Potable Water Master Plan

POTABLE WATER MASTER PLAN
Carlsbad Municipal Water District

Carlsbad, California
June 17, 2019

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Acknowledgements

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Acronyms and Abbreviations

ACP	Asbestos cement pipe
AF	Acre-feet
AFY	Acre-feet per year
Carlsbad	City of Carlsbad
Carlsbad WRF	Carlsbad Water Reclamation Facility
cfs	Cubic feet per second
CI	Cast iron
CIP	Capital improvement program
City	City of Carlsbad
CMLC	Cement mortar lined and coated
CMWD	Carlsbad Municipal Water District
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
DIP	Ductile iron pipe
DU	Dwelling Units
DWR	Department of Water Resources
ESP	Emergency Storage Project
EWA	Encina Wastewater Authority
EWPCF	Encina Water Pollution Control Facility
gpd	gallons per day
gpm	gallons per minute
GMP	Growth Management Plan
HDPE	High Density Polyethelyne
HWL	High water level
Kw	kilowatt
LFMZ	Local Facility Management Zone
LWD	Leucadia Wastewater District
MG	Million gallons
mgd	Million gallons per day
MOU	Memorandum of understanding
MWRF	Meadowlark Water Recycling Facility

NOAA	National Oceanic and Atmospheric Administration
OMWD	Olivenhain Municipal Water District
PCCP	Prestressed concrete cylinder pipe
PRS	Pressure reducing station
PS	Pump station
PVC	Polyvinyl chloride
RWQCB	Regional Water Quality Control Board
SDCWA	San Diego County Water Authority
SDWD	San Dieguito Water District
SWP	State Water Project
UWMP	Urban Water Management Plan
VID	Vista Irrigation District
VWD	Vallecitos Water District
Water Authority	San Diego County Water Authority
WDF	Water Demand Forecast
WRF	Water Recycling Facility

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Chapter 1 Introduction

The Carlsbad Municipal Water District (CMWD) covers an area of 20,682 acres, approximately 32 square miles, and provides potable and recycled water supply to most of the City of Carlsbad (the City or Carlsbad). CMWD's service area covers approximately 82 percent of the City's boundary. The southeast portion of the City is served by Olivenhain Municipal Water District (OMWD) and a small area to the east by Vallecitos Water District (VWD). Currently, CMWD obtains 100 percent of its potable water supply from the San Diego County Water Authority (SDCWA), of which it is one of 24-member agencies.

Carlsbad last updated its Potable Water Master Plan in 2012 based on data through 2010. In the past six years, the economic recession, combined with a multi-year drought, resulted in significantly reduced water and recycled water demands and sewer flows, and consequentially reduced revenues to Carlsbad. As the economy rebounds and extreme drought conditions recede, there is also a need to adjust the current plans to correspond with the new General Plan, to reflect a "new normal" in water use behaviors, and to assess impact on water supply and demand.

Preparation of the Potable Water, Recycled Water and Sewer Master Plan Updates was authorized by the Carlsbad City Council on January 24, 2017 in the form of a contract for engineering services granted to HDR Engineering Inc., entitled *Agreement for Engineering Services to update the Carlsbad Potable Water, Recycled Water and Sewer Master Plans.*

This Water Master Plan Update provides a system evaluation and capacity assessment of the potable water system and recommends a capital improvement program to provide for continued reliable water service through buildout conditions, which are projected to occur by 2040. By updating this master plan, the resulting capital improvement program (CIP) will help guide Carlsbad in spending precious funds in the most cost-effective manner.

Key references used in the development of these updated Master Plans include the following documents:

- CMWD, 2012 Water Master Plan
- City of Carlsbad, 2015 General Plan Update
- City of Carlsbad, 2015 Climate Action Plan
- CMWD, 2015 Urban Water Management Plan
- CMWD, 2016 Cost of Service Study

1.1 Background

This section briefly describes the history of Carlsbad water service. Water demands for the Carlsbad area were initially supplied by the privately held Carlsbad Mutual Water Company and Terramar Water Company through the utilization of local groundwater and surface water supplies. The Carlsbad Mutual Water Company constructed nine wells in the Mission Basin of the San Luis Rey River, booster pumping stations, storage tanks, an earthen dam (Lake Calavera), and transmission facilities to supply residential, commercial, and agricultural users. The Terramar Water Company constructed four wells located in Agua Hedionda Creek (referred to as the Cannon Well Field), a second connection to the Carlsbad Mutual Water Company's pipeline from Lake Calavera at El

Camino Real, a storage reservoir, plus a distribution system to supply residential, commercial, and agricultural users.

The Carlsbad Mutual Water Company's groundwater wells began being developed prior to 1914 with rights to 2,382 acre-feet per year (AFY). In addition, a license was obtained (terminable by the State Division of Water Rights, Department of Water Resources) for another 1,000 AFY. A total of 9 wells were eventually constructed in the Mission Basin of the San Luis Rey River located in the City of Oceanside generally near the intersection of Mission Avenue and Foussat Road. Prior to 1942, local groundwater was the only developed source of water for the Carlsbad Mutual Water Company. In September 1941, Carlsbad Mutual Water Company completed construction of an earthen dam (Calavera Dam), which captured local surface water runoff creating Lake Calavera. A diversion permit remains for 15 AFY from Calavera Creek.

Beginning in 1950, four wells were constructed in an area referred to as the Cannon Well Field which is approximately the property where the Rancho Carlsbad Golf Course is located. The groundwater pumped from these wells was the original supply for the Terramar Water Company. This groundwater was obtained from the Carlsbad hydrologic unit of the San Diego Region, a designation assigned by DWR. The City of Carlsbad was incorporated in 1952, and the assets of the Carlsbad Mutual Water Company and Terramar Water Company were purchased by the City of Carlsbad in an agreement dated August 30, 1957. The City operated and maintained both water systems from 1958 to 1962.

CMWD was formed as a vehicle to bring imported water to the unincorporated areas surrounding the City of Carlsbad and to wholesale water to the newly formed City of Carlsbad. CMWD's first meeting was held on March 22, 1954, and CMWD became a member of the Water Authority that same year. CMWD began receiving imported water deliveries in 1955 through existing aqueduct connections located in the City of Escondido. CMWD constructed a pipeline in 1956 to convey imported water directly to the City of Carlsbad and unincorporated areas within CMWD's service area. In 1962, CMWD constructed Maerkle Reservoir (previously called Squires Dam) with a capacity of 600 ac-ft in the Agua Hedionda Basin. .

As demands for water increased, seawater intrusion into the groundwater supply resulted in the gradual degradation of groundwater quality in the Mission Basin of San Luis Rey River. The total dissolved solids (TDS) content of the groundwater in the Mission Basin increased to the point where treatment would be required. At the same time, lower-cost imported water became available through CMWD. Because of the availability of this alternative supply of water, the City of Carlsbad ceased extracting groundwater and suspended use of local surface water supplies. The local surface water and groundwater supplies were suspended by the end of 1962 due to poor water quality and the ability to directly supply lower-cost imported water to customers. As a result, the water filtration plant at Lake Calavera was dismantled because of regulations requiring that surface waters be fully treated prior to introduction into a potable water system. The Mission Basin wells were beyond repair and subsequently removed by 2005 in accordance with California Department of Public Health requirements.

In an agreement dated May 25, 1983, the City of Carlsbad conveyed all its functional water responsibilities for the provision of water service to CMWD including all the water facilities and groundwater and surface water rights purchased from Carlsbad Mutual Water Company and Terramar Water Company in 1957. This included all existing water facilities and responsibility for planning, financing, and construction of all major capital facilities necessary to provide potable water

service within CMWD and portions of the City of Carlsbad not located in other retail water service agencies.

On January 1, 1990, the CMWD became a subsidiary district of the City of Carlsbad through an agreement between both agencies approved by the City Council on April 25, 1989. The Carlsbad City Council acting as CMWD's Board of Directors governs CMWD. CMWD's current water supplies consist of imported water from Water Authority, and recycled water that has been utilized as a supply source since 1993. The imported water is purchased by Water Authority from Metropolitan Water District (Metropolitan) and is treated at Metropolitan's Skinner Filtration Plant in Riverside County and Water Authority's Twin Oaks Water Treatment Plant in San Marcos and conveyed to CMWD through Water Authority aqueducts.

Recognizing the importance of securing a sustainable future water supply that is locally controlled, City officials took a leadership position to develop a desalination project in Carlsbad more than 10 years ago. On September 28, 2004, CMWD entered into a Water Purchase Agreement with Poseidon Resources Corporation that would have allowed CMWD to satisfy up to 100 percent of its potable water needs by receiving water from a seawater desalination plant to be constructed on the NRG Power Station property, which is owned by Cabrillo Power I, LLC. When the project encountered financing difficulties, SDCWA agreed to purchase 100 percent of the desalinated water directly from Poseidon Resources Corporation. The new SDCWA water supply has been operating since 2016 and is fully blended into the SDCWA's water supply system at Twin Oaks Water Treatment Plant.

1.2 City of Carlsbad and Water Service Area Description

The City of Carlsbad occupies approximately 39 square miles of rolling hills, beaches and bluffs along the northern coast of San Diego County. Carlsbad is located about 30 miles north of San Diego and about 90 miles south of Los Angeles. The city boundaries are shown on Figure 1-1. In addition to the Pacific Ocean coastline along its western boundary, the communities surrounding Carlsbad include the city of Oceanside to the north, the city of Encinitas to the south, and the cities of Vista and San Marcos and unincorporated areas of San Diego County to the east.

1.2.1 Setting

Along Carlsbad's northern edge, urban development abuts Highway 78, with the highway and Buena Vista Lagoon acting as a boundary between Carlsbad and Oceanside. Similarly, Batiquitos Lagoon along the city's southern edge defines the boundary between Carlsbad and Encinitas. To the east, city boundaries are less distinctive, as a mix of hillsides and urban development are located adjacent to the cities of Vista and San Marcos and unincorporated lands. The topography ranges from sea level along the western coastline to nearly 700 feet above mean sea level (MSL) along the eastern boundary.

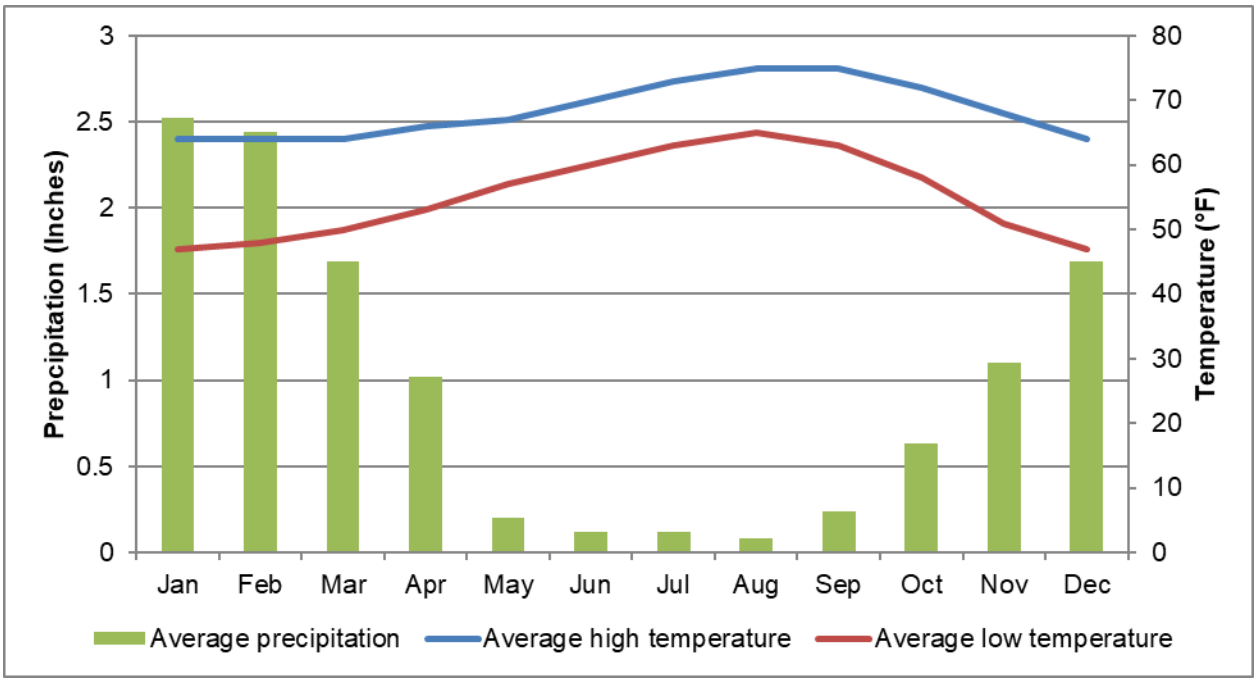
Figure 1-1: City of Carlsbad Location Map

1.2.2 Climate

Carlsbad's climate is categorized as a semi-arid Mediterranean climate, with mild, sunny weather throughout the year. This mild climate is derived equally from the warm ocean water being pulled north from Mexico and from its subtropical, semi-desert locale. Daily temperatures range from a low of nearly 30°F in the winter months to a high of nearly 100°F in the summer. Based on the 30-year (1981 to 2010) normal, shown on Figure 1-2, monthly averages are approximately 50°F for the low and 75°F for the high. The average annual precipitation ranges from approximately 11 to 13 inches, typically between the months of October and April. The months of September through February can bring warm wind from the desert called a "Santa Ana." Occurring about 10 days out of the year, these winds typically bring hot and dry conditions, which can spread and worsen wildfires.

As noted in Carlsbad's 2015 Urban Water Management Plan, data from the National Oceanic and Atmospheric Administration's (NOAA) climate station at the McClellan Palomar Airport indicates that temperatures have been above the 30-year normal in recent years, while precipitation has been lower. There has also been a shift in the precipitation pattern, with higher than the 30-year normal rainfall in the summer months and lower in the winter months.

Figure 1-2: Thirty-Year Normal Precipitation and Temperature

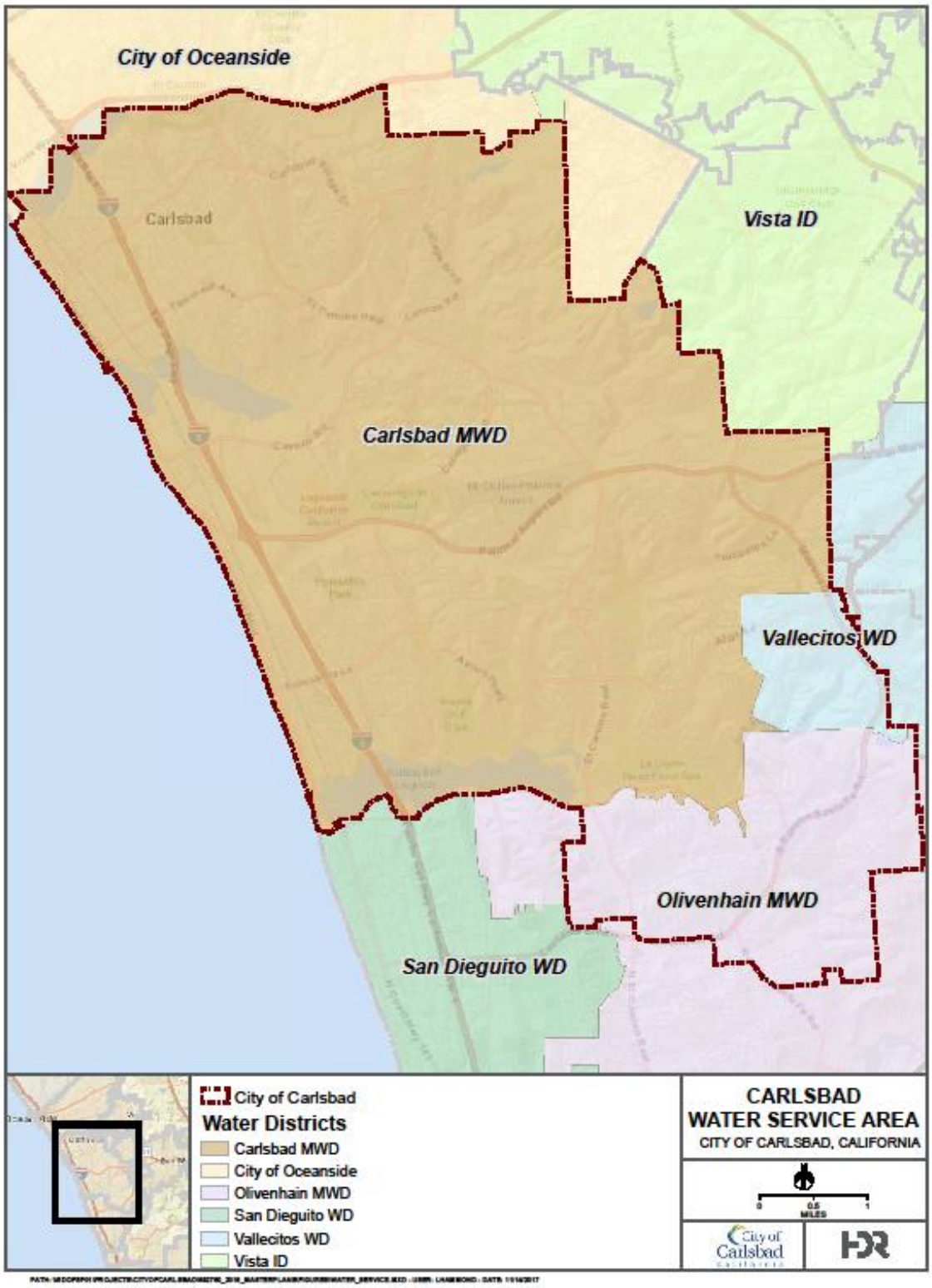


Source: http://www.usclimatedata.com/climate-on-your-site.php?id=usca1608

1.3 Water Service Area

CMWD's service areas for the water and recycled water do not coincide with the City's municipal boundary. The City provides these services throughout the Northeast, Northwest and Southwest quadrants, but serves only a portion of the Southeast quadrant. As shown on Figure 1-3, CMWD's service area covers approximately 82 percent the City's boundary, with neighboring special service districts providing service for the southeast corner of the City.

Figure 1-3: Water Service Area



1.3.1 Existing Land Use

The existing land uses within the City are listed in Table 1-1 and the different categories are shown as a percentage of the total land use area on Figure 1-4. The existing water service area is predominantly residential, commercial and park /open space area, as shown on Figure 1-5. Approximately 1,220 acres, or 5 percent of the City is currently undeveloped vacant properties, of which about 80 percent is within the CMWD service area. These vacant properties are anticipated to be developed in the future.

Table 1-1: Existing Land Use

Land Use	City Acres	% of Total Area
Single Family Residential	6,071	24%
Multi-Family Residential	983	4%
Commercial/Office	1,156	5%
Industrial	1,113	4%
Roads/ROW	4,213	17%
Institutional	578	2%
Park/Open Space	8.293	33%
Agriculture	568	2%
Water	839	3%
Vacant	1,220	5%
Total	**25,054**	**100%**

Figure 1-4: Existing Land Uses

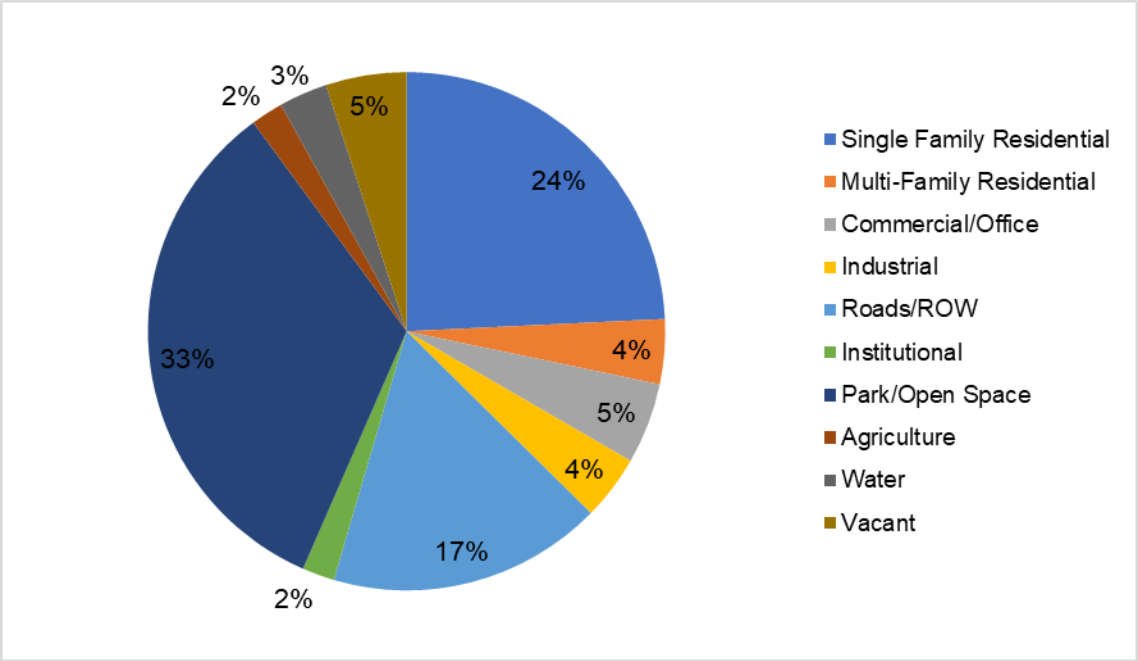
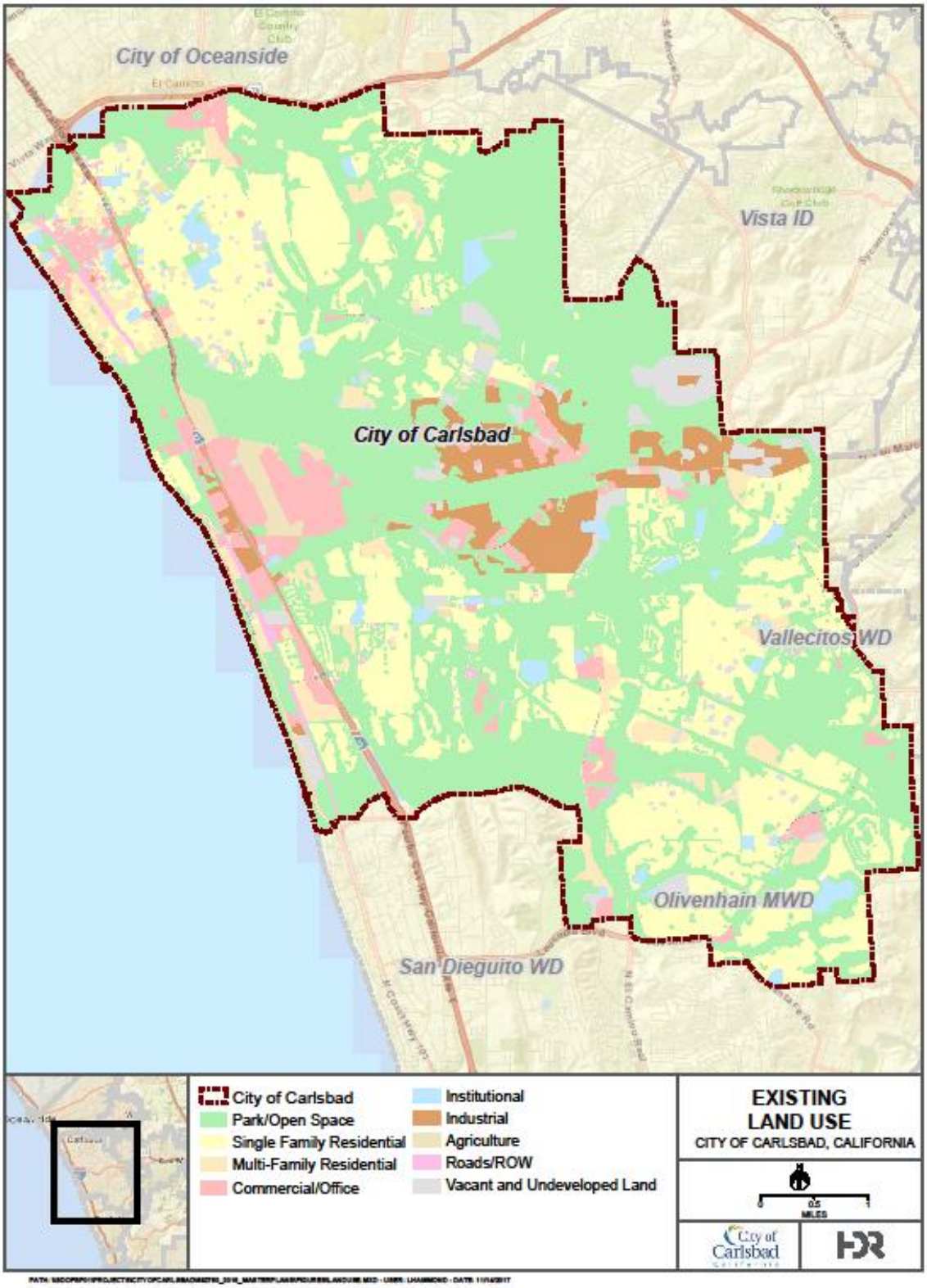


Figure 1-5: Existing Land Use Map



1.3.2 Buildout Land Use

In accordance with the City's 2015 General Plan, the buildout land uses within the service area are listed in Table 1-2 and the different categories are shown as a percentage of the total land use area on Figure 1-6. The buildout service area remains predominantly residential, commercial and park /open space area, as shown on Figure 1-7, with agricultural and vacant areas diminishing. To manage growth, the City was divided into 25 separate planning areas, referred to as Local Facility Management Zones (LFMZs), which are shown in Figure 1-8.

Table 1-2: Buildout Land Use

Land Use	City Acres	% of Total Area
Single Family Residential	6,940	28%
Multi-Family Residential	1,103	4%
Commercial/Office	1,398	6%
Industrial	1,508	6%
Roads/ROW	4,138	17%
Institutional	663	3%
Park/Open Space	8,335	33%
Agriculture	101	0%
Water	838	3%
Total	**25,024**	**100%**

Source: SANDAG Series 13 Planned Land Use shapefiles (10/2/2014)

Figure 1-6: Buildout Land Uses

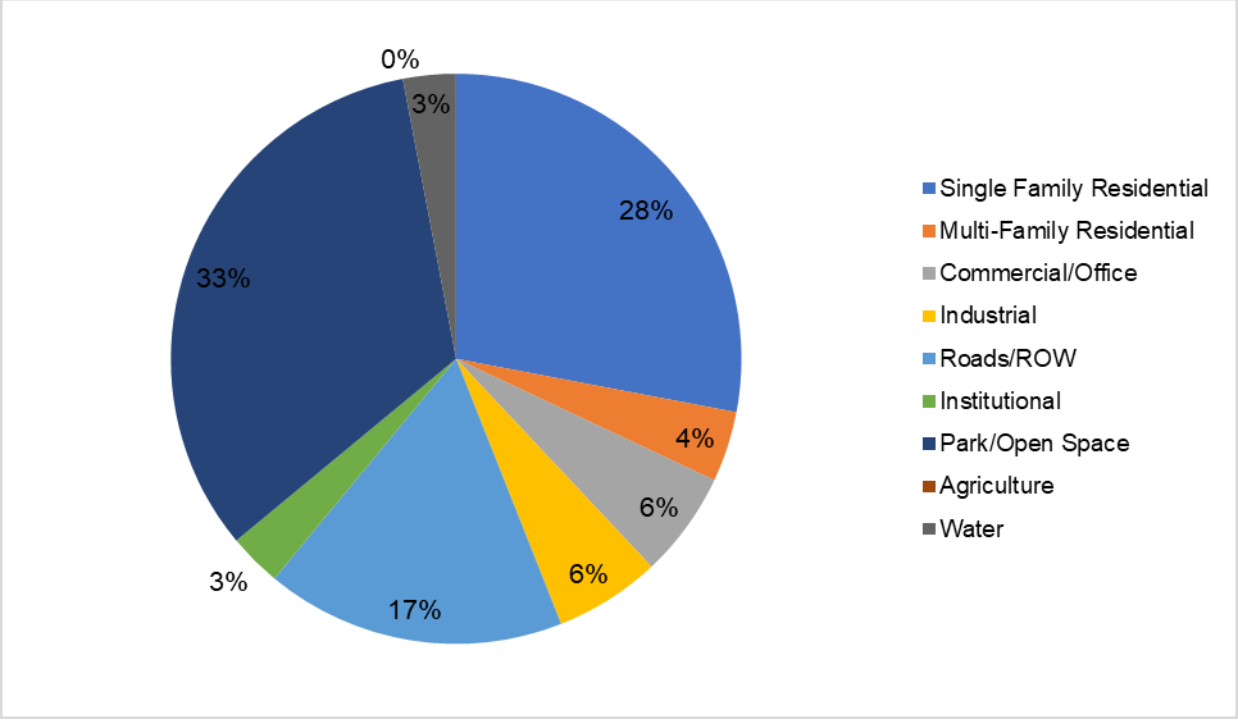


Figure 1-7: Buildout Land Use Map

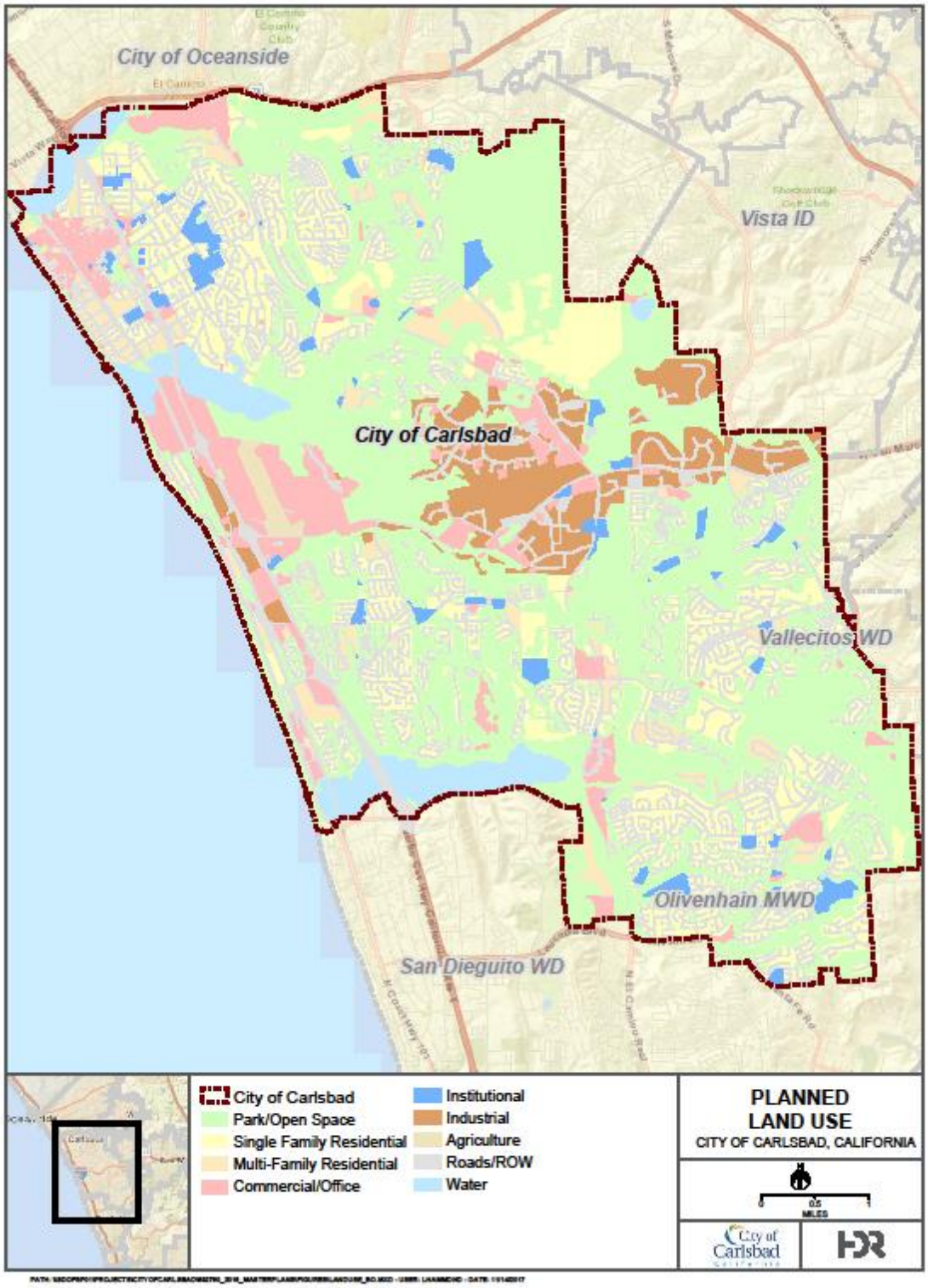
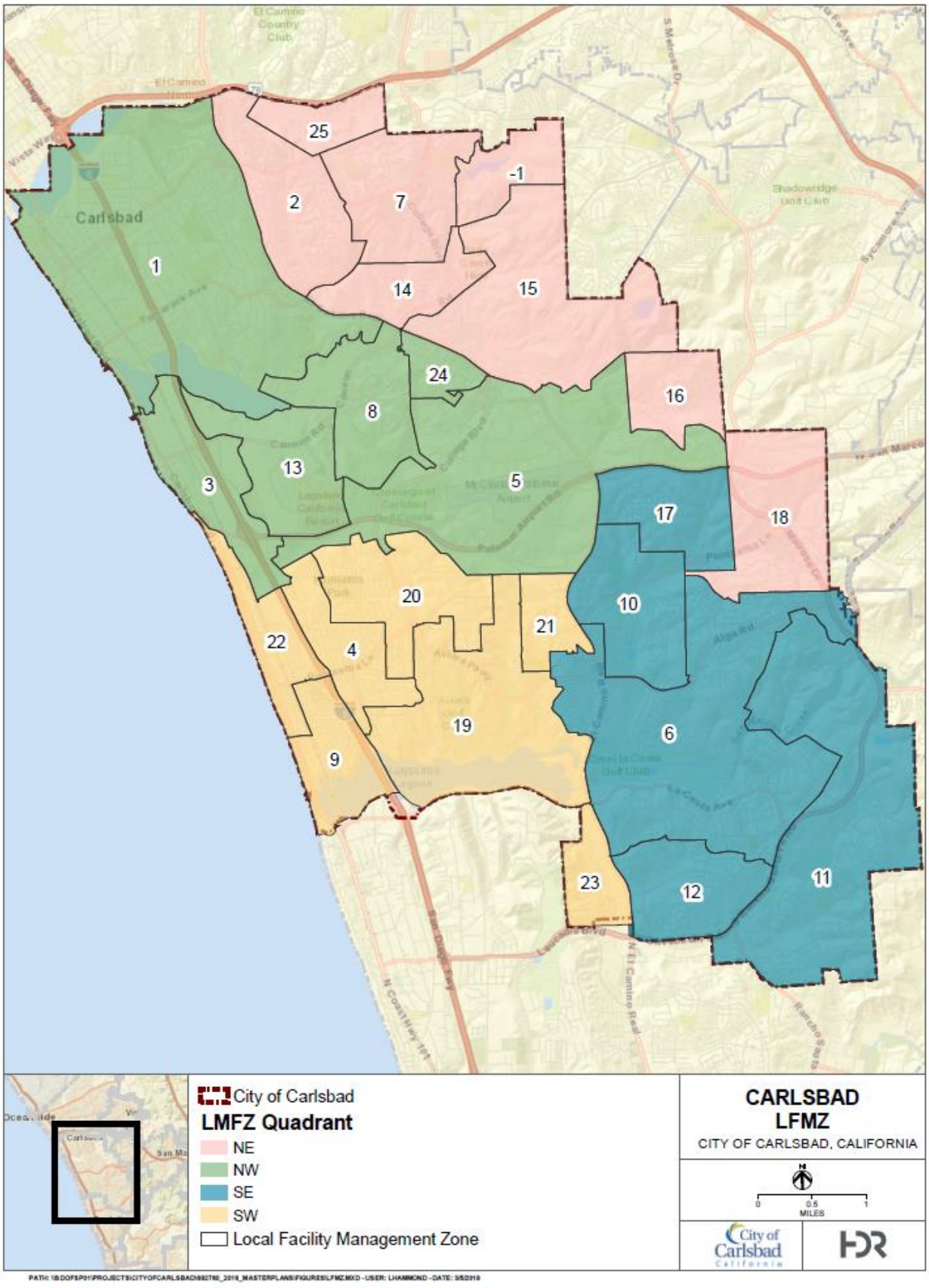


