APPENDIX W

Mariposa Lakes Study on Water Service

MARIPOSA LAKES
STUDY ON WATER SERVICE

STOCKTON, CA

Prepared for:

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Job #2005 282201

September 1, 2006

MARIPOSA LAKES
STUDY ON WATER SERVICE
SEPTEMBER 1, 2006

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MARIPOSA LAKES
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Introduction

Mariposa Lakes is a 3,810-acre project located in San Joaquin County, east of State Route 99 and south of State Route 4 (Farmington Road) on the eastern border of the City of Stockton. The development is bounded to the east by Kaiser Road and to the south by Mariposa Road. A variety of land use types is planned, including residential, educational, parks and recreation, commercial, and industrial. The development will contain several lakes, a portion of Duck Creek and Little Johns Creek, an area dedicated to the Delta College, and an Amtrak Station.

Potable water service will be provided by the City of Stockton and the California Water Service Company (Cal Water). The northern areas of the development will be served by Cal Water and the southern areas of the development will be served by the City of Stockton (see Exhibit 1).

Purpose and Scope

This report has been prepared to present the findings of a study conducted by Stantec Consulting Inc. to determine the potable water infrastructure that will be needed for the Mariposa Lakes project. This report contains the following items: an explanation of water demands, descriptions of sources to be used, a discussion of storage capacity needs, information regarding the required transmission, and distribution systems.

Demands

Potable water demands for the Mariposa Lakes project are calculated based on the land uses requiring potable water supply and corresponding land use areas shown on Exhibit 2, as provided by Randall Planning and Design, Inc. The calculated potable water demand values are presented in Table 1 and include all potable water demands except firefighting demands. Potable water from Cal Water and City of Stockton water systems will not be used to fill lakes or maintain lake water levels, or to irrigate parks and recreational areas; a separate, non-potable water system will be designed for this supply. The calculated non-potable water demand values are shown in Table 2. The estimated total maximum day demand for the Mariposa Lakes project is 12.1 million gallons per day (MGD). The estimated total maximum day demands in areas to be served by Cal Water and areas to be served by the City of Stockton are approximately 6.37 MGD and 5.78 MGD, respectively.

Table 1. Potable Water Demands

Land Use	Annual Water Use[1], Acre Feet Per Acre	Area Served, Acres			Demand[2]								
					Cal Water			City of Stockton			Total		
		Cal Water	City of Stockton	Total	Average Day, MGD	Maximum Day, MGD	Peak Hour, GPM	Average Day, MGD	Maximum Day, MGD	Peak Hour, GPM	Average day, MGD	Maximum Day, MGD	Peak Hour, GPM
Low-Medium Density Residential	2.8	716.5	889.2	1,605.7	1.79	3.76	4,724	2.22	4.66	5,858	4.01	8.42	10,582
High Density Residential	3.8	26.7	30.6	57.3	0.09	0.19	238	0.10	0.21	264	0.19	0.40	501
Existing Residential	1.5	146.9	4.0	150.9	0.20	0.42	528	0.01	0.02	26	0.20	0.42	528
Commercial	1.5	33.7	59.0	92.7	0.05	0.10	139	0.08	0.16	222	0.12	0.24	333
Industrial	1.5	550.8	121.2	672.0	0.74	1.48	2,056	0.16	0.32	444	0.90	1.80	2,500
Institutional	2.0	23.2	19.9	43.1	0.04	0.08	106	0.04	0.08	106	0.08	0.17	211
Educational, General	2.0	88.3	65.4	153.7	0.16	0.34	422	0.12	0.25	317	0.27	0.57	713
Delta College	2.0	0.0	20.7	20.7	0.00	0.00	0	0.04	0.08	106	0.04	0.08	106
Total		1,586.1	1,210.0	2,796.1	3.07	6.37	8,213	2.77	5.78	7,343	5.81	12.10	15,474

[1]These values were extracted from Table 3-3 of the November 2004 City of Stockton, South Stockton Water Master Plan Update by West Yost & Associates.

[2]Demand peaking factors were extracted from the November 2004 City of Stockton, *South Stockton Water Master Plan Update by West Yost & Associates*. For land uses not covered by the peaking factors from Table 3-3, assumptions are made. The ratio of average day demand to maximum day demand for residential and institutional lands is 1:2.1. The ratio of average day demand to maximum day demand for industrial, commercial, parks, and recreational lands is 1:2.0. The ratio of average day demand to peak hour demand for residential and institutional lands is 1:3.8. The ratio of average day demand to peak hour demand for industrial, commercial, parks, and recreational lands is 1:4.0.

Table 2. Non-Potable Water Demands

Land Use	Annual Water Use[1], Acre-Feet Per Acre	Area Served, Acres	Average Demand Acre-Feet Per Year
Lakes	7.0	192.8	1,349.60
Parks and Recreation	3.0	560.3	1,680.90
Total		753.1	3,030.50

[1]The values for residential, commercial, industrial, institutional, educational, and parks and recreational land uses were extracted from Table 3-3 of the November 2004 City of Stockton, South Stockton Water Master Plan Update by West Yost & Associates. The value for lakes was extracted from the Integrated Water Master Plan by Kleinfelder.

Sources

Sources of potable water for the Mariposa Lakes project include connections to the existing Cal Water distribution system, connections to the City of Stockton water distribution system, a Cal Water well, and two City of Stockton wells. Locations of the connections and the wells are shown in Exhibit 1.

Groundwater problems facing South Stockton include excessive pumping, salt water intrusion, and a known contaminant plume near the Austin Road Landfill (*Review of Preliminary Study on Water Service, Preliminary Study on Sanitary Sewer Service, and Preliminary Report for Master Storm Drainage Plan and Flood Control for the Mariposa Lakes Specific Plan*, City of Stockton, April 14, 2005). Well locations for the Mariposa Lakes project are arbitrary and can be relocated as directed by the City based on future water supply assessment studies. Total groundwater use within the project area will not increase as a result of the development or exceed the long-term yield of the groundwater basin. According to the November 2004 *South Stockton Water Master Plan Update* by West Yost Associates, the maximum long-term yield of the groundwater basin under South Stockton is approximately 0.75 acre-feet per acre per year.

The total sustainable groundwater supply is based on the maximum groundwater yield of 0.75 acre-feet per acre per year and the total project area of 3,810 acres equal to 2,857.5 acre-feet per year (0.75 acre-feet/acre/year x 3,810 acres = 2,857.5 acre-feet/year). The total annual average day water demand for the development is approximately 3.82 MGD (4,279.2 acre-feet per year). The groundwater supply alone is not sufficient to supply water to the development. The remaining water demand will be supplemented by connections to the City of Stockton and Cal Water potable water distribution systems.

Cal Water

Current distribution system maps and project plans suggest that the Cal Water system within the Mariposa Lakes project area will be designed with 3 connections to the existing Cal Water distribution system and one well. One of the connections will be a 12-inch diameter ductile iron water main in Carpenter Road on the east side of the Burlington Northern Santa Fe Railroad. Another connection will be a 16-inch diameter ductile iron water main in State Route 4, also known as Farmington Road, approximately 700 feet east of Sinclair Avenue. The third connection will be a 16-inch diameter ductile iron water main in Mariposa Road, approximately 800 feet south of Duck Creek. The proposed new well location will be near the northeast corner of the Cal Water service area within the Mariposa Lakes project.

City of Stockton

The City of Stockton water distribution system within the Mariposa Lakes project area will be designed to receive water through three connections to the City of Stockton water distribution system and two new wells. Two of the connections will be to an existing 16-inch City of Stockton water main at the intersection of Arch Road and Fite Court (*Mariposa Lakes Specific Plan Traffic and Utility Studies*, City of Stockton, August 30, 2005) and an existing 16-inch City of Stockton water main at Kemp Way (Mariposa Lakes Specific Plan Project (SP4-031EIR 11-03) dated June 8, 2006). The third connection will be to the South Stockton Aqueduct at Carpenter Road and Mariposa Road. The locations of connections to the existing system and the new wells are shown on Exhibit 1. The capacities of the new wells will be determined by the City.

Water Master Plans are being developed in conjunction with the current General Plan Update. Advancement of the project prior to the adoption of the new Water Master Plans will require City Council approval of a new Water Master Plan incorporating the project area in the South Stockton Water System (*Mariposa Lakes Specific Plan Traffic and Utility Studies*, City of Stockton, August 30, 2005).

Storage

According to the *South Stockton Water Master Plan Update,* dated November 2004 by West Yost Associates, the required water storage capacity in South Stockton includes three components: 1) operational storage, 2) emergency storage, and 3) fire storage. The operational storage is equal to at least 25 percent of the maximum day demand. The emergency storage is equal to at least 1.5 times the average day demand. The fire storage is equal to the maximum fire flow requirement in the service area multiplied by the required flow duration.

Estimates of required storage capacity for the Mariposa Lakes project are presented in Table 3. Two storage tank sites are shown in Exhibit 1. One of the storage tank sites is in the Cal Water service area and one of the storage tank sites is in the City of Stockton service area. A booster pump station will be constructed at each storage tank site.

Table 3. Storage Capacity Requirements

Service Area	Storage[1]			
	Operational (MG)	Emergency (MG)	Fire (MG)	Total (MG)
Cal Water	1.6	4.6	1.08	7.28
City of Stockton	1.4	4.2	1.08	6.68
Total		8.8	2.2	14.0

[1]Storage capacity requirements are based on design criteria from Chapter 5 of the City of Stockton, South Stockton Water Master Plan Update, November 2004 by West Yost Associates. Fire flow storage is calculated based on a fire flow requirement of 4,500 gpm for a duration of 4-hours for industrial land use with an approved automatic sprinkler system.

Transmission and Distribution

Water transmission and distribution pipelines throughout the Mariposa Lakes project are shown in Exhibit 1. Distribution pipelines less than 12 inches in diameter are not shown. The Cal Water and City of Stockton water distribution systems will be designed with two emergency interconnections. Models of the proposed piping, storage facilities, booster pumps, and connections to water mains outside of the Mariposa Lakes project areas are created and run using WaterCAD v6.5 by Haestad Methods, Inc. Data from the models indicate that the pipe sizes (shown in Exhibit 1) will provide acceptable levels of service within the development.

Model results and diagrams for the proposed City of Stockton infrastructure and the proposed Cal Water infrastructure are in Appendix A and Appendix B, respectively. Demand scenarios were adapted from demand scenarios and system requirements described in the *South Stockton Water Master Plan Update, November 2004,* and City of Stockton Public Works Department Standard Specifications. Peak and maximum day demands with firefighting demands are modeled with use of sources and storage booster facilities at initial conditions set at the operational storage capacity, as well as without the storage/booster facilities (for both systems). For both systems, the assumed maximum pressure at connections to water mains outside of the Mariposa Lakes project is 45 pounds per square inch gauge (psig).

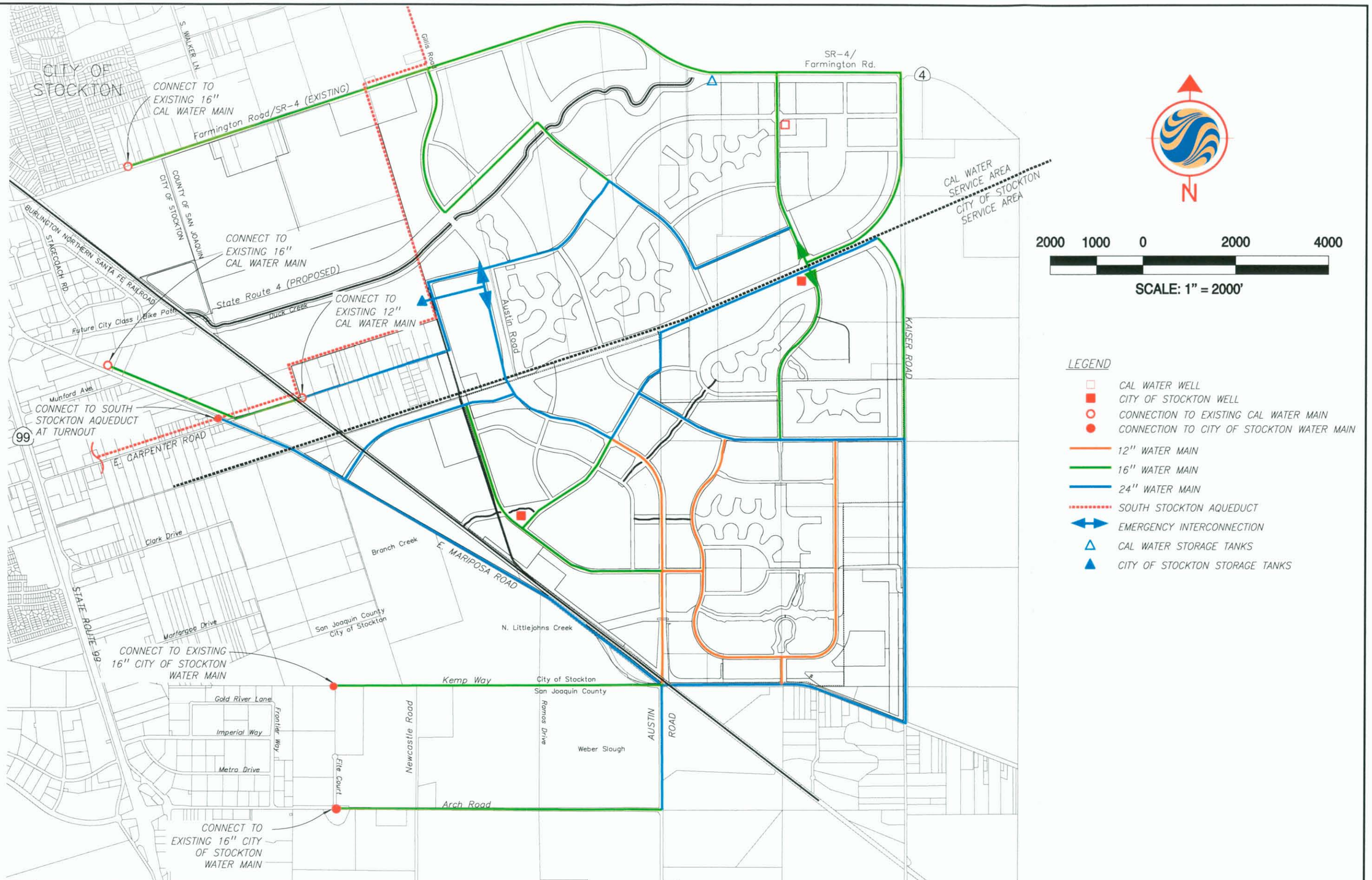
Design criteria for the model are consistent with the South Stockton Water Master Plan Update, November 2004, and the City of Stockton Public Works Department Standard Specifications. A Hazen Williams roughness coefficient value of 110 is assumed for all of the pipelines shown in Exhibit 1. The maximum allowable velocities in all pipelines are 5 feet per second under maximum day demands, and 7 feet per second under peak hour demands. The required residual pressure under peak hour demands is 40 psig. The required residual pressure under maximum day demands plus fire flow demands is 20 psig. Each booster pump station is assigned a capacity equal to the maximum fire flow demand value in its service area equal to 4,500 gpm for industrial land use with an approved sprinkler system.

Modeling results show, at maximum day demands, fire flow requirements are met for all conditions. Modeling results also indicate that, during peak hour demand periods, pressure requirements are not met when the tanks and booster pumping facilities are off.

Summary

Ultimately, water service in the Mariposa Lakes project will be provided by two separate water systems; one owned and operated by Cal Water and the other owned and operated by the City of Stockton. The calculated Cal Water system maximum day water demand is 6.37 million gallons per day (MGD) and the City of Stockton maximum day water demand is 5.78 MGD. The calculated Cal Water system service area infrastructure includes three connections to existing Cal Water mains, a new well, a 7.3 million gallon (MG) storage facility, and a network of water transmission and distribution piping. The City of Stockton system service area infrastructure includes three connections to City of Stockton water mains, two new wells, a 6.7 MG storage facility, and a network of water transmission and distribution piping. Two emergency interconnections between the water systems will be provided. In addition, at peak hour demand periods, the use of storage and pumping facilities are required to meet minimum system pressure requirements.

EXHIBIT 1
WATER PLAN



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AY	09/01/2006	
MARIPOSA LAKES STOCKTON, CA	WATER PLAN	EXHIBIT NO. 1

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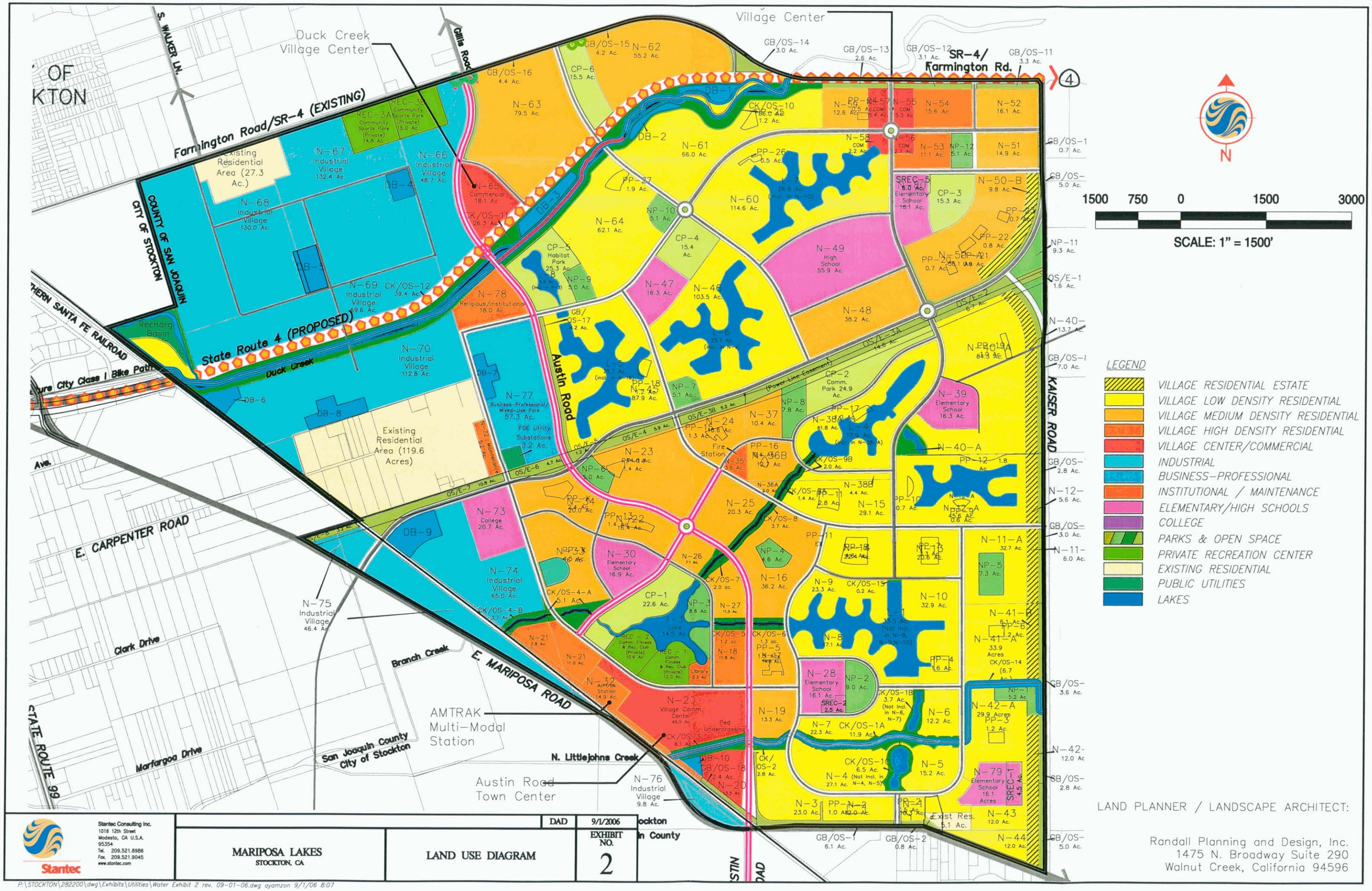
EXHIBIT 2
LAND USE DIAGRAM


