER DEMAND (EXISTING SCENARIO)

TS RANGE	SECTION I.D.	LAND USE CATEGORY																							
		PARKS				CS				DC/OS				C/OF				E/OF				MU			
		AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)
T02N R68W	1	17.0	17.5	1.0	17.5	0.0	0.0		0.0	0.0	0.0		0.0	4.9	4.7	2.0	2.4	0.0	0.0		0.0	0.0	0.0		0.0
	2	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	23.8	22.8	3.0	7.6	0.0	0.0		0.0	0.0	0.0		0.0
	3	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	4	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	5	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	8	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	9	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	10	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	11	10.3	10.6	1.0	10.6	0.0	0.0		0.0	0.0	0.0		0.0	35.4	34.0	1.0	34.0	0.0	0.0		0.0	0.0	0.0		0.0
	12	9.0	9.3	1.0	9.3	0.0	0.0		0.0	0.0	0.0		0.0	5.8	5.6	1.0	5.6	0.0	0.0		0.0	0.0	0.0		0.0
	13	10.8	11.1	1.0	11.1	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	14	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	15	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	16	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	17	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	TOTAL	120.2	123.8		77.5	0.0	0.0		0.0	12.5	0.0		0.0	126.3	121.2		94.8	21.7	18.0		18.0	0.0	0.0		0.0

POTABLE WATER MASTER PLAN
TABLE C.2
WATER DEMAND (EXISTING SCENARIO)

TS RANGE	SECTION I.D.	LAND USE CATEGORY																				TOTAL	
		R-L				R-M				R-H				M/G				SCHOOL					
		AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)
T03N R 67W	20	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	21	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	22	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	27	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	28	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	29	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	31	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	32	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	33	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	34	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
T02N R67W	3	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	4	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	5	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	6	0.0	0.0		0.0	71.5	61.9	3.0	20.6	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	90.8	81.6
	7	54.7	20.0	1.0	20.0	287.6	248.9	11.0	22.6	0.0	0.0		0.0	0.0	0.0		0.0	37.3	25.0	2.0	12.5	456.7	370.1
	8	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	9	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	10	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	15	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	16	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	17	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	18	51.5	18.8	1.0	18.8	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	57.6	24.7
	19	14.2	5.2	1.0	5.2	0.0	0.0		0.0	0.0	0.0		0.0	7.0	1.4	1.0	1.4	0.0	0.0		0.0	50.0	34.2
	20	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	6.2	1.2	1.0	1.2	0.0	0.0		0.0	18.3	11.3
	21	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	28	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	29	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	30	34.3	12.5	1.0	12.5	140.5	121.6	4.0	30.4	12.7	25.6	1.0	25.6	0.0	0.0		0.0	0.0	0.0		0.0	207.8	167.8
T03N 68W	35	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	36	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0

POTABLE WATER MASTER PLAN
TABLE C.2
WATER DEMAND (EXISTING SCENARIO)

TS RANGE	SECTION I.D.	LAND USE CATEGORY																				TOTAL	
		R-L				R-M				R-H				M/G				SCHOOL					
		AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)
T02N R68W	1	0.0	0.0		0.0	42.9	37.1	3.0	12.4	0.0	0.0		0.0	0.0	0.0		0.0	7.6	5.1	1.0	5.1	72.4	64.4
	2	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	23.8	22.8
	3	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	4	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	5	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	8	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	9	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	10	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	11	0.0	0.0		0.0	22.0	19.0	1.0	19.0	71.6	144.3	1.0	144.3	0.0	0.0		0.0	0.0	0.0		0.0	139.3	207.9
	12	0.0	0.0		0.0	81.9	70.9	2.0	35.4	6.8	13.7	1.0	13.7	0.0	0.0		0.0	13.4	9.0	1.0	9.0	116.9	108.4
	13	0.0	0.0		0.0	75.7	65.5	4.0	16.4	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	86.5	76.6
	14	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	15	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	16	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	17	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	TOTAL	154.7	56.5		56.5	722.1	625.0		156.9	91.1	183.5			13.2	2.6			58.3	39.1			1,320.1	1,169.8

POTABLE WATER MASTER PLAN
TABLE C.3
WATERCAD DEMAND LOADING (EXISTING SCENARIO)

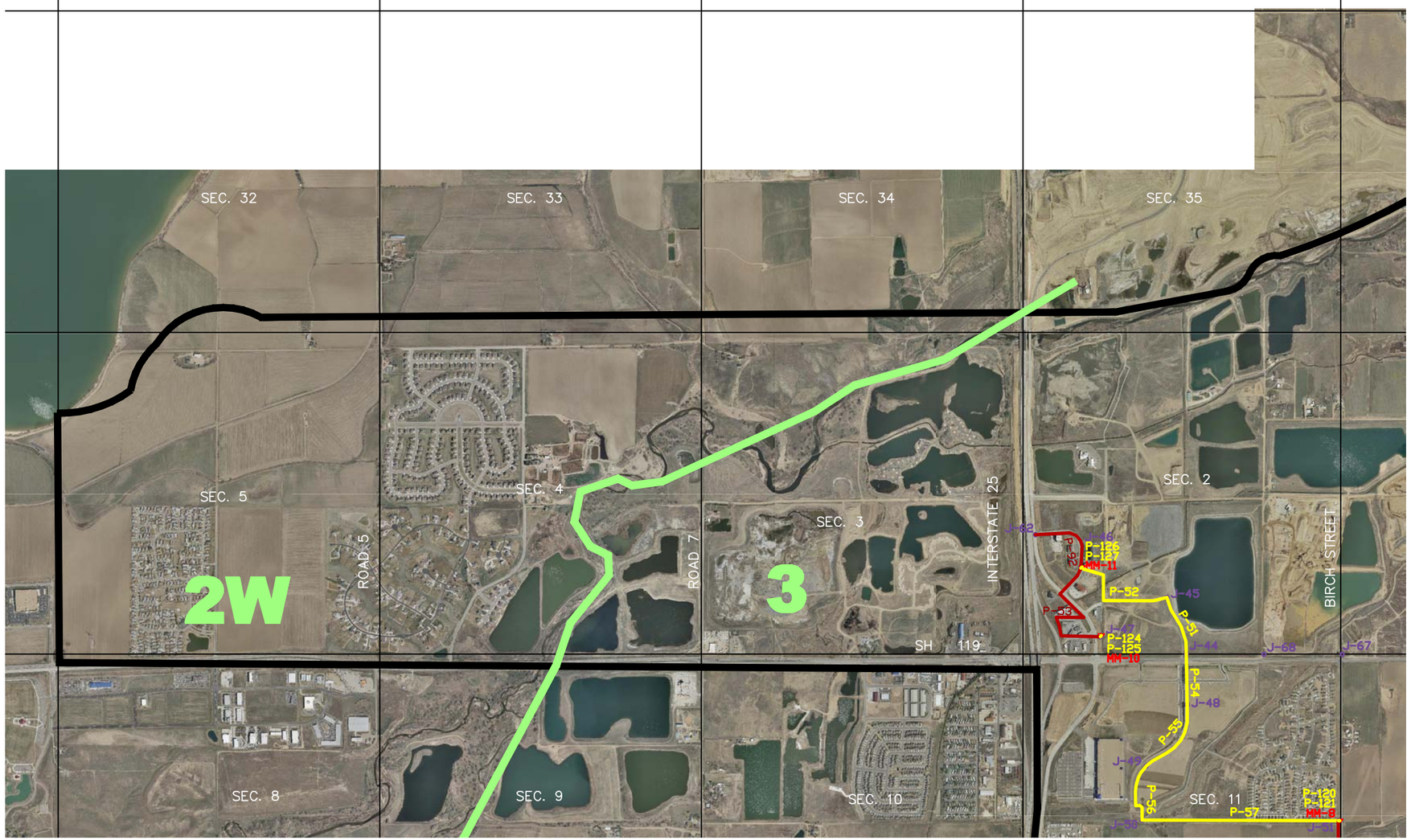
JUNCTION			AVERAGE DAY DEMAND											
ID	ELEV (feet)	ZONE	PARKS (gpm)	CS (gpm)	DC/OS (gpm)	C/OF (gpm)	E/OF (gpm)	MU (gpm)	R-L (gpm)	R-M (gpm)	R-H (gpm)	M/G (gpm)	SCHOOL (gpm)	TOTAL (gpm)
J-1	5,097.0	1												**0.0**
J-2	5,097.0	1												**0.0**
J-3	5,097.0	1												**0.0**
J-4	5,028.0	1												**0.0**
J-5	5,006.0	1												**0.0**
J-6	5,001.0	1												**0.0**
J-7	4,975.0	1	8.0						5.2	30.4				**43.6**
J-8	4,950.0	1				27.6				30.4	25.6	1.4		**85.0**
J-9	4,976.0	1								30.4				**30.4**
J-10	4,961.0	1								30.4				**30.4**
J-11	5,025.0	1							12.5					**12.5**
J-12	4,974.0	1					10.0					1.2		**11.3**
J-13	4,940.0	2							18.8					**18.8**
J-14	4,951.0	1				5.9								**5.9**
J-15	4,929.0	2												**0.0**
J-16	4,923.0	2							20.0					**20.0**
J-17	4,918.0	2								22.6				**22.6**
J-18	4,911.0	2								22.6				**22.6**
J-19	4,898.0	2	12.6							22.6			12.5	**47.8**
J-20	4,897.0	2								22.6				**22.6**
J-21	4,905.0	2								22.6				**22.6**
J-22	4,905.0	2												**0.0**
J-23	4,909.0	2												**0.0**
J-24	4,897.0	2	12.6							22.6				**35.3**
J-25	4,885.0	3								22.6				**22.6**
J-26	4,891.0	2								22.6				**22.6**
J-27	4,891.0	2								22.6				**22.6**

POTABLE WATER MASTER PLAN
TABLE C.3
WATERCAD DEMAND LOADING (EXISTING SCENARIO)

JUNCTION			AVERAGE DAY DEMAND											
ID	ELEV (feet)	ZONE	PARKS (gpm)	CS (gpm)	DC/OS (gpm)	C/OF (gpm)	E/OF (gpm)	MU (gpm)	R-L (gpm)	R-M (gpm)	R-H (gpm)	M/G (gpm)	SCHOOL (gpm)	TOTAL (gpm)
J-28	4,880.0	3	12.6							22.6			12.5	**47.8**
J-29	4,860.0	3								22.6				**22.6**
J-30	4,880.0	3												**0.0**
J-31	4,886.0	2	12.6				8.0							**20.6**
J-32	4,863.0	3												**0.0**
J-33	4,851.0	3				8.8								**8.8**
J-34	4,850.0	3				11.8								**11.8**
J-35	4,848.0	3	8.3							20.6				**29.0**
J-36	4,847.0	3	8.3							20.6				**29.0**
J-37	4,847.0	3								12.4				**12.4**
J-38	4,848.0	3								12.4				**12.4**
J-39	4,847.0	3				2.4				12.4				**14.7**
J-40	4,844.0	3												**0.0**
J-41	4,849.0	3	17.5										5.1	**22.6**
J-42	4,843.0	3												**0.0**
J-43	4,842.0	3												**0.0**
J-44	4,846.0	3												**0.0**
J-45	4,843.0	3												**0.0**
J-46	4,842.0	3				7.6								**7.6**
J-47	4,848.0	3				7.6								**7.6**
J-48	4,848.0	3												**0.0**
J-49	4,851.0	3				34.0								**34.0**
J-50	4,850.0	3												**0.0**
J-51	4,864.0	3									144.3			**144.3**
J-52	4,900.0	2	10.6							19.0				**29.7**
J-53	4,912.0	2											9.0	**9.0**
J-54	4,918.0	2	11.1							16.4				**27.5**

POTABLE WATER MASTER PLAN
TABLE C.3
WATERCAD DEMAND LOADING (EXISTING SCENARIO)

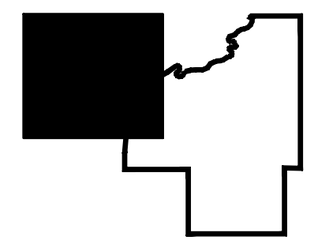
JUNCTION			AVERAGE DAY DEMAND											
ID	ELEV (feet)	ZONE	PARKS (gpm)	CS (gpm)	DC/OS (gpm)	C/OF (gpm)	E/OF (gpm)	MU (gpm)	R-L (gpm)	R-M (gpm)	R-H (gpm)	M/G (gpm)	SCHOOL (gpm)	TOTAL (gpm)
J-55	4,863.0	3				5.6					13.7			**19.3**
J-56	4,881.0	3	9.3							35.4				**44.7**
J-57	4,890.0	2								35.4				**35.4**
J-58	4,845.0	3				2.4								**2.4**
J-59	4,848.0	3												**0.0**
J-60	4,891.0	2												**0.0**
J-61	5,097.5	1												**0.0**
J-62	4,841.0	3				7.6								**7.6**
J-63	4,843.0	3								20.6				**20.6**
J-64	4,906.0	2								16.4				**16.4**
J-65	4,908.0	2								16.4				**16.4**
J-66	4,917.0	2								16.4				**16.4**
J-67	4,855.0	3												**0.0**
J-68	4,844.0	3												**0.0**
J-69	4,891.0	2												**0.0**
J-70	4,960.0	1												**0.0**
J-71	4,991.0	1												**0.0**
J-72	4,975.0	1												**0.0**
TOTAL			**123.8**	**0.0**	**0.0**	**121.2**	**18.0**	**0.0**	**56.5**	**625.0**	**183.5**	**2.6**	**39.1**	**1,169.8**



LEGEND

P-1	4-INCH WATER LINE
P-9	6-INCH WATER LINE
P-301	8-INCH WATER LINE
P-81	10-INCH WATER LINE
P-265	12-INCH WATER LINE
P-5	14-INCH WATER LINE
P-202	16-INCH WATER LINE
P-200	24-INCH WATER LINE
J-23	JUNCTION
PRV-200	PRESSURE REDUCING VALVE
MM-1	CWCWD MASTER METER
T-1	TANK
PMP-1	PUMP
	URBAN GROWTH BOUNDARY
	SECTIONS LINES
FIRESTONE BLVD.	TOWN ROAD NAMES
ROAD 7	WELD COUNTY ROAD NAMES
1	PRESSURE ZONE

KEY MAP



N

0 1000 2000
feet
1" = 2000'

FIRESTONE
A COMMUNITY IN MOTION

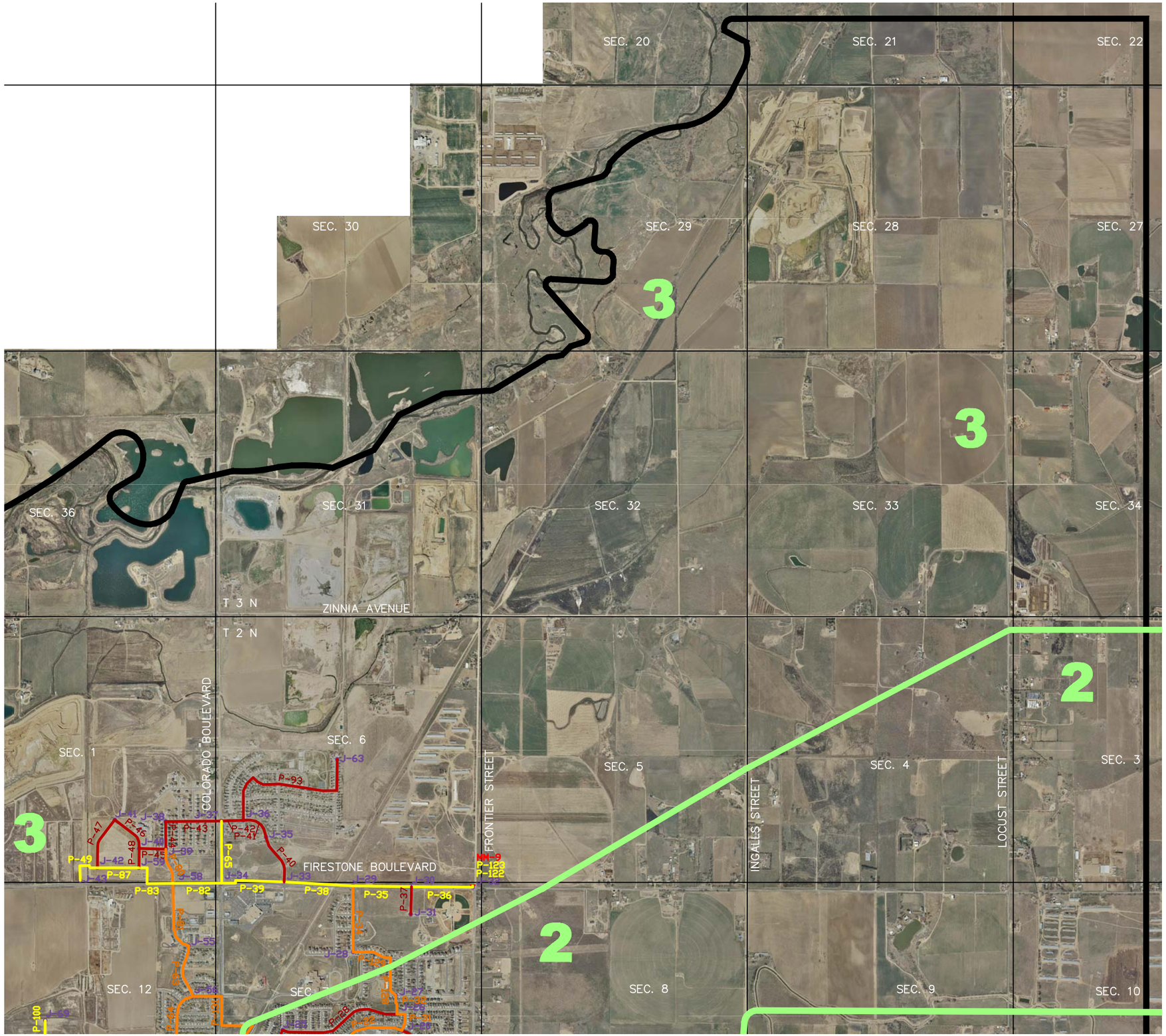
DATE	REVISION DESCRIPTION

CCG COLORADO CIVIL GROUP, INC.
ENGINEERING CONSULTANTS
1413 W. 29TH STREET
LOVELAND, COLORADO 80538
(970) 278-0239

TOWN OF FIRESTONE
POTABLE WATER MASTER PLAN
WATERCAD MODEL
EXISTING SCENARIO

FILENAME: 0668.0156.00_WATERCAD MODEL
DESIGNED: C.E.M.
CHECKED: D.B.L.
JOB NO.: 0668.0156.00
SCALE: 1" = 2000'
DATE: MARCH 2010

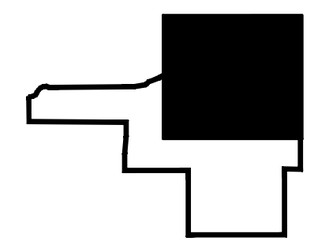
SHEET NO.: EXHIBIT C.1



LEGEND

P-1	4-INCH WATER LINE
P-9	6-INCH WATER LINE
P-301	8-INCH WATER LINE
P-81	10-INCH WATER LINE
P-265	12-INCH WATER LINE
P-5	14-INCH WATER LINE
P-202	16-INCH WATER LINE
P-200	24-INCH WATER LINE
J-23	JUNCTION
PRV-200	PRESSURE REDUCING VALVE
MM-1	CWCWD MASTER METER
T-1	TANK
PMP-1	PUMP
	URBAN GROWTH BOUNDARY
	SECTIONS LINES
FIRESTONE BLVD.	TOWN ROAD NAMES
ROAD 7	WELD COUNTY ROAD NAMES
1	PRESSURE ZONE

KEY MAP



N

0 1000 2000
feet
1" = 2000'

FIRESTONE
A COMMUNITY IN MOTION

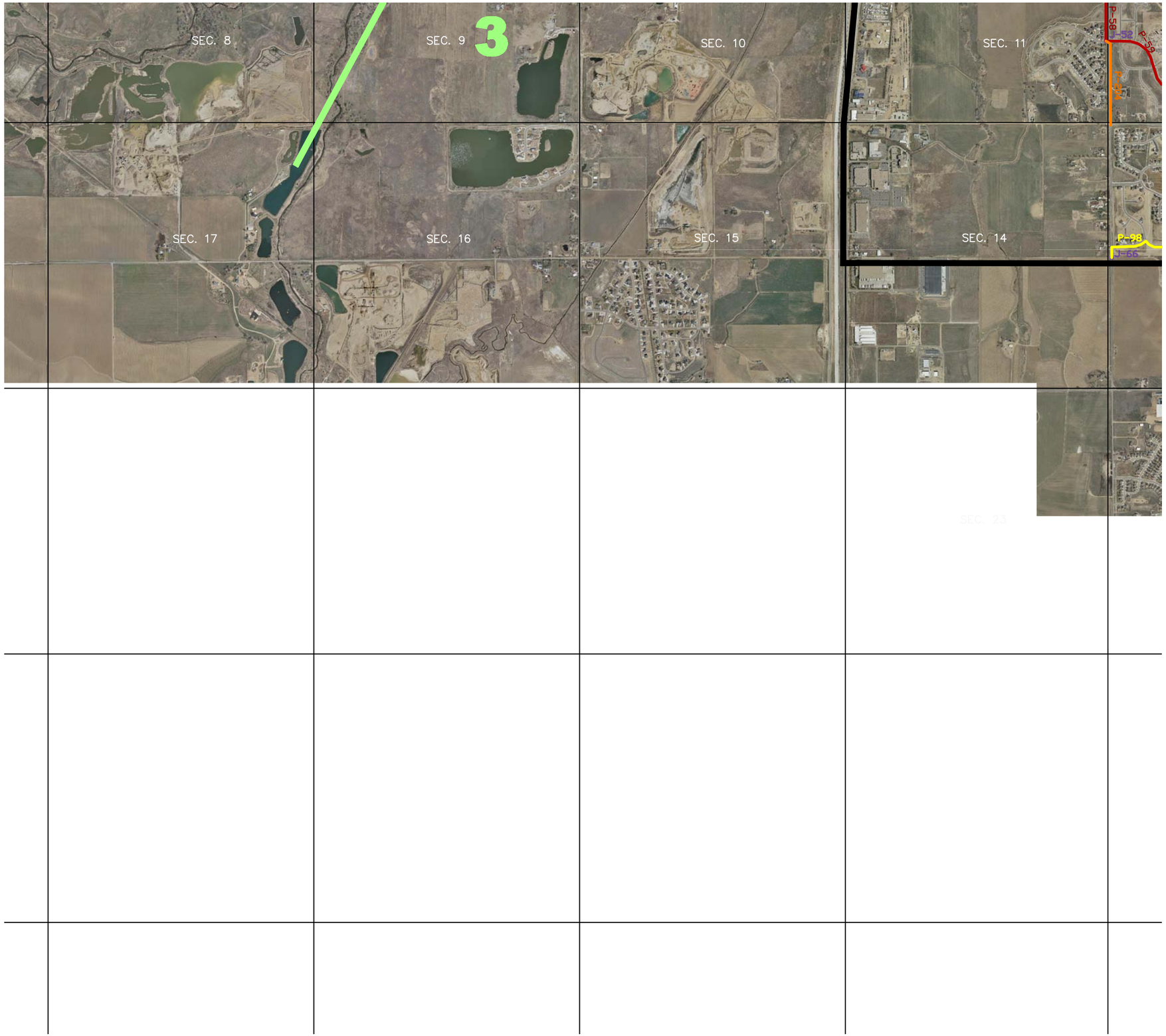
DATE	REVISIONS DESCRIPTION

CCG COLORADO CIVIL GROUP, INC. ENGINEERING CONSULTANTS
1413 W. 29TH STREET
LOVELAND, COLORADO 80538
(970) 278-0239

TOWN OF FIRESTONE
POTABLE WATER MASTER PLAN
WATERCAD MODEL
EXISTING SCENARIO

FILENAME: 0668.0156.00_WATERCAD MODEL
DESIGNER: C.E.M.
CHECKED: D.B.L.
JOB NO.: 0668.0156.00
SCALE: 1" = 2000'
DATE: MARCH 2010

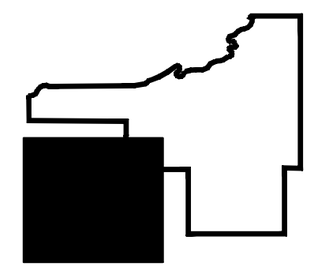
SHEET NO.:
EXHIBIT C.1



LEGEND

P-1	4-INCH WATER LINE
P-9	6-INCH WATER LINE
P-301	8-INCH WATER LINE
P-81	10-INCH WATER LINE
P-265	12-INCH WATER LINE
P-5	14-INCH WATER LINE
P-202	16-INCH WATER LINE
P-200	24-INCH WATER LINE
J-23	JUNCTION
PRV-200	PRESSURE REDUCING VALVE
MM-1	CWCWD MASTER METER
T-1	TANK
PMP-1	PUMP
	URBAN GROWTH BOUNDARY
	SECTIONS LINES
FIRESTONE BLVD.	TOWN ROAD NAMES
ROAD 7	WELD COUNTY ROAD NAMES
1	PRESSURE ZONE

KEY MAP



N

0 1000 2000
feet
1" = 2000'

FIRESTONE
A COMMUNITY IN MOTION

DATE	REVISION DESCRIPTION

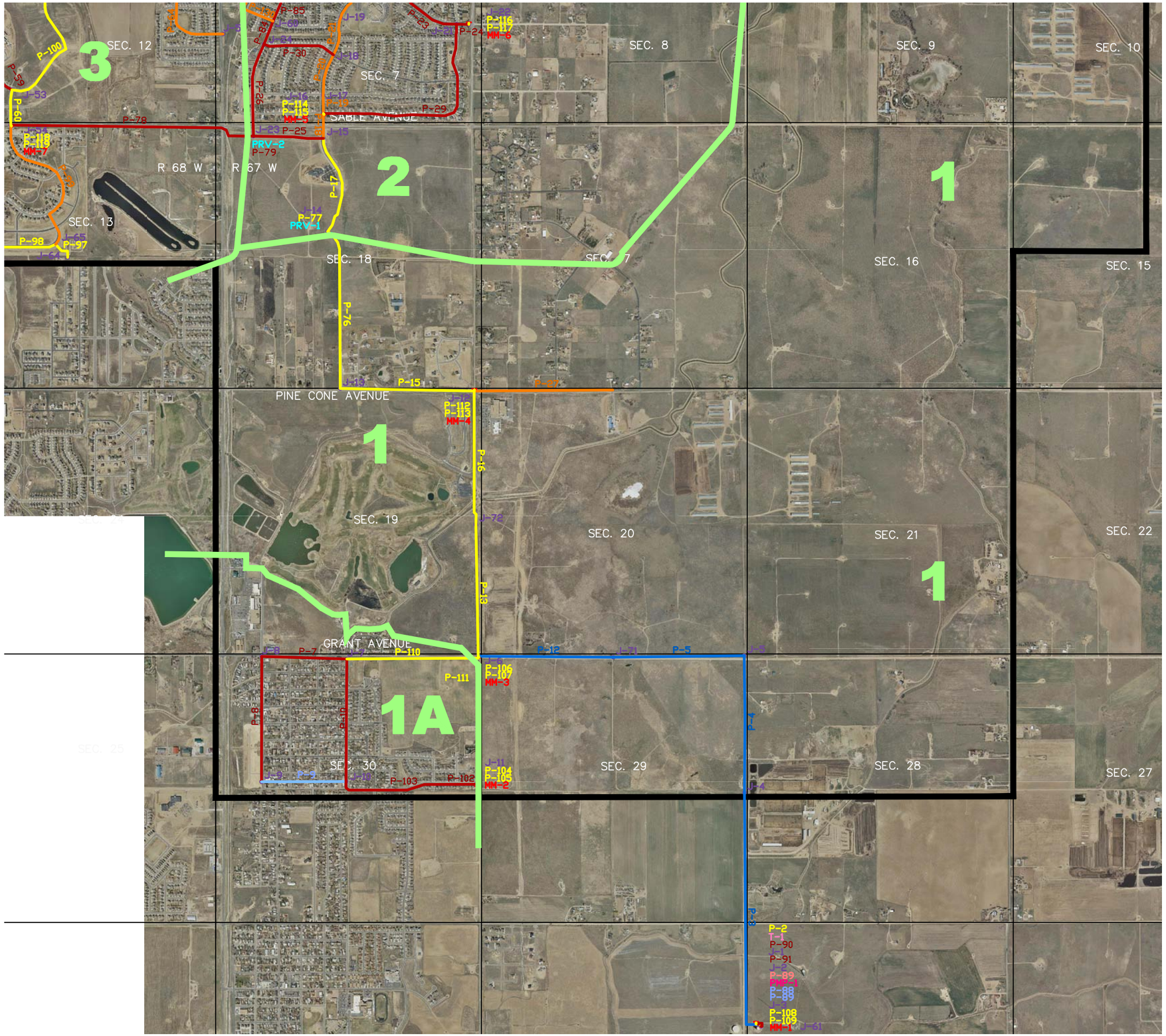
REVISIONS

CCG
COLORADO CIVIL GROUP, INC.
ENGINEERING CONSULTANTS
1413 W. 29TH STREET
LOVELAND, COLORADO 80538
(970) 278-0029

TOWN OF FIRESTONE
POTABLE WATER MASTER PLAN
WATERCAD MODEL
EXISTING SCENARIO

FILENAME: 0668.0156.00_WATERCAD MODEL
DESIGNER: C.E.M.
CHECKED: D.B.L.
JOB NO.: 0668.0156.00
SCALE: 1" = 2000'
DATE: MARCH 2010

SHEET NO.:
EXHIBIT C.1



LEGEND

P-1	4-INCH WATER LINE
P-9	6-INCH WATER LINE
P-301	8-INCH WATER LINE
P-81	10-INCH WATER LINE
P-265	12-INCH WATER LINE
P-5	14-INCH WATER LINE
P-202	16-INCH WATER LINE
P-200	24-INCH WATER LINE
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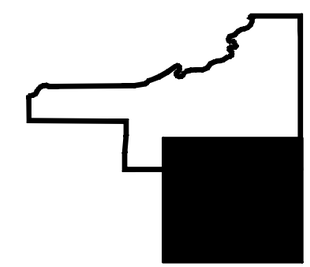
MM-1	CWCWD MASTER METER
T-1	TANK
PMP-1	PUMP
	URBAN GROWTH BOUNDARY
	SECTIONS LINES
FIRESTONE BLVD.	TOWN ROAD NAMES
ROAD 7	WELD COUNTY ROAD NAMES
1	PRESSURE ZONE

KEY MAP



N

0 1000 2000
feet

FIRESTONE
A COMMUNITY IN MOTION

REVISIONS	
DATE	REVISION DESCRIPTION

CCG COLORADO CIVIL GROUP, INC. ENGINEERING CONSULTANTS
1413 W. 29TH STREET
LOVELAND, COLORADO 80538
(970) 278-0239

TOWN OF FIRESTONE POTABLE WATER MASTER PLAN

WATERCAD MODEL EXISTING SCENARIO

FILENAME: 0668.0156.00_WATERCAD MODEL
DESIGNED: C.E.M.
CHECKED: D.S.L.
JOB NO.: 0668.0156.00
SCALE: 1" = 2000'
DATE: MARCH 2010

SHEET NO.: **EXHIBIT C.1**

POTABLE WATER MASTER PLAN
TABLE C.4
EXISTING SCENARIO - MAX DAY JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria
J-1	5,097.0	0.0	5,165.7	29.7	NO
J-2	5,097.0	0.0	5,164.9	29.4	NO
J-3	5,097.0	0.0	5,152.0	23.8	NO
J-4	5,028.0	0.0	5,162.2	58.1	NO
J-5	5,006.0	0.0	5,160.7	66.9	YES
J-6	5,001.0	0.0	5,157.8	67.8	YES
J-7	4,975.0	87.2	5,157.8	79.1	YES
J-8	4,950.0	170.0	5,157.3	89.7	YES
J-9	4,976.0	60.8	5,157.5	78.5	YES
J-10	4,961.0	60.8	5,159.4	85.8	YES
J-11	5,025.0	25.0	5,165.0	60.6	NO
J-12	4,974.0	22.4	5,152.0	77.0	YES
J-13	4,940.0	37.6	5,149.1	90.5	YES
J-14	4,951.0	11.8	5,107.4	67.7	YES
J-15	4,929.0	0.0	5,105.5	76.4	YES
J-16	4,923.0	40.0	5,105.0	78.7	YES
J-17	4,918.0	45.2	5,104.7	80.8	YES
J-18	4,911.0	45.2	5,104.2	83.6	YES
J-19	4,898.0	95.4	5,104.1	89.2	YES
J-20	4,897.0	45.2	5,104.0	89.6	YES
J-21	4,905.0	45.2	5,104.8	86.5	YES
J-22	4,905.0	0.0	5,105.0	86.5	YES
J-23	4,909.0	0.0	5,104.0	84.4	YES
J-24	4,897.0	70.4	5,103.8	89.5	YES
J-25	4,885.0	45.2	5,103.6	94.6	YES
J-26	4,891.0	45.2	5,103.9	92.1	YES
J-27	4,891.0	45.2	5,103.8	92.1	YES
J-28	4,880.0	95.4	5,103.8	96.8	YES
J-29	4,860.0	45.2	5,103.8	105.5	YES
J-30	4,880.0	0.0	5,104.3	97.1	YES
J-31	4,886.0	41.2	5,104.3	94.5	YES
J-32	4,863.0	0.0	5,105.0	104.7	YES
J-33	4,851.0	17.6	5,103.4	109.2	YES
J-34	4,850.0	23.6	5,103.2	109.6	YES
J-35	4,848.0	57.8	5,103.2	110.4	YES
J-36	4,847.0	57.8	5,103.2	110.8	YES
J-37	4,847.0	24.8	5,103.2	110.8	YES
J-38	4,848.0	24.8	5,103.2	110.4	YES
J-39	4,847.0	29.6	5,103.2	110.8	YES
J-40	4,844.0	0.0	5,103.2	112.1	YES
J-41	4,849.0	45.2	5,103.2	110.0	YES

POTABLE WATER MASTER PLAN
TABLE C.4
EXISTING SCENARIO - MAX DAY JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria
J-42	4,843.0	0.0	5,103.2	112.6	YES
J-43	4,842.0	0.0	5,103.2	113.0	YES
J-44	4,846.0	0.0	5,070.0	96.9	YES
J-45	4,843.0	0.0	5,070.0	98.2	YES
J-46	4,842.0	15.2	5,070.0	98.6	YES
J-47	4,848.0	15.2	5,070.0	96.0	YES
J-48	4,848.0	0.0	5,070.0	96.0	YES
J-49	4,851.0	68.0	5,070.0	94.7	YES
J-50	4,850.0	0.0	5,070.0	95.2	YES
J-51	4,864.0	288.6	5,070.0	89.1	YES
J-52	4,900.0	59.2	5,070.0	73.5	YES
J-53	4,912.0	18.0	5,070.0	68.4	YES
J-54	4,918.0	55.0	5,070.0	65.8	YES
J-55	4,863.0	38.6	5,103.2	103.9	YES
J-56	4,881.0	89.4	5,103.2	96.1	YES
J-57	4,890.0	70.8	5,103.1	92.2	YES
J-58	4,845.0	4.8	5,103.2	111.7	YES
J-59	4,848.0	0.0	5,103.2	110.4	YES
J-60	4,891.0	0.0	5,103.6	92.0	YES
J-61	5,097.5	0.0	5,165.0	29.2	NO
J-62	4,841.0	15.2	5,070.0	99.1	YES
J-63	4,843.0	41.2	5,103.0	112.5	YES
J-64	4,906.0	32.8	5,069.8	70.9	YES
J-65	4,908.0	32.8	5,069.8	70.0	YES
J-66	4,917.0	32.8	5,069.8	66.1	YES
J-67	4,855.0	(N/A)	(N/A)	(N/A)	(N/A)
J-68	4,844.0	(N/A)	(N/A)	(N/A)	(N/A)
J-69	4,891.0	0.0	5,070.0	77.4	YES
J-70	4,960.0	0.0	5,152.0	83.1	YES
J-71	4,991.0	0.0	5,159.3	72.8	YES
J-72	4,975.0	0.0	5,154.9	77.8	YES

POTABLE WATER MASTER PLAN
TABLE C.5
EXISTING SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria
P-2	93	12	DIP	130	-758.58	2.15	0.002	YES
P-3	4,837	14	PVC	150	-758.58	1.58	0.001	YES
P-4	2,723	14	PVC	150	758.58	1.58	0.001	YES
P-5	2,603	14	PVC	150	758.58	1.58	0.001	YES
P-7	1,691	8	AC	140	116.97	0.75	0.000	YES
P-8	2,488	8	AC	140	-53.03	0.34	0.000	YES
P-9	1,677	6	AC	140	-113.83	1.29	0.001	YES
P-10	2,433	8	AC	140	179.15	1.14	0.001	YES
P-12	2,685	14	PVC	150	758.58	1.58	0.001	YES
P-13	2,615	12	PVC	150	733.56	2.08	0.001	YES
P-15	2,659	12	PVC	150	735.06	2.09	0.001	YES
P-16	2,671	12	PVC	150	733.56	2.08	0.001	YES
P-17	2,016	12	PVC	150	685.66	1.95	0.001	YES
P-18	492	10	PVC	150	435.70	1.78	0.001	YES
P-19	363	10	PVC	150	380.34	1.55	0.001	YES
P-20	840	10	PVC	150	335.14	1.37	0.001	YES
P-21	769	10	PVC	150	165.92	0.68	0.000	YES
P-22	1,422	10	PVC	150	70.52	0.29	0.000	YES
P-23	1,238	8	PVC	150	-192.52	1.23	0.001	YES
P-24	243	8	PVC	150	-196.28	1.25	0.001	YES
P-25	1,393	8	PVC	150	249.96	1.60	0.001	YES
P-26	1,863	8	PVC	150	78.71	0.50	0.000	YES
P-27	2,756	10	PVC	150	0.00	0.00	0.000	YES
P-28	2,449	8	PVC	150	-71.39	0.46	0.000	YES
P-29	4,408	8	PVC	150	41.45	0.26	0.000	YES
P-30	1,442	8	PVC	150	124.03	0.79	0.000	YES
P-31	499	10	PVC	150	217.84	0.89	0.000	YES

POTABLE WATER MASTER PLAN
TABLE C.5
EXISTING SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria
P-32	383	10	PVC	150	101.25	0.41	0.000	YES
P-34	1,313	10	PVC	150	-39.36	0.16	0.000	YES
P-35	1,164	12	PVC	150	-452.03	1.28	0.000	YES
P-36	1,219	12	PVC	150	-493.23	1.40	0.001	YES
P-37	547	8	PVC	150	41.20	0.26	0.000	YES
P-38	1,364	12	PVC	150	367.47	1.04	0.000	YES
P-39	1,296	12	PVC	150	245.33	0.70	0.000	YES
P-40	1,005	8	PVC	150	104.54	0.67	0.000	YES
P-41	643	8	PVC	150	46.74	0.30	0.000	YES
P-42	438	8	PVC	150	-52.26	0.33	0.000	YES
P-43	1,108	8	PVC	150	22.06	0.14	0.000	YES
P-44	549	8	PVC	150	-2.74	0.02	0.000	YES
P-45	530	8	PVC	150	5.24	0.03	0.000	YES
P-46	794	8	PVC	150	23.38	0.15	0.000	YES
P-47	1,060	8	PVC	150	-21.82	0.14	0.000	YES
P-48	383	8	PVC	150	-18.14	0.12	0.000	YES
P-49	672	12	PVC	150	0.00	0.00	0.000	YES
P-51	994	12	PVC	150	-37.19	0.11	0.000	YES
P-52	1,853	12	PVC	150	-37.19	0.11	0.000	YES
P-53	2,516	8	PVC	150	-2.06	0.01	0.000	YES
P-54	836	12	PVC	150	37.19	0.11	0.000	YES
P-55	1,314	12	PVC	150	37.19	0.11	0.000	YES
P-56	1,026	12	PVC	150	-30.81	0.09	0.000	YES
P-57	3,218	12	PVC	150	-30.81	0.09	0.000	YES
P-58	1,053	8	PVC	150	32.57	0.21	0.000	YES
P-59	1,810	8	PVC	150	-26.63	0.17	0.000	YES
P-60	704	12	PVC	150	-44.63	0.13	0.000	YES

POTABLE WATER MASTER PLAN
TABLE C.5
EXISTING SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria
P-63	1,069	10	PVC	150	1.67	0.01	0.000	YES
P-64	2,329	10	PVC	150	70.80	0.29	0.000	YES
P-65	1,238	12	PVC	150	99.12	0.28	0.000	YES
P-76	3,094	12	PVC	150	697.46	1.98	0.001	YES
P-77	108	12	PVC	150	697.46	1.98	0.001	YES
P-78	4,797	8	PVC	150	171.25	1.09	0.001	YES
P-79	109	8	PVC	150	171.25	1.09	0.001	YES
P-80	713	10	PVC	150	-37.58	0.15	0.000	YES
P-81	1,388	10	PVC	150	40.27	0.16	0.000	YES
P-82	971	12	PVC	150	122.61	0.35	0.000	YES
P-83	996	12	PVC	150	39.96	0.11	0.000	YES
P-84	494	8	PVC	150	132.34	0.84	0.000	YES
P-85	494	8	PVC	150	-26.19	0.17	0.000	YES
P-87	825	12	PVC	150	21.82	0.06	0.000	YES
P-88	35	6	DIP	130	500.00	5.67	0.021	NO
P-89	10	4	DIP	130	500.00	12.77	0.148	NO
P-90	174	8	PVC	150	500.00	3.19	0.004	YES
P-91	4	8	PVC	150	500.00	3.19	0.004	YES
P-92	1,242	8	PVC	150	15.20	0.10	0.000	YES
P-93	3,259	8	PVC	150	41.20	0.26	0.000	YES
P-94	1,285	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-95	1,275	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-96	2,577	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-97	427	12	PVC	150	-32.80	0.09	0.000	YES
P-98	2,318	12	PVC	150	32.80	0.09	0.000	YES
P-99	3,117	10	PVC	150	-98.40	0.40	0.000	YES
P-100	2,751	12	PVC	150	0.00	0.00	0.000	YES