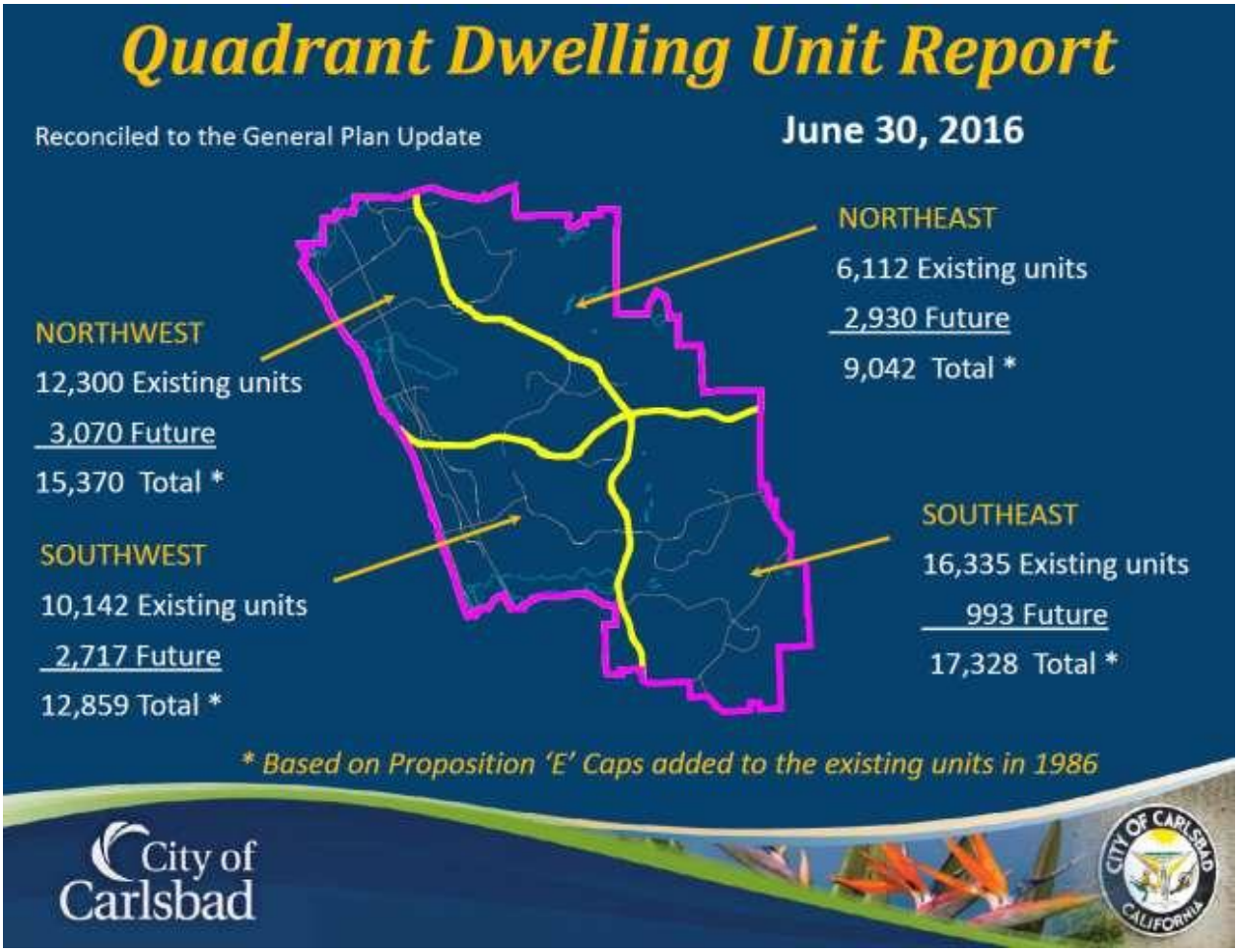
Figure 1-8: Local Facility Management Zones



The City has maintained a Growth Management Plan (GMP) and Growth Database since 1986 to monitor development within the City and to ensure that adequate facilities are constructed in an orderly manner to support future growth. The Growth Database includes information on existing and vacant parcels, including the existing and future land uses, current percent buildout, current population, future growth potential and anticipated timing of such growth. It should be noted that not all 25 LFMZs shown in Figure 1-8 are located within the City's service area. LFMZ 6 is partially served by Olivenhain Municipal Water District (OMWD), while LMFZs 11, 12, and 23 are entirely served by either Vallecitos Water District (VWD) or OMWD.

The City prepares an annual Growth Management Plan Monitoring Report, last updated in May 2017, which includes information on current and proposed development plans, including the number of projected residential dwelling units (DUs) and the estimated building square footage for non-residential land uses, as well as an estimated timing for when each unit will be constructed. City staff provided an update on growth projections by LFMZ, as summarized in Figure 1-9.

Figure 1-9: GMP Dwelling Report Update



As shown in Table 1-3, the City is anticipating total buildout projections of 51,821 residential units, which is less than the maximum number of dwelling units that could be constructed under the GMP (54,599 units). The table shows potential buildout in the City resulting from application of land uses on vacant and underutilized sites, according to analysis undertaken for the General Plan update. A majority of the new development will continue to occur in the northern portion of the City. These developments are in various stages of planning, design, and construction. Additional growth within the City includes “in-fill” or redevelopment projects in the older portions of the City.

Table 1-3: GMP 2035 Dwelling Unit Projects

Quadrant	Dwelling Units	2035 Population Projection
NW	15,121	37,904
NE	8,945	22,423
SW	11,088	27,795
SE	16,667	41,780
Citywide Total	**51,821**	**129,901**

The recent rebound of the economy has resulted in increased development activity throughout the City, including build-out of several master-planned communities and industrial parks, and the planning of new urban re-development projects. The master-planned communities that were underway or entitled during the last master plans are now substantially built-out including:

- Calaveras Hills
- Bressi Ranch
- Robertson Ranch
- Quarry Creek

Development activity has also increased for industrial land uses, which include Carlsbad Raceway Business Park along Faraday Road and Palomar Forum Business Park along Palomar Airport Road, both in the eastern portion of the City.

The Cantarini and Mandana properties in the northeast are planned residential projects which require a major extension of College Avenue and appear to continue to be delayed due to funding constraints. This timing issue should be considered in planning facilities in the master plans. The planned Poinsettia 61 residential project is under construction and will complete the extension of Poinsettia Avenue.

The City has seen increased activity in urban re-development projects, in particular, within the Village of Carlsbad. An approved Specific Plan for the core village area allows for the addition of 800 new residential units and there are discussions regarding residential apartment development at the Carlsbad Mall and El Camino Real.

1.3.3 Population

The 2010 Federal Census determined that the average number of persons per dwelling unit in Carlsbad is 2.36 persons (total population divided by total number of dwelling units). As of June 30, 2016, the City's population is estimated to be 109,004, which is calculated by multiplying 2.36 persons per dwelling unit by the number of dwelling units and commercial living units (which were counted as dwelling units in the 2010 Federal Census); in total there are 46,182 dwellings and commercial living units, as shown in Table 1-4.

Table 1-4: 2016 Population Estimate

Quadrant	Dwelling Units	Second Dwelling Units	Commercial Living Units	Total Units	Population
NW	12,300	156	226	12,682	29,904
NE	6,112	42	—	6,154	14,511
SW	10,142	25	685	10,852	25,614
SE	16,335	159	—	16,494	38,975
Total	**44,889**	**382**	**911**	**46,182**	**109,004**

It is important to note that although the construction of residential and commercial development is estimated to be built out by 2035, population is anticipated to continue to increase through 2050, as forecasted by San Diego Association of Governments (SANDAG). SANDAG is responsible for the development of demographic projections and various integrated land use, housing, employment, transportation programs, measures and strategies for the San Diego area.

Persons per dwelling unit may also increase. The population projections provided in Table 1-3 estimate a 2035 population of 129,901, with 51,821 dwelling units and an average of 2.5 persons per household.

The City of Carlsbad has a strong and growing economy. The top five clusters of business are estimated to employ over 40,000 people, as shown in Table 1-5.

Table 1-5: Business Employment Estimates

Business Category	Estimated Number of Employees
Hospitality and tourism	14,776
Information and communications technology	10,049
Life sciences	7,393
Clean technology	4,988
Action sports manufacturing	2,658

Source: Carlsbad 2016-17 Comprehensive Annual Financial Report, June 2017

The City's FY 2016-17 Comprehensive Annual Finance Report estimates a total of 82,100 employees within the City. Annual visitors range from 3 to 4 million, with overnight guests ranging between approximately 75,000 and 199,000 people per month.

1.3.3.1 City Population Projections

For the City's Urban Water Management Plan (UWMP), population within the CMWD service area was estimated to be 86,596 people in 2016. The San Diego County Water Authority (SDCWA) provides population projections for its member agencies during development of SDCWA's 2015 UWMP. These population projections are developed by the San Diego Association of Governments (SANDAG).

To confirm SDCWA's population projections for CMWD, the City sought to verify these projections using U.S. Census data. CMWD's service area is not a Census designated place, thus, population projections were calibrated using an alternative method. CMWD serves as the retail water supplier for approximately 82 percent of the City of Carlsbad. To determine population estimates for CMWD's service area, U.S. Census data was calibrated and verified to interpolate CMWD's service area population for the years 2000 and 2010. The result of this analysis showed that the population in CMWD's service area in 2010 was 81,081.

Given the potential discrepancy between the estimated 2010 population (81,081) and SANDAG's projection for CMWD's service area population in 2012 (82,748), a secondary analysis of the population projections in CMWD's service area was performed as part of the Carlsbad UWMP. . Table 1-6 and Figure 1-10 show the projected population figures for CMWD's service area based on the revised analysis.

This analysis assumed that the 2010 population for CMWD's service area was 81,081 per the analysis using the U.S. Census data. The analysis also assumed that growth will continue at the same rate as predicted using the Series 13 Growth Forecast, which utilizes a demographic model including economic factors to develop predictions. . This information was compared with and then blended with the SANDAG projections for use in the UWMP.

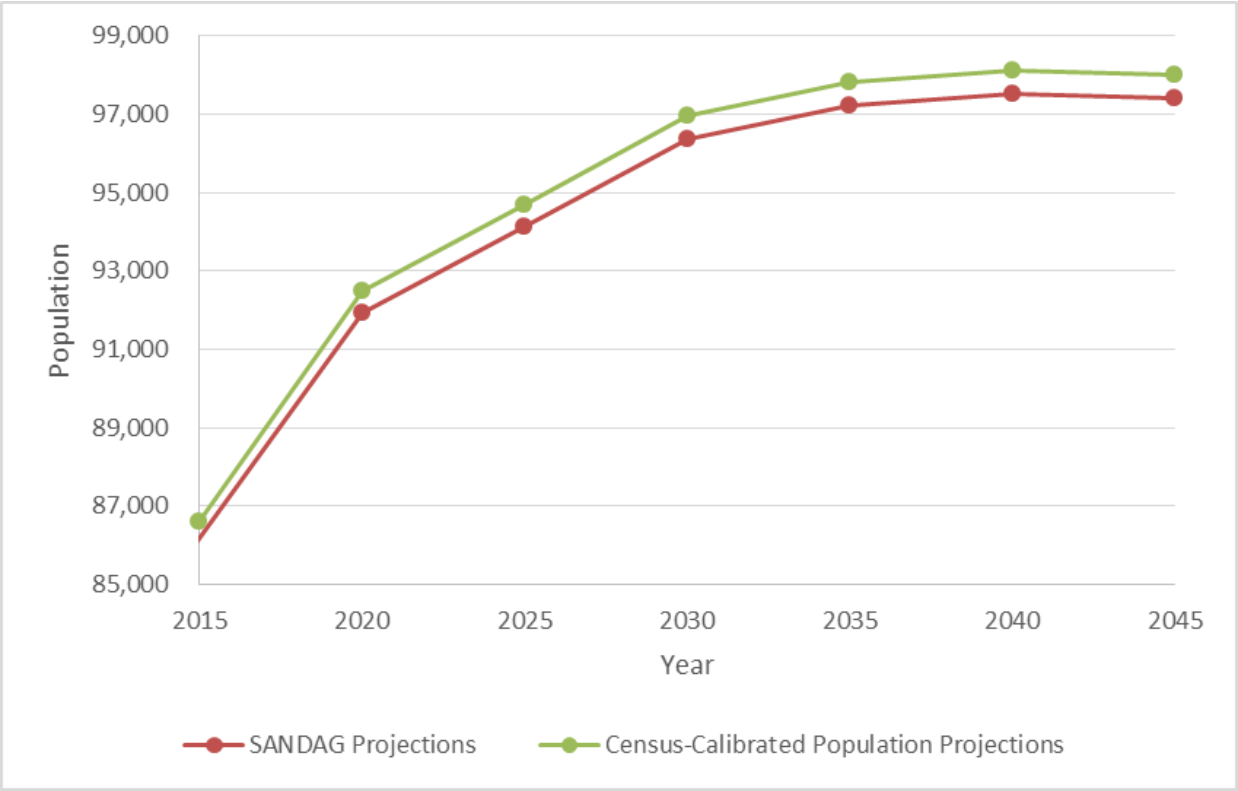
The current population represents a 4 percent increase since the previous 2012 Water Master Plan, which is within expectations based on recent trends over the last several years, as annual new building permits have significantly declined due to current economic constraints. Table 1-7 presents the CMWD service area current population and projections, in 5-year increments, through 2045. From 2016 to 2045, a 12.5 percent increase in population is anticipated.

Table 1-6: CMWD Population Projection Comparisons

Year	SANDAG Projections	2010 Census-based Projections	Difference between Projections	Blended Projection
2010	Not Available	81,081	—	81,081
2012	82,748	83,242	(494)	82,748
2015	Not Available	86,596	—	86,080
2020	91,935	92,485	(500)	91,935
2025	94,130	94,694	(564)	94,130
2030	96,375	96,952	(577)	96,375
2035	97,239	97,821	(582)	97,239
2040	97,525	98,109	(584)	97,525
2045	97,415	97,998	(583)	97,415

Source: CMWD Population Forecasts for 2015 UWMP Technical Memorandum, December 2015

Figure 1-10: CMWD Population Projections



Source: CMWD Population Forecasts for 2015 UWMP Technical Memorandum, December 2015

Table 1-7: Population Projections

Year	Population Projections	Population Rate of Change
2016	86,596	—
2020	91,935	6.17%
2025	94,130	2.39%
2030	96,375	2.38%
2035	97,239	0.90%
2040	97,525	0.29%
2045	97,415	-0.11%

Chapter 2 Existing Potable Water Facilities

This chapter summarizes the Carlsbad Municipal Water District's (CMWD) existing water supply and distribution facilities including storage, pump stations, and pressure reducing stations. The capacity of the distribution system is evaluated in Chapter 6 based on the existing water demands and the projected 2040 water demands presented in Chapter 3.

2.1 Water Supply and Distribution Facilities

The facilities comprising the existing CMWD water distribution system include San Diego County Water Authority (SDCWA) turnouts, transmission mains, distribution pipelines, pressure reducing stations, storage reservoirs, pump stations, and inter-ties with adjacent water agencies. The existing distribution system consists of 450 miles of pipeline and 17 major pressure zones that are supplied by gravity from 70 major pressure regulating stations. CMWD operates and maintains eight storage tanks, the Maerkle Reservoir, one active pump station, and three standby pump stations within the distribution system that are used for emergency purposes only.

The CMWD water distribution system is well looped and flexible in that supply from the four treated water aqueduct connections can be routed to different parts of the distribution system by making changes to reducing valve settings. This allows system operators to balance reservoir levels and correct for discrepancies in the amount of water ordered versus the amount that is delivered through service connections. A detailed hydraulic profile schematic of the water system is shown on Figure 2-1. A map of CMWD's existing potable water system pressure zones is shown on Figure 2-2.

The remaining subsections describe the water supply sources in Section 2.1.1 and the existing distribution facilities are detailed in Sections 2.1.2 through 2.1.5.

2.1.1 Water Supply Sources

Water is supplied to the CMWD through four separate Water Authority treated water turnouts. Two of the turnouts, Water Authority Connections No. 6 and No. 2, are direct connections to the Water Authority Second Aqueduct. Connection No. 6 supplies only the CMWD, and Connection No. 2 supplies the Vallecitos Water District (VWD) and the Olivenhain Municipal Water District (OMWD) in addition to the CMWD. Water supply to the CMWD from Water Authority Connection No. 2 is delivered through a VWD transmission main. Connections No. 3 and No. 4 to the aqueduct system are on the Water Authority owned and operated Tri-Agency Pipeline (TAP), which is also supplied from the Water Authority Second Aqueduct. The TAP also serves the City of Oceanside and the Vista Irrigation District (VID).

2.1.1.1 Water Authority

The Water Authority delivers treated and raw water into San Diego County through five large diameter pipelines, located in two principal corridors known as the 1st and 2nd San Diego Aqueducts. The system has evolved over time to serve the growing needs of the region. The aqueduct pipelines connect to treated and raw water feeds from Metropolitan facilities at Lake Skinner in southern Riverside County. CMWD receives water from the Water Authority through four treated water connections, as shown on Figure 2-3.

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Figure 2-1: Potable Hydraulic Profile

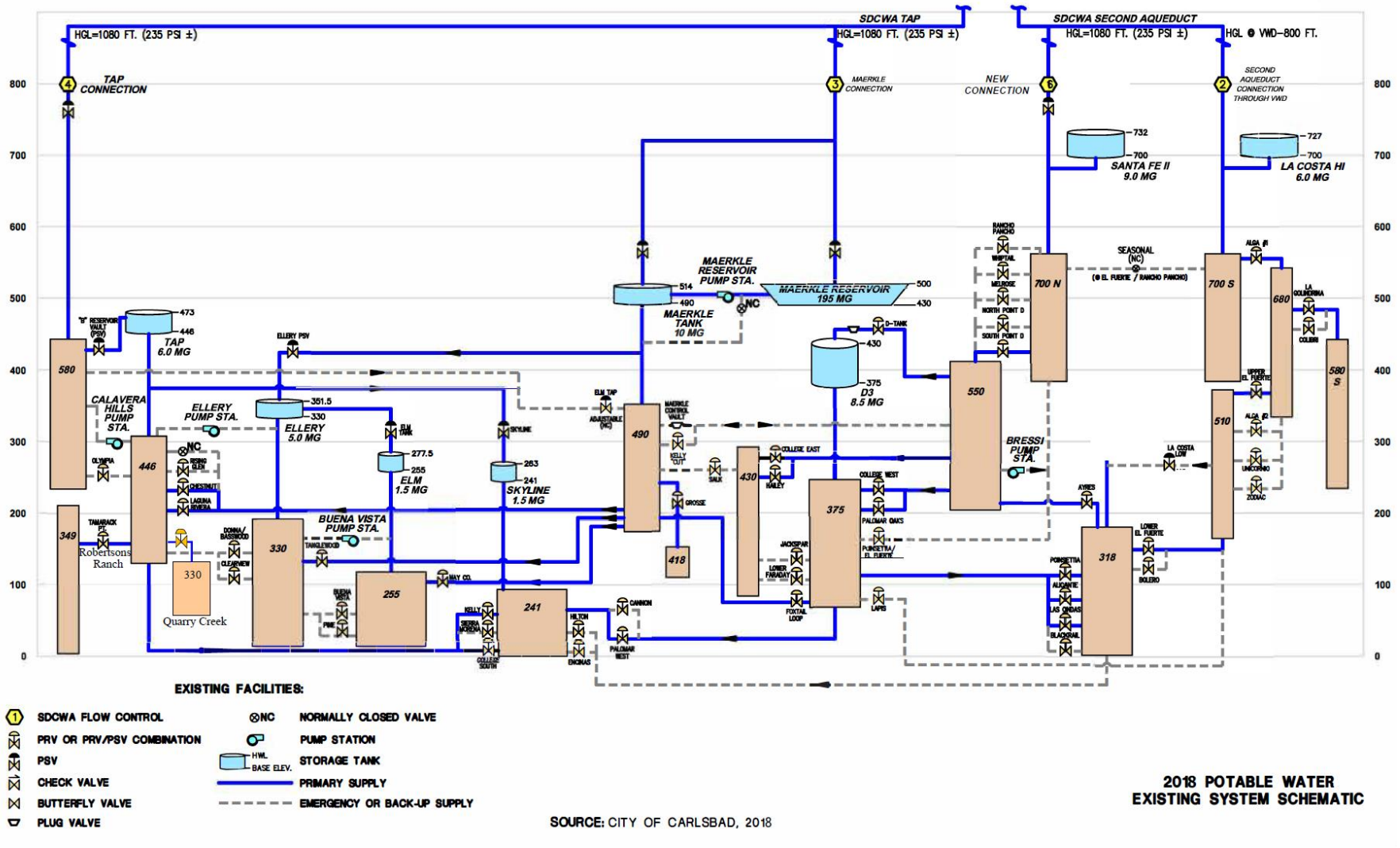


Figure 2-2: Potable Pressure Zones

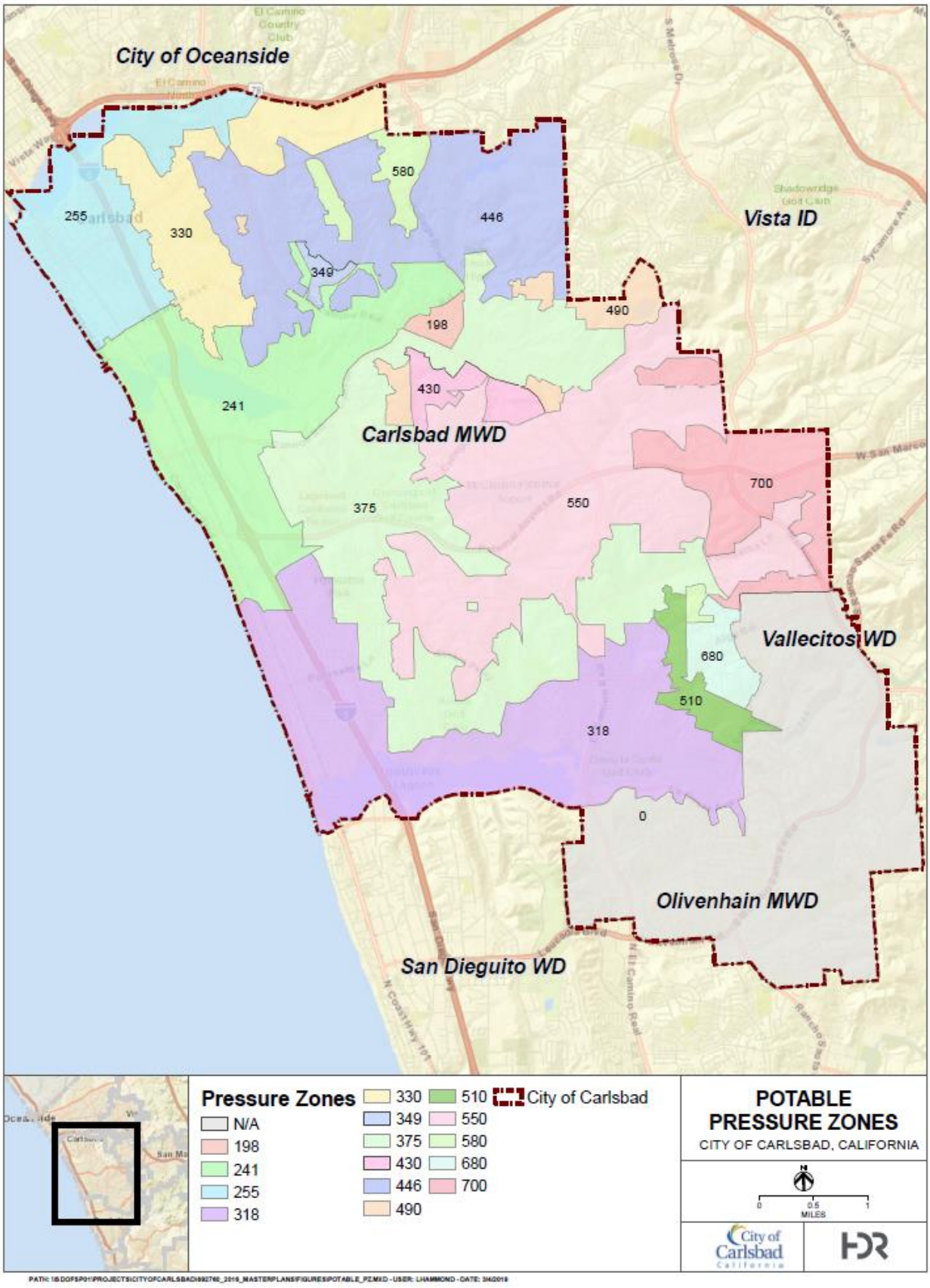


Figure 2-3: San Diego County Water Authority

The capacity and the average and maximum day supply for each connection for the baseline year are shown in Table 2-1.

Table 2-1: Existing Water Authority Connections

Connection No.	Location	Source	Rated Capacity1		Existing Estimated Deliveries (Baseline)		CMWD Supply Zone
			cfs	mgd	Average Day mgd	Maximum Day mgd	
1	Replaced by No. 6, Demolished, Spring 2018	N/A	—	—	—	—	—
2	Alga Road west of Paseo Abrazo	2nd Aqueduct via Vallecitos Water District	15	10	2.3	3.8	700S
3	Shadowridge Drive at Willow Ridge Drive	Tri-Agency Pipeline via 2nd Aqueduct	20	13	4.1	7.0	490
4	Cannon Road west of Wisteria Drive	Tri-Agency Pipeline via 2nd Aqueduct	15	10	3.7	6.1	580
6	San Marcos Boulevard at Rancho Santa Fe Road	2nd Aqueduct	28	18	4.9	8.1	700N
		TOTAL	70	53	15.0	25.0	

As shown in Table 2-1, CMWD has connection capacity to the Water Authority aqueduct system that significantly exceeds its average day demand and maximum day delivery rates. This surplus capacity also provides operational flexibility to accommodate peaking and may allow for one or more of the connections to be off-line. The CMWD supply connections are further described below:

- **No. 1:** This facility was replaced by a new Connection No. 6 in the Spring 2018.
- **No. 2:** This facility is located in the most southern portion of the service area, off Alga Road west of Paseo Abrazo, via the Questhaven Pipeline, which has shared ownership between the VWD, OMWD and CMWD. This facility is fed indirectly by the Water Authority's 2nd Aqueduct, through a connection to VWD (CWA Connection No. 7). The minimum HGL at the connection point is approximately 954 feet, as determined by the base elevation of the OMWD Denk Tank. Pressure reducing valves in Melrose reduce pressures for the Meadowlark Tanks within VWD's 815 Pressure Zone. CMWD Connection No. 2 reduces the pressure to supply the La Costa 700S Zone.
- **No. 3:** This facility is located in the northeast portion of the service area, off Shadowridge Drive at Willow Ridge Drive. This facility is fed by the Water Authority's TAP, a spur pipeline off the 2nd Aqueduct, as shown on Figures 2-3 and 2-4. The 2nd Aqueduct in this reach, south of the Water Authority's Twin Oaks WTP, contains two treated water pipelines, Pipelines 3 and 4. The TAP, and hence both connections No. 3 and 4, can be served by

either of these two treated water aqueduct pipelines. The minimum HGL at the connection point No. 3 is approximately 1080 feet, as determined by the upstream pressure in the Aqueduct observed at the connection. Flow through the connection is set by CWA via a plug valve and the pressure is regulated through a series of three 12-inch pressure sustaining valves set at 180 psi, 145 psi, and 90 psi. Connection No. 3 is the primary supply source for the Maerkle 490 Zone.

- **No. 4:** This facility is located in the most northern portion of the service area, off the east side of Cannon Road west of Wisteria Drive. Similar to connection No. 3, this facility is fed by the Water Authority's TAP as shown on Figure 2-4 and Figure 2-5. The minimum HGL at the connection point is approximately 1080 feet. Flow is regulated at this connection through a CWA plug valve. Pressure is regulated at a PRS on the west side of Cannon Road along Pirgos Way through a 12-inch pressure sustaining valve normally set at 230 psi. This facility is the primary source of water for the Calavera Hills 580 Zone.
- **No. 4:** This facility is located in the most northern portion of the service area, off the east side of Cannon Road west of Wisteria Drive. Similar to connection No. 3, this facility is fed by the Water Authority's TAP as shown on Figure 2-3 and Figure 2-4. The minimum HGL at the connection point is approximately 1080 feet. Flow is regulated at this connection through a CWA plug valve. Pressure is regulated at a PRS on the west side of Cannon Road along Pirgos Way through a 12-inch pressure sustaining valve normally set at 230 psi. This facility is the primary source of water for the Calavera Hills 580 Zone.
- **No. 6**: This facility is the same location as the former No. 1 flow control and is located in the southeastern portion of the service area, off San Marcos Boulevard and Rancho Santa Fe Road. This facility is fed by the Water Authority's 2nd Aqueduct, south of the Water Authority's Twin Oaks Water Treatment Plant (WTP) which contains two treated water pipelines, Pipelines 3 and 4. Therefore, the connections can be served by either of these two treated water aqueduct pipelines. The minimum hydraulic gradeline (HGL) at the connection point is approximately 1080 feet. Flow through this facility is the primary source for the Santa Fe 700N Zone and is controlled by a 16-inch pressure sustaining valve normally set at 160 psi.

2.1.1.2 Seawater Desalination Overview

On September 28, 2004, CMWD entered into a Water Purchase Agreement (WPA) with Poseidon Resources that allowed CMWD to satisfy up to 100 percent of its potable water needs by receiving water from a seawater desalination plant to be constructed on the NRG Power Station property, which is owned by Cabrillo Power I, LLC. Subsequently however, the project encountered financing difficulties, and project was shifted to a collaboration between Poseidon and the Water Authority. On April 12, 2016, CMWD Board approved an agreement with the San Diego County Water Authority for the purchase of treated water from the Claude "Bud" Lewis Carlsbad Desalination Plant and also approved the planning and design of a turn-out and flow control facility to provide a direct connection to the desal pipeline. Section 3.3.4 presents the current desalination supply agreements, the operational strategy of blending the new supply source, and future opportunities for CMWD to take a direct connection.

2.1.2 Storage Facilities

Water storage facilities serve four critical water storage needs:

- operational storage for daily use
- fire protection storage
- in-zone emergency storage for outages
- aqueduct shutdown storage

The CMWD operates and maintains nine active potable water storage facilities (eight tanks and one large reservoir), which are listed in Table 2-2 and shown on Figure 2-4. The table includes the size, age, material, and high-water level (HWL) for each facility. The total existing storage capacity for the CMWD potable water system is 242.5 MG, which includes the capacity of the 195-MG Maerkle Reservoir. Without the Maerkle Reservoir, the total system storage is 47.5 MG. Tank water levels are recorded throughout the day using a SCADA control system. CMWD also owns two abandon storage reservoirs no longer in use. The La Costa Lo Reservoir (1.5 MG) formerly served the 318 Zone but was recently abandon due to water quality concerns. The Santa Fe No. 1 Tank (2.5 MG) has been abandoned for many years as it was replaced by the Santa Fe Tank No. 2.