Duck Creek Village Center
Village Center
S. WALKER LN.
Gills Road
Farmington Road/SR-4 (EXISTING)
SR-4/ Farmington Rd.
COUNTY OF SAN JOAQUIN
CITY OF STOCKTON
State Route 4 (PROPOSED)
Duck Creek
Austin Road
KAISER ROAD
E. CARPENTER ROAD
E. MARIPOSA ROAD
Clark Drive
Branch Creek
Marfargoa Drive
STATE ROUTE 99
AMTRAK Multi-Modal Station
San Joaquin County
City of Stockton
N. Littlejohns Creek
Austin Road Town Center
Existing Residential Area (27.3 Ac.)
Existing Residential Area (119.6 Acres)
Recharg Basin
Fire Station
Elementary School
High School
College
Village Comm. Center
Comm. Park 24.9 Ac.
Community Sports Park (Private)
Habitat Park
Religious/Institutional
Business-Professional/ Mixed-Use Park
PGE Utility Substations
Industrial Village
Commercial
Lake
Library
Amtrak Station
Ped Undercrossing
(Power Line Easement)
Exist Res.
N
1500 750 0 1500 3000
SCALE: 1" = 1500'
LEGEND
VILLAGE RESIDENTIAL ESTATE
VILLAGE LOW DENSITY RESIDENTIAL
VILLAGE MEDIUM DENSITY RESIDENTIAL
VILLAGE HIGH DENSITY RESIDENTIAL
VILLAGE CENTER/COMMERCIAL
INDUSTRIAL
BUSINESS-PROFESSIONAL
INSTITUTIONAL / MAINTENANCE
ELEMENTARY/HIGH SCHOOLS
COLLEGE
PARKS & OPEN SPACE
PRIVATE RECREATION CENTER
EXISTING RESIDENTIAL
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LAKES
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MARIPOSA LAKES
STOCKTON, CA
LAND USE DIAGRAM
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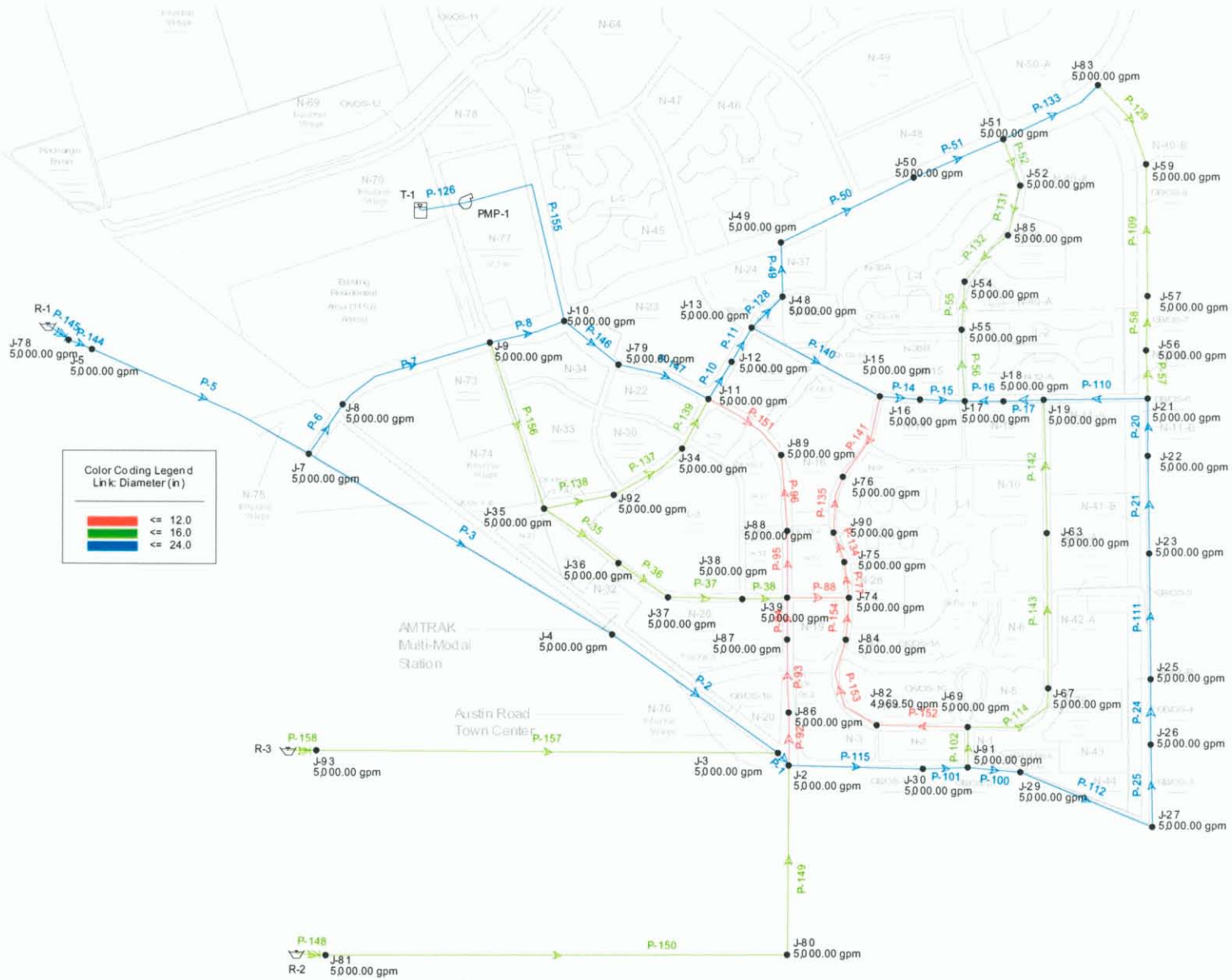
APPENDIX A
MODEL REPORTS FOR THE CITY OF STOCKTON SERVICE AREA

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)



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WaterCAD v6.5 [6.5120j]
Page 1 of 1

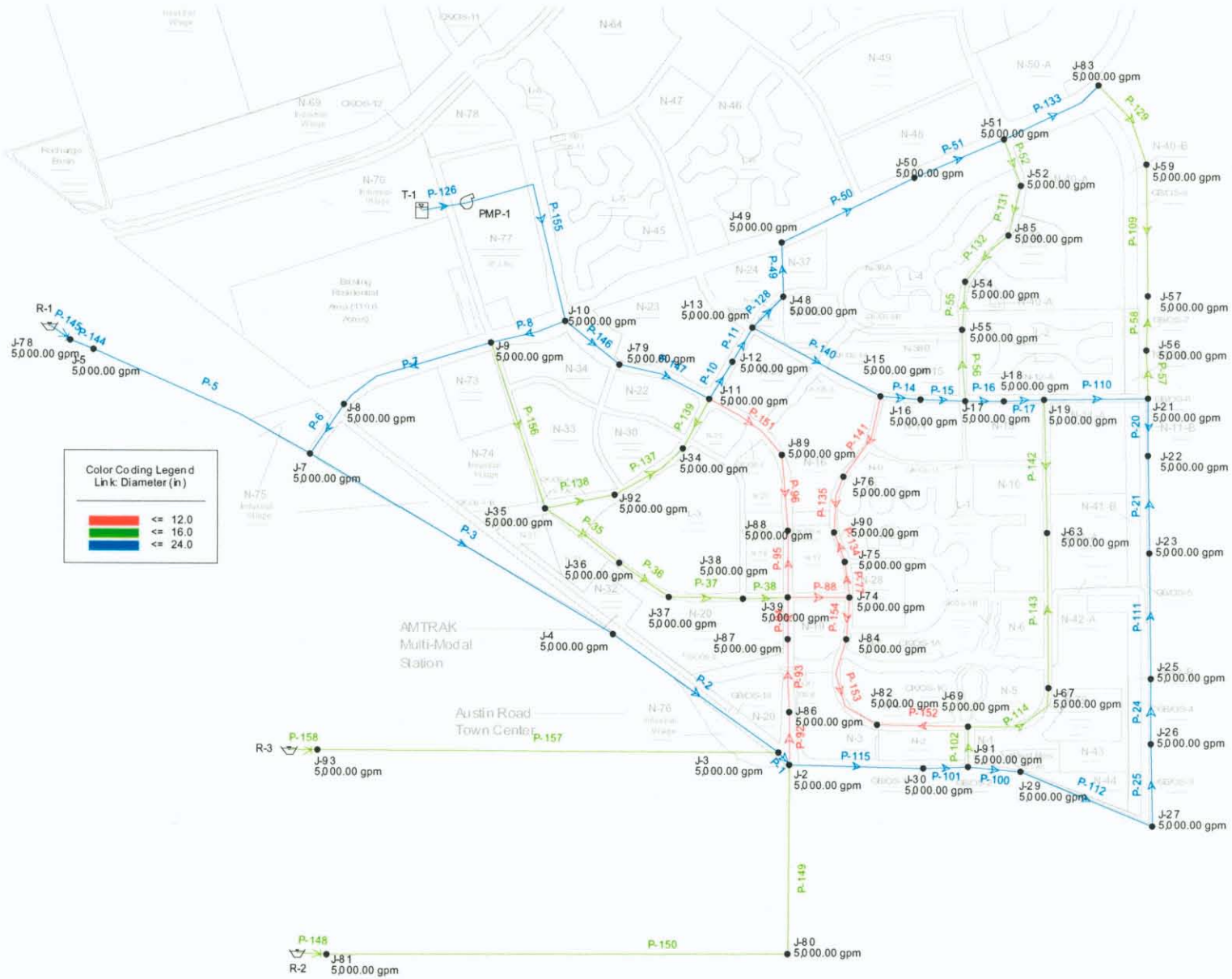
Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Junction Report

Label	Base Flow (gpm)	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)
J-54	378.92	378.92	98.65	42.68
J-85	42.44	42.44	98.67	42.69
J-52	60.34	60.34	98.69	42.70
J-55	16.04	16.04	98.69	42.70
J-59	212.00	211.99	98.71	42.71
J-83	0.00	0.00	98.73	42.71
J-57	95.70	95.70	98.73	42.71
J-51	0.00	0.00	98.73	42.72
J-50	0.00	0.00	98.76	42.73
J-56	20.41	20.41	98.76	42.73
J-17	75.24	75.24	98.76	42.73
J-18	166.22	166.21	98.77	42.73
J-16	187.72	187.72	98.77	42.73
J-76	84.92	84.92	98.77	42.73
J-19	0.00	0.00	98.78	42.74
J-15	60.73	60.73	98.78	42.74
J-63	287.97	287.97	98.78	42.74
J-49	37.91	37.90	98.79	42.74
J-90	62.33	62.33	98.79	42.74
J-21	21.88	21.88	98.79	42.74
J-48	114.07	114.07	98.81	42.75
J-22	141.44	141.43	98.82	42.76
J-13	6.84	6.84	98.83	42.76
J-75	28.94	28.94	98.83	42.76
J-89	173.88	173.88	98.87	42.77
J-88	112.39	112.39	98.88	42.78
J-74	41.92	41.92	98.89	42.78
J-12	74.00	74.00	98.89	42.78
J-84	81.29	81.29	98.89	42.79
J-23	76.42	76.42	98.90	42.79
J-11	13.86	13.86	98.96	42.82
J-34	44.00	43.99	98.97	42.82
J-82	98.78	98.78	98.99	42.83
J-92	63.06	63.06	98.99	42.83
J-39	0.00	0.00	99.00	42.83
J-38	44.85	44.85	99.00	42.83

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Junction Report

Label	Base Flow (gpm)	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)
J-37	38.40	38.40	99.00	42.83
J-36	25.58	25.58	99.01	42.84
J-25	76.42	76.42	99.02	42.84
J-35	156.07	156.07	99.03	42.85
J-67	41.92	41.92	99.04	42.85
J-26	43.74	43.74	99.10	42.87
J-79	222.37	222.37	99.15	42.90
J-27	43.74	43.74	99.20	42.92
J-87	48.49	48.49	99.23	42.93
J-69	55.40	55.40	99.26	42.94
J-10	72.91	72.91	99.33	42.98
J-29	56.13	56.13	99.40	43.01
J-91	0.00	0.00	99.48	43.04
J-9	53.91	53.91	99.57	43.08
J-30	43.74	43.74	99.67	43.12
J-86	38.40	38.40	99.78	43.17
J-2	83.83	83.83	100.25	43.37
J-3	19.14	19.14	100.31	43.40
J-8	126.93	126.93	100.46	43.46
J-4	0.00	0.00	100.50	43.48
J-7	90.61	90.61	100.83	43.63
J-80	0.00	0.00	101.33	43.84
J-5	0.00	0.00	103.67	44.85
J-93	0.00	0.00	103.73	44.88
J-78	0.00	0.00	103.95	44.97
J-81	0.00	0.00	103.95	44.97

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)



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Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-126	1.00	24.0	0.00	34.40	34.40	0.00	0.00	0.00	110.0
P-155	3,013.00	24.0	0.00	99.33	99.33	0.00	0.00	0.00	110.0
P-38	649.00	16.0	16.27	99.00	99.00	0.00	0.00	0.03	110.0
P-141	1,297.00	12.0	-17.34	98.77	98.78	0.00	0.00	0.05	110.0
P-133	1,594.00	24.0	115.04	98.73	98.73	0.00	0.00	0.08	110.0
P-142	1,912.00	16.0	53.35	98.78	98.78	0.01	0.00	0.09	110.0
P-37	1,068.00	16.0	61.13	99.00	99.00	0.01	0.00	0.10	110.0
P-154	604.00	12.0	35.15	98.89	98.89	0.00	0.01	0.10	110.0
P-15	635.00	24.0	164.09	98.77	98.76	0.00	0.00	0.12	110.0
P-16	558.00	24.0	-173.53	98.76	98.77	0.00	0.00	0.12	110.0
P-139	817.00	16.0	-86.31	98.96	98.97	0.01	0.01	0.14	110.0
P-96	1,100.00	12.0	49.78	98.88	98.87	0.01	0.01	0.14	110.0
P-109	1,895.00	16.0	-96.96	98.71	98.73	0.02	0.01	0.15	110.0
P-36	854.00	16.0	99.53	99.01	99.00	0.01	0.01	0.16	110.0
P-129	1,369.00	16.0	115.04	98.73	98.71	0.02	0.02	0.18	110.0
P-135	808.00	12.0	67.59	98.79	98.77	0.02	0.02	0.19	110.0
P-35	1,338.00	16.0	125.11	99.03	99.01	0.02	0.02	0.20	110.0
P-110	1,494.00	24.0	-286.40	98.78	98.79	0.02	0.01	0.20	110.0
P-137	1,185.00	16.0	-130.31	98.97	98.99	0.02	0.02	0.21	110.0
P-132	925.00	16.0	132.59	98.67	98.65	0.02	0.02	0.21	110.0
P-17	593.00	24.0	-339.75	98.77	98.78	0.01	0.02	0.24	110.0
P-50	2,118.00	24.0	350.41	98.79	98.76	0.04	0.02	0.25	110.0
P-51	1,406.00	24.0	350.41	98.76	98.73	0.02	0.02	0.25	110.0
P-14	582.00	24.0	351.81	98.78	98.77	0.01	0.02	0.25	110.0
P-49	793.00	24.0	388.31	98.81	98.79	0.02	0.02	0.28	110.0
P-131	738.00	16.0	175.03	98.69	98.67	0.02	0.03	0.28	110.0
P-140	2,097.00	24.0	-429.88	98.78	98.83	0.05	0.02	0.30	110.0
P-58	764.00	16.0	192.65	98.76	98.73	0.03	0.04	0.31	110.0
P-138	1,028.00	16.0	-193.37	98.99	99.03	0.04	0.04	0.31	110.0
P-153	1,538.00	12.0	116.44	98.99	98.89	0.10	0.06	0.33	110.0
P-57	697.00	16.0	213.07	98.79	98.76	0.03	0.05	0.34	110.0
P-151	1,323.00	12.0	-124.10	98.87	98.96	0.10	0.07	0.35	110.0
P-128	619.00	24.0	-502.39	98.81	98.83	0.02	0.03	0.36	110.0
P-134	459.00	12.0	129.92	98.83	98.79	0.04	0.08	0.37	110.0
P-20	818.00	24.0	-521.35	98.79	98.82	0.03	0.04	0.37	110.0

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-52	698.00	16.0	235.37	98.73	98.69	0.04	0.06	0.38	110.0
P-55	691.00	16.0	-246.34	98.65	98.69	0.04	0.06	0.39	110.0
P-56	1,013.00	16.0	-262.38	98.69	98.76	0.07	0.07	0.42	110.0
P-77	512.00	12.0	158.86	98.89	98.83	0.06	0.11	0.45	110.0
P-95	956.00	12.0	162.17	99.00	98.88	0.11	0.12	0.46	110.0
P-88	874.00	12.0	165.62	99.00	98.89	0.11	0.12	0.47	110.0
P-21	1,410.00	24.0	-662.78	98.82	98.90	0.08	0.06	0.47	110.0
P-2	2,924.00	24.0	-732.35	100.31	100.50	0.19	0.07	0.52	110.0
P-3	5,056.00	24.0	-732.35	100.50	100.83	0.34	0.07	0.52	110.0
P-111	1,803.00	24.0	-739.20	98.90	99.02	0.12	0.07	0.52	110.0
P-143	2,226.00	16.0	-341.33	98.78	99.04	0.26	0.12	0.54	110.0
P-24	918.00	24.0	-815.62	99.02	99.10	0.07	0.08	0.58	110.0
P-25	1,193.00	24.0	-859.36	99.10	99.20	0.11	0.09	0.61	110.0
P-152	1,320.00	12.0	215.22	99.26	98.99	0.27	0.20	0.61	110.0
P-114	1,489.00	16.0	383.24	99.26	99.04	0.21	0.14	0.61	110.0
P-112	2,039.00	24.0	903.10	99.40	99.20	0.20	0.10	0.64	110.0
P-11	589.00	24.0	939.10	98.89	98.83	0.06	0.11	0.67	110.0
P-100	754.00	24.0	-959.24	99.40	99.48	0.08	0.11	0.68	110.0
P-10	605.00	24.0	1,013.10	98.96	98.89	0.07	0.12	0.72	110.0
P-147	1,386.00	24.0	1,064.75	99.15	98.96	0.18	0.13	0.76	110.0
P-156	2,495.00	16.0	474.55	99.57	99.03	0.53	0.21	0.76	110.0
P-94	593.00	12.0	311.52	99.23	99.00	0.24	0.40	0.88	110.0
P-146	1,000.00	24.0	1,287.12	99.33	99.15	0.19	0.19	0.91	110.0
P-8	1,121.00	24.0	1,360.03	99.57	99.33	0.23	0.21	0.96	110.0
P-93	1,057.00	12.0	360.01	99.78	99.23	0.55	0.52	1.02	110.0
P-102	588.00	16.0	-653.86	99.26	99.48	0.23	0.39	1.04	110.0
P-1	229.00	24.0	-1,477.72	100.25	100.31	0.06	0.24	1.05	110.0
P-149	2,723.00	16.0	661.37	101.33	100.25	1.08	0.40	1.06	110.0
P-148	1.00	16.0	661.37	103.95	103.95	0.00	0.40	1.06	110.0
P-150	6,632.00	16.0	661.37	103.95	101.33	2.62	0.40	1.06	110.0
P-92	745.00	12.0	398.42	100.25	99.78	0.47	0.63	1.13	110.0
P-101	645.00	24.0	-1,613.10	99.48	99.67	0.18	0.29	1.14	110.0
P-115	1,936.00	24.0	1,656.84	100.25	99.67	0.58	0.30	1.18	110.0
P-157	6,630.00	16.0	-764.51	100.31	103.73	3.43	0.52	1.22	110.0
P-158	416.00	16.0	764.51	103.95	103.73	0.22	0.52	1.22	110.0