POTABLE WATER MASTER PLAN
TABLE C.5
EXISTING SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria
P-102	74	8	PVC	150	353.78	2.26	0.002	YES
P-103	2,664	8	PVC	150	353.78	2.26	0.002	YES
P-104	10	12	DIP	130	378.78	1.07	0.000	YES
P-105	15	12	DIP	130	378.78	1.07	0.000	YES
P-106	8	12	DIP	130	0.00	0.00	0.000	YES
P-107	18	12	DIP	130	0.00	0.00	0.000	YES
P-108	13	12	DIP	130	500.00	1.42	0.001	YES
P-109	12	12	DIP	130	500.00	1.42	0.001	YES
P-110	2,336	12	PVC	150	25.02	0.07	0.000	YES
P-111	311	12	PVC	150	25.02	0.07	0.000	YES
P-112	12	12	DIP	130	23.90	0.07	0.000	YES
P-113	12	12	DIP	130	23.89	0.07	0.000	YES
P-114	12	12	DIP	130	26.08	0.07	0.000	YES
P-115	13	12	DIP	130	26.09	0.07	0.000	YES
P-116	13	12	DIP	130	196.28	0.56	0.000	YES
P-117	12	12	DIP	130	196.27	0.56	0.000	YES
P-118	9	12	DIP	130	26.78	0.08	0.000	YES
P-119	16	12	DIP	130	26.78	0.08	0.000	YES
P-120	16	12	DIP	130	351.99	1.00	0.000	YES
P-121	9	12	DIP	130	351.99	1.00	0.000	YES
P-122	7	12	DIP	130	493.23	1.40	0.001	YES
P-123	17	12	DIP	130	493.23	1.40	0.001	YES
P-124	15	12	DIP	130	17.26	0.05	0.000	YES
P-125	9	12	DIP	130	17.26	0.05	0.000	YES
P-126	15	12	DIP	130	65.52	0.19	0.000	YES
P-127	10	12	DIP	130	65.52	0.19	0.000	YES
P-128	608	10	PVC	150	56.05	0.23	0.000	YES

POTABLE WATER MASTER PLAN
TABLE C.5
EXISTING SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria
P-129	950	10	PVC	150	56.04	0.23	0.000	YES
P-130	1,235	10	PVC	150	-158.53	0.65	0.000	YES
P-131	1,568	10	PVC	150	-158.53	0.65	0.000	YES

POTABLE WATER MASTER PLAN
TABLE C.6
EXISTING SCENARIO - MAX DAY CWCWD MASTER METER RESULTS

Label	Elevation (feet)	Outflow (gpm)	HGL (feet)	Pressure Zone ID
MM-1	5,152.0	500.0	5,152.0	1
MM-2	5,165.0	378.8	5,165.0	1A
MM-3	5,152.0	0.0	5,152.0	1
MM-4	5,152.0	23.9	5,152.0	1
MM-5	5,105.0	26.1	5,105.0	2
MM-6	5,105.0	196.3	5,105.0	2
MM-7	5,070.0	26.8	5,070.0	3
MM-8	5,070.0	352.0	5,070.0	3
MM-9	5,105.0	493.2	5,105.0	2
MM-10	5,070.0	17.3	5,070.0	3
MM-11	5,070.0	65.5	5,070.0	3
TOTAL		**2,079.8**		

POTABLE WATER MASTER PLAN
TABLE C.7
EXISTING SCENARIO - MAX DAY PRV RESULTS

Label	Elevation (feet)	Diameter (inches)	Initial Settings Hydraulic Grade (feet)	Initial Settings Pressure (psi)	Flow (gpm)	Hydraulic Grade To (feet)	Hydraulic Grade From (feet)	Headloss (feet)
PRV-1	4,952.3	8	5,107.5	67.2	697.5	5,146.0	5,107.6	38.4
PRV-2	4,906.4	8	5,072.5	71.9	171.3	5,103.9	5,072.6	31.4

POTABLE WATER MASTER PLAN
TABLE C.8
EXISTING SCENARIO - MAX DAY TANK RESULTS

Label	Base Elevation	Minimum Elevation	Initial Elevation	Maximum Elevation	Diameter	Outflow	Hydraulic Grade
	(feet)	(feet)	(feet)	(feet)	(feet)	(gpm)	(feet)
T-1	5,097.5	5,122.5	5,165.0	5,197.5	50.0	258.6	5,165.0

POTABLE WATER MASTER PLAN
TABLE C.9
EXISTING SCENARIO - MAX DAY PUMP RESULTS

Label	Elevation	Intake Grade	Discharge Grade	Discharge	Pump Head
	(feet)	(feet)	(feet)	(gpm)	(feet)
PMP-1	5,097.0	5,151.3	5,167.2	500.0	15.9

POTABLE WATER MASTER PLAN
TABLE C.10
EXISTING SCENARIO - PEAK HOUR JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria
J-1	5,097.0	0.0	5,165.7	29.7	NO
J-2	5,097.0	0.0	5,164.8	29.3	NO
J-3	5,097.0	0.0	5,152.0	23.8	NO
J-4	5,028.0	0.0	5,161.8	57.9	YES
J-5	5,006.0	0.0	5,160.0	66.6	YES
J-6	5,001.0	0.0	5,156.7	67.3	YES
J-7	4,975.0	130.8	5,156.5	78.5	YES
J-8	4,950.0	255.0	5,155.0	88.7	YES
J-9	4,976.0	91.2	5,155.1	77.5	YES
J-10	4,961.0	91.2	5,157.9	85.2	YES
J-11	5,025.0	37.5	5,165.0	60.6	YES
J-12	4,974.0	33.6	5,152.0	77.0	YES
J-13	4,940.0	56.4	5,148.8	90.3	YES
J-14	4,951.0	17.7	5,107.4	67.7	YES
J-15	4,929.0	0.0	5,105.4	76.3	YES
J-16	4,923.0	60.0	5,105.0	78.7	YES
J-17	4,918.0	67.8	5,104.4	80.6	YES
J-18	4,911.0	67.8	5,103.3	83.2	YES
J-19	4,898.0	143.1	5,103.1	88.7	YES
J-20	4,897.0	67.8	5,102.9	89.1	YES
J-21	4,905.0	67.8	5,104.6	86.4	YES
J-22	4,905.0	0.0	5,105.0	86.5	YES
J-23	4,909.0	0.0	5,103.2	84.0	YES
J-24	4,897.0	105.6	5,102.5	88.9	YES
J-25	4,885.0	67.8	5,102.2	94.0	YES
J-26	4,891.0	67.8	5,102.7	91.6	YES
J-27	4,891.0	67.8	5,102.6	91.5	YES
J-28	4,880.0	143.1	5,102.5	96.3	YES
J-29	4,860.0	67.8	5,102.6	104.9	YES
J-30	4,880.0	0.0	5,103.6	96.8	YES
J-31	4,886.0	61.8	5,103.6	94.1	YES
J-32	4,863.0	0.0	5,105.0	104.7	YES
J-33	4,851.0	26.4	5,101.7	108.5	YES
J-34	4,850.0	35.4	5,101.3	108.7	YES
J-35	4,848.0	86.7	5,101.2	109.6	YES
J-36	4,847.0	86.7	5,101.2	110.0	YES
J-37	4,847.0	37.2	5,101.2	110.0	YES
J-38	4,848.0	37.2	5,101.2	109.5	YES
J-39	4,847.0	44.4	5,101.2	110.0	YES
J-40	4,844.0	0.0	5,101.2	111.3	YES
J-41	4,849.0	67.8	5,101.2	109.1	YES

POTABLE WATER MASTER PLAN
TABLE C.10
EXISTING SCENARIO - PEAK HOUR JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria
J-42	4,843.0	0.0	5,101.2	111.7	YES
J-43	4,842.0	0.0	5,101.2	112.1	YES
J-44	4,846.0	0.0	5,070.0	96.9	YES
J-45	4,843.0	0.0	5,070.0	98.2	YES
J-46	4,842.0	22.8	5,070.0	98.6	YES
J-47	4,848.0	22.8	5,070.0	96.0	YES
J-48	4,848.0	0.0	5,070.0	96.0	YES
J-49	4,851.0	102.0	5,070.0	94.7	YES
J-50	4,850.0	0.0	5,070.0	95.2	YES
J-51	4,864.0	432.9	5,070.0	89.1	YES
J-52	4,900.0	88.8	5,069.9	73.5	YES
J-53	4,912.0	27.0	5,070.0	68.4	YES
J-54	4,918.0	82.5	5,070.0	65.8	YES
J-55	4,863.0	57.9	5,101.2	103.1	YES
J-56	4,881.0	134.1	5,101.2	95.3	YES
J-57	4,890.0	106.2	5,101.0	91.3	YES
J-58	4,845.0	7.2	5,101.2	110.9	YES
J-59	4,848.0	0.0	5,101.2	109.5	YES
J-60	4,891.0	0.0	5,102.1	91.4	YES
J-61	5,097.5	0.0	5,165.0	29.2	NO
J-62	4,841.0	22.8	5,070.0	99.1	YES
J-63	4,843.0	61.8	5,100.9	111.6	YES
J-64	4,906.0	49.2	5,069.6	70.8	YES
J-65	4,908.0	49.2	5,069.6	69.9	YES
J-66	4,917.0	49.2	5,069.6	66.0	YES
J-67	4,855.0	(N/A)	(N/A)	(N/A)	(N/A)
J-68	4,844.0	(N/A)	(N/A)	(N/A)	(N/A)
J-69	4,891.0	0.0	5,070.0	77.4	YES
J-70	4,960.0	0.0	5,152.0	83.1	YES
J-71	4,991.0	0.0	5,158.4	72.4	YES
J-72	4,975.0	0.0	5,154.4	77.6	YES

POTABLE WATER MASTER PLAN
TABLE C.11
EXISTING SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria
P-2	93	12	DIP	130	-820.49	2.33	0.002	YES
P-3	4,837	14	PVC	150	-820.49	1.71	0.001	YES
P-4	2,723	14	PVC	150	820.49	1.71	0.001	YES
P-5	2,603	14	PVC	150	820.49	1.71	0.001	YES
P-7	1,691	8	AC	140	207.60	1.33	0.001	YES
P-8	2,488	8	AC	140	-47.40	0.30	0.000	YES
P-9	1,677	6	AC	140	-138.60	1.57	0.002	YES
P-10	2,433	8	AC	140	170.67	1.09	0.001	YES
P-12	2,685	14	PVC	150	820.49	1.71	0.001	YES
P-13	2,615	12	PVC	150	652.76	1.85	0.001	YES
P-15	2,659	12	PVC	150	776.11	2.20	0.001	YES
P-16	2,671	12	PVC	150	652.76	1.85	0.001	YES
P-17	2,016	12	PVC	150	702.00	1.99	0.001	YES
P-18	492	10	PVC	150	392.90	1.60	0.001	YES
P-19	363	10	PVC	150	561.25	2.29	0.002	YES
P-20	840	10	PVC	150	493.45	2.02	0.001	YES
P-21	769	10	PVC	150	249.60	1.02	0.000	YES
P-22	1,422	10	PVC	150	106.50	0.44	0.000	YES
P-23	1,238	8	PVC	150	-285.09	1.82	0.001	YES
P-24	243	8	PVC	150	-291.85	1.86	0.001	YES
P-25	1,393	8	PVC	150	309.10	1.97	0.002	YES
P-26	1,863	8	PVC	150	137.81	0.88	0.000	YES
P-27	2,756	10	PVC	150	0.00	0.00	0.000	YES
P-28	2,449	8	PVC	150	-101.82	0.65	0.000	YES
P-29	4,408	8	PVC	150	61.04	0.39	0.000	YES
P-30	1,442	8	PVC	150	176.05	1.12	0.001	YES
P-31	499	10	PVC	150	323.79	1.32	0.001	YES

POTABLE WATER MASTER PLAN
TABLE C.11
EXISTING SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria
P-32	383	10	PVC	150	154.17	0.63	0.000	YES
P-34	1,313	10	PVC	150	-56.73	0.23	0.000	YES
P-35	1,164	12	PVC	150	-671.25	1.90	0.001	YES
P-36	1,219	12	PVC	150	-733.05	2.08	0.001	YES
P-37	547	8	PVC	150	61.80	0.39	0.000	YES
P-38	1,364	12	PVC	150	546.72	1.55	0.001	YES
P-39	1,296	12	PVC	150	364.39	1.03	0.000	YES
P-40	1,005	8	PVC	150	155.93	1.00	0.000	YES
P-41	643	8	PVC	150	69.23	0.44	0.000	YES
P-42	438	8	PVC	150	-79.27	0.51	0.000	YES
P-43	1,108	8	PVC	150	31.91	0.20	0.000	YES
P-44	549	8	PVC	150	-5.29	0.03	0.000	YES
P-45	530	8	PVC	150	7.43	0.05	0.000	YES
P-46	794	8	PVC	150	35.01	0.22	0.000	YES
P-47	1,060	8	PVC	150	-32.79	0.21	0.000	YES
P-48	383	8	PVC	150	-27.58	0.18	0.000	YES
P-49	672	12	PVC	150	0.00	0.00	0.000	YES
P-51	994	12	PVC	150	-55.78	0.16	0.000	YES
P-52	1,853	12	PVC	150	-55.78	0.16	0.000	YES
P-53	2,516	8	PVC	150	-3.09	0.02	0.000	YES
P-54	836	12	PVC	150	55.78	0.16	0.000	YES
P-55	1,314	12	PVC	150	55.78	0.16	0.000	YES
P-56	1,026	12	PVC	150	-46.22	0.13	0.000	YES
P-57	3,218	12	PVC	150	-46.22	0.13	0.000	YES
P-58	1,053	8	PVC	150	49.08	0.31	0.000	YES
P-59	1,810	8	PVC	150	-39.72	0.25	0.000	YES
P-60	704	12	PVC	150	-66.72	0.19	0.000	YES

POTABLE WATER MASTER PLAN
TABLE C.11
EXISTING SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria
P-63	1,069	10	PVC	150	-1.98	0.01	0.000	YES
P-64	2,329	10	PVC	150	106.20	0.43	0.000	YES
P-65	1,238	12	PVC	150	148.38	0.42	0.000	YES
P-76	3,094	12	PVC	150	719.71	2.04	0.001	YES
P-77	108	12	PVC	150	719.70	2.04	0.001	YES
P-78	4,797	8	PVC	150	171.29	1.09	0.001	YES
P-79	109	8	PVC	150	171.29	1.09	0.001	YES
P-80	713	10	PVC	150	-57.12	0.23	0.000	YES
P-81	1,388	10	PVC	150	55.92	0.23	0.000	YES
P-82	971	12	PVC	150	180.62	0.51	0.000	YES
P-83	996	12	PVC	150	60.37	0.17	0.000	YES
P-84	494	8	PVC	150	208.25	1.33	0.001	YES
P-85	494	8	PVC	150	-34.02	0.22	0.000	YES
P-87	825	12	PVC	150	32.79	0.09	0.000	YES
P-88	35	6	DIP	130	500.00	5.67	0.021	YES
P-89	10	4	DIP	130	500.00	12.77	0.148	NO
P-90	174	8	PVC	150	500.00	3.19	0.004	YES
P-91	4	8	PVC	150	500.00	3.19	0.004	YES
P-92	1,242	8	PVC	150	22.80	0.15	0.000	YES
P-93	3,259	8	PVC	150	61.80	0.39	0.000	YES
P-94	1,285	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-95	1,275	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-96	2,577	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-97	427	12	PVC	150	-49.20	0.14	0.000	YES
P-98	2,318	12	PVC	150	49.20	0.14	0.000	YES
P-99	3,117	10	PVC	150	-147.60	0.60	0.000	YES
P-100	2,751	12	PVC	150	0.00	0.00	0.000	YES

POTABLE WATER MASTER PLAN
TABLE C.11
EXISTING SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria
P-102	74	8	PVC	150	400.47	2.56	0.003	YES
P-103	2,664	8	PVC	150	400.47	2.56	0.003	YES
P-104	10	12	DIP	130	437.97	1.24	0.001	YES
P-105	15	12	DIP	130	437.97	1.24	0.001	YES
P-106	8	12	DIP	130	0.00	0.00	0.000	YES
P-107	18	12	DIP	130	0.00	0.00	0.000	YES
P-108	13	12	DIP	130	500.00	1.42	0.001	YES
P-109	12	12	DIP	130	500.00	1.42	0.001	YES
P-110	2,336	12	PVC	150	167.73	0.48	0.000	YES
P-111	311	12	PVC	150	167.73	0.48	0.000	YES
P-112	12	12	DIP	130	156.95	0.45	0.000	YES
P-113	12	12	DIP	130	156.95	0.45	0.000	YES
P-114	12	12	DIP	130	289.39	0.82	0.000	YES
P-115	13	12	DIP	130	289.39	0.82	0.000	YES
P-116	13	12	DIP	130	291.85	0.83	0.000	YES
P-117	12	12	DIP	130	291.85	0.83	0.000	YES
P-118	9	12	DIP	130	125.53	0.36	0.000	YES
P-119	16	12	DIP	130	125.53	0.36	0.000	YES
P-120	16	12	DIP	130	528.20	1.50	0.001	YES
P-121	9	12	DIP	130	528.20	1.50	0.001	YES
P-122	7	12	DIP	130	733.05	2.08	0.001	YES
P-123	17	12	DIP	130	733.05	2.08	0.001	YES
P-124	15	12	DIP	130	25.89	0.07	0.000	YES
P-125	9	12	DIP	130	25.89	0.07	0.000	YES
P-126	15	12	DIP	130	98.29	0.28	0.000	YES
P-127	10	12	DIP	130	98.29	0.28	0.000	YES
P-128	608	10	PVC	150	86.37	0.35	0.000	YES

POTABLE WATER MASTER PLAN
TABLE C.11
EXISTING SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria
P-129	950	10	PVC	150	86.37	0.35	0.000	YES
P-130	1,235	10	PVC	150	-242.28	0.99	0.000	YES
P-131	1,568	10	PVC	150	-242.28	0.99	0.000	YES

POTABLE WATER MASTER PLAN
TABLE C.12
EXISTING SCENARIO - PEAK HOUR RESERVOIR RESULTS

Label	Elevation (feet)	Outflow (gpm)	HGL (feet)	Pressure Zone ID
MM-1	5,152.0	500.0	5,152.0	1
MM-2	5,165.0	438.0	5,165.0	1A
MM-3	5,152.0	0.0	5,152.0	1
MM-4	5,152.0	157.0	5,152.0	1
MM-5	5,105.0	289.4	5,105.0	2
MM-6	5,105.0	291.9	5,105.0	2
MM-7	5,070.0	125.5	5,070.0	3
MM-8	5,070.0	528.2	5,070.0	3
MM-9	5,105.0	733.1	5,105.0	2
MM-10	5,070.0	25.9	5,070.0	3
MM-11	5,070.0	98.3	5,070.0	3
TOTAL		**3,187.1**		

POTABLE WATER MASTER PLAN
TABLE C.13
EXISTING SCENARIO - PEAK HOUR PRV RESULTS

Label	Elevation (feet)	Diameter (inches)	Initial Settings Hydraulic Grade (feet)	Initial Settings Pressure (psi)	Flow (gpm)	Hydraulic Grade To (feet)	Hydraulic Grade From (feet)	Headloss (feet)
PRV-1	4,952.3	8	5,107.5	67.2	719.7	5,145.5	5,107.6	37.9
PRV-2	4,906.4	8	5,072.5	71.9	171.3	5,103.1	5,072.6	30.6

POTABLE WATER MASTER PLAN
TABLE C.14
EXISTING SCENARIO - PEAK HOUR TANK RESULTS

Label	Base Elevation	Minimum Elevation	Initial Elevation	Maximum Elevation	Diameter	Outflow	Hydraulic Grade
	(feet)	(feet)	(feet)	(feet)	(feet)	(gpm)	(feet)
T-1	5,097.5	5,122.5	5,165.0	5,197.5	50.0	320.5	5,165.0

POTABLE WATER MASTER PLAN
TABLE C.15
EXISTING SCENARIO - PEAK HOUR PUMP RESULTS

Label	Elevation	Intake Grade	Discharge Grade	Discharge	Pump Head
	(feet)	(feet)	(feet)	(gpm)	(feet)
PMP-1	5,097.0	5,151.3	5,167.2	500.0	15.9

POTABLE WATER MASTER PLAN
TABLE C.16
EXISTING SCENARIO - FIRE FLOW RESULTS (RESIDENTIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-4	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	53.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-5	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	62.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-6	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	65.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-7	TRUE	1,500.0	2,000.0	1,587.2	2,087.2	20.0	70.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-8	TRUE	1,500.0	2,000.0	1,670.0	2,170.0	20.0	54.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-9	TRUE	1,500.0	2,000.0	1,560.8	2,060.8	20.0	30.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-10	TRUE	1,500.0	2,000.0	1,560.8	2,060.8	20.0	67.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-11	TRUE	1,500.0	2,000.0	1,525.0	2,025.0	20.0	22.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-12	TRUE	1,500.0	2,000.0	1,522.4	2,022.4	20.0	64.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-13	TRUE	1,500.0	2,000.0	1,537.6	2,037.6	20.0	72.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-14	TRUE	1,500.0	2,000.0	1,511.8	2,011.8	20.0	66.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-15	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	74.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-16	TRUE	1,500.0	2,000.0	1,540.0	2,040.0	20.0	77.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-17	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	78.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-18	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	79.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-19	TRUE	1,500.0	2,000.0	1,595.4	2,095.4	20.0	83.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-20	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	84.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-21	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	81.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-22	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	79.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-23	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	71.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-24	TRUE	1,500.0	2,000.0	1,570.4	2,070.4	20.0	81.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-25	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	81.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-26	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	86.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-27	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	84.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-28	TRUE	1,500.0	2,000.0	1,595.4	2,095.4	20.0	86.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-29	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	94.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-30	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	84.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-31	TRUE	1,500.0	2,000.0	1,541.2	2,041.2	20.0	69.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-32	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	91.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-33	TRUE	1,500.0	2,000.0	1,517.6	2,017.6	20.0	96.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-34	TRUE	1,500.0	2,000.0	1,523.6	2,023.6	20.0	96.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-35	TRUE	1,500.0	2,000.0	1,557.8	2,057.8	20.0	90.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-36	TRUE	1,500.0	2,000.0	1,557.8	2,057.8	20.0	92.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-37	TRUE	1,500.0	2,000.0	1,524.8	2,024.8	20.0	96.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-38	TRUE	1,500.0	2,000.0	1,524.8	2,024.8	20.0	91.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-39	TRUE	1,500.0	2,000.0	1,529.6	2,029.6	20.0	95.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-40	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	95.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-41	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	88.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE

POTABLE WATER MASTER PLAN
TABLE C.16
EXISTING SCENARIO - FIRE FLOW RESULTS (RESIDENTIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-42	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	95.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-43	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	93.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-44	TRUE	1,500.0	1,623.5	1,500.0	1,623.5	20.0	94.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-45	TRUE	1,500.0	1,624.0	1,500.0	1,624.0	20.0	96.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-46	TRUE	1,500.0	1,635.3	1,515.2	1,650.5	20.0	97.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-47	TRUE	1,500.0	2,000.0	1,515.2	2,015.2	20.0	80.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-48	TRUE	1,500.0	1,620.6	1,500.0	1,620.6	20.0	93.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-49	TRUE	1,500.0	1,619.1	1,568.0	1,687.1	20.0	91.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-50	TRUE	1,500.0	1,765.6	1,500.0	1,765.6	20.0	91.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-51	TRUE	1,500.0	1,611.8	1,788.6	1,900.4	20.0	86.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-52	TRUE	1,500.0	2,000.0	1,559.2	2,059.2	20.0	63.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-53	TRUE	1,500.0	2,000.0	1,518.0	2,018.0	20.0	59.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-54	TRUE	1,500.0	2,000.0	1,555.0	2,055.0	20.0	57.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-55	TRUE	1,500.0	2,000.0	1,538.6	2,038.6	20.0	89.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-56	TRUE	1,500.0	2,000.0	1,589.4	2,089.4	20.0	81.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-57	TRUE	1,500.0	2,000.0	1,570.8	2,070.8	20.0	59.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-58	TRUE	1,500.0	2,000.0	1,504.8	2,004.8	20.0	98.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-59	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	95.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-60	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	82.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-62	TRUE	1,500.0	1,634.8	1,515.2	1,650.0	20.0	78.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-63	TRUE	1,500.0	2,000.0	1,541.2	2,041.2	20.0	20.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-64	TRUE	1,500.0	2,000.0	1,532.8	2,032.8	20.0	36.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-65	TRUE	1,500.0	2,000.0	1,532.8	2,032.8	20.0	36.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-66	TRUE	1,500.0	2,000.0	1,532.8	2,032.8	20.0	25.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-69	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	60.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-70	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	50.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-71	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	69.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-72	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	70.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE

POTABLE WATER MASTER PLAN
TABLE C.17
EXISTING SCENARIO - FIRE FLOW RESULTS (COMMERCIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-8	TRUE	3,000.0	3,008.2	3,170.0	3,178.2	20.0	20.0	20.0	22.1	48.0	(N/A)	22.1	48.0	TRUE
J-14	TRUE	3,000.0	3,500.0	3,011.8	3,511.8	20.0	59.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-15	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	69.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-19	TRUE	3,000.0	3,500.0	3,095.4	3,595.4	20.0	68.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-20	TRUE	3,000.0	3,500.0	3,045.2	3,545.2	20.0	68.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-23	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	49.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-28	TRUE	3,000.0	3,500.0	3,095.4	3,595.4	20.0	59.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-29	TRUE	3,000.0	3,500.0	3,045.2	3,545.2	20.0	64.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-30	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	50.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-31	TRUE	3,000.0	3,373.6	3,041.2	3,414.8	20.0	20.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-33	TRUE	3,000.0	3,500.0	3,017.6	3,517.6	20.0	65.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-34	TRUE	3,000.0	3,500.0	3,023.6	3,523.6	20.0	64.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-40	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	58.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-41	TRUE	3,000.0	3,500.0	3,045.2	3,545.2	20.0	42.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-44	FALSE	3,000.0	1,623.1	3,000.0	1,623.1	20.0	94.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-45	FALSE	3,000.0	1,626.7	3,000.0	1,626.7	20.0	96.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-46	TRUE	3,000.0	3,500.0	3,015.2	3,515.2	20.0	64.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-47	TRUE	3,000.0	3,085.1	3,015.2	3,100.3	20.0	20.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-48	FALSE	3,000.0	1,620.9	3,000.0	1,620.9	20.0	93.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-49	FALSE	3,000.0	1,620.1	3,068.0	1,688.1	20.0	91.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-50	FALSE	3,000.0	1,616.5	3,000.0	1,616.5	20.0	91.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-53	TRUE	3,000.0	3,500.0	3,018.0	3,518.0	20.0	26.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-55	TRUE	3,000.0	3,500.0	3,038.6	3,538.6	20.0	56.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-58	TRUE	3,000.0	3,500.0	3,004.8	3,504.8	20.0	65.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-62	TRUE	3,000.0	3,064.5	3,015.2	3,079.7	20.0	23.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-72	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	55.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE

POTABLE WATER MASTER PLAN
TABLE C.18
DIURNAL CURVE (RESIDENTIAL)

Time Step		Number of Hours	Demand Distribution
Begin	End		
12:00 AM	1:00 AM	1	0.5
1:00 AM	2:00 AM	2	0.5
2:00 AM	3:00 AM	3	0.5
3:00 AM	4:00 AM	4	0.5
4:00 AM	5:00 AM	5	0.5
5:00 AM	6:00 AM	6	0.5
6:00 AM	7:00 AM	7	2.5
7:00 AM	8:00 AM	8	2.5
8:00 AM	9:00 AM	9	1.0
9:00 AM	10:00 AM	10	1.0
10:00 AM	11:00 AM	11	1.0
11:00 AM	12:00 PM	12	0.5
12:00 PM	1:00 PM	13	0.5
1:00 PM	2:00 PM	14	0.5
2:00 PM	3:00 PM	15	1.0
3:00 PM	4:00 PM	16	1.0
4:00 PM	5:00 PM	17	1.0
5:00 PM	6:00 PM	18	2.5
6:00 PM	7:00 PM	19	2.5
7:00 PM	8:00 PM	20	1.0
8:00 PM	9:00 PM	21	1.0
9:00 PM	10:00 PM	22	0.5
10:00 PM	11:00 PM	23	0.5
11:00 PM	12:00 AM	24	0.5
	Total		**24**

POTABLE WATER MASTER PLAN
TABLE C.19
DIURNAL CURVE (COMMERCIAL)

Time Step		Number of Hours	Demand Distribution
Begin	End		
12:00 AM	1:00 AM	1	0.5
1:00 AM	2:00 AM	2	0.5
2:00 AM	3:00 AM	3	0.5
3:00 AM	4:00 AM	4	0.5
4:00 AM	5:00 AM	5	0.5
5:00 AM	6:00 AM	6	0.5
6:00 AM	7:00 AM	7	0.5
7:00 AM	8:00 AM	8	0.5
8:00 AM	9:00 AM	9	1.0
9:00 AM	10:00 AM	10	1.0
10:00 AM	11:00 AM	11	2.0
11:00 AM	12:00 PM	12	2.0
12:00 PM	1:00 PM	13	2.5
1:00 PM	2:00 PM	14	2.0
2:00 PM	3:00 PM	15	2.0
3:00 PM	4:00 PM	16	1.0
4:00 PM	5:00 PM	17	1.0
5:00 PM	6:00 PM	18	1.0
6:00 PM	7:00 PM	19	1.0
7:00 PM	8:00 PM	20	1.0
8:00 PM	9:00 PM	21	1.0
9:00 PM	10:00 PM	22	0.5
10:00 PM	11:00 PM	23	0.5
11:00 PM	12:00 AM	24	0.5
	Total		**24**

POTABLE WATER MASTER PLAN
TABLE C.20
EXISTING SCENARIO - AVERAGE DAY WATER AGE RESULTS

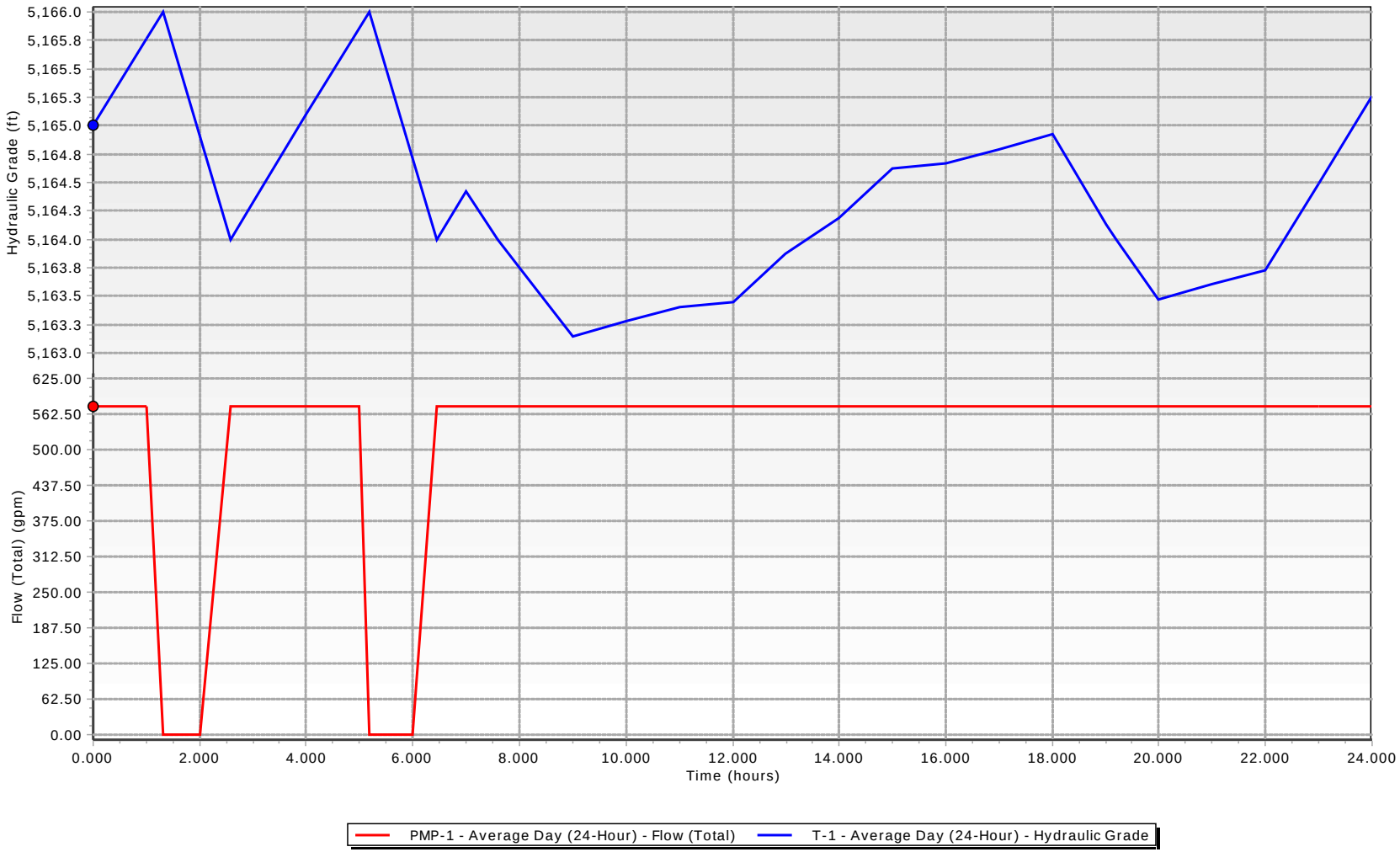
Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Age (hours)
J-1	5,097.0	0.0	5,165.7	29.7	0.4
J-2	5,097.0	0.0	5,165.0	29.4	19.6
J-3	5,097.0	0.0	5,152.0	23.8	0.2
J-4	5,028.0	0.0	5,164.2	58.9	21.1
J-5	5,006.0	0.0	5,163.8	68.3	22.0
J-6	5,001.0	0.0	5,162.9	70.1	23.8
J-7	4,975.0	25.8	5,164.3	81.9	13.6
J-8	4,950.0	43.2	5,164.3	92.7	13.9
J-9	4,976.0	15.2	5,164.3	81.5	3.6
J-10	4,961.0	15.2	5,164.5	88.0	2.4
J-11	5,025.0	6.3	5,165.0	60.6	0.2
J-12	4,974.0	6.2	5,161.1	81.0	25.2
J-13	4,940.0	9.4	5,160.3	95.3	25.8
J-14	4,951.0	3.0	5,107.5	67.7	26.6
J-15	4,929.0	0.0	5,106.9	77.0	27.0
J-16	4,923.0	10.0	5,106.7	79.5	27.1
J-17	4,918.0	11.3	5,106.6	81.6	27.2
J-18	4,911.0	11.3	5,106.4	84.5	27.4
J-19	4,898.0	36.4	5,106.3	90.1	27.7
J-20	4,897.0	11.3	5,106.2	90.5	29.0
J-21	4,905.0	11.3	5,106.3	87.1	29.3
J-22	4,905.0	0.0	5,106.3	87.1	336.0
J-23	4,909.0	0.0	5,106.7	85.5	27.5
J-24	4,897.0	23.9	5,106.3	90.6	28.2
J-25	4,885.0	11.3	5,106.2	95.7	43.2
J-26	4,891.0	11.3	5,106.2	93.1	29.5
J-27	4,891.0	11.3	5,106.2	93.1	29.8
J-28	4,880.0	36.4	5,106.0	97.8	31.9
J-29	4,860.0	11.3	5,106.0	106.4	31.0
J-30	4,880.0	0.0	5,106.0	97.8	39.1
J-31	4,886.0	16.6	5,106.0	95.2	10.2
J-32	4,863.0	0.0	5,106.0	105.1	7.2
J-33	4,851.0	4.4	5,105.9	110.3	30.9
J-34	4,850.0	5.9	5,105.9	110.7	31.4
J-35	4,848.0	18.6	5,105.9	111.6	31.7
J-36	4,847.0	18.6	5,105.9	112.0	26.9
J-37	4,847.0	6.2	5,105.9	112.0	32.6
J-38	4,848.0	6.2	5,105.9	111.6	45.6
J-39	4,847.0	7.4	5,105.9	112.0	38.3
J-40	4,844.0	0.0	5,105.9	113.3	43.0
J-41	4,849.0	22.6	5,105.9	111.2	45.3

POTABLE WATER MASTER PLAN
TABLE C.20
EXISTING SCENARIO - AVERAGE DAY WATER AGE RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Age (hours)
J-42	4,843.0	0.0	5,105.9	113.8	47.3
J-43	4,842.0	0.0	5,105.9	114.2	336.0
J-44	4,846.0	0.0	5,104.2	111.7	20.2
J-45	4,843.0	0.0	5,104.2	113.0	22.2
J-46	4,842.0	3.8	5,104.2	113.5	33.3
J-47	4,848.0	3.8	5,104.2	110.9	43.9
J-48	4,848.0	0.0	5,104.2	110.9	18.1
J-49	4,851.0	17.0	5,104.2	109.6	12.9
J-50	4,850.0	0.0	5,104.2	110.0	11.1
J-51	4,864.0	72.2	5,104.3	103.9	1.8
J-52	4,900.0	20.1	5,104.5	88.5	1.4
J-53	4,912.0	9.0	5,105.0	83.5	0.7
J-54	4,918.0	19.3	5,105.0	80.9	0.2
J-55	4,863.0	9.7	5,106.0	105.1	33.2
J-56	4,881.0	27.0	5,106.0	97.3	29.6
J-57	4,890.0	17.7	5,106.0	93.4	35.3
J-58	4,845.0	1.2	5,105.9	112.9	34.7
J-59	4,848.0	0.0	5,105.9	111.6	41.8
J-60	4,891.0	0.0	5,106.2	93.1	28.4
J-61	5,097.5	0.0	5,165.0	29.2	0.5
J-62	4,841.0	3.8	5,104.2	113.9	40.1
J-63	4,843.0	10.3	5,105.9	113.8	37.7
J-64	4,906.0	8.2	5,105.0	86.1	9.7
J-65	4,908.0	8.2	5,105.0	85.2	8.0
J-66	4,917.0	8.2	5,105.0	81.3	20.2
J-67	4,855.0	(N/A)	(N/A)	(N/A)	(N/A)
J-68	4,844.0	(N/A)	(N/A)	(N/A)	(N/A)
J-69	4,891.0	0.0	5,105.0	92.6	336.0
J-70	4,960.0	0.0	5,161.1	87.0	336.0
J-71	4,991.0	0.0	5,163.3	74.6	22.9
J-72	4,975.0	0.0	5,162.0	80.9	24.5

CHART C.1

EXISTING SCENARIO - AVERAGE DAY (TANK OPERATING PARAMETERS)



Appendix D:
2035 Scenario – WaterCAD Model

POTABLE WATER MASTER PLAN
TABLE D.1
ADDITIONAL AREA BY LAND USE (2035 SCENARIO)

TOWNSHIP RANGE	SECTION I.D.	LAND USE CATEGORY											
		PARKS (acres)	CS (acres)	DC/OS (acres)	C/OF (acres)	E/OF (acres)	MU (acres)	R-L (acres)	R-M (acres)	R-H (acres)	M/G (acres)	SCHOOL (acres)	TOTAL (acres)
T03N R 67W	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	27	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	32	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	33	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
T02N R67W	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	4	3.2	0.0	0.0	4.2	0.0	49.0	111.7	0.0	0.0	0.0	0.0	168.0
	5	15.8	0.0	0.0	2.8	0.0	0.0	23.6	35.0	0.0	0.0	0.0	77.1
	6	1.8	0.0	0.0	3.8	0.0	26.6	8.2	48.1	9.5	0.0	0.0	98.0
	7	30.4	0.0	0.0	10.4	5.4	0.0	0.0	8.9	9.1	0.0	0.0	64.2
	8	0.0	0.0	0.0	0.0	0.0	0.0	39.7	0.0	0.0	0.0	0.0	39.7
	9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	18	0.0	0.0	0.0	0.0	0.0	0.0	57.6	0.0	0.0	0.0	0.0	57.6
	19	2.1	0.0	0.0	10.2	0.0	0.0	13.2	60.2	15.8	0.0	0.0	101.5
	20	29.4	0.0	0.0	0.0	31.8	0.0	104.7	0.0	23.7	0.0	0.0	189.6
	21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	28	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29	8.1	0.0	0.0	24.2	0.0	0.0	23.8	0.0	0.0	0.0	0.0	56.0
	30	2.9	0.0	0.0	0.9	0.0	0.0	33.5	2.0	0.0	0.0	0.0	39.3

POTABLE WATER MASTER PLAN
TABLE D.1
ADDITIONAL AREA BY LAND USE (2035 SCENARIO)

TOWNSHIP RANGE	SECTION I.D.	LAND USE CATEGORY											
		PARKS (acres)	CS (acres)	DC/OS (acres)	C/OF (acres)	E/OF (acres)	MU (acres)	R-L (acres)	R-M (acres)	R-H (acres)	M/G (acres)	SCHOOL (acres)	TOTAL (acres)
T03N 68W	35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	36	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
T02N	1	0.0	0.0	54.3	32.2	0.0	24.3	0.0	17.9	0.0	0.0	0.0	128.7
	2	0.0	0.0	45.9	79.5	0.0	0.0	0.0	0.0	9.5	0.0	0.0	134.8
	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	5	0.0	0.0	0.0	0.0	0.0	98.0	0.0	0.0	0.0	0.0	0.0	98.0
	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	11	0.0	0.0	16.7	51.0	0.0	16.5	0.0	29.4	9.2	0.0	0.0	122.7
	12	0.0	0.0	18.2	11.6	0.0	43.1	0.0	87.7	4.6	0.0	0.0	165.2
	13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.4	0.0	0.0	0.0	26.4
	14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.9	0.0	0.0	0.0	39.9
	15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	TOTAL	**93.5**	**0.0**	**135.0**	**230.8**	**37.2**	**257.4**	**415.9**	**355.5**	**81.3**	**0.0**	**0.0**	**1,606.6**

POTABLE WATER MASTER PLAN
TABLE D.2
WATER DEMAND (2035 SCENARIO)