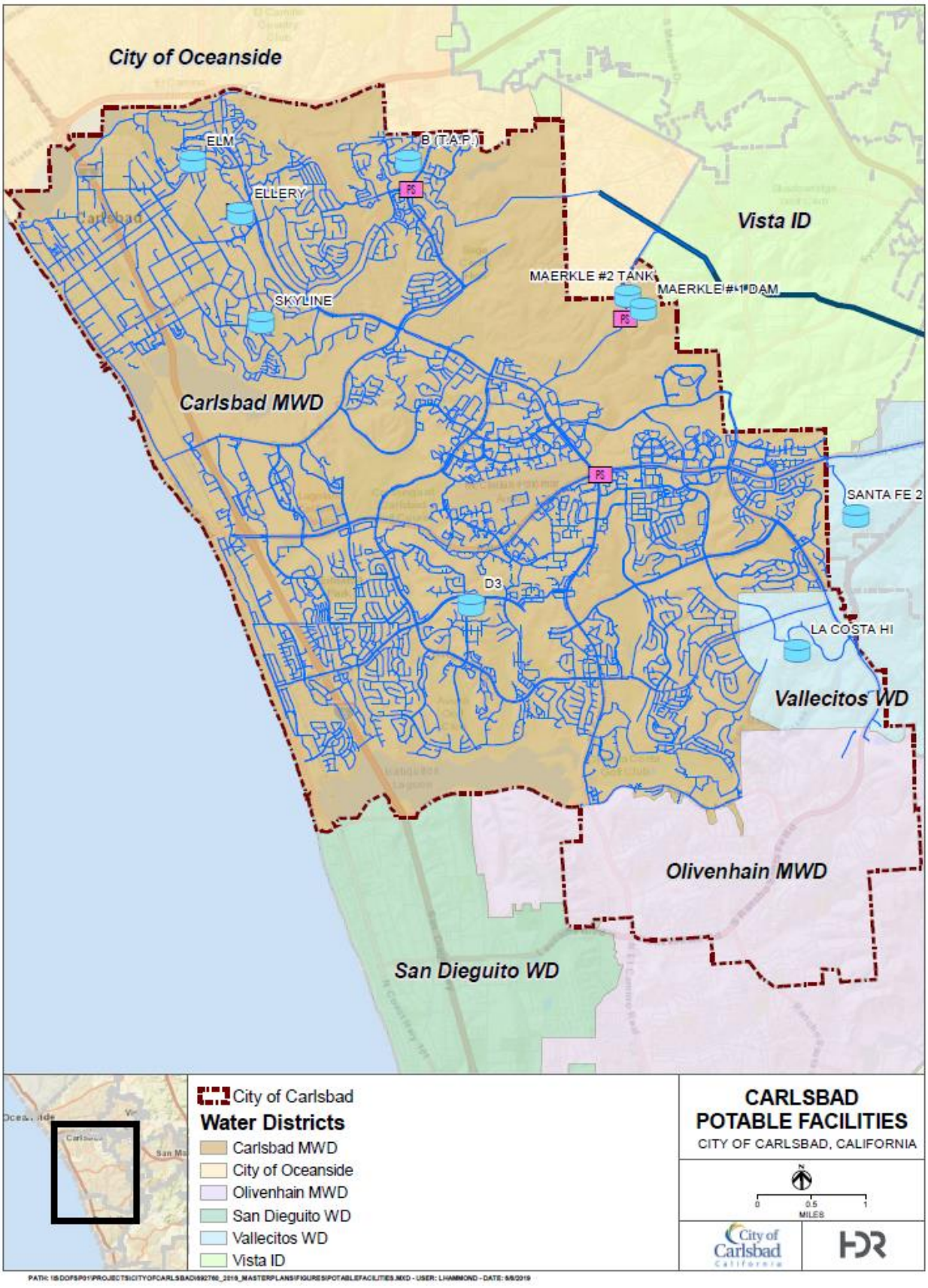
Table 2-2: CMWD Existing Storage Facility Summary

Pressure Zone	Facility ID[1] (Name)	Year Built	Material	Bottom Elevation (ft)	Height (ft)	High Water Level (ft)	Dimension (ft)[2]	Capacity (MG)
700	Santa Fe II Tank	1986	Prestressed Concrete	700	32	732	219	9
	La Costa Hi Tank	1985	Prestressed Concrete	700	27	727	194	6
490	Maerkle Tank	1991	Rect. Concrete	491.3	22.8	514	267 x 215	10
	Maerkle Reservoir	1962 New Cover (2019)	Lined dam w/ floating cover	442.5	57.5	500	-	195
446	TAP Tank	1985	Prestressed Concrete	446	27	473	194	6
375	D-3 Tank	1995	Welded Steel	375	55	430	175	8.5
330	Ellery Tank	1972	Welded Steel	330	22.5	352.5	194	5
255	Elm Tank	1972	Welded Steel	255	22.5	277.5	106	1.5
241	Skyline Tank	1972	Welded Steel	241	22.5	263.5	109	1.5

Source: City of Carlsbad 2012 Water Master Plan

Notes:
[1] Santa Fe I and La Costa Lo tanks are existing tanks that are currently not in service.
[2] Diameter unless otherwise noted.

Figure 2-4: Major Distribution System Facilities



With a maximum capacity of 195 MG the Maerkle Reservoir is a porous asphalt-lined earthen dam with a floating polypropylene cover, which was recently replaced in 2019. This reservoir is filled from the Water Authority No. 3 connection. It is used for operational storage and to meet the needs of CMWD during a planned advanced notice 10-day outage of the Water Authority 2nd Aqueduct. Water from the Maerkle Reservoir is transferred to the Maerkle Tank through the Maerkle Pump Station under normal operations. The Maerkle Tank provides a constant head to stabilize system pressures and allows the Maerkle Reservoir to be drawn down to near empty in an extended emergency. The Maerkle Tank was designed with divider walls to provide the necessary contact time for chloramine disinfection. With the conversion to chlorine dioxide disinfection in 2002, the extended contact time is no longer required.

2.1.3 Pressure Regulating Facilities

The CMWD operates an extensive system of 71 PRSs within the service area, including two inter-tie connections that also reduce pressure. The PRSs in the table are sorted according to the pressure zone that is supplied. The general location of the PRS's within the distribution system is shown on the hydraulic profile in Figure 2-1. In general, the PRS's control water flow from an upper zone into a lower zone through a globe-style valve based on pressure settings that are set in the field. Each PRS may have one or more individual valves.

The PRSs in the CMWD potable water system have either pressure reducing valves (PRVs), pressure sustaining valves (PSVs) or combination valves (PSV/PRV). PRVs throttle flow to maintain a downstream pressure and may be normally closed in the system if they are back-up valves, which supply flow only under high demand, emergency, or fire flow conditions. PSVs are controlled to sustain a minimum upstream pressure and are used to regulate the flow into several tanks. Most of the PRSs in the distribution system have combination valve features. A combination PSV/PRV operates in either a pressure reducing or sustaining mode, maintaining a downstream pressure setting as long as the upstream pressure is above its pressure set point. If the upstream pressure drops below the set point, the valve will throttle, or even close, to maintain the upstream pressure. Thus, the sustaining mode has precedence over the reducing mode. In the CMWD system the combination valves typically operate in the reducing mode under normal operating conditions.

In addition to the automated PRSs, CMWD has control valves at key locations in the distribution system that are normally closed, but which can be manually operated to control flow between pressure zones. These include the Maerkle control valve (plug valve) separating the 490 and 550 Zones.

Table 2-3: Pressure Regulating Station Summary

Station Name	Pressure Zone		Elevation (ft)	Valve Diameter (in)			Setting (psi)				Status	Function
	From	To		Primary	Secondary	Relief	Primary	Secondary	Sustaining	PSI		
Alga No. 1	700	680	445	12	8	6	90	95	100	120 / 97	Open	Primarily/Only Supply
Alga No. 2	680	510	383	8	8	8	50	45	105	120 / 44	Closed	Back-up
Alicante	375	318	-	4	6	4	80	70	105	118 / 90	Open	Usually runs
Ayres	550	318	196	6	12	8	60	52	120	145 / 58	Closed	Back-up
Black Rail	375	318	95	6	12	6	116	100	138	135 / 105	Closed	Back-up
Bolero	510	318	193	8	-	*6*	68	-	120	128 / 60	Closed	Back-up to Lower El Fuerte
Buena Vista	330	255	184	12	6		17	--	15	72 / 30	Closed	Back-up
Calibri	680	580S	397	6	-	4	62	-	-	108176	Closed	Back-up
Camino De Las Ondas	375	318	142	4	8	4	78	50	--	*110180*	Open	Usually runs
Cannon	375	241	143.5	4	8	6	40	35	-	*100/38*	Closed	Back-up
Chestnut	490	446	292	4	8	6	85	82	90	121 / 86	Open	Usually runs
Clearview/ MacArthur	446	330	250	6	--	-	35	--	50	86 / 14	Closed	Back-up; fire only
College East	550	430	206	6	8	6	98	88	120/98	140 / 110	Open	Always runs
College North	490	446	167.5	6	8	6	-	-	-	131 / 126	Closed	for future use
College South	446	241	75	4	8	6	70	65	110	175175	Open	Usually runs
College West	550	375	234	12	6	6	65	60	100	132 / 74	Open	Always runs
D-3 Influent	550	Tank	350	10	16		4 cfs	--	--	*75140*	Open	Flow control to D-3 Res.
Donna & Basswood	446	330	244	8	--	-	35	--	-	*75141*	Closed	Back-up; fire only
Ellery Reservoir	490	Tank	330	14	--	-	- -	--	67	72	Open	Sustaining only
Elm South	330	Tank	-	10	-	-	-	-	40	40 / tank	Closed	Back-up to Tank
Elm TAP	580	490	250	4	10	6	--	--	105	155 / 106	Closed	Back-up
Encinas Potable	318	241	47.1	8	-	6	90	-	100	118 / 84	Closed	Back-up
Foxtail Loop	490	375	183.7	4	8	4	70	60	130	134 / 90	Closed	Back-up

Table 2-3: Pressure Regulating Station Summary

Station Name	Pressure Zone		Elevation (ft)	Valve Diameter (in)			Setting (psi)				Status	Function
	From	To		Primary	Secondary	Relief	Primary	Secondary	Sustaining	PSI		
Grosse	490	418	95	6	-	3	130	-	165	167/137	Open	Primary/Only Supply
Hailey	550	430	205	6	8	6	98	84	100	142 / 92	Open	Always runs
Hilton	318	241	46	4	8	6	80	70	115/105	100 / 71	Closed	Back-up
Jackspar	430	375	105	4	6	4	120	110	--	*150/118*	Closed	Back-up
Jockey club	318	PVT		4	-		-	-	-	135 / 110	Closed	Golf course irrigation and bathroom
Kelly	446	241	46	4	6	6	90	70	150	165 / 92	Open	Usually runs
Kelly Cut	550	490	163	6	-	6	145	-	-	155 / 102	Closed	Emergency only
La Costa Country Club	318	PVT		4	-	-	-	-	-		Closed	Golf course irrigation
La Costa Lo	510	318	-	12	-	6	-	-	-	80 / 12	Open	Always runs
La Costa Potable	700	375	172.2	6	8	6	90	80	200	268 / 92	Closed	Back-up
La Golondrina	680	580S	356	2	6	4	90	72	100	138 / 90	Open	Primarily Supply
Laguna Riviera	490	446	46	6	12	6	165	--	--	195 / 168	Open	Usually runs
Lakeshore Gardens	318	PVT	-	3	6	4	62	*50*	-	118 / 66	Open	Always runs
Lanikai	318	PVT	-	4	-	-	-	-	-	76 / 58	Open	Always runs
Lapis	510	375	168.75	4	6	4	90	80	140/120	140 / 100	Closed	Back-up
Lower El Fuerte	510	318	210	8	-	*6*	62	--	-	*120/60*	Open	Usually runs
Lower Faraday	430	375	121	6	-	4	110	-	-	*150/90*	Closed	Back-up
Maerkle Sustaining	CWA	490	--	12	12	12 *	-	-	190	185 / 165 / 60	Open	3 cla-vals , *Southern 12" has 1O" internals
May Company	490	255	79'	6	8	6	76	65	135	185 / 80	Open	Usually runs·
Melrose	700	550	322.42	6	8	6	85	70	135	175 / 92	Open	Back-up
Melrose intertie	815	700	-	8	-	-	-	-	-		Closed	intertie
Olivenhain intertie	-	318	-	10	-	-	-	-	-	120 / 135	Closed	intertie
Olympia	580	446	285	3	6	4	64	62	84/100	155 / 75	Closed	Back-up

Table 2-3: Pressure Regulating Station Summary

Station Name	Pressure Zone		Elevation (ft)	Valve Diameter (in)			Setting (psi)				Status	Function
	From	To		Primary	Secondary	Relief	Primary	Secondary	Sustaining	PSI		
Palomar Oaks	550	375	194	6	8	8	80	65	115/130	150 / 84	Closed	Back-up
Palomar West	375	241	78	6	8	6	71	65	115	132 / 68	Closed	Back-up
Pine	330	255	138	3	8	6	60	55	75/65	*90157*	Closed	Back-up; fire only
Point D North	700	550	283	6	8	6	105	100	165	185 / 120	Open	Back-up
Point D South	700	550	283	16*	12	8	112	105	135	180 / 114	Open	Primary Supply, *16" body 12" internals
Pointsettia West	375	318	124	4	8	6	80	65	94	120 / 80	Closed	Back-up
Quarry Creek West	446	330	-	6	8	6	-	-	-	150 / 87	Open	
Quarry Creek East	446	330	-	6	8	6	-	-	-	150 / 90	Open	
Rancho Carlsbad	375	PVT	-	4	6	3	-	-	-	146 / 63	Open	Always runs
Rancho Poncho	700	550	188	6	8	6	130	120	180	215 / 145	Open	Back-up
Rising Glen	490	446	136	8	-	4	145	143	145 ·	158/124	Closed	Back-up
Robertson's Ranch	446	349	-	6	8	6	70	50	120	140 /74	Open	Always runs
Sage Creek	490	375	-	6	-	-	-	-	-	168 / 145	Closed	Back-up
Salk	490	430	266.5	4	10	6	66	61	85	100 / 84	Closed	Back-up
SDCWA #6	CWA	700	566	16	-	-	160	-	170		Open	PRS off CWA #6
Sierra Morena	446	255	130	8	-	-(	56	--	135	135 / 60	Closed	Back-up; fire only
Skyline West	446	Tank	-	8	-	6	-	-	-	82 / tank	Open	Feeds Reservoir
Tamarack Point	446	349	172	2	8	4	60	55	85	126 / 54	Open	Back-up
Tanglewood	490	330	126	6	8	6	80	70	170	155 / 88	Closed	Back-up
TAP #4 Cannon	CWA	580	--	14	-	-	--	-	230	235 / 96	Open	PRS off CWA #4, reducing to 580N
TAP Hi/Lo	580	Tank	-	10	10	-	-	-	73	73 / tank	Open	Sustaining only, Feeds Reservoir
Unicornio	680	510	346	8	-	4	71	-	-	140 / 60	Closed	Back-up

Table 2-3: Pressure Regulating Station Summary

Station Name	Pressure Zone		Elevation (ft)	Valve Diameter (in)			Setting (psi)				Status	Function
	From	To		Primary	Secondary	Relief	Primary	Secondary	Sustaining	PSI		
Upper El Fuerte	680	510	400	6	10	8	45	42	-	115 / 30	Open	Primary Supply
Whiptail	700	550	363	4	10	6	27	--	--	150 /70	Closed	Back-up
Zodiac	680	510	397.5	4	6	4	50	45	90/80	120 / 40	Closed	Back-up

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2.1.4 Distribution and Transmission Facilities

CMWD maintains approximately 450 miles of active water mains ranging in size from 4-inch to 42-inch in diameter. Pipe materials include asbestos cement pipe (ACP), polyvinyl chloride (PVC) pipe, ductile iron pipe (DIP), Cement Mortar Lined and Coated (CMLC), prestressed concrete cylinder pipe (PCCP), cast iron (CI), steel, copper, and high density polyethylene (HDPE) pipe. Table 2-4 includes an inventory of material types with a size range and total length. The pipelines are predominantly ACP, which was extensively used in the 1970s and 1980s, and PVC pipe, which is currently in widespread use.

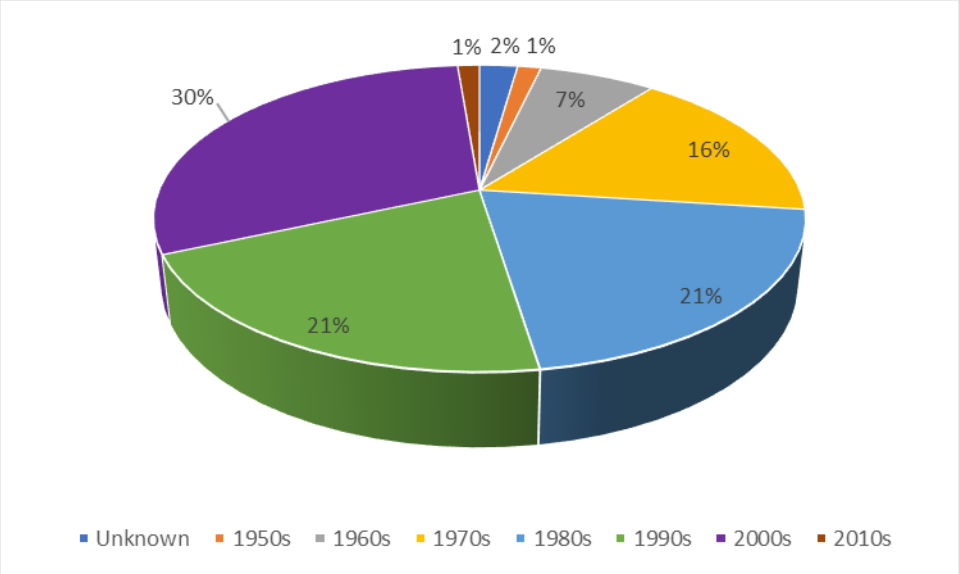
Table 2-4: Existing Pipeline Inventory

Material	Length (ft)	Diameter Range (in)		Pipe Length by Decade							
				Unknown	1950s	1960s	1970s	1980s	1990s	2000s	2010s
ACP	1,260,880	4	20	50,949	30,310	150,207	363,155	456,196	165,701	43,616	747
PVC	923,006	4	24	2,429	1,482	856	2,803	10,334	278,899	596,201	30,003
DI	44,738	6	42	2	0	0	315	15,475	19,347	9,549	50
CMLC	43,433	6	36	0	0	5,583	0	166	24,835	12,804	44
PCCP	19,900	21	30	0	0	0	18,483	0	1,417	0	0
CI	1,503	8	10	0	0	1,284	0	160	0	59	0
Steel	102,686	4	42	673	1,572	7,433	10,387	9,058	9,302	64,079	183
HDPE	720	18	18	0	0	0	0	0	0	720	0
Copper	2	6	6	0	0	0	2	0	0	0	0
Total	**2,396,868**			**54,052**	**33,364**	**165,363**	**395,144**	**491,389**	**499,501**	**727,028**	**31,027**

Source: City of Carlsbad 2017 GIS

Figure 2-5 shows the percentage of piping that has been installed in the CMWD by decade. Nearly 90 percent of the CMWD system has been installed since the 1960s. Based solely on the pipe material and the date the pipe was installed, the majority of these pipes appear to have many years of remaining functionality.

Figure 2-5: Pipeline Installed by Decade



2.1.5 Pump Station Facilities

CMWD currently operates and maintains three stand-by PSs. The PSs are only used during emergencies to supply water to higher zones during a Water Authority shutdown or other outage. The locations of these facilities are shown on Figure 2-1 and a summary of each facility is provided in Table 2-5**.** A description of each PS is provided below. The Maerkle PS pumps water from the Maerkle Reservoir into the Maerkle Tank when needed to improve water quality and maintain circulation within the reservoir. In addition, the Maerkle PS can serve a large portion of the CMWD system during a Water Authority shutdown. This station includes a backup generator for emergency power.

Table 2-5: Pump Station Summary

Pump Station	Pressure Zone		Pump Unit	Motor Size & Type	Rated Capacity		Firm Capacity		Back – up Power
	From	To			gpm	MGD	gpm	MGD	
Maerkle	435	490	1	150-hp, VFD	4,500	6.48	13,500	19.44	450 KW Generator
			2	150-hp, VFD	4,500	6.48			
			3	150-hp, VFD	4,500	6.48			
			4	150-hp, VFD	4,500	6.48			
Bressi	490	700	1	125-hp	1,250	1.80	2,500	3.60	—
			2	125-hp	1,250	1.80			
			3	125-hp	1,250	1.80			
Calavera Hills	446	580	1	75-hp	1,500	2.16	1,500	2.16	Wiring for generator
			2	75-hp	1,500	2.16			
			3	15-hp	200	0.29			

Source: City of Carlsbad 2012 Master Plan

Notes:
(1) Firm capacity is the total capacity of the pump station less the largest pump unit.

(2) The Maerkle PS can convey water from the Maerkle Dam and transfers it into the Maerkle Tank.

The Bressi PS can be used to boost water from the 490 Zone to the 700 Zone during shutdowns. No backup power or generator is currently provided at this site. The abandoned Ellery Pump Station site allows for a portable pump hook-up.

The 580N Zone is served directly from the Water Authority No. 4 connection under normal operations through a pressure sustaining valve. However, during a Water Authority shutdown this zone can be served through the Calavera Hills PS from the 446 Zone.

2.2 Agency Interconnections

CMWD receives potable water at their Water Authority No. 2 connection on a regular basis from VWD's VAL 7 connection to the Water Authority off the Questhaven Pipeline. Water supply is provided through an interagency service agreement entitled Construction of a Water Transmission and Storage System – Questhaven Pipeline, dated July 1, 1978 and its supplement, dated September 1979 in which VWD is designated as the lead agency. The CMWD connection capacity by agreement is limited to 8.61 MGD. CMWD is supplied via a flow control facility from the VWD's

815 Meadowlark zone into the CMWD 700 Zone. This facility, located along Alga Road, serves CMWD and consists of two 10-inch diameter flow control valves. In 2014, the CMWD received an average of 2.3 MGD and a maximum supply of 6.5 MGD through this connection.

Of the 12 inter-agency service connections to neighboring water districts, 11 are solely available to CMWD under emergency conditions. These connections are limited in their ability to deliver flow unless otherwise noted and would be used for short term outages to the CMWD service area. With the improved reliability of the regional system following the implementation of the Emergency Supply Project and the anticipated delivery of desalinated sea water to CMWD, there is no immediate need to expand the capacity of the existing connections. Table 2-6 provides a list of the interconnections with neighboring agencies.

Table 2-6: Existing Agency Interconnections Summary

Location	Service		Capacity (cfs)	Status
	From	To		
El Camino Real & Interstate 78	Oceanside (409 Zone)	CMWD (255 Zone)	5.0	Emergency connection; metered
College Blvd / City limits	Oceanside (481 Zone)	CMWD (446 Zone)	—	Emergency connection; metered
Nueva Castilla	OMWD (437 Zone)	CMWD (318 Zone)	—	Emergency connection - normally closed valve on 12"
Calle Madero	OMWD (437 Zone)	CMWD (318 Zone)	—	Emergency connection - normally closed valve on 8"
La Costa Avenue & Romeria	OMWD (437 Zone)	CMWD (318 Zone)	—	Emergency connection - normally closed valve on 8"
La Costa Avenue & El Camino Real	OMWD (437 Zone)	CMWD (318 Zone)	5.0	Emergency fire flow connection to OMWD
La Costa Avenue	OMWD (437 Zone)	CMWD (318 Zone)	—	Emergency connection - normally closed valve
Alga Road & El Fuerte	VWD (815 Zone)	CMWD (700 Zone)	13.3	Active Connection - Normal supply from Water Authority Connection No. 2
Alga Road & Santa Isabel Street	VWD (815 Zone)	CMWD (700 Zone)	—	Emergency connection - normally closed valve
Melrose	VWD (815 Zone)	CMWD (700 Zone)	—	Emergency connection - normally closed valve on 12"
Business Park & Palomar Airport Rd	VID (690 Zone)	CMWD (700 Zone)	3.3	Emergency supply during aqueduct shutdowns; metered
Quarry Creek	CMWD (330)	Oceanside		Emergency connection - normally closed valve

Source: City of Carlsbad

2.3 System Operations

The CMWD potable water system receives water from the Water Authority aqueduct at a much higher hydraulic grade than is needed and must therefore reduce pressures into the distribution system through a series of PRSs, as previously outlined. Operators balance tank levels by adjusting settings at several key facilities and making changes to the Water Authority deliveries, as necessary. Tank levels and several control valves are connected to the CMWD SCADA system, which allows CMWD Operations staff to make changes and monitor the system from the water operations center. Changes that can be made to several key facilities include:

- **Emergency Supply:** The Maerkle Flow Control Vault Facility separates the 490 Zone from the 550 Zone. Flow through this valve is metered in both directions, and under typical daily operations this valve is closed. The valve can be throttled to allow excess supply from the 700 Zone via the 550 Zone into the 490 Zone. Under emergency supply scenarios the valve can be also be opened to supply the 550 Zone from the 490 Maerkle Tank and Reservoir when the 700 Zone feeds are isolated, thereby reducing the HGL.
- **D3 Tank Level Control:** The 375 Zone D3 Tank is supplied from the 550 Zone via a PRS located adjacent to the tank. Downstream of this station are 12-inch and 16-inch plug valves that are operated as flow control valves and throttled to regulate D3 Tank water levels.
- **Ellery Tank Level Control:** Supply to the 330 Zone Ellery Tank from the 490 Zone is controlled by a 14” Cla-Val within the PSV. The setting of this valve is adjusted periodically, and typically ranges between 62 and 80 pounds per square inch (psi).
- **318 Zone Control:** The Ayres and Lower El Fuerte PRSs supply the 318 Zone from the 550 and 510 Zones, respectively.
- **Skyline Tank Level Control:** The Skyline Tank used to operate together with the Elm and “E” Tanks in the 255 Zone. Since it was at a much lower elevation than the other two tanks it was unable to “float” on the system and therefore provided emergency storage only. By closing several valves in the 255 Zone, CMWD operators have created a separate 241 Zone that is regulated by the Skyline Tank. The 241 Zone Skyline Tank is supplied from the 446 Zone through a PSV.

With the exception of the controls described above, supply to the remaining storage tanks in the distribution system comes from Water Authority aqueduct connections or PRSs located at the edges of the service zone. The Santa Fe II and La Costa Hi, have single inlet-outlet pipes. No tanks in the distribution system have altitude valves.

2.4 Existing Water Quality

Water quality is a key focus for every water purveyor. As chlorine residuals decrease with age (retention time within the system), water quality problems are more likely to occur where water takes a long period of time to travel through the distribution system or where water is stored in tanks with poor cycling. CMWD benefits from having multiple supply connections and the ability to increase and decrease supplies during low demand periods to help promote drain/fill cycles in the distribution system storage tanks.

The imported water supplied to CMWD is treated either by Metropolitan at its Lake Skinner Treatment Plant in Riverside County or by the Water Authority at its Twin Oaks Valley WTP in San Marcos, which is also blended with desalinated water for the new Claude “Bud” Lewis Carlsbad Desalination Plant. After treatment, the water travels through Water Authority owned pipelines and is delivered at the four CMWD supply connections described previously in Section 2.1.1. The treated water is supplied with a combined chlorine/ammonia (chloramine) residual and requires no additional disinfection at the supply locations prior to distribution and delivery. However, various chemical and biological reactions may occur within the distribution system that can reduce the chloramine residual.

The large capacity of Maerkle Reservoir results in detention times of several weeks/months and thus has the potential for loss of chloramine residual due to nitrification or other degradation processes. In 2003, CMWD transitioned to a chlorine dioxide feed designed to prevent nitrification and allow for maintenance of a stable chloramine residual in the reservoir. As a result of this change, CMWD has experienced fewer nitrification problems in the reservoir. CMWD’s permit allows an influent flow at the reservoir of 3 cfs, with the chlorine dioxide injected into the influent flow.

CMWD also has water quality challenges within the distribution system, particularly in larger tanks with small system demands, such as the Santa Fe II and La Costa Hi Tanks. These tanks require active management to periodically turnover and cycle the water in storage.

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Chapter 3 Water Demand and Supply

Chapter 3 summarizes the existing “baseline” potable water demand for CMWD, presents the water demand forecast, and documents the current water supply portfolio and opportunities to enhance water supply reliability. The chapter provides CMWD with a summary of the water demand analysis that forms the basis for capacity analysis and water supply evaluation.

3.1 Existing Water Demands

This section summarizes the process to develop the existing average annual water demand for CMWD. This “baseline” existing demand is used as the key starting point for the future demand forecasts as well. Given the annual variability in water use seen by water purveyors the past few years throughout Southern California, selecting the baseline demand considers appropriate planning level assumptions and recognizes the sustained lowered water use patterns of many customers.

3.1.1 Data Sources

A discussion of the data sources used to develop water demand projections for previous planning efforts and the current Master Plan is provided below.

3.1.1.1 San Diego Association of Governments Data

SANDAG is responsible for the development of demographic projections and various integrated land use, housing, employment, transportation programs, measures, and strategies for the San Diego area. It maintains two sets of transportation analysis zones (TAZ) data for the Regional Transportation Plan (2015-2040) along with socioeconomic data for the region. The more comprehensive data is comprised by 4,109 zones (Tier 1) across the SANDAG region. Within each TAZ, SANDAG has derived spatial data relating to population, housing, and employment under current conditions and developed projections for the years 2020 and 2040. This detailed and comprehensive dataset from the Series 13 projections, as provided to Carlsbad in April 2017, was used for this Master Plan project.

3.1.1.2 Census Data

The U.S. Census Bureau develops and maintains other digital and spatial datasets relating to population, demographics, housing elements, occupancy, and other economic and trend information. U.S. Census Bureau data for California is maintained by the California City of Finance. This dataset has been used in prior City studies for estimating population at a census tract/block level. This tract/block data is more detailed than the TAZ level data developed and maintained by SANDAG.

3.1.1.3 Land Use Data

Land use coverage data for the service area was collected from the City geographic information system parcels, San Diego County land use/zoning data, and various other sources. The City’s Planning Department provided zoning and land use data for each of these individual agencies. This data, along with housing element reports, provided the primary information related to opportunities of redevelopment, zoning specifications, and vacant lot areas for each service area.

For purposes of future planning, it is assumed that all planned land uses depicted on the City's General Plan land use map will develop, and CMWD will reach "buildout" during the horizon of the General Plan.

3.1.1.4 CMWD's Utility Billing Data

CMWD utilizes a customer information system to maintain its account-level information. Carlsbad's billing data classifies its accounts into the following customer class categories: agriculture, commercial, fire protection, industrial, institutional, irrigation, multi-family, recycled water, single family, and temporary usage. Review of this information indicates CMWD's customer base is primarily residential, representing approximately 85 to 90 percent of the active accounts. The balance of the accounts is made up with various commercial, industrial, and institutional customers. Billing information for the 2014 to 2016 calendar years reflect a total customer base using between a high of 16,800 acre-feet (AF) in 2014 to a low of 13,600 AF in 2015. Account level billing data for the last 10 years was used in the analysis of water demands for this Master Plan.

3.1.2 Current and Projected Population Estimates

The current and projected demands are integral factors in the evaluation of CMWD's future utility systems. Due to the historical variation in the economy and weather conditions, the growth rates have differed from previous studies, suggesting the need to reassess projected demand conditions. Current population estimates, and future projections were calculated based on U.S. Census, SANDAG databases, land use and planning data, local agency housing element reports, and vacant housing information derived from the U.S. Census and CMWD's water billing data.

While build-out for any community may actually never materialize, for the purposes of this study, build-out is estimated to occur at the year 2040. This period was chosen as it coincides with other applicable service area studies, such as the most recent UWMP and SANDAG population/housing/employment projections. The methodology for estimating CMWD's current and projected population was discussed in Section 1.3.3.

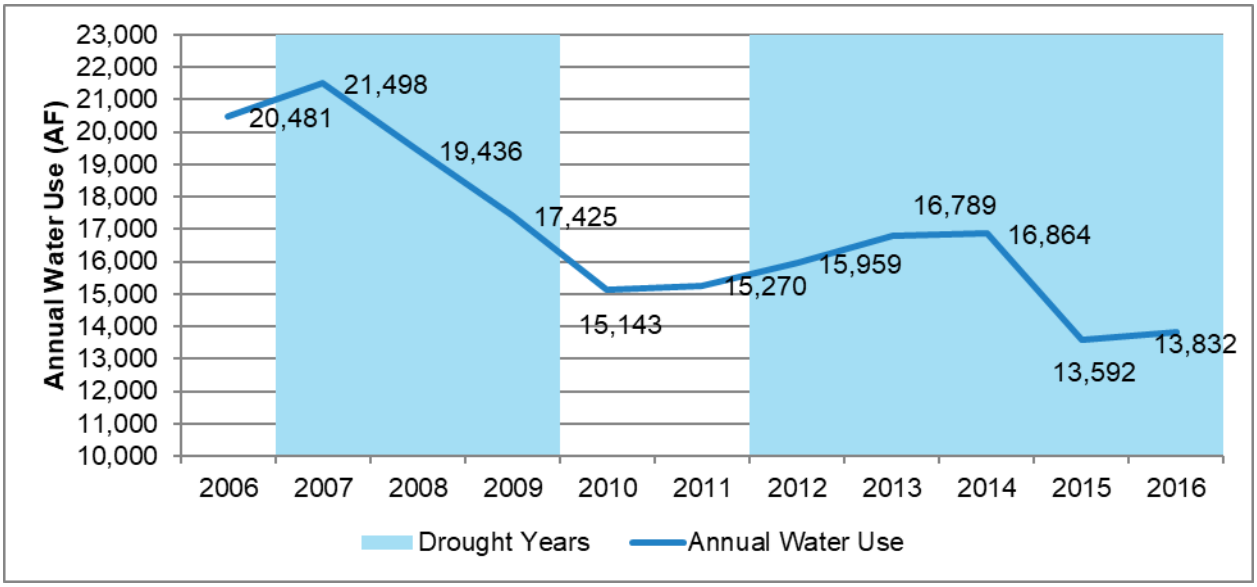
3.1.3 Historical Water Use Trends and Baseline Year

Historical water use trends can be used to project future supply needs, and the past several years establish the baseline existing demand. The following sections describe CMWD's historical potable water use trends.