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-7	2,325.00	24.0	1,888.49	100.46	99.57	0.89	0.38	1.34	110.0
P-6	868.00	24.0	2,015.42	100.83	100.46	0.38	0.43	1.43	110.0
P-144	344.00	24.0	2,838.38	103.95	103.67	0.28	0.81	2.01	110.0
P-145	1.00	24.0	2,838.38	103.95	103.95	0.00	0.82	2.01	110.0
P-5	3,479.00	24.0	-2,838.38	100.83	103.67	2.83	0.81	2.01	110.0

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Pump Report

Label	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Calculated Water Power (Hp)
PMP-1	Off	34.40	99.33	0.00	0.00	0.00

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Reservoir Report

Label	Elevation (ft)	Inflow (gpm)	Calculated Hydraulic Grade (ft)
R-1	103.95	-2,838.38	103.95
R-2	103.95	-661.37	103.95
R-3	103.95	-764.51	103.95

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Tank Report

Label	Base Elevation (ft)	Minimum Elevation (ft)	Initial HGL (ft)	Maximum Elevation (ft)	Tank Diameter (ft)	Inflow (gpm)	Current Status	Calculated Hydraulic Grade (ft)	Calculated Percent Full (%)	Total Volume (gal)
T-1	0.00	0.00	34.40	50.00	123.50	0.00	Steady	34.40	68.8	4,480,490.41

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Fire Flow Report

Label	Needed Fire Flow (gpm)	Available Fire Flow (gpm)	Residual Pressure (psi)	Satisfies Fire Flow Constraints?	Minimum System Junction
J-82	2,500.00	4,969.50	20.00	true	PMP-1
J-5	4,500.00	5,000.00	20.00	true	PMP-1
J-2	4,500.00	5,000.00	20.00	true	PMP-1
J-3	4,500.00	5,000.00	20.00	true	PMP-1
J-9	4,500.00	5,000.00	20.00	true	PMP-1
J-19	4,500.00	5,000.00	20.00	true	PMP-1
J-7	4,500.00	5,000.00	20.00	true	PMP-1
J-8	4,500.00	5,000.00	20.00	true	PMP-1
J-4	4,500.00	5,000.00	20.00	true	PMP-1
J-15	4,500.00	5,000.00	20.00	true	PMP-1
J-11	4,500.00	5,000.00	20.00	true	PMP-1
J-12	4,500.00	5,000.00	20.00	true	PMP-1
J-18	4,500.00	5,000.00	20.00	true	PMP-1
J-10	4,500.00	5,000.00	20.00	true	PMP-1
J-16	4,500.00	5,000.00	20.00	true	PMP-1
J-17	4,500.00	5,000.00	20.00	true	PMP-1
J-23	4,500.00	5,000.00	20.00	true	PMP-1
J-27	4,500.00	5,000.00	20.00	true	PMP-1
J-38	4,500.00	5,000.00	20.00	true	PMP-1
J-25	4,500.00	5,000.00	20.00	true	PMP-1
J-26	4,500.00	5,000.00	20.00	true	PMP-1
J-22	4,500.00	5,000.00	20.00	true	PMP-1
J-21	4,500.00	5,000.00	20.00	true	PMP-1
J-37	4,500.00	5,000.00	20.00	true	PMP-1
J-29	4,500.00	5,000.00	20.00	true	PMP-1
J-35	4,500.00	5,000.00	20.00	true	PMP-1
J-34	4,500.00	5,000.00	20.00	true	PMP-1
J-30	4,500.00	5,000.00	20.00	true	PMP-1
J-48	4,500.00	5,000.00	20.00	true	PMP-1
J-39	4,500.00	5,000.00	20.00	true	PMP-1
J-36	4,500.00	5,000.00	20.00	true	PMP-1
J-13	4,500.00	5,000.00	20.00	true	PMP-1
J-49	4,500.00	5,000.00	20.00	true	PMP-1
J-50	4,500.00	5,000.00	20.00	true	PMP-1
J-51	4,500.00	5,000.00	20.00	true	PMP-1

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Fire Flow Report

Label	Needed Fire Flow (gpm)	Available Fire Flow (gpm)	Residual Pressure (psi)	Satisfies Fire Flow Constraints?	Minimum System Junction
J-52	4,000.00	5,000.00	20.00	true	PMP-1
J-54	4,500.00	5,000.00	20.00	true	PMP-1
J-55	4,500.00	5,000.00	20.00	true	PMP-1
J-56	4,500.00	5,000.00	20.00	true	PMP-1
J-57	4,500.00	5,000.00	20.00	true	PMP-1
J-63	2,500.00	5,000.00	20.00	true	PMP-1
J-59	4,500.00	5,000.00	20.00	true	PMP-1
J-67	4,500.00	5,000.00	20.00	true	PMP-1
J-69	4,500.00	5,000.00	20.00	true	PMP-1
J-74	4,500.00	5,000.00	20.00	true	PMP-1
J-75	2,500.00	5,000.00	20.00	true	PMP-1
J-76	2,500.00	5,000.00	20.00	true	PMP-1
J-86	4,500.00	5,000.00	20.00	true	PMP-1
J-87	4,500.00	5,000.00	20.00	true	PMP-1
J-88	4,500.00	5,000.00	20.00	true	PMP-1
J-89	2,500.00	5,000.00	20.00	true	PMP-1
J-91	4,500.00	5,000.00	20.00	true	PMP-1
J-83	4,500.00	5,000.00	20.00	true	PMP-1
J-85	4,500.00	5,000.00	20.00	true	PMP-1
J-90	4,500.00	5,000.00	20.00	true	PMP-1
J-92	4,500.00	5,000.00	20.00	true	PMP-1
J-78	4,500.00	5,000.00	20.00	true	PMP-1
J-79	4,500.00	5,000.00	20.00	true	PMP-1
J-80	4,500.00	5,000.00	20.00	true	PMP-1
J-81	4,500.00	5,000.00	20.00	true	PMP-1
J-84	2,500.00	5,000.00	20.00	true	PMP-1
J-93	4,500.00	5,000.00	20.00	true	PMP-1

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Junction Report

Label	Base Flow (gpm)	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)
J-63	287.97	287.97	134.60	58.23
J-54	378.92	378.92	134.61	58.24
J-55	16.04	16.04	134.63	58.25
J-57	95.70	95.70	134.64	58.25
J-56	20.41	20.41	134.64	58.25
J-22	141.44	141.43	134.65	58.26
J-21	21.88	21.88	134.65	58.26
J-67	41.92	41.92	134.65	58.26
J-19	0.00	0.00	134.65	58.26
J-85	42.44	42.44	134.65	58.26
J-59	212.00	211.99	134.65	58.26
J-23	76.42	76.42	134.65	58.26
J-18	166.22	166.21	134.65	58.26
J-25	76.42	76.42	134.66	58.26
J-17	75.24	75.24	134.66	58.26
J-82	98.78	98.78	134.67	58.27
J-26	43.74	43.74	134.67	58.27
J-84	81.29	81.29	134.68	58.27
J-27	43.74	43.74	134.69	58.28
J-90	62.33	62.33	134.69	58.28
J-76	84.92	84.92	134.69	58.28
J-52	60.34	60.34	134.70	58.28
J-69	55.40	55.40	134.70	58.28
J-16	187.72	187.72	134.70	58.28
J-75	28.94	28.94	134.70	58.28
J-74	41.92	41.92	134.72	58.29
J-29	56.13	56.13	134.73	58.29
J-15	60.73	60.73	134.75	58.30
J-83	0.00	0.00	134.75	58.30
J-91	0.00	0.00	134.75	58.30
J-51	0.00	0.00	134.77	58.31
J-30	43.74	43.74	134.80	58.32
J-50	0.00	0.00	134.83	58.33
J-49	37.91	37.90	134.92	58.37
J-87	48.49	48.49	134.93	58.38
J-86	38.40	38.40	134.93	58.38

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Junction Report

Label	Base Flow (gpm)	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)
J-88	112.39	112.39	134.93	58.38
J-39	0.00	0.00	134.93	58.38
J-81	0.00	0.00	134.94	58.38
J-80	0.00	0.00	134.94	58.38
J-2	83.83	83.83	134.94	58.38
J-48	114.07	114.07	134.96	58.39
J-93	0.00	0.00	134.96	58.39
J-3	19.14	19.14	134.96	58.39
J-38	44.85	44.85	134.98	58.40
J-89	173.88	173.88	134.99	58.40
J-13	6.84	6.84	135.00	58.41
J-37	38.40	38.40	135.10	58.45
J-12	74.00	74.00	135.19	58.49
J-36	25.58	25.58	135.21	58.50
J-4	0.00	0.00	135.27	58.52
J-34	44.00	43.99	135.41	58.58
J-92	63.06	63.06	135.41	58.58
J-11	13.86	13.86	135.41	58.58
J-35	156.07	156.07	135.41	58.59
J-78	0.00	0.00	135.80	58.75
J-5	0.00	0.00	135.80	58.75
J-7	90.61	90.61	135.80	58.75
J-8	126.93	126.93	135.91	58.80
J-79	222.37	222.37	136.08	58.88
J-9	53.91	53.91	136.27	58.96
J-10	72.91	72.91	136.67	59.13

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-145	1.00	24.0	0.00	103.95	135.80	0.00	0.00	0.00	110.0
P-148	1.00	16.0	0.00	103.95	134.94	0.00	0.00	0.00	110.0
P-158	416.00	16.0	0.00	103.95	134.96	0.00	0.00	0.00	110.0
P-144	344.00	24.0	0.00	135.80	135.80	0.00	0.00	0.00	110.0
P-5	3,479.00	24.0	0.00	135.80	135.80	0.00	0.00	0.00	110.0
P-157	6,630.00	16.0	0.00	134.96	134.96	0.00	0.00	0.00	110.0
P-150	6,632.00	16.0	0.00	134.94	134.94	0.00	0.00	0.00	110.0
P-149	2,723.00	16.0	0.00	134.94	134.94	0.00	0.00	0.00	110.0
P-20	818.00	24.0	0.58	134.65	134.65	0.00	0.00	0.00	110.0
P-137	1,185.00	16.0	-1.27	135.41	135.41	0.00	0.00	0.00	110.0
P-135	808.00	12.0	-8.92	134.69	134.69	0.00	0.00	0.03	110.0
P-95	956.00	12.0	10.00	134.93	134.93	0.00	0.00	0.03	110.0
P-93	1,057.00	12.0	15.32	134.93	134.93	0.00	0.00	0.04	110.0
P-110	1,494.00	24.0	82.69	134.65	134.65	0.00	0.00	0.06	110.0
P-58	764.00	16.0	39.81	134.64	134.64	0.00	0.00	0.06	110.0
P-139	817.00	16.0	42.72	135.41	135.41	0.00	0.00	0.07	110.0
P-109	1,895.00	16.0	55.89	134.65	134.64	0.01	0.00	0.09	110.0
P-94	593.00	12.0	-33.17	134.93	134.93	0.00	0.01	0.09	110.0
P-153	1,538.00	12.0	-33.57	134.67	134.68	0.01	0.01	0.10	110.0
P-57	697.00	16.0	60.22	134.65	134.64	0.00	0.00	0.10	110.0
P-21	1,410.00	24.0	-140.85	134.65	134.65	0.00	0.00	0.10	110.0
P-138	1,028.00	16.0	-64.34	135.41	135.41	0.01	0.01	0.10	110.0
P-134	459.00	12.0	53.41	134.70	134.69	0.01	0.02	0.15	110.0
P-92	745.00	12.0	53.72	134.94	134.93	0.01	0.02	0.15	110.0
P-111	1,803.00	24.0	-217.27	134.65	134.66	0.01	0.01	0.15	110.0
P-17	593.00	24.0	233.53	134.65	134.65	0.00	0.01	0.17	110.0
P-152	1,320.00	12.0	65.21	134.70	134.67	0.03	0.02	0.18	110.0
P-133	1,594.00	24.0	267.88	134.77	134.75	0.02	0.01	0.19	110.0
P-24	918.00	24.0	-293.69	134.66	134.67	0.01	0.01	0.21	110.0
P-143	2,226.00	16.0	-137.13	134.60	134.65	0.05	0.02	0.22	110.0
P-77	512.00	12.0	82.35	134.72	134.70	0.02	0.03	0.23	110.0
P-25	1,193.00	24.0	-337.44	134.67	134.69	0.02	0.02	0.24	110.0
P-142	1,912.00	16.0	-150.85	134.60	134.65	0.05	0.03	0.24	110.0
P-141	1,297.00	12.0	-93.84	134.69	134.75	0.06	0.04	0.27	110.0
P-55	691.00	16.0	-168.84	134.61	134.63	0.02	0.03	0.27	110.0

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-112	2,039.00	24.0	381.18	134.73	134.69	0.04	0.02	0.27	110.0
P-16	558.00	24.0	399.75	134.66	134.65	0.01	0.02	0.28	110.0
P-114	1,489.00	16.0	179.04	134.70	134.65	0.05	0.04	0.29	110.0
P-96	1,100.00	12.0	-102.40	134.93	134.99	0.06	0.05	0.29	110.0
P-56	1,013.00	16.0	-184.89	134.63	134.66	0.04	0.04	0.30	110.0
P-100	754.00	24.0	-437.31	134.73	134.75	0.02	0.03	0.31	110.0
P-154	604.00	12.0	-114.87	134.68	134.72	0.04	0.06	0.33	110.0
P-132	925.00	16.0	210.08	134.65	134.61	0.04	0.05	0.34	110.0
P-131	738.00	16.0	252.52	134.70	134.65	0.05	0.07	0.40	110.0
P-50	2,118.00	24.0	580.74	134.92	134.83	0.09	0.04	0.41	110.0
P-51	1,406.00	24.0	580.74	134.83	134.77	0.06	0.04	0.41	110.0
P-129	1,369.00	16.0	267.88	134.75	134.65	0.10	0.07	0.43	110.0
P-49	793.00	24.0	618.65	134.96	134.92	0.04	0.05	0.44	110.0
P-38	649.00	16.0	282.30	134.98	134.93	0.05	0.08	0.45	110.0
P-15	635.00	24.0	659.88	134.70	134.66	0.03	0.05	0.47	110.0
P-102	588.00	16.0	-299.65	134.70	134.75	0.05	0.09	0.48	110.0
P-52	698.00	16.0	312.86	134.77	134.70	0.07	0.10	0.50	110.0
P-128	619.00	24.0	-732.72	134.96	135.00	0.04	0.07	0.52	110.0
P-37	1,068.00	16.0	327.15	135.10	134.98	0.11	0.11	0.52	110.0
P-101	645.00	24.0	-736.96	134.75	134.80	0.04	0.07	0.52	110.0
P-115	1,936.00	24.0	780.71	134.94	134.80	0.14	0.07	0.55	110.0
P-36	854.00	16.0	365.56	135.21	135.10	0.11	0.13	0.58	110.0
P-14	582.00	24.0	847.60	134.75	134.70	0.05	0.09	0.60	110.0
P-35	1,338.00	16.0	391.14	135.41	135.21	0.20	0.15	0.62	110.0
P-1	229.00	24.0	-918.26	134.94	134.96	0.02	0.10	0.65	110.0
P-3	5,056.00	24.0	-937.40	135.27	135.80	0.53	0.10	0.66	110.0
P-2	2,924.00	24.0	-937.40	134.96	135.27	0.31	0.10	0.66	110.0
P-88	874.00	12.0	239.13	134.93	134.72	0.21	0.24	0.68	110.0
P-140	2,097.00	24.0	-1,002.17	134.75	135.00	0.25	0.12	0.71	110.0
P-6	868.00	24.0	-1,028.00	135.80	135.91	0.11	0.12	0.73	110.0
P-151	1,323.00	12.0	-276.28	134.99	135.41	0.42	0.32	0.78	110.0
P-7	2,325.00	24.0	-1,154.93	135.91	136.27	0.36	0.15	0.82	110.0
P-156	2,495.00	16.0	611.55	136.27	135.41	0.85	0.34	0.98	110.0
P-11	589.00	24.0	1,741.73	135.19	135.00	0.19	0.33	1.24	110.0
P-10	605.00	24.0	1,815.73	135.41	135.19	0.22	0.36	1.29	110.0

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-8	1,121.00	24.0	-1,820.38	136.27	136.67	0.40	0.36	1.29	110.0
P-147	1,386.00	24.0	2,148.59	136.08	135.41	0.67	0.49	1.52	110.0
P-146	1,000.00	24.0	2,370.96	136.67	136.08	0.58	0.58	1.68	110.0
P-155	3,013.00	24.0	4,264.26	141.88	136.67	5.22	1.73	3.02	110.0
P-126	1.00	24.0	4,264.26	34.40	34.40	0.00	1.73	3.02	110.0

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Pump Report

Label	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Calculated Water Power (Hp)
PMP-1	On	34.40	141.88	4,264.26	107.49	115.72

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Reservoir Report

Label	Elevation (ft)	Inflow (gpm)	Calculated Hydraulic Grade (ft)
R-1	103.95	0.00	103.95
R-2	103.95	0.00	103.95
R-3	103.95	0.00	103.95

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Tank Report

Label	Base Elevation (ft)	Minimum Elevation (ft)	Initial HGL (ft)	Maximum Elevation (ft)	Tank Diameter (ft)	Inflow (gpm)	Current Status	Calculated Hydraulic Grade (ft)	Calculated Percent Full (%)	Total Volume (gal)
T-1	0.00	0.00	34.40	50.00	123.50	4,264.26	Draining	34.40	68.8	4,480,490.41

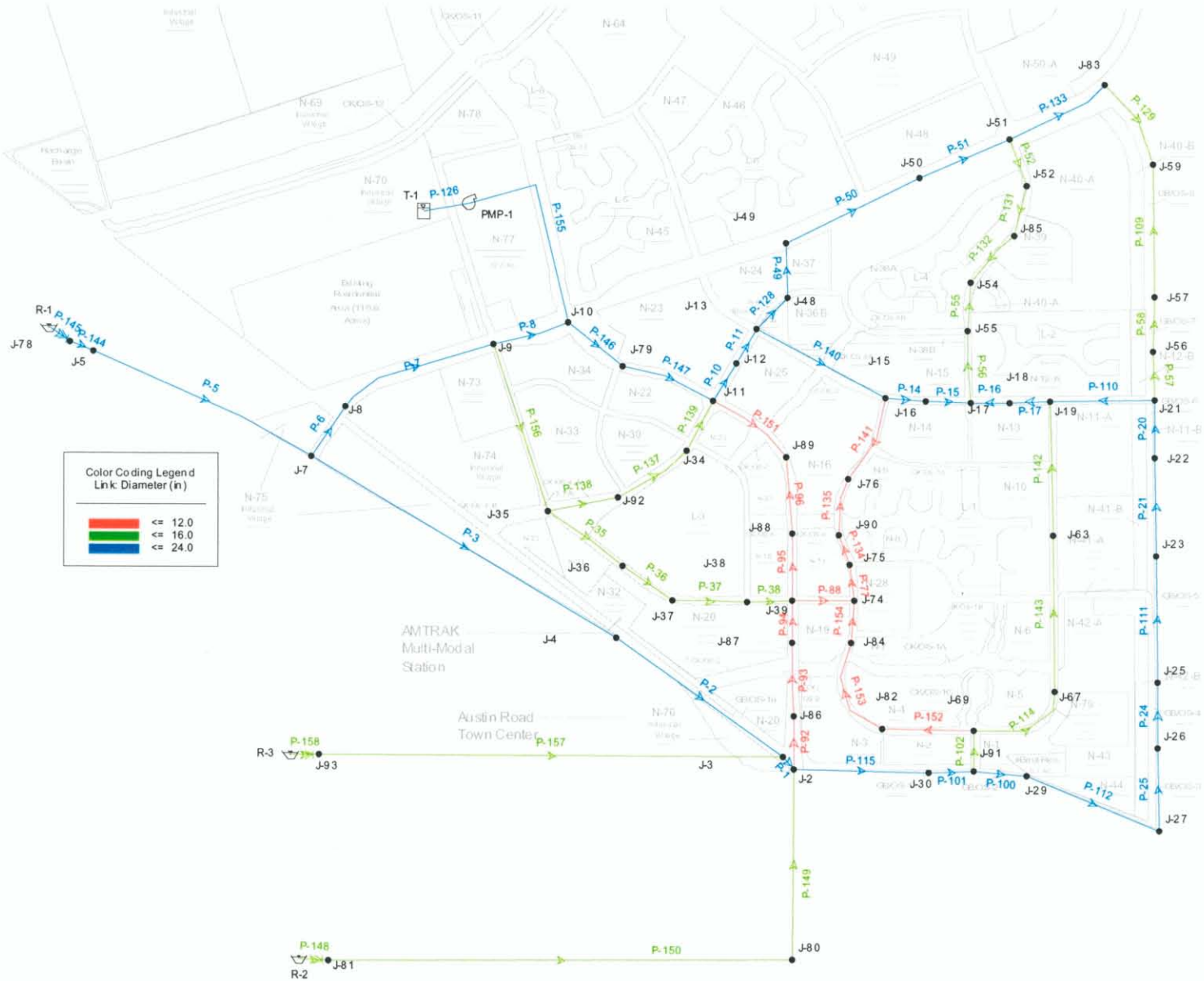
Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Fire Flow Report