TS RANGE	SECTION I.D.	LAND USE CATEGORY																							
		PARKS				CS				DC/OS				C/OF				E/OF				MU			
		AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)
T03N R 67W	20	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	21	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0
	22	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0
	27	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0
	28	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0
	29	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	31	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	32	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	33	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	34	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
T02N R67W	3	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0	2.0	0.0
	4	3.2	3.2	1.0	3.2	0.0	0.0		0.0	0.0	0.0		0.0	4.2	4.0	1.0	4.0	0.0	0.0		0.0	49.0	167.6	2.0	83.8
	5	15.8	16.2	1.0	16.2	0.0	0.0		0.0	0.0	0.0		0.0	2.8	2.7	1.0	2.7	0.0	0.0		0.0	0.0	0.0		0.0
	6	1.8	1.8	1.0	1.8	0.0	0.0		0.0	0.0	0.0		0.0	3.8	3.7	1.0	3.7	0.0	0.0		0.0	26.6	91.0	1.0	91.0
	7	30.4	31.3	1.0	31.3	0.0	0.0		0.0	0.0	0.0		0.0	10.4	9.9	1.0	9.9	5.4	4.5	1.0	4.5	0.0	0.0		0.0
	8	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	9	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0
	10	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0
	15	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0
	16	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0	2.0	0.0
	17	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	18	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0
	19	2.1	2.2	1.0	2.2	0.0	0.0		0.0	0.0	0.0		0.0	10.2	9.8	2.0	4.9	0.0	0.0		0.0	0.0	0.0		0.0
	20	29.4	30.3	1.0	30.3	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	31.8	26.4	1.0	26.4	0.0	0.0		0.0
	21	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0	2.0	0.0
	28	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0
	29	8.1	8.3	1.0	8.3	0.0	0.0		0.0	0.0	0.0		0.0	24.2	23.2	3.0	7.7	0.0	0.0		0.0	0.0	0.0		0.0
	30	2.9	3.0	1.0	3.0	0.0	0.0		0.0	0.0	0.0		0.0	0.9	0.8	1.0	0.8	0.0	0.0		0.0	0.0	0.0		0.0
T03N 68W	35	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	36	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0

POTABLE WATER MASTER PLAN
TABLE D.2
WATER DEMAND (2035 SCENARIO)

TS RANGE	SECTION I.D.	LAND USE CATEGORY																							
		PARKS				CS				DC/OS				C/OF				E/OF				MU			
		AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)
T02N R68W	1	0.0	0.0		0.0	0.0	0.0		0.0	54.3	0.0	2.0	0.0	32.2	30.9	2.0	15.5	0.0	0.0		0.0	24.3	83.1	2.0	41.5
	2	0.0	0.0		0.0	0.0	0.0		0.0	45.9	0.0	3.0	0.0	79.5	76.3	5.0	15.3	0.0	0.0		0.0	0.0	0.0		0.0
	3	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
	4	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	5	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	98.0	335.2	3.0	111.7
	8	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	9	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	2.0	0.0
	10	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0
	11	0.0	0.0		0.0	0.0	0.0		0.0	16.7	0.0	2.0	0.0	51.0	48.9	2.0	24.5	0.0	0.0	2.0	0.0	16.5	56.3	1.0	56.3
	12	0.0	0.0		0.0	0.0	0.0		0.0	18.2	0.0	1.0	0.0	11.6	11.2	3.0	3.7	0.0	0.0		0.0	43.1	147.2	2.0	73.6
	13	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
	14	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0
	15	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0
	16	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	17	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	TOTAL	**93.5**	**96.3**		**96.3**	**0.0**	**0.0**		**0.0**	**135.0**	**0.0**		**0.0**	**230.8**	**221.5**		**92.7**	**37.2**	**30.8**		**30.8**	**257.4**	**880.3**		**457.9**

POTABLE WATER MASTER PLAN
TABLE D.2
WATER DEMAND (2035 SCENARIO)

TS RANGE	SECTION I.D.	LAND USE CATEGORY																				TOTAL	
		R-L				R-M				R-H				M/G				SCHOOL					
		AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)
T03N R 67W	20	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	21	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	22	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	27	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	28	0.0	0.0	2.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	29	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	31	0.0	0.0	3.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	32	0.0	0.0	4.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	33	0.0	0.0	4.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	34	0.0	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
T02N R67W	3	0.0	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	4	111.7	40.8	2.0	20.4	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	168.0	215.6
	5	23.6	8.6	3.0	2.9	35.0	30.3	1.0	30.3	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	77.1	57.8
	6	8.2	3.0	2.0	1.5	48.1	41.7	2.0	20.8	9.5	19.0	1.0	19.0	0.0	0.0		0.0	0.0	0.0		0.0	98.0	160.2
	7	0.0	0.0		0.0	8.9	7.7	1.0	7.7	9.1	18.3	1.0	18.3	0.0	0.0		0.0	0.0	0.0		0.0	64.2	71.8
	8	39.7	14.5	2.0	7.3	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	39.7	14.5
	9	0.0	0.0	1.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	10	0.0	0.0	2.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	15	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	16	0.0	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	17	0.0	0.0	3.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	18	57.6	21.0	1.0	21.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	57.6	21.0
	19	13.2	4.8	1.0	4.8	60.2	52.1	3.0	17.4	15.8	31.7	1.0	31.7	0.0	0.0		0.0	0.0	0.0		0.0	101.5	100.6
	20	104.7	38.2	2.0	19.1	0.0	0.0		0.0	23.7	47.8	1.0	47.8	0.0	0.0		0.0	0.0	0.0		0.0	189.6	142.7
	21	0.0	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	28	0.0	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	29	23.8	8.7	2.0	4.3	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	56.0	40.2
	30	33.5	12.2	2.0	6.1	2.0	1.8	1.0	1.8	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	39.3	17.8
T03N 68W	35	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	36	0.0	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0

POTABLE WATER MASTER PLAN
TABLE D.2
WATER DEMAND (2035 SCENARIO)

TS RANGE	SECTION I.D.	LAND USE CATEGORY																				TOTAL	
		R-L				R-M				R-H				M/G				SCHOOL					
		AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)
T02N R68W	1	0.0	0.0	3.0	0.0	17.9	15.5	2.0	7.7	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	128.7	129.5
	2	0.0	0.0	3.0	0.0	0.0	0.0		0.0	9.5	19.0	1.0	19.0	0.0	0.0		0.0	0.0	0.0		0.0	134.8	95.4
	3	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	4	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	5	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	98.0	335.2
	8	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	9	0.0	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	10	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	11	0.0	0.0	1.0	0.0	29.4	25.4	2.0	12.7	9.2	18.6	1.0	18.6	0.0	0.0		0.0	0.0	0.0		0.0	122.7	149.2
	12	0.0	0.0	1.0	0.0	87.7	75.9	2.0	38.0	4.6	9.3	1.0	9.3	0.0	0.0		0.0	0.0	0.0		0.0	165.2	243.6
	13	0.0	0.0		0.0	26.4	22.8	4.0	5.7	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	26.4	22.8
	14	0.0	0.0	2.0	0.0	39.9	34.5	3.0	11.5	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	39.9	34.5
	15	0.0	0.0		0.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	16	0.0	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	17	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
	TOTAL	**415.9**	**151.8**		**87.4**	**355.5**	**307.7**		**153.6**	**81.3**	**163.9**		**163.9**	**0.0**	**0.0**		**0.0**	**0.0**	**0.0**		**0.0**	**1,606.6**	**1,852.4**

POTABLE WATER MASTER PLAN
TABLE D.3
WATERCAD DEMAND LOADING (EXISTING SCENARIO + 2035 SCENARIO)

JUNCTION	ELEV (feet)	PRESS ZONE	AVERAGE DAY DEMAND											
			PARKS (gpm)	CS (gpm)	DC/OS (gpm)	C/OF (gpm)	E/OF (gpm)	MU (gpm)	R-L (gpm)	R-M (gpm)	R-H (gpm)	M/G (gpm)	SCHOOL (gpm)	TOTAL (gpm)
J-1	5,097.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-2	5,097.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-3	5,097.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-4	5,028.0	1	8.3	0.0	0.0	7.7	0.0	0.0	4.3	0.0	0.0	0.0	0.0	**20.4**
J-5	5,006.0	1	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	0.0	0.0	**4.3**
J-6	5,001.0	1	30.3	0.0	0.0	12.6	0.0	0.0	30.0	0.0	31.7	0.0	0.0	**104.7**
J-7	4,975.0	1	11.0	0.0	0.0	0.0	0.0	0.0	5.2	32.2	0.0	0.0	0.0	**48.3**
J-8	4,950.0	1	0.0	0.0	0.0	33.4	0.0	0.0	0.0	47.8	25.6	1.4	0.0	**108.2**
J-9	4,976.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.4	0.0	0.0	0.0	**30.4**
J-10	4,961.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.4	0.0	0.0	0.0	**30.4**
J-11	5,025.0	1	0.0	0.0	0.0	7.7	0.0	0.0	18.6	0.0	0.0	0.0	0.0	**26.4**
J-12	4,974.0	1	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	1.2	0.0	**11.3**
J-13	4,940.0	2	0.0	0.0	0.0	0.0	0.0	0.0	18.8	17.4	0.0	0.0	0.0	**36.2**
J-14	4,951.0	1	0.0	0.0	0.0	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**5.9**
J-15	4,929.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-16	4,923.0	2	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	**20.0**
J-17	4,918.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	0.0	**22.6**
J-18	4,911.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	0.0	**22.6**
J-19	4,898.0	2	12.6	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	12.5	**47.8**
J-20	4,897.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	0.0	**22.6**
J-21	4,905.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	0.0	**22.6**
J-22	4,905.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-23	4,909.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-24	4,897.0	2	12.6	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	0.0	**35.3**
J-25	4,885.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	0.0	**22.6**
J-26	4,891.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	0.0	**22.6**
J-27	4,891.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	0.0	**22.6**

POTABLE WATER MASTER PLAN
TABLE D.3
WATERCAD DEMAND LOADING (EXISTING SCENARIO + 2035 SCENARIO)

JUNCTION	ELEV (feet)	PRESS ZONE	AVERAGE DAY DEMAND											
			PARKS (gpm)	CS (gpm)	DC/OS (gpm)	C/OF (gpm)	E/OF (gpm)	MU (gpm)	R-L (gpm)	R-M (gpm)	R-H (gpm)	M/G (gpm)	SCHOOL (gpm)	TOTAL (gpm)
J-28	4,880.0	3	12.6	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	12.5	**47.8**
J-29	4,860.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	0.0	**22.6**
J-30	4,880.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-31	4,886.0	2	12.6	0.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	**20.6**
J-32	4,863.0	3	16.2	0.0	0.0	6.4	0.0	91.0	0.0	51.1	19.0	0.0	0.0	**183.7**
J-33	4,851.0	3	0.0	0.0	0.0	8.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**8.8**
J-34	4,850.0	3	31.3	0.0	0.0	25.5	4.5	0.0	0.0	7.7	18.3	0.0	0.0	**87.3**
J-35	4,848.0	3	8.3	0.0	0.0	0.0	0.0	0.0	0.0	20.6	0.0	0.0	0.0	**29.0**
J-36	4,847.0	3	8.3	0.0	0.0	0.0	0.0	0.0	0.0	20.6	0.0	0.0	0.0	**29.0**
J-37	4,847.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.4	0.0	0.0	0.0	**12.4**
J-38	4,848.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.1	0.0	0.0	0.0	**20.1**
J-39	4,847.0	3	0.0	0.0	0.0	2.4	0.0	0.0	0.0	12.4	0.0	0.0	0.0	**14.7**
J-40	4,844.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-41	4,849.0	3	17.5	0.0	0.0	0.0	0.0	0.0	0.0	7.7	0.0	0.0	5.1	**30.3**
J-42	4,843.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-43	4,842.0	3	0.0	0.0	0.0	15.5	0.0	41.5	0.0	0.0	0.0	0.0	0.0	**57.0**
J-44	4,846.0	3	0.0	0.0	0.0	15.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**15.3**
J-45	4,843.0	3	0.0	0.0	0.0	15.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**15.3**
J-46	4,842.0	3	0.0	0.0	0.0	22.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**22.9**
J-47	4,848.0	3	0.0	0.0	0.0	22.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**22.9**
J-48	4,848.0	3	0.0	0.0	0.0	24.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**24.5**
J-49	4,851.0	3	0.0	0.0	0.0	58.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**58.4**
J-50	4,850.0	3	0.0	0.0	0.0	0.0	0.0	56.3	0.0	0.0	0.0	0.0	0.0	**56.3**
J-51	4,864.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.7	162.9	0.0	0.0	**175.6**
J-52	4,900.0	2	10.6	0.0	0.0	0.0	0.0	0.0	0.0	69.7	0.0	0.0	0.0	**80.3**
J-53	4,916.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38.0	0.0	0.0	9.0	**47.0**
J-54	4,918.0	2	11.1	0.0	0.0	0.0	0.0	0.0	0.0	22.1	0.0	0.0	0.0	**33.2**

POTABLE WATER MASTER PLAN
TABLE D.3
WATERCAD DEMAND LOADING (EXISTING SCENARIO + 2035 SCENARIO)

JUNCTION	ELEV (feet)	PRESS ZONE	AVERAGE DAY DEMAND											
			PARKS (gpm)	CS (gpm)	DC/OS (gpm)	C/OF (gpm)	E/OF (gpm)	MU (gpm)	R-L (gpm)	R-M (gpm)	R-H (gpm)	M/G (gpm)	SCHOOL (gpm)	TOTAL (gpm)
J-55	4,863.0	3	0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.0	23.0	0.0	0.0	**28.6**
J-56	4,881.0	3	9.3	0.0	0.0	0.0	0.0	0.0	0.0	35.4	0.0	0.0	0.0	**44.7**
J-57	4,890.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.4	0.0	0.0	0.0	**35.4**
J-58	4,845.0	3	0.0	0.0	0.0	21.5	0.0	115.2	0.0	0.0	0.0	0.0	0.0	**136.7**
J-59	4,848.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-60	4,891.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-61	5,097.5	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-62	4,841.0	3	0.0	0.0	0.0	22.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**22.9**
J-63	4,843.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.6	0.0	0.0	0.0	**20.6**
J-64	4,906.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.1	0.0	0.0	0.0	**22.1**
J-65	4,908.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.1	0.0	0.0	0.0	**22.1**
J-66	4,917.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.6	0.0	0.0	0.0	**33.6**
J-67	4,855.0	3	0.0	0.0	0.0	3.7	0.0	73.6	0.0	0.0	0.0	0.0	0.0	**77.3**
J-68	4,844.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-69	4,891.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-70	4,960.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-71	4,991.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-72	4,975.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-200	5,011.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-201	5,000.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-202	4,997.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-203	4,939.0	2	3.2	0.0	0.0	4.0	0.0	83.8	0.0	0.0	0.0	0.0	0.0	**91.1**
J-204	4,884.0	3	0.0	0.0	0.0	0.0	0.0	83.8	0.0	0.0	0.0	0.0	0.0	**83.8**
J-205	4,824.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-206	4,799.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-207	4,982.0	1	0.0	0.0	0.0	0.0	26.4	0.0	19.1	0.0	47.8	0.0	0.0	**93.3**
J-208	4,952.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**

POTABLE WATER MASTER PLAN
TABLE D.3
WATERCAD DEMAND LOADING (EXISTING SCENARIO + 2035 SCENARIO)

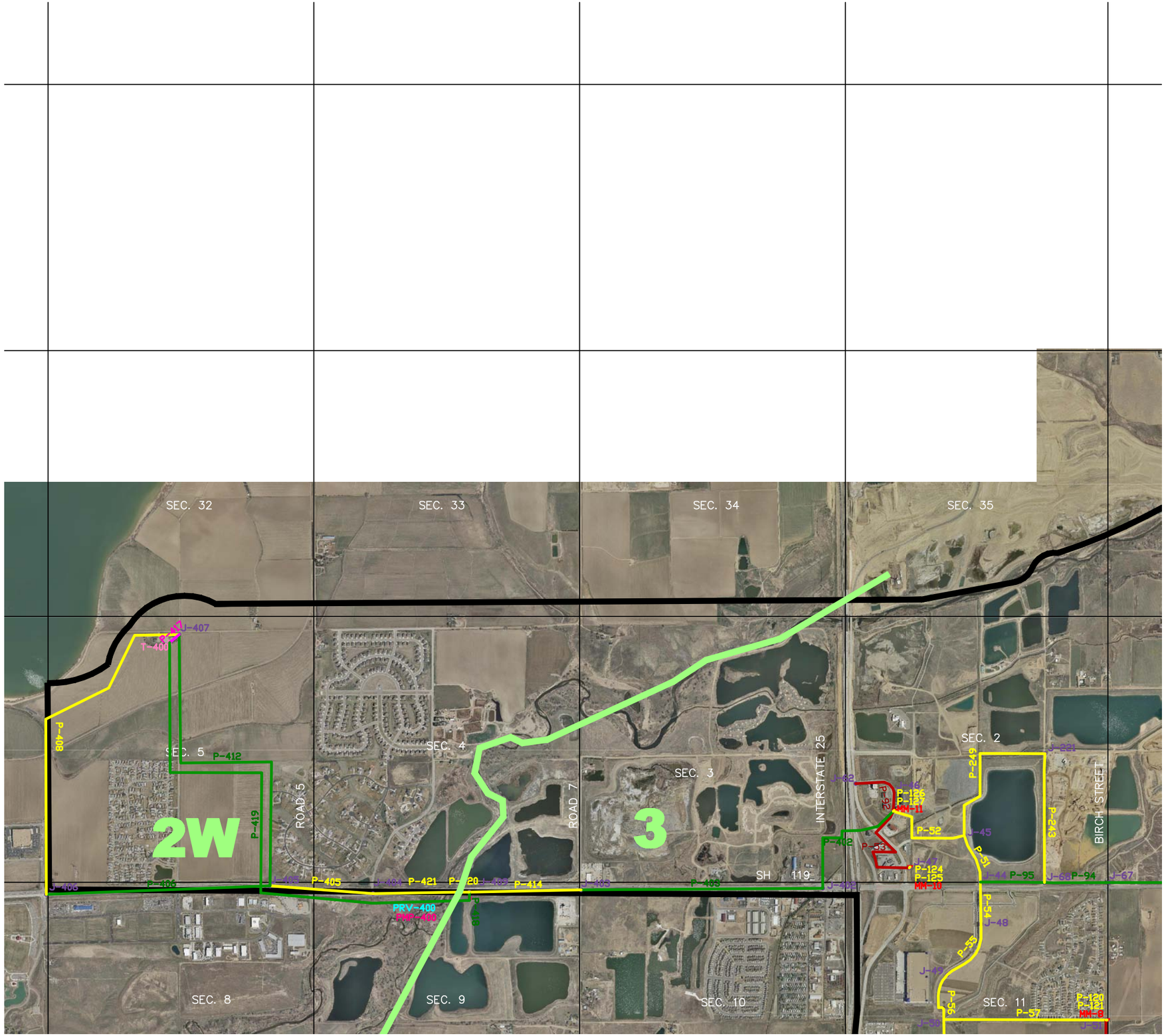
JUNCTION	ELEV (feet)	PRESS ZONE	AVERAGE DAY DEMAND											
			PARKS (gpm)	CS (gpm)	DC/OS (gpm)	C/OF (gpm)	E/OF (gpm)	MU (gpm)	R-L (gpm)	R-M (gpm)	R-H (gpm)	M/G (gpm)	SCHOOL (gpm)	TOTAL (gpm)
J-209	4,916.0	2	0.0	0.0	0.0	0.0	0.0	0.0	23.2	0.0	0.0	0.0	0.0	**23.2**
J-210	4,842.0	3	0.0	0.0	0.0	0.0	0.0	0.0	23.2	0.0	0.0	0.0	0.0	**23.2**
J-211	4,797.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-212	4,780.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-213	4,923.0	2	0.0	0.0	0.0	0.0	0.0	0.0	7.3	0.0	0.0	0.0	0.0	**7.3**
J-214	4,824.0	3	1.8	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	0.0	0.0	**6.2**
J-215	4,803.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-216	4,813.0	3	0.0	0.0	0.0	0.0	0.0	0.0	1.5	20.8	0.0	0.0	0.0	**22.3**
J-217	4,914.0	2	2.2	0.0	0.0	0.0	0.0	0.0	21.0	17.4	0.0	0.0	0.0	**40.6**
J-218	4,820.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-219	4,913.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	0.0	0.0	0.0	**11.5**
J-220	4,873.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	0.0	0.0	0.0	**11.5**
J-221	4,828.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.0	0.0	0.0	**19.0**
J-222	4,906.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-223	5,040.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-224	5,046.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-225	5,038.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-226	5,005.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-227	4,996.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-228	4,980.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-229	4,959.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-230	4,927.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-231	4,896.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-232	4,869.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-233	4,842.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-234	4,802.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-235	4,796.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**

POTABLE WATER MASTER PLAN
TABLE D.3
WATERCAD DEMAND LOADING (EXISTING SCENARIO + 2035 SCENARIO)

JUNCTION	ELEV (feet)	PRESS ZONE	AVERAGE DAY DEMAND											
			PARKS (gpm)	CS (gpm)	DC/OS (gpm)	C/OF (gpm)	E/OF (gpm)	MU (gpm)	R-L (gpm)	R-M (gpm)	R-H (gpm)	M/G (gpm)	SCHOOL (gpm)	TOTAL (gpm)
J-236	4,790.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-237	5,017.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-238	4,989.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-239	4,962.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-240	4,921.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-241	4,948.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-242	4,812.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-243	4,987.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-244	4,968.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-245	4,953.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-246	4,884.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-247	4,806.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-248	4,790.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-249	5,021.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-251	4,964.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-253	4,937.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-254	4,925.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-255	4,913.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-256	4,902.0	2	0.0	0.0	0.0	0.0	0.0	0.0	7.3	0.0	0.0	0.0	0.0	**7.3**
J-257	4,862.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-258	4,815.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-259	4,803.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-261	4,943.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-262	4,835.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-400	4,861.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-401	4,869.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-402	4,848.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**

POTABLE WATER MASTER PLAN
TABLE D.3
WATERCAD DEMAND LOADING (EXISTING SCENARIO + 2035 SCENARIO)

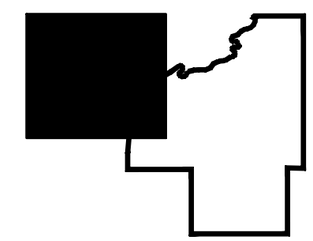
JUNCTION	ELEV (feet)	PRESS ZONE	AVERAGE DAY DEMAND											
			PARKS (gpm)	CS (gpm)	DC/OS (gpm)	C/OF (gpm)	E/OF (gpm)	MU (gpm)	R-L (gpm)	R-M (gpm)	R-H (gpm)	M/G (gpm)	SCHOOL (gpm)	TOTAL (gpm)
J-403	4,849.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-404	4,856.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-405	4,900.0	2	0.0	0.0	0.0	0.0	0.0	111.7	0.0	0.0	0.0	0.0	0.0	**111.7**
J-406	4,931.0	2	0.0	0.0	0.0	0.0	0.0	111.7	0.0	0.0	0.0	0.0	0.0	**111.7**
J-407	4,998.0	1	0.0	0.0	0.0	0.0	0.0	111.7	0.0	0.0	0.0	0.0	0.0	**111.7**
J-408	4,908.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-409	4,850.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
TOTAL			**220.1**	**0.0**	**0.0**	**342.8**	**48.8**	**880.3**	**208.3**	**932.8**	**347.4**	**2.6**	**39.1**	**3,022.2**



LEGEND

P-1	4-INCH WATER LINE
P-9	6-INCH WATER LINE
P-301	8-INCH WATER LINE
P-81	10-INCH WATER LINE
P-265	12-INCH WATER LINE
P-5	14-INCH WATER LINE
P-202	16-INCH WATER LINE
P-200	24-INCH WATER LINE
J-23	JUNCTION
PRV-200	PRESSURE REDUCING VALVE
MM-1	CWCWD MASTER METER
T-1	TANK
PMP-1	PUMP
	URBAN GROWTH BOUNDARY
	SECTIONS LINES
FIRESTONE BLVD.	TOWN ROAD NAMES
ROAD 7	WELD COUNTY ROAD NAMES
1	PRESSURE ZONE

KEY MAP



N

FIRESTONE
A COMMUNITY IN MOTION

REVISIONS

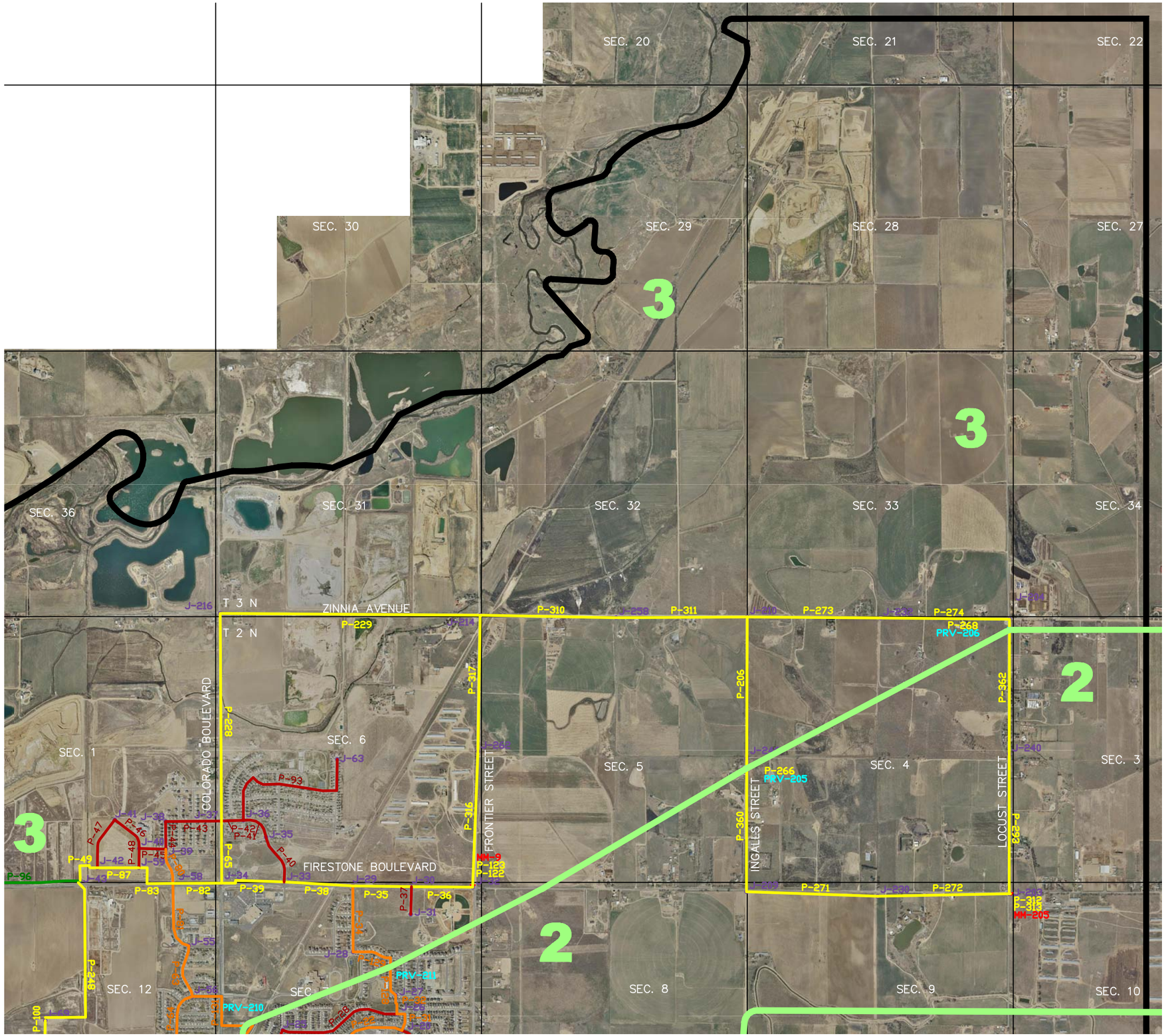
DATE	REVISION DESCRIPTION

CCG COLORADO CIVIL GROUP, INC. ENGINEERING CONSULTANTS
1413 W. 29TH STREET
LOVELAND, COLORADO 80538
(970) 278-0029

TOWN OF FIRESTONE
POTABLE WATER MASTER PLAN
WATERCAD MODEL
2035 SCENARIO

FILENAME: 0668.0156.00_WATERCAD MODEL
DESIGNED: C.E.M.
CHECKED: D.B.L.
JOB NO.: 0668.0156.00
SCALE: 1" = 2000'
DATE: MARCH 2010

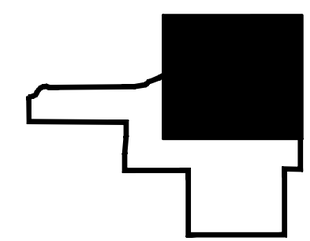
SHEET NO.: EXHIBIT D.1



LEGEND

P-1	4-INCH WATER LINE
P-9	6-INCH WATER LINE
P-301	8-INCH WATER LINE
P-81	10-INCH WATER LINE
P-265	12-INCH WATER LINE
P-5	14-INCH WATER LINE
P-202	16-INCH WATER LINE
P-200	24-INCH WATER LINE
J-23	JUNCTION
PRV-200	PRESSURE REDUCING VALVE
MM-1	CWCWD MASTER METER
T-1	TANK
PMP-1	PUMP
	URBAN GROWTH BOUNDARY
	SECTIONS LINES
FIRESTONE BLVD.	TOWN ROAD NAMES
ROAD 7	WELD COUNTY ROAD NAMES
1	PRESSURE ZONE

KEY MAP



N

0 1000 2000
feet
1" = 2000'

FIRESTONE
A COMMUNITY IN MOTION

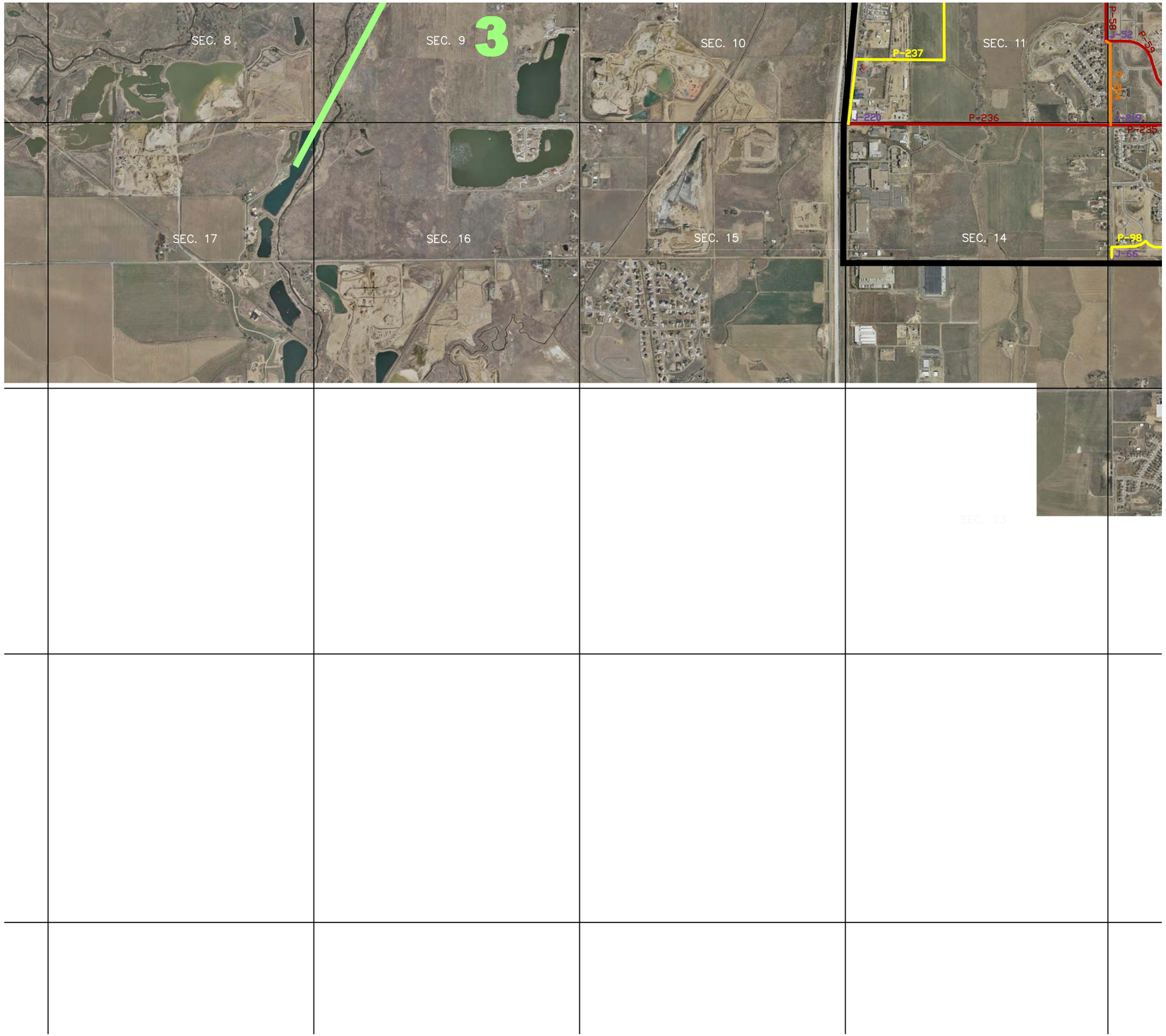
REVISIONS	
DATE	REVISION DESCRIPTION

CCG
COLORADO CIVIL GROUP, INC.
ENGINEERING CONSULTANTS
1413 W. 29TH STREET
LOVELAND, COLORADO 80538
(970) 278-0029

TOWN OF FIRESTONE
POTABLE WATER MASTER PLAN
WATERCAD MODEL
2035 SCENARIO

FILENAME: 0668.0156.00_WATERCAD MODEL
DESIGNED: C.E.M.
CHECKED: D.B.L.
JOB NO.: 0668.0156.00
SCALE: 1" = 2000'
DATE: MARCH 2010

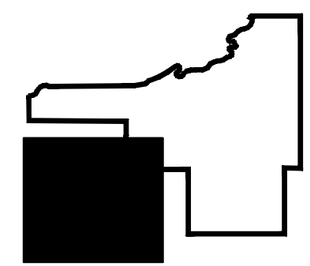
SHEET NO.:
EXHIBIT D.1



LEGEND

P-1	4-INCH WATER LINE
P-9	6-INCH WATER LINE
P-301	8-INCH WATER LINE
P-81	10-INCH WATER LINE
P-265	12-INCH WATER LINE
P-5	14-INCH WATER LINE
P-202	16-INCH WATER LINE
P-200	24-INCH WATER LINE
J-23	JUNCTION
PRV-200	PRESSURE REDUCING VALVE
MM-1	CWCWD MASTER METER
T-1	TANK
PMP-1	PUMP
	URBAN GROWTH BOUNDARY
	SECTIONS LINES
FIRESTONE BLVD.	TOWN ROAD NAMES
ROAD 7	WELD COUNTY ROAD NAMES
1	PRESSURE ZONE

KEY MAP



N

0 1000 2000
feet
1" = 2000'

FIRESTONE
A COMMUNITY IN MOTION

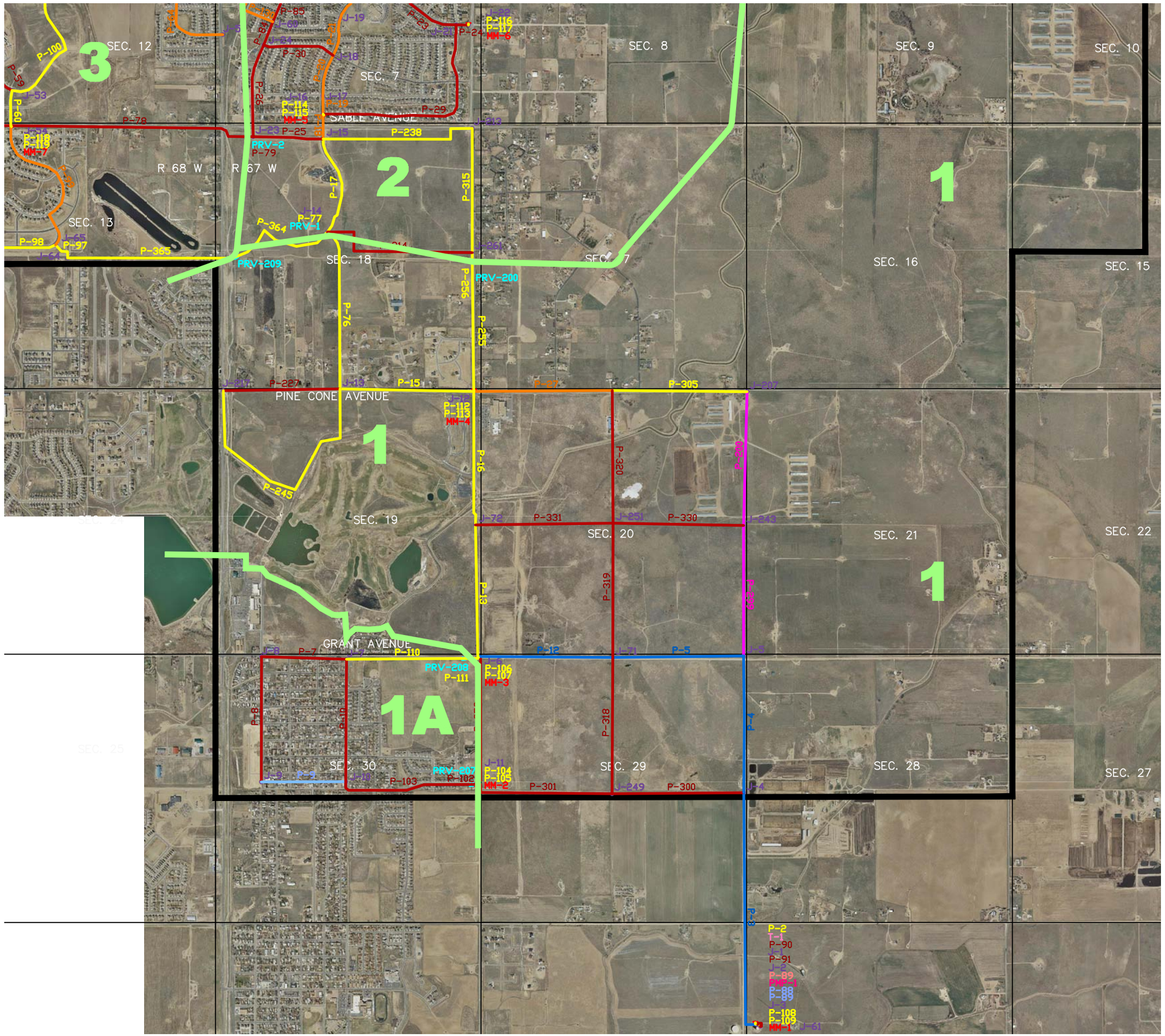
DATE	REVISION DESCRIPTION

CCG
COLORADO CIVIL GROUP, INC.
ENGINEERING CONSULTANTS
1413 W. 29TH STREET
LOVELAND, COLORADO 80538
(970) 278-0239

TOWN OF FIRESTONE
POTABLE WATER MASTER PLAN
WATERCAD MODEL
2035 SCENARIO

FILENAME: 0668.0156.00_WATERCAD MODEL
DESIGNER: C.E.M.
CHECKED: D.B.L.
JOB NO.: 0668.0156.00
SCALE: 1" = 2000'
DATE: MARCH 2010

SHEET NO.:
EXHIBIT D.1



LEGEND

P-1	4-INCH WATER LINE
P-9	6-INCH WATER LINE
P-301	8-INCH WATER LINE
P-81	10-INCH WATER LINE
P-265	12-INCH WATER LINE
P-5	14-INCH WATER LINE
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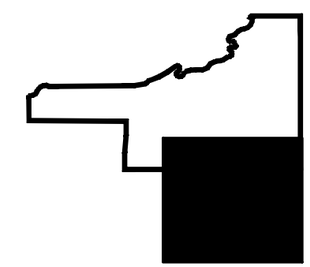
MM-1	CWCWD MASTER METER
T-1	TANK
PMP-1	PUMP
	URBAN GROWTH BOUNDARY
	SECTIONS LINES
FIRESTONE BLVD.	TOWN ROAD NAMES
ROAD 7	WELD COUNTY ROAD NAMES
1	PRESSURE ZONE

KEY MAP



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FIRESTONE
A COMMUNITY IN MOTION

REVISIONS	
DATE	REVISION DESCRIPTION

CCG COLORADO CIVIL GROUP, INC. ENGINEERING CONSULTANTS
1413 W. 29TH STREET LOVELAND, COLORADO 80538 (970) 278-0228

TOWN OF FIRESTONE POTABLE WATER MASTER PLAN

WATERCAD MODEL 2035 SCENARIO

FILENAME: 0668.0156.00_WATERCAD MODEL
DESIGNED: C.E.M.
CHECKED: D.B.L.
JOB NO.: 0668.0156.00
SCALE: 1" = 2000'
DATE: MARCH 2010

SHEET NO.: **EXHIBIT D.1**

POTABLE WATER MASTER PLAN
TABLE D.4
2035 SCENARIO - MAX DAY JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria[1]
J-1	5,097.0	0.0	5,193.2	41.6	NO
J-2	5,097.0	0.0	5,192.1	41.1	NO
J-3	5,097.0	0.0	5,152.0	23.8	NO
J-4	5,028.0	40.6	5,183.8	67.4	YES
J-5	5,006.0	8.6	5,180.4	75.4	YES
J-6	5,001.0	209.2	5,180.0	77.4	YES
J-7	4,975.0	96.8	5,164.5	82.0	YES
J-8	4,950.0	216.4	5,163.2	92.3	YES
J-9	4,976.0	60.8	5,163.3	81.0	YES
J-10	4,961.0	60.8	5,164.4	88.0	YES
J-11	5,025.0	52.6	5,182.2	68.0	YES
J-12	4,974.0	22.4	5,171.7	85.6	YES
J-13	4,940.0	72.4	5,161.0	95.6	YES
J-14	4,951.0	11.8	5,104.7	66.5	YES
J-15	4,929.0	0.0	5,102.0	74.9	YES
J-16	4,923.0	40.0	5,100.6	76.8	YES
J-17	4,918.0	45.2	5,099.0	78.3	YES
J-18	4,911.0	45.2	5,095.7	79.9	YES
J-19	4,898.0	95.4	5,094.6	85.1	YES
J-20	4,897.0	45.2	5,093.3	84.9	YES
J-21	4,905.0	45.2	5,098.4	83.7	YES
J-22	4,905.0	0.0	5,099.1	84.0	YES
J-23	4,909.0	0.0	5,095.6	80.7	YES
J-24	4,897.0	70.4	5,092.8	84.7	YES
J-25	4,885.0	45.2	5,090.4	88.9	YES
J-26	4,891.0	45.2	5,091.4	86.7	YES
J-27	4,891.0	45.2	5,090.4	86.3	YES
J-28	4,880.0	95.4	5,068.0	81.3	YES
J-29	4,860.0	45.2	5,065.8	89.1	YES
J-30	4,880.0	0.0	5,065.9	80.4	YES
J-31	4,886.0	41.2	5,065.9	77.8	YES
J-32	4,863.0	367.4	5,066.0	87.8	YES
J-33	4,851.0	17.6	5,064.6	92.4	YES
J-34	4,850.0	174.6	5,063.9	92.6	YES
J-35	4,848.0	57.8	5,064.1	93.5	YES
J-36	4,847.0	57.8	5,064.0	93.9	YES
J-37	4,847.0	24.8	5,064.0	93.9	YES
J-38	4,848.0	40.2	5,063.5	93.3	YES
J-39	4,847.0	29.6	5,063.4	93.6	YES
J-40	4,844.0	0.0	5,063.0	94.8	YES
J-41	4,849.0	60.6	5,062.6	92.4	YES