3.1.3.1 Annual Potable Water Use

Potable water demands are metered potable water sales and are always less than the amount of water produced or imported by a water utility. Over the past decade, water use within CMWD's service area has ranged from a low of 13,600 AFY (12.1 million gallons per day [mgd]) to as high as 21,500 AFY (19.2 mgd), as shown on Figure 3-1**.**

Figure 3-1: Historical Potable Water Demands by Calendar Year



Annual fluctuations in the past have been primarily in response to local weather conditions. Typically, water demands increase during hotter, drier years because more water is needed for customer consumption and landscape irrigation, and demands are lower during cooler, wetter years when less irrigation is required. Table 3-1 lists the historical potable water demands from 2006 to 2016 which are displayed on Figure 3-1.

Table 3-1: Potable Water Demands (2006-2016)

Year	Potable Water Demands
2006	20,481
2007	21,498
2008	19,436
2009	17,425
2010	15,143
2011	15,270
2012	15,959
2013	16,789
2014	16,864
2015	13,592
2016	13,832

However, regional drought began gripping the American Southwest in 2012, and North San Diego County has experienced below-average rainfall for most of the past decade. In addition, the region experienced an economic recession from 2009 to 2011, essentially halting anticipated development and causing an increase in local unemployment, which in turn resulted in a decrease in water use. CMWD also adopted a residential tiered water rate in July 2009 that further dampened demand by the residential population. The region experienced record warm years in 2015 and 2016, which would typically result in water use increases. However, statewide mandatory conservation in response to statewide drought conditions contributed to a significant decrease in water use during those years.

3.1.3.2 Baseline Year 2014 (CY)

To determine an appropriate baseline year for the Master Plan, based on discussions with City/CMWD staff from the planning, financial, and water conservation departments, it was decided that calendar year 2014 represented a reasonable reference year, as statewide mandatory conservation had not yet been imposed, and a reasonable period had expired from the 2009-2010 drought and economic recession, such that an appropriate rebound in demands would have occurred. It is unlikely that, from a unit demand (or duty factor) basis, water use will return to the levels seen in the early to mid-2000s.

Year 2014 reflects a conservative average annual demand that was not subject to mandatory use restrictions. Therefore, the existing water system demand for the Master Plan is approximately 16,860 acre-feet per year (AFY) or 15.1 mgd. This demand will serve as the basis for the existing system capacity analysis for water distribution and supply.

3.1.4 Water Demand Classification by Customer Type

CMWD's metered service connections (currently at 27,545) serve a variety of different customer types, including residential, commercial, institutional, and landscape customers. The historical breakdown is shown graphically on Figure 3-2, and recycled water is included in this figure.

Figure 3-2: Historical Water Demand by Customer Type

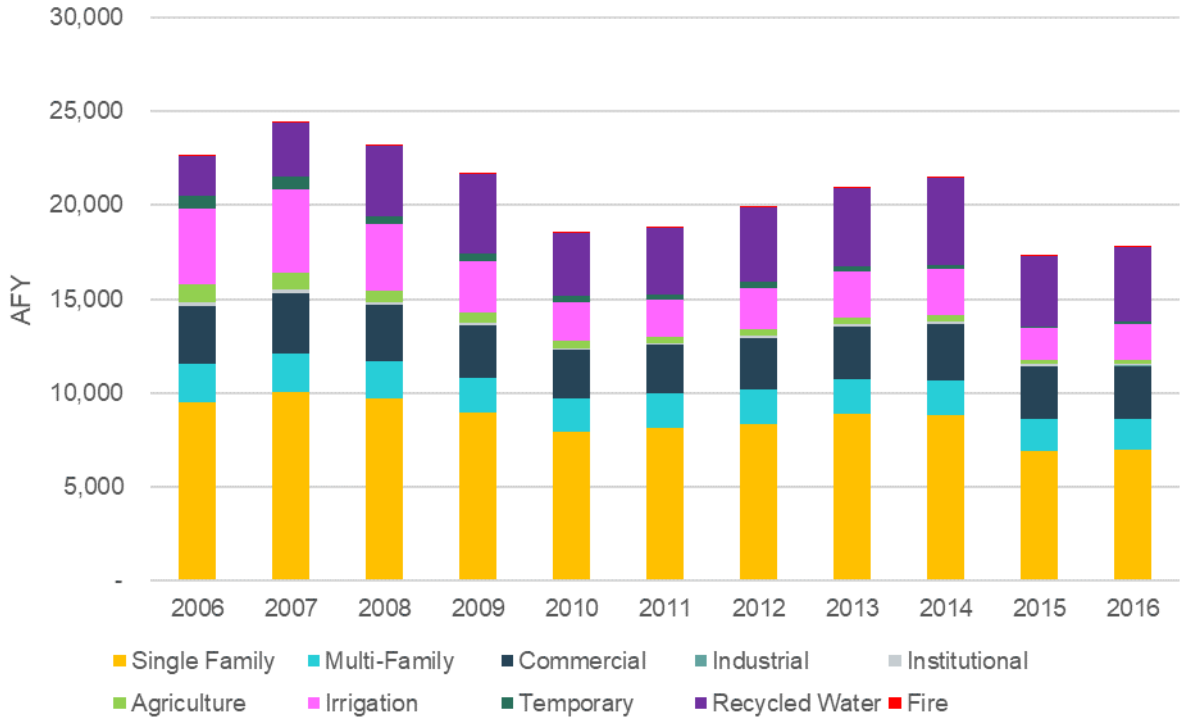


Table 3-2 shows the historical water and recycled demand from 2006 to 2015.

Table 3-2: Historical Potable Water and Recycled Demand

Calendar Year	Total Potable Use	Total Recycled Use	Total Water Use
2006	20,481	2,144	22,625
2007	21,498	2,897	24,396
2008	19,436	3,742	23,178
2009	17,425	4,220	21,645
2010	15,143	3,377	18,520
2011	15,270	3,542	18,812
2012	15,959	3,938	19,897
2013	16,789	4,120	20,908
2014	16,864	4,645	21,509
2015	13,592	3,781	17,373

As shown in Table 3-3 and Figure 3-3, for the baseline year 2014, 63 percent of CMWD's potable water metered service demands were residential, 52 percent single family and 11 percent multifamily. Commercial, Industrial, and Institutional accounts made up approximately 19 percent of the total demand.

Table 3-3: Potable Water Use by Customer Type (Baseline Year 2014)

Customer Type	2014 Use (AF)	Percent of Total (%)
Single Family Residential	8,839	52
Multifamily Residential	1,852	11
Commercial	2,995	18
Institutional	139	1
Irrigation	2,452	15
Agriculture	311	2
Fire	276	2
Total	**16,864**	**100**

Notes:
AF=acre-feet

Landscape irrigation, agriculture, fire, and temporary accounts made up the remaining 18 percent of the customers. In the future, these patterns of demand are expected to continue, as single family residential and multifamily residential make up a large majority of the parcels in CMWD's service area.

3.1.5 Top 25 Potable Water Meters

The top 25 potable water users for the 2014 Baseline Year are shown in Table 3-4.
Figure 3-4 shows water use by customer type for the top 25 meters and their locations are shown in Table 3-4. These customers have a combined demand of 989 AFY (0.88 mgd) and make up nearly 6 percent of the total water demand. The customer types include commercial, agriculture, multifamily residential, and irrigation.

Table 3-4: Top 25 Potable Water Meters

Pressure Zone	Class	2014 Baseline Year Demand (AFY)	Address
318	Multifamily Residential	82.32	7201 Avenida Encinas Lakeshore
375	Agriculture	72.18	5791 Armada Drive
198	Multifamily Residential	72.08	5200 El Camino Real
241	Commercial	71.78	4900 Carlsbad Boulevard
375	Agriculture	59.63	5795 Armada Drive
550	Commercial	58.64	5781 Van Allen Way
241	Commercial	55.89	4900 Carlsbad Boulevard
318	Multi-Family Residential	48.20	6550 Ponto Drive
318	Commercial	42.18	7200 Estrella De Mar Road Complex
375	Commercial	39.87	7100 Four Seasons Point
375	Commercial	39.62	7100 Four Seasons Point
446	Agriculture	39.42	4900 El Camino Real
375	Irrigation	38.99	5800 Hidden Valley Road
375	Agriculture	36.64	1300 Cannon Road
318	Irrigation	34.12	2100 Costa Del Mar Road Lake
375	Irrigation	32.95	7100 Four Seasons Point
241	Agriculture	32.57	4900 El Camino Real
550	Commercial	31.35	2221 Las Palmas Drive
318	Commercial	29.88	1 Ponto Drive
375	Irrigation	28.73	5825 Dryden Place -5860
375	Commercial	26.47	1 Lego Drive Point B
375	Commercial	25.27	5480 Grand Pacific Drive
330	Irrigation	24.78	3599 Monroe Street Chest
318	Commercial	23.89	2102 Costa Del Mar Road
550	Commercial	23.73	2470 Faraday Avenue
Total	—	**988.86**	—

The largest demand within the top 25 users was commercial use, which accounted for 44 percent of the total water consumption for the top 25 users. This was followed by agriculture, multifamily residential, and irrigation, with demands of 22, 19, and 15 percent, respectively. The 2019 Recycled Water Master Plan addresses existing potable irrigation use and future potential customers exploring the potential to convert some of these larger irrigation users to recycled water.

Figure 3-3: Top 25 Water Meters by Customer Type

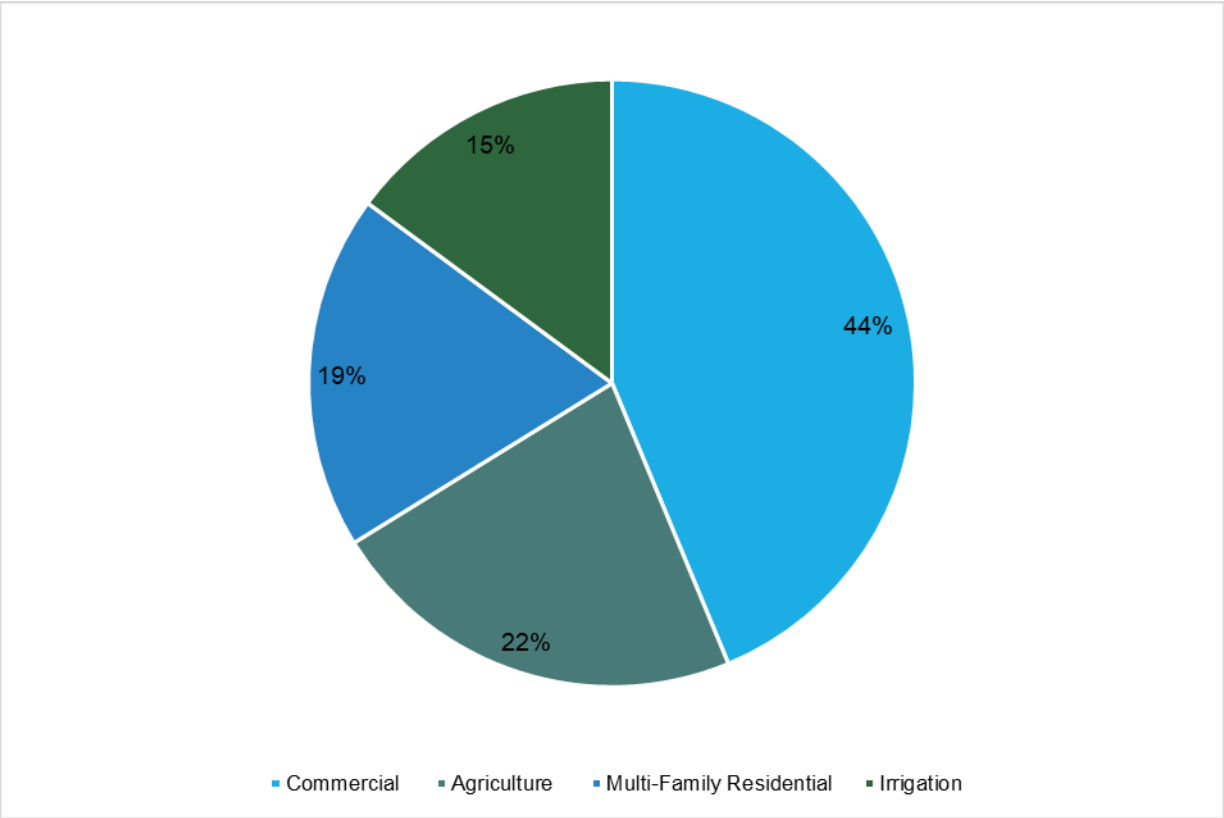
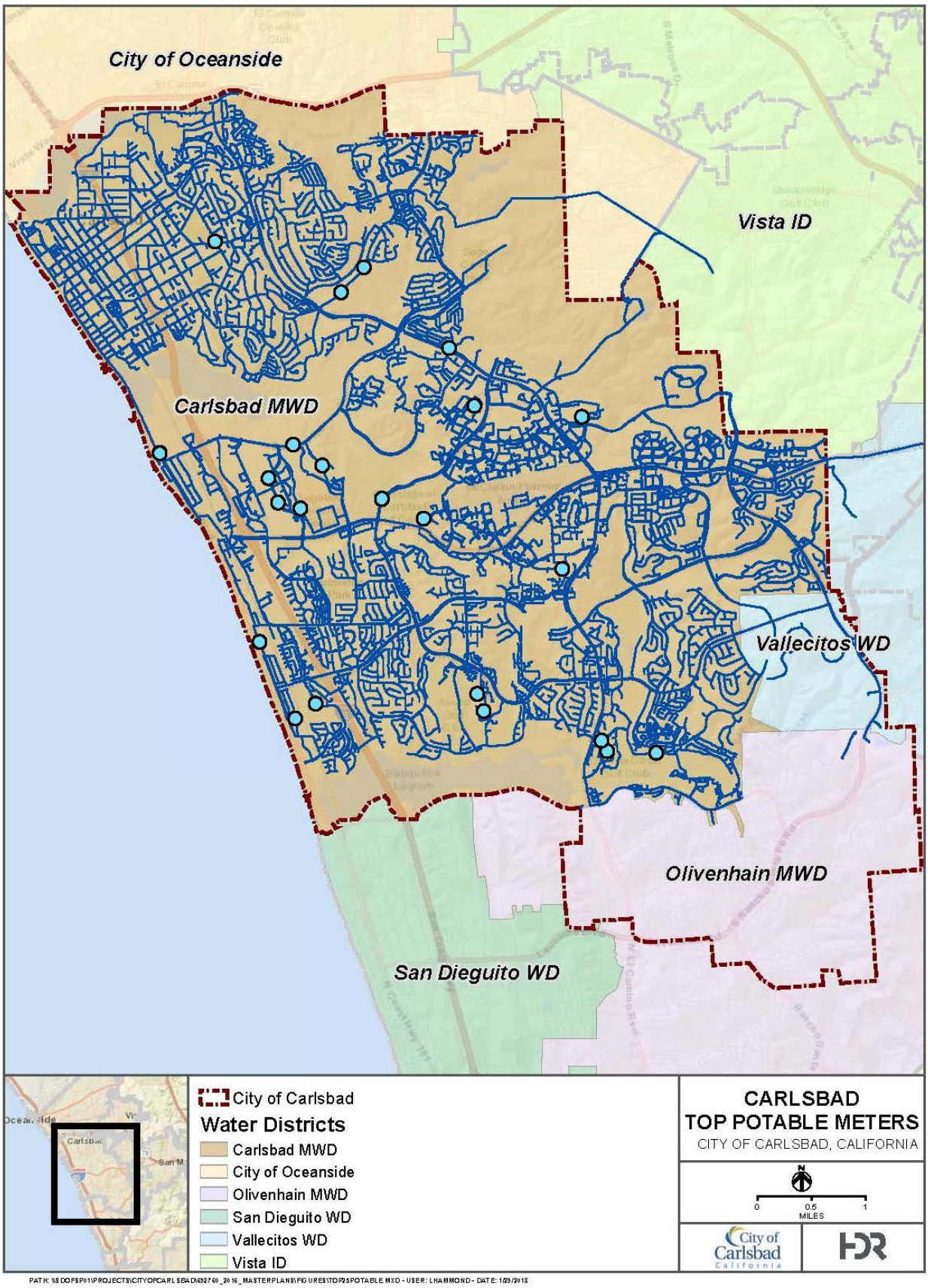


Figure 3-4: Location of Top 25 Water Meters



3.1.6 Existing Demand By Pressure Zone

The existing demand was determined for each pressure zone, as each potable water meter account is coded to a specific zone. Table 3-5 shows the sales or demand data for each pressure zone for the 2014 Baseline Year. The demand per zone will be used to estimate water supply and storage requirements in the water distribution system.

Table 3-5: Average Water Demands per Pressure Zone

	2014 Average Water Demand	
Pressure Zone	**gallons per minute**	**million gallons per day**
198	42	0.06
241	1,069	1.54
255	1,125	1.62
318	1,854	2.67
330	854	1.23
349	42	0.06
375	1,549	2.23
430	97	0.14
446	1,139	1.64
490	69	0.10
510	208	0.30
550	1,319	1.90
580 (North and South)	292	0.42
680	243	0.35
700	396	0.57
Null[1]	146	0.21
Total	**10,433**	**15.04**

[1] Meter accounts not identified in a pressure zone.

3.1.7 Unaccounted for Water

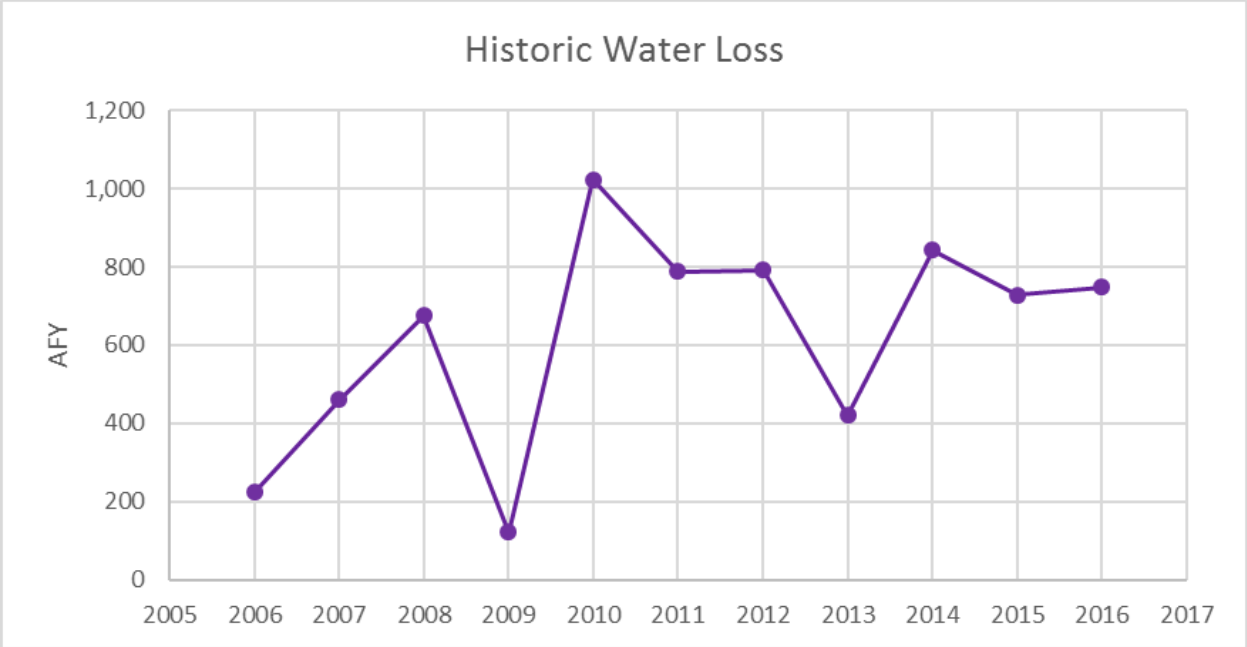
Unaccounted for water, also called non-revenue water is the difference between the amount of water that enters CMWD's distribution system and the amount of potable water delivered to CMWD's customers. Non-revenue water is water lost from the distribution system through a variety of ways, both authorized and unauthorized, including water for firefighting, pipe flushing, hydrant testing, leakage from pipelines, meter errors, and theft. CMWD does, however, attempt to estimate fire and temporary water demand, as noted in Table 3-6.

Table 3-6: Historic Water Loss

Year	Water Bought from SDCWA (AF)	Water Sold (AF)	Water Loss (AF)	%
2006	20,705	20,481	223	1.1
2007	21,330	21,498	-168	-0.8
2008	20,112	19,436	676	3.4
2009	17,547	17,425	122	0.7
2010	16,167	15,143	1,023	6.3
2011	16,058	15,270	788	4.9
2012	16,750	15,959	791	4.7
2013	17,210	16,789	421	2.4
2014	17,707	16,864	843	4.8
2015	14,320	13,592	728	5.1

Figure 3-5 provides a graphical perspective of CMWD's historical non-revenue potable water trends, representing a range of 1 to 7 percent of the total annual water demand.

Figure 3-5: Historical Water Loss



CMWD has historically maintained an annual water loss well within industry standards, which may in part be attributed to a much newer water system compared to other agencies. An important investment for CMWD is to continue with the installation of AMI meters in the City to allow for real time monitoring, further improving leak detection and the ability to track water purchased versus water used. More information on water loss, water audits and loss control (including SB 555) can be found in the link below:

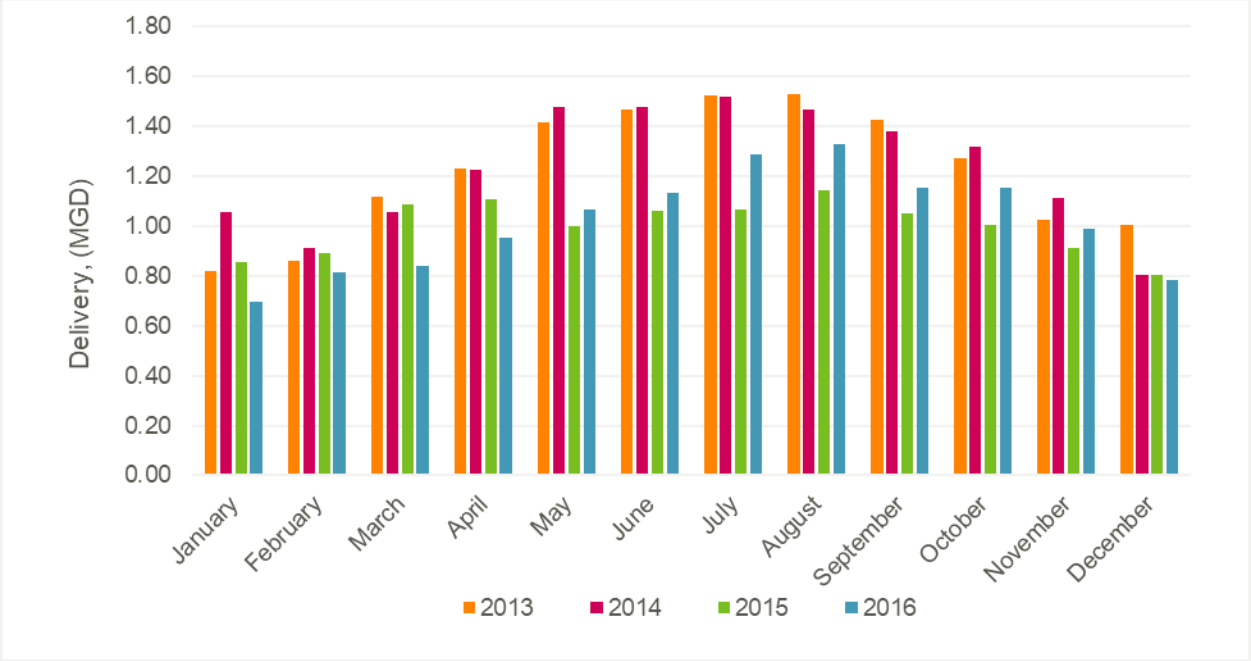
https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/water_loss_control.html

3.1.8 Seasonal and Daily Demand Variation and Peaking Factors

The demand for water fluctuates each month, and this variation is attributed to the seasonal variations in weather conditions. The amount of delivered water is lower in the winter months and increases in the summer months due to irrigation needs. Figure 3-6 displays the monthly potable water deliveries for 2013 through 2016.

Due to drought conditions throughout California, Executive Order B-29-15 was issued on January 17, 2014. This order mandated a statewide 25 percent reduction in potable urban water usage through February 28, 2016. An 18 percent reduction in average water use was observed between 2013 (14.7 mgd or 16,466 AFY) and 2015 (11.9 mgd or 13,329 AFY). Moreover, the summer months observed in 2015 and 2016 experienced below normal peak monthly demands due to the mandated restrictions compared to similar months in 2013 and 2014.

Figure 3-6: Variations in Seasonal Delivery (2013-2016)



3.1.8.1 Minimum and Maximum Day Demand

To estimate the minimum and maximum day demand, water supply records were reviewed from SDCWA for the four supply connections. Typically, CMWD orders water each morning at the four turn outs and monitors supply and demand throughout the day. If needed, CMWD may request a flow change to balance storage and meet demand. After reviewing the 2014 summer data (July through September), the maximum day supply is estimated at approximately 24.1 mgd, which is based on an average demand of 15.1 mgd, and an estimated maximum day peaking factor of 1.6. Winter baseline demand for 2014 was reviewed to determine the minimum day supply. The minimum day supply was estimated to be 9.1 mgd based on an assumed peaking factor of

0.60, which is typical for a low demand day. Table 3-7 summarizes a comparison of max and min day peaking factors,

Table 3-7: Maximum Day and Minimum Day Peaking Factors (2012 and 2014)

Min/Max PF	2012	2014	Comment
Max Day	1.65	1.6	2012: Table 5-2 Water Master Plan.
Min Day	0.5	0.6	—

3.1.8.2 Water Duty Factors

A water duty factor (WDF) is defined as the daily water use per some specified unit (e.g., acre, person, or dwelling unit) for a given land use type and is a common element of water system planning. WDFs were developed as part of the demand projections and have been used in several of CMWD's past planning studies.

The Water Conservation Act of 2009 (also known as Senate Bill X7-7) was signed into law in November 2009 as part of a comprehensive water legislation package. Senate Bill X7-7 sets a goal of achieving a 20 percent reduction in urban per capita water use statewide by 2020. Technical methodologies were developed by the California Department of Water Resources (DWR) to guide the consistent development by urban water suppliers of their baseline per capita water use and targets. CMWD selected Method 1 for establishing the 2020 per capita water use target of 207 gallons per capita per day (UWMP Section 5.2.1, 2016).

Since 2007, CMWD's per capita water use has been experiencing a decline partially due to increased retail water cost, increased use of water conservation measures by customers responding to drought conditions, some conversions to recycled water, and poor economic conditions. CMWD's per capita water use in 2015 (149 gallons per capita per day) was already below the 2020 target. This 2015 low water use may be temporary as a result of conservation efforts to meet state-mandated demand reductions in response to the current unprecedented drought. A partial rebound to prior per capita water-use levels may occur once the drought is over, although CMWD's water use has met or exceeded its Senate Bill X7-7 targets (CMWD 2015a). For this reason, 2014 demands were determined to be a more reasonable baseline for future projections.

The *Cost of Service Study* (CMWD 2016) drew similar conclusions:

> *Like* many agencies in California, the District experienced unprecedented *short-term conservation from its customers during 2015. In April of 2015 California Governor Jerry Brown mandated that urban water demand be reduced by 25 percent across the state, with each agency receiving a specific conservation target based on current consumption (residential gallons per capita). The District initially received a target of 28 percent, which then was reduced to 20 percent due to the water supply reliability in the San Diego County region. The District's customers have taken a number of steps to reach the 20 percent goal and indeed did achieve a 20 percent reduction in water usage in FYE 2016.*
>
> *A revision of the State's conservation order in June of 2016 allowed agencies to self-certify their available supplies and lower or remove their mandatory conservation standards. The District was able to set its mandatory conservation to zero. However, customers have continued to conserve due to ongoing messaging, behavioral changes, and demand hardening.*
>
> *This rapid, significant, conservation presents additional challenges to short-term demand planning. Under normal circumstances, past behavior can be a strong indicator of conservation and growth trends. Paradigm shifts such as this one diminish the feasibility*

> *of forecasting from those past trends. Many customers have substantially changed how they use water by adopting adjustments such as turf removal and low-flow fixtures. These changes are unlikely to be completely reversed.*
>
> *….Usage rebound assumptions are specific to each customer class because some customer classes have greater water demand variability. For this analysis FYE 2014 was used as the baseline year for customer data, in order to have a baseline proportioned close to normal year monthly demand patterns.*

The methodology used to update WDFs involves correlating historical parcel-level water consumption data with its designated land use type so that the actual water user per acre or per unit can be calculated. A preliminary list of the WDFs, based on the 2014 Baseline Year existing demands, is included in Table 3-8.

Table 3-8: Water Duty Factors for 2014 Baseline Year

Category	Quantity	Unit	Duty Factor Gallons per day (gpd)/unit Or gpd/acre
Single Family Residential	6,231	DU	400
Multi-Family Residential	1,068	DU	185
Commercial/Office	1,468	Acre	1,500
Industrial	1,330	Acre	400
Roads/ROW	3,795	Acre	0
Institutional	9,070	Acre	500
Park/Open Space	543	acre	2,000
Agriculture	568	Acre	500
Vacant	981	acre	0
Total	**25,055**	—	—

3.2 Projected Water Demands

An important element in master planning is the assessment of future water demands and supply requirements. Demand forecasting allows CMWD staff to:

- Understand spatial and temporal patterns of future water use
- Plan for future water purchases and supply planning
- Plan for system expansion/system revenue/expenditures
- Conduct infrastructure and capital planning
- Develop water/wastewater rates
- Optimize system operations

As part of this Master Plan, a water demand forecast tool was developed to assist with the water demand projection and provide CMWD a number of planning scenarios. The following section highlights the forecasting tool that was used to build the water demand projections.

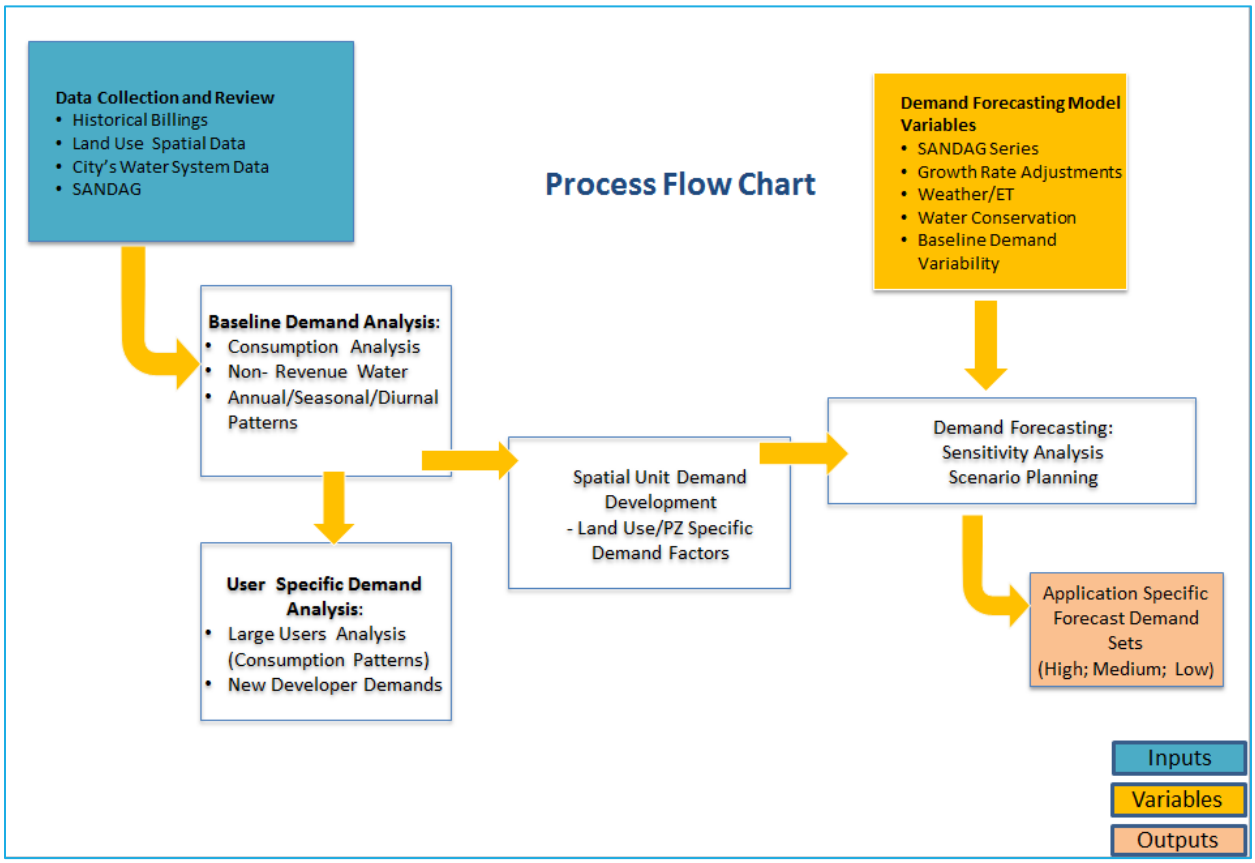
3.2.1 Demand Forecasting Process

The demand forecasting model developed for this Master Plan update is based on:

- Spatial correlation of water demands at the parcel/TAZ level
- Alignment with SANDAG Series 13 TAZ data, City's land use databases, General Plan, and other planning resources
- Integration with other platforms: hydraulic models/geographic information system
- User-friendly graphic and model interface dashboards
- Incorporation of potential water conservation savings into demand projections
- Bookend forecasting for low, medium, and high ranges
- Scenario-based forecasting
- What-ifs and sensitivity analysis

Figure 3-7 provides a general overview of the work flow used to develop the demand forecast.