Label	Needed Fire Flow (gpm)	Available Fire Flow (gpm)	Residual Pressure (psi)	Satisfies Fire Flow Constraints?	Minimum System Junction
J-2	4,500.00	5,000.00	20.00	true	PMP-1
J-3	4,500.00	5,000.00	20.00	true	PMP-1
J-4	4,500.00	5,000.00	20.00	true	PMP-1
J-5	4,500.00	5,000.00	20.00	true	PMP-1
J-7	4,500.00	5,000.00	20.00	true	PMP-1
J-8	4,500.00	5,000.00	20.00	true	PMP-1
J-9	4,500.00	5,000.00	20.00	true	PMP-1
J-10	4,500.00	5,000.00	20.00	true	PMP-1
J-11	4,500.00	5,000.00	20.00	true	PMP-1
J-12	4,500.00	5,000.00	20.00	true	PMP-1
J-13	4,500.00	5,000.00	20.00	true	PMP-1
J-15	4,500.00	5,000.00	20.00	true	PMP-1
J-16	4,500.00	5,000.00	20.00	true	PMP-1
J-17	4,500.00	5,000.00	20.00	true	PMP-1
J-18	4,500.00	5,000.00	20.00	true	PMP-1
J-19	4,500.00	5,000.00	20.00	true	PMP-1
J-23	4,500.00	5,000.00	20.00	true	PMP-1
J-27	4,500.00	5,000.00	20.00	true	PMP-1
J-38	4,500.00	5,000.00	20.00	true	PMP-1
J-25	4,500.00	5,000.00	20.00	true	PMP-1
J-26	4,500.00	5,000.00	20.00	true	PMP-1
J-22	4,500.00	5,000.00	20.00	true	PMP-1
J-21	4,500.00	5,000.00	20.00	true	PMP-1
J-37	4,500.00	5,000.00	20.00	true	PMP-1
J-29	4,500.00	5,000.00	20.00	true	PMP-1
J-35	4,500.00	5,000.00	20.00	true	PMP-1
J-34	4,500.00	5,000.00	20.00	true	PMP-1
J-30	4,500.00	5,000.00	20.00	true	PMP-1
J-48	4,500.00	5,000.00	20.00	true	PMP-1
J-39	4,500.00	5,000.00	20.00	true	PMP-1
J-36	4,500.00	5,000.00	20.00	true	PMP-1
J-49	4,500.00	5,000.00	20.00	true	PMP-1
J-50	4,500.00	5,000.00	20.00	true	PMP-1
J-51	4,500.00	5,000.00	20.00	true	PMP-1
J-52	4,000.00	5,000.00	20.00	true	PMP-1

Scenario: COS Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Fire Flow Report

Label	Needed Fire Flow (gpm)	Available Fire Flow (gpm)	Residual Pressure (psi)	Satisfies Fire Flow Constraints?	Minimum System Junction
J-54	4,500.00	5,000.00	20.00	true	PMP-1
J-55	4,500.00	5,000.00	20.00	true	PMP-1
J-56	4,500.00	5,000.00	20.00	true	PMP-1
J-57	4,500.00	5,000.00	20.00	true	PMP-1
J-59	4,500.00	5,000.00	20.00	true	PMP-1
J-63	2,500.00	5,000.00	20.00	true	PMP-1
J-67	4,500.00	5,000.00	20.00	true	PMP-1
J-69	4,500.00	5,000.00	20.00	true	PMP-1
J-74	4,500.00	5,000.00	20.00	true	PMP-1
J-75	2,500.00	5,000.00	20.00	true	PMP-1
J-76	2,500.00	5,000.00	20.00	true	PMP-1
J-86	4,500.00	5,000.00	20.00	true	PMP-1
J-87	4,500.00	5,000.00	20.00	true	PMP-1
J-88	4,500.00	5,000.00	20.00	true	PMP-1
J-89	2,500.00	5,000.00	20.00	true	PMP-1
J-91	4,500.00	5,000.00	20.00	true	PMP-1
J-83	4,500.00	5,000.00	20.00	true	PMP-1
J-85	4,500.00	5,000.00	20.00	true	PMP-1
J-90	4,500.00	5,000.00	20.00	true	PMP-1
J-92	4,500.00	5,000.00	20.00	true	PMP-1
J-78	4,500.00	5,000.00	20.00	true	PMP-1
J-79	4,500.00	5,000.00	20.00	true	PMP-1
J-80	4,500.00	5,000.00	20.00	true	PMP-1
J-81	4,500.00	5,000.00	20.00	true	PMP-1
J-82	2,500.00	5,000.00	20.00	true	PMP-1
J-84	2,500.00	5,000.00	20.00	true	PMP-1
J-93	4,500.00	5,000.00	20.00	true	PMP-1

Scenario: COS Service Area Peak Hour Demand (Tank/Booster Source Off)



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Scenario: COS Service Area Peak Hour Demand (Tank/Booster Source Off)
Steady State Analysis
Junction Report

Label	Base Flow (gpm)	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)
J-54	723.74	723.74	86.37	37.37
J-85	81.06	81.06	86.43	37.40
J-52	115.26	115.26	86.52	37.43
J-55	30.64	30.64	86.52	37.43
J-59	404.91	404.91	86.57	37.45
J-83	0.00	0.00	86.64	37.48
J-57	182.78	182.78	86.64	37.48
J-51	0.00	0.00	86.65	37.49
J-50	0.00	0.00	86.73	37.52
J-56	38.99	38.99	86.74	37.53
J-17	143.71	143.71	86.76	37.54
J-18	317.47	317.47	86.76	37.54
J-16	358.54	358.54	86.76	37.54
J-76	162.20	162.20	86.79	37.55
J-19	0.00	0.00	86.80	37.55
J-15	115.99	115.99	86.80	37.55
J-63	550.03	550.03	86.82	37.56
J-49	72.40	72.40	86.85	37.57
J-90	119.05	119.05	86.85	37.58
J-21	41.79	41.79	86.85	37.58
J-48	217.88	217.88	86.90	37.60
J-22	270.14	270.14	86.95	37.62
J-13	13.06	13.06	86.97	37.63
J-75	55.28	55.28	86.97	37.63
J-89	332.11	332.11	87.10	37.68
J-88	214.67	214.67	87.15	37.70
J-74	80.06	80.06	87.17	37.71
J-12	141.35	141.35	87.17	37.72
J-84	155.27	155.27	87.18	37.72
J-23	145.96	145.96	87.21	37.73
J-11	26.48	26.48	87.42	37.82
J-34	84.03	84.03	87.44	37.83
J-82	188.68	188.68	87.51	37.86
J-92	120.45	120.45	87.52	37.87
J-39	0.00	0.00	87.52	37.87
J-38	85.67	85.67	87.53	37.87

Scenario: COS Service Area Peak Hour Demand (Tank/Booster Source Off)
Steady State Analysis
Junction Report

Label	Base Flow (gpm)	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)
J-37	73.35	73.35	87.54	37.88
J-36	48.86	48.86	87.58	37.89
J-25	145.96	145.96	87.61	37.90
J-35	298.10	298.10	87.66	37.92
J-67	80.06	80.06	87.68	37.93
J-26	83.55	83.55	87.86	38.01
J-79	424.72	424.72	88.03	38.08
J-27	83.55	83.55	88.21	38.16
J-87	92.61	92.61	88.31	38.21
J-69	105.81	105.81	88.39	38.24
J-10	139.26	139.26	88.65	38.35
J-29	107.21	107.21	88.87	38.45
J-91	0.00	0.00	89.14	38.57
J-9	102.96	102.96	89.43	38.69
J-30	83.55	83.55	89.75	38.83
J-86	73.35	73.35	90.13	39.00
J-2	160.12	160.12	91.68	39.67
J-3	36.55	36.55	91.87	39.75
J-8	242.43	242.43	92.38	39.97
J-4	0.00	0.00	92.51	40.03
J-7	173.06	173.06	93.62	40.51
J-80	0.00	0.00	95.25	41.21
J-5	0.00	0.00	103.02	44.57
J-93	0.00	0.00	103.24	44.67
J-78	0.00	0.00	103.95	44.97
J-81	0.00	0.00	103.95	44.97

Scenario: COS Service Area Peak Hour Demand (Tank/Booster Source Off)
Steady State Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-126	1.00	24.0	0.00	34.40	34.40	0.00	0.00	0.00	110.0
P-155	3,013.00	24.0	0.00	88.65	88.65	0.00	0.00	0.00	110.0
P-38	649.00	16.0	31.08	87.53	87.52	0.00	0.00	0.05	110.0
P-141	1,297.00	12.0	-33.11	86.79	86.80	0.01	0.01	0.09	110.0
P-133	1,594.00	24.0	219.72	86.65	86.64	0.01	0.01	0.16	110.0
P-142	1,912.00	16.0	101.90	86.82	86.80	0.02	0.01	0.16	110.0
P-37	1,068.00	16.0	116.75	87.54	87.53	0.02	0.02	0.19	110.0
P-154	604.00	12.0	67.14	87.18	87.17	0.01	0.02	0.19	110.0
P-15	635.00	24.0	313.41	86.76	86.76	0.01	0.01	0.22	110.0
P-16	558.00	24.0	-331.45	86.76	86.76	0.01	0.02	0.24	110.0
P-139	817.00	16.0	-164.86	87.42	87.44	0.02	0.03	0.26	110.0
P-96	1,100.00	12.0	95.08	87.15	87.10	0.05	0.04	0.27	110.0
P-109	1,895.00	16.0	-185.19	86.57	86.64	0.07	0.04	0.30	110.0
P-36	854.00	16.0	190.10	87.58	87.54	0.03	0.04	0.30	110.0
P-129	1,369.00	16.0	219.72	86.64	86.57	0.07	0.05	0.35	110.0
P-135	808.00	12.0	129.09	86.85	86.79	0.06	0.08	0.37	110.0
P-35	1,338.00	16.0	238.96	87.66	87.58	0.08	0.06	0.38	110.0
P-110	1,494.00	24.0	-547.02	86.80	86.85	0.06	0.04	0.39	110.0
P-137	1,185.00	16.0	-248.89	87.44	87.52	0.08	0.06	0.40	110.0
P-132	925.00	16.0	253.24	86.43	86.37	0.06	0.07	0.40	110.0
P-17	593.00	24.0	-648.92	86.76	86.80	0.03	0.05	0.46	110.0
P-50	2,118.00	24.0	669.28	86.85	86.73	0.12	0.06	0.47	110.0
P-51	1,406.00	24.0	669.28	86.73	86.65	0.08	0.06	0.47	110.0
P-14	582.00	24.0	671.96	86.80	86.76	0.03	0.06	0.48	110.0
P-49	793.00	24.0	741.68	86.90	86.85	0.05	0.07	0.53	110.0
P-131	738.00	16.0	334.30	86.52	86.43	0.08	0.11	0.53	110.0
P-140	2,097.00	24.0	-821.07	86.80	86.97	0.17	0.08	0.58	110.0
P-58	764.00	16.0	367.97	86.74	86.64	0.10	0.13	0.59	110.0
P-138	1,028.00	16.0	-369.34	87.52	87.66	0.14	0.13	0.59	110.0
P-153	1,538.00	12.0	222.40	87.51	87.18	0.33	0.21	0.63	110.0
P-57	697.00	16.0	406.96	86.85	86.74	0.11	0.16	0.65	110.0
P-151	1,323.00	12.0	-237.03	87.10	87.42	0.32	0.24	0.67	110.0
P-128	619.00	24.0	-959.56	86.90	86.97	0.07	0.11	0.68	110.0
P-134	459.00	12.0	248.14	86.97	86.85	0.12	0.26	0.70	110.0
P-20	818.00	24.0	-995.77	86.85	86.95	0.10	0.12	0.71	110.0

Scenario: COS Service Area Peak Hour Demand (Tank/Booster Source Off)
Steady State Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-52	698.00	16.0	449.56	86.65	86.52	0.14	0.19	0.72	110.0
P-55	691.00	16.0	-470.51	86.37	86.52	0.15	0.21	0.75	110.0
P-56	1,013.00	16.0	-501.15	86.52	86.76	0.24	0.24	0.80	110.0
P-77	512.00	12.0	303.41	87.17	86.97	0.19	0.38	0.86	110.0
P-95	956.00	12.0	309.75	87.52	87.15	0.38	0.39	0.88	110.0
P-88	874.00	12.0	316.34	87.52	87.17	0.36	0.41	0.90	110.0
P-21	1,410.00	24.0	-1,265.91	86.95	87.21	0.26	0.18	0.90	110.0
P-2	2,924.00	24.0	-1,398.80	91.87	92.51	0.64	0.22	0.99	110.0
P-3	5,056.00	24.0	-1,398.80	92.51	93.62	1.11	0.22	0.99	110.0
P-111	1,803.00	24.0	-1,411.87	87.21	87.61	0.40	0.22	1.00	110.0
P-143	2,226.00	16.0	-651.93	86.82	87.68	0.86	0.39	1.04	110.0
P-24	918.00	24.0	-1,557.83	87.61	87.86	0.25	0.27	1.10	110.0
P-25	1,193.00	24.0	-1,641.38	87.86	88.21	0.35	0.30	1.16	110.0
P-152	1,320.00	12.0	411.08	88.39	87.51	0.88	0.67	1.17	110.0
P-114	1,489.00	16.0	731.99	88.39	87.68	0.71	0.48	1.17	110.0
P-112	2,039.00	24.0	1,724.93	88.87	88.21	0.66	0.32	1.22	110.0
P-11	589.00	24.0	1,793.68	87.17	86.97	0.21	0.35	1.27	110.0
P-100	754.00	24.0	-1,832.14	88.87	89.14	0.27	0.36	1.30	110.0
P-10	605.00	24.0	1,935.03	87.42	87.17	0.24	0.40	1.37	110.0
P-147	1,386.00	24.0	2,033.67	88.03	87.42	0.61	0.44	1.44	110.0
P-156	2,495.00	16.0	906.40	89.43	87.66	1.77	0.71	1.45	110.0
P-94	593.00	12.0	595.01	88.31	87.52	0.78	1.32	1.69	110.0
P-146	1,000.00	24.0	2,458.40	88.65	88.03	0.62	0.62	1.74	110.0
P-8	1,121.00	24.0	2,597.66	89.43	88.65	0.78	0.69	1.84	110.0
P-93	1,057.00	12.0	687.62	90.13	88.31	1.82	1.73	1.95	110.0
P-102	588.00	16.0	-1,248.88	88.39	89.14	0.75	1.28	1.99	110.0
P-1	229.00	24.0	-2,822.45	91.68	91.87	0.18	0.81	2.00	110.0
P-149	2,723.00	16.0	1,263.22	95.25	91.68	3.57	1.31	2.02	110.0
P-148	1.00	16.0	1,263.22	103.95	103.95	0.00	1.31	2.02	110.0
P-150	6,632.00	16.0	1,263.22	103.95	95.25	8.70	1.31	2.02	110.0
P-92	745.00	12.0	760.98	91.68	90.13	1.55	2.08	2.16	110.0
P-101	645.00	24.0	-3,081.02	89.14	89.75	0.61	0.95	2.19	110.0
P-115	1,936.00	24.0	3,164.57	91.68	89.75	1.93	1.00	2.24	110.0
P-157	6,630.00	16.0	-1,460.21	91.87	103.24	11.37	1.71	2.33	110.0
P-158	416.00	16.0	1,460.21	103.95	103.24	0.71	1.71	2.33	110.0

Scenario: COS Service Area Peak Hour Demand (Tank/Booster Source Off)
Steady State Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-7	2,325.00	24.0	3,607.02	92.38	89.43	2.95	1.27	2.56	110.0
P-6	868.00	24.0	3,849.45	93.62	92.38	1.24	1.43	2.73	110.0
P-144	344.00	24.0	5,421.31	103.95	103.02	0.93	2.70	3.84	110.0
P-145	1.00	24.0	5,421.31	103.95	103.95	0.00	2.70	3.84	110.0
P-5	3,479.00	24.0	-5,421.31	93.62	103.02	9.40	2.70	3.84	110.0

Scenario: COS Service Area Peak Hour Demand (Tank/Booster Source Off)
Steady State Analysis
Pump Report

Label	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Calculated Water Power (Hp)
PMP-1	Off	34.40	88.65	0.00	0.00	0.00

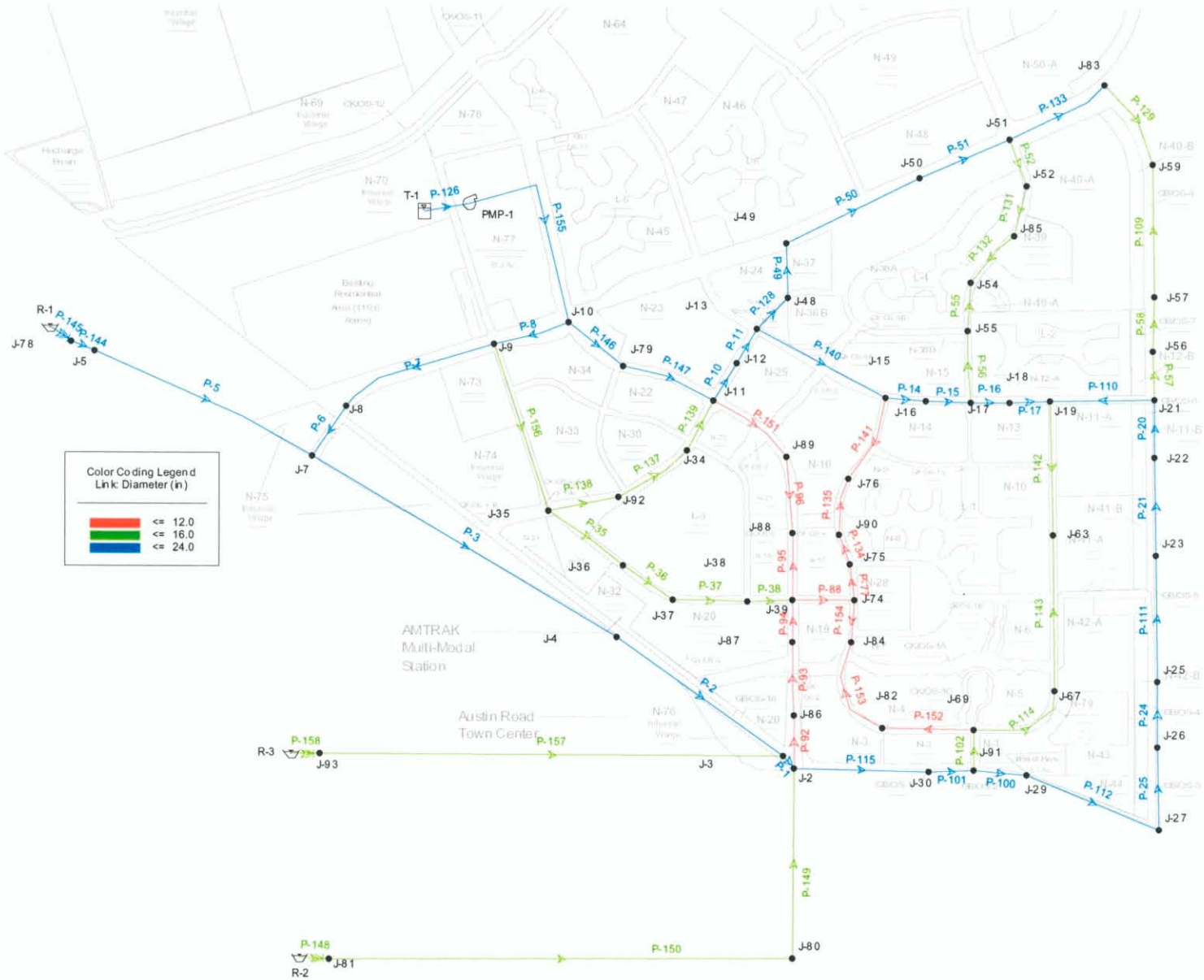
Scenario: COS Service Area Peak Hour Demand (Tank/Booster Source Off)
Steady State Analysis
Reservoir Report