POTABLE WATER MASTER PLAN
TABLE D.4
2035 SCENARIO - MAX DAY JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria[1]
J-42	4,843.0	0.0	5,062.4	94.9	YES
J-43	4,842.0	114.0	5,061.9	95.1	YES
J-44	4,846.0	30.6	5,060.3	92.7	YES
J-45	4,843.0	30.6	5,059.6	93.7	YES
J-46	4,842.0	45.8	5,057.6	93.3	YES
J-47	4,848.0	45.8	5,062.8	92.9	YES
J-48	4,848.0	49.0	5,060.3	91.8	YES
J-49	4,851.0	116.8	5,060.3	90.6	YES
J-50	4,850.0	112.6	5,060.5	91.1	YES
J-51	4,864.0	351.2	5,060.8	85.1	YES
J-52	4,900.0	160.6	5,061.2	69.7	YES
J-53	4,912.0	94.0	5,064.0	65.8	YES
J-54	4,918.0	66.4	5,064.8	63.5	NO
J-55	4,863.0	57.2	5,065.0	87.4	YES
J-56	4,881.0	89.4	5,066.5	80.3	YES
J-57	4,890.0	70.8	5,066.4	76.3	YES
J-58	4,845.0	273.4	5,063.5	94.5	YES
J-59	4,848.0	0.0	5,063.0	93.0	YES
J-60	4,891.0	0.0	5,090.4	86.3	YES
J-61	5,097.5	0.0	5,192.5	41.1	NO
J-62	4,841.0	45.8	5,057.5	93.7	YES
J-63	4,843.0	41.2	5,063.9	95.6	YES
J-64	4,906.0	44.2	5,067.8	70.0	YES
J-65	4,908.0	44.2	5,067.6	69.0	YES
J-66	4,917.0	67.2	5,067.6	65.1	YES
J-67	4,855.0	154.6	5,060.8	89.0	YES
J-68	4,844.0	0.0	5,060.4	93.6	YES
J-69	4,891.0	0.0	5,063.1	74.5	YES
J-70	4,960.0	0.0	5,178.3	94.4	YES
J-71	4,991.0	0.0	5,180.2	81.9	YES
J-72	4,975.0	0.0	5,176.8	87.3	YES
J-200	5,011.0	(N/A)	(N/A)	(N/A)	(N/A)
J-201	5,000.0	(N/A)	(N/A)	(N/A)	(N/A)
J-202	4,997.0	(N/A)	(N/A)	(N/A)	(N/A)
J-203	4,939.0	182.0	5,105.0	71.8	YES
J-204	4,884.0	167.6	5,070.1	80.5	YES
J-205	4,824.0	(N/A)	(N/A)	(N/A)	(N/A)
J-206	4,799.0	(N/A)	(N/A)	(N/A)	(N/A)
J-207	4,982.0	186.6	5,180.1	85.7	YES
J-208	4,952.0	(N/A)	(N/A)	(N/A)	(N/A)
J-209	4,916.0	46.4	5,103.4	81.1	YES

POTABLE WATER MASTER PLAN
TABLE D.4
2035 SCENARIO - MAX DAY JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria[1]
J-210	4,842.0	46.4	5,069.3	98.4	YES
J-211	4,797.0	(N/A)	(N/A)	(N/A)	(N/A)
J-212	4,780.0	(N/A)	(N/A)	(N/A)	(N/A)
J-213	4,923.0	14.6	5,103.6	78.2	YES
J-214	4,824.0	12.4	5,066.3	104.8	YES
J-215	4,803.0	(N/A)	(N/A)	(N/A)	(N/A)
J-216	4,813.0	44.6	5,064.9	109.0	YES
J-217	4,914.0	85.6	5,161.0	106.9	YES
J-218	4,820.0	(N/A)	(N/A)	(N/A)	(N/A)
J-219	4,913.0	23.0	5,064.0	65.3	YES
J-220	4,873.0	23.0	5,060.8	81.2	YES
J-221	4,828.0	38.0	5,060.0	100.4	YES
J-222	4,906.0	(N/A)	(N/A)	(N/A)	(N/A)
J-223	5,040.0	(N/A)	(N/A)	(N/A)	(N/A)
J-224	5,046.0	(N/A)	(N/A)	(N/A)	(N/A)
J-225	5,038.0	(N/A)	(N/A)	(N/A)	(N/A)
J-226	5,005.0	(N/A)	(N/A)	(N/A)	(N/A)
J-227	4,996.0	(N/A)	(N/A)	(N/A)	(N/A)
J-228	4,980.0	(N/A)	(N/A)	(N/A)	(N/A)
J-229	4,959.0	(N/A)	(N/A)	(N/A)	(N/A)
J-230	4,927.0	0.0	5,104.2	76.7	YES
J-231	4,896.0	(N/A)	(N/A)	(N/A)	(N/A)
J-232	4,869.0	0.0	5,069.7	86.8	YES
J-233	4,842.0	(N/A)	(N/A)	(N/A)	(N/A)
J-234	4,802.0	(N/A)	(N/A)	(N/A)	(N/A)
J-235	4,796.0	(N/A)	(N/A)	(N/A)	(N/A)
J-236	4,790.0	(N/A)	(N/A)	(N/A)	(N/A)
J-237	5,017.0	(N/A)	(N/A)	(N/A)	(N/A)
J-238	4,989.0	(N/A)	(N/A)	(N/A)	(N/A)
J-239	4,962.0	(N/A)	(N/A)	(N/A)	(N/A)
J-240	4,921.0	0.0	5,105.0	79.6	YES
J-241	4,848.0	(N/A)	(N/A)	(N/A)	(N/A)
J-242	4,812.0	(N/A)	(N/A)	(N/A)	(N/A)
J-243	4,987.0	0.0	5,180.2	83.6	YES
J-244	4,968.0	(N/A)	(N/A)	(N/A)	(N/A)
J-245	4,953.0	(N/A)	(N/A)	(N/A)	(N/A)
J-246	4,884.0	0.0	5,070.0	80.5	YES
J-247	4,806.0	(N/A)	(N/A)	(N/A)	(N/A)
J-248	4,790.0	(N/A)	(N/A)	(N/A)	(N/A)
J-249	5,021.0	0.0	5,182.2	69.7	YES
J-251	4,964.0	0.0	5,178.9	93.0	YES

POTABLE WATER MASTER PLAN
TABLE D.4
2035 SCENARIO - MAX DAY JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria[1]
J-253	4,937.0	(N/A)	(N/A)	(N/A)	(N/A)
J-254	4,925.0	(N/A)	(N/A)	(N/A)	(N/A)
J-255	4,913.0	(N/A)	(N/A)	(N/A)	(N/A)
J-256	4,902.0	(N/A)	(N/A)	(N/A)	(N/A)
J-257	4,862.0	(N/A)	(N/A)	(N/A)	(N/A)
J-258	4,815.0	0.0	5,067.9	109.4	YES
J-259	4,803.0	(N/A)	(N/A)	(N/A)	(N/A)
J-261	4,943.0	0.0	5,105.0	70.1	YES
J-262	4,835.0	0.0	5,066.2	100.0	YES
J-400	4,861.0	(N/A)	(N/A)	(N/A)	(N/A)
J-401	4,869.0	(N/A)	(N/A)	(N/A)	(N/A)
J-402	4,848.0	0.0	5,055.2	89.7	YES
J-403	4,849.0	0.0	5,050.9	87.4	YES
J-404	4,856.0	0.0	5,144.6	124.9	YES
J-405	4,900.0	223.4	5,144.6	105.8	YES
J-406	4,931.0	223.4	5,144.6	92.4	YES
J-407	4,998.0	223.4	5,145.0	63.6	NO
J-408	4,908.0	(N/A)	(N/A)	(N/A)	(N/A)
J-409	4,850.0	0.0	5,042.9	83.5	YES

[1]Pressure ≥ 65 psi

POTABLE WATER MASTER PLAN
TABLE D.5
2035 SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-2	93	12	DIP	130	-1,402.39	3.98	0.005	YES
P-3	4,837	14	PVC	150	-1,402.39	2.92	0.002	YES
P-4	2,723	14	PVC	150	1,177.43	2.45	0.001	YES
P-5	2,603	14	PVC	150	244.38	0.51	0.000	YES
P-7	1,691	8	AC	140	191.67	1.22	0.001	YES
P-8	2,488	8	AC	140	-24.73	0.16	0.000	YES
P-9	1,677	6	AC	140	-85.53	0.97	0.001	YES
P-10	2,433	8	AC	140	-35.52	0.23	0.000	YES
P-12	2,685	14	PVC	150	285.35	0.59	0.000	YES
P-13	2,615	12	PVC	150	773.85	2.20	0.001	YES
P-15	2,659	12	PVC	150	1,480.91	4.20	0.004	YES
P-16	2,671	12	PVC	150	984.42	2.79	0.002	YES
P-17	2,016	12	PVC	150	817.28	2.32	0.001	YES
P-18	492	10	PVC	150	758.22	3.10	0.003	YES
P-19	363	10	PVC	150	954.33	3.90	0.004	YES
P-20	840	10	PVC	150	909.13	3.71	0.004	YES
P-21	769	10	PVC	150	515.23	2.10	0.001	YES
P-22	1,422	10	PVC	150	419.83	1.71	0.001	YES
P-23	1,238	8	PVC	150	-518.69	3.31	0.004	YES
P-24	243	8	PVC	150	-400.00	2.55	0.003	YES
P-25	1,393	8	PVC	150	548.19	3.50	0.005	YES
P-26	1,863	8	PVC	150	296.83	1.89	0.001	YES
P-27	2,756	10	PVC	150	-687.83	2.81	0.002	YES
P-28	2,449	8	PVC	150	-143.20	0.91	0.000	YES
P-29	4,408	8	PVC	150	163.89	1.05	0.000	YES
P-30	1,442	8	PVC	150	348.70	2.23	0.002	YES
P-31	499	10	PVC	150	893.32	3.65	0.004	YES

POTABLE WATER MASTER PLAN
TABLE D.5
2035 SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-32	383	10	PVC	150	704.92	2.88	0.002	YES
P-34	1,313	10	PVC	150	564.32	2.31	0.002	YES
P-35	1,164	12	PVC	150	-144.03	0.41	0.000	YES
P-36	1,219	12	PVC	150	-185.23	0.53	0.000	YES
P-37	547	8	PVC	150	41.20	0.26	0.000	YES
P-38	1,364	12	PVC	150	663.15	1.88	0.001	YES
P-39	1,296	12	PVC	150	485.94	1.38	0.001	YES
P-40	1,005	8	PVC	150	159.62	1.02	0.000	YES
P-41	643	8	PVC	150	101.82	0.65	0.000	YES
P-42	438	8	PVC	150	2.82	0.02	0.000	YES
P-43	1,108	8	PVC	150	147.17	0.94	0.000	YES
P-44	549	8	PVC	150	106.97	0.68	0.000	YES
P-45	530	8	PVC	150	212.10	1.35	0.001	YES
P-46	794	8	PVC	150	157.04	1.00	0.000	YES
P-47	1,060	8	PVC	150	96.44	0.62	0.000	YES
P-48	383	8	PVC	150	55.06	0.35	0.000	YES
P-49	672	12	PVC	150	647.00	1.84	0.001	YES
P-51	994	12	PVC	150	543.95	1.54	0.001	YES
P-52	1,853	12	PVC	150	737.40	2.09	0.001	YES
P-53	2,516	8	PVC	150	-354.20	2.26	0.002	YES
P-54	836	12	PVC	150	-75.29	0.21	0.000	YES
P-55	1,314	12	PVC	150	-124.29	0.35	0.000	YES
P-56	1,026	12	PVC	150	-241.09	0.68	0.000	YES
P-57	3,218	12	PVC	150	-192.25	0.55	0.000	YES
P-58	1,053	8	PVC	150	-143.45	0.92	0.000	YES
P-59	1,810	8	PVC	150	-304.05	1.94	0.002	YES
P-60	704	12	PVC	150	-780.96	2.22	0.001	YES

POTABLE WATER MASTER PLAN
TABLE D.5
2035 SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-63	1,069	10	PVC	150	-512.93	2.10	0.001	YES
P-64	2,329	10	PVC	150	70.80	0.29	0.000	YES
P-65	1,238	12	PVC	150	-136.56	0.39	0.000	YES
P-76	3,094	12	PVC	150	1,322.91	3.75	0.003	YES
P-77	108	12	PVC	150	1,322.92	3.75	0.003	YES
P-78	4,797	8	PVC	150	251.36	1.60	0.001	YES
P-79	109	8	PVC	150	251.36	1.60	0.001	YES
P-80	713	10	PVC	150	-134.72	0.55	0.000	YES
P-81	1,388	10	PVC	150	-455.73	1.86	0.001	YES
P-82	971	12	PVC	150	447.89	1.27	0.000	YES
P-83	996	12	PVC	150	495.50	1.41	0.001	YES
P-84	494	8	PVC	150	575.13	3.67	0.005	YES
P-85	494	8	PVC	150	-98.00	0.63	0.000	YES
P-87	825	12	PVC	150	550.56	1.56	0.001	YES
P-88	35	6	DIP	130	500.00	5.67	0.021	NO
P-89	10	4	DIP	130	500.00	12.77	0.148	NO
P-90	174	8	PVC	150	500.00	3.19	0.004	YES
P-91	4	8	PVC	150	500.00	3.19	0.004	YES
P-92	1,242	8	PVC	150	45.80	0.29	0.000	YES
P-93	3,259	8	PVC	150	41.20	0.26	0.000	YES
P-94	1,285	16	PVC	150	761.32	1.21	0.000	YES
P-95	1,275	16	PVC	150	499.26	0.80	0.000	YES
P-96	2,577	16	PVC	150	915.92	1.46	0.000	YES
P-97	427	12	PVC	150	514.84	1.46	0.001	YES
P-98	2,318	12	PVC	150	67.20	0.19	0.000	YES
P-99	3,117	10	PVC	150	403.44	1.65	0.001	YES
P-100	2,751	12	PVC	150	382.91	1.09	0.000	YES

POTABLE WATER MASTER PLAN
TABLE D.5
2035 SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-102	74	8	PVC	150	110.80	0.71	0.000	YES
P-103	2,664	8	PVC	150	110.80	0.71	0.000	YES
P-104	10	12	DIP	130	400.00	1.13	0.000	YES
P-105	15	12	DIP	130	400.00	1.13	0.000	YES
P-106	8	12	DIP	130	802.27	2.28	0.002	YES
P-107	18	12	DIP	130	802.27	2.28	0.002	YES
P-108	13	12	DIP	130	500.00	1.42	0.001	YES
P-109	12	12	DIP	130	500.00	1.42	0.001	YES
P-110	2,336	12	PVC	150	324.00	0.92	0.000	YES
P-111	311	12	PVC	150	324.00	0.92	0.000	YES
P-112	12	12	DIP	130	400.00	1.13	0.000	YES
P-113	12	12	DIP	130	400.00	1.13	0.000	YES
P-114	12	12	DIP	130	400.00	1.13	0.000	YES
P-115	13	12	DIP	130	400.00	1.13	0.000	YES
P-116	13	12	DIP	130	400.00	1.13	0.000	YES
P-117	12	12	DIP	130	400.00	1.13	0.000	YES
P-118	9	12	DIP	130	400.00	1.13	0.000	YES
P-119	16	12	DIP	130	400.00	1.13	0.000	YES
P-120	16	12	DIP	130	400.00	1.13	0.000	YES
P-121	9	12	DIP	130	400.00	1.13	0.000	YES
P-122	7	12	DIP	130	400.00	1.13	0.000	YES
P-123	17	12	DIP	130	400.00	1.13	0.000	YES
P-124	15	12	DIP	130	400.00	1.13	0.000	YES
P-125	9	12	DIP	130	400.00	1.13	0.000	YES
P-126	15	12	DIP	130	400.00	1.13	0.000	YES
P-127	10	12	DIP	130	400.00	1.13	0.000	YES
P-128	608	10	PVC	150	659.72	2.69	0.002	YES

POTABLE WATER MASTER PLAN
TABLE D.5
2035 SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-129	950	10	PVC	150	659.72	2.69	0.002	YES
P-130	1,235	10	PVC	150	-673.13	2.75	0.002	YES
P-131	1,568	10	PVC	150	-673.13	2.75	0.002	YES
P-200	2,658	24	PVC	150	759.62	0.54	0.000	YES
P-201	2,793	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-202	2,483	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-203	2,656	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-204	1,713	10	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-206	2,814	12	PVC	150	322.17	0.91	0.000	YES
P-207	2,626	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-208	2,674	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-209	2,616	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-210	2,625	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-211	27	4	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-212	26	6	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-221	2,658	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-227	2,321	8	PVC	150	-29.78	0.19	0.000	YES
P-228	4,125	12	PVC	150	-305.72	0.87	0.000	YES
P-229	5,162	12	PVC	150	-350.32	0.99	0.000	YES
P-230	134	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-231	425	12	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-232	5,235	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-235	1,154	8	PVC	150	207.44	1.32	0.001	YES
P-236	5,206	8	PVC	150	184.44	1.18	0.001	YES
P-237	4,474	12	PVC	150	161.44	0.46	0.000	YES
P-238	3,174	12	PVC	150	-489.13	1.39	0.001	YES
P-242	4,070	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)

POTABLE WATER MASTER PLAN
TABLE D.5
2035 SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-243	2,560	12	PVC	150	-262.05	0.74	0.000	YES
P-245	5,223	12	PVC	150	-55.82	0.16	0.000	YES
P-246	3,966	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-247	3,571	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-248	3,694	12	PVC	150	382.91	1.09	0.000	YES
P-249	3,101	12	PVC	150	-224.05	0.64	0.000	YES
P-253	2,624	8	PVC	150	219.43	1.40	0.001	YES
P-254	2,836	24	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-255	2,581	12	PVC	150	568.94	1.61	0.001	YES
P-256	180	12	PVC	150	568.94	1.61	0.001	YES
P-257	2,455	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-258	2,591	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-259	5,333	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-260	2,357	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-261	270	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-262	2,341	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-263	2,677	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-264	2,621	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-265	2,609	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-266	194	12	PVC	150	322.17	0.91	0.000	YES
P-267	2,691	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-268	206	12	PVC	150	7.18	0.02	0.000	YES
P-269	2,765	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-270	2,509	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-271	2,605	12	PVC	150	-368.57	1.05	0.000	YES
P-272	2,613	12	PVC	150	-368.57	1.05	0.000	YES
P-273	2,645	12	PVC	150	-239.58	0.68	0.000	YES

POTABLE WATER MASTER PLAN
TABLE D.5
2035 SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-274	2,561	12	PVC	150	-239.58	0.68	0.000	YES
P-275	2,583	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-277	2,695	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-278	2,547	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-279	2,686	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-280	2,529	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-281	2,744	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-282	2,783	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-283	2,668	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-284	2,633	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-285	2,650	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-286	2,558	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-287	2,688	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-288	2,613	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-289	2,778	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-290	2,488	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-291	2,656	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-293	2,775	12	PVC	150	7.18	0.02	0.000	YES
P-295	2,665	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-296	2,655	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-297	2,626	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-298	2,654	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-299	2,594	24	PVC	150	924.45	0.66	0.000	YES
P-300	2,623	8	PVC	150	184.36	1.18	0.001	YES
P-301	2,871	8	PVC	150	-17.17	0.11	0.000	YES
P-302	12	12	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-303	13	12	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)

POTABLE WATER MASTER PLAN
TABLE D.5
2035 SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-304	12	12	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-305	2,678	12	PVC	150	-573.02	1.63	0.001	YES
P-306	17	12	DIP	130	-400.00	1.13	0.000	YES
P-307	13	12	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-308	12	12	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-309	2,662	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-310	2,702	12	PVC	150	-515.35	1.46	0.001	YES
P-311	2,605	12	PVC	150	-515.35	1.46	0.001	YES
P-312	12	12	DIP	130	-557.75	1.58	0.001	YES
P-313	13	12	DIP	130	-557.75	1.58	0.001	YES
P-314	3,266	8	PVC	150	-65.20	0.42	0.000	YES
P-315	2,468	12	PVC	150	503.73	1.43	0.001	YES
P-316	2,703	12	PVC	150	-152.63	0.43	0.000	YES
P-317	2,708	12	PVC	150	-152.63	0.43	0.000	YES
P-318	2,707	8	PVC	150	201.53	1.29	0.001	YES
P-319	2,671	8	PVC	150	160.56	1.02	0.000	YES
P-320	2,638	8	PVC	150	114.81	0.73	0.000	YES
P-321	2,738	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-322	2,492	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-323	2,675	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-324	2,633	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-325	2,678	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-326	2,762	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-327	2,650	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-328	2,679	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-329	2,579	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-330	2,598	8	PVC	150	164.83	1.05	0.000	YES

POTABLE WATER MASTER PLAN
TABLE D.5
2035 SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-331	2,734	8	PVC	150	210.58	1.34	0.001	YES
P-332	2,670	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-333	2,602	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-334	2,710	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-335	2,726	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-336	2,679	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-337	2,567	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-338	2,690	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-339	3,466	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-340	2,625	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-341	2,587	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-342	2,664	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-343	2,676	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-344	2,942	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-345	2,581	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-346	2,592	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-347	2,626	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-348	2,681	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-349	2,616	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-350	2,598	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-351	2,634	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-352	5,191	24	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-353	284	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-354	268	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-355	2,574	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-356	2,708	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-357	2,524	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)

POTABLE WATER MASTER PLAN
TABLE D.5
2035 SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-358	1,350	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-359	1,428	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-360	2,453	12	PVC	150	322.17	0.91	0.000	YES
P-361	2,638	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-362	2,472	12	PVC	150	7.18	0.02	0.000	YES
P-363	2,612	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-364	2,242	12	PVC	150	559.04	1.59	0.001	YES
P-365	3,358	12	PVC	150	559.04	1.59	0.001	YES
P-367	2,607	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-370	13	12	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-371	19	12	DIP	130	-400.00	1.13	0.000	YES
P-372	2,695	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-373	26	12	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-374	22	12	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-400	5,324	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-402	2,676	16	PVC	150	1,400.00	2.23	0.001	YES
P-403	4,801	16	PVC	150	1,400.00	2.23	0.001	YES
P-405	2,053	12	PVC	150	0.00	0.00	0.000	YES
P-406	4,444	16	PVC	150	78.73	0.13	0.000	YES
P-407	10,476	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-408	6,923	12	PVC	150	-144.67	0.41	0.000	YES
P-409	5,062	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-410	5,891	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-411	5,261	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-412	6,819	16	PVC	150	-302.13	0.48	0.000	YES
P-413	5,750	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-414	2,218	12	PVC	150	1,400.00	3.97	0.004	YES

POTABLE WATER MASTER PLAN
TABLE D.5
2035 SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-417	248	24	PVC	150	670.20	0.48	0.000	YES
P-418	118	16	DIP	130	1,400.00	2.23	0.001	YES
P-419	10,991	16	PVC	150	1,400.00	2.23	0.001	YES
P-420	197	12	PVC	150	0.00	0.00	0.000	YES
P-421	1,716	12	PVC	150	0.00	0.00	0.000	YES
P-422	5186	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-423	131	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)

[1]Velocity ≤ 5.0 fps

POTABLE WATER MASTER PLAN
TABLE D.6
2035 SCENARIO - MAX DAY CWCWD MASTER METER RESULTS

Label	Elevation (feet)	Outflow (gpm)	HGL (feet)	Pressure Zone ID
MM-1	5,152.0	500.0	5,152.0	1
MM-2	5,180.0	400.0	5,180.0	1
MM-3	5,180.0	802.3	5,180.0	1
MM-4	5,180.0	400.0	5,180.0	1
MM-5	5,105.0	400.0	5,105.0	2
MM-6	5,105.0	400.0	5,105.0	2
MM-7	5,070.0	400.0	5,070.0	3
MM-8	5,070.0	400.0	5,070.0	3
MM-9	5,070.0	400.0	5,070.0	3
MM-10	5,070.0	400.0	5,070.0	3
MM-11	5,070.0	400.0	5,070.0	3
MM-200	5,075.0	(N/A)	(N/A)	(N/A)
MM-201	5,190.0	(N/A)	(N/A)	(N/A)
MM-202	5,075.0	400.0	5,075.0	3
MM-203	5,190.0	(N/A)	(N/A)	(N/A)
MM-204	5,190.0	(N/A)	(N/A)	(N/A)
MM-205	5,105.0	557.8	5,105.0	2
TOTAL		**5,860.0**		

POTABLE WATER MASTER PLAN
TABLE D.7
2035 SCENARIO - MAX DAY PRV RESULTS

Label	Elevation	Diameter	Initial Settings		Flow	Hydraulic Grade		Headloss
			Hydraulic Grade	Pressure		To	From	
	(feet)	(inches)	(feet)	(psi)	(gpm)	(feet)	(feet)	(feet)
PRV-1	4,952.3	8	5,105.0	66.1	1,322.9	5,150.9	5,105.1	45.9
PRV-2	4,906.4	8	5,070.0	70.8	251.4	5,095.5	5,070.1	25.4
PRV-200	4,943.0	8	5,105.0	70.1	568.9	5,170.0	5,105.1	64.9
PRV-201	4,952.0	8	5,075.0	53.2	(N/A)	(N/A)	(N/A)	(N/A)
PRV-202	4,953.0	8	5,115.0	70.1	(N/A)	(N/A)	(N/A)	(N/A)
PRV-203	4,962.0	8	5,115.0	66.2	(N/A)	(N/A)	(N/A)	(N/A)
PRV-204	4,885.0	8	5,075.0	82.2	(N/A)	(N/A)	(N/A)	(N/A)
PRV-205	4,885.0	8	5,070.0	80.1	322.2	5,102.8	5,070.1	32.7
PRV-206	4,885.0	8	5,070.0	80.1	7.2	5,105.0	5,070.1	34.9
PRV-207	5,025.0	8	5,165.0	60.6	110.8	5,182.2	5,165.1	17.1
PRV-208	5,001.0	8	5,165.0	71.0	324.0	5,179.9	5,165.1	14.8
PRV-209	4,910.0	8	5,070.0	69.2	559.0	5,103.2	5,070.1	33.2
PRV-210	4,891.0	8	5,070.0	77.5	673.1	5,087.5	5,070.1	17.5
PRV-211	4,894.0	8	5,070.0	76.2	659.7	5,089.1	5,070.1	19.0
PRV-400	4,850.0	8	5,000.0	64.9	0.0	5,144.6	5,042.9	0.0
PRV-401	4,869.0	8	5,010.0	61.0	(N/A)	(N/A)	(N/A)	(N/A)

POTABLE WATER MASTER PLAN
TABLE D.8
2035 SCENARIO - MAX DAY TANK RESULTS

Label	Base Elevation (feet)	Minimum Elevation (feet)	Initial Elevation (feet)	Maximum Elevation (feet)	Diameter (feet)	Outflow (gpm)	Hydraulic Grade (feet)
T-1	5,097.5	5,122.5	5,192.5	5,197.5	50.0	902.4	5,192.5
T-2	5,097.5	5,122.5	5,192.5	5,197.5	50.0	(N/A)	(N/A)
T-400	5,000.0	5,105.0	5,145.0	5,150.0	85.0	-729.8	5,145.0

POTABLE WATER MASTER PLAN
TABLE D.9
2035 SCENARIO - MAX DAY PUMP RESULTS

Label	Elevation	Intake Grade	Discharge Grade	Discharge	Pump Head
	(feet)	(feet)	(feet)	(gpm)	(feet)
PMP-1	5,097.0	5,151.3	5,194.7	500.0	43.4
PMP-400	4,850.0	5,042.7	5,154.8	1,400.0	112.1
PMP-200	5,097.0	(N/A)	(N/A)	(N/A)	(N/A)

POTABLE WATER MASTER PLAN
TABLE D.10
2035 SCENARIO - PEAK HOUR JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria[1]
J-1	5,097.0	0.0	5,193.2	41.6	YES
J-2	5,097.0	0.0	5,190.1	40.3	YES
J-3	5,097.0	0.0	5,152.0	23.8	NO
J-4	5,028.0	60.9	5,144.0	50.2	YES
J-5	5,006.0	12.9	5,126.6	52.2	YES
J-6	5,001.0	313.8	5,120.4	51.6	YES
J-7	4,975.0	145.2	5,119.7	62.6	YES
J-8	4,950.0	324.6	5,117.1	72.3	YES
J-9	4,976.0	91.2	5,117.3	61.1	YES
J-10	4,961.0	91.2	5,120.0	68.8	YES
J-11	5,025.0	78.9	5,124.4	43.0	YES
J-12	4,974.0	33.6	5,099.4	54.2	YES
J-13	4,940.0	108.6	5,086.1	63.2	YES
J-14	4,951.0	17.7	5,074.1	53.3	YES
J-15	4,929.0	0.0	5,071.8	61.8	YES
J-16	4,923.0	60.0	5,068.7	63.1	YES
J-17	4,918.0	67.8	5,066.2	64.1	YES
J-18	4,911.0	67.8	5,060.9	64.9	YES
J-19	4,898.0	143.1	5,059.2	69.8	YES
J-20	4,897.0	67.8	5,057.2	69.3	YES
J-21	4,905.0	67.8	5,063.7	68.7	YES
J-22	4,905.0	0.0	5,064.3	68.9	YES
J-23	4,909.0	0.0	5,060.3	65.5	YES
J-24	4,897.0	105.6	5,056.7	69.1	YES
J-25	4,885.0	67.8	5,053.4	72.9	YES
J-26	4,891.0	67.8	5,054.6	70.8	YES
J-27	4,891.0	67.8	5,053.4	70.3	YES
J-28	4,880.0	143.1	5,049.1	73.1	YES
J-29	4,860.0	67.8	5,046.6	80.7	YES
J-30	4,880.0	0.0	5,046.9	72.2	YES
J-31	4,886.0	61.8	5,046.9	69.6	YES
J-32	4,863.0	551.1	5,047.4	79.8	YES
J-33	4,851.0	26.4	5,044.4	83.7	YES
J-34	4,850.0	261.9	5,043.3	83.6	YES
J-35	4,848.0	86.7	5,043.7	84.7	YES
J-36	4,847.0	86.7	5,043.5	85.0	YES
J-37	4,847.0	37.2	5,043.5	85.0	YES
J-38	4,848.0	60.3	5,042.5	84.2	YES
J-39	4,847.0	44.4	5,042.2	84.5	YES
J-40	4,844.0	0.0	5,041.6	85.5	YES
J-41	4,849.0	90.9	5,041.1	83.1	YES

POTABLE WATER MASTER PLAN
TABLE D.10
2035 SCENARIO - PEAK HOUR JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria[1]
J-42	4,843.0	0.0	5,040.8	85.6	YES
J-43	4,842.0	171.0	5,040.1	85.7	YES
J-44	4,846.0	45.9	5,037.4	82.8	YES
J-45	4,843.0	45.9	5,036.6	83.8	YES
J-46	4,842.0	68.7	5,034.2	83.2	YES
J-47	4,848.0	68.7	5,038.8	82.5	YES
J-48	4,848.0	73.5	5,037.4	81.9	YES
J-49	4,851.0	175.2	5,037.4	80.6	YES
J-50	4,850.0	168.9	5,037.5	81.1	YES
J-51	4,864.0	526.8	5,037.6	75.1	YES
J-52	4,900.0	240.9	5,038.7	60.0	YES
J-53	4,912.0	141.0	5,045.5	57.8	YES
J-54	4,918.0	99.6	5,047.7	56.1	YES
J-55	4,863.0	85.8	5,043.7	78.2	YES
J-56	4,881.0	134.1	5,045.3	71.1	YES
J-57	4,890.0	106.2	5,045.1	67.1	YES
J-58	4,845.0	410.1	5,042.3	85.4	YES
J-59	4,848.0	0.0	5,041.6	83.8	YES
J-60	4,891.0	0.0	5,053.4	70.2	YES
J-61	5,097.5	0.0	5,192.5	41.1	YES
J-62	4,841.0	68.7	5,034.1	83.5	YES
J-63	4,843.0	61.8	5,043.2	86.6	YES
J-64	4,906.0	66.3	5,060.5	66.9	YES
J-65	4,908.0	66.3	5,059.6	65.6	YES
J-66	4,917.0	100.8	5,059.6	61.7	YES
J-67	4,855.0	231.9	5,038.3	79.3	YES
J-68	4,844.0	0.0	5,037.7	83.8	YES
J-69	4,891.0	0.0	5,043.2	65.8	YES
J-70	4,960.0	0.0	5,119.6	69.0	YES
J-71	4,991.0	0.0	5,123.7	57.4	YES
J-72	4,975.0	0.0	5,112.8	59.6	YES
J-200	5,011.0	(N/A)	(N/A)	(N/A)	(N/A)
J-201	5,000.0	(N/A)	(N/A)	(N/A)	(N/A)
J-202	4,997.0	(N/A)	(N/A)	(N/A)	(N/A)
J-203	4,939.0	273.0	5,104.9	71.8	YES
J-204	4,884.0	251.4	5,070.0	80.5	YES
J-205	4,824.0	(N/A)	(N/A)	(N/A)	(N/A)
J-206	4,799.0	(N/A)	(N/A)	(N/A)	(N/A)
J-207	4,982.0	279.9	5,125.8	62.2	YES
J-208	4,952.0	(N/A)	(N/A)	(N/A)	(N/A)
J-209	4,916.0	69.6	5,097.7	78.6	YES

POTABLE WATER MASTER PLAN
TABLE D.10
2035 SCENARIO - PEAK HOUR JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria[1]
J-210	4,842.0	69.6	5,066.6	97.2	YES
J-211	4,797.0	(N/A)	(N/A)	(N/A)	(N/A)
J-212	4,780.0	(N/A)	(N/A)	(N/A)	(N/A)
J-213	4,923.0	21.9	5,079.6	67.8	YES
J-214	4,824.0	18.6	5,051.1	98.3	YES
J-215	4,803.0	(N/A)	(N/A)	(N/A)	(N/A)
J-216	4,813.0	66.9	5,046.5	101.0	YES
J-217	4,914.0	128.4	5,086.0	74.4	YES
J-218	4,820.0	(N/A)	(N/A)	(N/A)	(N/A)
J-219	4,913.0	34.5	5,045.6	57.4	YES
J-220	4,873.0	34.5	5,038.2	71.5	YES
J-221	4,828.0	57.0	5,037.1	90.5	YES
J-222	4,906.0	(N/A)	(N/A)	(N/A)	(N/A)
J-223	5,040.0	(N/A)	(N/A)	(N/A)	(N/A)
J-224	5,046.0	(N/A)	(N/A)	(N/A)	(N/A)
J-225	5,038.0	(N/A)	(N/A)	(N/A)	(N/A)
J-226	5,005.0	(N/A)	(N/A)	(N/A)	(N/A)
J-227	4,996.0	(N/A)	(N/A)	(N/A)	(N/A)
J-228	4,980.0	(N/A)	(N/A)	(N/A)	(N/A)
J-229	4,959.0	(N/A)	(N/A)	(N/A)	(N/A)
J-230	4,927.0	0.0	5,101.3	75.4	YES
J-231	4,896.0	(N/A)	(N/A)	(N/A)	(N/A)
J-232	4,869.0	0.0	5,068.3	86.2	YES
J-233	4,842.0	(N/A)	(N/A)	(N/A)	(N/A)
J-234	4,802.0	(N/A)	(N/A)	(N/A)	(N/A)
J-235	4,796.0	(N/A)	(N/A)	(N/A)	(N/A)
J-236	4,790.0	(N/A)	(N/A)	(N/A)	(N/A)
J-237	5,017.0	(N/A)	(N/A)	(N/A)	(N/A)
J-238	4,989.0	(N/A)	(N/A)	(N/A)	(N/A)
J-239	4,962.0	(N/A)	(N/A)	(N/A)	(N/A)
J-240	4,921.0	0.0	5,103.8	79.1	YES
J-241	4,848.0	(N/A)	(N/A)	(N/A)	(N/A)
J-242	4,812.0	(N/A)	(N/A)	(N/A)	(N/A)
J-243	4,987.0	0.0	5,126.1	60.2	YES
J-244	4,968.0	(N/A)	(N/A)	(N/A)	(N/A)
J-245	4,953.0	(N/A)	(N/A)	(N/A)	(N/A)
J-246	4,884.0	0.0	5,069.8	80.4	YES
J-247	4,806.0	(N/A)	(N/A)	(N/A)	(N/A)
J-248	4,790.0	(N/A)	(N/A)	(N/A)	(N/A)
J-249	5,021.0	0.0	5,128.6	46.6	YES
J-251	4,964.0	0.0	5,120.9	67.9	YES

POTABLE WATER MASTER PLAN
TABLE D.10
2035 SCENARIO - PEAK HOUR JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria[1]
J-253	4,937.0	(N/A)	(N/A)	(N/A)	(N/A)
J-254	4,925.0	(N/A)	(N/A)	(N/A)	(N/A)
J-255	4,913.0	(N/A)	(N/A)	(N/A)	(N/A)
J-256	4,902.0	(N/A)	(N/A)	(N/A)	(N/A)
J-257	4,862.0	(N/A)	(N/A)	(N/A)	(N/A)
J-258	4,815.0	0.0	5,059.0	105.6	YES
J-259	4,803.0	(N/A)	(N/A)	(N/A)	(N/A)
J-261	4,943.0	0.0	5,085.9	61.8	YES
J-262	4,835.0	0.0	5,049.3	92.7	YES
J-400	4,861.0	(N/A)	(N/A)	(N/A)	(N/A)
J-401	4,869.0	(N/A)	(N/A)	(N/A)	(N/A)
J-402	4,848.0	0.0	5,031.8	79.5	YES
J-403	4,849.0	0.0	5,027.5	77.2	YES
J-404	4,856.0	0.0	5,144.2	124.7	YES
J-405	4,900.0	335.1	5,144.2	105.7	YES
J-406	4,931.0	335.1	5,144.2	92.2	YES
J-407	4,998.0	335.1	5,145.0	63.6	YES
J-408	4,908.0	(N/A)	(N/A)	(N/A)	(N/A)
J-409	4,850.0	0.0	5,019.5	73.3	YES

[1]Pressure ≥ 40 psi

POTABLE WATER MASTER PLAN
TABLE D.11
2035 SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-2	93	12	DIP	130	-3,536.24	10.03	0.026	NO
P-3	4,837	14	PVC	150	-3,536.24	7.37	0.010	YES
P-4	2,723	14	PVC	150	2,850.42	5.94	0.006	YES
P-5	2,603	14	PVC	150	1,105.36	2.30	0.001	YES
P-7	1,691	8	AC	140	278.09	1.77	0.001	YES
P-8	2,488	8	AC	140	-46.51	0.30	0.000	YES
P-9	1,677	6	AC	140	-137.71	1.56	0.002	YES
P-10	2,433	8	AC	140	81.86	0.52	0.000	YES
P-12	2,685	14	PVC	150	1,187.82	2.48	0.001	YES
P-13	2,615	12	PVC	150	1,237.59	3.51	0.003	YES
P-15	2,659	12	PVC	150	1,662.28	4.72	0.005	YES
P-16	2,671	12	PVC	150	1,670.00	4.74	0.005	YES
P-17	2,016	12	PVC	150	761.65	2.16	0.001	YES
P-18	492	10	PVC	150	1,151.94	4.71	0.006	YES
P-19	363	10	PVC	150	1,233.94	5.04	0.007	YES
P-20	840	10	PVC	150	1,166.14	4.76	0.006	YES
P-21	769	10	PVC	150	667.19	2.73	0.002	YES
P-22	1,422	10	PVC	150	524.09	2.14	0.001	YES
P-23	1,238	8	PVC	150	-590.19	3.77	0.005	YES
P-24	243	8	PVC	150	-400.00	2.55	0.003	YES
P-25	1,393	8	PVC	150	748.44	4.78	0.008	YES
P-26	1,863	8	PVC	150	346.74	2.21	0.002	YES
P-27	2,756	10	PVC	150	-1,267.65	5.18	0.007	YES
P-28	2,449	8	PVC	150	-161.50	1.03	0.000	YES
P-29	4,408	8	PVC	150	257.99	1.65	0.001	YES
P-30	1,442	8	PVC	150	431.15	2.75	0.003	YES
P-31	499	10	PVC	150	1,046.48	4.27	0.005	YES

POTABLE WATER MASTER PLAN
TABLE D.11
2035 SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-32	383	10	PVC	150	817.18	3.34	0.003	YES
P-34	1,313	10	PVC	150	606.28	2.48	0.002	YES
P-35	1,164	12	PVC	150	-356.56	1.01	0.000	YES
P-36	1,219	12	PVC	150	-418.36	1.19	0.000	YES
P-37	547	8	PVC	150	61.80	0.39	0.000	YES
P-38	1,364	12	PVC	150	895.05	2.54	0.002	YES
P-39	1,296	12	PVC	150	662.30	1.88	0.001	YES
P-40	1,005	8	PVC	150	206.34	1.32	0.001	YES
P-41	643	8	PVC	150	119.64	0.76	0.000	YES
P-42	438	8	PVC	150	-28.86	0.18	0.000	YES
P-43	1,108	8	PVC	150	228.65	1.46	0.001	YES
P-44	549	8	PVC	150	168.35	1.07	0.001	YES
P-45	530	8	PVC	150	259.33	1.66	0.001	YES
P-46	794	8	PVC	150	194.88	1.24	0.001	YES
P-47	1,060	8	PVC	150	103.98	0.66	0.000	YES
P-48	383	8	PVC	150	64.45	0.41	0.000	YES
P-49	672	12	PVC	150	757.33	2.15	0.001	YES
P-51	994	12	PVC	150	598.28	1.70	0.001	YES
P-52	1,853	12	PVC	150	806.10	2.29	0.001	YES
P-53	2,516	8	PVC	150	-331.30	2.11	0.002	YES
P-54	836	12	PVC	150	37.64	0.11	0.000	YES
P-55	1,314	12	PVC	150	-35.86	0.10	0.000	YES
P-56	1,026	12	PVC	150	-211.06	0.60	0.000	YES
P-57	3,218	12	PVC	150	-122.93	0.35	0.000	YES
P-58	1,053	8	PVC	150	-249.73	1.59	0.001	YES
P-59	1,810	8	PVC	150	-490.63	3.13	0.004	YES
P-60	704	12	PVC	150	-1,269.73	3.60	0.003	YES