Figure 3-7: Demand Forecasting Process



The Demand Forecast Model has the ability to evaluate the following key components.

- **Identify Historical Water Usage Trends**. The model uses historical water billing data to analyze past usage patterns for CMWD's customers. These usage trends can be analyzed for CMWD as a whole (to study the entire distribution system's annual water usage,

non- revenue water, etc.) or disaggregated by land use or pressure zones. The model also gives the user the ability to select a particular year or multiple years to analyze water usage based on these criteria.

- **Apply Demand Tool Variables.** Various user-defined variables can be applied to develop the future water demand projections for CMWD. These include SANDAG growth, water conservation, weather, baseline year demand variability, and growth rate adjustment.
- **Develop Demand Projections.** This module is used for developing future water demand projections for CMWD. Following analysis of the historical demand trends for CMWD and application of user selected variables to be incorporated, future demand projections are evaluated. The future projections are based on a bracketed approach and provide curves for high, medium, and low scenarios, as selected by the user. This bookend approach helps to compare various what-if scenarios to help plan for uncertainties in the future.

The dashboard for the analysis modules is shown on Figure 3-8.

Figure 3-8: Demand Forecasting Model Analysis Modules

3.2.1.1 Demand Forecast Datasets

The following datasets serve as the building blocks for the demand forecast model:

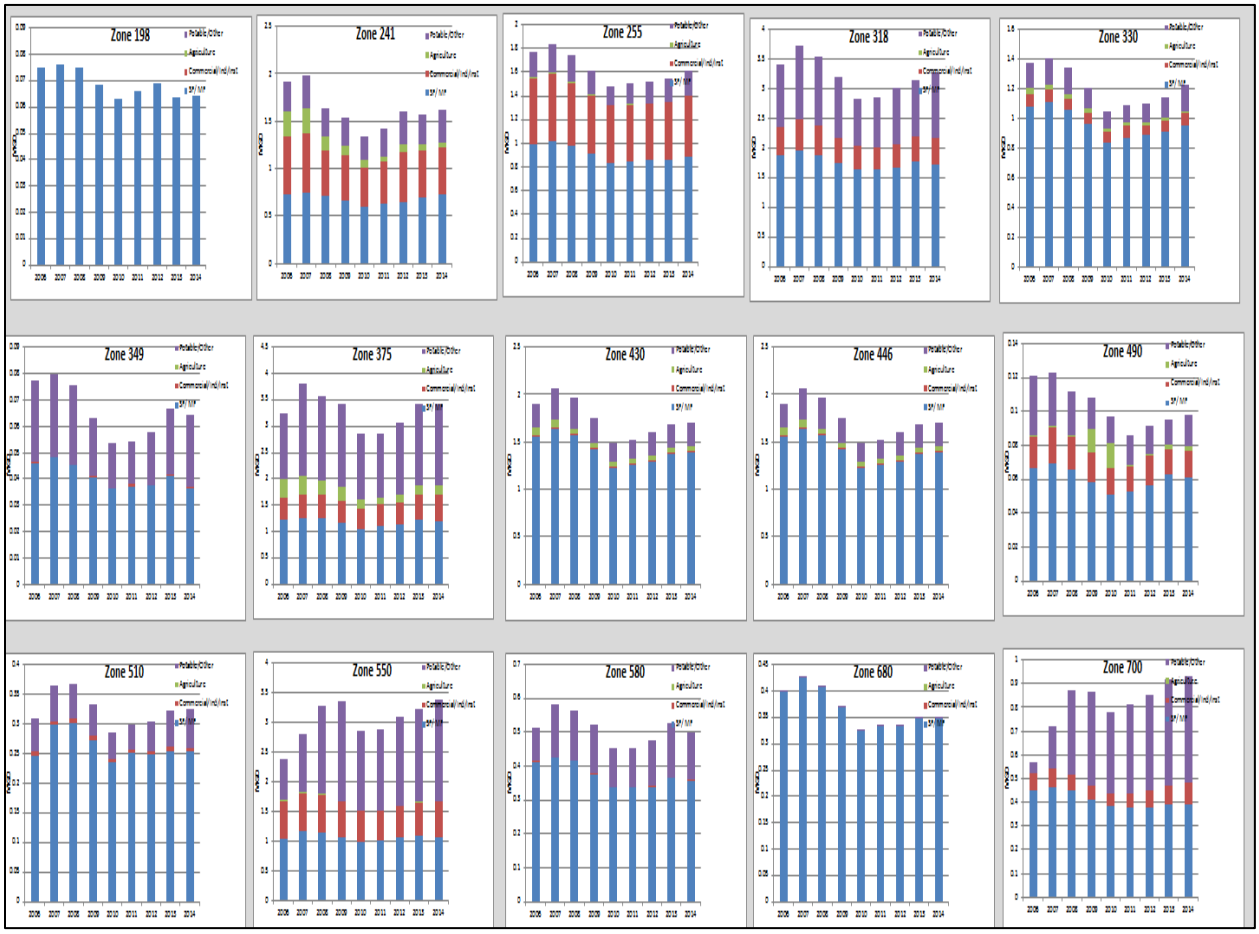
City's Growth Data

To accurately capture the population growth of the study area, SANDAG Series information was collected, including population, housing, and employment estimates, spatially allocated by CMWD's water system pressure zones. This spatial allocation by pressure zone allows for further disaggregation in the water hydraulic model to accurately simulate future demands in the Carlsbad system.

CMWD's Customer Billing Data

Customer accounts were geocoded to the geographic information system parcel data to provide a spatial location for each of the accounts. These accounts were further classified based on CMWD's pressure zones to develop water demand projections on a pressure zone level. Existing water demands by pressure zone for the baseline year were shown in Table 3-3. Figure 3-9 illustrates the Demand Forecasting Model's ability to disaggregate historical water use data by pressure zone.

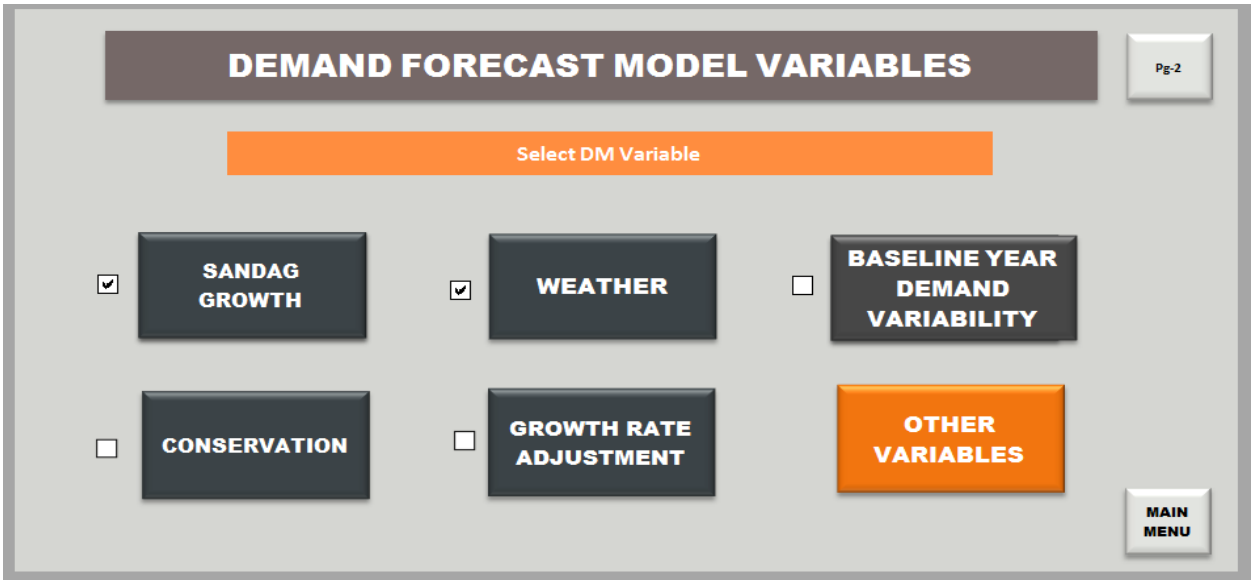
Figure 3-9: Demand Forecasting Model – Historical Water Use by Pressure Zone



3.2.1.2 Demand Forecast Datasets

Demand forecast models vary in complexity according to the number of variables and the extent to which water use information can be disaggregated by sector, location, season, or other factors. Models also vary according to the forecast horizon. The following variables were incorporated into the development of the Demand Forecasting Model so that "what if" scenarios could be assessed, as illustrated on Figure 3-10.

Figure 3-10: Demand Forecasting Model – Scenario Selection Dashboards



3.2.1.3 Future Projections Methodology

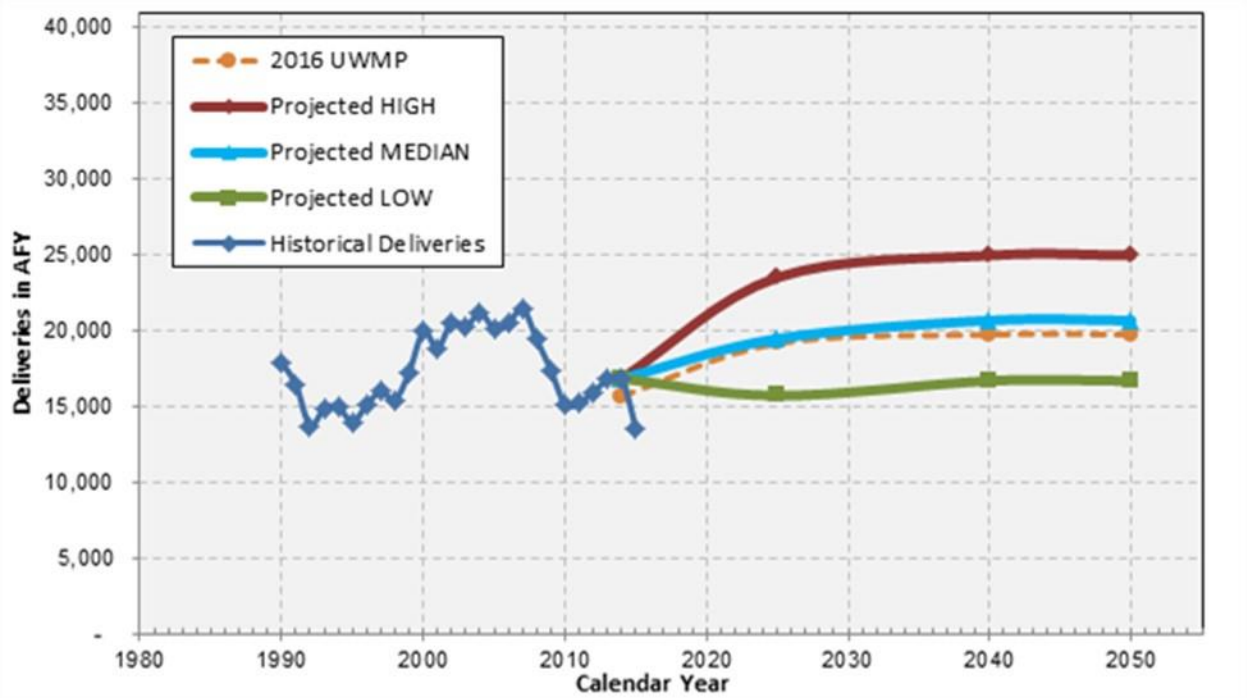
Based on discussions with City/CMWD staff from the planning, financial, and water conservation departments, it was determined that the water demand projections would use the baseline year of calendar year 2014 as the starting point, and the following adjustments would be made to determine a high, median, and low water demand projections:

- For SANDAG growth, the baseline demand projection reflects the blended SANDAG and U.S. Census growth projections used in the CMWD's UWMP.
- For the high and low projected scenarios, the growth rate adjustments include a residential growth increase of 5 percent for the high demand projection and a reduction of 15 percent residential growth in the low demand projection.
- For weather, an ET percentage increase of 2.9 percent for 2040 was used as a baseline factor for Carlsbad future projections. For water conservation, a factor of 0.5 was used for the high, median, and low scenarios for future forecasts.
- For the baseline year demand variability, the median projection curve assumes 2014 as the baseline year and applies an adjustment of zero. For the high projection curve, a demand variability of 15 percent has been applied. For the low projection curve, the baseline demand variability of -5 percent has been applied.

3.2.2 Projected Water Demands

Demand projection curves for Carlsbad, based on the variable values described in the section above, are shown on Figure 3-11. The median forecast aligns with CMWD's UWMP (CMWD 2015a) forecast, resulting in a projected potable demand of 20,700 AFY in 2040, compared to just under 20,000 for the UWMP. The projected high demand reaches 25,000 AFY in 2040 with a steeper growth curve. The projected low demand is essentially a flat growth curve, reaching only 17,000 AFY in 2040.

Figure 3-11: Future Demand Forecast



The median water demand forecast of 20,700 AFY or 18.5 mgd at build out will be used as the basis for the Master Plan and future capacity analysis of the water distribution system and supply system. This projection is lower than the forecast used in the 2012 *Water Master Plan* (CMWD 2012), but in-line with the projections used in the 2015 UWMP as shown in Table 3-9.

Table 3-9: Comparison of UWMP and 2012 and 2019 Potable Water Master Plans (AFY)

Document	(Existing) Baseline	2020	2030	2035	2040	2050
2012 MP	21,400	21,600	—	23,300	—	24,000
2015 UWMP	14,029	18,007	19,465	19,744	19,768	—
2019 MP	16,900	18,000	20,000	20,500	20,700	—

3.2.2.1 Future Water Demands by Pressure Zone

The future 2040 water demand was determined for each pressure zone utilizing the SANDAG data and the City's local facilities management zone data, and it was spatially allocated to the hydraulic water system model. The future demand per zone are used to estimate any new water supply and storage requirements in the water distribution system. The total increase in future demand is approximately 3.5 mgd or about 20 percent from 2014 to 2040 using the median forecast and baseline year demand to meet an estimated increase in population of close to 10,000 and planned commercial/industrial development. Table 3-10 summarizes the demand increase by each pressure zone due to the projected growth.

Table 3-10: 2040 Future Average Water Demands per Pressure Zone

Pressure Zone	2040 Average Daily Water Demand	
	Percent Increase (%)	Million Gallons per Day
198	2%	0.08
241	0%	1.54
255	7%	1.80
318	26%	3.63
330	2%	1.27
349	31%	0.39
375	9%	2.52
430	16%	0.32
446	0%	1.64
490	14%	0.26
510	69%	1.21
550	4%	2.02
580	10%	0.56
680	8%	0.46
700	14%	0.79
Total	—	**18.5**

3.3 Water Supply Evaluation

Water supply reliability and affordability are critical to providing water to the CMWD customers. This Water Master Plan update addresses recent drought conditions affecting local and imported water supplies and describes the improvements to local water supply facilities that benefit CMWD. This section documents the current existing supply capacity and potential shortage events and consequences, as well as potential mitigation measures to offset future deficiencies. This section expands on the existing water supply setting, overviewed in Section 2.1 and includes a review of the imported water supply picture.

3.3.1 Current Setting

CMWD adopted a Level 2 drought alert in September 2014 due to a statewide drought. Level 2 includes restrictions such as:

- Level 1 restriction against water wasting
- Limit residential and commercial landscape irrigation to assigned days of the week
- Limit turf irrigation to 10 minutes per station for each assigned day of the week
- Stop operation of ornamental fountains or decorative water features unless they utilize recycled water

Between 2016 and 2017, Northern California set a new rainfall record with more than 200 percent of normal as recorded at the eight-station index. As a result, the California State Water Project (SWP) allocation to its contractors was set at 85 percent. This has allowed CMWD and other San Diego and Southern California water agencies to rescind their Level 2 drought alerts and end the imposition of mandatory water use restrictions for their customers. Those restrictions were necessary to help the region manage water supply shortages that had arisen due to a combination of factors which continue in spite of the strong supply from 2016 to 2017, including:

- In Northern California, only 3 of the past 12 years had above normal runoff; in the upper Colorado River Watershed, 2017 was the first year of above-average runoff in the past 6 years, and there have only been 4 years of above-average runoff in the past 18 years.
- Federal court rulings that have led to restrictions on SWP pumping operations to protect endangered species in the Sacramento – San Joaquin Delta. While DWR has made excellent progress in planning the California WaterFix, with a second point of diversion and twin 40-foot-diameter tunnels 30 miles long. Furthermore, DWR has also obtained endangered species permits, critical to moving the project forward into preliminary design. While Metropolitan Water District of Southern California (MWD) recently approved its share of the project costs, approximately 26 percent, not all of the state and federal contractors approved the financing plan and in early 2019 the new Governor desires to explore a scaled-down version of the water supply project.

3.3.2 Imported Supplies

Currently, CMWD obtains 100 percent of its potable water supply from SDCWA, of which it is one of 24 member agencies. SDCWA obtains most of its water from MWD, via transfer from Imperial Irrigation District (IID), conserved water from the lining of the All-American and Coachella Canals, and desal. By 2035, SDCWA is planning to reduce its MWD supplies through increased IID transfers and the implementation of potable reuse projects by member agencies. MWD obtains its water from Northern California via the California SWP (California Aqueduct) and from the Colorado River via the Colorado River Aqueduct (CRA). Figure 3-12 illustrates the major water facilities in California.

3.3.2.1 Metropolitan Water District of Southern California

MWD was formed in 1928 to develop, store, and provide wholesale distribution of supplemental water in Southern California for domestic and municipal purposes. MWD is a consortium of 26 cities and water agencies, including SDCWA. It obtains supplies from the Colorado River via the CRA, which it owns and operates, and from Northern California via the SWP. MWD's mission statement is:

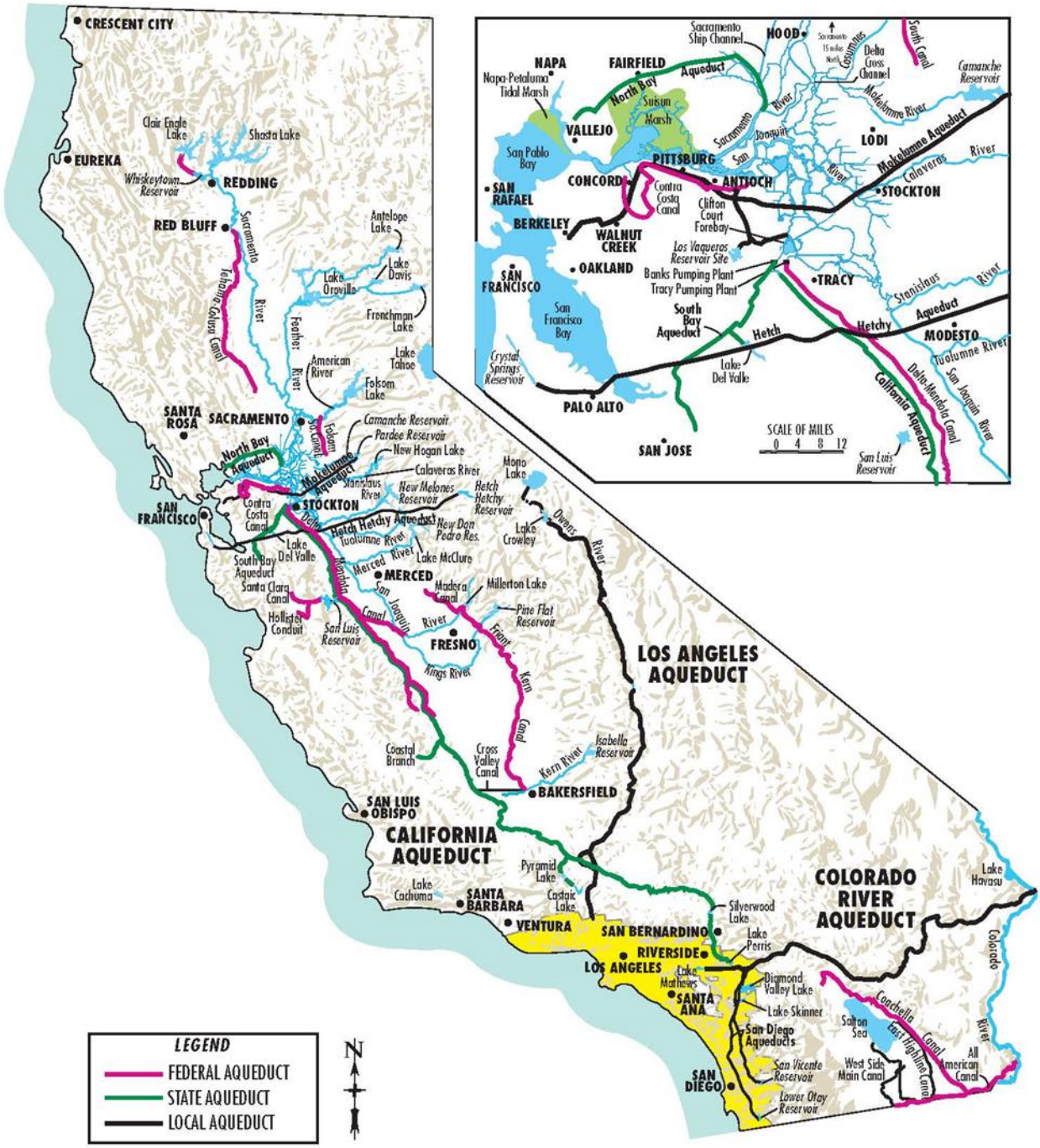
> *"To provide Metropolitan's service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way."*

MWD's plans for providing supply reliability to its member agencies are summarized in its *Integrated Water Resources Plan* (MWD 2015) and its UWMP (MWD 2016). MWD's supply reliability goal, as embodied in both these plans, is for Southern California to have as reliable a water system for tomorrow as the region has enjoyed for decades, regardless of the challenges that emerge along the way. MWD plans to meet this goal through an adaptive management strategy that is the cornerstone of the 2015 *Integrated Water Resources Plan* process.

MWD's 2015 UWMP concludes that it has supply capabilities that would be sufficient to meet expected demands from 2020 through 2040 under single dry-year and multiple dry-year hydrologic conditions, as well as average year hydrologic conditions. MWD also has comprehensive plans for stages of actions it would undertake to address up to a 50 percent reduction in its water supplies and a catastrophic interruption in water supplies through its water surplus and drought management and water supply allocation plans.

The *Integrated Water Resources Plan* and UWMP include a planning buffer to mitigate against planning uncertainties, such as the risk that planned local supply projects may not all be implemented as forecast, or that future demands will be higher than forecast. The planning buffer identifies an additional increment of water that could be developed if needed. The planning buffer is intended to ensure that the Southern California region, including SDCWA and its member agencies, will have adequate water supplies to meet future demands.

Figure 3-12: Major Water Conveyance Facilities in California



Source: Metropolitan Water District of Southern California (MWD) 2015.
http://www.mwdh2o.com/Who%20We%20Are%20%20Fact%20Sheets/6.4.2_Maps_Major_Water_Conveyance.pdf

MWD's projected balance of supplies and demands, including programs under development, are summarized in Table 3-11. The data in the table is extracted from MWD's 2016 UWMP.

Table 3-11: Metropolitan Water District of Southern California Supply Capability 1 and Potential Reserve or Replenishment for Average of 1922 to 2012 Hydrologies (in acre feet per year)

Forecast Year	2020	2025	2030	2035	2040
Current Programs					
In-region Storage and Programs	693,000	774,000	852,000	956,000	992,000
California Aqueduct[2]	1,555,000	1,576,000	1,606,000	1,632,000	1,632,000
Colorado River Aqueduct					
Total Supply Available[3]	1,468,000	1,488,000	1,484,000	1,471,000	1,460,000
Aqueduct Capacity Limit[4]	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000
CRA Capability	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000
Capability of Current Programs	**3,448,000**	**3,550,000**	**3,658,000**	**3,788,000**	**3,824,000**
Demands					
Total Demands on MWD	1,586,000	1,636,000	1,677,000	1,726,000	1,765,000
IID - SDCWA Transfers and Canal Linings	274,000	282,000	282,000	282,000	282,000
Total MWD Deliveries[5]	**1,860,000**	**1,918,000**	**1,959,000**	**2,008,000**	**2,047,000**
Surplus	**1,588,000**	**1,632,000**	**1,699,000**	**1,780,000**	**1,777,000**
Programs Under Development					
In-region Supplies and Programs	43,000	80,000	118,000	160,000	200,000
California Aqueduct					
CRA	20,000	20,000	268,000	268,000	268,000
Total Supply Available[3]	5,000	25,000	25,000	25,000	25,000
Aqueduct Capacity Limit[4]	0	0	0	0	0
CRA Capability	0	0	0	0	0
Capability of Proposed Programs	**63,000**	**100,000**	**386,000**	**428,000**	**468,000**
Potential Surplus	**1,651,000**	**1,732,000**	**2,085,000**	**2,208,000**	**2,245,000**

Source: MWD 2016

Notes:

[1] Represents supply capability for resource programs under listed year type.

[2] California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

[3] CRA includes programs, IID-SDCWA transfer, and exchange and canal linings conveyed by the aqueduct.

[4] Maximum CRA deliveries limited to 1.20 million AF including IID-SDCWA transfer and exchange and canal linings.

[5] Total demands are adjusted to include IID-SDCWA transfer and exchange and canal linings. These supplies are calculated as local supply but need to be shown for the purposes of CA capacity limit calculations without double counting.

CRA=Colorado River Aqueduct; IID=Imperial Irrigation District; MWD=Metropolitan Water District of Southern California; SDCWA=San Diego County Water Authority

3.3.2.2 San Diego County Water Authority

SDCWA is one of MWD's 26 member agencies and is its largest member agency in terms of purchases, having purchased approximately 10 to 15 percent of all the water MWD delivered in fiscal year 2017. SDCWA was formed in 1944 by the California legislature to provide a supplemental supply of water as the San Diego region's civilian and military populations expanded to meet wartime activity needs. Today, SDCWA has 24 member agencies and estimates it will supply approximately 75 percent of the water needs of its service area in 2020.

To reduce its dependency on MWD and diversify its supplies, SDCWA has undertaken several initiatives in recent years, including the following:

- **IID Transfer:** SDCWA signed a Water Conservation and Transfer Agreement with IID in 1998. Through the transfer agreement, SDCWA is purchasing water from IID at volumes that will gradually increase year-to-year, reaching 200,000 AFY in 2021. The water is physically delivered to San Diego via MWD's Colorado River Aqueduct (CRA).
- **All-American and Coachella Canal Lining Conserved Water:** In 2003, as part of the execution of the Quantification Settlement Agreement on the Colorado River, SDCWA was assigned rights to 77,700 AFY of conserved water from projects to line the All-American and Coachella Canals. These projects are now complete, and SDCWA is receiving this water. As with the IID transfer water, the water is physically delivered to San Diego via MWD's CRA.
- **Seawater Desalination:** SDCWA signed a 30-year water purchase agreement to purchase all of the water produced by the Carlsbad Claude "Bud" Lewis Carlsbad Desalination Plant (Carlsbad Desalination Project). The plant started operation in December 2015 and has a capacity of 48,000 AFY (43 mgd), with an option for an additional 8,000 AFY. SDCWA has studied a possible project at Camp Pendleton sized between 50 and 150 mgd, however, as of 2019 is no longer planning to include the project as part of its long range plan.
- **Water Transfer and Banking Programs:** In addition to the above, SDCWA has entered into water transfer and water banking arrangements with Central Valley area agricultural agencies and groundwater storage ventures. These projects are designed to make additional water available to the SDCWA during dry-year supply shortages from MWD.

SDCWA's supply planning is most recently documented in its 2015 UWMP issued in June 2016; Table 3-12 summarizes the SDCWA's verifiable water supplies for future years, as documented in the SDCWA's Urban Water Master Plan. Additional planned supplies include regional water supply projects being palnned by member agencies.

Table 3-12. Supply Scenario with Additional Planned Projects for San Diego County Water Authority Service Area – Normal Year Conditions (in acre-feet per year)

	2020	2025	2030	2035	2040
SDCWA Supplies					
IID Water Transfer	190,000	200,000	200,000	200,000	200,000
All-American Canal and Coachella Canal Lining Projects	80,200	80,200	80,200	80,200	80,200
Regional Seawater Desalination	50,000	50,000	50,000	50,000	50,000
Sub-Total	320,200	330,200	330,200	330,200	330,200
SDCWA Additional Planned (Desal)	0	5,600	5,600	61,600	61,600
SDCWA Total	**320,200**	**335,800**	**335,800**	**391,800**	**391,800**
Member Agency Supplies					
Verifiable Total	131,379	136,084	139,108	139,368	140,008
Additional Planned					
Surface Water	0	0	0	0	0
Water Recycling	2,840	9,926	10,926	10,926	10,926
Seawater Desalination	0	15,100	15,600	16,100	16,800
Potable Reuse	4,470	29,086	46,686	106,099	106,099
Groundwater Recovery	0	0	0	0	0
Groundwater	3,100	3,100	3,600	3,600	3,600
Member Agency Total	**141,789**	**193,296**	**215,920**	**276,093**	**277,433**
Total Projected Local Supplies	461,989	529,096	551,720	667,893	669,233
MWD Supplies	125,592	119,028	125,001	26,538	49,540
Total Supplies	587,581	648,124	676,721	694,431	718,773
Total Demands with Water Efficiency Savings	587,581	648,124	676,721	694,431	718,773

Source: SDCWA 2016. Normal water year demands based on 1960 – 2008 hydrology.

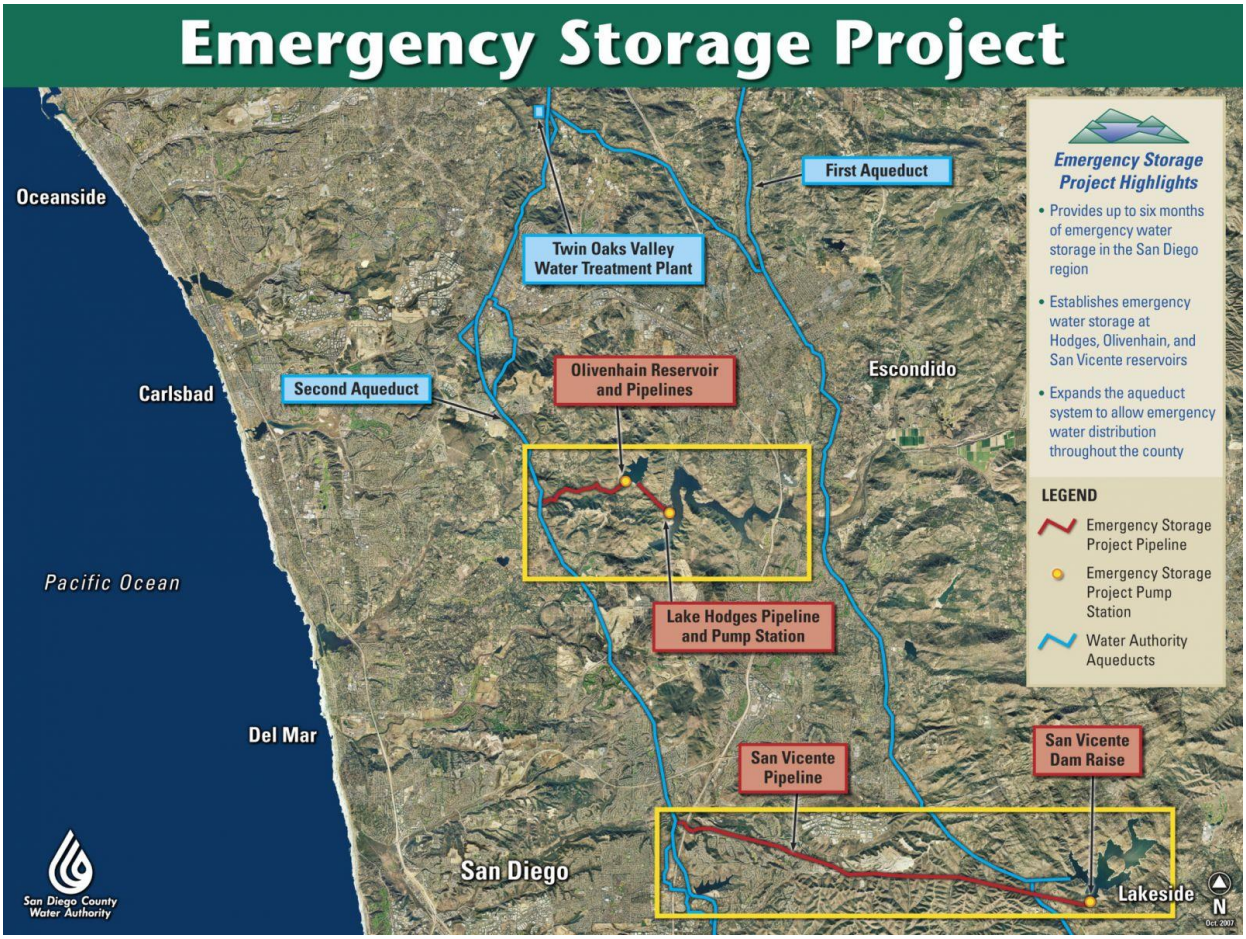
Notes:
IID=Imperial Irrigation District; SDCWA=San Diego County Water Authority

As with the MWD supply projections, SDCWA's goal of providing supply reliability to its member agencies has been challenged by the current drought conditions and pumping restrictions on the SWP. In response to these challenges, SDCWA is continuing to pursue efforts and programs to obtain new water supplies via water transfers and other means and provide financial support to retail agencies for the development of conservation programs and of local water supplies, such as recycled water and brackish groundwater demineralization projects. This strategy recognizes that regional water supply reliability is dependent in part on the collective efforts of SDCWA's member agencies to identify and implement beneficial local supply projects in its service areas, where feasible.