Label	Elevation (ft)	Inflow (gpm)	Calculated Hydraulic Grade (ft)
R-1	103.95	-5,421.31	103.95
R-2	103.95	-1,263.22	103.95
R-3	103.95	-1,460.21	103.95

Scenario: COS Service Area Peak Hour Demand (Tank/Booster Source Off)
Steady State Analysis
Tank Report

Label	Base Elevation (ft)	Minimum Elevation (ft)	Initial HGL (ft)	Maximum Elevation (ft)	Tank Diameter (ft)	Inflow (gpm)	Current Status	Calculated Hydraulic Grade (ft)	Calculated Percent Full (%)	Total Volume (gal)
T-1	0.00	0.00	34.40	50.00	123.50	0.00	Steady	34.40	68.8	4,480,490.41

Scenario: COS Service Area Peak Hour Demand (Tank/Booster Source On)



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Scenario: COS Service Area Peak Hour Demand (Tank/Booster Source On)
Steady State Analysis
Junction Report

Label	Base Flow (gpm)	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)
J-54	723.74	723.74	99.17	42.91
J-55	30.64	30.64	99.27	42.95
J-85	81.06	81.06	99.28	42.95
J-59	404.91	404.91	99.35	42.98
J-57	182.78	182.78	99.35	42.98
J-63	550.03	550.03	99.35	42.98
J-56	38.99	38.99	99.38	43.00
J-52	115.26	115.26	99.41	43.01
J-19	0.00	0.00	99.42	43.01
J-18	317.47	317.47	99.42	43.01
J-21	41.79	41.79	99.42	43.01
J-17	143.71	143.71	99.43	43.02
J-22	270.14	270.14	99.43	43.02
J-16	358.54	358.54	99.50	43.05
J-23	145.96	145.96	99.50	43.05
J-76	162.20	162.20	99.54	43.07
J-90	119.05	119.05	99.55	43.07
J-83	0.00	0.00	99.57	43.08
J-51	0.00	0.00	99.60	43.09
J-75	55.28	55.28	99.61	43.10
J-15	115.99	115.99	99.62	43.10
J-25	145.96	145.96	99.63	43.11
J-67	80.06	80.06	99.66	43.12
J-84	155.27	155.27	99.68	43.13
J-82	188.68	188.68	99.68	43.13
J-26	83.55	83.55	99.72	43.15
J-74	80.06	80.06	99.72	43.15
J-50	0.00	0.00	99.75	43.16
J-27	83.55	83.55	99.86	43.21
J-69	105.81	105.81	99.95	43.24
J-49	72.40	72.40	99.97	43.25
J-48	217.88	217.88	100.07	43.29
J-29	107.21	107.21	100.14	43.33
J-13	13.06	13.06	100.17	43.34
J-91	0.00	0.00	100.26	43.38
J-88	214.67	214.67	100.28	43.39

Scenario: COS Service Area Peak Hour Demand (Tank/Booster Source On)
Steady State Analysis
Junction Report

Label	Base Flow (gpm)	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)
J-89	332.11	332.11	100.31	43.40
J-39	0.00	0.00	100.37	43.42
J-38	85.67	85.67	100.44	43.46
J-87	92.61	92.61	100.50	43.48
J-30	83.55	83.55	100.53	43.49
J-37	73.35	73.35	100.64	43.54
J-12	141.35	141.35	100.64	43.54
J-36	48.86	48.86	100.85	43.63
J-86	73.35	73.35	100.93	43.67
J-11	26.48	26.48	101.17	43.77
J-34	84.03	84.03	101.17	43.77
J-92	120.45	120.45	101.18	43.78
J-35	298.10	298.10	101.23	43.80
J-2	160.12	160.12	101.39	43.87
J-3	36.55	36.55	101.49	43.91
J-80	0.00	0.00	102.13	44.19
J-4	0.00	0.00	102.20	44.22
J-79	424.72	424.72	102.71	44.44
J-7	173.06	173.06	103.42	44.74
J-8	242.43	242.43	103.45	44.76
J-9	102.96	102.96	103.63	44.84
J-93	0.00	0.00	103.80	44.91
J-5	0.00	0.00	103.90	44.95
J-81	0.00	0.00	103.95	44.97
J-78	0.00	0.00	103.95	44.97
J-10	139.26	139.26	104.10	45.04

Scenario: COS Service Area Peak Hour Demand (Tank/Booster Source On)
Steady State Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-109	1,895.00	16.0	-5.08	99.35	99.35	0.00	0.00	0.01	110.0
P-139	817.00	16.0	-10.05	101.17	101.17	0.00	0.00	0.02	110.0
P-110	1,494.00	24.0	-81.53	99.42	99.42	0.00	0.00	0.06	110.0
P-17	593.00	24.0	95.09	99.42	99.42	0.00	0.00	0.07	110.0
P-153	1,538.00	12.0	27.20	99.68	99.68	0.01	0.00	0.08	110.0
P-135	808.00	12.0	51.08	99.55	99.54	0.01	0.01	0.14	110.0
P-137	1,185.00	16.0	-94.08	101.17	101.18	0.01	0.01	0.15	110.0
P-96	1,100.00	12.0	-73.50	100.28	100.31	0.03	0.03	0.21	110.0
P-20	818.00	24.0	-350.17	99.42	99.43	0.01	0.02	0.25	110.0
P-142	1,912.00	16.0	-176.62	99.35	99.42	0.07	0.03	0.28	110.0
P-133	1,594.00	24.0	399.83	99.60	99.57	0.03	0.02	0.28	110.0
P-16	558.00	24.0	412.56	99.43	99.42	0.01	0.02	0.29	110.0
P-58	764.00	16.0	187.86	99.38	99.35	0.03	0.04	0.30	110.0
P-141	1,297.00	12.0	-111.13	99.54	99.62	0.08	0.06	0.32	110.0
P-138	1,028.00	16.0	-214.53	101.18	101.23	0.05	0.05	0.34	110.0
P-57	697.00	16.0	226.85	99.42	99.38	0.04	0.05	0.36	110.0
P-154	604.00	12.0	-128.07	99.68	99.72	0.05	0.08	0.36	110.0
P-6	868.00	24.0	-554.05	103.42	103.45	0.03	0.04	0.39	110.0
P-95	956.00	12.0	141.17	100.37	100.28	0.09	0.09	0.40	110.0
P-21	1,410.00	24.0	-620.31	99.43	99.50	0.07	0.05	0.44	110.0
P-134	459.00	12.0	170.12	99.61	99.55	0.06	0.13	0.48	110.0
P-111	1,803.00	24.0	-766.28	99.50	99.63	0.13	0.07	0.54	110.0
P-132	925.00	16.0	345.31	99.28	99.17	0.11	0.12	0.55	110.0
P-38	649.00	16.0	348.97	100.44	100.37	0.08	0.12	0.56	110.0
P-7	2,325.00	24.0	-796.48	103.45	103.63	0.18	0.08	0.56	110.0
P-143	2,226.00	16.0	-373.41	99.35	99.66	0.31	0.14	0.60	110.0
P-55	691.00	16.0	-378.43	99.17	99.27	0.10	0.14	0.60	110.0
P-152	1,320.00	12.0	215.87	99.95	99.68	0.27	0.20	0.61	110.0
P-129	1,369.00	16.0	399.83	99.57	99.35	0.21	0.16	0.64	110.0
P-77	512.00	12.0	225.40	99.72	99.61	0.11	0.22	0.64	110.0
P-94	593.00	12.0	225.72	100.50	100.37	0.13	0.22	0.64	110.0
P-24	918.00	24.0	-912.24	99.63	99.72	0.09	0.10	0.65	110.0
P-56	1,013.00	16.0	-409.08	99.27	99.43	0.16	0.16	0.65	110.0
P-51	1,406.00	24.0	941.46	99.75	99.60	0.15	0.11	0.67	110.0
P-50	2,118.00	24.0	941.46	99.97	99.75	0.22	0.11	0.67	110.0

Scenario: COS Service Area Peak Hour Demand (Tank/Booster Source On)
Steady State Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-131	738.00	16.0	426.37	99.41	99.28	0.13	0.18	0.68	110.0
P-15	635.00	24.0	965.35	99.50	99.43	0.07	0.11	0.68	110.0
P-37	1,068.00	16.0	434.65	100.64	100.44	0.19	0.18	0.69	110.0
P-25	1,193.00	24.0	-995.78	99.72	99.86	0.14	0.12	0.71	110.0
P-49	793.00	24.0	1,013.86	100.07	99.97	0.10	0.12	0.72	110.0
P-114	1,489.00	16.0	453.46	99.95	99.66	0.29	0.20	0.72	110.0
P-112	2,039.00	24.0	1,079.33	100.14	99.86	0.28	0.14	0.77	110.0
P-5	3,479.00	24.0	-1,091.88	103.42	103.90	0.48	0.14	0.77	110.0
P-145	1.00	24.0	1,091.88	103.95	103.95	0.00	0.14	0.77	110.0
P-144	344.00	24.0	1,091.88	103.95	103.90	0.05	0.14	0.77	110.0
P-36	854.00	16.0	508.00	100.85	100.64	0.21	0.24	0.81	110.0
P-100	754.00	24.0	-1,186.55	100.14	100.26	0.12	0.16	0.84	110.0
P-52	698.00	16.0	541.63	99.60	99.41	0.19	0.27	0.86	110.0
P-148	1.00	16.0	542.39	103.95	103.95	0.00	0.27	0.87	110.0
P-150	6,632.00	16.0	542.39	103.95	102.13	1.82	0.27	0.87	110.0
P-149	2,723.00	16.0	542.39	102.13	101.39	0.75	0.27	0.87	110.0
P-128	619.00	24.0	-1,231.74	100.07	100.17	0.11	0.17	0.87	110.0
P-35	1,338.00	16.0	556.86	101.23	100.85	0.38	0.29	0.89	110.0
P-93	1,057.00	12.0	318.34	100.93	100.50	0.44	0.41	0.90	110.0
P-14	582.00	24.0	1,323.90	99.62	99.50	0.12	0.20	0.94	110.0
P-158	416.00	16.0	618.35	103.95	103.80	0.15	0.35	0.99	110.0
P-157	6,630.00	16.0	-618.35	101.49	103.80	2.32	0.35	0.99	110.0
P-3	5,056.00	24.0	-1,472.87	102.20	103.42	1.22	0.24	1.04	110.0
P-2	2,924.00	24.0	-1,472.87	101.49	102.20	0.71	0.24	1.04	110.0
P-140	2,097.00	24.0	-1,551.02	99.62	100.17	0.56	0.27	1.10	110.0
P-92	745.00	12.0	391.69	101.39	100.93	0.45	0.61	1.11	110.0
P-151	1,323.00	12.0	-405.61	100.31	101.17	0.86	0.65	1.15	110.0
P-88	874.00	12.0	433.53	100.37	99.72	0.64	0.73	1.23	110.0
P-102	588.00	16.0	-775.15	99.95	100.26	0.31	0.53	1.24	110.0
P-101	645.00	24.0	-1,961.70	100.26	100.53	0.27	0.41	1.39	110.0
P-8	1,121.00	24.0	-1,968.93	103.63	104.10	0.46	0.41	1.40	110.0
P-115	1,936.00	24.0	2,045.25	101.39	100.53	0.86	0.44	1.45	110.0
P-1	229.00	24.0	-2,054.66	101.39	101.49	0.10	0.45	1.46	110.0
P-156	2,495.00	16.0	1,069.48	103.63	101.23	2.40	0.96	1.71	110.0
P-11	589.00	24.0	2,795.81	100.64	100.17	0.47	0.79	1.98	110.0

Scenario: COS Service Area Peak Hour Demand (Tank/Booster Source On)
Steady State Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-10	605.00	24.0	2,937.16	101.17	100.64	0.53	0.87	2.08	110.0
P-147	1,386.00	24.0	3,359.20	102.71	101.17	1.54	1.11	2.38	110.0
P-146	1,000.00	24.0	3,783.93	104.10	102.71	1.39	1.39	2.68	110.0
P-126	1.00	24.0	5,892.12	34.40	34.40	0.00	3.15	4.18	110.0
P-155	3,013.00	24.0	5,892.12	113.59	104.10	9.49	3.15	4.18	110.0

Scenario: COS Service Area Peak Hour Demand (Tank/Booster Source On)
Steady State Analysis
Pump Report

Label	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Calculated Water Power (Hp)
PMP-1	On	34.40	113.59	5,892.12	79.20	117.81

Scenario: COS Service Area Peak Hour Demand (Tank/Booster Source On)
Steady State Analysis
Reservoir Report

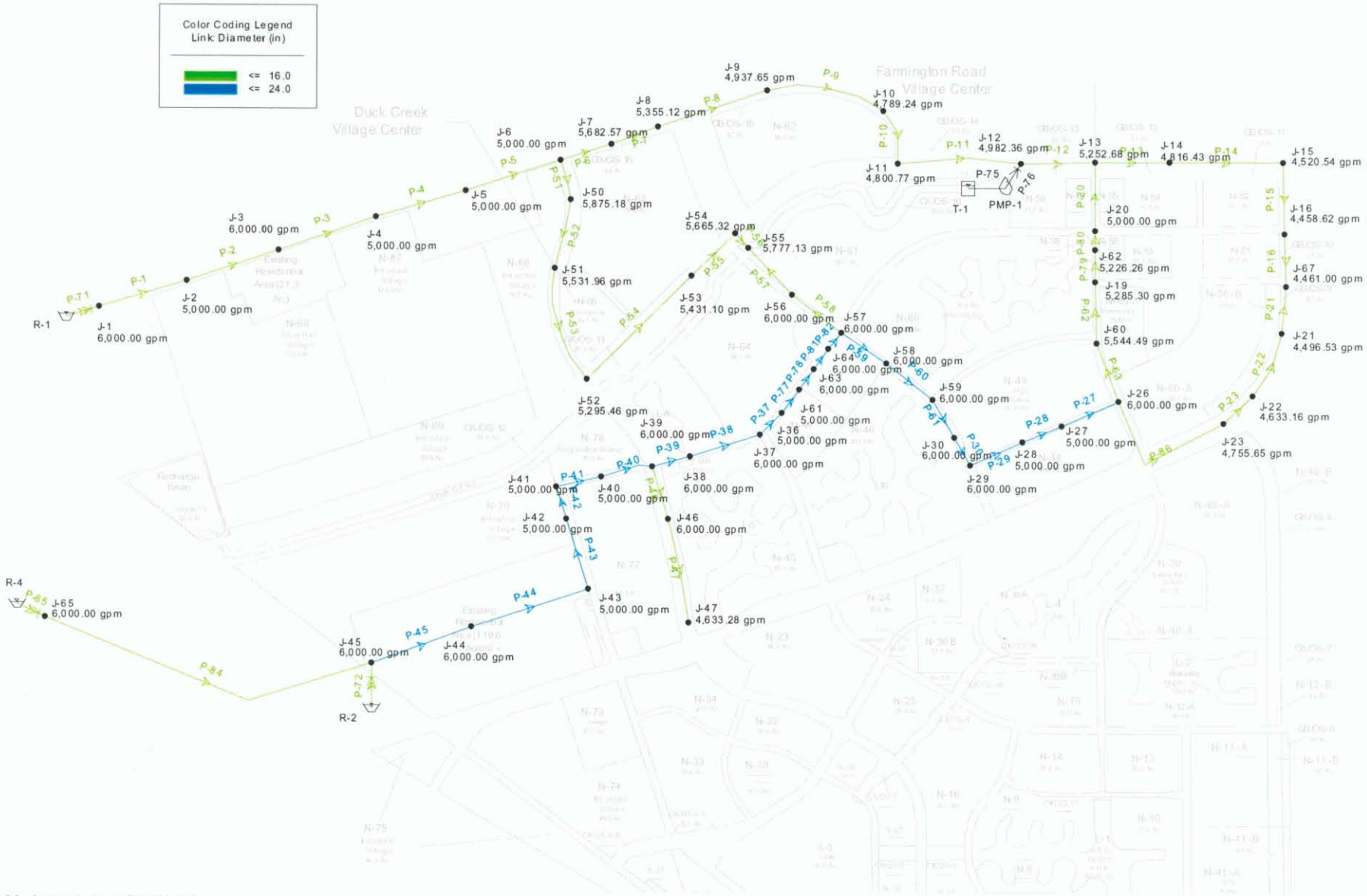
Label	Elevation (ft)	Inflow (gpm)	Calculated Hydraulic Grade (ft)
R-1	103.95	-1,091.88	103.95
R-2	103.95	-542.39	103.95
R-3	103.95	-618.35	103.95

Scenario: COS Service Area Peak Hour Demand (Tank/Booster Source On)
Steady State Analysis
Tank Report

Label	Base Elevation (ft)	Minimum Elevation (ft)	Initial HGL (ft)	Maximum Elevation (ft)	Tank Diameter (ft)	Inflow (gpm)	Current Status	Calculated Hydraulic Grade (ft)	Calculated Percent Full (%)	Total Volume (gal)
T-1	0.00	0.00	34.40	50.00	123.50	5,892.12	Draining	34.40	68.8	4,480,490.41

APPENDIX B
MODEL REPORTS FOR THE CAL WATER SERVICE AREA

Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)



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Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Junction Report

Label	Base Flow (gpm)	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)
J-67	35.72	35.72	96.57	41.78
J-16	54.31	54.31	96.57	41.78
J-21	102.25	102.25	96.57	41.78
J-15	58.70	58.69	96.58	41.78
J-22	0.00	0.00	96.59	41.79
J-23	102.25	102.25	96.60	41.79
J-14	77.17	77.18	96.60	41.80
J-13	20.89	20.89	96.65	41.82
J-20	0.00	0.00	96.66	41.82
J-62	9.57	9.57	96.66	41.82
J-19	54.92	54.92	96.67	41.82
J-12	45.93	45.93	96.67	41.83
J-60	41.92	41.92	96.69	41.83
J-26	36.52	36.52	96.72	41.85
J-11	0.00	0.00	96.74	41.85
J-27	74.59	74.59	96.74	41.86
J-28	284.80	284.80	96.77	41.87
J-10	100.61	100.61	96.77	41.87
J-29	125.75	125.75	96.83	41.89
J-30	125.75	125.75	96.88	41.91
J-9	100.61	100.61	96.91	41.93
J-59	125.75	125.75	96.96	41.95
J-58	208.87	208.87	97.09	42.01
J-8	72.45	72.45	97.15	42.03
J-55	120.29	120.29	97.23	42.07
J-54	0.00	0.00	97.23	42.07
J-56	120.29	120.29	97.23	42.07
J-53	72.45	72.45	97.24	42.07
J-57	208.87	208.87	97.26	42.08
J-52	35.34	35.34	97.28	42.09
J-7	0.00	0.00	97.29	42.09
J-51	47.54	47.54	97.34	42.11
J-64	0.00	0.00	97.36	42.12
J-50	72.45	72.45	97.39	42.14
J-6	47.54	47.54	97.44	42.16
J-63	112.67	112.67	97.48	42.17

Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Junction Report

Label	Base Flow (gpm)	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)
J-61	31.83	31.83	97.61	42.23
J-36	112.67	112.67	97.78	42.30
J-37	160.21	160.21	97.97	42.39
J-5	0.00	0.00	98.23	42.50
J-38	0.00	0.00	98.49	42.61
J-47	55.95	55.95	98.72	42.71
J-46	160.21	160.21	98.73	42.71
J-39	55.95	55.95	98.77	42.73
J-4	258.55	258.55	98.98	42.82
J-40	46.87	46.87	99.24	42.94
J-41	246.05	246.05	99.65	43.11
J-42	110.13	110.13	100.02	43.27
J-3	99.52	99.52	100.36	43.42
J-43	10.15	10.15	100.87	43.64
J-2	253.85	253.85	101.86	44.07
J-44	435.96	435.96	102.31	44.26
J-45	0.00	0.00	103.94	44.97
J-1	0.00	0.00	103.95	44.97
J-65	0.00	0.00	103.95	44.97

Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-75	1.00	48.0	0.00	38.95	38.95	0.00	0.00	0.00	110.0
P-76	1.00	48.0	0.00	96.67	96.67	0.00	0.00	0.00	110.0
P-16	742.00	16.0	11.71	96.57	96.57	0.00	0.00	0.02	110.0
P-21	648.00	16.0	-24.01	96.57	96.57	0.00	0.00	0.04	110.0
P-85	1.00	16.0	34.10	103.95	103.95	0.00	0.00	0.05	110.0
P-84	4,879.00	16.0	34.10	103.95	103.94	0.01	0.00	0.05	110.0
P-57	898.00	16.0	-52.48	97.23	97.23	0.00	0.00	0.08	110.0
P-47	1,476.00	16.0	55.95	98.73	98.72	0.01	0.00	0.09	110.0
P-15	986.00	16.0	66.01	96.58	96.57	0.01	0.01	0.11	110.0
P-55	833.00	16.0	67.81	97.24	97.23	0.00	0.01	0.11	110.0
P-56	273.00	16.0	67.81	97.23	97.23	0.00	0.01	0.11	110.0
P-80	270.00	16.0	82.74	96.66	96.66	0.00	0.01	0.13	110.0
P-20	942.00	16.0	82.74	96.66	96.65	0.01	0.01	0.13	110.0
P-79	455.00	16.0	92.31	96.67	96.66	0.00	0.01	0.15	110.0
P-14	1,601.00	16.0	124.71	96.60	96.58	0.03	0.02	0.20	110.0
P-23	561.00	16.0	-126.26	96.59	96.60	0.01	0.02	0.20	110.0
P-22	993.00	16.0	-126.26	96.57	96.59	0.02	0.02	0.20	110.0
P-12	1,030.00	16.0	140.04	96.67	96.65	0.02	0.02	0.22	110.0
P-54	2,075.00	16.0	140.26	97.28	97.24	0.05	0.02	0.22	110.0
P-62	851.00	16.0	-147.23	96.67	96.69	0.02	0.02	0.23	110.0
P-58	873.00	16.0	-172.77	97.23	97.26	0.03	0.03	0.28	110.0
P-53	1,688.00	16.0	175.60	97.34	97.28	0.06	0.03	0.28	110.0
P-11	1,738.00	16.0	185.96	96.74	96.67	0.07	0.04	0.30	110.0
P-10	782.00	16.0	185.96	96.77	96.74	0.03	0.04	0.30	110.0
P-63	874.00	16.0	-189.14	96.69	96.72	0.03	0.04	0.30	110.0
P-27	869.00	24.0	-454.17	96.72	96.74	0.02	0.03	0.32	110.0
P-13	1,048.00	16.0	201.88	96.65	96.60	0.05	0.04	0.32	110.0
P-46	765.00	16.0	216.16	98.77	98.73	0.04	0.05	0.34	110.0
P-52	980.00	16.0	-223.14	97.34	97.39	0.05	0.05	0.36	110.0
P-86	2,191.00	16.0	228.51	96.72	96.60	0.12	0.06	0.36	110.0
P-28	593.00	24.0	-528.76	96.74	96.77	0.02	0.04	0.37	110.0
P-9	1,717.00	16.0	286.57	96.91	96.77	0.14	0.08	0.46	110.0
P-51	567.00	16.0	-295.59	97.39	97.44	0.05	0.09	0.47	110.0
P-29	803.00	24.0	-813.57	96.77	96.83	0.06	0.08	0.58	110.0
P-8	1,619.00	16.0	387.19	97.15	96.91	0.24	0.15	0.62	110.0

Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-30	437.00	24.0	-939.31	96.83	96.88	0.05	0.11	0.67	110.0
P-7	702.00	16.0	459.64	97.29	97.15	0.14	0.20	0.73	110.0
P-6	745.00	16.0	459.64	97.44	97.29	0.15	0.20	0.73	110.0
P-61	618.00	24.0	1,065.06	96.96	96.88	0.08	0.13	0.76	110.0
P-60	831.00	24.0	1,190.81	97.09	96.96	0.14	0.16	0.84	110.0
P-59	764.00	24.0	1,399.68	97.26	97.09	0.17	0.22	0.99	110.0
P-81	337.00	24.0	1,781.31	97.48	97.36	0.12	0.34	1.26	110.0
P-82	296.00	24.0	1,781.31	97.36	97.26	0.10	0.34	1.26	110.0
P-5	1,390.00	16.0	802.77	98.23	97.44	0.79	0.57	1.28	110.0
P-4	1,319.00	16.0	802.77	98.98	98.23	0.75	0.57	1.28	110.0
P-78	348.00	24.0	1,893.98	97.61	97.48	0.13	0.39	1.34	110.0
P-77	416.00	24.0	1,925.81	97.78	97.61	0.17	0.40	1.37	110.0
P-37	435.00	24.0	-2,038.47	97.78	97.97	0.19	0.44	1.45	110.0
P-38	1,020.00	24.0	-2,198.68	97.97	98.49	0.52	0.51	1.56	110.0
P-39	545.00	24.0	-2,198.68	98.49	98.77	0.28	0.51	1.56	110.0
P-3	1,454.00	16.0	1,061.32	100.36	98.98	1.38	0.95	1.69	110.0
P-40	749.00	24.0	-2,470.78	98.77	99.24	0.47	0.63	1.75	110.0
P-41	635.00	24.0	-2,517.65	99.24	99.65	0.41	0.65	1.79	110.0
P-2	1,341.00	16.0	1,160.84	101.86	100.36	1.50	1.12	1.85	110.0
P-42	471.00	24.0	-2,763.71	99.65	100.02	0.37	0.78	1.96	110.0
P-43	1,022.00	24.0	-2,873.84	100.02	100.87	0.85	0.83	2.04	110.0
P-44	1,711.00	24.0	-2,884.00	100.87	102.31	1.44	0.84	2.05	110.0
P-1	1,291.00	16.0	1,414.69	103.95	101.86	2.09	1.62	2.26	110.0
P-71	1.00	16.0	1,414.69	103.95	103.95	0.00	1.62	2.26	110.0
P-45	1,503.00	24.0	-3,319.96	102.31	103.94	1.64	1.09	2.35	110.0
P-72	1.00	16.0	3,285.86	103.95	103.94	0.01	7.70	5.24	110.0

Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Pump Report

Label	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Calculated Water Power (Hp)
PMP-1	Off	38.95	96.67	0.00	0.00	0.00

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Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Reservoir Report

Label	Elevation (ft)	Inflow (gpm)	Calculated Hydraulic Grade (ft)
R-1	103.95	-1,414.69	103.95
R-2	103.95	-3,285.86	103.95
R-4	103.95	-34.10	103.95

Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Tank Report

Label	Base Elevation (ft)	Minimum Elevation (ft)	Initial HGL (ft)	Maximum Elevation (ft)	Tank Diameter (ft)	Inflow (gpm)	Current Status	Calculated Hydraulic Grade (ft)	Calculated Percent Full (%)	Total Volume (gal)
T-1	0.00	0.00	38.95	50.00	136.59	0.00	Steady	38.95	77.9	5,480,616.91

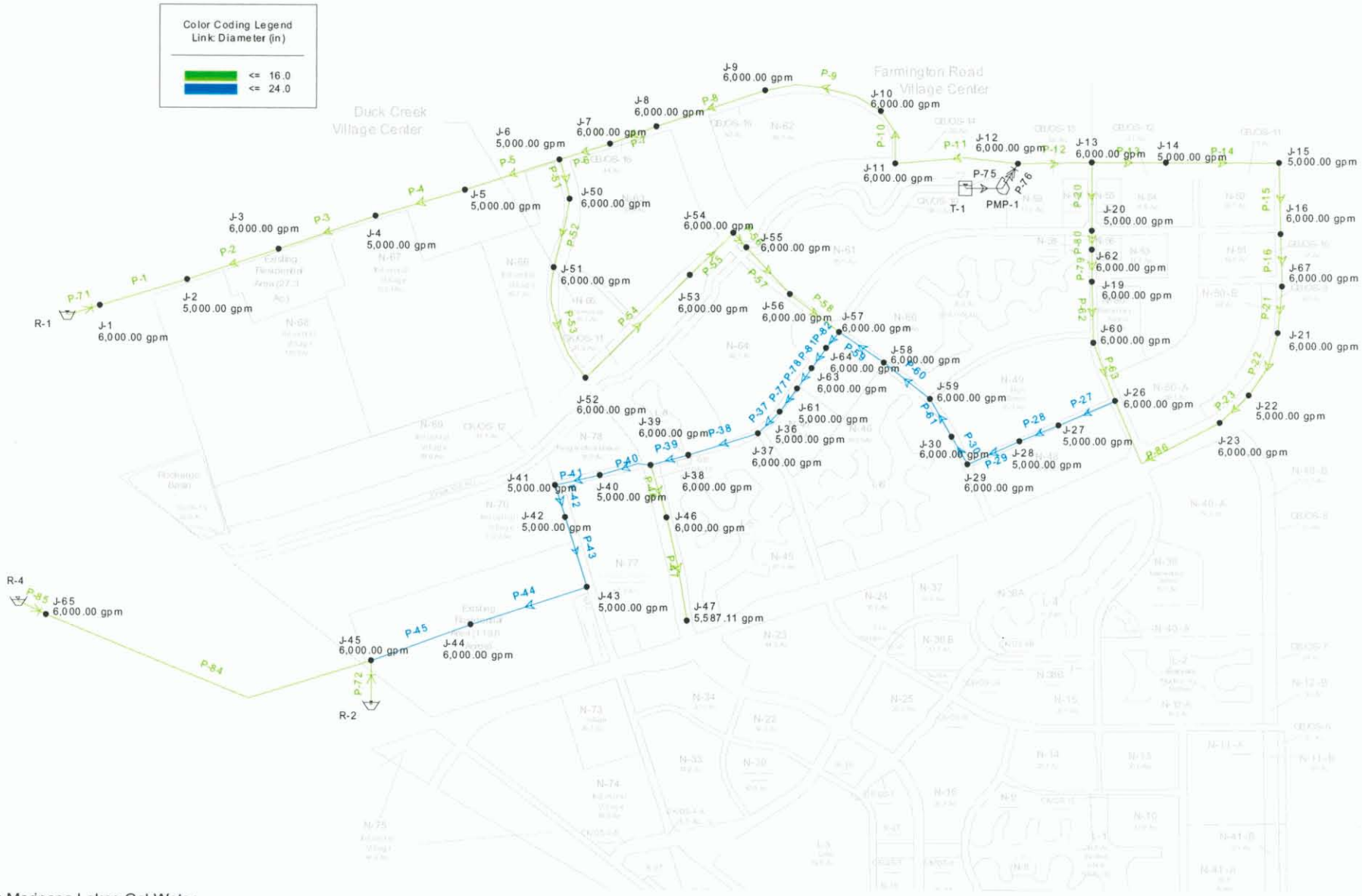
Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Fire Flow Report

Label	Needed Fire Flow (gpm)	Available Fire Flow (gpm)	Residual Pressure (psi)	Satisfies Fire Flow Constraints?	Minimum System Junction
J-16	3,000.00	4,458.62	20.00	true	PMP-1
J-67	3,000.00	4,461.00	20.00	true	PMP-1
J-21	3,000.00	4,496.53	20.00	true	PMP-1
J-15	3,000.00	4,520.54	20.00	true	PMP-1
J-22	3,000.00	4,633.16	20.00	true	PMP-1
J-47	4,500.00	4,633.28	20.00	true	PMP-1
J-23	3,000.00	4,755.65	20.00	true	PMP-1
J-10	4,500.00	4,789.24	20.00	true	PMP-1
J-11	4,500.00	4,800.77	20.00	true	PMP-1
J-14	3,000.00	4,816.43	20.00	true	PMP-1
J-9	4,500.00	4,937.65	20.00	true	PMP-1
J-12	4,500.00	4,982.36	20.00	true	PMP-1
J-42	2,700.00	5,000.00	20.00	true	PMP-1
J-6	4,000.00	5,000.00	20.00	true	PMP-1
J-5	4,000.00	5,000.00	20.00	true	PMP-1
J-4	2,700.00	5,000.00	20.00	true	PMP-1
J-2	2,700.00	5,000.00	20.00	true	PMP-1
J-61	4,000.00	5,000.00	20.00	true	PMP-1
J-41	4,000.00	5,000.00	20.00	true	PMP-1
J-28	4,000.00	5,000.00	20.00	true	PMP-1
J-36	4,000.00	5,000.00	20.00	true	PMP-1
J-20	4,000.00	5,000.00	20.00	true	PMP-1
J-40	4,000.00	5,000.00	20.00	true	PMP-1
J-43	4,000.00	5,000.00	20.00	true	PMP-1
J-27	4,000.00	5,000.00	20.00	true	PMP-1
J-62	4,500.00	5,226.26	20.00	true	PMP-1
J-13	4,500.00	5,252.68	20.00	true	PMP-1
J-19	4,500.00	5,285.30	20.00	true	PMP-1
J-52	4,500.00	5,295.46	20.00	true	PMP-1
J-8	4,500.00	5,355.12	20.00	true	PMP-1
J-53	4,500.00	5,431.10	20.00	true	PMP-1
J-51	4,500.00	5,531.96	20.00	true	PMP-1
J-60	4,500.00	5,544.49	20.00	true	PMP-1
J-54	4,500.00	5,665.32	20.00	true	PMP-1
J-7	4,500.00	5,682.57	20.00	true	PMP-1

Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source Off)
Fire Flow Analysis
Fire Flow Report

Label	Needed Fire Flow (gpm)	Available Fire Flow (gpm)	Residual Pressure (psi)	Satisfies Fire Flow Constraints?	Minimum System Junction
J-55	4,500.00	5,777.13	20.00	true	PMP-1
J-50	4,500.00	5,875.18	20.00	true	PMP-1
J-38	4,500.00	6,000.00	20.00	true	PMP-1
J-46	4,500.00	6,000.00	20.00	true	PMP-1
J-39	4,500.00	6,000.00	20.00	true	PMP-1
J-45	4,500.00	6,000.00	20.00	true	PMP-1
J-26	4,500.00	6,000.00	20.00	true	PMP-1
J-30	4,500.00	6,000.00	20.00	true	PMP-1
J-37	4,500.00	6,000.00	20.00	true	PMP-1
J-29	4,500.00	6,000.00	20.00	true	PMP-1
J-64	4,500.00	6,000.00	20.00	true	PMP-1
J-65	4,500.00	6,000.00	20.00	true	PMP-1
J-56	4,500.00	6,000.00	20.00	true	PMP-1
J-59	4,500.00	6,000.00	20.00	true	PMP-1
J-1	4,500.00	6,000.00	20.00	true	PMP-1
J-44	4,500.00	6,000.00	20.00	true	PMP-1
J-63	4,500.00	6,000.00	20.00	true	PMP-1
J-3	4,500.00	6,000.00	20.00	true	PMP-1
J-57	4,500.00	6,000.00	20.00	true	PMP-1
J-58	4,500.00	6,000.00	20.00	true	PMP-1

Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)



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Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Junction Report

Label	Base Flow (gpm)	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)
J-65	0.00	0.00	112.83	48.82
J-44	435.96	435.96	112.83	48.82
J-45	0.00	0.00	112.83	48.82
J-43	10.15	10.15	112.88	48.84
J-42	110.13	110.13	112.90	48.85
J-41	246.05	246.05	112.92	48.86
J-40	46.87	46.87	112.97	48.88
J-47	55.95	55.95	112.99	48.89
J-46	160.21	160.21	113.00	48.89
J-39	55.95	55.95	113.04	48.91
J-38	0.00	0.00	113.12	48.94
J-37	160.21	160.21	113.26	49.00
J-36	112.67	112.67	113.35	49.04
J-61	31.83	31.83	113.44	49.08
J-63	112.67	112.67	113.52	49.11
J-64	0.00	0.00	113.60	49.15
J-57	208.87	208.87	113.68	49.18
J-56	120.29	120.29	113.75	49.21
J-58	208.87	208.87	113.87	49.26
J-55	120.29	120.29	113.89	49.27
J-54	0.00	0.00	113.96	49.30
J-59	125.75	125.75	114.12	49.38
J-53	72.45	72.45	114.17	49.39
J-30	125.75	125.75	114.34	49.47
J-29	125.75	125.75	114.51	49.55
J-52	35.34	35.34	114.83	49.68
J-28	284.80	284.80	114.88	49.70
J-1	0.00	0.00	114.91	49.72
J-2	253.85	253.85	114.91	49.72
J-3	99.52	99.52	115.00	49.76
J-4	258.55	258.55	115.18	49.83
J-27	74.59	74.59	115.21	49.85
J-51	47.54	47.54	115.43	49.94
J-5	0.00	0.00	115.63	50.03
J-26	36.52	36.52	115.74	50.07
J-50	72.45	72.45	115.83	50.11

Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Junction Report

Label	Base Flow (gpm)	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)
J-6	47.54	47.54	116.11	50.24
J-23	102.25	102.25	117.00	50.62
J-7	0.00	0.00	117.30	50.75
J-22	0.00	0.00	117.40	50.79
J-60	41.92	41.92	117.61	50.88
J-21	102.25	102.25	118.11	51.10
J-8	72.45	72.45	118.42	51.23
J-67	35.72	35.72	118.68	51.35
J-16	54.31	54.31	119.37	51.64
J-19	54.92	54.92	119.51	51.71
J-15	58.70	58.69	120.37	52.08
J-62	9.57	9.57	120.59	52.17
J-20	0.00	0.00	121.24	52.45
J-9	100.61	100.61	121.25	52.46
J-14	77.17	77.18	122.17	52.86
J-13	20.89	20.89	123.50	53.43
J-10	100.61	100.61	124.65	53.93
J-11	0.00	0.00	126.39	54.68
J-12	45.93	45.93	130.24	56.35

Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-71	1.00	16.0	0.00	103.95	114.91	0.00	0.00	0.00	110.0
P-72	1.00	16.0	0.00	103.95	112.83	0.00	0.00	0.00	110.0
P-85	1.00	16.0	0.00	103.95	112.83	0.00	0.00	0.00	110.0
P-1	1,291.00	16.0	0.00	114.91	114.91	0.00	0.00	0.00	110.0
P-45	1,503.00	24.0	0.00	112.83	112.83	0.00	0.00	0.00	110.0
P-84	4,879.00	16.0	0.00	112.83	112.83	0.00	0.00	0.00	110.0
P-47	1,476.00	16.0	55.95	113.00	112.99	0.01	0.00	0.09	110.0
P-44	1,711.00	24.0	435.96	112.88	112.83	0.04	0.03	0.31	110.0
P-43	1,022.00	24.0	446.11	112.90	112.88	0.03	0.03	0.32	110.0
P-46	765.00	16.0	216.16	113.04	113.00	0.04	0.05	0.34	110.0
P-42	471.00	24.0	556.25	112.92	112.90	0.02	0.04	0.39	110.0
P-2	1,341.00	16.0	-253.85	114.91	115.00	0.09	0.07	0.41	110.0
P-58	873.00	16.0	276.64	113.75	113.68	0.07	0.08	0.44	110.0
P-3	1,454.00	16.0	-353.37	115.00	115.18	0.18	0.12	0.56	110.0
P-41	635.00	24.0	802.30	112.97	112.92	0.05	0.08	0.57	110.0
P-40	749.00	24.0	849.17	113.04	112.97	0.07	0.09	0.60	110.0
P-57	898.00	16.0	396.92	113.89	113.75	0.14	0.15	0.63	110.0
P-39	545.00	24.0	1,121.28	113.12	113.04	0.08	0.15	0.80	110.0
P-38	1,020.00	24.0	1,121.28	113.26	113.12	0.15	0.15	0.80	110.0
P-56	273.00	16.0	517.21	113.96	113.89	0.07	0.25	0.83	110.0
P-55	833.00	16.0	517.21	114.17	113.96	0.21	0.25	0.83	110.0
P-76	1.00	48.0	4,734.65	130.24	130.24	0.00	0.08	0.84	110.0
P-75	1.00	48.0	4,734.65	30.00	30.00	0.00	0.07	0.84	110.0
P-37	435.00	24.0	1,281.48	113.35	113.26	0.08	0.19	0.91	110.0
P-54	2,075.00	16.0	589.66	114.83	114.17	0.66	0.32	0.94	110.0
P-4	1,319.00	16.0	-611.92	115.18	115.63	0.45	0.34	0.98	110.0
P-5	1,390.00	16.0	-611.92	115.63	116.11	0.48	0.34	0.98	110.0
P-77	416.00	24.0	-1,394.15	113.35	113.44	0.09	0.22	0.99	110.0
P-53	1,688.00	16.0	625.01	115.43	114.83	0.60	0.36	1.00	110.0
P-78	348.00	24.0	-1,425.98	113.44	113.52	0.08	0.23	1.01	110.0
P-59	764.00	24.0	-1,470.87	113.68	113.87	0.18	0.24	1.04	110.0
P-52	980.00	16.0	-672.55	115.43	115.83	0.40	0.41	1.07	110.0
P-81	337.00	24.0	-1,538.64	113.52	113.60	0.09	0.26	1.09	110.0
P-82	296.00	24.0	-1,538.64	113.60	113.68	0.08	0.26	1.09	110.0
P-51	567.00	16.0	-745.00	115.83	116.11	0.28	0.49	1.19	110.0

Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-60	831.00	24.0	-1,679.74	113.87	114.12	0.26	0.31	1.19	110.0
P-61	618.00	24.0	-1,805.49	114.12	114.34	0.22	0.35	1.28	110.0
P-86	2,191.00	16.0	-808.99	115.74	117.00	1.26	0.57	1.29	110.0
P-30	437.00	24.0	1,931.24	114.51	114.34	0.17	0.40	1.37	110.0
P-23	561.00	16.0	911.24	117.40	117.00	0.40	0.72	1.45	110.0
P-22	993.00	16.0	911.24	118.11	117.40	0.71	0.72	1.45	110.0
P-29	803.00	24.0	2,056.98	114.88	114.51	0.36	0.45	1.46	110.0
P-21	648.00	16.0	1,013.49	118.68	118.11	0.56	0.87	1.62	110.0
P-28	593.00	24.0	2,341.79	115.21	114.88	0.34	0.57	1.66	110.0
P-16	742.00	16.0	1,049.21	119.37	118.68	0.69	0.93	1.67	110.0
P-27	869.00	24.0	2,416.38	115.74	115.21	0.53	0.60	1.71	110.0
P-15	986.00	16.0	1,103.52	120.37	119.37	1.01	1.02	1.76	110.0
P-14	1,601.00	16.0	1,162.21	122.17	120.37	1.80	1.12	1.85	110.0
P-13	1,048.00	16.0	1,239.39	123.50	122.17	1.33	1.27	1.98	110.0
P-6	745.00	16.0	-1,404.46	116.11	117.30	1.19	1.60	2.24	110.0
P-7	702.00	16.0	-1,404.46	117.30	118.42	1.12	1.60	2.24	110.0
P-8	1,619.00	16.0	-1,476.91	118.42	121.25	2.84	1.75	2.36	110.0
P-9	1,717.00	16.0	-1,577.52	121.25	124.65	3.40	1.98	2.52	110.0
P-63	874.00	16.0	1,643.90	117.61	115.74	1.87	2.14	2.62	110.0
P-11	1,738.00	16.0	-1,678.13	126.39	130.24	3.86	2.22	2.68	110.0
P-10	782.00	16.0	-1,678.13	124.65	126.39	1.73	2.22	2.68	110.0
P-62	851.00	16.0	1,685.82	119.51	117.61	1.90	2.24	2.69	110.0
P-79	455.00	16.0	-1,740.74	119.51	120.59	1.08	2.37	2.78	110.0
P-20	942.00	16.0	-1,750.30	121.24	123.50	2.26	2.40	2.79	110.0
P-80	270.00	16.0	-1,750.30	120.59	121.24	0.65	2.40	2.79	110.0
P-12	1,030.00	16.0	3,010.59	130.24	123.50	6.75	6.55	4.80	110.0

Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Pump Report

Label	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Calculated Water Power (Hp)
PMP-1	On	30.00	130.24	4,734.65	100.24	119.83

Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Reservoir Report

Label	Elevation (ft)	Inflow (gpm)	Calculated Hydraulic Grade (ft)
R-1	103.95	0.00	103.95
R-2	103.95	0.00	103.95
R-4	103.95	0.00	103.95

Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Tank Report

Label	Base Elevation (ft)	Minimum Elevation (ft)	Initial HGL (ft)	Maximum Elevation (ft)	Tank Diameter (ft)	Inflow (gpm)	Current Status	Calculated Hydraulic Grade (ft)	Calculated Percent Full (%)	Total Volume (gal)
T-1	0.00	0.00	30.00	50.00	136.59	4,734.65	Draining	30.00	60.0	5,480,616.91

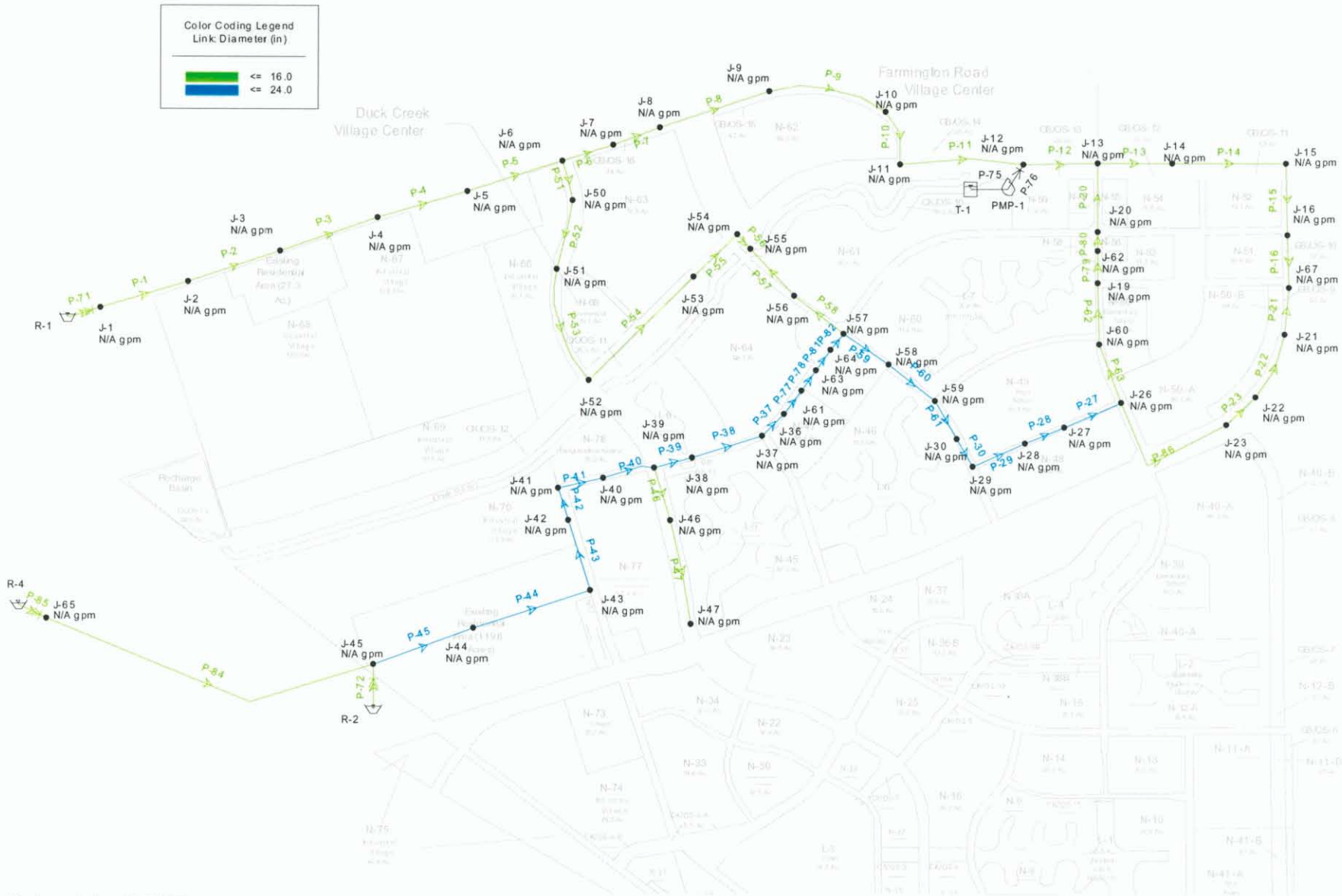
Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Fire Flow Report

Label	Needed Fire Flow (gpm)	Available Fire Flow (gpm)	Residual Pressure (psi)	Satisfies Fire Flow Constraints?	Minimum System Junction
J-40	4,000.00	5,000.00	20.00	true	PMP-1
J-41	4,000.00	5,000.00	20.00	true	PMP-1
J-4	2,700.00	5,000.00	20.00	true	PMP-1
J-5	4,000.00	5,000.00	20.00	true	PMP-1
J-42	2,700.00	5,000.00	20.00	true	PMP-1
J-61	4,000.00	5,000.00	20.00	true	PMP-1
J-2	2,700.00	5,000.00	20.00	true	PMP-1
J-6	4,000.00	5,000.00	20.00	true	PMP-1
J-43	4,000.00	5,000.00	20.00	true	PMP-1
J-36	4,000.00	5,000.00	20.00	true	PMP-1
J-14	3,000.00	5,000.00	20.00	true	PMP-1
J-15	3,000.00	5,000.00	20.00	true	PMP-1
J-28	4,000.00	5,000.00	20.00	true	PMP-1
J-27	4,000.00	5,000.00	20.00	true	PMP-1
J-20	4,000.00	5,000.00	20.00	true	PMP-1
J-22	3,000.00	5,000.00	20.00	true	PMP-1
J-47	4,500.00	5,587.11	20.00	true	PMP-1
J-11	4,500.00	6,000.00	20.00	true	PMP-1
J-7	4,500.00	6,000.00	20.00	true	PMP-1
J-30	4,500.00	6,000.00	20.00	true	PMP-1
J-10	4,500.00	6,000.00	20.00	true	PMP-1
J-9	4,500.00	6,000.00	20.00	true	PMP-1
J-16	3,000.00	6,000.00	20.00	true	PMP-1
J-12	4,500.00	6,000.00	20.00	true	PMP-1
J-8	4,500.00	6,000.00	20.00	true	PMP-1
J-13	4,500.00	6,000.00	20.00	true	PMP-1
J-21	3,000.00	6,000.00	20.00	true	PMP-1
J-67	3,000.00	6,000.00	20.00	true	PMP-1
J-23	3,000.00	6,000.00	20.00	true	PMP-1
J-26	4,500.00	6,000.00	20.00	true	PMP-1
J-19	4,500.00	6,000.00	20.00	true	PMP-1
J-37	4,500.00	6,000.00	20.00	true	PMP-1
J-29	4,500.00	6,000.00	20.00	true	PMP-1
J-38	4,500.00	6,000.00	20.00	true	PMP-1
J-39	4,500.00	6,000.00	20.00	true	PMP-1

Scenario: Cal Water Service Area Maximum Day Demand Plus Fire Flow (Tank/Booster Source On)
Fire Flow Analysis
Fire Flow Report

Label	Needed Fire Flow (gpm)	Available Fire Flow (gpm)	Residual Pressure (psi)	Satisfies Fire Flow Constraints?	Minimum System Junction
J-59	4,500.00	6,000.00	20.00	true	PMP-1
J-60	4,500.00	6,000.00	20.00	true	PMP-1
J-64	4,500.00	6,000.00	20.00	true	PMP-1
J-65	4,500.00	6,000.00	20.00	true	PMP-1
J-62	4,500.00	6,000.00	20.00	true	PMP-1
J-46	4,500.00	6,000.00	20.00	true	PMP-1
J-50	4,500.00	6,000.00	20.00	true	PMP-1
J-44	4,500.00	6,000.00	20.00	true	PMP-1
J-45	4,500.00	6,000.00	20.00	true	PMP-1
J-54	4,500.00	6,000.00	20.00	true	PMP-1
J-55	4,500.00	6,000.00	20.00	true	PMP-1
J-3	4,500.00	6,000.00	20.00	true	PMP-1
J-1	4,500.00	6,000.00	20.00	true	PMP-1
J-56	4,500.00	6,000.00	20.00	true	PMP-1
J-53	4,500.00	6,000.00	20.00	true	PMP-1
J-63	4,500.00	6,000.00	20.00	true	PMP-1
J-51	4,500.00	6,000.00	20.00	true	PMP-1
J-52	4,500.00	6,000.00	20.00	true	PMP-1
J-57	4,500.00	6,000.00	20.00	true	PMP-1
J-58	4,500.00	6,000.00	20.00	true	PMP-1

Scenario: Cal Water Service Area Peak Hour Demand Tank/Booster Source Off)



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Scenario: Cal Water Service Area Peak Hour Demand Tank/Booster Source Off)
Steady State Analysis
Junction Report

Label	Base Flow (gpm)	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)
J-67	68.23	68.23	79.38	34.35
J-21	195.30	195.30	79.38	34.35
J-16	103.72	103.72	79.39	34.35
J-15	112.11	112.11	79.41	34.36
J-22	0.00	0.00	79.44	34.37
J-23	195.30	195.30	79.47	34.38
J-14	147.40	147.40	79.51	34.40
J-13	39.91	39.91	79.68	34.47
J-20	0.00	0.00	79.69	34.48
J-62	18.28	18.28	79.70	34.48
J-19	104.89	104.89	79.71	34.48
J-60	80.06	80.06	79.76	34.51
J-12	87.72	87.72	79.78	34.52
J-26	69.75	69.75	79.85	34.55
J-27	142.47	142.47	79.92	34.58
J-28	543.97	543.97	79.98	34.60
J-11	0.00	0.00	80.07	34.64
J-29	240.18	240.18	80.18	34.69
J-10	192.17	192.17	80.19	34.70
J-30	240.18	240.18	80.33	34.75
J-59	240.18	240.18	80.59	34.87
J-9	192.17	192.17	80.76	34.94
J-55	229.75	229.75	80.87	34.99
J-54	0.00	0.00	80.87	34.99
J-53	138.38	138.38	80.89	35.00
J-56	229.75	229.75	80.99	35.04
J-58	398.93	398.93	81.01	35.05
J-52	67.51	67.51	81.23	35.15
J-57	398.93	398.93	81.55	35.28
J-8	138.38	138.38	81.66	35.33
J-51	90.81	90.81	81.72	35.36
J-64	0.00	0.00	81.89	35.43
J-7	0.00	0.00	82.18	35.56
J-50	138.38	138.38	82.22	35.57
J-63	215.19	215.19	82.28	35.60
J-61	60.79	60.79	82.73	35.79

Scenario: Cal Water Service Area Peak Hour Demand Tank/Booster Source Off)
Steady State Analysis
Junction Report

Label	Base Flow (gpm)	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)
J-6	90.81	90.81	82.74	35.80
J-36	215.19	215.19	83.28	36.03
J-37	306.00	306.00	83.92	36.31
J-5	0.00	0.00	85.29	36.90
J-38	0.00	0.00	85.65	37.06
J-47	106.86	106.86	85.99	37.20
J-46	306.00	306.00	86.07	37.24
J-39	106.86	106.86	86.58	37.46
J-4	493.83	493.83	87.71	37.95
J-40	89.53	89.53	88.16	38.14
J-41	469.96	469.96	89.54	38.74
J-42	210.36	210.36	90.76	39.27
J-3	190.08	190.08	92.21	39.89
J-43	19.39	19.39	93.60	40.50
J-2	484.85	484.85	97.11	42.02
J-44	832.68	832.68	98.39	42.57
J-45	0.00	0.00	103.85	44.93
J-1	0.00	0.00	103.94	44.97
J-65	0.00	0.00	103.95	44.97

Scenario: Cal Water Service Area Peak Hour Demand Tank/Booster Source Off)
Steady State Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-75	1.00	48.0	0.00	38.95	38.95	0.00	0.00	0.00	110.0
P-76	1.00	48.0	0.00	79.78	79.78	0.00	0.00	0.00	110.0
P-21	648.00	16.0	-32.00	79.38	79.38	0.00	0.00	0.05	110.0
P-16	742.00	16.0	36.23	79.39	79.38	0.00	0.00	0.06	110.0
P-56	273.00	12.0	56.39	80.87	80.87	0.00	0.02	0.16	110.0
P-55	833.00	12.0	56.39	80.89	80.87	0.01	0.02	0.16	110.0
P-80	270.00	16.0	117.70	79.70	79.69	0.00	0.02	0.19	110.0
P-20	942.00	16.0	117.70	79.69	79.68	0.02	0.02	0.19	110.0
P-84	4,879.00	16.0	135.28	103.95	103.85	0.10	0.02	0.22	110.0
P-85	1.00	16.0	135.28	103.95	103.95	0.00	0.02	0.22	110.0
P-79	455.00	16.0	135.98	79.71	79.70	0.01	0.02	0.22	110.0
P-15	986.00	16.0	139.96	79.41	79.39	0.02	0.02	0.22	110.0
P-47	1,476.00	12.0	106.86	86.07	85.99	0.08	0.05	0.30	110.0
P-23	561.00	16.0	-227.29	79.44	79.47	0.03	0.05	0.36	110.0
P-22	993.00	16.0	-227.29	79.38	79.44	0.05	0.05	0.36	110.0
P-62	851.00	16.0	-240.87	79.71	79.76	0.05	0.06	0.38	110.0
P-14	1,601.00	16.0	252.06	79.51	79.41	0.11	0.07	0.40	110.0
P-57	898.00	12.0	-173.36	80.87	80.99	0.12	0.13	0.49	110.0
P-63	874.00	16.0	-320.93	79.76	79.85	0.09	0.10	0.51	110.0
P-12	1,030.00	16.0	321.67	79.78	79.68	0.11	0.10	0.51	110.0
P-54	2,075.00	12.0	194.77	81.23	80.89	0.35	0.17	0.55	110.0
P-27	869.00	24.0	-813.27	79.85	79.92	0.07	0.08	0.58	110.0
P-13	1,048.00	16.0	399.47	79.68	79.51	0.16	0.16	0.64	110.0
P-11	1,738.00	16.0	409.39	80.07	79.78	0.28	0.16	0.65	110.0
P-10	782.00	16.0	409.39	80.19	80.07	0.13	0.16	0.65	110.0
P-86	2,191.00	16.0	422.59	79.85	79.47	0.38	0.17	0.67	110.0
P-28	593.00	24.0	-955.74	79.92	79.98	0.06	0.11	0.68	110.0
P-53	1,688.00	12.0	262.27	81.72	81.23	0.49	0.29	0.74	110.0
P-9	1,717.00	16.0	601.56	80.76	80.19	0.57	0.33	0.96	110.0
P-52	980.00	12.0	-353.08	81.72	82.22	0.49	0.50	1.00	110.0
P-29	803.00	24.0	-1,499.71	79.98	80.18	0.20	0.25	1.06	110.0
P-58	873.00	12.0	-403.11	80.99	81.55	0.56	0.64	1.14	110.0
P-46	765.00	12.0	412.86	86.58	86.07	0.51	0.67	1.17	110.0
P-30	437.00	24.0	-1,739.89	80.18	80.33	0.14	0.33	1.23	110.0
P-8	1,619.00	16.0	793.72	81.66	80.76	0.90	0.55	1.27	110.0