POTABLE WATER MASTER PLAN
TABLE D.11
2035 SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-63	1,069	10	PVC	150	-525.69	2.15	0.001	YES
P-64	2,329	10	PVC	150	106.20	0.43	0.000	YES
P-65	1,238	12	PVC	150	-294.09	0.83	0.000	YES
P-76	3,094	12	PVC	150	1,425.28	4.04	0.004	YES
P-77	108	12	PVC	150	1,425.28	4.04	0.004	YES
P-78	4,797	8	PVC	150	401.70	2.56	0.003	YES
P-79	109	8	PVC	150	401.70	2.56	0.003	YES
P-80	713	10	PVC	150	-135.38	0.55	0.000	YES
P-81	1,388	10	PVC	150	-439.89	1.80	0.001	YES
P-82	971	12	PVC	150	694.49	1.97	0.001	YES
P-83	996	12	PVC	150	588.90	1.67	0.001	YES
P-84	494	8	PVC	150	672.29	4.29	0.007	YES
P-85	494	8	PVC	150	-93.70	0.60	0.000	YES
P-87	825	12	PVC	150	653.36	1.85	0.001	YES
P-88	35	6	DIP	130	500.00	5.67	0.021	YES
P-89	10	4	DIP	130	500.00	12.77	0.148	NO
P-90	174	8	PVC	150	500.00	3.19	0.004	YES
P-91	4	8	PVC	150	500.00	3.19	0.004	YES
P-92	1,242	8	PVC	150	68.70	0.44	0.000	YES
P-93	3,259	8	PVC	150	61.80	0.39	0.000	YES
P-94	1,285	16	PVC	150	992.54	1.58	0.000	YES
P-95	1,275	16	PVC	150	681.82	1.09	0.000	YES
P-96	2,577	16	PVC	150	1,224.44	1.95	0.001	YES
P-97	427	12	PVC	150	1,060.77	3.01	0.002	YES
P-98	2,318	12	PVC	150	100.80	0.29	0.000	YES
P-99	3,117	10	PVC	150	893.67	3.65	0.004	YES
P-100	2,751	12	PVC	150	638.11	1.81	0.001	YES

POTABLE WATER MASTER PLAN
TABLE D.11
2035 SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-102	74	8	PVC	150	310.77	1.98	0.002	YES
P-103	2,664	8	PVC	150	310.77	1.98	0.002	YES
P-104	10	12	DIP	130	400.00	1.13	0.000	YES
P-105	15	12	DIP	130	400.00	1.13	0.000	YES
P-106	8	12	DIP	130	400.00	1.13	0.000	YES
P-107	18	12	DIP	130	400.00	1.13	0.000	YES
P-108	13	12	DIP	130	500.00	1.42	0.001	YES
P-109	12	12	DIP	130	500.00	1.42	0.001	YES
P-110	2,336	12	PVC	150	341.43	0.97	0.000	YES
P-111	311	12	PVC	150	341.43	0.97	0.000	YES
P-112	12	12	DIP	130	400.00	1.13	0.000	YES
P-113	12	12	DIP	130	400.00	1.13	0.000	YES
P-114	12	12	DIP	130	400.00	1.13	0.000	YES
P-115	13	12	DIP	130	400.00	1.13	0.000	YES
P-116	13	12	DIP	130	400.00	1.13	0.000	YES
P-117	12	12	DIP	130	400.00	1.13	0.000	YES
P-118	9	12	DIP	130	400.00	1.13	0.000	YES
P-119	16	12	DIP	130	400.00	1.13	0.000	YES
P-120	16	12	DIP	130	400.00	1.13	0.000	YES
P-121	9	12	DIP	130	400.00	1.13	0.000	YES
P-122	7	12	DIP	130	400.00	1.13	0.000	YES
P-123	17	12	DIP	130	400.00	1.13	0.000	YES
P-124	15	12	DIP	130	400.00	1.13	0.000	YES
P-125	9	12	DIP	130	400.00	1.13	0.000	YES
P-126	15	12	DIP	130	400.00	1.13	0.000	YES
P-127	10	12	DIP	130	400.00	1.13	0.000	YES
P-128	608	10	PVC	150	749.38	3.06	0.003	YES

POTABLE WATER MASTER PLAN
TABLE D.11
2035 SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-129	950	10	PVC	150	749.38	3.06	0.003	YES
P-130	1,235	10	PVC	150	-765.99	3.13	0.003	YES
P-131	1,568	10	PVC	150	-765.99	3.13	0.003	YES
P-200	2,658	24	PVC	150	1,381.62	0.98	0	YES
P-201	2,793	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-202	2,483	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-203	2,656	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-204	1,713	10	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-206	2,814	12	PVC	150	757.04	2.15	0.001	YES
P-207	2,626	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-208	2,674	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-209	2,616	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-210	2,625	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-211	27	4	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-212	26	6	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-221	2,658	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-227	2,321	8	PVC	150	-44.66	0.29	0	YES
P-228	4,125	12	PVC	150	-588.79	1.67	0.001	YES
P-229	5,162	12	PVC	150	-655.69	1.86	0.001	YES
P-230	134	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-231	425	12	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-232	5,235	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-235	1,154	8	PVC	150	326.04	2.08	0.002	YES
P-236	5,206	8	PVC	150	291.54	1.86	0.001	YES
P-237	4,474	12	PVC	150	257.04	0.73	0	YES
P-238	3,174	12	PVC	150	-1,138.73	3.23	0.002	YES
P-242	4,070	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)

POTABLE WATER MASTER PLAN
TABLE D.11
2035 SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-243	2,560	12	PVC	150	-310.72	0.88	0	YES
P-245	5,223	12	PVC	150	-83.74	0.24	0	YES
P-246	3,966	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-247	3,571	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-248	3,694	12	PVC	150	638.11	1.81	0.001	YES
P-249	3,101	12	PVC	150	-253.72	0.72	0	YES
P-253	2,624	8	PVC	150	305.00	1.95	0.002	YES
P-254	2,836	24	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-255	2,581	12	PVC	150	1,641.76	4.66	0.005	YES
P-256	180	12	PVC	150	1,641.76	4.66	0.005	YES
P-257	2,455	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-258	2,591	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-259	5,333	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-260	2,357	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-261	270	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-262	2,341	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-263	2,677	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-264	2,621	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-265	2,609	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-266	194	12	PVC	150	757.04	2.15	0.001	YES
P-267	2,691	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-268	206	12	PVC	150	407.72	1.16	0	YES
P-269	2,765	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-270	2,509	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-271	2,605	12	PVC	150	-826.64	2.34	0.001	YES
P-272	2,613	12	PVC	150	-826.64	2.34	0.001	YES
P-273	2,645	12	PVC	150	-556.32	1.58	0.001	YES

POTABLE WATER MASTER PLAN
TABLE D.11
2035 SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-274	2,561	12	PVC	150	-556.32	1.58	0.001	YES
P-275	2,583	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-277	2,695	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-278	2,547	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-279	2,686	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-280	2,529	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-281	2,744	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-282	2,783	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-283	2,668	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-284	2,633	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-285	2,650	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-286	2,558	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-287	2,688	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-288	2,613	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-289	2,778	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-290	2,488	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-291	2,656	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-293	2,775	12	PVC	150	407.72	1.16	0	YES
P-295	2,665	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-296	2,655	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-297	2,626	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-298	2,654	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-299	2,594	24	PVC	150	1,732.16	1.23	0	YES
P-300	2,623	8	PVC	150	624.92	3.99	0.006	YES
P-301	2,871	8	PVC	150	294.67	1.88	0.001	YES
P-302	12	12	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-303	13	12	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)

POTABLE WATER MASTER PLAN
TABLE D.11
2035 SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-304	12	12	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-305	2,678	12	PVC	150	-1,101.72	3.13	0.002	YES
P-306	17	12	DIP	130	-400.00	1.13	0	YES
P-307	13	12	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-308	12	12	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-309	2,662	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-310	2,702	12	PVC	150	-1,243.76	3.53	0.003	YES
P-311	2,605	12	PVC	150	-1,243.76	3.53	0.003	YES
P-312	12	12	DIP	130	-1,507.36	4.28	0.005	YES
P-313	13	12	DIP	130	-1,507.36	4.28	0.005	YES
P-314	3,266	8	PVC	150	-481.14	3.07	0.004	YES
P-315	2,468	12	PVC	150	1,160.63	3.29	0.003	YES
P-316	2,703	12	PVC	150	-569.46	1.62	0.001	YES
P-317	2,708	12	PVC	150	-569.46	1.62	0.001	YES
P-318	2,707	8	PVC	150	330.25	2.11	0.002	YES
P-319	2,671	8	PVC	150	247.79	1.58	0.001	YES
P-320	2,638	8	PVC	150	165.93	1.06	0.001	YES
P-321	2,738	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-322	2,492	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-323	2,675	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-324	2,633	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-325	2,678	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-326	2,762	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-327	2,650	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-328	2,679	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-329	2,579	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-330	2,598	8	PVC	150	350.54	2.24	0.002	YES

POTABLE WATER MASTER PLAN
TABLE D.11
2035 SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-331	2,734	8	PVC	150	432.41	2.76	0.003	YES
P-332	2,670	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-333	2,602	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-334	2,710	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-335	2,726	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-336	2,679	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-337	2,567	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-338	2,690	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-339	3,466	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-340	2,625	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-341	2,587	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-342	2,664	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-343	2,676	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-344	2,942	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-345	2,581	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-346	2,592	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-347	2,626	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-348	2,681	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-349	2,616	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-350	2,598	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-351	2,634	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-352	5,191	24	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-353	284	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-354	268	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-355	2,574	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-356	2,708	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-357	2,524	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)

POTABLE WATER MASTER PLAN
TABLE D.11
2035 SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-358	1,350	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-359	1,428	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-360	2,453	12	PVC	150	757.04	2.15	0.001	YES
P-361	2,638	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-362	2,472	12	PVC	150	407.72	1.16	0	YES
P-363	2,612	8	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-364	2,242	12	PVC	150	1,127.07	3.20	0.002	YES
P-365	3,358	12	PVC	150	1,127.07	3.20	0.002	YES
P-367	2,607	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-370	13	12	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-371	19	12	DIP	130	-400.00	1.13	0	YES
P-372	2,695	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-373	26	12	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-374	22	12	DIP	130	(N/A)	(N/A)	(N/A)	(N/A)
P-400	5,324	16	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-402	2,676	16	PVC	150	1,400.00	2.23	0.001	YES
P-403	4,801	16	PVC	150	1,400.00	2.23	0.001	YES
P-405	2,053	12	PVC	150	0.00	0.00	0	YES
P-406	4,444	16	PVC	150	118.10	0.19	0	YES
P-407	10,476	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-408	6,923	12	PVC	150	-217.00	0.62	0	YES
P-409	5,062	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-410	5,891	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-411	5,261	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-412	6,819	16	PVC	150	-453.20	0.72	0	YES
P-413	5,750	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-414	2,218	12	PVC	150	1,400.00	3.97	0.004	YES

POTABLE WATER MASTER PLAN
TABLE D.11
2035 SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-417	248	24	PVC	150	1,005.30	0.71	0	YES
P-418	118	16	DIP	130	1,400.00	2.23	0.001	YES
P-419	10,991	16	PVC	150	1,400.00	2.23	0.001	YES
P-420	197	12	PVC	150	0.00	0.00	0	YES
P-421	1,716	12	PVC	150	0.00	0.00	0	YES
P-422	5186	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)
P-423	131	12	PVC	150	(N/A)	(N/A)	(N/A)	(N/A)

[1]Velocity ≤ 7.5 fps

POTABLE WATER MASTER PLAN
TABLE D.12
2035 SCENARIO - PEAK HOUR CWCWD MASTER METER RESULTS

Label	Elevation (feet)	Outflow (gpm)	HGL (feet)	Pressure Zone ID
MM-1	5,152.0	500.0	5,152.0	1
MM-2	5,180.0	400.0	5,180.0	1
MM-3	5,180.0	400.0	5,180.0	1
MM-4	5,180.0	400.0	5,180.0	1
MM-5	5,105.0	400.0	5,105.0	2
MM-6	5,105.0	400.0	5,105.0	2
MM-7	5,070.0	400.0	5,070.0	3
MM-8	5,070.0	400.0	5,070.0	3
MM-9	5,070.0	400.0	5,070.0	3
MM-10	5,070.0	400.0	5,070.0	3
MM-11	5,070.0	400.0	5,070.0	3
MM-200	5,075.0	(N/A)	(N/A)	(N/A)
MM-201	5,190.0	(N/A)	(N/A)	(N/A)
MM-202	5,075.0	400.0	5,075.0	3
MM-203	5,190.0	(N/A)	(N/A)	(N/A)
MM-204	5,190.0	(N/A)	(N/A)	(N/A)
MM-205	5,105.0	1,507.4	5,105.0	2
TOTAL		**6,407.4**		

POTABLE WATER MASTER PLAN
TABLE D.13
2035 SCENARIO - PEAK HOUR PRV RESULTS

Label	Elevation	Diameter	Initial Settings		Flow	Hydraulic Grade		Headloss
			Hydraulic Grade	Pressure		To	From	
	(feet)	(inches)	(feet)	(psi)	(gpm)	(feet)	(feet)	(feet)
PRV-1	4,952.3	8	5,105.0	66.1	1,425.3	5,074.5	5,074.5	0.0
PRV-2	4,906.4	8	5,070.0	70.8	401.7	5,060.1	5,060.1	0.0
PRV-200	4,943.0	8	5,105.0	70.1	1,641.8	5,086.8	5,086.8	0.0
PRV-201	4,952.0	8	5,075.0	53.2	(N/A)	(N/A)	(N/A)	(N/A)
PRV-202	4,953.0	8	5,115.0	70.1	(N/A)	(N/A)	(N/A)	(N/A)
PRV-203	4,962.0	8	5,115.0	66.2	(N/A)	(N/A)	(N/A)	(N/A)
PRV-204	4,885.0	8	5,075.0	82.2	(N/A)	(N/A)	(N/A)	(N/A)
PRV-205	4,885.0	8	5,070.0	80.1	757.0	5,094.9	5,070.1	24.8
PRV-206	4,885.0	8	5,070.0	80.1	407.7	5,102.9	5,070.1	32.9
PRV-207	5,025.0	8	5,165.0	60.6	310.8	5,124.3	5,124.3	0.0
PRV-208	5,001.0	8	5,165.0	71.0	341.4	5,120.3	5,120.3	0.0
PRV-209	4,910.0	8	5,070.0	69.2	1,127.1	5,068.7	5,068.7	0.0
PRV-210	4,891.0	8	5,070.0	77.5	766.0	5,049.8	5,049.8	0.0
PRV-211	4,894.0	8	5,070.0	76.2	749.4	5,051.7	5,051.7	0.0
PRV-400	4,850.0	8	5,000.0	64.9	0.0	5,144.2	5,019.5	0.0
PRV-401	4,869.0	8	5,010.0	61.0	(N/A)	(N/A)	(N/A)	(N/A)

POTABLE WATER MASTER PLAN
TABLE D.14
2035 SCENARIO - PEAK HOUR TANK RESULTS

Label	Base Elevation (feet)	Minimum Elevation (feet)	Initial Elevation (feet)	Maximum Elevation (feet)	Diameter (feet)	Outflow (gpm)	Hydraulic Grade (feet)
T-1	5,097.5	5,122.5	5,192.5	5,197.5	50.0	3,036.2	5,192.5
T-2	5,097.5	5,122.5	5,192.5	5,197.5	50.0	(N/A)	(N/A)
T-400	5,000.0	5,105.0	5,145.0	5,150.0	85.0	-394.7	5,145.0

POTABLE WATER MASTER PLAN
TABLE D.15
2035 SCENARIO - PEAK HOUR PUMP RESULTS

Label	Elevation	Intake Grade	Discharge Grade	Discharge	Pump Head
	(feet)	(feet)	(feet)	(gpm)	(feet)
PMP-1	5,097.0	5,151.3	5,194.7	500.0	43.4
PMP-200	5,097.0	(N/A)	(N/A)	(N/A)	(N/A)
PMP-400	4,850.0	5,019.3	5,154.8	1,400.0	135.5

POTABLE WATER MASTER PLAN

TABLE D.16

2035 SCENARIO - FIRE FLOW RESULTS (RESIDENTIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-1	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-2	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-3	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-4	TRUE	1,500.0	2,000.0	1,540.6	2,040.6	20.0	47.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-5	TRUE	1,500.0	2,000.0	1,508.6	2,008.6	20.0	47.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-6	TRUE	1,500.0	2,000.0	1,709.2	2,209.2	20.0	44.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-7	TRUE	1,500.0	2,000.0	1,596.8	2,096.8	20.0	49.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-8	TRUE	1,500.0	2,000.0	1,716.4	2,216.4	20.0	32.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-9	TRUE	1,500.0	1,784.7	1,560.8	1,845.5	20.0	20.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-10	TRUE	1,500.0	2,000.0	1,560.8	2,060.8	20.0	46.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-11	TRUE	1,500.0	2,000.0	1,552.6	2,052.6	20.0	25.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-12	TRUE	1,500.0	2,000.0	1,522.4	2,022.4	20.0	48.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-13	TRUE	1,500.0	2,000.0	1,572.4	2,072.4	20.0	56.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-14	TRUE	1,500.0	2,000.0	1,511.8	2,011.8	20.0	49.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-15	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	57.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-16	TRUE	1,500.0	2,000.0	1,540.0	2,040.0	20.0	58.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-17	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	59.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-18	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	60.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-19	TRUE	1,500.0	2,000.0	1,595.4	2,095.4	20.0	64.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-20	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	64.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-21	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	56.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-22	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	52.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-23	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	55.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-24	TRUE	1,500.0	2,000.0	1,570.4	2,070.4	20.0	62.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-25	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	62.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-26	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	65.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-27	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	62.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-28	TRUE	1,500.0	2,000.0	1,595.4	2,095.4	20.0	70.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-29	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	79.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-30	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	70.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-31	TRUE	1,500.0	2,000.0	1,541.2	2,041.2	20.0	55.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-32	TRUE	1,500.0	2,000.0	1,867.4	2,367.4	20.0	77.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-33	TRUE	1,500.0	2,000.0	1,517.6	2,017.6	20.0	82.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-34	TRUE	1,500.0	2,000.0	1,674.6	2,174.6	20.0	82.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-35	TRUE	1,500.0	2,000.0	1,557.8	2,057.8	20.0	77.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-36	TRUE	1,500.0	2,000.0	1,557.8	2,057.8	20.0	79.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-37	TRUE	1,500.0	2,000.0	1,524.8	2,024.8	20.0	83.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-38	TRUE	1,500.0	2,000.0	1,540.2	2,040.2	20.0	78.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE

POTABLE WATER MASTER PLAN
TABLE D.16
2035 SCENARIO - FIRE FLOW RESULTS (RESIDENTIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-39	TRUE	1,500.0	2,000.0	1,529.6	2,029.6	20.0	81.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-40	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	82.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-41	TRUE	1,500.0	2,000.0	1,560.6	2,060.6	20.0	75.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-42	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	82.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-43	TRUE	1,500.0	2,000.0	1,614.0	2,114.0	20.0	82.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-44	TRUE	1,500.0	2,000.0	1,530.6	2,030.6	20.0	76.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-45	TRUE	1,500.0	2,000.0	1,530.6	2,030.6	20.0	75.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-46	TRUE	1,500.0	2,000.0	1,545.8	2,045.8	20.0	72.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-47	TRUE	1,500.0	2,000.0	1,545.8	2,045.8	20.0	31.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-48	TRUE	1,500.0	2,000.0	1,549.0	2,049.0	20.0	74.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-49	TRUE	1,500.0	2,000.0	1,616.8	2,116.8	20.0	72.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-50	TRUE	1,500.0	2,000.0	1,612.6	2,112.6	20.0	72.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-51	TRUE	1,500.0	2,000.0	1,851.2	2,351.2	20.0	63.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-52	TRUE	1,500.0	2,000.0	1,660.6	2,160.6	20.0	44.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-53	TRUE	1,500.0	2,000.0	1,594.0	2,094.0	20.0	53.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-54	TRUE	1,500.0	2,000.0	1,566.4	2,066.4	20.0	51.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-55	TRUE	1,500.0	2,000.0	1,557.2	2,057.2	20.0	73.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-56	TRUE	1,500.0	2,000.0	1,589.4	2,089.4	20.0	65.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-57	TRUE	1,500.0	2,000.0	1,570.8	2,070.8	20.0	43.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-58	TRUE	1,500.0	2,000.0	1,773.4	2,273.4	20.0	84.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-59	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	81.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-60	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	62.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-61	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-62	TRUE	1,500.0	2,000.0	1,545.8	2,045.8	20.0	44.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-63	TRUE	1,500.0	1,832.9	1,541.2	1,874.1	20.0	20.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-64	TRUE	1,500.0	2,000.0	1,544.2	2,044.2	20.0	58.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-65	TRUE	1,500.0	2,000.0	1,544.2	2,044.2	20.0	57.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-66	TRUE	1,500.0	2,000.0	1,567.2	2,067.2	20.0	46.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-67	TRUE	1,500.0	2,000.0	1,654.6	2,154.6	20.0	74.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-68	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	77.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-69	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	60.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-70	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	60.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-71	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	51.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-72	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	51.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-200	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-201	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-202	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-203	TRUE	1,500.0	2,000.0	1,682.0	2,182.0	20.0	71.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE

POTABLE WATER MASTER PLAN
TABLE D.16
2035 SCENARIO - FIRE FLOW RESULTS (RESIDENTIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-204	TRUE	1,500.0	2,000.0	1,667.6	2,167.6	20.0	80.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-205	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-206	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-207	TRUE	1,500.0	2,000.0	1,686.6	2,186.6	20.0	57.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-208	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-209	TRUE	1,500.0	2,000.0	1,546.4	2,046.4	20.0	65.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-210	TRUE	1,500.0	2,000.0	1,546.4	2,046.4	20.0	95.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-211	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-212	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-213	TRUE	1,500.0	2,000.0	1,514.6	2,014.6	20.0	61.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-214	TRUE	1,500.0	2,000.0	1,512.4	2,012.4	20.0	96.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-215	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-216	TRUE	1,500.0	2,000.0	1,544.6	2,044.6	20.0	97.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-217	TRUE	1,500.0	2,000.0	1,585.6	2,085.6	20.0	59.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-218	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-219	TRUE	1,500.0	2,000.0	1,523.0	2,023.0	20.0	39.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-220	TRUE	1,500.0	2,000.0	1,523.0	2,023.0	20.0	56.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-221	TRUE	1,500.0	2,000.0	1,538.0	2,038.0	20.0	81.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-222	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-223	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-224	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-225	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-226	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-227	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-228	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-229	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-230	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	66.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-231	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-232	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	83.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-233	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-234	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-235	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-236	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-237	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-238	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-239	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-240	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	71.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-241	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)

POTABLE WATER MASTER PLAN
TABLE D.16
2035 SCENARIO - FIRE FLOW RESULTS (RESIDENTIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-242	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-243	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	55.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-244	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-245	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-246	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	78.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-247	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-248	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-249	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	35.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-251	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	58.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-253	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-254	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-255	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-256	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-257	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-258	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	103.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-259	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-261	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	54.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-262	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-400	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-401	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-402	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	68.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-403	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	66.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-404	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	115.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-405	TRUE	1,500.0	2,000.0	1,723.4	2,223.4	20.0	102.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-406	TRUE	1,500.0	2,000.0	1,723.4	2,223.4	20.0	87.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-407	TRUE	1,500.0	2,000.0	1,723.4	2,223.4	20.0	63.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-408	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-409	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	64.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE

POTABLE WATER MASTER PLAN
TABLE D.17
2035 SCENARIO - FIRE FLOW RESULTS (COMMERCIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-1	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-2	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-3	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-4	TRUE	3,000.0	3,500.0	3,040.6	3,540.6	20.0	29.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-5	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-6	TRUE	3,000.0	3,403.4	3,209.2	3,612.6	20.0	26.7	20.0	20.0	54.0	(N/A)	20.0	54.0	TRUE
J-7	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-8	FALSE	3,000.0	2,181.4	3,216.4	2,397.8	20.0	23.5	20.0	20.0	48.0	(N/A)	20.0	48.0	TRUE
J-9	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-10	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-11	FALSE	3,000.0	2,165.0	3,052.6	2,217.6	20.0	20.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-12	TRUE	3,000.0	3,499.9	3,022.4	3,522.3	20.0	29.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-13	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-14	TRUE	3,000.0	3,500.0	3,011.8	3,511.8	20.0	29.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-15	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	38.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-16	TRUE	3,000.0	3,500.0	3,040.0	3,540.0	20.0	36.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-17	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-18	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-19	TRUE	3,000.0	3,500.0	3,095.4	3,595.4	20.0	30.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-20	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-21	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-22	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-23	TRUE	3,000.0	3,365.7	3,000.0	3,365.7	20.0	20.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-24	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-25	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-26	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-27	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-28	TRUE	3,000.0	3,500.0	3,095.4	3,595.4	20.0	47.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-29	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-30	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	50.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-31	TRUE	3,000.0	3,276.6	3,041.2	3,317.8	20.0	20.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-32	TRUE	3,000.0	3,500.0	3,367.4	3,867.4	20.0	56.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-33	TRUE	3,000.0	3,500.0	3,017.6	3,517.6	20.0	65.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-34	TRUE	3,000.0	3,500.0	3,174.6	3,674.6	20.0	67.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-35	TRUE	3,000.0	3,500.0	3,057.8	3,557.8	20.0	49.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-36	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-37	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-38	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)

POTABLE WATER MASTER PLAN
TABLE D.17
2035 SCENARIO - FIRE FLOW RESULTS (COMMERCIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-39	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-40	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	64.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-41	TRUE	3,000.0	3,500.0	3,060.6	3,560.6	20.0	50.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-42	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	69.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-43	TRUE	3,000.0	3,500.0	3,114.0	3,614.0	20.0	69.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-44	TRUE	3,000.0	3,500.0	3,030.6	3,530.6	20.0	66.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-45	TRUE	3,000.0	3,500.0	3,030.6	3,530.6	20.0	67.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-46	TRUE	3,000.0	3,500.0	3,045.8	3,545.8	20.0	67.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-47	FALSE	3,000.0	2,223.7	3,045.8	2,269.5	20.0	20.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-48	TRUE	3,000.0	3,500.0	3,049.0	3,549.0	20.0	62.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-49	TRUE	3,000.0	3,500.0	3,116.8	3,616.8	20.0	56.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-50	TRUE	3,000.0	3,500.0	3,112.6	3,612.6	20.0	54.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-51	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-52	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-53	TRUE	3,000.0	3,500.0	3,094.0	3,594.0	20.0	36.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-54	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-55	TRUE	3,000.0	3,500.0	3,057.2	3,557.2	20.0	50.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-56	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-57	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-58	TRUE	3,000.0	3,500.0	3,273.4	3,773.4	20.0	69.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-59	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	67.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-60	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-61	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-62	FALSE	3,000.0	2,723.0	3,045.8	2,768.8	20.0	20.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-63	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-64	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-65	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-66	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-67	TRUE	3,000.0	3,500.0	3,154.6	3,654.6	20.0	63.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-68	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	67.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-69	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-70	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-71	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-72	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	33.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-200	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-201	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-202	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-203	TRUE	3,000.0	3,500.0	3,182.0	3,682.0	20.0	71.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE

POTABLE WATER MASTER PLAN
TABLE D.17
2035 SCENARIO - FIRE FLOW RESULTS (COMMERCIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-204	TRUE	3,000.0	3,500.0	3,167.6	3,667.6	20.0	73.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-205	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-206	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-207	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-208	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-209	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-210	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-211	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-212	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-213	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-214	TRUE	3,000.0	3,500.0	3,012.4	3,512.4	20.0	80.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-215	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-216	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-217	TRUE	3,000.0	3,264.2	3,085.6	3,349.8	20.0	20.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-218	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-219	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-220	TRUE	3,000.0	3,500.0	3,023.0	3,523.0	20.0	25.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-221	TRUE	3,000.0	3,500.0	3,038.0	3,538.0	20.0	68.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-222	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-223	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-224	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-225	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-226	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-227	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-228	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-229	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-230	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-231	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-232	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-233	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-234	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-235	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-236	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-237	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-238	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-239	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-240	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	55.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-241	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)

POTABLE WATER MASTER PLAN
TABLE D.17
2035 SCENARIO - FIRE FLOW RESULTS (COMMERCIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-242	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-243	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-244	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-245	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-246	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-247	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-248	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-249	(N/A)	0.0	(N/A)	(N/A)	(N/A)	0.0	(N/A)	0.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-251	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-253	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-254	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-255	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-256	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-257	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-258	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-259	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-261	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-262	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-400	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-401	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-402	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	64.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-403	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	63.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-404	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	98.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-405	TRUE	3,000.0	3,500.0	3,223.4	3,723.4	20.0	96.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-406	TRUE	3,000.0	3,500.0	3,223.4	3,723.4	20.0	80.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-407	TRUE	3,000.0	3,500.0	3,223.4	3,723.4	20.0	63.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-408	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-409	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)

Appendix E:
Future Scenario – WaterCAD Model

POTABLE WATER MASTER PLAN
TABLE E.1
ADDITIONAL AREAS BY LAND USE (FUTURE SCENARIO)

TOWNSHIP RANGE	SECTION I.D.	LAND USE CATEGORY											
		PARKS (acres)	CS (acres)	DC/OS (acres)	C/OF (acres)	E/OF (acres)	MU (acres)	R-L (acres)	R-M (acres)	R-H (acres)	M/G (acres)	SCHOOL (acres)	TOTAL (acres)
T03N R 67W	20			17.0									17.0
	21				12.0		40.0		108.0				160.0
	22				12.0		68.0						80.0
	27				12.0		68.0	240.0					320.0
	28				12.0		40.0	480.0	108.0				640.0
	29			346.0									346.0
	31			79.0				318.0					397.0
	32			81.0				538.0					619.0
	33							640.0					640.0
	34							320.0					320.0
T02N R67W	3				12.0		162.0	146.0					320.0
	4	9.0			12.0		162.0	457.0					640.0
	5	45.0			8.0			487.0	100.0				640.0
	6	10.8			10.9		76.0	287.0	137.5	27.0			549.2
	7	86.9			29.6	15.4			25.4	26.0		0.0	183.3
	8	9.0						402.0	229.0				640.0
	9	9.0			35.0		42.0	292.0	262.0				640.0
	10				12.0		42.0	96.0	170.0				320.0
	15						99.0	61.0					160.0
	16	9.0			12.0		137.0	482.0					640.0
	17	9.0						631.0					640.0
	18	321.9			32.0		64.0	164.5					582.4
	19	6.0			29.2			37.8	172.0	45.0	0.0		290.0
	20	84.0				90.9		379.0		67.8			621.7
	21	9.0			24.0		140.0	467.0					640.0
	28				12.0		37.0	271.0					320.0
	29	23.0			69.0			228.0					320.0
	30	8.2			2.5			95.7	5.8				112.2

POTABLE WATER MASTER PLAN
TABLE E.1
ADDITIONAL AREAS BY LAND USE (FUTURE SCENARIO)

TOWNSHIP RANGE	SECTION I.D.	LAND USE CATEGORY											
		PARKS (acres)	CS (acres)	DC/OS (acres)	C/OF (acres)	E/OF (acres)	MU (acres)	R-L (acres)	R-M (acres)	R-H (acres)	M/G (acres)	SCHOOL (acres)	TOTAL (acres)
T03N 68W	35			52.0				5.0					57.0
	36			125.0				134.0					259.0
T02N	1			155.0	92.1		69.4	200.0	51.1				567.6
	2			131.0	227.2			231.0		27.0			616.2
	3			603.0	37.0								640.0
	4			253.3				76.0					329.3
	5						452.0						452.0
	8							59.2					59.2
	9						23.5	161.3					184.8
	10				75.0	83.5	42.5		193.0				394.0
	11			47.7	145.6	108.0	47.0	42.0	84.0	26.4			500.7
	12			52.0	33.2		123.0	51.0	250.7	13.2			523.1
	13			83.2	17.0				75.3	58.0			233.5
	14			37.0		77.0		77.0	114.0	15.0			320.0
	15					83.5			193.0				276.5
	16							161.3					161.3
	17							125.2					125.2
	TOTAL	**639.8**	**0.0**	**2,062.2**	**975.3**	**458.3**	**1,934.4**	**8,843.0**	**2,278.8**	**305.4**	**0.0**	**0.0**	**17,497.2**

POTABLE WATER MASTER PLAN
TABLE E.2
WATER DEMAND (FUTURE SCENARIO)

TS RANGE	SECTION I.D.	LAND USE CATEGORY																							
		PARKS				CS				DC/OS				C/OF				E/OF				MU			
		AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)
T03N R 67W	20	0.0	0.0	1.0	0.0	0.0	0.0		0.0	17.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	21	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	12.0	11.5	1.0	11.5	0.0	0.0		0.0	40.0	136.8	1.0	136.8
	22	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	12.0	11.5	1.0	11.5	0.0	0.0		0.0	68.0	232.6	1.0	232.6
	27	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	12.0	11.5	1.0	11.5	0.0	0.0		0.0	68.0	232.6	1.0	232.6
	28	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	12.0	11.5	1.0	11.5	0.0	0.0		0.0	40.0	136.8	1.0	136.8
	29	0.0	0.0	1.0	0.0	0.0	0.0		0.0	346.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	31	0.0	0.0	1.0	0.0	0.0	0.0		0.0	79.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	32	0.0	0.0		0.0	0.0	0.0		0.0	81.0	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	33	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	34	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
T02N R67W	3	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	12.0	11.5	1.0	11.5	0.0	0.0		0.0	162.0	554.0	2.0	277.0
	4	9.0	9.3	1.0	9.3	0.0	0.0		0.0	0.0	0.0		0.0	12.0	11.5	1.0	11.5	0.0	0.0		0.0	162.0	554.0	2.0	277.0
	5	45.0	46.4	1.0	46.4	0.0	0.0		0.0	0.0	0.0		0.0	8.0	7.7	1.0	7.7	0.0	0.0		0.0	0.0	0.0		0.0
	6	10.8	11.1	1.0	11.1	0.0	0.0		0.0	0.0	0.0		0.0	10.9	10.5	1.0	10.5	0.0	0.0		0.0	76.0	259.9	1.0	259.9
	7	86.9	89.5	1.0	89.5	0.0	0.0		0.0	0.0	0.0		0.0	29.6	28.4	1.0	28.4	15.4	12.8	1.0	12.8	0.0	0.0		0.0
	8	9.0	9.3	1.0	9.3	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	9	9.0	9.3	1.0	9.3	0.0	0.0		0.0	0.0	0.0		0.0	35.0	33.6	2.0	16.8	0.0	0.0		0.0	42.0	143.6	1.0	143.6
	10	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	12.0	11.5	1.0	11.5	0.0	0.0		0.0	42.0	143.6	1.0	143.6
	15	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	99.0	338.6	1.0	338.6
	16	9.0	9.3	1.0	9.3	0.0	0.0		0.0	0.0	0.0		0.0	12.0	11.5	1.0	11.5	0.0	0.0		0.0	137.0	468.5	2.0	234.3
	17	9.0	9.3	1.0	9.3	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	18	321.9	331.6	1.0	331.6	0.0	0.0		0.0	0.0	0.0		0.0	32.0	30.7	1.0	30.7	0.0	0.0		0.0	64.0	218.9	1.0	218.9
	19	6.0	6.2	1.0	6.2	0.0	0.0		0.0	0.0	0.0		0.0	29.2	28.0	2.0	14.0	0.0	0.0		0.0	0.0	0.0		0.0
	20	84.0	86.5	1.0	86.5	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	90.9	75.4	1.0	75.4	0.0	0.0		0.0
	21	9.0	9.3	1.0	9.3	0.0	0.0		0.0	0.0	0.0		0.0	24.0	23.0	2.0	11.5	0.0	0.0		0.0	140.0	478.8	2.0	239.4
	28	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	12.0	11.5	1.0	11.5	0.0	0.0		0.0	37.0	126.5	1.0	126.5
	29	23.0	23.7	1.0	23.7	0.0	0.0		0.0	0.0	0.0		0.0	69.0	66.2	3.0	22.1	0.0	0.0		0.0	0.0	0.0		0.0
	30	8.2	8.4	1.0	8.4	0.0	0.0		0.0	0.0	0.0		0.0	2.5	2.4	1.0	2.4	0.0	0.0		0.0	0.0	0.0		0.0
T03N 68W	35	0.0	0.0		0.0	0.0	0.0		0.0	52.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	36	0.0	0.0		0.0	0.0	0.0		0.0	125.0	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0

POTABLE WATER MASTER PLAN
TABLE E.2
WATER DEMAND (FUTURE SCENARIO)

TS RANGE	SECTION I.D.	LAND USE CATEGORY																							
		PARKS				CS				DC/OS				C/OF				E/OF				MU			
		AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)
T02N R68W	1	0.0	0.0		0.0	0.0	0.0		0.0	155.0	0.0	2.0	0.0	92.1	88.4	2.0	44.2	0.0	0.0		0.0	69.4	237.3	2.0	118.7
	2	0.0	0.0		0.0	0.0	0.0		0.0	131.0	0.0	3.0	0.0	227.2	218.1	5.0	43.6	0.0	0.0		0.0	0.0	0.0		0.0
	3	0.0	0.0		0.0	0.0	0.0		0.0	603.0	0.0	1.0	0.0	37.0	99.5	1.0	99.5	0.0	0.0		0.0	0.0	0.0		0.0
	4	0.0	0.0		0.0	0.0	0.0		0.0	253.3	0.0	2.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	5	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	452.0	1,545.8	3.0	515.3
	8	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	9	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	23.5	80.4	2.0	40.2
	10	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	75.0	201.8	1.0	201.8	83.5	69.2	1.0	69.2	42.5	145.4	1.0	145.4
	11	0.0	0.0		0.0	0.0	0.0		0.0	47.7	0.0	2.0	0.0	145.6	139.8	2.0	69.9	108.0	89.5	2.0	44.8	47.0	160.7	1.0	160.7
	12	0.0	0.0		0.0	0.0	0.0		0.0	52.0	0.0	1.0	0.0	33.2	31.9	3.0	10.6	0.0	0.0		0.0	123.0	420.7	2.0	210.3
	13	0.0	0.0		0.0	0.0	0.0		0.0	83.2	0.0	1.0	0.0	17.0	16.3	1.0	16.3	0.0	0.0		0.0	0.0	0.0		0.0
	14	0.0	0.0		0.0	0.0	0.0		0.0	37.0	0.0	1.0	0.0	0.0	0.0		0.0	77.0	63.8	1.0	63.8	0.0	0.0		0.0
	15	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	83.5	69.2	1.0	69.2	0.0	0.0		0.0
	16	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	17	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0
	TOTAL	**639.8**	**659.0**		**659.0**	**0.0**	**0.0**		**0.0**	**2,062.2**	**0.0**		**0.0**	**975.3**	**1,130.0**		**733.7**	**458.3**	**379.9**		**335.2**	**1,934.4**	**6,615.6**		**4,188.2**

POTABLE WATER MASTER PLAN
TABLE E.2
WATER DEMAND (FUTURE SCENARIO)

TS RANGE	SECTION I.D.	LAND USE CATEGORY																				TOTAL	
		R-L				R-M				R-H				M/G				SCHOOL					
		AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)
T03N R 67W	20	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	17.0	0.0
	21	0.0	0.0		0.0	108.0	93.5	1.0	93.5	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	160.0	241.8
	22	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	80.0	244.1
	27	240.0	87.6	1.0	87.6	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	320.0	331.7
	28	480.0	175.2	2.0	87.6	108.0	93.5	1.0	93.5	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	640.0	417.0
	29	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	346.0	0.0
	31	318.0	116.1	3.0	38.7	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	397.0	116.1
	32	538.0	196.4	4.0	49.1	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	619.0	196.4
	33	640.0	233.6	4.0	58.4	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	640.0	233.6
	34	320.0	116.8	2.0	58.4	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	320.0	116.8
T02N R67W	3	146.0	53.3	2.0	26.7	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	320.0	618.9
	4	457.0	166.8	2.0	83.4	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	640.0	741.7
	5	487.0	177.8	3.0	59.3	100.0	86.6	1.0	86.6	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	640.0	318.4
	6	287.0	104.8	2.0	52.4	137.5	119.0	2.0	59.5	27.0	54.4	1.0	54.4	0.0	0.0		0.0	0.0	0.0		0.0	549.2	559.7
	7	0.0	0.0		0.0	25.4	22.0	1.0	22.0	26.0	52.4	1.0	52.4	0.0	0.0		0.0	0.0	0.0		0.0	183.3	205.1
	8	402.0	146.8	2.0	73.4	229.0	198.2	1.0	198.2	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	640.0	354.2
	9	292.0	106.6	1.0	106.6	262.0	226.8	2.0	113.4	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	640.0	519.9
	10	96.0	35.0	2.0	17.5	170.0	147.1	1.0	147.1	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	320.0	337.4
	15	61.0	22.3	1.0	22.3	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	160.0	360.8
	16	482.0	176.0	2.0	88.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	640.0	665.3
	17	631.0	230.4	3.0	76.8	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	640.0	239.6
	18	164.5	60.1	1.0	60.1	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	582.4	641.2
	19	37.8	13.8	1.0	13.8	172.0	148.9	3.0	49.6	45.0	90.7	1.0	90.7	0.0	0.0		0.0	0.0	0.0		0.0	290.0	287.6
	20	379.0	138.4	2.0	69.2	0.0	0.0		0.0	67.8	136.6	1.0	136.6	0.0	0.0		0.0	0.0	0.0		0.0	621.7	436.8
	21	467.0	170.5	2.0	85.2	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	640.0	681.6
	28	271.0	98.9	2.0	49.5	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	320.0	237.0
	29	228.0	83.2	2.0	41.6	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	320.0	173.2
	30	95.7	34.9	2.0	17.5	5.8	5.0	1.0	5.0	0.0	0.0	1.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	112.2	50.8
T03N 68W	35	5.0	1.8	1.0	1.8	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	57.0	1.8
	36	134.0	48.9	2.0	24.5	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	259.0	48.9