3.3.2.3 San Diego County Water Authority Delivery System/Emergency Storage Project/ Carry-over Storage

SDCWA delivers treated and raw water into San Diego County through five large diameter pipelines, located in two principal corridors known as the First and Second San Diego Aqueducts. The system has evolved over time to serve the growing needs of the service area. The aqueduct pipelines connect to treated and raw water feeds from MWD facilities at Lake Skinner in southern Riverside County. The SDCWA aqueduct system and Emergency Storage Project (ESP) facilities are illustrated on Figure 3-13.

Figure 3-13: San Diego County Water Authority Emergency Storage Project



Source: https://www.sdcwa.org/sites/default/files/images/projects-facilities-ops/esp/esp-county-map-2.jpg.

Recognizing the potential for a large earthquake or other emergency condition to cause a sustained pipelines outage, SDCWA began planning for its ESP in the early 1990s to safeguard against this risk. The major objective of the ESP is to develop an adequate emergency storage and delivery system to provide 75 percent of 2-month peak water demand for all water users in SDCWA's service area. This is referred to as the "2-month" emergency event and has formed the basis for identification and design of ESP facilities. These facilities include the following:

- Olivenhain Reservoir, Pump Station, and Pipeline
- Lake Hodges Connection (Olivenhain – Hodges Pumped Storage Project)
- San Vicente – Miramar Pipeline

- San Vicente Pump Station
- San Vicente Dam Raise Project

During a 2-month emergency event, the ESP facilities will deliver water stored in Olivenhain, Hodges, and San Vicente Reservoirs to the SDCWA aqueduct system for delivery to member agency connections throughout the SDCWA service area.

SDCWA completed the construction of the San Vicente Dam Raise Project in 2016, which increased the dam height from 220 to 337 feet and added 157,000 AF of emergency and carry (dry-year) storage.

3.3.2.4 Carlsbad Connections to San Diego County Water Authority Aqueducts

As described in Section 2.1.1, CMWD receives water from SDCWA through four existing connections (turnouts to the SDCWA aqueduct system. CMWD has one planned new treated water connection to the desalinated water pipeline which is under design by the SDCWA. Table 3-13 lists the location, capacity, and the average annual delivery to CMWD for each connection and the planned new connection.

Certain aspects of CMWD's aqueduct connections deserve note:

- **Surplus Capacity/Operational Flexibility:** As shown in Table 3-13, CMWD has connection capacity to the SDCWA aqueduct system that significantly exceeds its average annual demands. This surplus capacity provides operational flexibility to accommodate peaking and to allow for one or more of the connections to be off-line.
- **Connections to Second Aqueduct Only:** CMWD's four connections are supplied by the Second Aqueduct system of pipelines, inclusive of the Tri-Agencies Pipeline, which is fed from the Second Aqueduct. During shutdowns of the Second Aqueduct, CMWD has no ability to receive supply from the First Aqueduct and is instead reliant on its own treated water storage, principally in Maerkle Reservoir, the Carlsbad Desalination Project, and on interconnections with its member agencies.

3.3.2.5 Carlsbad Connections San Diego County Water Authority Desalinated Water Conveyance Facilities

Carlsbad Connection Number 5, or Flow Control Facility No. 5, is currently being designed, and construction is expected to be completed in 2021. Its rated capacity is 10.2 cubic feet per second (cfs) (6.6 mgd) and in normal years will deliver 2,500 AFY. This supply is described in Section 3.3.4.

Table 3-13: San Diego County Water Authority Connections

Connection No.	Location	Source	Rated Capacity[1]		Projected Ultimate Delivery[2]		CMWD Supply Zone
			cfs	mgd	Average mgd	Maximum mgd	
2	Alga Road west of Paseo Abrazo	2nd Aqueduct via Vallecitos Water District	15	10	2.8	4.5	700S
3	Shadowridge Drive at Willow Ridge Drive	Tri-Agency Pipeline via 2nd Aqueduct	20	13	5.0	8.0	490

Table 3-13: San Diego County Water Authority Connections

Connection No.	Location	Source	Rated Capacity[1]		Projected Ultimate Delivery[2]		CMWD Supply Zone
			cfs	mgd	Average mgd	Maximum mgd	
4	Cannon Road west of Wisteria Drive	Tri-Agency Pipeline via 2nd Aqueduct	15	10	4.6	7.4	580
5	5950 El Camino Real, CMWD yard off of Orion Street, south of Faraday Avenue	Carlsbad Seawater Desalination Project	10.2 Max.	6.6	2.2	3.5	550
6	San Marcos Boulevard at Rancho Santa Fe Road	2nd Aqueduct	30	19.5	5.6	9.0	700N
		TOTAL	**80.2**	**53**	**22.3**	**32.4**	—

Source: Data provided by CMWD Operations 2017

Notes:
[1] For Connection Nos. 3, 4, and 6 the rated capacity is the capacity of the SDCWA flow meter in cfs. For connection No. 2 the rated capacity is the contracted capacity from Vallecitos Water District.

[2] Based on existing maximum day delivery rates, scaled up in proportion to the increase in the ADD projected at buildout

3.3.3 Recycled Water

Recycled water is supplied to CMWD from three sources: Carlsbad Water Reclamation Facility owned by CMWD, Meadowlark Water Recycling Facility owned by Vallecitos, and Gafner Water Recycling Facility owned by Leucadia. Recycled water is distributed through a separate recycled water distribution system to developed areas within the CMWD service area. Recycled water is currently supplied to over 700 recycled accounts to irrigate golf courses, parks, resorts, median strips, institutional customers, common area landscaping in residential and commercial developments, and other landscaped areas. In 2014, 4,645 AF (4.1 mgd) of recycled water was delivered, which represents approximately 21 per percent of the total water use in CMWD's service area. This is an increase of approximately 30 percent over the recycled water use in 2010. Recycled water demands are billed from separate account types and are not included in potable water billing summary presented in this master plan.

Recycled water deliveries are projected to increase 20 to 30 percent by 2040 and may include customers outside of CMWD limit. Interestingly, CMWD experienced a reduction in recycled water demand as a result of the drought and potable water use restrictions. Recycled water use will increase as the distribution system is expanded into the remaining future development areas and from conversion of existing potable water customers to the recycled water system.

In the 2017 Water Master Plan, no reductions were made in the potable water demands to account for future conversions to the recycled water system. This is a conservative assumption and is consistent with the previous CMWD water master plans. A companion 2017 Recycled Water Master Plan has been prepared for CMWD.

3.3.4 Seawater Desalination

Recognizing the importance of securing a sustainable future water supply that is locally controlled, City and CMWD officials took a leadership position with Poseidon Resources Corporation to develop a desalination project in Carlsbad more than 10 years ago. On September 28, 2004, CMWD entered into a Water Purchase Agreement with Poseidon Resources Corporation that would have allowed CMWD to satisfy up to 100 percent of its potable water needs by receiving water from a seawater desalination plant to be constructed on the NRG Power Station property, which is owned by Cabrillo Power I, LLC. When the project encountered financing difficulties, SDCWA agreed to purchase 100 percent of the desalinated water directly from Poseidon Resources Corporation.

On April 12, 2016, the CMWD Board of Directors approved an agreement between SDCWA and CMWD to purchase 2,500 afy of desalinated water designated as local supply for CMWD. The Board also authorized an agreement with SDCWA for the planning and design of the direct connection to the desalinated water conveyance facilities. CMWD expects to return to the Board in 2019-2020 to request authorization to proceed with construction of the FCF 5. If authorized, Carlsbad 5 Flow Control Facility and Pressure Reducing Station will provide approximately 2,500 AFY of local desalinated seawater to CMWD through a take or pay agreement. This direct connection improves water supply reliability and adds infrastructure redundancy by providing a delivery system independent of the SDCWA's Second Aqueduct system. Should a supply disruption occur on the Second Aqueduct system, CMWD would be able to receive desalinated seawater.

Through its general purchase of water supplies from SDCWA, CMWD also receives a pro rata share of 1,449 AFY of desalinated seawater. This supply, along with the 2,500 AFY discussed above, is considered a local supply for CMWD. In the event that additional water is produced from the Carlsbad Desalination Plant, beyond SDCWA's annual commitment of 48,000 AFY, CMWD may purchase an additional volume of desalinated seawater equal to 5.21 percent of the annual production.

3.3.5 Groundwater

CMWD does not currently use any local surface water or groundwater supplies, although in the past both types of water sources have been used. Prior to 1957, the Carlsbad Mutual Water Company supplied local surface water from Lake Calavera and groundwater from the Mission Basin of the San Luis Rey River to CMWD. In addition, the Terramar Water Company developed wells to provide local groundwater from the Agua Hedionda Subunit 4.30 of the Carlsbad Hydrologic Unit to a portion of CMWD. In August 1957, the water rights and other assets of the Carlsbad Mutual Water Company and Terramar Water Company were purchased by CMWD. In May 1983, through an agreement, these local surface water and groundwater rights were transferred to CMWD by CMWD. This included rights to Mission Basin of the San Luis Rey River Valley of 200 miner's inches (approximately 3,650 AFY) of groundwater, prescriptive rights of 5 cfs (up to 2,382 AF) of groundwater, and/or pre-1914 appropriative rights.

The Carlsbad Mutual Water Company held a permit with the State Division of Water Rights for another 1,000 AFY. The original permit was for irrigation purposes and was later changed to recreational and fire protection purposes. Additionally, there were surface water rights for 150 AFY, which were held from Calavera Creek. The Terramar Water Company had rights to 450 AFY of groundwater from the Agua Hedionda Creek Basin. Finally, CMWD obtained a permit for surface water in the amount of 25 AFY from Agua Hedionda Creek as a result of constructing Maerkle Dam in 1962.

Table 3-14 identifies the groundwater basins in the CMWD vicinity, according to DWR Bulletin 118 (DWR 2003). The Batiquitos Lagoon Valley Groundwater Basin is the only basin located in CMWD's service area. The San Luis Rey River Valley Groundwater Basin is located north of CMWD, and the San Marcos Valley Groundwater Basin is located east of CMWD. Of these groundwater basins, the San Luis Rey Basin has been designated as a Medium Priority Basin under California Groundwater Elevation Monitoring, while both Batiquitos Lagoon Valley and San Marcos Valley Groundwater Basins are designated as Very Low Priority. The state requires High and Medium priority basins to be monitored, while Low and Very Low priority basins are not considered basins of concern; as such, of the basins in the vicinity of CMWD's service area, only monitoring of the San Luis Rey River Groundwater Basin is mandated. This monitoring is being undertaken through a coordinated effort between CMWD, City of Oceanside and the County of San Diego. None of the basins listed in Table 3-14 are adjudicated, nor has DWR identified any of these groundwater basins as being in overdraft. Within the San Luis Rey River Valley Groundwater Basin are several locally-recognized subbasins, which are commonly considered separate hydrological units: Mission, Bonsall, Moosa, Pala, and Pauma (SDCWA 2010).

Table 3-14: Carlsbad Municipal Water District Area Groundwater Basins

Basin Name	DWR Basin Number	Basin Priority[1]	Located within CMWD Service Area	Supply Currently Utilized by CMWD (AFY)	Groundwater Management Plan Status
San Luis Rey Valley (including the Mission Basin)	9-7	Medium	No	0	Groundwater sustainability plans under development by California Groundwater Elevation Monitoring entities (Oceanside, County of San Diego)
Batiquitos Lagoon Valley	9-22	Very Low	Yes	0	None[2]
San Marcos Valley	9-32	Very Low	No	0	None[2]

Notes:
[1] California Sustainable Groundwater Elevation Monitoring designated priority.

[2] Basin is not currently used as supply and no groundwater management plan has been developed or adopted by CMWD. Groundwater management plans or groundwater sustainability plans would be adopted prior to the use of these groundwater basins for supply, as required.

Other potential sources of groundwater could be subsurface flows from local hydrologic areas within the Carlsbad Watershed, including Buena Vista Creek Basin, Agua Hedionda Creek Basin, Encinas Creek Basin, and the Batiquitos Hydrologic Subarea. These resources have low potential yields, poor quality, or no available data to substantiate their long-term use in the public water supply. Generally, these basins do not have geological characteristics or size comparable to Mission Basin of the San Luis Rey River Valley Groundwater Basin. Collectively, these groundwater basins could supply only a small portion of CMWD's needs.

The Agua Hedionda subunit (Calavera Well Field) has a potential available yield of 400 AFY (0.36 mgd). Historical well production records by the City reported the following:

- 1958 to 1959 = 123 AFY
- 1959 to 1960 = 128 AFY
- 1960 to 1961 = 238 AFY
- 1961 to 1962 = 16 AFY

3.3.5.1 Mission Basin

Of the groundwater basins available to CMWD, the Mission Basin of the San Luis Rey River Valley Groundwater Basin has the most potential for a viable water resource. This basin has a large drainage area of 565 square miles, consisting of alluvium and river channel deposits averaging 150 feet deep. The quality is mildly brackish with total dissolved solids concentrations ranging from 1,000 to 1,500 milligrams per liter. For CMWD's use, the water would need to be treated by a low-pressure membrane, reverse osmosis process to achieve treated water quality in the range of 500 milligrams per liter. The City of Oceanside is currently desalinating brackish groundwater at its Mission Basin Groundwater Purification Facility.

In 2005, CMWD completed a study on the cost effectiveness of utilizing the groundwater from the Mission Basin (CMWD 2005). It showed that while the treatment and delivery of groundwater was feasible, it was not cost effective for CMWD at the time of the study. As a result, CMWD's Board of Directors approved the staff recommendation to discontinue efforts to utilize this groundwater source as an alternate local supply. Since 2005, improvements in technology may have resulted in lower costs for removing total dissolved solids, and these costs may continue to decrease over time. In addition, the cost of imported water has increased significantly since 2005, and this trend is projected to continue over time by MWD and SDCWA.

With the increasing cost and decreasing reliability of imported water, the cost effectiveness of using local groundwater has once again become attractive. A groundwater supply from the Mission Basin would require the construction of several wells, a groundwater desalination facility, and a conveyance system. A partnership with City of Oceanside for treatment of brackish groundwater or wheeling the treated groundwater through its distribution system may be an option. However, with the city's potential new direct connection to Carlsbad and Desalinated Water, the cost benefit for another incremental increase in local water supply is high. Therefore, the Mission Basin project is not included in the 2019 Water Master Plan, but could be explored again in future updates.

3.3.5.2 Cannon Well Field

The Cannon Well Field, located within the Agua Hedionda Creek Basin subarea of the Carlsbad Watershed, was historically used as a local water source. Pumping ceased after 1962, but in the years leading up to 1962, production ranged from 16 to 238 AFY. This well field has a potential yield of 450 AFY. Historically, additional small private wells for individual residences were also located within this subarea, along with private wells in the Buena Vista Creek Basin.

A 1991 study titled *Report on the Feasibility for Development of the Cannon Well Field Carlsbad, California* was completed for the Agua Hedionda subunit where the Cannon Well Field is located. This study indicated that by a 1950 agreement between then-land owner Ellen Hall and J.D. Cannon, the Terramar Water Company was granted the right to drill for and remove water from the land. In 1964, the original agreement was merged with an agreement with the City and the then-landowner to have the sole right and exclusive right to drill wells on the property and take and remove all water developed on the property and deliver it to such places as the City, in its sole discretion, may determine. CMWD shall be entitled to produce from the property an additional 16.5 AFY; however, there are no recorded groundwater rights. The safe yield was estimated in the 1991 study at 400 AFY (0.36 mgd), and CMWD could begin the process of developing the groundwater.

The Rancho Carlsbad Mobile Home Park has one operating well in the vicinity, estimated at 100 AFY, which it uses to supply water for landscaping irrigation and, through a separate agreement, supply water to the adjacent Rancho Carlsbad Golf Course. Ultimately, if there is excessive pumping, there may be adverse effects, such as the elimination of surface flow in Agua Hedionda Creek, reduction in the wetland area downstream of the El Camino Real Bridge, and increased salinity in the transition zone of fresh water to salt water in the Agua Hedionda Lagoon. These issues can be addressed, if the Cannon Well Field is developed by CMWD, through a program of scheduled observations and a monitoring program. For this reason, the Master Plan includes program costs to explore and potentially develop a smaller local water supply in the Cannon Well Field.

3.3.6 Supply Reliability – Carlsbad Water Shortage Events and Consequences

An assessment of CMWD's supply reliability begins with consideration of event types that could result in water supply shortages. Possible shortage events facing CMWD include the following:

1. **Drought and other prolonged reductions of imported water supplies:** Imported water supply shortages, whether caused by drought or other factors, may result in reduced deliveries to CMWD under the terms of SDCWA's Water Shortage Contingency Plan (SDCWA 2017).
2. **ESP Event:** An ESP event is an emergency outage of the San Diego aqueduct pipelines, which could be caused by a major earthquake on the Elsinore Fault. SDCWA's ESP facilities are designed to provide a minimum 75 percent retail service capability for the estimated 2-month period required for repair of the aqueducts. SDCWA recently completed the San Vicente Dam Raise Project, which added 157,000 AF of emergency and carryover (dry-year) storage.

3. **Treated Water Aqueduct Shutdown of Second Aqueduct:** CMWD's treated water connections to the SDCWA aqueduct system are supplied directly or indirectly by the Second Aqueduct, which is supplied by SDCWA's Twin Oaks Water Treatment Plant (WTP) and the Carlsbad Desalination Project. The Twin Oaks WTP has a capacity of 100 mgd, and the Carlsbad Desalination Project has a capacity of 43 to 50 mgd. This combined treatment capacity exceeds the demand projections for the Second Aqueduct south of Twin Oaks. CMWD's connections are located south of the Twin Oaks Diversion Structure and the connection between the Carlsbad Desalinated Water Conveyance Facility connection to Pipeline 3.

   The Carlsbad Desalination Project utilizes Pipeline 3 from San Marcos to Twin Oaks to convey desalinated seawater north to the Twin Oaks WTP clear well. In this reach between San Marcos and Twin Oaks WTP, there is now just one treated water pipeline, Pipeline 4. If SDCWA needed to perform maintenance on Pipeline 4, CMWD's Second Aqueduct supply would likely be shut off for up to 10 days. It might be possible for SDCWA to utilize Pipeline 3 during a Pipeline 4 shutdown, if it were coordinated with a shutdown of the Carlsbad Desalination Project.

   Both the Twin Oaks WTP and the Carlsbad Desalination Project deliver treated water to the clear well for delivery back to Twin Oaks Diversion Structure and, hence, into the treated water aqueduct pipelines south of Diversion Structure. Pipeline 4 north of Twin Oaks can also deliver treated water to the Twin Oaks Diversion Structure. If Pipeline 4 north of the Twin Oaks Diversion Structure is drained for inspection or maintenance, neither plant can deliver back to the Twin Oaks Diversion Structure without flooding Pipeline 4 to the north, and therefore cannot operate during this situation. It may be possible to convey desalinated seawater directly south in Pipeline 3 during the Pipeline 4 shutdown condition, but this is not a defined SDCWA operating plan.

   Between 2007 and 2008, SDCWA considered installing an isolation valve in Pipeline 4 north of the plant and the VAL 10 connection to allow the treatment plants to operate during a Pipeline 4 shutdown. In late 2008, however, SDCWA decided to delay the isolation valve project while it reconsidered its policies and procedures for in-line valves in the aqueduct system. Currently, the Pipeline 4 Isolation Valve Project is not listed in SDCWA's capital improvement program. SDCWA's ongoing Water Master Plan effort is evaluating project options and may include an isolation valve in its recommended capital improvement program list.

   Should SDCWA proceed with the project, CMWD would have the reliability benefit of being able to receive deliveries of treated water from SDCWA during a Pipeline 4 shutdown to all but its VAL 8 connection, thereby greatly reducing the consequences of a Pipeline 4 (north of Twin Oaks WTP) shutdown event. Because of the important benefit the Pipeline 4 isolation valve would provide, it is recommended CMWD encourage SDCWA to advance the project.

4. **Raw Water Aqueduct Shutdown:** A planned shutdown of either or both of the raw water pipelines north of the Twin Oaks Diversion Structure has little to no effect because CMWD purchases only treated water.

Table 3-15 summarizes the types of water shortage events that could affect CMWD, the assets available to CMWD to address the shortage event, and the consequences of each event to CMWD with existing assets.

3.3.6.1 Supply Reliability Summary

The information in Table 3-15 suggests that CMWD is well positioned to respond to and manage interruptions and shortages of imported water supplies. Over the past decade, SDCWA, on behalf of CMWD and the other SDCWA member agencies, has made significant investments in regional supply reliability through the ESP, the Twin Oaks WTP, the Aqueduct Protection Program, the Carlsbad Seawater Desalination Project, the Carry-Over Storage Project, and other projects, which benefit CMWD. CMWD also benefits from its interconnections with its neighboring agencies, especially the Olivenhain Metropolitan Water District (OMWD) with its access to raw water storage and treatment at the Olivenhain Reservoir and WTP, as well as the City of Oceanside with its Weese WTP coupled with access to Second Aqueduct raw water supplies.

CMWD also benefits considerably from its treated water storage resources, in particular Maerkle Reservoir. These resources provide CMWD the capability to sustain water deliveries to its customers for 10 days to several weeks, depending on demand conditions and initial reservoir levels. The supply reliability benefits provided by CMWD's treated water storage are considerable and warrant commensurate investments to maintain the integrity, water quality, operability, and availability of these resources.

Table 3-15. Summary of Potential Shortage Events and Consequences

Event	Frequency	Duration	Existing Response Assets	Consequence
1. Drought (or other prolonged reduction in imported water supplies)	Unknown (imported delivery reliability is dependent on state, MWD, and SDCWA actions)	1 year and longer	a) State, MWD, and SDCWA response capabilities b) Carlsbad Seawater Desalination Plant c) CMWD drought response ordinance and rate structure d) SDCWA Carry-Over Storage Project	**Significant** (cutbacks to CMWD customers)

Table 3-15. Summary of Potential Shortage Events and Consequences

Event	Frequency	Duration	Existing Response Assets	Consequence
2. ESP Event (earthquake-induced or other failure of the San Diego Aqueduct pipelines)	Low (on the order of one event per 100 years)	2 months (per ESP design criteria, based on aqueduct repair time estimates)	a) SDCWA ESP facilities and Carlsbad Desalination Project b) CMWD Treated Water Storage, including Maerkle Reservoir c) CMWD interties with OMWD, Vallecitos MWD, and the City of Oceanside d) CMWD Water Shortage Contingency Plan	**Moderate to Significant** (no SDCWA deliveries for 5 to 7 days; thereafter deliveries at minimum 75 percent level of service)
3. Treated Water Shutdown of Second Aqueduct (planned event)	Biannually (approximately)	10 days (Dec. – March window)	a) CMWD Treated Water Storage, including Maerkle Reservoir b) CMWD interties with OMWD, Vallecitos MWD, and the City of Oceanside c) SDCWA raw water pipelines and Twin Oaks WTP[1] d) Carlsbad Desalination Project	**Minor[1] to Moderate** (possible drawdown of CMWD storage to below preferred levels)

Table 3-15. Summary of Potential Shortage Events and Consequences

Event	Frequency	Duration	Existing Response Assets	Consequence
4. Treated Water Shutdown of Both Aqueducts (planned event)	Rare – Assume one per 5 years	10 days (Dec. – March window)	a) CMWD Treated Water Storage, including Maerkle reservoir b) Carlsbad Seawater Desalination Plant c) CMWD interties w/ OMWD, Vallecitos MWD, and the City of Oceanside d) SDCWA raw water pipelines and Twin Oaks WTP[1]	**Minor[1] to Moderate** (possible drawdown of CMWD storage to below preferred levels)
5. Shutdown of Carlsbad Desalinated Water Conveyance Facilities	Low, for desalination plant or conveyance facility maintenance	10 days (Dec. – March window)	a) Second Aqueduct System	**None**

Notes:
[1] The consequence to CMWD of a treated water aqueduct shutdown depends significantly on the ability of the SDCWA's Twin Oaks WTP to operate during the shutdown. With current facilities, the plant can be operated during a Pipeline 4 shutdown from MWD only if the pipeline north of Twin Oaks is not drained for maintenance or inspection. If Pipeline 4 is drained, the Twin Oaks WTP cannot operate, and the consequence of the shutdown is increased. This consequence would be alleviated if SDCWA implements its previously planned project to install an isolation valve in Pipeline 4 north of the plant. The isolation valve would allow for full plant operations during any type of Pipeline 4 shutdown north of the plant. SDCWA's ongoing Water Master Plan effort is evaluating project options and may include an isolation valve in its recommended capital improvement program list.

CMWD=Carlsbad Municipal Water District; ESP=Emergency Storage Project; MWD=Metropolitan Water District of Southern California; OMWD=Olivenhain Metropolitan Water District; SDCWA=San Diego County Water Authority; WTP=Water Treatment Plant

3.3.7 Future Water Supply

The future supply requirements for the City of Carlsbad will be a function of the projected demand in 2040. Figure 3-11 shows an average annual demand of 20,700 AFY or 18.5 mgd. CMWD is required to deliver the maximum day demand (1.6 times the average) to the water system, which was determined to be 33,100 AFY (29.6 mgd). The available water supply from the future SDCWA connections are estimated to be (53 mgd) as summarized in Table 3-15. The projected demand of 32.4 mgd is significantly less than the supply capacity. In summary, the SDCWA Connections provide sufficient rated capacity to meet the build out maximum day demands of CMWD, as the SDCWA connections only need to operate at 60 percent of rated capacity.

Chapter 4 Regulations and Design Criteria

Potable water service is provided by the Carlsbad Municipal Water District (CMWD). The supply and distribution of potable water is subject to federal, state, and local regulations. The primary objective of these regulations is to protect public health.

This chapter provides an overview of potable water regulations and responsibilities of the agencies involved in the supply and distribution of potable water. Subsequently, the existing regulations on federal, state, regional, and local level are described. This section includes a discussion on future regulations and potential impacts to CMWD.

4.1 Potable Water Regulations Overview

The Federal Drinking Water Quality Standards and State standards Title 22 and Title 17 are the guiding regulations for potable water. Other relevant regulations include

- Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR)
- Disinfection/Disinfection Byproducts (DBP) Rule, Stage 2
- The Consumer Confidence Report Rule
- The Total Coliform Rule
- Lead and Copper Rule
- Arsenic Rule
- Chemical Contaminants Rules
- Unregulated Contaminants Monitoring Requirements

Recent regulatory changes that concern potable water operations are listed below.

4.1.1 Federal

- Lead and Copper Rule Revisions are expected with changes based on recommendations from the National Drinking Water Advisory Council and lessons learned from Flint.
- Perchlorate: United States (U.S.) Environmental Protection Agency (EPA) to complete peer review of a Biologically Based Dose-Response model for metabolisms of perchlorate by October 18, 2017 with a final rule by the end of 2019.

4.1.2 State of California

- The hexavalent chromium standard was removed.
- The regulation on 1,2,3-Trichloropropane was approved changing the standard from 0.05 to 0.7 parts per trillion.
- The California Model Water Efficient Landscape Ordinance was amended in 2015. Carlsbad amended its ordinance in January 2016.

- Dam Inundation Mapping Standards were adopted in October 2017. Added to Sections 6160 and 6161 of the Water Code, this regulation requires owners of State-regulated dams, except those classified as low hazard, to prepare emergency action plans (EAPs) containing inundation map(s) for emergency preparedness. The EAPs, including the inundation map(s), are to be updated every ten years, but if relevant circumstances change, then the update must be made sooner. If Carlsbad had an existing EAP as of March 1, 2017, California Division of Safety of Dams (DSOD) will review the inundation map contained in that plan. If DSOD determines the inundation map is sufficient, DSOD shall request Cal OES to review the EAP associated with that inundation map. · The California State Water Resources Control Board (SWRCB) adopted drought emergency conservation regulations in July 2014. State of Emergency drought conservation measures have ended, but long-term conservation bills Assembly Bill 1668 and Senate Bill 606 both entitled “Water Management Planning” were adopted in May 2018, mandating the adoption of long-term standards for efficient use of water and performance measures for commercial, industrial and institutional water use before June of 2021.
- Senate Bill 998 was adopted in September 2018, requiring public water agencies that supply water to more than 200 service connections, to have a written policy on discontinuation of water service to certain types of residences for nonpayment available in prescribed languages. The agency is required to provide the customer with information on how to restore service. The bill requires an urban and community water system to waive interest charges on delinquent bills for and limits the amount of a reconnection of service fee imposed on, a residential customer who demonstrates, as prescribed, to the urban and community water system household income below 200% of the federal poverty line.

4.1.3 Potable Water Regulations

Potable water service is provided by the Carlsbad Municipal Water District (CMWD). CMWD has established a level of service that complies with state and federal potable water regulations in order to ensure that potable water distributed within its service area meets public health and safety standards. In addition, CMWD must meet certain planning and design criteria such that the performance of the distribution system serves the needs of the community.

This chapter discusses existing water quality standards and summarizes upcoming regulatory issues that may impact potable water distribution within the service area. Planning and design criteria used to evaluate the potable water distribution system are also documented, including unit demands, peaking factors, pipeline, pressure, and pump station design standards, and “in-zone” and emergency storage requirements.

4.1.3.1 Potable Water Quality Standards

Municipal drinking water is regulated by the United States (U.S.) Environmental Protection Agency (EPA) under the Safe Drinking Water Act, originally passed by the U.S. Congress in 1974 and amended and reauthorized in 1986 and 1996. The EPA has established a number of rules codifying the regulations applying to drinking water supplies:

- The **National Primary Drinking Water Standards**, which establish mineral and microbiological quality of water supplies
- The **National Secondary Drinking Water Standards**, which establish certain recommendations for aesthetic water quality

- The **Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR)**, which regulates treatment and disinfection requirements for surface water supplies
- The **Disinfection/Disinfection Byproducts (DBP) Rule**, which establishes requirements for disinfection of water supplies and limits concentrations of certain disinfection byproducts
- The **Consumer Confidence Report Rule**, which requires distribution of water quality information to consumers.
- The **Total Coliform Rule**, which regulates microbiological quality of water supplies
- The **Arsenic Rule**, which in 2001 established a more stringent limit (10 parts per billion) for arsenic than previous regulations
- The **Lead and Copper Rule**, which regulates lead and copper concentrations in drinking water supplies at the tap, and establishes requirements for minimizing the leaching of lead and copper from household plumbing fixtures.
- **Chemical Contaminant Rules**, which regulate the concentrations of specific organic and inorganic chemicals in drinking water supplies
- The **Unregulated Contaminant Monitoring Requirements**, which require monitoring for various unregulated chemicals of emerging concern in drinking water supplies. EPA uses the program to collect data for contaminants suspected to be present in drinking water, but that do not have health-based standards set under the Safe Drinking Water Act.

In California, the above federal regulations are administered by the California State Water Resources Control Board (SWRCB), Division of Drinking Water (DDW). Each local branch of the DDW is responsible for enforcing both federal and state regulations. CMWD falls under the jurisdiction of the San Diego Field Office Branch, in Region 9 of the SWRCB. Regulations administered by the DDW are contained in Title 17 and Title 22 of the California Code of Regulations (CCR). Title 17 regulates backflow preventers. Title 22 regulates all other aspects of drinking water supplies and is the primary compilation of regulations applying to water systems. Chapter 16 of Title 22 consists of the California Waterworks Standards, which describe minimum requirements for design and operation of drinking water distribution systems.

Table 4-1 provides a summary of select regulations and their implications to CMWD operations. The table provides only a summary of the rules; the actual regulation should be consulted for details. Regarding monitoring requirements, CMWD monitors for disinfection by-products every 3 months at eight locations throughout the distribution system.

This section summarizes the process to develop the existing average annual water demand for CMWD. This “baseline” existing demand is used as the key starting point for the future demand forecasts as well. Given the annual variability in water use seen by water purveyors the past few years throughout Southern California, selecting the baseline demand considers appropriate planning level assumptions and recognizes the sustained lowered water use patterns of many customers.