Scenario: Cal Water Service Area Peak Hour Demand Tank/Booster Source Off)
Steady State Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-51	567.00	12.0	-491.46	82.22	82.74	0.53	0.93	1.39	110.0
P-61	618.00	24.0	1,980.07	80.59	80.33	0.26	0.42	1.40	110.0
P-7	702.00	16.0	932.10	82.18	81.66	0.52	0.75	1.49	110.0
P-6	745.00	16.0	932.10	82.74	82.18	0.56	0.75	1.49	110.0
P-60	831.00	24.0	2,220.25	81.01	80.59	0.43	0.52	1.57	110.0
P-59	764.00	24.0	2,619.18	81.55	81.01	0.54	0.70	1.86	110.0
P-4	1,319.00	16.0	1,514.37	87.71	85.29	2.42	1.83	2.42	110.0
P-5	1,390.00	16.0	1,514.37	85.29	82.74	2.55	1.83	2.42	110.0
P-81	337.00	24.0	3,421.23	82.28	81.89	0.39	1.15	2.43	110.0
P-82	296.00	24.0	3,421.23	81.89	81.55	0.34	1.15	2.43	110.0
P-78	348.00	24.0	3,636.42	82.73	82.28	0.45	1.29	2.58	110.0
P-77	416.00	24.0	3,697.21	83.28	82.73	0.55	1.33	2.62	110.0
P-37	435.00	24.0	-3,912.40	83.28	83.92	0.64	1.48	2.77	110.0
P-38	1,020.00	24.0	-4,218.40	83.92	85.65	1.73	1.70	2.99	110.0
P-39	545.00	24.0	-4,218.40	85.65	86.58	0.92	1.70	2.99	110.0
P-3	1,454.00	16.0	2,008.21	92.21	87.71	4.50	3.09	3.20	110.0
P-40	749.00	24.0	-4,738.12	86.58	88.16	1.58	2.10	3.36	110.0
P-41	635.00	24.0	-4,827.64	88.16	89.54	1.38	2.18	3.42	110.0
P-2	1,341.00	16.0	2,198.29	97.11	92.21	4.91	3.66	3.51	110.0
P-42	471.00	24.0	-5,297.61	89.54	90.76	1.22	2.59	3.76	110.0
P-43	1,022.00	24.0	-5,507.96	90.76	93.60	2.84	2.78	3.91	110.0
P-44	1,711.00	24.0	-5,527.36	93.60	98.39	4.79	2.80	3.92	110.0
P-1	1,291.00	16.0	2,683.14	103.94	97.11	6.83	5.29	4.28	110.0
P-71	1.00	16.0	2,683.14	103.95	103.94	0.01	5.29	4.28	110.0
P-45	1,503.00	24.0	-6,360.04	98.39	103.85	5.46	3.63	4.51	110.0
P-72	1.00	12.0	6,224.76	103.95	103.85	0.10	102.09	17.66	110.0

Scenario: Cal Water Service Area Peak Hour Demand Tank/Booster Source Off)
Steady State Analysis
Pump Report

Label	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Calculated Water Power (Hp)
PMP-1	Off	38.95	79.78	0.00	0.00	0.00

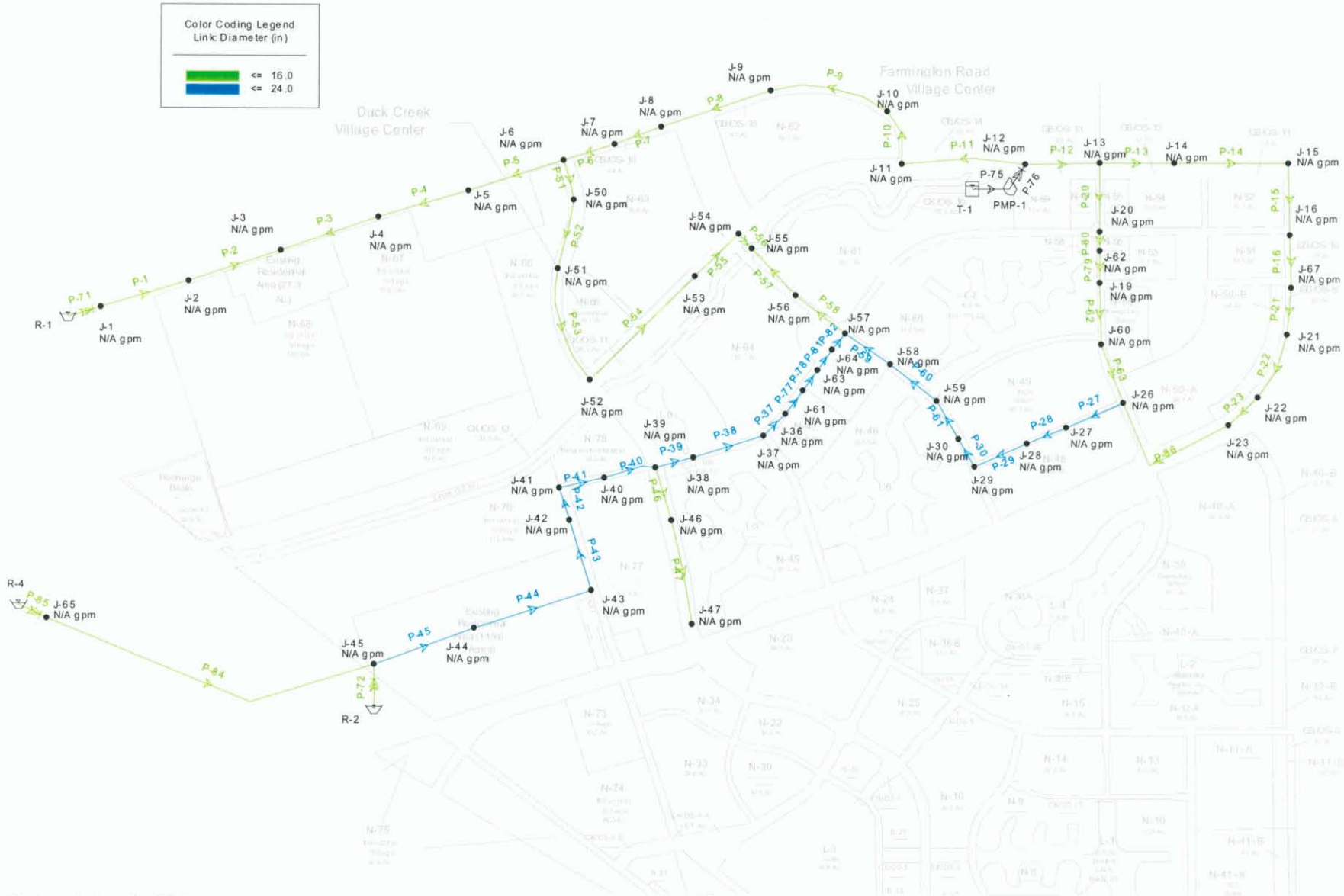
Scenario: Cal Water Service Area Peak Hour Demand Tank/Booster Source Off)
Steady State Analysis
Reservoir Report

Label	Elevation (ft)	Inflow (gpm)	Calculated Hydraulic Grade (ft)
R-1	103.95	-2,683.14	103.95
R-2	103.95	-6,224.76	103.95
R-4	103.95	-135.28	103.95

Scenario: Cal Water Service Area Peak Hour Demand Tank/Booster Source Off)
Steady State Analysis
Tank Report

Label	Base Elevation (ft)	Minimum Elevation (ft)	Initial HGL (ft)	Maximum Elevation (ft)	Tank Diameter (ft)	Inflow (gpm)	Current Status	Calculated Hydraulic Grade (ft)	Calculated Percent Full (%)	Total Volume (gal)
T-1	0.00	0.00	38.95	50.00	136.60	0.00	Steady	38.95	77.9	5,481,419.44

Scenario: Cal Water Service Area Peak Hour Demand (Tank/Booster Source On)



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Scenario: Cal Water Service Area Peak Hour Demand (Tank/Booster Source On)
Steady State Analysis
Junction Report

Label	Base Flow (gpm)	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)
J-47	106.86	106.86	99.94	43.24
J-46	306.00	306.00	100.02	43.27
J-55	229.75	229.75	100.10	43.31
J-56	229.75	229.75	100.11	43.31
J-54	0.00	0.00	100.16	43.33
J-53	138.38	138.38	100.32	43.40
J-57	398.93	398.93	100.34	43.41
J-64	0.00	0.00	100.34	43.41
J-63	215.19	215.19	100.34	43.41
J-61	60.79	60.79	100.34	43.41
J-36	215.19	215.19	100.35	43.42
J-58	398.93	398.93	100.36	43.42
J-37	306.00	306.00	100.37	43.43
J-59	240.18	240.18	100.45	43.46
J-38	0.00	0.00	100.48	43.47
J-39	106.86	106.86	100.54	43.50
J-30	240.18	240.18	100.54	43.50
J-29	240.18	240.18	100.64	43.54
J-40	89.53	89.53	100.71	43.57
J-28	543.97	543.97	100.87	43.64
J-41	469.96	469.96	100.88	43.65
J-42	210.36	210.36	101.08	43.73
J-27	142.47	142.47	101.17	43.77
J-52	67.51	67.51	101.34	43.84
J-43	19.39	19.39	101.61	43.96
J-26	69.75	69.75	101.66	43.98
J-51	90.81	90.81	102.49	44.34
J-44	832.68	832.68	102.51	44.35
J-23	195.30	195.30	102.56	44.37
J-22	0.00	0.00	102.93	44.53
J-50	138.38	138.38	103.45	44.76
J-3	190.08	190.08	103.50	44.78
J-4	493.83	493.83	103.51	44.78
J-2	484.85	484.85	103.52	44.79
J-21	195.30	195.30	103.59	44.82
J-60	80.06	80.06	103.67	44.85

Scenario: Cal Water Service Area Peak Hour Demand (Tank/Booster Source On)
Steady State Analysis
Junction Report

Label	Base Flow (gpm)	Demand (Calculated) (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)
J-5	0.00	0.00	103.91	44.96
J-45	0.00	0.00	103.92	44.96
J-1	0.00	0.00	103.95	44.97
J-65	0.00	0.00	103.95	44.97
J-67	68.23	68.23	104.21	45.09
J-6	90.81	90.81	104.32	45.13
J-16	103.72	103.72	105.01	45.43
J-7	0.00	0.00	105.36	45.58
J-19	104.89	104.89	105.81	45.78
J-15	112.11	112.11	106.25	45.97
J-8	138.38	138.38	106.34	46.01
J-62	18.28	18.28	107.08	46.33
J-20	0.00	0.00	107.85	46.66
J-14	147.40	147.40	108.63	47.00
J-9	192.17	192.17	109.05	47.18
J-13	39.91	39.91	110.52	47.82
J-10	192.17	192.17	112.68	48.75
J-11	0.00	0.00	114.71	49.63
J-12	87.72	87.72	119.23	51.59

Scenario: Cal Water Service Area Peak Hour Demand (Tank/Booster Source On)
Steady State Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-57	898.00	12.0	-19.22	100.10	100.11	0.00	0.00	0.05	110.0
P-81	337.00	24.0	132.53	100.34	100.34	0.00	0.00	0.09	110.0
P-82	296.00	24.0	132.53	100.34	100.34	0.00	0.00	0.09	110.0
P-85	1.00	16.0	66.95	103.95	103.95	0.00	0.01	0.11	110.0
P-84	4,879.00	16.0	66.95	103.95	103.92	0.03	0.01	0.11	110.0
P-3	1,454.00	16.0	-74.53	103.50	103.51	0.01	0.01	0.12	110.0
P-2	1,341.00	16.0	115.55	103.52	103.50	0.02	0.02	0.18	110.0
P-78	348.00	24.0	347.72	100.34	100.34	0.01	0.02	0.25	110.0
P-77	416.00	24.0	408.51	100.35	100.34	0.01	0.02	0.29	110.0
P-47	1,476.00	12.0	106.86	100.02	99.94	0.08	0.05	0.30	110.0
P-59	764.00	24.0	-515.38	100.34	100.36	0.03	0.03	0.37	110.0
P-37	435.00	24.0	-623.70	100.35	100.37	0.02	0.05	0.44	110.0
P-56	273.00	12.0	210.53	100.16	100.10	0.05	0.19	0.60	110.0
P-55	833.00	12.0	210.53	100.32	100.16	0.16	0.19	0.60	110.0
P-60	831.00	24.0	-914.31	100.36	100.45	0.08	0.10	0.65	110.0
P-39	545.00	24.0	-929.70	100.48	100.54	0.06	0.10	0.66	110.0
P-38	1,020.00	24.0	-929.70	100.37	100.48	0.11	0.10	0.66	110.0
P-58	873.00	12.0	-248.97	100.11	100.34	0.23	0.26	0.71	110.0
P-61	618.00	24.0	-1,154.49	100.45	100.54	0.10	0.15	0.82	110.0
P-4	1,319.00	16.0	-568.37	103.51	103.91	0.39	0.30	0.91	110.0
P-5	1,390.00	16.0	-568.37	103.91	104.32	0.42	0.30	0.91	110.0
P-76	1.00	48.0	5,371.44	119.23	119.23	0.00	0.09	0.95	110.0
P-75	1.00	48.0	5,371.44	30.00	30.00	0.00	0.09	0.95	110.0
P-1	1,291.00	16.0	600.40	103.95	103.52	0.43	0.33	0.96	110.0
P-71	1.00	16.0	600.40	103.95	103.95	0.00	0.33	0.96	110.0
P-30	437.00	24.0	1,394.67	100.64	100.54	0.10	0.22	0.99	110.0
P-54	2,075.00	12.0	348.91	101.34	100.32	1.02	0.49	0.99	110.0
P-40	749.00	24.0	-1,449.41	100.54	100.71	0.18	0.23	1.03	110.0
P-86	2,191.00	16.0	-676.90	101.66	102.56	0.90	0.41	1.08	110.0
P-41	635.00	24.0	-1,538.94	100.71	100.88	0.17	0.26	1.09	110.0
P-29	803.00	24.0	1,634.85	100.87	100.64	0.24	0.29	1.16	110.0
P-46	765.00	12.0	412.86	100.54	100.02	0.51	0.67	1.17	110.0
P-53	1,688.00	12.0	416.41	102.49	101.34	1.15	0.68	1.18	110.0
P-22	993.00	16.0	872.19	103.59	102.93	0.66	0.66	1.39	110.0
P-23	561.00	16.0	872.19	102.93	102.56	0.37	0.66	1.39	110.0

Scenario: Cal Water Service Area Peak Hour Demand (Tank/Booster Source On)
Steady State Analysis
Pipe Report

Label	Length (ft)	Diameter (in)	Discharge (gpm)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)	Velocity (ft/s)	Hazen-Williams C
P-42	471.00	24.0	-2,008.90	100.88	101.08	0.20	0.43	1.42	110.0
P-52	980.00	12.0	-507.22	102.49	103.45	0.96	0.98	1.44	110.0
P-28	593.00	24.0	2,178.82	101.17	100.87	0.30	0.50	1.55	110.0
P-43	1,022.00	24.0	-2,219.26	101.08	101.61	0.53	0.52	1.57	110.0
P-44	1,711.00	24.0	-2,238.65	101.61	102.51	0.90	0.52	1.59	110.0
P-27	869.00	24.0	2,321.29	101.66	101.17	0.49	0.56	1.65	110.0
P-21	648.00	16.0	1,067.49	104.21	103.59	0.62	0.96	1.70	110.0
P-16	742.00	16.0	1,135.71	105.01	104.21	0.80	1.08	1.81	110.0
P-51	567.00	12.0	-645.60	103.45	104.32	0.87	1.54	1.83	110.0
P-15	986.00	16.0	1,239.44	106.25	105.01	1.25	1.27	1.98	110.0
P-6	745.00	16.0	-1,304.78	104.32	105.36	1.04	1.39	2.08	110.0
P-7	702.00	16.0	-1,304.78	105.36	106.34	0.98	1.39	2.08	110.0
P-14	1,601.00	16.0	1,351.55	108.63	106.25	2.38	1.49	2.16	110.0
P-45	1,503.00	24.0	-3,071.34	102.51	103.92	1.42	0.94	2.18	110.0
P-8	1,619.00	16.0	-1,443.16	106.34	109.05	2.72	1.68	2.30	110.0
P-13	1,048.00	16.0	1,498.95	110.52	108.63	1.89	1.80	2.39	110.0
P-9	1,717.00	16.0	-1,635.32	109.05	112.68	3.63	2.11	2.61	110.0
P-63	874.00	16.0	1,714.15	103.67	101.66	2.02	2.31	2.74	110.0
P-62	851.00	16.0	1,794.21	105.81	103.67	2.14	2.51	2.86	110.0
P-10	782.00	16.0	-1,827.49	112.68	114.71	2.03	2.60	2.92	110.0
P-11	1,738.00	16.0	-1,827.49	114.71	119.23	4.52	2.60	2.92	110.0
P-79	455.00	16.0	-1,899.10	105.81	107.08	1.27	2.79	3.03	110.0
P-80	270.00	16.0	-1,917.37	107.08	107.85	0.77	2.84	3.06	110.0
P-20	942.00	16.0	-1,917.37	107.85	110.52	2.67	2.84	3.06	110.0
P-12	1,030.00	16.0	3,456.23	119.23	110.52	8.71	8.46	5.52	110.0
P-72	1.00	12.0	3,004.38	103.95	103.92	0.03	26.49	8.52	110.0

Scenario: Cal Water Service Area Peak Hour Demand (Tank/Booster Source On)
Steady State Analysis
Pump Report

Label	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Calculated Water Power (Hp)
PMP-1	On	30.00	119.23	5,371.44	89.23	121.01

Scenario: Cal Water Service Area Peak Hour Demand (Tank/Booster Source On)
Steady State Analysis
Reservoir Report

Label	Elevation (ft)	Inflow (gpm)	Calculated Hydraulic Grade (ft)
R-1	103.95	-600.40	103.95
R-2	103.95	-3,004.38	103.95
R-4	103.95	-66.95	103.95

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Scenario: Cal Water Service Area Peak Hour Demand (Tank/Booster Source On)
Steady State Analysis
Tank Report

Label	Base Elevation (ft)	Minimum Elevation (ft)	Initial HGL (ft)	Maximum Elevation (ft)	Tank Diameter (ft)	Inflow (gpm)	Current Status	Calculated Hydraulic Grade (ft)	Calculated Percent Full (%)	Total Volume (gal)
T-1	0.00	0.00	30.00	50.00	136.60	5,371.44	Draining	30.00	60.0	5,481,419.44