POTABLE WATER MASTER PLAN
TABLE E.2
WATER DEMAND (FUTURE SCENARIO)

TS RANGE	SECTION I.D.	LAND USE CATEGORY																				TOTAL	
		R-L				R-M				R-H				M/G				SCHOOL					
		AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)	NO. OF NODES	DPN (gpm)	AREA (acres)	DEMAND (gpm)
T02N R68W	1	200.0	73.0	3.0	24.3	51.1	44.2	2.0	22.1	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	567.6	443.0
	2	231.0	84.3	3.0	28.1	0.0	0.0		0.0	27.0	54.4	1.0	54.4	0.0	0.0		0.0	0.0	0.0		0.0	616.2	356.8
	3	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	640.0	99.5
	4	76.0	72.9	1.0	72.9	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	329.3	72.9
	5	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	452.0	1,545.8
	8	59.2	56.8	1.0	56.8	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	59.2	56.8
	9	161.3	154.7	2.0	77.4	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	184.8	235.1
	10	0.0	0.0		0.0	193.0	432.0	1.0	432.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	394.0	848.4
	11	42.0	15.3	1.0	15.3	84.0	72.7	2.0	36.4	26.4	53.2	1.0	53.2	0.0	0.0		0.0	0.0	0.0		0.0	500.7	531.3
	12	51.0	18.6	1.0	18.6	250.7	217.0	2.0	108.5	13.2	26.6	1.0	26.6	0.0	0.0		0.0	0.0	0.0		0.0	523.1	714.7
	13	0.0	0.0		0.0	75.3	65.2	4.0	16.3	58.0	116.9	1.0	116.9	0.0	0.0		0.0	0.0	0.0		0.0	233.5	198.3
	14	77.0	28.1	2.0	14.1	114.0	98.7	3.0	32.9	15.0	30.2	1.0	30.2	0.0	0.0		0.0	0.0	0.0		0.0	320.0	220.8
	15	0.0	0.0		0.0	193.0	432.0	1.0	432.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	276.5	501.3
	16	161.3	154.7	2.0	77.4	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	161.3	154.7
	17	125.2	120.1	1.0	120.1	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		0.0	125.2	120.1
	TOTAL	**8,843.0**	**3,574.8**		**1,854.3**	**2,278.8**	**2,502.4**		**1,948.6**	**305.4**	**615.3**		**615.3**	**0.0**	**0.0**		**0.0**	**0.0**	**0.0**		**0.0**	**17,497.2**	**15,477.2**

POTABLE WATER MASTER PLAN
TABLE E.3
WATERCAD DEMAND LOADING (EXISTING SCENARIO + FUTURE SCENARIO)

JUNCTION	ELEV (feet)	PRESS ZONE	AVERAGE DAY DEMAND											
			PARKS (gpm)	CS (gpm)	DC/OS (gpm)	C/OF (gpm)	E/OF (gpm)	MU (gpm)	R-L (gpm)	R-M (gpm)	R-H (gpm)	M/G (gpm)	SCHOOL (gpm)	TOTAL (gpm)
J-1	5,097.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-2	5,097.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-3	5,097.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-4	5,028.0	1	23.7	0.0	0.0	22.1	0.0	0.0	41.6	0.0	0.0	0.0	0.0	**87.4**
J-5	5,006.0	1	0.0	0.0	0.0	0.0	0.0	0.0	176.3	0.0	0.0	0.0	0.0	**176.3**
J-6	5,001.0	1	86.5	0.0	0.0	36.1	0.0	0.0	100.5	0.0	90.7	0.0	0.0	**313.7**
J-7	4,975.0	1	16.5	0.0	0.0	0.0	0.0	0.0	5.2	35.4	0.0	0.0	0.0	**57.1**
J-8	4,950.0	1	0.0	0.0	0.0	44.1	0.0	0.0	0.0	80.0	25.6	1.4	0.0	**151.1**
J-9	4,976.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.4	0.0	0.0	0.0	**30.4**
J-10	4,961.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.4	0.0	0.0	0.0	**30.4**
J-11	5,025.0	1	0.0	0.0	0.0	22.1	0.0	0.0	30.0	0.0	0.0	0.0	0.0	**52.1**
J-12	4,974.0	1	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	1.2	0.0	**11.3**
J-13	4,940.0	2	0.0	0.0	0.0	0.0	0.0	0.0	18.8	49.6	0.0	0.0	0.0	**68.4**
J-14	4,951.0	1	0.0	0.0	0.0	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**5.9**
J-15	4,929.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-16	4,923.0	2	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	**20.0**
J-17	4,918.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	0.0	**22.6**
J-18	4,911.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	0.0	**22.6**
J-19	4,898.0	2	12.6	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	12.5	**47.8**
J-20	4,897.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	0.0	**22.6**
J-21	4,905.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	0.0	**22.6**
J-22	4,905.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-23	4,909.0	2	0.0	0.0	0.0	16.3	0.0	0.0	0.0	0.0	116.9	0.0	0.0	**133.2**
J-24	4,897.0	2	12.6	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	0.0	**35.3**
J-25	4,885.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	0.0	**22.6**
J-26	4,891.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	0.0	**22.6**
J-27	4,891.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	0.0	**22.6**

POTABLE WATER MASTER PLAN
TABLE E.3
WATERCAD DEMAND LOADING (EXISTING SCENARIO + FUTURE SCENARIO)

JUNCTION	ELEV (feet)	PRESS ZONE	AVERAGE DAY DEMAND											
			PARKS (gpm)	CS (gpm)	DC/OS (gpm)	C/OF (gpm)	E/OF (gpm)	MU (gpm)	R-L (gpm)	R-M (gpm)	R-H (gpm)	M/G (gpm)	SCHOOL (gpm)	TOTAL (gpm)
J-28	4,880.0	3	12.6	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	12.5	**47.8**
J-29	4,860.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0	0.0	**22.6**
J-30	4,880.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-31	4,886.0	2	12.6	0.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	**20.6**
J-32	4,863.0	3	46.4	0.0	0.0	18.1	0.0	259.9	0.0	146.1	54.4	0.0	0.0	**524.9**
J-33	4,851.0	3	0.0	0.0	0.0	8.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**8.8**
J-34	4,850.0	3	89.5	0.0	0.0	50.8	12.8	0.0	0.0	22.0	52.4	0.0	0.0	**227.5**
J-35	4,848.0	3	8.3	0.0	0.0	0.0	0.0	0.0	0.0	20.6	0.0	0.0	0.0	**29.0**
J-36	4,847.0	3	8.3	0.0	0.0	0.0	0.0	0.0	0.0	20.6	0.0	0.0	0.0	**29.0**
J-37	4,847.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.4	0.0	0.0	0.0	**12.4**
J-38	4,848.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.5	0.0	0.0	0.0	**34.5**
J-39	4,847.0	3	0.0	0.0	0.0	2.4	0.0	0.0	0.0	12.4	0.0	0.0	0.0	**14.7**
J-40	4,844.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-41	4,849.0	3	17.5	0.0	0.0	0.0	0.0	0.0	0.0	22.1	0.0	0.0	5.1	**44.7**
J-42	4,843.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-43	4,842.0	3	0.0	0.0	0.0	44.2	0.0	118.7	0.0	0.0	0.0	0.0	0.0	**162.9**
J-44	4,846.0	3	0.0	0.0	0.0	43.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**43.6**
J-45	4,843.0	3	0.0	0.0	0.0	43.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**43.6**
J-46	4,842.0	3	0.0	0.0	0.0	51.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**51.2**
J-47	4,848.0	3	0.0	0.0	0.0	51.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**51.2**
J-48	4,848.0	3	0.0	0.0	0.0	69.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**69.9**
J-49	4,851.0	3	0.0	0.0	0.0	103.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**103.9**
J-50	4,850.0	3	0.0	0.0	0.0	0.0	44.8	160.7	0.0	0.0	0.0	0.0	0.0	**205.5**
J-51	4,864.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.4	197.4	0.0	0.0	**233.8**
J-52	4,900.0	2	10.6	0.0	0.0	0.0	0.0	0.0	0.0	163.9	0.0	0.0	0.0	**174.5**
J-53	4,916.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	108.5	0.0	0.0	9.0	**117.5**
J-54	4,918.0	2	11.1	0.0	0.0	0.0	0.0	0.0	18.6	32.7	0.0	0.0	0.0	**62.4**

POTABLE WATER MASTER PLAN
TABLE E.3
WATERCAD DEMAND LOADING (EXISTING SCENARIO + FUTURE SCENARIO)

JUNCTION	ELEV (feet)	PRESS ZONE	AVERAGE DAY DEMAND											
			PARKS (gpm)	CS (gpm)	DC/OS (gpm)	C/OF (gpm)	E/OF (gpm)	MU (gpm)	R-L (gpm)	R-M (gpm)	R-H (gpm)	M/G (gpm)	SCHOOL (gpm)	TOTAL (gpm)
J-55	4,863.0	3	0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.0	40.3	0.0	0.0	**45.9**
J-56	4,881.0	3	9.3	0.0	0.0	0.0	0.0	0.0	0.0	35.4	0.0	0.0	0.0	**44.7**
J-57	4,890.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.4	0.0	0.0	0.0	**35.4**
J-58	4,845.0	3	0.0	0.0	0.0	57.2	0.0	329.0	0.0	0.0	0.0	0.0	0.0	**386.2**
J-59	4,848.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-60	4,891.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-61	5,097.5	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-62	4,841.0	3	0.0	0.0	0.0	51.2	0.0	0.0	28.1	0.0	0.0	0.0	0.0	**79.3**
J-63	4,843.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.6	0.0	0.0	0.0	**20.6**
J-64	4,906.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.7	0.0	0.0	0.0	**32.7**
J-65	4,908.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.7	0.0	0.0	0.0	**32.7**
J-66	4,917.0	2	0.0	0.0	0.0	0.0	0.0	0.0	14.1	65.6	0.0	0.0	0.0	**79.6**
J-67	4,855.0	3	0.0	0.0	0.0	10.6	0.0	210.3	0.0	0.0	0.0	0.0	0.0	**221.0**
J-68	4,844.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-69	4,891.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-70	4,960.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-71	4,991.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-72	4,975.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-200	5,011.0	1	9.3	0.0	0.0	23.0	0.0	365.9	49.5	0.0	0.0	0.0	0.0	**447.7**
J-201	5,000.0	1	9.3	0.0	0.0	23.0	0.0	473.7	0.0	0.0	0.0	0.0	0.0	**506.0**
J-202	4,997.0	1	9.3	0.0	0.0	0.0	0.0	572.9	39.8	260.5	0.0	0.0	0.0	**882.4**
J-203	4,939.0	2	9.3	0.0	0.0	51.4	0.0	841.3	44.2	113.4	0.0	0.0	0.0	**1,059.5**
J-204	4,884.0	3	0.0	0.0	0.0	0.0	0.0	554.0	143.5	0.0	0.0	0.0	0.0	**697.5**
J-205	4,824.0	3	0.0	0.0	0.0	0.0	0.0	0.0	292.1	0.0	0.0	0.0	0.0	**292.1**
J-206	4,799.0	3	0.0	0.0	0.0	46.1	0.0	738.7	0.0	0.0	0.0	0.0	0.0	**784.8**
J-207	4,982.0	1	9.3	0.0	0.0	0.0	75.4	0.0	319.2	0.0	136.6	0.0	0.0	**540.4**
J-208	4,952.0	1	9.3	0.0	0.0	16.8	0.0	0.0	344.8	0.0	0.0	0.0	0.0	**370.8**

POTABLE WATER MASTER PLAN
TABLE E.3
WATERCAD DEMAND LOADING (EXISTING SCENARIO + FUTURE SCENARIO)

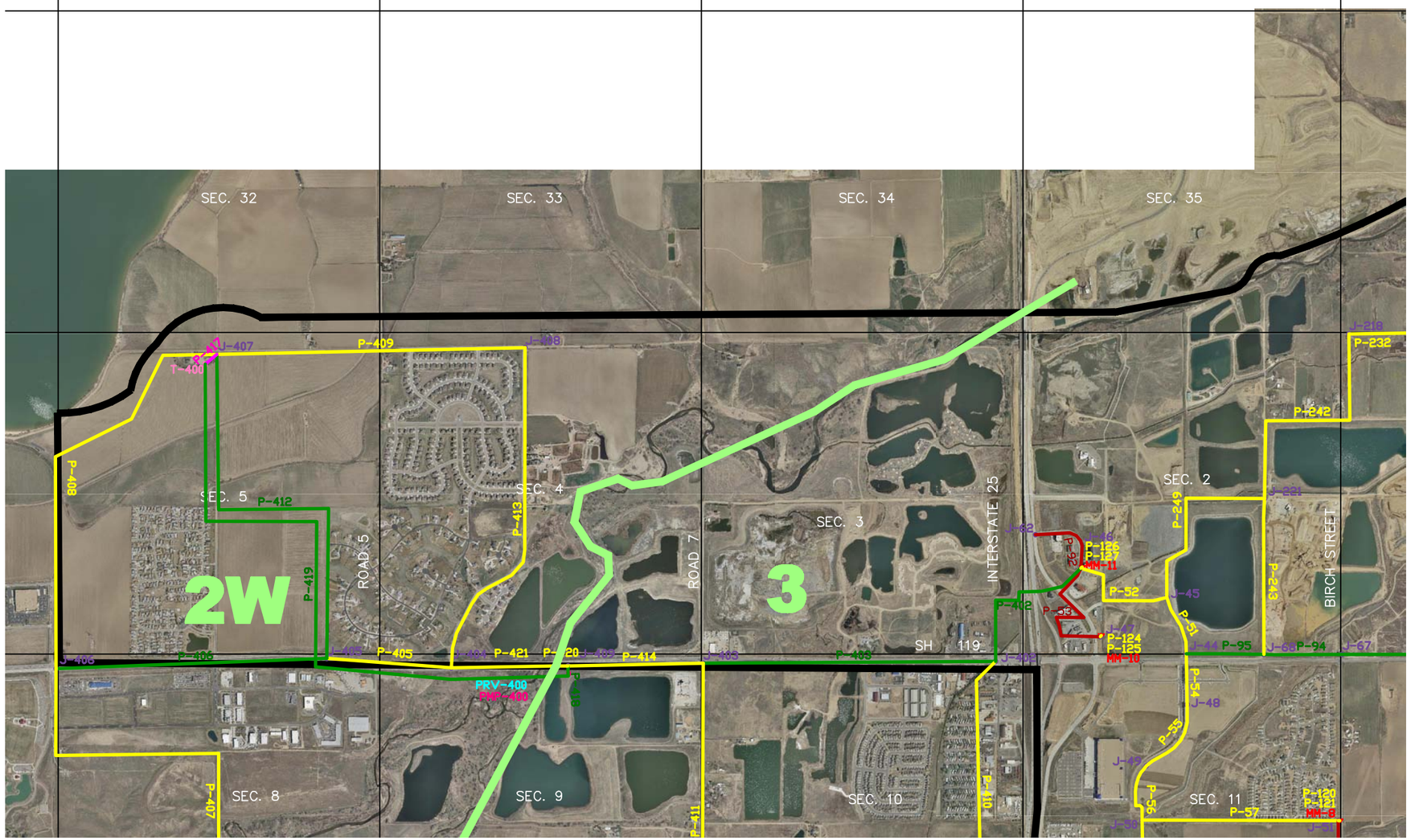
JUNCTION	ELEV (feet)	PRESS ZONE	AVERAGE DAY DEMAND											
			PARKS (gpm)	CS (gpm)	DC/OS (gpm)	C/OF (gpm)	E/OF (gpm)	MU (gpm)	R-L (gpm)	R-M (gpm)	R-H (gpm)	M/G (gpm)	SCHOOL (gpm)	TOTAL (gpm)
J-209	4,916.0	2	0.0	0.0	0.0	0.0	0.0	0.0	142.7	198.2	0.0	0.0	0.0	**340.9**
J-210	4,842.0	3	0.0	0.0	0.0	0.0	0.0	0.0	250.2	0.0	0.0	0.0	0.0	**250.2**
J-211	4,797.0	3	0.0	0.0	0.0	0.0	0.0	0.0	195.1	0.0	0.0	0.0	0.0	**195.1**
J-212	4,780.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	187.0	0.0	0.0	0.0	**187.0**
J-213	4,923.0	2	331.6	0.0	0.0	0.0	0.0	0.0	150.2	0.0	0.0	0.0	0.0	**481.7**
J-214	4,824.0	3	11.1	0.0	0.0	0.0	0.0	0.0	199.5	0.0	0.0	0.0	0.0	**210.6**
J-215	4,803.0	3	0.0	0.0	0.0	0.0	0.0	0.0	87.8	0.0	0.0	0.0	0.0	**87.8**
J-216	4,813.0	3	0.0	0.0	0.0	0.0	0.0	0.0	139.9	59.5	0.0	0.0	0.0	**199.4**
J-217	4,914.0	2	6.2	0.0	0.0	30.7	0.0	218.9	60.1	49.6	0.0	0.0	0.0	**365.5**
J-218	4,820.0	3	0.0	0.0	0.0	0.0	0.0	0.0	78.7	0.0	0.0	0.0	0.0	**78.7**
J-219	4,913.0	2	0.0	0.0	0.0	0.0	0.0	0.0	29.4	32.9	0.0	0.0	0.0	**62.3**
J-220	4,873.0	3	0.0	0.0	0.0	0.0	247.0	0.0	0.0	32.9	30.2	0.0	0.0	**310.2**
J-221	4,828.0	3	0.0	0.0	0.0	0.0	0.0	0.0	52.4	0.0	54.4	0.0	0.0	**106.8**
J-222	4,906.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-223	5,040.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-224	5,046.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-225	5,038.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-226	5,005.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-227	4,996.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-228	4,980.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-229	4,959.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-230	4,927.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-231	4,896.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-232	4,869.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-233	4,842.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-234	4,802.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-235	4,796.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**

POTABLE WATER MASTER PLAN
TABLE E.3
WATERCAD DEMAND LOADING (EXISTING SCENARIO + FUTURE SCENARIO)

JUNCTION	ELEV (feet)	PRESS ZONE	AVERAGE DAY DEMAND											
			PARKS (gpm)	CS (gpm)	DC/OS (gpm)	C/OF (gpm)	E/OF (gpm)	MU (gpm)	R-L (gpm)	R-M (gpm)	R-H (gpm)	M/G (gpm)	SCHOOL (gpm)	TOTAL (gpm)
J-236	4,790.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-237	5,017.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-238	4,989.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-239	4,962.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-240	4,921.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-241	4,948.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-242	4,812.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-243	4,987.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-244	4,968.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-245	4,953.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-246	4,884.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-247	4,806.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-248	4,790.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-249	5,021.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-251	4,964.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-253	4,937.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-254	4,925.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-255	4,913.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-256	4,902.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-257	4,862.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-258	4,815.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-259	4,803.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-261	4,943.0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-262	4,835.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-400	4,861.0	3	0.0	0.0	0.0	0.0	0.0	0.0	154.7	864.1	0.0	0.0	0.0	**1,018.8**
J-401	4,869.0	3	0.0	0.0	0.0	0.0	0.0	0.0	274.9	0.0	0.0	0.0	0.0	**274.9**
J-402	4,848.0	3	0.0	0.0	0.0	301.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**301.3**

POTABLE WATER MASTER PLAN
TABLE E.3
WATERCAD DEMAND LOADING (EXISTING SCENARIO + FUTURE SCENARIO)

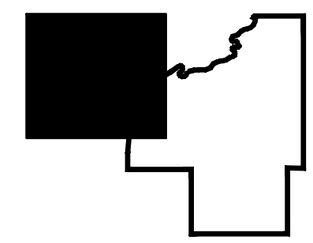
JUNCTION	ELEV	PRESS ZONE	AVERAGE DAY DEMAND											
			PARKS	CS	DC/OS	C/OF	E/OF	MU	R-L	R-M	R-H	M/G	SCHOOL	TOTAL
	(feet)		(gpm)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)
J-403	4,849.0	3	0.0	0.0	0.0	0.0	0.0	185.5	0.0	0.0	0.0	0.0	0.0	**185.5**
J-404	4,856.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
J-405	4,900.0	2	0.0	0.0	0.0	0.0	0.0	555.5	0.0	0.0	0.0	0.0	0.0	**555.5**
J-406	4,931.0	2	0.0	0.0	0.0	0.0	0.0	515.3	56.8	0.0	0.0	0.0	0.0	**572.1**
J-407	4,998.0	1	0.0	0.0	0.0	0.0	0.0	515.3	0.0	0.0	0.0	0.0	0.0	**515.3**
J-408	4,908.0	2	0.0	0.0	0.0	0.0	0.0	0.0	72.9	0.0	0.0	0.0	0.0	**72.9**
J-409	4,850.0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
TOTAL			**782.8**	**0.0**	**0.0**	**1,251.3**	**397.9**	**6,615.6**	**3,631.3**	**3,127.5**	**798.8**	**2.6**	**39.1**	**16,647.0**



LEGEND

P-1	4-INCH WATER LINE
P-9	6-INCH WATER LINE
P-301	8-INCH WATER LINE
P-81	10-INCH WATER LINE
P-265	12-INCH WATER LINE
P-5	14-INCH WATER LINE
P-202	16-INCH WATER LINE
P-200	24-INCH WATER LINE
J-23	JUNCTION
PRV-200	PRESSURE REDUCING VALVE
MM-1	CWCWD MASTER METER
T-1	TANK
PMP-1	PUMP
	URBAN GROWTH BOUNDARY
	SECTIONS LINES
FIRESTONE BLVD.	TOWN ROAD NAMES
ROAD 7	WELD COUNTY ROAD NAMES
1	PRESSURE ZONE

KEY MAP



N

0 1000 2000
inch 1" = 2000' feet

FIRESTONE
A COMMUNITY IN MOTION

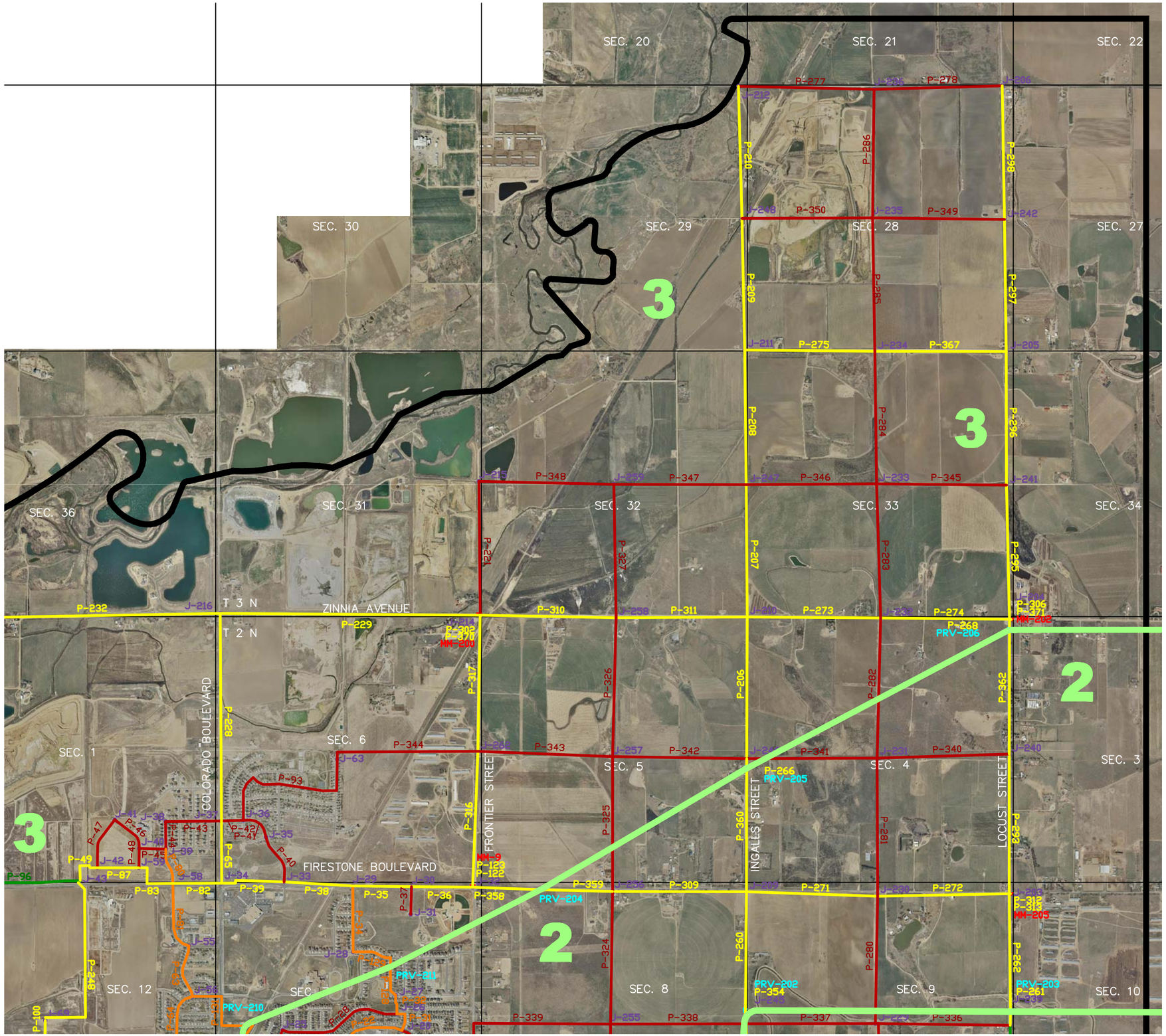
REVISIONS	
DATE	REVISION DESCRIPTION

CCG COLORADO CIVIL GROUP, INC. ENGINEERING CONSULTANTS
1413 W. 29TH STREET LOVELAND, COLORADO 80538 (970) 278-0239

TOWN OF FIRESTONE
POTABLE WATER MASTER PLAN
WATERCAD MODEL FUTURE SCENARIO

FILENAME: 0668.0156.00_WATERCAD MODEL
DESIGNED: C.E.M.
CHECKED: D.B.L.
JOB NO.: 0668.0156.00
SCALE: 1" = 2000'
DATE: MARCH 2010

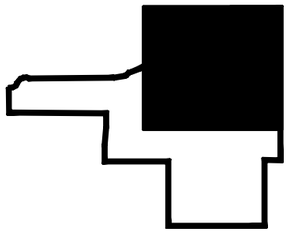
SHEET NO.: **EXHIBIT E.1**



LEGEND

P-1	4-INCH WATER LINE
P-9	6-INCH WATER LINE
P-301	8-INCH WATER LINE
P-81	10-INCH WATER LINE
P-265	12-INCH WATER LINE
P-5	14-INCH WATER LINE
P-202	16-INCH WATER LINE
P-200	24-INCH WATER LINE
J-23	JUNCTION
PRV-200	PRESSURE REDUCING VALVE
MM-1	CWCWD MASTER METER
T-1	TANK
PMP-1	PUMP
	URBAN GROWTH BOUNDARY
	SECTIONS LINES
FIRESTONE BLVD.	TOWN ROAD NAMES
ROAD 7	WELD COUNTY ROAD NAMES
1	PRESSURE ZONE

KEY MAP



N

FIRESTONE
A COMMUNITY IN MOTION

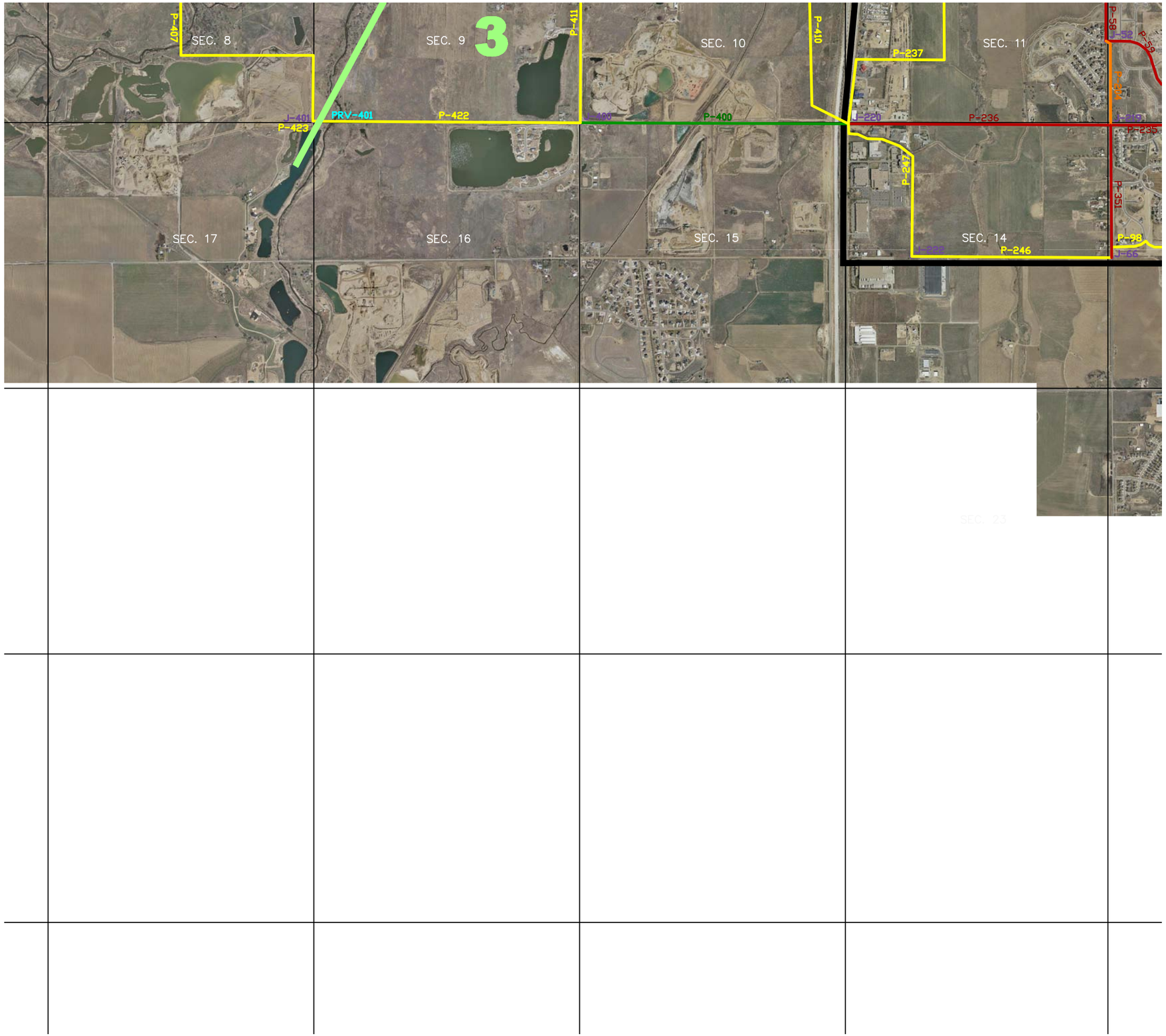
REVISIONS	
DATE	REVISION DESCRIPTION

CCG COLORADO CIVIL GROUP, INC. ENGINEERING CONSULTANTS
1413 W. 29TH STREET
LOVELAND, COLORADO 80538
(970) 278-0029

TOWN OF FIRESTONE
POTABLE WATER MASTER PLAN
WATERCAD MODEL
FUTURE SCENARIO

FILENAME: 0668.0156.00_WATERCAD MODEL
DESIGNED: C.E.M.
CHECKED: D.B.L.
JOB NO.: 0668.0156.00
SCALE: 1" = 2000'
DATE: MARCH 2010

SHEET NO.: **EXHIBIT E.1**



LEGEND

P-1	4-INCH WATER LINE
P-9	6-INCH WATER LINE
P-301	8-INCH WATER LINE
P-81	10-INCH WATER LINE
P-265	12-INCH WATER LINE
P-5	14-INCH WATER LINE
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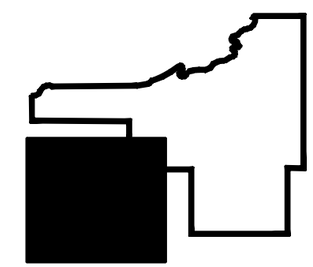
MM-1	CWCWD MASTER METER
T-1	TANK
PMP-1	PUMP
	URBAN GROWTH BOUNDARY
	SECTIONS LINES
FIRESTONE BLVD.	TOWN ROAD NAMES
ROAD 7	WELD COUNTY ROAD NAMES
1	PRESSURE ZONE

KEY MAP



N

0 1000 2000
feet
1" = 2000'

FIRESTONE
A COMMUNITY IN MOTION

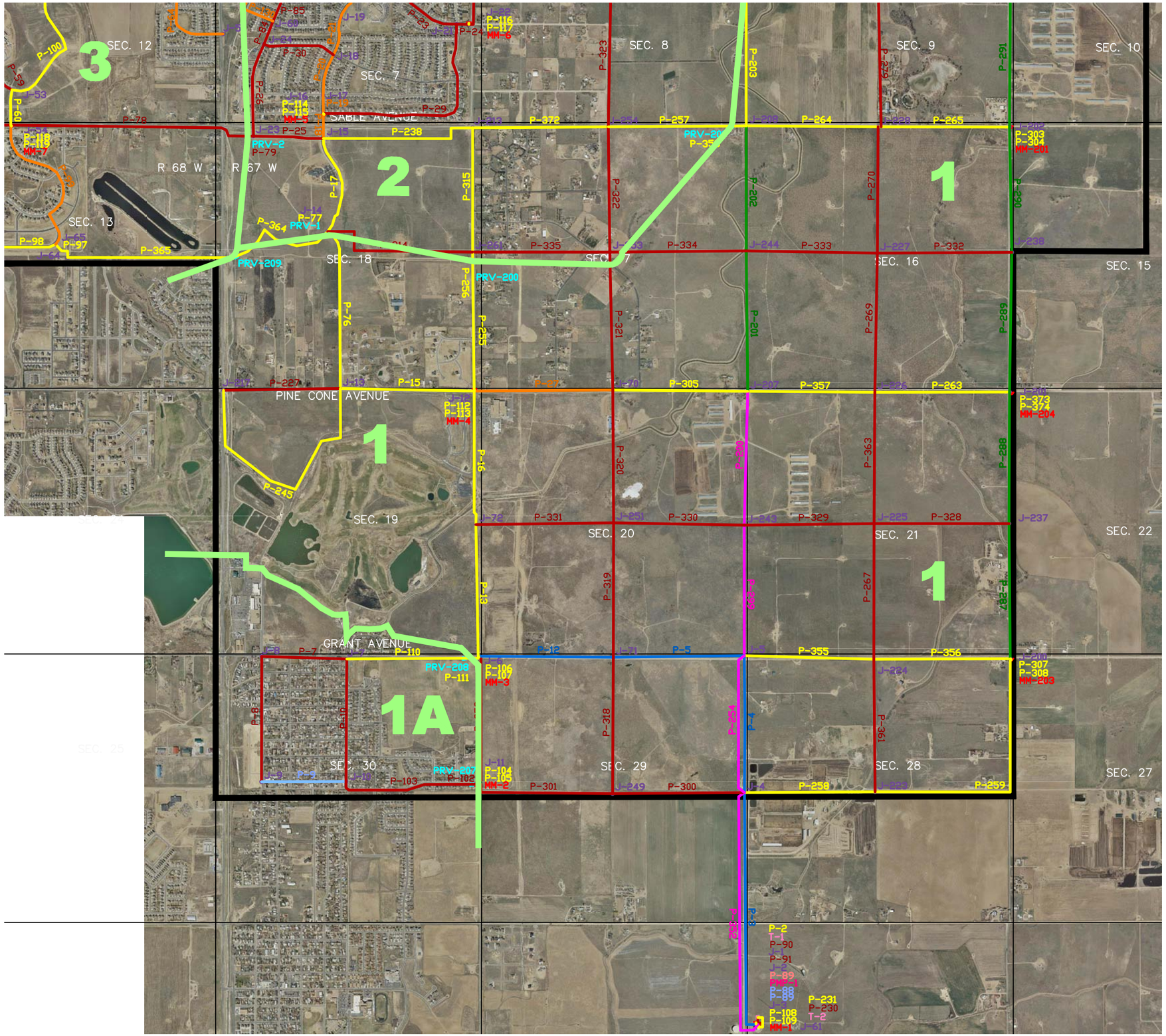
DATE	REVISION DESCRIPTION

CCG
COLORADO CIVIL GROUP, INC.
ENGINEERING CONSULTANTS
1413 W. 29TH STREET
LOVELAND, COLORADO 80538
(970) 278-0228

TOWN OF FIRESTONE
POTABLE WATER MASTER PLAN
WATERCAD MODEL
FUTURE SCENARIO

FILENAME: 0668.0156.00_WATERCAD MODEL
DESIGNER: C.E.M.
CHECKED: D.B.L.
JOB NO.: 0668.0156.00
SCALE: 1" = 2000'
DATE: MARCH 2010

SHEET NO.:
EXHIBIT E.1



LEGEND

P-1	4-INCH WATER LINE
P-9	6-INCH WATER LINE
P-301	8-INCH WATER LINE
P-81	10-INCH WATER LINE
P-265	12-INCH WATER LINE
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MM-1	CWCWD MASTER METER
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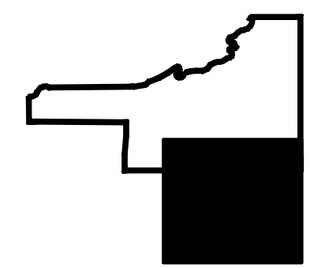
	URBAN GROWTH BOUNDARY
	SECTIONS LINES
FIRESTONE BLVD.	TOWN ROAD NAMES
ROAD 7	WELD COUNTY ROAD NAMES
1	PRESSURE ZONE

KEY MAP



N

0 1000 2000
feet
1" = 2000'

FIRESTONE
A COMMUNITY IN MOTION

REVISIONS	
DATE	REVISION DESCRIPTION

CCG COLORADO CIVIL GROUP, INC. ENGINEERING CONSULTANTS
1413 W. 29TH STREET
LOVELAND, COLORADO 80538
(970) 278-0029

TOWN OF FIRESTONE
POTABLE WATER MASTER PLAN
WATERCAD MODEL
FUTURE SCENARIO

FILENAME: 0668.0156.00_WATERCAD MODEL
DESIGNED: C.E.M.
CHECKED: D.B.L.
JOB NO.: 0668.0156.00
SCALE: 1" = 2000'
DATE: MARCH 2010

SHEET NO.:
EXHIBIT E.1

POTABLE WATER MASTER PLAN
TABLE E.4
FUTURE SCENARIO - MAX DAY JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria[1]
J-1	5,097.0	0.0	5,192.7	41.4	NO
J-2	5,097.0	0.0	5,191.4	40.9	NO
J-3	5,097.0	0.0	5,152.0	23.8	NO
J-4	5,028.0	174.8	5,189.4	69.8	YES
J-5	5,006.0	352.6	5,188.5	79.0	YES
J-6	5,001.0	627.6	5,189.1	81.4	YES
J-7	4,975.0	114.2	5,164.2	81.9	YES
J-8	4,950.0	302.2	5,162.1	91.8	YES
J-9	4,976.0	60.8	5,162.3	80.6	YES
J-10	4,961.0	60.8	5,164.1	87.9	YES
J-11	5,025.0	104.2	5,190.0	71.4	YES
J-12	4,974.0	22.4	5,182.6	90.2	YES
J-13	4,940.0	136.8	5,156.0	93.4	YES
J-14	4,951.0	11.8	5,114.6	70.8	YES
J-15	4,929.0	0.0	5,113.3	79.8	YES
J-16	4,923.0	40.0	5,114.4	82.8	YES
J-17	4,918.0	45.2	5,111.9	83.9	YES
J-18	4,911.0	45.2	5,106.6	84.6	YES
J-19	4,898.0	95.4	5,105.5	89.8	YES
J-20	4,897.0	45.2	5,103.9	89.5	YES
J-21	4,905.0	45.2	5,113.4	90.2	YES
J-22	4,905.0	0.0	5,114.9	90.8	YES
J-23	4,909.0	266.4	5,100.9	83.0	YES
J-24	4,897.0	70.4	5,099.4	87.6	YES
J-25	4,885.0	45.2	5,096.4	91.5	YES
J-26	4,891.0	45.2	5,101.0	90.8	YES
J-27	4,891.0	45.2	5,099.9	90.4	YES
J-28	4,880.0	95.4	5,072.7	83.4	YES
J-29	4,860.0	45.2	5,070.3	91.0	YES
J-30	4,880.0	0.0	5,072.2	83.2	YES
J-31	4,886.0	41.2	5,072.2	80.6	YES
J-32	4,863.0	1,049.8	5,074.4	91.5	YES
J-33	4,851.0	17.6	5,064.8	92.5	YES
J-34	4,850.0	455.0	5,061.4	91.5	YES
J-35	4,848.0	57.8	5,063.5	93.2	YES
J-36	4,847.0	57.8	5,062.9	93.4	YES
J-37	4,847.0	24.8	5,061.5	92.8	YES
J-38	4,848.0	69.0	5,060.2	91.8	YES
J-39	4,847.0	29.6	5,059.8	92.1	YES
J-40	4,844.0	0.0	5,059.0	93.0	YES
J-41	4,849.0	89.4	5,058.3	90.5	YES