Table 4-1: Regulations and Implications to CMWD Operations

Regulation	Description
LT2ESWTR	• The current implementation of the Surface Water Treatment Rule is the LT2ESWTR, promulgated in 2006. This rule modified the methodology for evaluating DBPs. Most of the provisions within the rule pertain to source water evaluations and water treatment plant operations, which do not pertain directly to CMWD. The majority of the requirements of this rule are the responsibilities of CMWD's water suppliers. • Monitoring and reporting requirements for the LT2ESWTR generally fall under other rules. The most significant impact on the CMWD system is the need to use best management practices within the distribution system to minimize formation of disinfection byproducts and avoid nitrification episodes.
DBP Rule, Stage 2	• This rule relates very closely with the LT2ESWTR in that production of DBPs is impacted by treatment and distribution system operating methods. Under this rule, CMWD is a portion of a consecutive system, meaning that CMWD receives treated water from another system. • Consecutive systems have specific requirements under the rule to work together to meet the water quality requirements specified. • One of the primary requirements of this rule is that CMWD perform an Initial Distribution System Evaluation to determine locational average concentrations of DBPs. The System Evaluation should have been completed at this time. Monitoring requirements will depend upon the results of the System Evaluation. • Stage 2 of the DDR implemented the concept of locational running annual average for compliance. Whereas the previous rule had required compliance with DBP concentrations on a system-wide average, the locational running annual average requires that annual average DBP concentrations be compliant at each monitored location, with sampling occurring quarterly. This is a more stringent requirement, especially considering that locations for monitoring must include those locations most likely to experience high DBP concentrations. • The CMWD must monitor eight sites for DBP concentrations on a quarterly basis and report these results to the DDW.
The Consumer Confidence Report Rule and Triannual Public Health Goal Report	• The Consumer Confidence Report Rule requires annual publication of a report describing water quality information for a distribution system and dissemination of that report to consumers of water from that distribution system. The rule requires that the Consumer Confident Report be issued by July 1 of each year for the preceding calendar year, as well as certification to the California Department of Public Health (CDPH) by October 1 that the report was issued. • SB 1307, added to the California Health and Safety Code in 1997, specifies that water utilities with more than 10,000 service connections prepare a special report if their water quality measurements have exceeded any Public Health Goal (PHG) established by the California Environmental Protection Agency, or in the absence of PHG, the Maximum Contaminant Level Goal (MCLG) established by the U.S. Environmental Protection Agency (USEPA). The report must be completed by July 1 every 3 years, beginning in 1998 and must be followed by a public hearing for the purpose of accepting and responding to public comment on the report.
The Total Coliform Rule	• In April 2016, the Federal Revised Total Coliform Rule became effective. • The Total Coliform Rule requires monitoring of bacteriological quality of water in the distribution system. Under this rule, CMWD must obtain and analyze 100 samples at regular intervals throughout the month from sites representative of the distribution system. • If a positive result is found, the site must be resampled 3 times within 24 hours. The system is in monthly violation if more than 5 percent of samples and repeat samples in a month are positive for coliform bacteria, and in acute violation if any repeat sample is positive for fecal or e. coli. • Two Levels of Assessment have been added:

Table 4-1: Regulations and Implications to CMWD Operations

Regulation	Description
	• Under the Federal Revised Total Coliform Rule, a water system which exceeds the current Total Coliform maximum contaminant levels (MCL) must also conduct a Level 1 Assessment. The completed assessment must be submitted to the local regulating agency (DDW District Office) within 30 days of the exceedance. The Level 1 Assessment will require water systems to identify a possible cause to the total coliform positive samples and corrective actions taken/needed. Failure to complete the corrective actions will be a violation of the Coliform Treatment Technique in the Federal Revised Total Coliform Rule. • The Federal Revised Total Coliform Rule adds two new conditions to the E.coli MCL for failing to collect all required repeat samples following a E.coli positive routine sample and failing to test for E.coli after a total coliform positive repeat sample. The water system must notify the local regulating agency (DDW District Office) by the end of the business day to schedule a Level 2 assessment.
Lead and Copper Rule	• This rule requires monitoring of lead and copper concentrations in water taken from cold water taps in homes and businesses at risk of lead and copper corrosion. If lead or copper are found, the public water system must take action to reduce the corrosiveness of the water. • For Community Water Systems serving 10,000 to 100,000 customers, 60 sites must be sampled annually. If after two sampling periods no significant corrosion issues are found (90th percentile level for lead less than 5 µg/L and for copper less than 0.65 milligrams per liter [mg/L]) the number of sites to be sampled may be reduced to 30 and sampling frequency reduced to every 3 years (CMWD is on this schedule). • If lead or copper corrosion is found increased frequency of sampling is required as well as a Corrosion Control Study. A Corrosion Control Treatment plan must be developed and implemented. • Revisions are expected with changes based on recommendations from the National Drinking Water Advisory Council and lessons learned from Flint, Michigan. The primary issues being addressed are as follows: Sample site selection criteria; Lead sampling protocols; Public education for copper; Measures to ensure optimal corrosion control treatment; and Lead service line replacement. • A related review is for the use of lead-free pipes, fittings, fixtures, solder, and flux for drinking water. This rule would require manufacturers to limit lead content to 0.25% and update labeling to provide better clarity for products.
Arsenic Rule	• The Arsenic Rule requires an initial sample of each water supply. If arsenic concentration is found to be less than 10 µg/L, resampling will be required every three years. If any sample exceeds 10 µg/L, resampling frequency is increased to quarterly until the arsenic concentration remains reliably below µg/L. • Since CMWD imports its water supply, this rule does not apply to CMWD. If CMWD develops a groundwater supply, sampling will need to be done, as noted.
Chemical Contaminants Rules	• Requires sampling and analysis of surface water supplies to determine concentrations of a number of compounds that have been found to have chronic health effects. Establishes MCL and MCL goals for each compound. Compliance with the MCLs established by the rule is based upon a running annual average of quarterly samples.
Unregulated Contaminants Monitoring Requirements	• Requires water agencies collect data for synthetic organic, volatile organic, inorganic contaminants, hormones, and viruses suspected to be present in drinking water, but that do not have health-based standards set under the Safe Drinking Water Act. Results of the annual sampling must be reported to the DDW.
Perchlorate	• Perchlorate has been under review by the EPA since 2011. The EPA expects to complete a peer review of a Biologically Based Dose-Response model for metabolisms of perchlorate by October 18, 2017 with a final rule by the end of 2019. • Any modifications to requirements of this rule are anticipated to be the responsibilities of CMWD's water suppliers.

Table 4-1: Regulations and Implications to CMWD Operations

Regulation	Description
Hexavalent Chromium	• The hexavalent chromium standard was removed effective September 11, 2017 based on a Superior Court of Sacramento Ruling invalidating the maximum contaminant level for drinking water.
1,2,3-Trichloropropane	• On July 18, 2017, the regulation on 1,2,3-Trichloropropane was adopted by the SWRCB changing the standard from 0. 05 to 0.7 parts per trillion. Changes to monitoring are for groundwater and not distribution systems.

4.1.4 Potable Water Conservation Standards

California's Model Water Efficient Landscape Ordinance establishes water efficiency standards for new development and retrofitted landscape. All water agencies in the state must adopt, implement, and enforce the Model Water Efficient Landscape Ordinance or a more stringent ordinance. In 2015, Executive Order (EO) B-29-15 tasked California Department of Water Resources with revising the 2010 Model Water Efficient Landscape Ordinance to increase water efficiency standards for new and retrofitted landscapes, by encouraging the use of more efficient irrigation systems, grey water usage, and onsite storm water capture, and by limiting the portion of landscapes that can be covered in turf. The EO required that agencies report on their implementation and enforcement of local ordinances by December 31, 2015. Carlsbad adopted an updated landscape ordinance in January 2016. The current ordinance is available on the City's website: http://www.carlsbadca.gov/civicax/filebank/blobdload.aspx?BlobID=24086.

State-mandated conservation measures continue to evolve. The SWRCB first adopted drought emergency conservation regulations in July 2014. Included in these regulations were prohibitions against certain wasteful water use practices. The SWRCB expanded, updated, extended, and readopted the emergency regulations several times, most recently in February 2017. Governor Brown ended the drought State of Emergency in April 2017. In response, the SWRCB partially repealed the February drought emergency conservation regulations, maintaining urban water supplier reporting requirements and the prohibitions on wasteful water use practices. These reporting requirements remained in place until November 2017.

On May 9, 2016, Governor Brown issued EO B-37-16 to Make Conservation a California Way of Life. EO B-37-16 sets forth actions designed to ensure water is used more wisely, eliminate water waste, strengthen local drought resilience, and improve agricultural water use efficiency and drought planning. To eliminate water waste, it directs the Board to permanently prohibit practices that waste potable water, such as:

- Hosing off sidewalks, driveways and other hardscapes;
- Washing automobiles with hoses not equipped with a shut-off nozzle;
- Using non-recirculated water in a fountain of other decorative water feature;
- Watering lawns in a manner that causes runoff, or within 48 hours after measurable precipitation; and
- Irrigating ornamental turf on public street medians.

As directed by EO B-40-17, the SWRCB is developing regulations to prohibit wasteful water use practices. This rulemaking is part of the broader framework to make conservation a California Way of Life, a pillar of the California Water Action Plan. On May 31, 2018, Governor Brown signed two

bills which build on the ongoing efforts to “make water conservation a California way of life.” SB 606 and AB 1668 emphasize efficiency and stretching existing water supplies in our cities and on farms. Specifically, the bills call for creation of new urban efficiency standards for indoor use, outdoor use, and water lost to leaks, as well as any appropriate variances for unique local conditions.

The SWRCB will adopt these standards by regulation no later than June 30, 2022, after full and robust public and stakeholder processes. Each urban retail water agency will annually, beginning November 2023, calculate its own objective, based on the water needed in its service area for efficient indoor residential water use, outdoor residential water use, commercial, industrial and institutional (CII) irrigation with dedicated meters, and reasonable amounts of system water loss, along with consideration of other unique local uses (i.e., variances) and “bonus incentive,” or credit, for potable water reuse, using the standards adopted by the SWRCB. The proposed regulations would establish in CCR, Title 23, Division 3, a new chapter 3.5 on Conservation and the Prevention of Waste and Unreasonable Use; and within chapter 3.5, a new article 2 pertaining to Wasteful and Unreasonable Uses. The proposed regulation would make permanent, with some minor modifications and clarifications, the prohibitions adopted by the SWRCB during the drought emergency, specifically those identified in CCR, Title 23, Section 864 that expired in November 2017.

4.1.5 Impending Regulatory Issues

All rules are reviewed and updated at the federal level every six to 10 years, which may produce impacts to CMWD operations. The EPA continually evaluates contaminants on its Contaminant Candidate List and may issue additional regulations on these contaminants at any time. The EPA’s consideration of the Lead and Copper Rule could affect CMWD as a distributor of potable water regarding sampling, maintenance to limit corrosion, and potentially line replacement. Other contaminants of concern are endocrine disruptors and Pharmaceuticals and Personal Care Products. Research regarding potential human impacts of these materials is ongoing.

Section 2013 of America’s Water Infrastructure Act of 2018 requires drinking water utilities to conduct and certify Risk and Resiliency Assessments, revise Emergency Response Plans (ERPs) and update these documents every five years. The USEPA intends for utilities to identify and manage terror-related and natural hazard risks, and the ERPs will provide strategies to enhance response and recovery following an event. The certifications’ due dates depend on utility size, with the first deadline on March 31, 2020 for utilities serving a population of 100,000 or more. Emergency response plans are due six months after completion of the risk assessment. Utilities that do not meet certification letter deadlines could incur fines up to $25,000 per day. Guidance for the development of these risk assessment and emergency response plans are included in the link below:

https://www.epa.gov/sites/production/files/2019-04/documents/awia_factsheet_04-16-2019_v2-508.pdf

4.1.6 Recommendations

CMWD should continue to monitor updates to the Lead and Copper Rule. Changes to this rule will affect future sampling and monitoring for CMWD.

Although the Total Revised Coliform Rule is now in effect, CMWD should closely monitor samples in affected areas to determine if additional assessments are required. Since 2016, the Level 1 and Level 2 assessments for non-compliance would require additional sampling efforts by CMWD.

CMWD should follow the development of state mandated water conservation measures and advocate for credit in achieving potable water use reductions through its recycled water program.

4.2 Design Criteria

As part of the planning process, design criteria from the previous master plan was reviewed with engineering and operations staff to re-confirm the design criteria or update specific criteria based on system operations the past five years.

4.2.1 Potable Water Criteria

Table 4-2 lists the design criteria for the 2019 Master Plan. Unit demands were revised based on current water demand information, as discussed in Section 3.1.

Table 4-2: Water Master Plan Design Criteria

Item	Criteria
Unit Demands	
Single Family Residential	450 gpd/DU
Multi-Family Residential	185 gpd/DU
Non-Residential	1,500 gpd/acre
Peaking Factors	
Minimum Day/Average Day Ratio	0.5
Maximum Day/Average Day Ratio	1.6
Maximum Month/Average Day Ratio	1.4
Peak Hour/Average Day Ratio	2.9
Piping/Pipelines	
Maximum Velocity - Peak Hour	8 fps
Maximum Velocity - Max Day + Fire	15 fps
Maximum Headloss - desired at peak flow	5 ft/1,000 ft
Maximum Headloss - allowable at peak flow	10 ft/1,000 ft
Maximum length of dead-end pipe	150 ft
Maximum No. of hydrants on a dead-end pipe	1
Maximum No. of services off a dead-end pipe	18
Pressure	
Maximum Static - Desired	125 psi
Maximum Static - Allowed	150 psi
Minimum Static	60 psi
Minimum Residual (Peak Hour)	40 psi
Minimum Residual (Max Day + Fire)	20 psi
Maximum desired pressure drop from static	25 psi

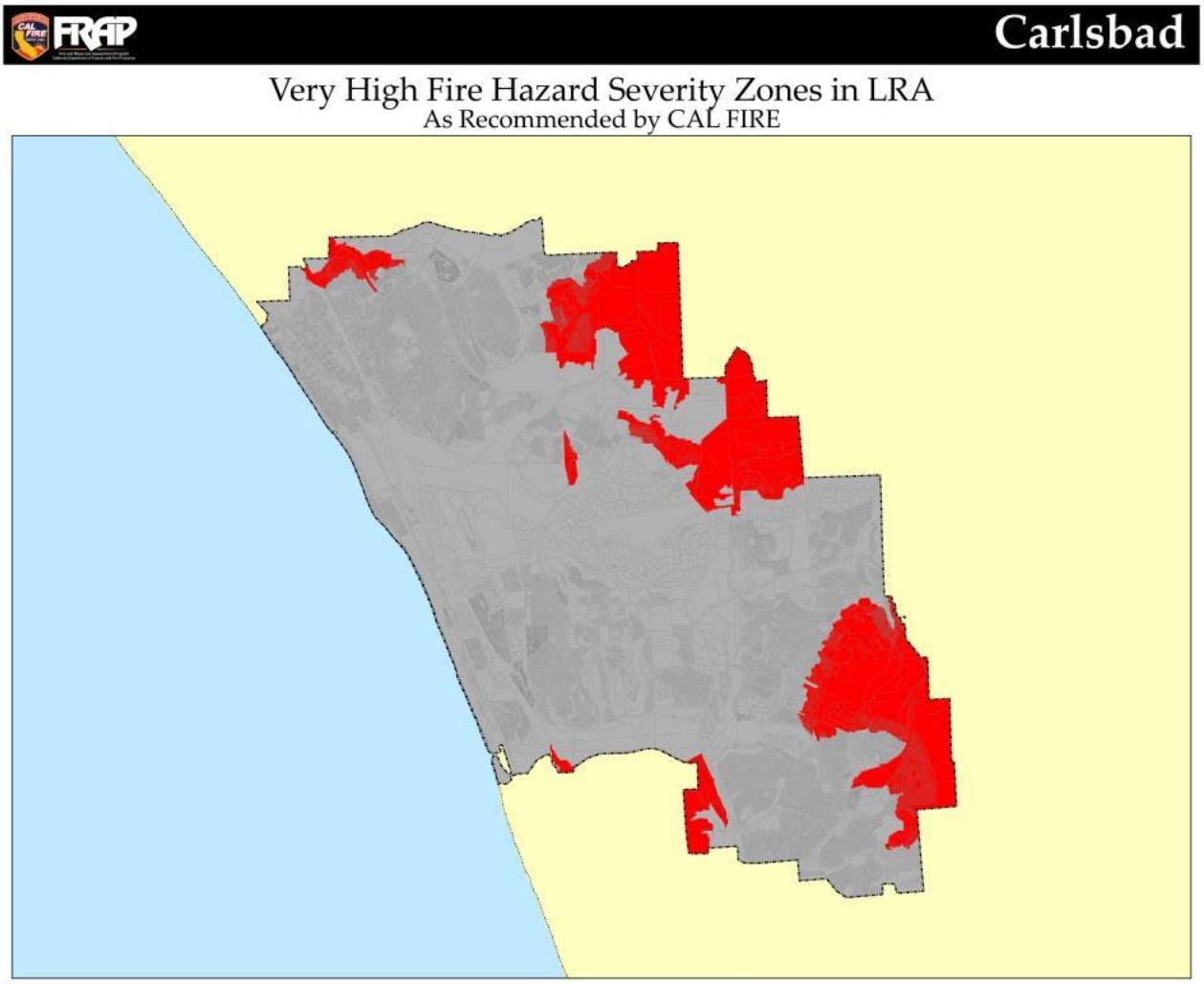
Table 4-2: Water Master Plan Design Criteria

Item	Criteria
Typical Fire Flows	
Single Family Residential	1,500 gpm for 2 hours
Multi-Family Residential	3,000 gpm for 2 hours
Non-Residential	4,000 gpm for 4 hours
Storage	
Operating Storage	15% MDD
Fire Storage	Maximum fire flow x duration
Emergency Reserve Storage (in-zone)	100% MDD
Emergency Storage (Planned SDCWA shutdown)	10 x ADD
Water Pressure Regulating Stations	—
Minimum Number of Valves	2
Capacity	Low = Average High = MDD + Fire Flow
Redundancy Required	Yes (by zone)
Other	Pressure Relief Valve required at a minimum of one station per zone.
Pump Station	—
Pumping Period	24 hours
Pumping Capacity	MDD for all zones served
Minimum Number of Pumps	3 (2 duty + 1 standby)
Redundancy	1 unit equal to largest duty pump
Standby Power	Generator

Notes:
fps=feet per second

Maximum velocity criteria are industry standard for new construction but may be exceeded under existing performance conditions if replacement costs are excessive and not critical to level of service. The fire flow velocity requirement of 10 fps in the 2012 Master Plan was determined to be conservative. It was increased to 15 fps to avoid oversizing small water mains creating water quality issues in the distribution system. Fire flow requirements for areas within Carlsbad that are designated as High and Very High Fire Hazard Severity Zones, shown on Figure 4-1, were reviewed, which in some cases may require higher fire flows.

Figure 4-1: Severity Fire Zones (CAL FIRE)



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Chapter 5 Hydraulic Model Development

This section describes the hydraulic model development and update for the 2019 Master Plan. As part of this model development process, the hydraulic model used in the previous (2012) Master Plan was updated with regard to infrastructure and demand loading to represent the following systems:

- Existing System Hydraulic Model – Updated to represent the 2016 distribution system based on available information and meter data
- Buildout System Hydraulic Model – Updated with projected buildout flows and improvement projects and used to identify potential future capacity constraints.

5.1 Model Parameters

Hydraulic modeling and analysis was performed using the software package InfoWater by Innovyze. The version of the software used was InfoWater Suite 12.4. This section discusses some important aspects of the modeling software.

A detailed hydraulic model is a valuable tool used to analyze the complex operation of a water distribution system. The steps of model formulation include:

- inputting or obtaining the system's physical data in GIS format
- translating the physical data into a network of nodes and links
- determining "boundary" conditions
- inputting accurate water demands
- calibrating the model to simulate actual field conditions

The physical data includes the geographic network of pipes, nodes, tanks, pump stations, valves, and supply sources that represent the CMWD recycled water system. The connectivity of the pipes and nodes in GIS is required such that the physical data in the model can be hydraulically linked. To perform the hydraulic analyses, the model software requires that certain information be entered into the database. Pipe information includes the pipe diameter, length, pipe material and associated roughness coefficient. The function of the roughness coefficient, which is known as the Hazen Williams "C" factor, is to estimate friction losses (pressure drop) in the pipelines. The "C" factor is assigned based on diameter, material, and age of the pipe, and values range from 70 to 140. Node information includes the node elevation and water demand (or supply) at that point in the system.

Initial hydraulic "boundary" conditions are also required to be entered into the model database, particularly for tanks (starting water level) and valve settings (pressure control, open/closed). CMWD water supply sources are modeled as constant supplies into the water system. Understanding and properly simulating these boundary conditions are critical to the successful calibration of the model.

Determining accurate water demands is another critical component to developing a reliable hydraulic model. Metered demands, water supplies, and changes in tank volumes are reviewed over a given period to determine actual daily demand patterns, while annual consumption by metered account provides a spatial distribution of demand and average system usage.

5.2 Existing System Model Development

As part of the 2003 Water Master Plan, an H2ONET hydraulic model was developed to evaluate the potable water system and was based on the City's GIS database. The 2012 Water Master Plan effort updated the hydraulic model to H2OMAP® Water and incorporated new development areas and pipelines that were constructed after the last Master Plan.

This Water Master Plan converted the H2OMAP Water hydraulic model to InfoWater and updated existing facilities based on CMWD's available GIS databases for pipes.

Demands were updated based on historical billing records for the calendar year 2014. Demands from customer meters were allocated to the existing junction within the hydraulic model nearest the location of the meter in CMWD's GIS layer of meters.

5.2.1 Model Facilities

The water model was updated to include any remaining facilities that had been constructed since the 2012 Water Master Plan and not already added by CMWD. These new facilities were reviewed and updated by importing facilities from the CMWD geodatabase using the Import Manager tool, along with any relevant information contained within the CMWD GIS database.

Operational settings for storage tanks, pump stations, and PRVs were verified to be accurately represented within the model; any updated settings received from CMWD were incorporated into the new InfoWater model database. The existing model contains approximately 4,200 pipe segments, representing almost 90 percent of the 450 miles of potable water pipe within the CMWD service area (small diameter pipes are not modeled as part of the existing water system).

5.2.2 Modeled Demands

Demands were distributed throughout the model by assigning usage for each active metered connection to a model node using the Demand Allocator extension in InfoWater. Approximately 27,500 meters were spatially allocated to existing nodes in the water model.

5.2.3 Model Calibration

The model was calibrated during the 2012 Master Plan Update; as such, this Master Plan Update did not create a new calibration plan and assumed the model represents the operational parameters of the potable water system.

5.3 Future Demand Projections

The current and ultimate land use projections for the CMWD service area according to SANDAG were also considered in determining the future demands for the area. The SANDAG projections show a continued population growth in the area through buildout. These projections were utilized in the Demand Forecast Model discussed in Chapter 3 to prepare future demand projection through 2040.

Demands were allocated in the hydraulic model through an overlay with the system pressure zone boundaries and SANDAG land use. Within each pressure zone, future demands were distributed to demand nodes within the hydraulic model network.

5.4 Buildout Model Development

The 2040 model of the CMWD potable water system was developed from the calibrated existing model and system demands. To simulate buildout conditions, future water demands, described above, were incorporated into the model as follows:

- Future demands were assigned to existing model nodes based on the land use and growth data for infill development.
- Identified development project demands were assigned to existing nodes in the model where possible, or to new nodes added to the model.
- The 2040 model includes an additional 3.5 MGD of future demand, roughly a 20 percent increase over the existing ADD.

Facilities currently in various levels of design and construction, and necessary backbone facilities to serve the projected demands were also added to complete the connectivity of the buildout model.

The buildout scenario was also analyzed to determine if additional improvements are necessary in order to deliver desalinated water into the CMWD system under future conditions.
Chapter 6 includes the complete future system analysis.

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Chapter 6 System Evaluation

This section discusses the evaluation of the modeled systems discussed in Section 5, which includes capacity analysis of the existing and the future 2040 water distribution system. System evaluations were based on hydraulic capacity analyses conducted by running the models under peak hour demand conditions and selected maximum day plus fire conditions and comparing model results with the evaluation criteria discussed in Section 4.2. Pump station and storage capacity analyses are included in this section for both the existing and 2040 systems.

6.1 Existing System Capacity Analysis

The existing system capacity analysis is based on an existing demand of 15.0 MGD (10,400 gpm) presented in Section 3.1 and a maximum day demand (MDD) of 25.0 MGD, based on a system-wide peaking factor of 1.6 times average. The maximum daily demand is the basis for evaluating pumping and storage capacities for the distribution system, as well as the required minimum water supply from the SDCWA connections (see Table 2-1). The remaining section presents the capacity analysis for the existing water distribution system.

6.1.1 Capacity Model Analysis

Capacity assessment for the existing system was performed under an extended period simulation utilizing demand patterns which were reviewed as part of this master plan update and were previously calibrated as part of the 2012 Master Plan model simulations. The capacity analysis was based on the evaluation criteria discussed in Section 4.2. A peak hour time step during an extended period simulation was selected to review minimum pressures, system headlosses, and pipelines velocities. Extended period simulations during maximum day demands also allowed for a review of tank operations and SDCWA supplies. Select fire flow simulations were also performed to supplement the 2012 Water Master Plan in depth analysis of system-wide fire flows. A summary of model findings and observations include:

- The CMWD water system under peak hour demands experiences very few hydraulic issues due to the multiple supplies into pressure zones and system-wide looping. On average pressures drop about 5-15 psi from static pressure across pressures zones, which is a strong indicator of a robust system.
- Under peak hour conditions pipeline velocities are well under the evaluation criteria of a maximum desirable of 8 fps. The highest velocities were a few of the transmission main pipelines supplying the system directly from a reservoir or SDCWA turnout, which is expected under peak hour demand conditions.
- Fire Flow Analysis: As part of the 2012 Master Plan, CMWD conducted a series of field hydrant flow tests designed to stress the water system under simulated fire flow demand conditions. Over 25 flow tests were conducted through-out the system, including one in each pressure zone. Those tests confirmed the robustness of the distribution system and with minimal change in water demands and system improvements since last Master Plan, similar conclusions can be drawn for the 2019 Water Master Plan. Therefore, a few select fire flow simulations were conducted at the edges of several pressure zones, including the La Costa Lo Zone (which no longer includes a storage tank) with the updated water model, which confirmed adequate pressures and flows.

- The fire flow deficiencies reported from the 2012 Master Plan, were related to a handful of small diameter pipelines that were likely sized and constructed for a lower fire flow standard at the time. These fire flow upgrades are considered a low priority (as in several cases the fire flow is only marginally deficient under current criteria) and therefore should be reviewed on a case-by-case basis. Ideally, these pipeline projects may be done as part of a condition assessment replacement and/or street resurfacing projects. These fire flow deficient projects form 2012 are recommended to be included in this master plan update.
- The La Costa LO tank was removed from the distribution system since the last master plan due to challenges in maintaining adequate water quality. The updated model incorporates this system change and the increased supply through PRVs under peak demand conditions.
- Storage tanks continue to be maintained at lower water levels due to reduced demands and managing water quality through-out the system. This has been common practice for San Diego County water purveyors since the drought and water conversation. CMWD has the ability to manage water levels in Maerkle Reservoir for a planned 10-day SDCWA shutdown and normally can increase storage levels well in advanced of the event. CMWD operators continue to be able to meet this planned shutdown event each winter.
- As noted in Table 2-1, the existing water supply has sufficient water supply capacity from all SDCWA turn-outs under normal demand conditions through the year.

The Peak Hour pressure and velocity plots from the existing model are presented in Figure 6-1 and Figure 6-2, respectively. Pressure and velocity ranges are well within evaluation criteria under peak demands. Appendix A includes analysis results.

Figure 6-1: Existing Peak Hour Pressures

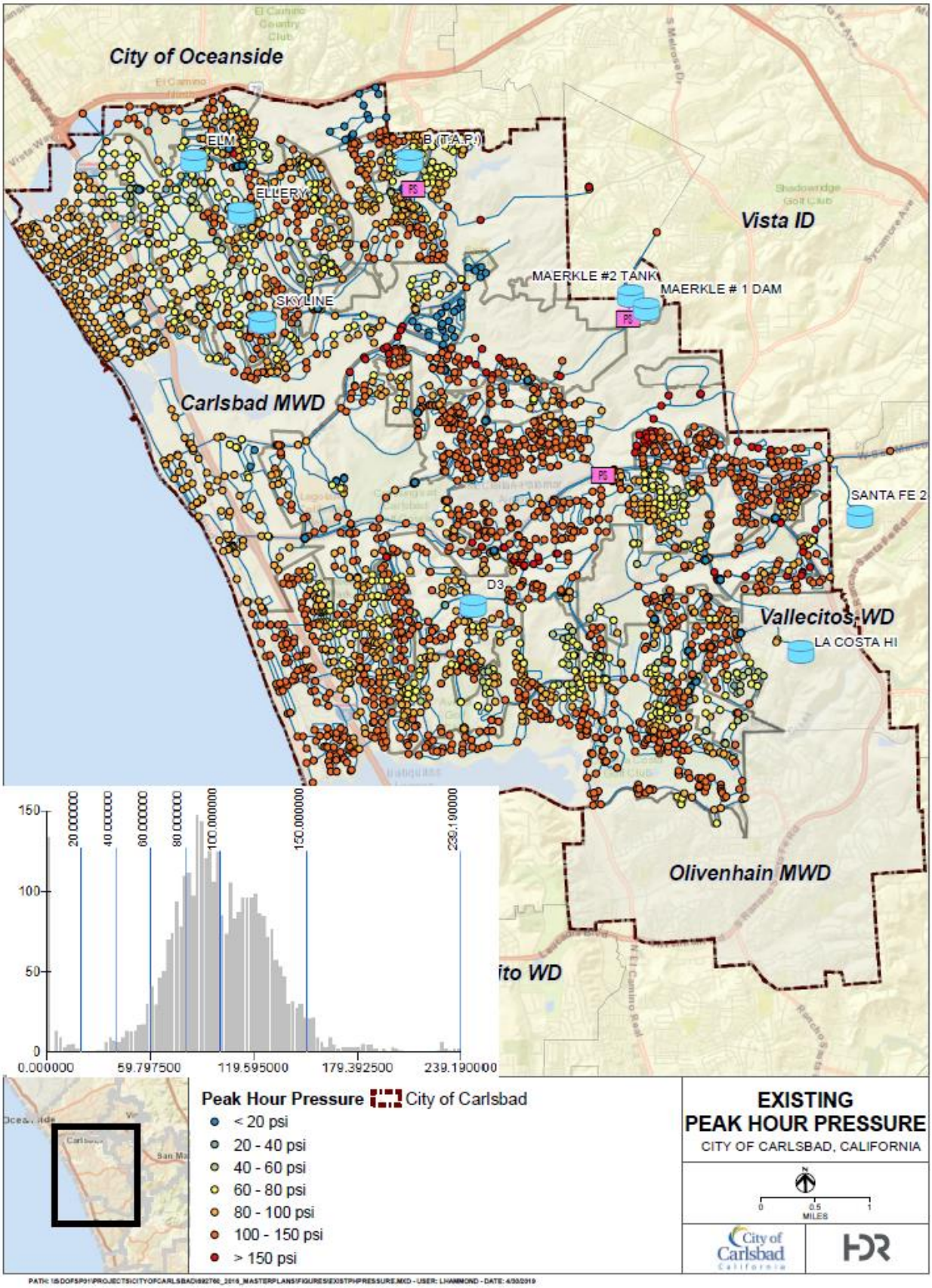
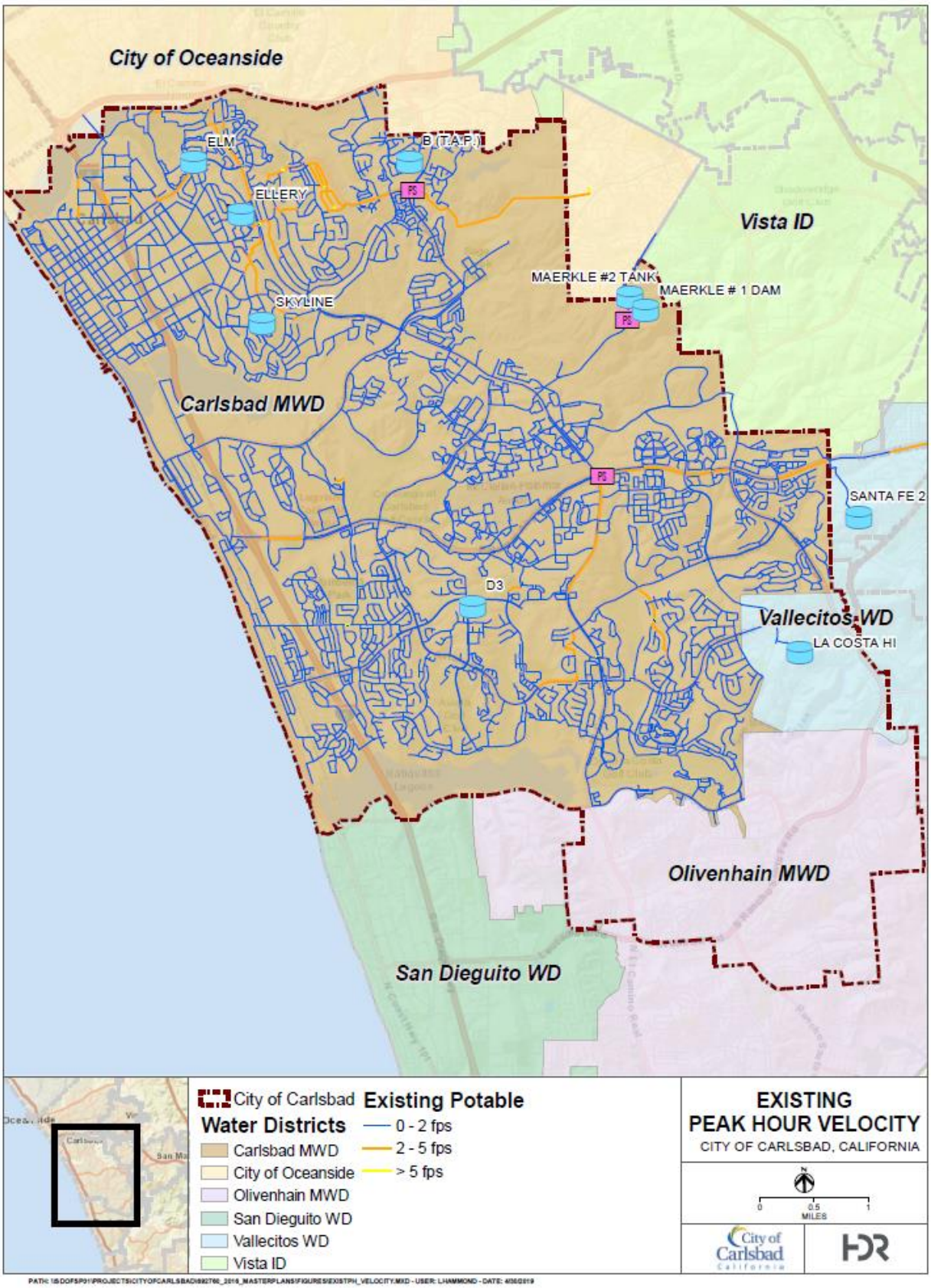


Figure 6-2: Existing Pipeline Velocities



6.1.2 Storage Capacity Analysis

Table 6-1 presents the tank storage balance calculations for the operational storage component, including fire and emergency storage, required for existing demands in each pressure zone. The storage calculations for supplying primary pressure zones include the secondary pressure zone demands served by pressure reducing stations.