POTABLE WATER MASTER PLAN
TABLE E.4
FUTURE SCENARIO - MAX DAY JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria[1]
J-42	4,843.0	0.0	5,057.9	93.0	YES
J-43	4,842.0	325.8	5,056.7	92.9	YES
J-44	4,846.0	87.2	5,053.2	89.7	YES
J-45	4,843.0	87.2	5,053.0	90.9	YES
J-46	4,842.0	102.4	5,051.8	90.7	YES
J-47	4,848.0	102.4	5,074.9	98.2	YES
J-48	4,848.0	139.8	5,052.7	88.6	YES
J-49	4,851.0	207.8	5,052.2	87.0	YES
J-50	4,850.0	411.0	5,052.1	87.4	YES
J-51	4,864.0	467.6	5,062.7	86.0	YES
J-52	4,900.0	349.0	5,061.9	70.0	YES
J-53	4,912.0	235.0	5,065.1	66.3	YES
J-54	4,918.0	124.8	5,067.6	64.7	NO
J-55	4,863.0	91.8	5,063.8	86.9	YES
J-56	4,881.0	89.4	5,067.6	80.7	YES
J-57	4,890.0	70.8	5,067.5	76.8	YES
J-58	4,845.0	772.4	5,059.9	93.0	YES
J-59	4,848.0	0.0	5,058.9	91.3	YES
J-60	4,891.0	0.0	5,095.7	88.6	YES
J-61	5,097.5	0.0	5,192.5	41.1	NO
J-62	4,841.0	158.6	5,051.2	90.9	YES
J-63	4,843.0	41.2	5,067.7	97.2	YES
J-64	4,906.0	65.4	5,067.5	69.9	YES
J-65	4,908.0	65.4	5,066.6	68.6	YES
J-66	4,917.0	159.2	5,060.6	62.1	NO
J-67	4,855.0	441.8	5,054.4	86.3	YES
J-68	4,844.0	0.0	5,053.8	90.8	YES
J-69	4,891.0	0.0	5,061.5	73.8	YES
J-70	4,960.0	0.0	5,185.1	97.4	YES
J-71	4,991.0	0.0	5,188.7	85.5	YES
J-72	4,975.0	0.0	5,186.2	91.4	YES
J-200	5,011.0	895.4	5,188.9	77.0	YES
J-201	5,000.0	1,012.0	5,186.5	80.7	YES
J-202	4,997.0	1,765.0	5,179.4	78.9	YES
J-203	4,939.0	2,119.2	5,104.1	71.4	YES
J-204	4,884.0	1,395.0	5,074.3	82.4	YES
J-205	4,824.0	584.2	5,058.0	101.3	YES
J-206	4,799.0	1,569.6	5,046.3	107.0	YES
J-207	4,982.0	1,081.0	5,185.9	88.2	YES
J-208	4,952.0	741.8	5,178.6	98.0	YES
J-209	4,916.0	681.8	5,104.0	81.3	YES

POTABLE WATER MASTER PLAN
TABLE E.4
FUTURE SCENARIO - MAX DAY JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria[1]
J-210	4,842.0	500.4	5,071.1	99.1	YES
J-211	4,797.0	390.2	5,058.7	113.2	YES
J-212	4,780.0	374.0	5,054.4	118.7	YES
J-213	4,923.0	963.6	5,112.3	81.9	YES
J-214	4,824.0	421.2	5,072.9	107.7	YES
J-215	4,803.0	175.6	5,070.1	115.6	YES
J-216	4,813.0	398.8	5,061.5	107.5	YES
J-217	4,914.0	731.0	5,153.4	103.6	YES
J-218	4,820.0	157.4	5,056.3	102.2	YES
J-219	4,913.0	124.6	5,061.6	64.3	NO
J-220	4,873.0	620.2	5,041.2	72.8	YES
J-221	4,828.0	213.6	5,053.8	97.7	YES
J-222	4,906.0	0.0	5,050.4	62.5	NO
J-223	5,040.0	0.0	5,189.1	64.5	NO
J-224	5,046.0	0.0	5,188.6	61.7	NO
J-225	5,038.0	0.0	5,187.4	64.6	NO
J-226	5,005.0	0.0	5,186.1	78.3	YES
J-227	4,996.0	0.0	5,183.5	81.1	YES
J-228	4,980.0	0.0	5,178.7	85.9	YES
J-229	4,959.0	0.0	5,175.6	93.7	YES
J-230	4,927.0	0.0	5,104.0	76.6	YES
J-231	4,896.0	0.0	5,074.7	77.3	YES
J-232	4,869.0	0.0	5,071.8	87.7	YES
J-233	4,842.0	0.0	5,066.1	96.9	YES
J-234	4,802.0	0.0	5,058.5	111.0	YES
J-235	4,796.0	0.0	5,055.1	112.1	YES
J-236	4,790.0	0.0	5,052.8	113.7	YES
J-237	5,017.0	0.0	5,187.6	73.8	YES
J-238	4,989.0	0.0	5,182.9	83.9	YES
J-239	4,962.0	0.0	5,176.0	92.6	YES
J-240	4,921.0	0.0	5,094.4	75.0	YES
J-241	4,848.0	0.0	5,066.1	94.4	YES
J-242	4,812.0	0.0	5,053.2	104.4	YES
J-243	4,987.0	0.0	5,187.2	86.6	YES
J-244	4,968.0	0.0	5,182.6	92.8	YES
J-245	4,953.0	0.0	5,170.6	94.1	YES
J-246	4,884.0	0.0	5,074.7	82.5	YES
J-247	4,806.0	0.0	5,066.2	112.6	YES
J-248	4,790.0	0.0	5,056.1	115.1	YES
J-249	5,021.0	0.0	5,189.4	72.8	YES
J-251	4,964.0	0.0	5,186.8	96.4	YES

POTABLE WATER MASTER PLAN
TABLE E.4
FUTURE SCENARIO - MAX DAY JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria[1]
J-253	4,937.0	0.0	5,183.8	106.8	YES
J-254	4,925.0	0.0	5,112.1	81.0	YES
J-255	4,913.0	0.0	5,111.0	85.7	YES
J-256	4,902.0	0.0	5,103.9	87.4	YES
J-257	4,862.0	0.0	5,073.1	91.4	YES
J-258	4,815.0	0.0	5,071.9	111.2	YES
J-259	4,803.0	0.0	5,069.8	115.4	YES
J-261	4,943.0	0.0	5,114.9	74.4	YES
J-262	4,835.0	0.0	5,073.1	103.0	YES
J-400	4,861.0	2,037.6	5,029.9	73.1	YES
J-401	4,869.0	549.8	5,126.6	111.5	YES
J-402	4,848.0	602.6	5,041.3	83.6	YES
J-403	4,849.0	371.0	5,029.4	78.1	YES
J-404	4,856.0	0.0	5,134.7	120.6	YES
J-405	4,900.0	1,111.0	5,134.7	101.5	YES
J-406	4,931.0	1,144.2	5,133.3	87.5	YES
J-407	4,998.0	1,030.6	5,144.7	63.5	NO
J-408	4,908.0	145.8	5,139.0	100.0	YES
J-409	4,850.0	0.0	5,009.9	69.2	YES

[1]Pressure ≥ 65 psi

POTABLE WATER MASTER PLAN
TABLE E.5
FUTURE SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-2	93	12	DIP	130	-2,273.99	6.45	0.012	NO
P-3	4,837	14	PVC	150	-658.58	1.37	0.000	YES
P-4	2,723	14	PVC	150	572.42	1.19	0.000	YES
P-5	2,603	14	PVC	150	-281.24	0.59	0.000	YES
P-7	1,691	8	AC	140	251.87	1.61	0.001	YES
P-8	2,488	8	AC	140	-50.33	0.32	0.000	YES
P-9	1,677	6	AC	140	-111.13	1.26	0.001	YES
P-10	2,433	8	AC	140	-36.64	0.23	0.000	YES
P-12	2,685	14	PVC	150	-370.80	0.77	0.000	YES
P-13	2,615	12	PVC	150	732.19	2.08	0.001	YES
P-15	2,659	12	PVC	150	2,421.29	6.87	0.010	NO
P-16	2,671	12	PVC	150	831.90	2.36	0.001	YES
P-17	2,016	12	PVC	150	534.95	1.52	0.001	YES
P-18	492	10	PVC	150	-640.77	2.62	0.002	YES
P-19	363	10	PVC	150	1,211.65	4.95	0.007	YES
P-20	840	10	PVC	150	1,166.45	4.76	0.006	YES
P-21	769	10	PVC	150	547.33	2.24	0.002	YES
P-22	1,422	10	PVC	150	451.93	1.85	0.001	YES
P-23	1,238	8	PVC	150	-721.06	4.60	0.008	YES
P-24	243	8	PVC	150	-658.67	4.20	0.006	YES
P-25	1,393	8	PVC	150	784.47	5.01	0.009	NO
P-26	1,863	8	PVC	150	212.42	1.36	0.001	YES
P-27	2,756	10	PVC	150	-410.57	1.68	0.001	YES
P-28	2,449	8	PVC	150	-336.59	2.15	0.002	YES
P-29	4,408	8	PVC	150	107.59	0.69	0.000	YES
P-30	1,442	8	PVC	150	573.91	3.66	0.005	YES
P-31	499	10	PVC	150	1,127.79	4.61	0.006	YES

POTABLE WATER MASTER PLAN
TABLE E.5
FUTURE SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-32	383	10	PVC	150	746.01	3.05	0.003	YES
P-34	1,313	10	PVC	150	605.41	2.47	0.002	YES
P-35	1,164	12	PVC	150	-916.24	2.60	0.002	YES
P-36	1,219	12	PVC	150	-957.45	2.72	0.002	YES
P-37	547	8	PVC	150	41.20	0.26	0.000	YES
P-38	1,364	12	PVC	150	1,476.45	4.19	0.004	YES
P-39	1,296	12	PVC	150	1,178.52	3.34	0.003	YES
P-40	1,005	8	PVC	150	280.33	1.79	0.001	YES
P-41	643	8	PVC	150	222.53	1.42	0.001	YES
P-42	438	8	PVC	150	458.57	2.93	0.003	YES
P-43	1,108	8	PVC	150	261.14	1.67	0.001	YES
P-44	549	8	PVC	150	192.14	1.23	0.001	YES
P-45	530	8	PVC	150	313.28	2.00	0.002	YES
P-46	794	8	PVC	150	228.00	1.46	0.001	YES
P-47	1,060	8	PVC	150	138.60	0.88	0.000	YES
P-48	383	8	PVC	150	85.28	0.54	0.000	YES
P-49	672	12	PVC	150	932.39	2.64	0.002	YES
P-51	994	12	PVC	150	317.23	0.90	0.000	YES
P-52	1,853	12	PVC	150	564.87	1.60	0.001	YES
P-53	2,516	8	PVC	150	-797.68	5.09	0.009	NO
P-54	836	12	PVC	150	555.08	1.57	0.001	YES
P-55	1,314	12	PVC	150	415.28	1.18	0.000	YES
P-56	1,026	12	PVC	150	207.48	0.59	0.000	YES
P-57	3,218	12	PVC	150	-1,329.14	3.77	0.003	YES
P-58	1,053	8	PVC	150	203.26	1.30	0.001	YES
P-59	1,810	8	PVC	150	-328.22	2.09	0.002	YES
P-60	704	12	PVC	150	-1,369.17	3.88	0.003	YES

POTABLE WATER MASTER PLAN
TABLE E.5
FUTURE SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-63	1,069	10	PVC	150	-847.12	3.46	0.003	YES
P-64	2,329	10	PVC	150	70.80	0.29	0.000	YES
P-65	1,238	12	PVC	150	-152.81	0.43	0.000	YES
P-76	3,094	12	PVC	150	1,553.49	4.41	0.004	YES
P-77	108	12	PVC	150	1,560.42	4.43	0.004	YES
P-78	4,797	8	PVC	150	305.65	1.95	0.002	YES
P-79	109	8	PVC	150	305.65	1.95	0.002	YES
P-80	713	10	PVC	150	-150.74	0.62	0.000	YES
P-81	1,388	10	PVC	150	-755.32	3.09	0.003	YES
P-82	971	12	PVC	150	876.33	2.49	0.002	YES
P-83	996	12	PVC	150	708.51	2.01	0.001	YES
P-84	494	8	PVC	150	715.93	4.57	0.008	YES
P-85	494	8	PVC	150	-291.39	1.86	0.001	YES
P-87	825	12	PVC	150	793.79	2.25	0.001	YES
P-88	35	6	DIP	130	500.00	5.67	0.021	NO
P-89	10	4	DIP	130	500.00	12.77	0.148	NO
P-90	174	8	PVC	150	230.87	1.47	0.001	YES
P-91	4	8	PVC	150	230.87	1.47	0.001	YES
P-92	1,242	8	PVC	150	158.60	1.01	0.000	YES
P-93	3,259	8	PVC	150	-293.84	1.88	0.001	YES
P-94	1,285	16	PVC	150	970.75	1.55	0.000	YES
P-95	1,275	16	PVC	150	959.51	1.53	0.000	YES
P-96	2,577	16	PVC	150	1,412.55	2.25	0.001	YES
P-97	427	12	PVC	150	1,016.85	2.88	0.002	YES
P-98	2,318	12	PVC	150	1,176.70	3.34	0.003	YES
P-99	3,117	10	PVC	150	-225.25	0.92	0.000	YES
P-100	2,751	12	PVC	150	805.96	2.29	0.001	YES

POTABLE WATER MASTER PLAN
TABLE E.5
FUTURE SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-102	74	8	PVC	150	135.30	0.86	0.000	YES
P-103	2,664	8	PVC	150	135.30	0.86	0.000	YES
P-104	10	12	DIP	130	477.44	1.35	0.001	YES
P-105	15	12	DIP	130	477.44	1.35	0.001	YES
P-106	8	12	DIP	130	2,000.00	5.67	0.009	NO
P-107	18	12	DIP	130	2,000.00	5.67	0.009	NO
P-108	13	12	DIP	130	500.00	1.42	0.001	YES
P-109	12	12	DIP	130	500.00	1.42	0.001	YES
P-110	2,336	12	PVC	150	402.70	1.14	0.000	YES
P-111	311	12	PVC	150	402.70	1.14	0.000	YES
P-112	12	12	DIP	130	2,000.00	5.67	0.009	NO
P-113	12	12	DIP	130	2,000.00	5.67	0.009	NO
P-114	12	12	DIP	130	2,000.00	5.67	0.009	NO
P-115	13	12	DIP	130	2,000.00	5.67	0.009	NO
P-116	13	12	DIP	130	917.29	2.60	0.002	YES
P-117	12	12	DIP	130	917.29	2.60	0.002	YES
P-118	9	12	DIP	130	2,000.00	5.67	0.009	NO
P-119	16	12	DIP	130	2,000.00	5.67	0.009	NO
P-120	16	12	DIP	130	2,000.00	5.67	0.009	NO
P-121	9	12	DIP	130	2,000.00	5.67	0.009	NO
P-122	7	12	DIP	130	2,000.00	5.67	0.009	NO
P-123	17	12	DIP	130	2,000.00	5.67	0.009	NO
P-124	15	12	DIP	130	900.08	2.55	0.002	YES
P-125	9	12	DIP	130	900.08	2.55	0.002	YES
P-126	15	12	DIP	130	2,000.00	5.67	0.009	NO
P-127	10	12	DIP	130	2,000.00	5.67	0.009	NO
P-128	608	10	PVC	150	700.81	2.86	0.002	YES

POTABLE WATER MASTER PLAN
TABLE E.5
FUTURE SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-129	950	10	PVC	150	700.81	2.86	0.002	YES
P-130	1,235	10	PVC	150	-1,007.32	4.11	0.005	YES
P-131	1,568	10	PVC	150	-1,007.32	4.11	0.005	YES
P-200	2,658	24	PVC	150	2,923.56	2.07	0	YES
P-201	2,793	16	PVC	150	1,633.93	2.61	0.001	YES
P-202	2,483	16	PVC	150	1,923.00	3.07	0.002	YES
P-203	2,656	12	PVC	150	1,267.91	3.60	0.003	YES
P-204	1,713	10	PVC	150	-182.47	0.75	0	YES
P-206	2,814	12	PVC	150	793.45	2.25	0.001	YES
P-207	2,626	12	PVC	150	983.23	2.79	0.002	YES
P-208	2,674	12	PVC	150	1,222.35	3.47	0.003	YES
P-209	2,616	12	PVC	150	695.02	1.97	0.001	YES
P-210	2,625	12	PVC	150	551.11	1.56	0.001	YES
P-221	2,658	8	PVC	150	248.87	1.59	0.001	YES
P-227	2,321	8	PVC	150	-254.28	1.62	0.001	YES
P-228	4,125	12	PVC	150	19.82	0.06	0	YES
P-229	5,162	12	PVC	150	-1,073.58	3.05	0.002	YES
P-230	134	8	PVC	150	269.13	1.72	0.001	YES
P-231	425	12	DIP	130	1,001.08	2.84	0.003	YES
P-232	5,235	12	PVC	150	694.60	1.97	0.001	YES
P-235	1,154	8	PVC	150	586.43	3.74	0.005	YES
P-236	5,206	8	PVC	150	501.37	3.20	0.004	YES
P-237	4,474	12	PVC	150	-1,125.62	3.19	0.002	YES
P-238	3,174	12	PVC	150	391.25	1.11	0	YES
P-242	4,070	12	PVC	150	537.20	1.52	0.001	YES
P-243	2,560	12	PVC	150	-11.24	0.03	0	YES
P-245	5,223	12	PVC	150	-476.72	1.35	0	YES

POTABLE WATER MASTER PLAN
TABLE E.5
FUTURE SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-246	3,966	12	PVC	150	1,160.44	3.29	0.003	YES
P-247	3,571	12	PVC	150	1,160.44	3.29	0.003	YES
P-248	3,694	12	PVC	150	805.96	2.29	0.001	YES
P-249	3,101	12	PVC	150	-334.84	0.95	0	YES
P-253	2,624	8	PVC	150	133.29	0.85	0	YES
P-254	2,836	24	PVC	150	2,311.27	1.64	0	YES
P-255	2,581	12	PVC	150	798.78	2.27	0.001	YES
P-256	180	12	PVC	150	791.77	2.25	0.001	YES
P-257	2,455	12	PVC	150	0.00	0.00	0	YES
P-258	2,591	12	PVC	150	209.27	0.59	0	YES
P-259	5,333	12	PVC	150	114.25	0.32	0	YES
P-260	2,357	12	PVC	150	1,612.68	4.57	0.005	YES
P-261	270	12	PVC	150	1,604.94	4.55	0.005	YES
P-262	2,341	12	PVC	150	1,604.93	4.55	0.005	YES
P-263	2,677	12	PVC	150	-238.16	0.68	0	YES
P-264	2,621	12	PVC	150	-86.71	0.25	0	YES
P-265	2,609	12	PVC	150	-344.87	0.98	0	YES
P-266	194	12	PVC	150	973.74	2.76	0.002	YES
P-267	2,691	8	PVC	150	158.55	1.01	0	YES
P-268	206	12	PVC	150	1,375.69	3.90	0.004	YES
P-269	2,765	8	PVC	150	234.43	1.50	0.001	YES
P-270	2,509	8	PVC	150	0.00	0.00	0	YES
P-271	2,605	12	PVC	150	-110.05	0.31	0	YES
P-272	2,613	12	PVC	150	-110.05	0.31	0	YES
P-273	2,645	12	PVC	150	-331.26	0.94	0	YES
P-274	2,561	12	PVC	150	-694.67	1.97	0.001	YES
P-275	2,583	12	PVC	150	137.13	0.39	0	YES

POTABLE WATER MASTER PLAN
TABLE E.5
FUTURE SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-277	2,695	8	PVC	150	177.11	1.13	0.001	YES
P-278	2,547	8	PVC	150	399.73	2.55	0.003	YES
P-279	2,686	8	PVC	150	258.15	1.65	0.001	YES
P-280	2,529	8	PVC	150	0.00	0.00	0	YES
P-281	2,744	8	PVC	150	0.00	0.00	0	YES
P-282	2,783	8	PVC	150	0.00	0.00	0	YES
P-283	2,668	8	PVC	150	363.41	2.32	0.002	YES
P-284	2,633	8	PVC	150	424.44	2.71	0.003	YES
P-285	2,650	8	PVC	150	278.10	1.78	0.001	YES
P-286	2,558	8	PVC	150	222.63	1.42	0.001	YES
P-287	2,688	16	PVC	150	1,011.31	1.61	0	YES
P-288	2,613	16	PVC	150	949.45	1.52	0	YES
P-289	2,778	16	PVC	150	1,699.29	2.71	0.001	YES
P-290	2,488	16	PVC	150	1,801.42	2.87	0.001	YES
P-291	2,656	16	PVC	150	1,691.55	2.70	0.001	YES
P-293	2,775	12	PVC	150	1,375.69	3.90	0.004	YES
P-295	2,665	12	PVC	150	1,286.02	3.65	0.003	YES
P-296	2,655	12	PVC	150	1,271.21	3.61	0.003	YES
P-297	2,626	12	PVC	150	970.47	2.75	0.002	YES
P-298	2,654	12	PVC	150	1,169.87	3.32	0.003	YES
P-299	2,594	24	PVC	150	2,956.36	2.10	0	YES
P-300	2,623	8	PVC	150	7.29	0.05	0	YES
P-301	2,871	8	PVC	150	-104.65	0.67	0	YES
P-302	12	12	DIP	130	2,000.00	5.67	0.009	NO
P-303	13	12	DIP	130	2,000.00	5.67	0.009	NO
P-304	12	12	DIP	130	2,000.00	5.67	0.009	NO
P-305	2,678	12	PVC	150	-376.25	1.07	0	YES

POTABLE WATER MASTER PLAN
TABLE E.5
FUTURE SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-306	17	12	DIP	130	-2,000.00	5.67	0.009	NO
P-307	13	12	DIP	130	-2,000.00	5.67	0.009	NO
P-308	12	12	DIP	130	-2,000.00	5.67	0.009	NO
P-309	2,662	12	PVC	150	-67.18	0.19	0	YES
P-310	2,702	12	PVC	150	414.87	1.18	0	YES
P-311	2,605	12	PVC	150	358.92	1.02	0	YES
P-312	12	12	DIP	130	-2,000.00	5.67	0.009	NO
P-313	13	12	DIP	130	-2,000.00	5.67	0.009	NO
P-314	3,266	8	PVC	150	-68.58	0.44	0	YES
P-315	2,468	12	PVC	150	723.19	2.05	0.001	YES
P-316	2,703	12	PVC	150	469.39	1.33	0	YES
P-317	2,708	12	PVC	150	158.52	0.45	0	YES
P-318	2,707	8	PVC	150	111.94	0.71	0	YES
P-319	2,671	8	PVC	150	201.50	1.29	0.001	YES
P-320	2,638	8	PVC	150	191.10	1.22	0.001	YES
P-321	2,738	8	PVC	150	156.78	1.00	0	YES
P-322	2,492	8	PVC	150	0.00	0.00	0	YES
P-323	2,675	8	PVC	150	150.84	0.96	0	YES
P-324	2,633	8	PVC	150	409.45	2.61	0.003	YES
P-325	2,678	8	PVC	150	0.00	0.00	0	YES
P-326	2,762	8	PVC	150	156.12	1.00	0	YES
P-327	2,650	8	PVC	150	212.07	1.35	0.001	YES
P-328	2,679	8	PVC	150	61.86	0.39	0	YES
P-329	2,579	8	PVC	150	56.51	0.36	0	YES
P-330	2,598	8	PVC	150	89.31	0.57	0	YES
P-331	2,734	8	PVC	150	99.72	0.64	0	YES
P-332	2,670	8	PVC	150	-102.14	0.65	0	YES

POTABLE WATER MASTER PLAN
TABLE E.5
FUTURE SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-333	2,602	8	PVC	150	132.29	0.84	0	YES
P-334	2,710	8	PVC	150	-156.78	1.00	0	YES
P-335	2,726	8	PVC	150	0.00	0.00	0	YES
P-336	2,679	8	PVC	150	86.61	0.55	0	YES
P-337	2,567	8	PVC	150	344.77	2.20	0.002	YES
P-338	2,690	8	PVC	150	0.00	0.00	0	YES
P-339	3,466	8	PVC	150	-258.62	1.65	0.001	YES
P-340	2,625	8	PVC	150	0.00	0.00	0	YES
P-341	2,587	8	PVC	150	0.00	0.00	0	YES
P-342	2,664	8	PVC	150	180.29	1.15	0.001	YES
P-343	2,676	8	PVC	150	24.17	0.15	0	YES
P-344	2,942	8	PVC	150	335.04	2.14	0.002	YES
P-345	2,581	8	PVC	150	14.81	0.09	0	YES
P-346	2,592	8	PVC	150	-46.22	0.29	0	YES
P-347	2,626	8	PVC	150	-285.34	1.82	0.001	YES
P-348	2,681	8	PVC	150	-73.27	0.47	0	YES
P-349	2,616	8	PVC	150	-199.39	1.27	0.001	YES
P-350	2,598	8	PVC	150	-143.92	0.92	0	YES
P-351	2,634	8	PVC	150	-142.94	0.91	0	YES
P-352	5,191	24	PVC	150	2,616.48	1.86	0	YES
P-353	284	12	PVC	150	0.00	0.00	0	YES
P-354	268	12	PVC	150	1,612.68	4.57	0.005	YES
P-355	2,574	12	PVC	150	-144.02	0.41	0	YES
P-356	2,708	12	PVC	150	-207.55	0.59	0	YES
P-357	2,524	12	PVC	150	-167.63	0.48	0	YES
P-358	1,350	12	PVC	150	-476.64	1.35	0	YES
P-359	1,428	12	PVC	150	-476.64	1.35	0	YES

POTABLE WATER MASTER PLAN
TABLE E.5
FUTURE SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-360	2,453	12	PVC	150	973.74	2.76	0.002	YES
P-361	2,638	8	PVC	150	95.02	0.61	0	YES
P-362	2,472	12	PVC	150	1,375.69	3.90	0.004	YES
P-363	2,612	8	PVC	150	163.89	1.05	0	YES
P-364	2,242	12	PVC	150	1,082.25	3.07	0.002	YES
P-365	3,358	12	PVC	150	1,082.25	3.07	0.002	YES
P-367	2,607	12	PVC	150	283.46	0.80	0	YES
P-370	13	12	DIP	130	2,000.00	5.67	0.009	NO
P-371	19	12	DIP	130	-2,000.00	5.67	0.009	NO
P-372	2,695	12	PVC	150	150.84	0.43	0	YES
P-373	26	12	DIP	130	-2,000.00	5.67	0.009	NO
P-374	22	12	DIP	130	-2,000.00	5.67	0.009	NO
P-400	5,324	16	PVC	150	2,235.91	3.57	0.002	YES
P-402	2,676	16	PVC	150	3,101.55	4.95	0.004	YES
P-403	4,801	16	PVC	150	2,430.26	3.88	0.002	YES
P-405	2,053	12	PVC	150	56.47	0.16	0	YES
P-406	4,444	16	PVC	150	780.20	1.24	0	YES
P-407	10,476	12	PVC	150	-549.80	1.56	0.001	YES
P-408	6,923	12	PVC	150	-913.80	2.59	0.002	YES
P-409	5,062	12	PVC	150	744.70	2.11	0.001	YES
P-410	5,891	12	PVC	150	-68.69	0.19	0	YES
P-411	5,261	12	PVC	150	198.32	0.56	0	YES
P-412	6,819	16	PVC	150	-1,834.73	2.93	0.001	YES
P-413	5,750	12	PVC	150	-598.90	1.70	0.001	YES
P-414	2,218	12	PVC	150	2,257.57	6.40	0.009	NO
P-417	248	24	PVC	150	4,523.83	3.21	0.001	YES
P-418	118	16	DIP	130	2,800.00	4.47	0.004	YES

POTABLE WATER MASTER PLAN
TABLE E.5
FUTURE SCENARIO - MAX DAY PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-419	10,991	16	PVC	150	2,800.00	4.47	0.003	YES
P-420	197	12	PVC	150	-542.43	1.54	0.001	YES
P-421	1,716	12	PVC	150	-542.43	1.54	0.001	YES
P-422	5,186	12	PVC	150	0.00	0.00	0	YES
P-423	131	12	PVC	150	0.00	0.00	0	YES

[1]Velocity ≤ 5 fps

POTABLE WATER MASTER PLAN
TABLE E.6
FUTURE SCENARIO - MAX DAY RESERVOIR RESULTS

Label	Elevation (feet)	Outflow (gpm)	HGL (feet)	Pressure Zone ID
MM-1	5,152.0	500.0	5,152.0	1
MM-2	5,190.0	477.4	5,190.0	1
MM-3	5,190.0	2,000.0	5,190.0	1
MM-4	5,190.0	2,000.0	5,190.0	1
MM-5	5,115.0	2,000.0	5,115.0	2
MM-6	5,115.0	917.3	5,115.0	2
MM-7	5,075.0	2,000.0	5,075.0	3
MM-8	5,075.0	2,000.0	5,075.0	3
MM-9	5,075.0	2,000.0	5,075.0	3
MM-10	5,075.0	900.1	5,075.0	3
MM-11	5,075.0	2,000.0	5,075.0	3
MM-12	5,075.0	2,000.0	5,075.0	3
MM-13	5,190.0	2,000.0	5,190.0	1
MM-14	5,075.0	2,000.0	5,075.0	3
MM-15	5,190.0	2,000.0	5,190.0	1
MM-16	5,190.0	2,000.0	5,190.0	1
MM-17	5,115.0	2,000.0	5,115.0	2
TOTAL		**28,794.8**		

POTABLE WATER MASTER PLAN
TABLE E.7
FUTURE SCENARIO - MAX DAY PRV RESULTS

Label	Elevation	Diameter	Initial Settings		Flow	Hydraulic Grade		Headloss
			Hydraulic Grade	Pressure		To	From	
	(feet)	(inches)	(feet)	(psi)	(gpm)	(feet)	(feet)	(feet)
PRV-1	4,952.3	8	5,115.0	70.4	1,553.5	5,142.4	5,115.1	27.3
PRV-2	4,906.4	8	5,075.0	73.0	305.7	5,100.7	5,075.1	25.7
PRV-200	4,943.0	8	5,115.0	74.4	798.8	5,179.3	5,115.1	64.1
PRV-201	4,952.0	8	5,075.0	53.2	0.0	5,178.6	5,112.1	0.0
PRV-202	4,953.0	8	5,115.0	70.1	1,612.7	5,169.3	5,115.1	54.3
PRV-203	4,962.0	8	5,115.0	66.2	1,604.9	5,174.7	5,115.1	59.7
PRV-204	4,885.0	8	5,075.0	82.2	476.6	5,103.2	5,075.1	28.2
PRV-205	4,885.0	8	5,075.0	82.2	973.7	5,099.4	5,075.1	24.3
PRV-206	4,885.0	8	5,075.0	82.2	1,375.7	5,085.7	5,075.1	10.6
PRV-207	5,025.0	8	5,165.0	60.6	135.3	5,190.0	5,165.1	24.9
PRV-208	5,001.0	8	5,165.0	71.0	402.7	5,189.0	5,165.1	23.9
PRV-209	4,910.0	8	5,075.0	71.4	1,082.3	5,109.5	5,075.1	34.5
PRV-210	4,891.0	8	5,075.0	79.6	1,007.3	5,089.8	5,075.1	14.7
PRV-211	4,894.0	8	5,075.0	78.3	700.8	5,098.4	5,075.1	23.4
PRV-400	4,850.0	8	5,010.0	69.2	542.4	5,133.6	5,010.1	123.6
PRV-401	4,869.0	8	5,010.0	61.0	0.0	5,126.6	5,029.9	0.0

POTABLE WATER MASTER PLAN
TABLE E.8
FUTURE SCENARIO - MAX DAY TANK RESULTS

Label	Base Elevation (feet)	Minimum Elevation (feet)	Initial Elevation (feet)	Maximum Elevation (feet)	Diameter (feet)	Outflow (gpm)	Hydraulic Grade (feet)
T-1	5,097.5	5,122.5	5,192.5	5,197.5	50.0	1,812.2	5,192.5
T-200	5,097.5	5,122.5	5,192.5	5,197.5	50.0	462.8	5,192.5
T-400	5,000.0	5,105.0	5,145.0	5,150.0	85.0	1,723.8	5,145.0

POTABLE WATER MASTER PLAN
TABLE E.9
FUTURE SCENARIO - MAX DAY PUMP RESULTS

Label	Elevation	Intake Grade	Discharge Grade	Discharge	Pump Head
	(feet)	(feet)	(feet)	(gpm)	(feet)
PMP-1	5,097.0	5,151.2	5,194.6	500.0	43.4
PMP-200	5,097.0	5,147.9	5,193.6	500.0	45.7
PMP-400	4,850.0	5,009.4	5,180.4	2,800.0	171.0

POTABLE WATER MASTER PLAN
TABLE E.10
FUTURE SCENARIO - PEAK HOUR JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria[1]
J-1	5,097.0	0.0	5,192.7	41.4	YES
J-2	5,097.0	0.0	5,182.0	36.8	NO
J-3	5,097.0	0.0	5,152.0	23.8	NO
J-4	5,028.0	262.2	5,162.1	58.0	YES
J-5	5,006.0	528.9	5,153.6	63.9	YES
J-6	5,001.0	941.4	5,153.1	65.8	YES
J-7	4,975.0	171.3	5,152.5	76.8	YES
J-8	4,950.0	453.3	5,148.7	86.0	YES
J-9	4,976.0	91.2	5,149.3	75.0	YES
J-10	4,961.0	91.2	5,154.7	83.8	YES
J-11	5,025.0	156.3	5,176.4	65.5	YES
J-12	4,974.0	33.6	5,116.9	61.8	YES
J-13	4,940.0	205.2	5,083.3	62.0	YES
J-14	4,951.0	17.7	5,071.0	51.9	YES
J-15	4,929.0	0.0	5,071.0	61.4	YES
J-16	4,923.0	60.0	5,071.5	64.2	YES
J-17	4,918.0	67.8	5,066.9	64.4	YES
J-18	4,911.0	67.8	5,057.0	63.2	YES
J-19	4,898.0	143.1	5,054.6	67.7	YES
J-20	4,897.0	67.8	5,051.4	66.8	YES
J-21	4,905.0	67.8	5,075.0	73.6	YES
J-22	4,905.0	0.0	5,081.9	76.5	YES
J-23	4,909.0	399.6	5,046.8	59.6	YES
J-24	4,897.0	105.6	5,044.7	63.9	YES
J-25	4,885.0	67.8	5,039.5	66.8	YES
J-26	4,891.0	67.8	5,044.6	66.5	YES
J-27	4,891.0	67.8	5,041.5	65.1	YES
J-28	4,880.0	143.1	5,029.8	64.8	YES
J-29	4,860.0	67.8	5,021.9	70.1	YES
J-30	4,880.0	0.0	5,022.8	61.8	YES
J-31	4,886.0	61.8	5,022.8	59.2	YES
J-32	4,863.0	1,574.7	5,023.9	69.6	YES
J-33	4,851.0	26.4	5,015.1	71.0	YES
J-34	4,850.0	682.5	5,011.2	69.7	YES
J-35	4,848.0	86.7	5,013.0	71.4	YES
J-36	4,847.0	86.7	5,012.1	71.4	YES
J-37	4,847.0	37.2	5,011.1	71.0	YES
J-38	4,848.0	103.5	5,010.6	70.4	YES
J-39	4,847.0	44.4	5,010.6	70.8	YES
J-40	4,844.0	0.0	5,010.5	72.0	YES
J-41	4,849.0	134.1	5,010.4	69.8	YES

POTABLE WATER MASTER PLAN
TABLE E.10
FUTURE SCENARIO - PEAK HOUR JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria[1]
J-42	4,843.0	0.0	5,010.5	72.5	YES
J-43	4,842.0	488.7	5,010.5	72.9	YES
J-44	4,846.0	130.8	5,009.8	70.9	YES
J-45	4,843.0	130.8	5,010.3	72.4	YES
J-46	4,842.0	153.6	5,013.1	74.0	YES
J-47	4,848.0	153.6	5,074.9	98.2	YES
J-48	4,848.0	209.7	5,009.6	69.9	YES
J-49	4,851.0	311.7	5,009.6	68.6	YES
J-50	4,850.0	616.5	5,009.7	69.1	YES
J-51	4,864.0	701.4	5,021.2	68.0	YES
J-52	4,900.0	523.5	5,021.4	52.5	YES
J-53	4,912.0	352.5	5,025.9	49.3	YES
J-54	4,918.0	187.2	5,030.3	48.6	YES
J-55	4,863.0	137.7	5,015.2	65.9	YES
J-56	4,881.0	134.1	5,020.0	60.1	YES
J-57	4,890.0	106.2	5,019.8	56.2	YES
J-58	4,845.0	1,158.6	5,010.6	71.6	YES
J-59	4,848.0	0.0	5,010.5	70.3	YES
J-60	4,891.0	0.0	5,038.8	63.9	YES
J-61	5,097.5	0.0	5,192.5	41.1	YES
J-62	4,841.0	237.9	5,011.8	73.9	YES
J-63	4,843.0	61.8	5,014.1	74.0	YES
J-64	4,906.0	98.1	5,034.3	55.5	YES
J-65	4,908.0	98.1	5,031.8	53.6	YES
J-66	4,917.0	238.8	5,022.9	45.8	YES
J-67	4,855.0	662.7	5,009.8	67.0	YES
J-68	4,844.0	0.0	5,009.8	71.8	YES
J-69	4,891.0	0.0	5,019.3	55.5	YES
J-70	4,960.0	0.0	5,132.8	74.8	YES
J-71	4,991.0	0.0	5,153.3	70.2	YES
J-72	4,975.0	0.0	5,137.8	70.4	YES
J-200	5,011.0	1,343.1	5,145.9	58.4	YES
J-201	5,000.0	1,518.0	5,132.0	57.1	YES
J-202	4,997.0	2,647.5	5,099.3	44.2	YES
J-203	4,939.0	3,178.8	5,036.4	42.1	YES
J-204	4,884.0	2,092.5	5,001.9	51.0	YES
J-205	4,824.0	876.3	4,972.1	64.1	YES
J-206	4,799.0	2,354.4	4,947.5	64.2	YES
J-207	4,982.0	1,621.5	5,138.1	67.5	YES
J-208	4,952.0	1,112.7	5,100.5	64.3	YES
J-209	4,916.0	1,022.7	5,034.8	51.4	YES

POTABLE WATER MASTER PLAN
TABLE E.10
FUTURE SCENARIO - PEAK HOUR JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria[1]
J-210	4,842.0	750.6	5,003.0	69.6	YES
J-211	4,797.0	585.3	4,973.9	76.5	YES
J-212	4,780.0	561.0	4,964.7	79.9	YES
J-213	4,923.0	1,445.4	5,073.2	65.0	YES
J-214	4,824.0	631.8	5,014.3	82.3	YES
J-215	4,803.0	263.4	5,005.3	87.5	YES
J-216	4,813.0	598.2	5,010.5	85.5	YES
J-217	4,914.0	1,096.5	5,077.8	70.9	YES
J-218	4,820.0	236.1	5,009.8	82.1	YES
J-219	4,913.0	186.9	5,021.9	47.1	YES
J-220	4,873.0	930.3	5,006.6	57.8	YES
J-221	4,828.0	320.4	5,009.8	78.7	YES
J-222	4,906.0	0.0	5,014.3	46.9	YES
J-223	5,040.0	0.0	5,154.6	49.6	YES
J-224	5,046.0	0.0	5,149.6	44.8	YES
J-225	5,038.0	0.0	5,142.3	45.1	YES
J-226	5,005.0	0.0	5,134.7	56.1	YES
J-227	4,996.0	0.0	5,122.0	54.5	YES
J-228	4,980.0	0.0	5,099.2	51.6	YES
J-229	4,959.0	0.0	5,086.6	55.2	YES
J-230	4,927.0	0.0	5,035.6	47.0	YES
J-231	4,896.0	0.0	5,017.6	52.6	YES
J-232	4,869.0	0.0	5,001.8	57.4	YES
J-233	4,842.0	0.0	4,989.1	63.6	YES
J-234	4,802.0	0.0	4,973.5	74.2	YES
J-235	4,796.0	0.0	4,966.1	73.6	YES
J-236	4,790.0	0.0	4,961.4	74.2	YES
J-237	5,017.0	0.0	5,139.5	53.0	YES
J-238	4,989.0	0.0	5,116.1	55.0	YES
J-239	4,962.0	0.0	5,086.6	53.9	YES
J-240	4,921.0	0.0	5,018.8	42.3	YES
J-241	4,848.0	0.0	4,988.1	60.6	YES
J-242	4,812.0	0.0	4,962.0	64.9	YES
J-243	4,987.0	0.0	5,145.5	68.6	YES
J-244	4,968.0	0.0	5,120.5	66.0	YES
J-245	4,953.0	0.0	5,073.8	52.3	YES
J-246	4,884.0	0.0	5,017.6	57.8	YES
J-247	4,806.0	0.0	4,991.2	80.1	YES
J-248	4,790.0	0.0	4,968.3	77.2	YES
J-249	5,021.0	0.0	5,162.6	61.3	YES
J-251	4,964.0	0.0	5,142.2	77.1	YES

POTABLE WATER MASTER PLAN
TABLE E.10
FUTURE SCENARIO - PEAK HOUR JUNCTION RESULTS

Label	Elevation (feet)	Demand (gpm)	HGL (feet)	Pressure (psi)	Meets Criteria[1]
J-253	4,937.0	0.0	5,126.6	82.0	YES
J-254	4,925.0	0.0	5,073.4	64.2	YES
J-255	4,913.0	0.0	5,066.5	66.4	YES
J-256	4,902.0	0.0	5,033.7	57.0	YES
J-257	4,862.0	0.0	5,015.6	66.4	YES
J-258	4,815.0	0.0	5,008.7	83.8	YES
J-259	4,803.0	0.0	5,003.4	86.7	YES
J-261	4,943.0	0.0	5,088.4	62.9	YES
J-262	4,835.0	0.0	5,017.2	78.8	YES
J-400	4,861.0	3,056.4	5,001.4	60.7	YES
J-401	4,869.0	824.7	5,030.8	70.0	YES
J-402	4,848.0	903.9	5,008.0	69.2	YES
J-403	4,849.0	556.5	5,006.2	68.0	YES
J-404	4,856.0	0.0	5,083.3	98.3	YES
J-405	4,900.0	1,666.5	5,091.6	82.9	YES
J-406	4,931.0	1,716.3	5,088.1	68.0	YES
J-407	4,998.0	1,545.9	5,143.8	63.1	YES
J-408	4,908.0	218.7	5,112.0	88.3	YES
J-409	4,850.0	0.0	5,006.8	67.9	YES

[1]Pressure ≥ 40 psi

POTABLE WATER MASTER PLAN
TABLE E.11
FUTURE SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-2	93	12	DIP	130	-7,762.10	22.02	0.113	NO
P-3	4,837	14	PVC	150	-2,248.03	4.69	0.004	YES
P-4	2,723	14	PVC	150	1,938.65	4.04	0.003	YES
P-5	2,603	14	PVC	150	327.33	0.68	0.000	YES
P-7	1,691	8	AC	140	347.20	2.22	0.002	YES
P-8	2,488	8	AC	140	-106.10	0.68	0.000	YES
P-9	1,677	6	AC	140	-197.30	2.24	0.003	YES
P-10	2,433	8	AC	140	212.09	1.35	0.001	YES
P-12	2,685	14	PVC	150	276.51	0.58	0.000	YES
P-13	2,615	12	PVC	150	1,811.14	5.14	0.006	YES
P-15	2,659	12	PVC	150	2,745.24	7.79	0.013	NO
P-16	2,671	12	PVC	150	2,122.63	6.02	0.008	YES
P-17	2,016	12	PVC	150	92.46	0.26	0.000	YES
P-18	492	10	PVC	150	-448.32	1.83	0.001	YES
P-19	363	10	PVC	150	1,705.12	6.97	0.013	YES
P-20	840	10	PVC	150	1,637.32	6.69	0.012	YES
P-21	769	10	PVC	150	804.74	3.29	0.003	YES
P-22	1,422	10	PVC	150	661.64	2.70	0.002	YES
P-23	1,238	8	PVC	150	-1,180.70	7.54	0.019	NO
P-24	243	8	PVC	150	-1,461.94	9.33	0.028	NO
P-25	1,393	8	PVC	150	1,121.55	7.16	0.017	YES
P-26	1,863	8	PVC	150	258.60	1.65	0.001	YES
P-27	2,756	10	PVC	150	-1,115.11	4.56	0.006	YES
P-28	2,449	8	PVC	150	-358.09	2.29	0.002	YES
P-29	4,408	8	PVC	150	-213.44	1.36	0.001	YES
P-30	1,442	8	PVC	150	764.78	4.88	0.009	YES
P-31	499	10	PVC	150	1,774.53	7.25	0.014	YES

POTABLE WATER MASTER PLAN
TABLE E.11
FUTURE SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-32	383	10	PVC	150	1,348.64	5.51	0.008	YES
P-34	1,313	10	PVC	150	1,137.74	4.65	0.006	YES
P-35	1,164	12	PVC	150	-595.73	1.69	0.001	YES
P-36	1,219	12	PVC	150	-657.53	1.87	0.001	YES
P-37	547	8	PVC	150	61.80	0.39	0.000	YES
P-38	1,364	12	PVC	150	1,665.67	4.73	0.005	YES
P-39	1,296	12	PVC	150	1,276.24	3.62	0.003	YES
P-40	1,005	8	PVC	150	363.04	2.32	0.002	YES
P-41	643	8	PVC	150	276.34	1.76	0.001	YES
P-42	438	8	PVC	150	373.07	2.38	0.002	YES
P-43	1,108	8	PVC	150	160.39	1.02	0.000	YES
P-44	549	8	PVC	150	56.89	0.36	0.000	YES
P-45	530	8	PVC	150	62.20	0.40	0.000	YES
P-46	794	8	PVC	150	79.11	0.50	0.000	YES
P-47	1,060	8	PVC	150	-54.99	0.35	0.000	YES
P-48	383	8	PVC	150	-16.91	0.11	0.000	YES
P-49	672	12	PVC	150	72.11	0.20	0.000	YES
P-51	994	12	PVC	150	-470.08	1.33	0.000	YES
P-52	1,853	12	PVC	150	-862.26	2.45	0.001	YES
P-53	2,516	8	PVC	150	-1,354.08	8.64	0.025	NO
P-54	836	12	PVC	150	322.90	0.92	0.000	YES
P-55	1,314	12	PVC	150	113.20	0.32	0.000	YES
P-56	1,026	12	PVC	150	-198.50	0.56	0.000	YES
P-57	3,218	12	PVC	150	-1,391.95	3.95	0.004	YES
P-58	1,053	8	PVC	150	-93.35	0.60	0.000	YES
P-59	1,810	8	PVC	150	-393.79	2.51	0.002	YES
P-60	704	12	PVC	150	-1,866.03	5.29	0.006	YES

POTABLE WATER MASTER PLAN
TABLE E.11
FUTURE SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-63	1,069	10	PVC	150	-967.78	3.95	0.004	YES
P-64	2,329	10	PVC	150	106.20	0.43	0.000	YES
P-65	1,238	12	PVC	150	71.49	0.20	0.000	YES
P-76	3,094	12	PVC	150	1,443.54	4.10	0.004	YES
P-77	108	12	PVC	150	1,443.54	4.10	0.004	YES
P-78	4,797	8	PVC	150	463.35	2.96	0.003	YES
P-79	109	8	PVC	150	463.35	2.96	0.003	YES
P-80	713	10	PVC	150	-49.71	0.20	0.000	YES
P-81	1,388	10	PVC	150	-830.08	3.39	0.003	YES
P-82	971	12	PVC	150	522.25	1.48	0.001	YES
P-83	996	12	PVC	150	144.02	0.41	0.000	YES
P-84	494	8	PVC	150	917.79	5.86	0.012	YES
P-85	494	8	PVC	150	-290.29	1.85	0.001	YES
P-87	825	12	PVC	150	127.11	0.36	0.000	YES
P-88	35	6	DIP	130	500.00	5.67	0.021	YES
P-89	10	4	DIP	130	500.00	12.77	0.148	NO
P-90	174	8	PVC	150	230.87	1.47	0.001	YES
P-91	4	8	PVC	150	230.87	1.47	0.001	YES
P-92	1,242	8	PVC	150	237.90	1.52	0.001	YES
P-93	3,259	8	PVC	150	-183.43	1.17	0.001	YES
P-94	1,285	16	PVC	150	40.46	0.06	0.000	YES
P-95	1,275	16	PVC	150	-16.37	0.03	0.000	YES
P-96	2,577	16	PVC	150	703.16	1.12	0.000	YES
P-97	427	12	PVC	150	1,829.06	5.19	0.006	YES
P-98	2,318	12	PVC	150	1,440.87	4.09	0.004	YES
P-99	3,117	10	PVC	150	290.09	1.19	0.000	YES
P-100	2,751	12	PVC	150	1,119.74	3.18	0.002	YES

POTABLE WATER MASTER PLAN
TABLE E.11
FUTURE SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-102	74	8	PVC	150	499.35	3.19	0.004	YES
P-103	2,664	8	PVC	150	500.59	3.20	0.004	YES
P-104	10	12	DIP	130	2,000.00	5.67	0.009	YES
P-105	15	12	DIP	130	2,000.00	5.67	0.009	YES
P-106	8	12	DIP	130	2,000.00	5.67	0.009	YES
P-107	18	12	DIP	130	2,000.00	5.67	0.009	YES
P-108	13	12	DIP	130	500.00	1.42	0.001	YES
P-109	12	12	DIP	130	500.00	1.42	0.001	YES
P-110	2,336	12	PVC	150	306.41	0.87	0.000	YES
P-111	311	12	PVC	150	306.41	0.87	0.000	YES
P-112	12	12	DIP	130	2,000.00	5.67	0.009	YES
P-113	12	12	DIP	130	2,000.00	5.67	0.009	YES
P-114	12	12	DIP	130	2,000.00	5.67	0.009	YES
P-115	13	12	DIP	130	2,000.00	5.67	0.009	YES
P-116	13	12	DIP	130	2,000.00	5.67	0.009	YES
P-117	12	12	DIP	130	2,000.00	5.67	0.009	YES
P-118	9	12	DIP	130	2,000.00	5.67	0.009	YES
P-119	16	12	DIP	130	2,000.00	5.67	0.009	YES
P-120	16	12	DIP	130	2,000.00	5.67	0.009	YES
P-121	9	12	DIP	130	2,000.00	5.67	0.009	YES
P-122	7	12	DIP	130	2,000.00	5.67	0.009	YES
P-123	17	12	DIP	130	2,000.00	5.67	0.009	YES
P-124	15	12	DIP	130	1,507.68	4.28	0.005	YES
P-125	9	12	DIP	130	1,507.68	4.28	0.005	YES
P-126	15	12	DIP	130	2,000.00	5.67	0.009	YES
P-127	10	12	DIP	130	2,000.00	5.67	0.009	YES
P-128	608	10	PVC	150	1,280.84	5.23	0.007	YES

POTABLE WATER MASTER PLAN
TABLE E.11
FUTURE SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-129	950	10	PVC	150	1,280.84	5.23	0.007	YES
P-130	1,235	10	PVC	150	-1,208.08	4.93	0.007	YES
P-131	1,568	10	PVC	150	-1,208.08	4.93	0.007	YES
P-200	2,658	24	PVC	150	7,482.24	5.31	0.003	YES
P-201	2,793	16	PVC	150	4,027.93	6.43	0.006	YES
P-202	2,483	16	PVC	150	4,582.03	7.31	0.008	YES
P-203	2,656	12	PVC	150	2,428.76	6.89	0.010	YES
P-204	1,713	10	PVC	150	223.06	0.91	0.000	YES
P-206	2,814	12	PVC	150	1,703.43	4.83	0.005	YES
P-207	2,626	12	PVC	150	1,572.20	4.46	0.004	YES
P-208	2,674	12	PVC	150	1,910.21	5.42	0.006	YES
P-209	2,616	12	PVC	150	1,051.50	2.98	0.002	YES
P-210	2,625	12	PVC	150	829.84	2.35	0.001	YES
P-221	2,658	8	PVC	150	464.13	2.96	0.003	YES
P-227	2,321	8	PVC	150	-381.42	2.43	0.002	YES
P-228	4,125	12	PVC	150	246.97	0.70	0.000	YES
P-229	5,162	12	PVC	150	-589.52	1.67	0.001	YES
P-230	134	8	PVC	150	269.13	1.72	0.001	YES
P-231	425	12	DIP	130	3,417.11	9.69	0.025	NO
P-232	5,235	12	PVC	150	238.29	0.68	0.000	YES
P-235	1,154	8	PVC	150	700.21	4.47	0.007	YES
P-236	5,206	8	PVC	150	431.33	2.75	0.003	YES
P-237	4,474	12	PVC	150	-576.95	1.64	0.001	YES
P-238	3,174	12	PVC	150	-580.76	1.65	0.001	YES
P-242	4,070	12	PVC	150	2.19	0.01	0.000	YES
P-243	2,560	12	PVC	150	-56.83	0.16	0.000	YES
P-245	5,223	12	PVC	150	-715.08	2.03	0.001	YES

POTABLE WATER MASTER PLAN
TABLE E.11
FUTURE SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-246	3,966	12	PVC	150	1,060.98	3.01	0.002	YES
P-247	3,571	12	PVC	150	1,060.98	3.01	0.002	YES
P-248	3,694	12	PVC	150	1,119.74	3.18	0.002	YES
P-249	3,101	12	PVC	150	261.38	0.74	0.000	YES
P-253	2,624	8	PVC	150	782.43	4.99	0.009	YES
P-254	2,836	24	PVC	150	7,827.68	5.55	0.003	YES
P-255	2,581	12	PVC	150	2,458.90	6.98	0.010	YES
P-256	180	12	PVC	150	2,458.90	6.98	0.010	YES
P-257	2,455	12	PVC	150	-562.14	1.59	0.001	YES
P-258	2,591	12	PVC	150	1,245.03	3.53	0.003	YES
P-259	5,333	12	PVC	150	905.82	2.57	0.002	YES
P-260	2,357	12	PVC	150	2,999.88	8.51	0.015	NO
P-261	270	12	PVC	150	3,444.76	9.77	0.019	NO
P-262	2,341	12	PVC	150	3,444.76	9.77	0.019	NO
P-263	2,677	12	PVC	150	702.50	1.99	0.001	YES
P-264	2,621	12	PVC	150	481.09	1.36	0.001	YES
P-265	2,609	12	PVC	150	-74.01	0.21	0.000	YES
P-266	194	12	PVC	150	1,913.80	5.43	0.006	YES
P-267	2,691	8	PVC	150	410.00	2.62	0.003	YES
P-268	206	12	PVC	150	1,892.32	5.37	0.006	YES
P-269	2,765	8	PVC	150	547.98	3.50	0.005	YES
P-270	2,509	8	PVC	150	0.00	0.00	0.000	YES
P-271	2,605	12	PVC	150	-373.64	1.06	0.000	YES
P-272	2,613	12	PVC	150	-373.64	1.06	0.000	YES
P-273	2,645	12	PVC	150	453.29	1.29	0.000	YES
P-274	2,561	12	PVC	150	-104.92	0.30	0.000	YES
P-275	2,583	12	PVC	150	273.41	0.78	0.000	YES

POTABLE WATER MASTER PLAN
TABLE E.11
FUTURE SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-277	2,695	8	PVC	150	268.84	1.72	0.001	YES
P-278	2,547	8	PVC	150	602.44	3.85	0.005	YES
P-279	2,686	8	PVC	150	555.09	3.54	0.005	YES
P-280	2,529	8	PVC	150	0.00	0.00	0.000	YES
P-281	2,744	8	PVC	150	0.00	0.00	0.000	YES
P-282	2,783	8	PVC	150	0.00	0.00	0.000	YES
P-283	2,668	8	PVC	150	558.21	3.56	0.005	YES
P-284	2,633	8	PVC	150	628.47	4.01	0.006	YES
P-285	2,650	8	PVC	150	417.41	2.66	0.003	YES
P-286	2,558	8	PVC	150	333.60	2.13	0.002	YES
P-287	2,688	16	PVC	150	2,382.28	3.80	0.002	YES
P-288	2,613	16	PVC	150	2,630.08	4.20	0.003	YES
P-289	2,778	16	PVC	150	3,814.58	6.09	0.006	YES
P-290	2,488	16	PVC	150	4,182.29	6.67	0.007	YES
P-291	2,656	16	PVC	150	3,460.78	5.52	0.005	YES
P-293	2,775	12	PVC	150	1,892.32	5.37	0.006	YES
P-295	2,665	12	PVC	150	1,694.90	4.81	0.005	YES
P-296	2,655	12	PVC	150	1,838.32	5.21	0.006	YES
P-297	2,626	12	PVC	150	1,446.49	4.10	0.004	YES
P-298	2,654	12	PVC	150	1,751.96	4.97	0.005	YES
P-299	2,594	24	PVC	150	8,019.73	5.69	0.003	YES
P-300	2,623	8	PVC	150	-94.35	0.60	0.000	YES
P-301	2,871	8	PVC	150	-561.92	3.59	0.005	YES
P-302	12	12	DIP	130	2,000.00	5.67	0.009	YES
P-303	13	12	DIP	130	2,000.00	5.67	0.009	YES
P-304	12	12	DIP	130	2,000.00	5.67	0.009	YES
P-305	2,678	12	PVC	150	-1,011.13	2.87	0.002	YES

POTABLE WATER MASTER PLAN
TABLE E.11
FUTURE SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-306	17	12	DIP	130	-2,000.00	5.67	0.009	YES
P-307	13	12	DIP	130	-2,000.00	5.67	0.009	YES
P-308	12	12	DIP	130	-2,000.00	5.67	0.009	YES
P-309	2,662	12	PVC	150	-437.01	1.24	0.000	YES
P-310	2,702	12	PVC	150	1,031.83	2.93	0.002	YES
P-311	2,605	12	PVC	150	1,072.65	3.04	0.002	YES
P-312	12	12	DIP	130	-2,000.00	5.67	0.009	YES
P-313	13	12	DIP	130	-2,000.00	5.67	0.009	YES
P-314	3,266	8	PVC	150	-593.79	3.79	0.005	YES
P-315	2,468	12	PVC	150	1,865.11	5.29	0.006	YES
P-316	2,703	12	PVC	150	1,143.92	3.25	0.002	YES
P-317	2,708	12	PVC	150	717.28	2.03	0.001	YES
P-318	2,707	8	PVC	150	467.57	2.98	0.003	YES
P-319	2,671	8	PVC	150	518.40	3.31	0.004	YES
P-320	2,638	8	PVC	150	477.81	3.05	0.004	YES
P-321	2,738	8	PVC	150	373.83	2.39	0.002	YES
P-322	2,492	8	PVC	150	0.00	0.00	0.000	YES
P-323	2,675	8	PVC	150	401.08	2.56	0.003	YES
P-324	2,633	8	PVC	150	939.14	5.99	0.012	YES
P-325	2,678	8	PVC	150	0.00	0.00	0.000	YES
P-326	2,762	8	PVC	150	391.78	2.50	0.002	YES
P-327	2,650	8	PVC	150	350.96	2.24	0.002	YES
P-328	2,679	8	PVC	150	-247.79	1.58	0.001	YES
P-329	2,579	8	PVC	150	-266.59	1.70	0.001	YES
P-330	2,598	8	PVC	150	270.90	1.73	0.001	YES
P-331	2,734	8	PVC	150	311.49	1.99	0.002	YES
P-332	2,670	8	PVC	150	-367.71	2.35	0.002	YES

POTABLE WATER MASTER PLAN
TABLE E.11
FUTURE SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-333	2,602	8	PVC	150	180.27	1.15	0.001	YES
P-334	2,710	8	PVC	150	-373.83	2.39	0.002	YES
P-335	2,726	8	PVC	150	0.00	0.00	0.000	YES
P-336	2,679	8	PVC	150	16.02	0.10	0.000	YES
P-337	2,567	8	PVC	150	571.12	3.65	0.005	YES
P-338	2,690	8	PVC	150	0.00	0.00	0.000	YES
P-339	3,466	8	PVC	150	-538.06	3.43	0.004	YES
P-340	2,625	8	PVC	150	0.00	0.00	0.000	YES
P-341	2,587	8	PVC	150	0.00	0.00	0.000	YES
P-342	2,664	8	PVC	150	210.37	1.34	0.001	YES
P-343	2,676	8	PVC	150	-181.41	1.16	0.001	YES
P-344	2,942	8	PVC	150	245.23	1.57	0.001	YES
P-345	2,581	8	PVC	150	-143.42	0.92	0.000	YES
P-346	2,592	8	PVC	150	-213.68	1.36	0.001	YES
P-347	2,626	8	PVC	150	-551.69	3.52	0.005	YES
P-348	2,681	8	PVC	150	-200.73	1.28	0.001	YES
P-349	2,616	8	PVC	150	-305.47	1.95	0.002	YES
P-350	2,598	8	PVC	150	-221.66	1.41	0.001	YES
P-351	2,634	8	PVC	150	141.09	0.90	0.000	YES
P-352	5,191	24	PVC	150	8,931.17	6.33	0.004	YES
P-353	284	12	PVC	150	-559.48	1.59	0.001	YES
P-354	268	12	PVC	150	2,999.88	8.51	0.015	NO
P-355	2,574	12	PVC	150	890.36	2.53	0.002	YES
P-356	2,708	12	PVC	150	819.56	2.32	0.001	YES
P-357	2,524	12	PVC	150	821.68	2.33	0.001	YES
P-358	1,350	12	PVC	150	-1,376.15	3.90	0.004	YES
P-359	1,428	12	PVC	150	-1,376.15	3.90	0.004	YES

POTABLE WATER MASTER PLAN
TABLE E.11
FUTURE SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-360	2,453	12	PVC	150	1,913.80	5.43	0.006	YES
P-361	2,638	8	PVC	150	339.20	2.17	0.002	YES
P-362	2,472	12	PVC	150	1,892.32	5.37	0.006	YES
P-363	2,612	8	PVC	150	428.80	2.74	0.003	YES
P-364	2,242	12	PVC	150	1,927.16	5.47	0.007	YES
P-365	3,358	12	PVC	150	1,927.16	5.47	0.007	YES
P-367	2,607	12	PVC	150	484.47	1.37	0.001	YES
P-370	13	12	DIP	130	2,000.00	5.67	0.009	YES
P-371	19	12	DIP	130	-2,000.00	5.67	0.009	YES
P-372	2,695	12	PVC	150	-161.05	0.46	0.000	YES
P-373	26	12	DIP	130	-2,000.00	5.67	0.009	YES
P-374	22	12	DIP	130	-2,000.00	5.67	0.009	YES
P-400	5,324	16	PVC	150	1,465.07	2.34	0.001	YES
P-402	2,676	16	PVC	150	2,100.32	3.35	0.002	YES
P-403	4,801	16	PVC	150	870.31	1.39	0.000	YES
P-405	2,053	12	PVC	150	-1,487.06	4.22	0.004	YES
P-406	4,444	16	PVC	150	1,311.83	2.09	0.001	YES
P-407	10,476	12	PVC	150	-1,748.34	4.96	0.005	YES
P-408	6,923	12	PVC	150	-2,152.81	6.11	0.008	YES
P-409	5,062	12	PVC	150	1,883.03	5.34	0.006	YES
P-410	5,891	12	PVC	150	-326.11	0.93	0.000	YES
P-411	5,261	12	PVC	150	-666.98	1.89	0.001	YES
P-412	6,819	16	PVC	150	-4,465.39	7.13	0.008	YES
P-413	5,750	12	PVC	150	-1,664.33	4.72	0.005	YES
P-414	2,218	12	PVC	150	-353.17	1.00	0.000	YES
P-417	248	24	PVC	150	10,047.14	7.13	0.005	YES
P-418	118	16	DIP	130	2,800.00	4.47	0.004	YES

POTABLE WATER MASTER PLAN
TABLE E.11
FUTURE SCENARIO - PEAK HOUR PIPE RESULTS

Label	Scaled Length (feet)	Diameter (inches)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Hydraulic Gradient (ft/ft)	Meets Criteria[1]
P-419	10,991	16	PVC	150	2,800.00	4.47	0.003	YES
P-420	197	12	PVC	150	-3,153.17	8.94	0.016	NO
P-421	1,716	12	PVC	150	-3,151.40	8.94	0.016	NO
P-422	5,186	12	PVC	150	-924.34	2.62	0.002	YES
P-423	131	12	PVC	150	-923.64	2.62	0.002	YES

[1]Velocity ≤ 7.5 fps

POTABLE WATER MASTER PLAN
TABLE E.12
FUTURE SCENARIO - PEAK HOUR RESERVOIR RESULTS

Label	Elevation (feet)	Outflow (gpm)	HGL (feet)	Pressure Zone ID
MM-1	5,152.0	500.0	5,152.0	1
MM-2	5,190.0	2,000.0	5,190.0	1
MM-3	5,190.0	2,000.0	5,190.0	1
MM-4	5,190.0	2,000.0	5,190.0	1
MM-5	5,115.0	2,000.0	5,115.0	2
MM-6	5,115.0	2,000.0	5,115.0	2
MM-7	5,075.0	2,000.0	5,075.0	3
MM-8	5,075.0	2,000.0	5,075.0	3
MM-9	5,075.0	2,000.0	5,075.0	3
MM-10	5,075.0	1,507.7	5,075.0	3
MM-11	5,075.0	2,000.0	5,075.0	3
MM-12	5,075.0	2,000.0	5,075.0	3
MM-13	5,190.0	2,000.0	5,190.0	1
MM-14	5,075.0	2,000.0	5,075.0	3
MM-15	5,190.0	2,000.0	5,190.0	1
MM-16	5,190.0	2,000.0	5,190.0	1
MM-17	5,115.0	2,000.0	5,115.0	2
TOTAL		**32,007.7**		

POTABLE WATER MASTER PLAN
TABLE E.13
FUTURE SCENARIO - PEAK HOUR PRV RESULTS

Label	Elevation	Diameter	Initial Settings		Flow	Hydraulic Grade		Headloss
			Hydraulic Grade	Pressure		To	From	
	(feet)	(inches)	(feet)	(psi)	(gpm)	(feet)	(feet)	(feet)
PRV-1	4,952.3	8	5,115.0	70.4	1,443.5	5,071.4	5,071.4	0.0
PRV-2	4,906.4	8	5,075.0	73.0	463.4	5,046.5	5,046.5	0.0
PRV-200	4,943.0	8	5,115.0	74.4	2,458.9	5,090.3	5,090.3	0.0
PRV-201	4,952.0	8	5,075.0	53.2	559.5	5,100.3	5,075.0	25.3
PRV-202	4,953.0	8	5,115.0	70.1	2,999.9	5,069.8	5,069.8	0.0
PRV-203	4,962.0	8	5,115.0	66.2	3,444.8	5,081.4	5,081.4	0.0
PRV-204	4,885.0	8	5,075.0	82.2	1,376.2	5,028.6	5,028.6	0.0
PRV-205	4,885.0	8	5,075.0	82.2	1,913.8	5,018.9	5,018.9	0.0
PRV-206	4,885.0	8	5,075.0	82.2	1,892.3	5,003.2	5,003.2	0.0
PRV-207	5,025.0	8	5,165.0	60.6	499.4	5,176.1	5,165.1	11.1
PRV-208	5,001.0	8	5,165.0	71.0	306.4	5,153.0	5,153.0	0.0
PRV-209	4,910.0	8	5,075.0	71.4	1,927.2	5,056.3	5,056.3	0.0
PRV-210	4,891.0	8	5,075.0	79.6	1,208.1	5,030.5	5,030.5	0.0
PRV-211	4,894.0	8	5,075.0	78.3	1,280.8	5,036.9	5,036.9	0.0
PRV-400	4,850.0	8	5,010.0	69.2	3,151.4	5,055.4	5,010.1	45.3
PRV-401	4,869.0	8	5,010.0	61.0	923.6	5,030.6	5,010.1	20.5

POTABLE WATER MASTER PLAN
TABLE E.14
EXISTING SCENARIO - PEAK HOUR TANK RESULTS

Label	Base Elevation	Minimum Elevation	Initial Elevation	Maximum Elevation	Diameter	Outflow	Hydraulic Grade
	(feet)	(feet)	(feet)	(feet)	(feet)	(gpm)	(feet)
T-1	5,097.5	5,122.5	5,192.5	5,197.5	50.0	7,300.4	5,192.5
T-200	5,097.5	5,122.5	5,192.5	5,197.5	50.0	2,878.9	5,192.5
T-400	5,000.0	5,105.0	5,145.0	5,150.0	85.0	7,247.1	5,145.0

POTABLE WATER MASTER PLAN
TABLE E.15
FUTURE SCENARIO - PEAK HOUR PUMP RESULTS

Label	Elevation	Intake Grade	Discharge Grade	Discharge	Pump Head
	(feet)	(feet)	(feet)	(gpm)	(feet)
PMP-1	5,097.0	5,151.2	5,194.6	500.0	43.4
PMP-200	5,097.0	5,147.9	5,193.6	500.0	45.7
PMP-400	4,850.0	5,006.3	5,180.4	2,800.0	174.1

POTABLE WATER MASTER PLAN

TABLE E.16

FUTURE SCENARIO - FIRE FLOW RESULTS (RESIDENTIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-1	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-2	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-3	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-4	TRUE	1,500.0	2,000.0	1,674.8	2,174.8	20.0	68.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-5	TRUE	1,500.0	2,000.0	1,852.6	2,352.6	20.0	77.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-6	TRUE	1,500.0	2,000.0	2,127.6	2,627.6	20.0	77.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-7	TRUE	1,500.0	2,000.0	1,614.2	2,114.2	20.0	75.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-8	TRUE	1,500.0	2,000.0	1,802.2	2,302.2	20.0	56.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-9	TRUE	1,500.0	2,000.0	1,560.8	2,060.8	20.0	32.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-10	TRUE	1,500.0	2,000.0	1,560.8	2,060.8	20.0	72.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-11	TRUE	1,500.0	2,000.0	1,604.2	2,104.2	20.0	70.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-12	TRUE	1,500.0	2,000.0	1,522.4	2,022.4	20.0	78.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-13	TRUE	1,500.0	2,000.0	1,636.8	2,136.8	20.0	73.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-14	TRUE	1,500.0	2,000.0	1,511.8	2,011.8	20.0	66.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-15	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	75.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-16	TRUE	1,500.0	2,000.0	1,540.0	2,040.0	20.0	78.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-17	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	76.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-18	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	73.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-19	TRUE	1,500.0	2,000.0	1,595.4	2,095.4	20.0	77.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-20	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	76.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-21	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	82.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-22	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	85.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-23	TRUE	1,500.0	2,000.0	1,766.4	2,266.4	20.0	65.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-24	TRUE	1,500.0	2,000.0	1,570.4	2,070.4	20.0	71.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-25	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	71.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-26	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	77.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-27	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	75.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-28	TRUE	1,500.0	2,000.0	1,595.4	2,095.4	20.0	77.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-29	TRUE	1,500.0	2,000.0	1,545.2	2,045.2	20.0	86.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-30	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	78.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-31	TRUE	1,500.0	2,000.0	1,541.2	2,041.2	20.0	63.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-32	TRUE	1,500.0	2,000.0	2,549.8	3,049.8	20.0	89.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-33	TRUE	1,500.0	2,000.0	1,517.6	2,017.6	20.0	86.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-34	TRUE	1,500.0	2,000.0	1,955.0	2,455.0	20.0	85.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-35	TRUE	1,500.0	2,000.0	1,557.8	2,057.8	20.0	82.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-36	TRUE	1,500.0	2,000.0	1,557.8	2,057.8	20.0	85.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-37	TRUE	1,500.0	2,000.0	1,524.8	2,024.8	20.0	87.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-38	TRUE	1,500.0	2,000.0	1,569.0	2,069.0	20.0	81.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE

POTABLE WATER MASTER PLAN
TABLE E.16
FUTURE SCENARIO - FIRE FLOW RESULTS (RESIDENTIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-39	TRUE	1,500.0	2,000.0	1,529.6	2,029.6	20.0	85.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-40	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	85.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-41	TRUE	1,500.0	2,000.0	1,589.4	2,089.4	20.0	78.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-42	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	86.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-43	TRUE	1,500.0	2,000.0	1,825.8	2,325.8	20.0	86.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-44	TRUE	1,500.0	2,000.0	1,587.2	2,087.2	20.0	83.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-45	TRUE	1,500.0	2,000.0	1,587.2	2,087.2	20.0	84.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-46	TRUE	1,500.0	2,000.0	1,602.4	2,102.4	20.0	82.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-47	TRUE	1,500.0	2,000.0	1,602.4	2,102.4	20.0	84.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-48	TRUE	1,500.0	2,000.0	1,639.8	2,139.8	20.0	80.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-49	TRUE	1,500.0	2,000.0	1,707.8	2,207.8	20.0	78.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-50	TRUE	1,500.0	2,000.0	1,911.0	2,411.0	20.0	78.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-51	TRUE	1,500.0	2,000.0	1,967.6	2,467.6	20.0	74.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-52	TRUE	1,500.0	2,000.0	1,849.0	2,349.0	20.0	58.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-53	TRUE	1,500.0	2,000.0	1,735.0	2,235.0	20.0	58.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-54	TRUE	1,500.0	2,000.0	1,624.8	2,124.8	20.0	57.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-55	TRUE	1,500.0	2,000.0	1,591.8	2,091.8	20.0	78.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-56	TRUE	1,500.0	2,000.0	1,589.4	2,089.4	20.0	70.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-57	TRUE	1,500.0	2,000.0	1,570.8	2,070.8	20.0	48.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-58	TRUE	1,500.0	2,000.0	2,272.4	2,772.4	20.0	87.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-59	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	85.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-60	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	71.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-61	(N/A)	1,500.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-62	TRUE	1,500.0	2,000.0	1,658.6	2,158.6	20.0	52.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-63	TRUE	1,500.0	2,000.0	1,541.2	2,041.2	20.0	74.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-64	TRUE	1,500.0	2,000.0	1,565.4	2,065.4	20.0	61.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-65	TRUE	1,500.0	2,000.0	1,565.4	2,065.4	20.0	60.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-66	TRUE	1,500.0	2,000.0	1,659.2	2,159.2	20.0	51.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-67	TRUE	1,500.0	2,000.0	1,941.8	2,441.8	20.0	79.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-68	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	84.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-69	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	65.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-70	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	91.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-71	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	82.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-72	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	83.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-200	TRUE	1,500.0	2,000.0	2,395.4	2,895.4	20.0	73.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-201	TRUE	1,500.0	2,000.0	2,512.0	3,012.0	20.0	76.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-202	TRUE	1,500.0	2,000.0	3,265.0	3,765.0	20.0	71.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-203	TRUE	1,500.0	2,000.0	3,619.2	4,119.2	20.0	64.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE

POTABLE WATER MASTER PLAN
TABLE E.16
FUTURE SCENARIO - FIRE FLOW RESULTS (RESIDENTIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-204	TRUE	1,500.0	2,000.0	2,895.0	3,395.0	20.0	74.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-205	TRUE	1,500.0	2,000.0	2,084.2	2,584.2	20.0	84.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-206	TRUE	1,500.0	2,000.0	3,069.6	3,569.6	20.0	74.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-207	TRUE	1,500.0	2,000.0	2,581.0	3,081.0	20.0	85.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-208	TRUE	1,500.0	2,000.0	2,241.8	2,741.8	20.0	89.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-209	TRUE	1,500.0	2,000.0	2,181.8	2,681.8	20.0	74.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-210	TRUE	1,500.0	2,000.0	2,000.4	2,500.4	20.0	93.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-211	TRUE	1,500.0	2,000.0	1,890.2	2,390.2	20.0	97.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-212	TRUE	1,500.0	2,000.0	1,874.0	2,374.0	20.0	91.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-213	TRUE	1,500.0	2,000.0	2,463.6	2,963.6	20.0	77.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-214	TRUE	1,500.0	2,000.0	1,921.2	2,421.2	20.0	103.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-215	TRUE	1,500.0	2,000.0	1,675.6	2,175.6	20.0	90.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-216	TRUE	1,500.0	2,000.0	1,898.8	2,398.8	20.0	100.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-217	TRUE	1,500.0	2,000.0	2,231.0	2,731.0	20.0	72.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-218	TRUE	1,500.0	2,000.0	1,657.4	2,157.4	20.0	92.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-219	TRUE	1,500.0	2,000.0	1,624.6	2,124.6	20.0	53.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-220	TRUE	1,500.0	2,000.0	2,120.2	2,620.2	20.0	64.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-221	TRUE	1,500.0	2,000.0	1,713.6	2,213.6	20.0	90.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-222	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	51.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-223	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	60.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-224	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	58.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-225	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	57.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-226	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	73.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-227	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	69.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-228	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	76.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-229	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	76.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-230	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	68.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-231	TRUE	1,500.0	1,947.4	1,500.0	1,947.4	20.0	20.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-232	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	80.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-233	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	83.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-234	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	95.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-235	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	88.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-236	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	83.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-237	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	69.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-238	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	77.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-239	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	81.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-240	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	62.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-241	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	81.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE

POTABLE WATER MASTER PLAN
TABLE E.16
FUTURE SCENARIO - FIRE FLOW RESULTS (RESIDENTIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-242	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	80.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-243	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	84.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-244	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	86.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-245	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	75.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-246	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	78.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-247	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	102.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-248	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	94.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-249	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	64.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-251	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	88.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-253	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	85.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-254	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	72.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-255	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	73.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-256	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	75.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-257	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	81.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-258	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	105.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-259	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	100.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-261	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	73.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-262	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	98.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-400	TRUE	1,500.0	2,000.0	3,537.6	4,037.6	20.0	64.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-401	TRUE	1,500.0	2,000.0	2,049.8	2,549.8	20.0	55.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-402	TRUE	1,500.0	2,000.0	2,102.6	2,602.6	20.0	76.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-403	TRUE	1,500.0	2,000.0	1,871.0	2,371.0	20.0	71.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-404	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	111.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-405	TRUE	1,500.0	2,000.0	2,611.0	3,111.0	20.0	95.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-406	TRUE	1,500.0	2,000.0	2,644.2	3,144.2	20.0	78.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-407	TRUE	1,500.0	2,000.0	2,530.6	3,030.6	20.0	63.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-408	TRUE	1,500.0	2,000.0	1,645.8	2,145.8	20.0	91.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-409	TRUE	1,500.0	2,000.0	1,500.0	2,000.0	20.0	68.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE

POTABLE WATER MASTER PLAN
TABLE E.17
FUTURE SCENARIO - FIRE FLOW RESULTS (COMMERCIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-1	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-2	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-3	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-4	TRUE	3,000.0	3,500.0	3,174.8	3,674.8	20.0	66.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-5	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-6	TRUE	3,000.0	3,500.0	3,627.6	4,127.6	20.0	72.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-7	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-8	TRUE	3,000.0	3,055.7	3,302.2	3,357.9	20.0	20.0	20.0	23.5	48.0	(N/A)	23.5	48.0	TRUE
J-9	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-10	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-11	TRUE	3,000.0	3,500.0	3,104.2	3,604.2	20.0	55.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-12	TRUE	3,000.0	3,500.0	3,022.4	3,522.4	20.0	66.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-13	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-14	TRUE	3,000.0	3,500.0	3,011.8	3,511.8	20.0	57.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-15	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	68.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-16	TRUE	3,000.0	3,500.0	3,040.0	3,540.0	20.0	69.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-17	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-18	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-19	TRUE	3,000.0	3,500.0	3,095.4	3,595.4	20.0	66.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-20	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-21	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-22	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-23	TRUE	3,000.0	3,500.0	3,266.4	3,766.4	20.0	41.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-24	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-25	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-26	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-27	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-28	TRUE	3,000.0	3,500.0	3,095.4	3,595.4	20.0	68.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-29	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-30	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	74.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-31	TRUE	3,000.0	3,500.0	3,041.2	3,541.2	20.0	36.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-32	TRUE	3,000.0	3,500.0	4,049.8	4,549.8	20.0	85.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-33	TRUE	3,000.0	3,500.0	3,017.6	3,517.6	20.0	82.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-34	TRUE	3,000.0	3,500.0	3,455.0	3,955.0	20.0	81.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-35	TRUE	3,000.0	3,500.0	3,057.8	3,557.8	20.0	67.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-36	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-37	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-38	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)

POTABLE WATER MASTER PLAN
TABLE E.17
FUTURE SCENARIO - FIRE FLOW RESULTS (COMMERCIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-39	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-40	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	77.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-41	TRUE	3,000.0	3,500.0	3,089.4	3,589.4	20.0	62.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-42	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	81.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-43	TRUE	3,000.0	3,500.0	3,325.8	3,825.8	20.0	81.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-44	TRUE	3,000.0	3,500.0	3,087.2	3,587.2	20.0	77.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-45	TRUE	3,000.0	3,500.0	3,087.2	3,587.2	20.0	78.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-46	TRUE	3,000.0	3,500.0	3,102.4	3,602.4	20.0	76.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-47	TRUE	3,000.0	3,500.0	3,102.4	3,602.4	20.0	40.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-48	TRUE	3,000.0	3,500.0	3,139.8	3,639.8	20.0	73.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-49	TRUE	3,000.0	3,500.0	3,207.8	3,707.8	20.0	70.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-50	TRUE	3,000.0	3,500.0	3,411.0	3,911.0	20.0	71.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-51	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-52	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-53	TRUE	3,000.0	3,500.0	3,235.0	3,735.0	20.0	52.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-54	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-55	TRUE	3,000.0	3,500.0	3,091.8	3,591.8	20.0	65.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-56	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-57	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-58	TRUE	3,000.0	3,500.0	3,772.4	4,272.4	20.0	82.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-59	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	79.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-60	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-61	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-62	FALSE	3,000.0	2,898.9	3,158.6	3,057.5	20.0	20.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-63	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-64	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-65	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-66	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-67	TRUE	3,000.0	3,500.0	3,441.8	3,941.8	20.0	74.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-68	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	79.1	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-69	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-70	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	83.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-71	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-72	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	74.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-200	TRUE	3,000.0	3,500.0	3,895.4	4,395.4	20.0	68.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-201	TRUE	3,000.0	3,500.0	4,012.0	4,512.0	20.0	70.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-202	TRUE	3,000.0	3,500.0	4,765.0	5,265.0	20.0	62.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-203	TRUE	3,000.0	3,500.0	5,119.2	5,619.2	20.0	57.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE

POTABLE WATER MASTER PLAN
TABLE E.17
FUTURE SCENARIO - FIRE FLOW RESULTS (COMMERCIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-204	TRUE	3,000.0	3,500.0	4,395.0	4,895.0	20.0	62.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-205	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-206	TRUE	3,000.0	3,500.0	4,569.6	5,069.6	20.0	34.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-207	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-208	TRUE	3,000.0	3,500.0	3,741.8	4,241.8	20.0	81.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-209	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-210	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-211	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-212	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-213	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-214	TRUE	3,000.0	3,500.0	3,421.2	3,921.2	20.0	97.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-215	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-216	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-217	TRUE	3,000.0	3,500.0	3,731.0	4,231.0	20.0	32.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-218	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-219	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-220	TRUE	3,000.0	3,500.0	3,620.2	4,120.2	20.0	59.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-221	TRUE	3,000.0	3,500.0	3,213.6	3,713.6	20.0	83.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-222	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	41.6	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-223	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-224	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-225	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-226	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-227	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-228	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-229	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-230	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-231	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-232	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-233	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-234	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-235	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-236	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	44.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-237	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	64.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-238	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	70.5	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-239	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-240	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	44.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-241	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)

POTABLE WATER MASTER PLAN
TABLE E.17
FUTURE SCENARIO - FIRE FLOW RESULTS (COMMERCIAL)

Label	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual Lower Limit) (psi)	Pressure (Zone Lower Limit) (psi)	Calculated Minimum Zone Pressure (psi)	Junction w/Minimum Pressure (Zone) (psi)	Pressure (System Lower Limit) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/Minimum Pressure (System)	Is Fire Flow Run Balanced?
J-242	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-243	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-244	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-245	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-246	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-247	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-248	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-249	(N/A)	0.0	(N/A)	(N/A)	(N/A)	0.0	(N/A)	0.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-251	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-253	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-254	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-255	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-256	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-257	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-258	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-259	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-261	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-262	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-400	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-401	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-402	TRUE	3,000.0	3,500.0	3,602.6	4,102.6	20.0	71.0	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-403	TRUE	3,000.0	3,500.0	3,371.0	3,871.0	20.0	68.4	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-404	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	100.8	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-405	TRUE	3,000.0	3,500.0	4,111.0	4,611.0	20.0	88.9	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-406	TRUE	3,000.0	3,500.0	4,144.2	4,644.2	20.0	69.7	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-407	TRUE	3,000.0	3,500.0	4,030.6	4,530.6	20.0	63.3	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE
J-408	(N/A)	3,000.0	(N/A)	(N/A)	(N/A)	20.0	(N/A)	20.0	(N/A)	NaN	(N/A)	(N/A)	NaN	(N/A)
J-409	TRUE	3,000.0	3,500.0	3,000.0	3,500.0	20.0	67.2	20.0	23.8	58.0	(N/A)	23.8	58.0	TRUE