The storage analysis shows that a few of the pressure zones have in-zone storage deficiencies due to the requirement for both fire and emergency components. However, CMWD allows existing deficiencies to be mitigated by excess storage in connected higher zone. For example, the storage deficit in the 255 and 241 Zones can be credited to the surplus storage in the 490 Maerkle, 330 Ellery, and 375 D3 Zones. CMWD prefers to manager the storage in this manner because of water quality concerns in the lower zones with excess storage. In fact, since the last Master Plan the City has removed the La Costa Lo Tank from the water system and relies on the excess storage from the La Costa Hi Tank.

The remaining pressure zones within CMWD have adequate storage capacity to meet existing demands and storage criteria. Overall, CMWD operates with a 12.15 MG storage surplus in the distribution system based on the evaluation criteria and not including the 195 MG Maerkle Reservoir, which is designed for a planned 10-day SDCWA shutdown during the winter months.

In summary, there is sufficient storage to meet operational and short-term emergency demand requirements under existing conditions.

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Table 6-1: Existing Storage Capacity

								Required Storage per Design Criteria					
HGL	Tank ID	Capacity by Tank (MG)	Zones Serviced	Zone ADD (MGD)	HGL Zone Total (MGD)	Max Avg PF	Max Day (MGD)	Operational (MG) (0.15 x MDD)	Fire (MG)	Emergency (MG) (1.6 x ADD)	Total Required Storage (MG)	Available Storage (MG)	Surplus (MG)
700	La Costa Hi Tank	6.0	700	0.05	3.39	1.6	5.42	0.81	0.96	5.42	7.19	6.00	(1.19)
			680	0.35									
			580S	0.00									
			510	0.30									
			318	2.68									
700	Santa Fe II Tank	9.0	700	0.52	2.55	1.6	4.09	0.61	0.96	4.09	5.66	9.00	3.34
			550	1.90									
			430	0.14									
490	Maerkle Tank	10.0	490	0.10	0.35	1.6	0.56	0.08	0.96	0.56	1.60	10.00	8.40
			285	0.25									
446	TAP Tank	6.0	580N	0.41	2.12	1.6	3.39	0.51	0.96	3.39	4.86	6.00	1.14
			446	1.64									
			349	0.06									
375	D-3 Tank	8.5	375	2.23	2.23	1.6	3.57	0.54	0.96	3.57	5.07	8.50	3.43
330	Ellery Tank	5.0	330	1.23	1.23	1.6	1.97	0.30	0.96	1.97	3.23	5.00	1.77
255	Elm Tank	1.5	255	1.62	1.62	1.6	2.59	0.39	0.96	2.59	3.94	1.50	(2.44)
241	Skyline Tank	1.5		1.54	1.54	1.6	2.47	0.37	0.96	2.47	3.80	1.50	(2.30)
Total	**—**	**47.5**	**—**	**15.04**	**—**	**—**	**—**	**—**	**—**	**—**	**35.35**	**—**	**12.15**

Note:
Does not include 195 MG Maerkle Reservoir for Emergency Storage

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6.1.3 Pump Station Capacity Analysis

Because the CMWD water system is gravity supplied from the SDCWA connections, the pump stations in the distribution system are backup facilities that operate only during a disruption in the normal water supply or under other emergency conditions. The Maerkle PS is also used to re-circulate water in the large Maerkle Reservoir to mitigate water quality issues in the lake, in addition to its emergency supply capacities . Similar to the 2012 Master Plan, capacity requirements for the Maerkle PS was assumed based on supplying the ADD of the entire distribution system during a planned aqueduct shutdown. Table 6-2 presents the pump station capacity analysis for the existing system, assuming each station is needed for back-up supply. The recommended capacity for each station is based on the average day demands for the direct pumped zone and the lower zones served..

Table 6-2: Existing Pump Capacity

Pump Station	Pump Unit	Rated Capacity		Total Capacity		Recommended Capacity		Surplus/(Deficit) gpm
		gpm	MGD	gpm	MGD	Supply goal	gpm	
Maerkle	1	4,500	6.48	13,500	19.44	Entire system ADD	10,400	3,100
	2	4,500	6.48					
	3	4,500	6.48					
Bressi	1	1,250	1.80	3,750	5.40	700, 680, 580S & 510 318 (Lo Costa) Zone ADD	2,700	1,050
	2	1,250	1.80					
	3	1,250	1.80					
	2	1,000	1.44					
Calavera Hills	1	1,500	2.16	3,000	4.32	580 Zone MDD + 1,500 gpm fire flow	2,000	1,000
	2	1,500	2.16					
	2	1,700	2.448					

6.2 2040 Capacity Analysis

The 2040 system capacity analysis is based on a forecasted demand of 18.5 MGD (12,900 gpm) presented in Section 3.1 and a maximum day demand of 29.6 MGD, based on a system-wide peaking factor of 1.6 times average. The MDD is again used to assess the 2040 pumping and storage capacities for as well as the required minimum water supply from the SDCWA connections (see Section 3.13). The remaining section summarizes the capacity analysis for the 2040 water distribution system.

6.2.1 Capacity Model Analysis

Capacity assessment for the 2040 system was again performed under peak hour demands to review minimum pressures, system headlosses, and pipelines velocities with the increased demand and new pipeline segments added to the system.

A summary of findings and observations include:

- The MMD demand under the 2040 scenario is projected to increase only by 4.1 MGD or about 2,800 gpm. This demand was simulated with the 2040 hydraulic model under an extended period simulation.
- Planned CIP projects including the proposed Maerkle Pipeline and planned pipelines within future development were included in the 2040 model.
- Under peak hour conditions pipeline pressures and velocities continue remain well under the evaluation criteria and are note in Figure 6-3 and Figure 6-4, respectively.
- As noted in Table 3-13, the 2040 water supply has sufficient water supply capacity from all SDCWA turn-outs under normal demand conditions through the year.

Figure 6-3: 2040 Peak Hour Pressures

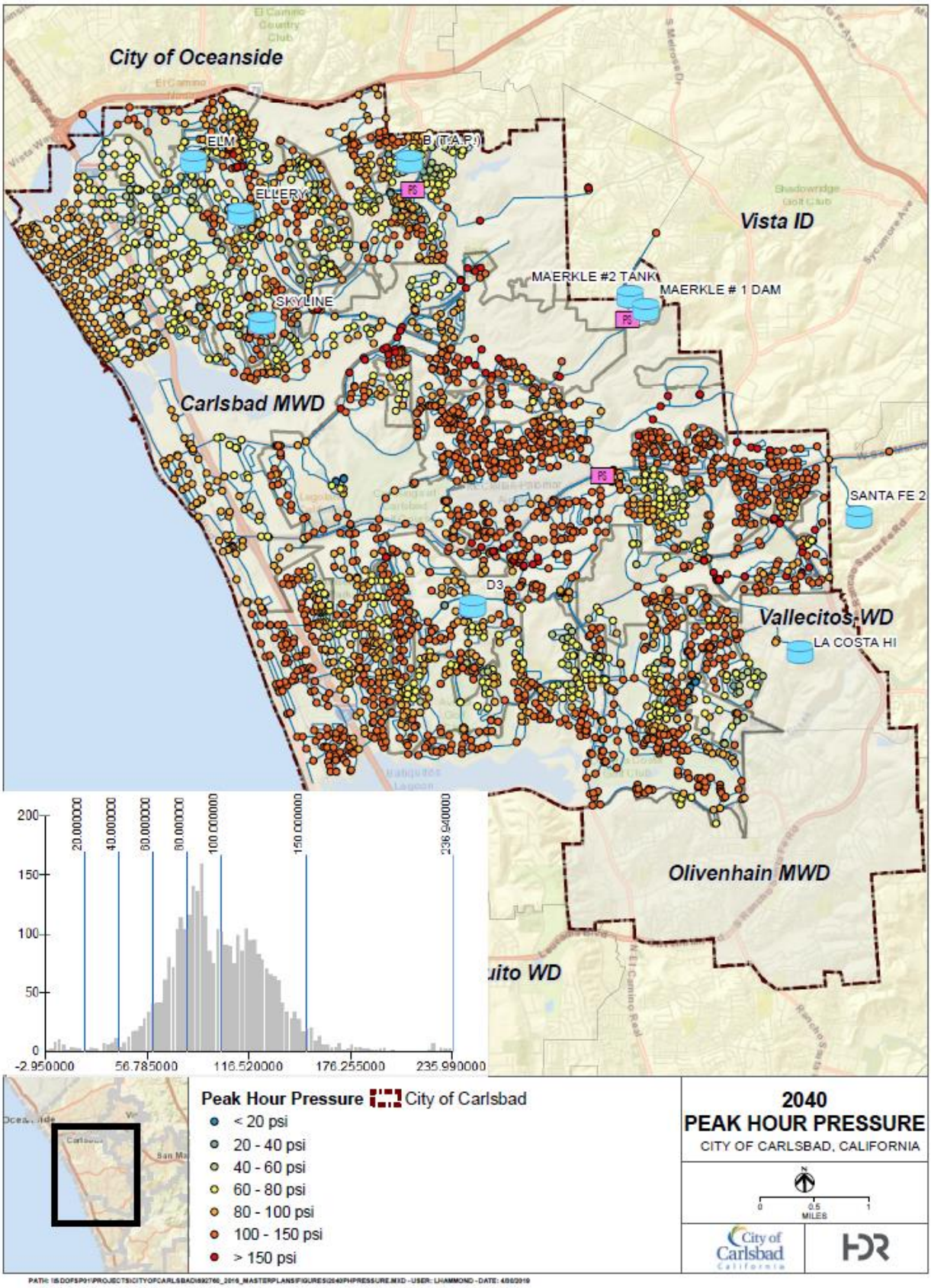
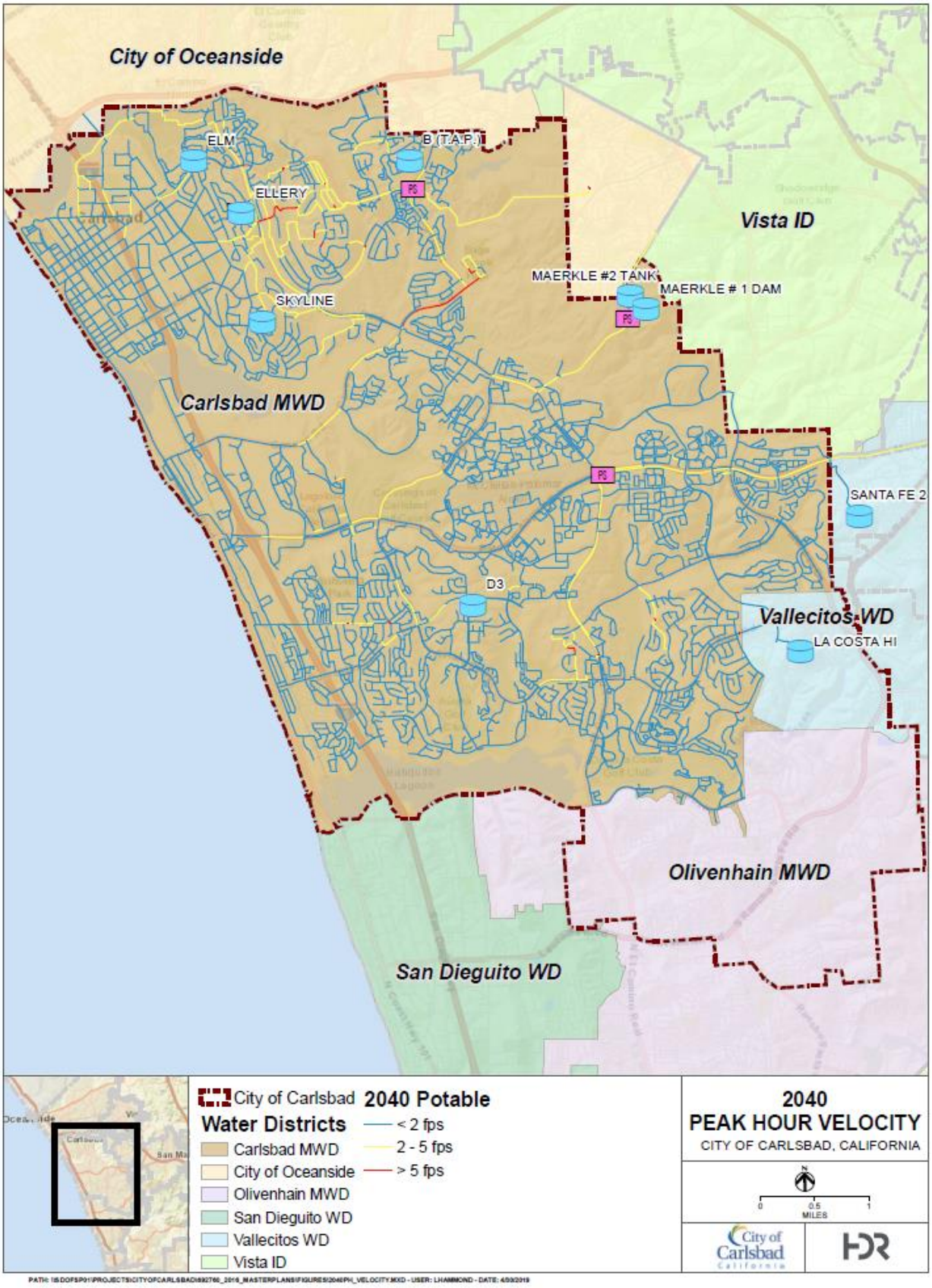


Figure 6-4: 2040 Pipeline Velocities



6.2.2 2040 Storage Capacity Analysis

Table 6-3 presents the tank storage balance calculations for the operational storage component, including fire and emergency storage, required for the 2040 demands in each pressure zone. The storage calculations for supplying primary pressure zones include the secondary pressure zone demands served by pressure reducing stations. As with the existing system storage calculations, the analysis shows that a few of the pressure zones have in-zone storage deficiencies due to the requirement for both fire and emergency components.

Overall CMWD in 2040 is projected to have a 5.49 MG storage surplus in the distribution system based on the evaluation criteria and not including the 195 MG Maerkle Reservoir. In summary, there is sufficient storage to meet operational and short-term emergency demand requirements under projected 2040 conditions.

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Table 6-3: 2040 Storage Capacity

								Required Storage per Design Criteria					
HGL	Tank ID	Capacity by Tank (MG)	Zones Serviced	Zone ADD (MGD)	HGL Zone Total (MGD)	Max Avg PF	Max Day (MGD)	Operational (MG) (0.15. x MDD)	Fire (MG)	Emergency (MG) (1.6 x MDD)	Total Required Storage (MG)	Available Storage (MG)	Surplus (MG)
700	La Costa Hi Tank	6.0	700	0.07	5.38	1.6	8.61	1.29	0.96	8.61	10.86	6.00	(4.86)
			680	0.46									
			580S	0.01									
			510	1.21									
			318	3.63									
700	Santa Fe II Tank	9.0	700	0.72	3.06	1.6	4.89	0.73	0.96	4.89	6.58	9.00	2.42
			550	2.02									
			430	0.32									
490	Maerkle Tank	10.0	490	0.26	0.51	1.6	0.82	0.12	0.96	0.82	1.90	10.00	8.10
			285	0.25									
446	TAP Tank	6.0	580N	0.55	2.58	1.6	4.14	0.62	0.96	4.14	5.72	6.00	0.28
			446	1.64									
			349	0.39									
375	D-3 Tank	8.5	375	2.52	2.52	1.6	4.03	0.60	0.96	4.03	5.60	8.50	2.90
330	Ellery Tank	5.0	330	1.27	1.27	1.6	2.03	0.30	0.96	2.03	3.30	5.00	1.70
255	Elm Tank	1.5	255	1.80	1.80	1.6	2.88	0.43	0.96	2.88	4.27	1.50	(2.77)
241	Skyline Tank	1.5		1.54	1.54	1.6	2.46	0.37	0.96	2.46	3.79	1.50	(2.29)
Total	**—**	**47.5**	**—**	**18.66**	**—**	**—**	**—**	**—**	**—**	**—**	**42.02**	**—**	**5.49**

Notes:
Does not include 195 MG Maerkle Reservoir for Emergency Storage

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6.2.3 2040 Pump Station Capacity Analysis

Table 6-4 presents the pump station capacity analysis for the 2040 system, assuming each station is needed for back-up supply. The recommended capacity for each station is based on the average day demands for the direct pumped zone and all zones supplied from that zone.

Table 6-4: 2040 Pump Station Capacity

Pump Station	Pump Unit	Rated Capacity		Total Capacity		Recommended Capacity – gpm		Surplus/(Deficit) gpm
		gpm	MGD	gpm	MGD			
Maerkle	1	4,500	6.48	13,500	19.44	Entire system ADD	13,000	500
	2	4,500	6.48					
	3	4,500	6.48					
Bressi	1	1,250	1.80	3,750	5.40	700, 680, 580S & 510 318 (Lo Costa) Zone ADD	4,200	(450)
	2	1,250	1.80					
	3	1,250	1.80					
Calavera Hills	1	1,500	2.16	3,000	4.32	580 Zone MDD + 1,500 gpm fire flow	2,000	1,000
	2	1,500	2.16					

Note:
La Costa Lo can also be fed from other lower pressure zones, this analysis conservatively assumed at 100 percent form Bressi PS.

6.3 Additional Scenario Analyses

The section presents a discussion on additional analyses and future consideration to further improve and enhance system operations.

6.3.1 Maerkle Pipeline Replacement Options

The Maerkle Pipeline replacement project continues to be a high priority CIP for the 2019 Master Plan update. In 2013, the City completed a preliminary engineering report to evaluate multiple pipelines alignments, which considered; coordination with planned development, environmental constraints, and schedule. However, the CIP project stalled due to major delays in two major development projects:

- Cantarini Ranch (inability to fund the College Boulevard Bridge)
- Mandana Development (no progress on entitlements for a residential development plan)

The Maerkle Pipeline is a major transmission main that connects the Maerkle Reservoir and tank to the CMWD‘s 490 pressure zone distribution system (near Palmer Way between Impala Drive and Cougar Drive). The existing 27-inch transmission pipeline is a single-seam welded steel pipeline that was built in 1961 and may be reaching the end of its useful life, making it a high risk for failure. Specifically, CMWD Operations staff have in the past expressed concern for the Sunny Creek crossings in an environmentally sensitive area near El Camino Real.

Under normal operations, Maerkle Pipeline may meet 20 to 40 percent of the CMWD demand via supply to the lower pressure zones. However, during a planned SDCWA shutdown, this pipeline becomes a critical supply from the 195 MG Maerkle Reservoir to the distribution system, providing over 80 percent of the system demand. Moreover, during a major unplanned system outage, the pipeline may have to provide nearly 100 percent of the supply, with its ability to access the Maerkle Reservoir.

The alignment study identified four options: Existing, Northern, Central, and Southern, with all four alignments being contained within the Mandana property. CMWD maintains an existing easement for the 27-inch transmission pipeline through the property, which is currently used for agriculture. The following recommendations are made for the CIP project:

- Continue to budget for the full replacement of the pipelines at 36-inch in diameter
- Conduct a detailed pipeline condition assessment, especially in the critical reaches near Sunny Creek
- Update the alignment study based on projected development schedules and re-assess feasibility of each option
- Determine potential short-term pipeline rehabilitation projects to extend its service life
- Meet with Mandana Property owners to review specific entitlement development plans and options for CMWD to replace pipeline in existing easement

6.3.2 Interconnections/Reliability Evaluation

CMWD continues to maintain multiple interagency connections to provide emergency water supplies, specifically during local outages. In several cases, the City has upgraded connections since last master plan and has improved interagency supply capabilities. This master plan reviewed the connections and re-evaluated future potential interconnections. In particular, the City requested an evaluation of the cost/benefit to construct the planned interconnect along Coast Highway in the southwest portion of the City between CMWD and SDWD. One consideration was to increase available fire flow in this portion of the CMWD system for planned development. In addition, it was envisioned that a two-way connection may allow for equal cost contribution from both water agencies. For that reason, the project was further discussed with SDWD, including any potential benefit to access local SDWD water supply in an emergency. In summary, it was decided to remove this former CIP based on the following:

- The CMWD can deliver adequate fire flows in this portion of the City
- There is adequate distribution system looping to meet domestic demands in the event of a local pipeline outage
- SDWD would only assist in funding a portion of the connection, not the entire pipelines since the pipeline is located within the CMWD service area
- There are other interconnections in the CMWD system to access water supply in a major outage, making this connection redundant

6.3.3 Future Development

A major portion of the CMWD water system has been constructed by developers over the past 15 to 20 years, which has allowed critical transmission mains, pressure reducing stations, and system looping to be completed efficiently, with construction of new subdivisions. As the City approaches build-out, only a handful of major subdivisions remain, but they are critical to completing important master plan facilities in the northeastern portion of the City. These include:

- Cantarini Ranch
- Holly Springs
- Mandana Property
- Kato Property

Much of this planned development relied on the completion of the College Boulevard Bridge crossing to extend major water pipelines, including the future Maerkle Pipeline. However, due to major funding issues with the bridge project, it appears these developments and water infrastructure may be delayed. The 2019 Master Plan assumes service will be provided as studied and approved by CMWD for the respective developments, as this provides the desired level of reliability and service pressures.

However, CMWD may consider alternative supply and distribution options, assuming the CMWD evaluation criteria can continue to be met. It is possible that a new higher pressure zone may need to be considered along the eastern areas, depending on the available supply pressure.

6.3.4 Maerkle Reservoir Future Considerations

The City's reliance over the years on imported water has required CMWD to maintain and operate enough water storage to supply the water system in the event of a planned Aqueduct shutdown. In the early 1980's the SDCWA issued a firm policy to its member agencies to be independent for up to 10 days. At the time many water purveyors assumed this meant provide 10 days of treated water storage. In fact, in the 1980's and early 1990's brought the construction of large treated water storage reservoirs in San Diego County adjacent to the SDCWA turn-outs. CMWD fortunately had the storage volume and simply needed to proceed with construction of a floating cover to meet the new treated water storage requirement.

At this time, City Planners were implementing a comprehensive growth strategy that tied future growth to various thresholds for traffic, school, parks, and water and wastewater capacity. The adopted Growth Management Plan (GMP) in response to the SDCWA adopted the 10-day storage as 10 average days of water storage must be met to support future growth. Since that time because of the policy the CMWD water master plans have always included a 10-day storage calculation to confirm this growth initiative is met. For the 2019 Water Master Plan the projected 2040 average demand is about 18.66 mgd, resulting a 10-day requirement of 187 MG, which is less than the 195 MG available.

Soon after the construction of large treated storage tanks, it became apparent that purveyors were challenged to maintain water quality with the larger volumes and not able to turn over the tanks regularly. Many agencies reduced the operating volume and operate at an effective volume much lower than the tanks are sized for. The SDCWA issued a clarification on this policy that resulted in most agencies adopting a criterion of 10 winter days (which is about 60 to 70 percent of average) and ability to rely on other agencies for supply during a single Aqueduct shutdown. This has resulted in many local agencies lowering the storage volume criteria.

However, because CMWD maintains one single large reservoir, revisions to these criteria would likely result in CMWD maintaining lower volumes in Maerkle Reservoir, which is typically done through the course of the year. It is recommended that CMWD review with the City Planning Department the GMP policy for storage and consider language revisions aligned with current SDCWA guidelines to allow CMWD to operate at a lower storage volume in meeting the “10-day” GMP policy. Currently, CMWD is proceeding to upgrade its floating cover for Maerkle Reservoir which has reached the end of its useful life. If the GMP policy is revised, the next water master plan may explore a new approach to meeting the 10-day requirement including reducing the volume at Maerkle Reservoir and potentially implementing a different type of storage project.

6.4 Recommended System Improvements

The recommended water improvements are described in this section and are based on the following:

- Storage and Pump Station capacity analysis
- Model results of both the existing and 2040 systems to meet hydraulic capacity and evaluation criteria.
- Reliability projects to improve system feasibility and operations.
- Continuation of Fire Flow Upgrades identified in the 2012 Master Plan, as low priority to be considered on a case by basis and coordinated with other City capacity improvement projects
- Review of CMWD current planned CIP

Table 6-5 summarizes the recommended improvement projects by segment area and by planning phase. As noted, unit costs include all soft costs and are based on recent bids for Carlsbad pipeline projects.

Table 6-5: Water Capital Improvement Program

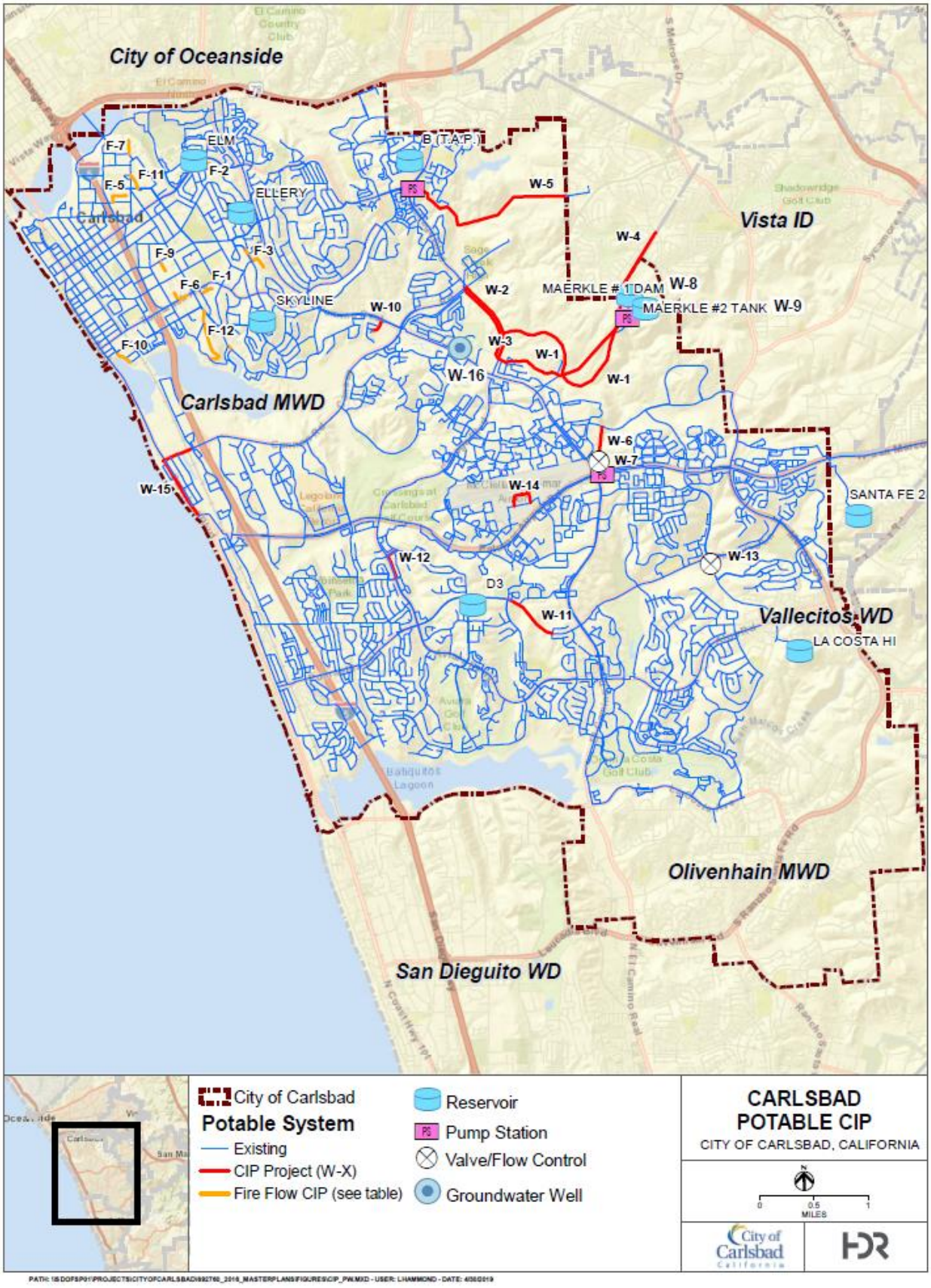
								Year of Implementation		
Master Plan ID No.	City CIP No.	Zone	Project Type	Description/Location	Count	Unit	Unit Cost ($/Unit)	CIP Cost	2019-2020	2021-2025	2026-2040
W1	50011	490	New Pipeline	Maerkle reservoir transmission main. 36" PL in easement across HMP Preserve from Maerkle Reservoir to College Blvd for supply/redundancy (alternative alignments to be evaluated).	8,900	LF	1045	$9,300,500[1]	—	$9,301,000	—
W2	50131	375	New Pipeline	College Boulevard - Cannon Road to Badger Lane (375 zone). 12" PL in future College Blvd from Cannon Rd south to Badger Ln	4,130	LF	265	$1,094,450[2]	—	$1,094,000	—
W3	50011	490	New Pipeline	College Boulevard - Cannon road to Badger Lane (490 Zone) 16" PL in College Blvd from intersection with Cannon Rd south to 400' north of El Camino Real	4,000	LF	365	$1,460,000[2]	—	$1,460,000	—
W4	50081	1080	Water Supply/ Pipeline Replacement	Tri-agency water transmission pipeline rehabilitation between CWA #3 & Maerkle Reservoir	—	LF	LS	$2,900,000	—	—	$2,900,000
W5	50081	—	Water Supply/ Pipeline Replacement	Tri-agency water transmission pipeline rehab between CWA #4 and 580 Zone at College Blvd.	—	—	LS	$1,443,000	—	—	$1,443,000
W6	50381	700	Water Supply	Desalinated water flow control facility. CWA #5 connection and 14-inch 16-inch PL for direct delivery of desalinated seawater	1,100	LF	860	$946,000	$946,000	—	—
W7	N/A	1080/ 490	Energy	Hydroelectric generator at Flow Control Facility #5	—	—	LS	$2,250,000	—	$250,000	$2,000,000
W8	50361	490	Water Storage	Maerkle Reservoir floating cover replacement. Replace floating cover for Maerkle Reservoir	LS	LF	—	$10,000,000	$10,000,000	—	—
W9	50091	490	Water System	Maerkle Facility Improvements	—	—	LS	$967,086	$483,543	$483,543	—
W10	50331	241	New Pipeline	Crestview Drive Transmission Main	—	—	LS	$240,000	$240,000	—	—
W11	50451	375	New Pipeline	12" PL in Poinsettia Ln from Skimmer Ct to Cassia Rd for looping & D3 Res supply and PRS ($300,000)	2,700	LF	265	$2,032,000	$1,016,000	$716,000	—
W12	N/A	550	New Pipeline	Aviara Parkway and Plum Tree waterline. 8" PL in Aviara Pkwy at Plum Tree north to Mariposa St, then east to Sapphire Dr. for redundancy	3,100	LF	355	$1,100,500	—	$1,100,500	—
W13	50501	700	Water System	Motor operated valve installation - 700 pressure zone. Provides Hydraulic control and operational flexibility	—	—	LS	$260,000	$130,000	$130,000	—
W14	N/A	550	New Pipeline	Palomar Airport waterline replacement	—	—	LS	$525,000	—	$525,000	—

Table 6-5: Water Capital Improvement Program

									Year of Implementation		
Master Plan ID No.	**City CIP No.**	**Zone**	**Project Type**	**Description/Location**	**Count**	**Unit**	**Unit Cost ($/Unit)**	**CIP Cost**	**2019-2020**	**2021-2025**	**2026-2040**
W15	50481	330/ 255	New Pipeline	Terramar waterline replacement. Transmission pipeline replacement. Designed and constructed with improvements in Carlsbad Blvd. and Cannon Rd.	—	—	LS	$1,930,000	—	$1,930,000	—
W16	N/A	375	Groundwater Supply	Rancho Carlsbad well ground water supply facilities	—	LF	LS	$1,750,000	—	—	$1,750,000
F1-F15	N/A	All	Pipeline Replacement	Fire flow upgrades (Appendix B)	LS	LF	—	$5,888,780	—	$1,950,000	$3,938,780
							Total	**$32,232,366**	**$12,815,543**	**$18,940,043**	**$12,031,780**

Notes:
1 May vary based on selected alignment.
2 Prior estimate for Development Agreements.

Figure 6-5: Recommended Improvement Projects



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Appendix A. Model Summary

(provided as separate .pdf table on CD)

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PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
8693	6.93	12.00	120.00	1.00	1.41	0.00	0.00
2027	49.40	8.00	120.00	1.00	0.00	0.00	0.00
5282	32.50	12.00	120.00	1.00	0.00	0.00	0.00
9026	61.61	16.00	120.00	1.00	0.00	0.00	0.00
1137	43.26	24.00	120.00	1.00	3599.88	2.55	0.05
1141	108.29	10.00	120.00	1.00	813.97	3.33	0.53
9257	30.43	12.00	120.00	1.00	976.75	2.77	0.09
1822	2.87	10.00	120.00	1.00	2351.10	9.60	0.10
5402	36.81	10.00	120.00	1.00	0.00	0.00	0.00
236	30.71	12.00	120.00	1.00	0.00	0.00	0.00
7393	28.39	16.00	120.00	1.00	0.00	0.00	0.00
9051	65.17	12.00	120.00	1.00	1.07	0.00	0.00
9006	11.63	8.00	120.00	1.00	0.00	0.00	0.00
5512	21.53	10.00	120.00	1.00	0.00	0.00	0.00
238	23.40	12.00	120.00	1.00	167.37	0.47	0.00
2188	21.18	10.00	120.00	1.00	1.49	0.01	0.00
6528	11.70	16.00	120.00	1.00	1145.04	1.83	0.01
9027	60.99	16.00	120.00	1.00	0.00	0.00	0.00
5283	804.33	14.00	127.00	1.00	4.26	0.01	0.00
7683	35.63	8.00	120.00	1.00	0.00	0.00	0.00
9052	64.58	12.00	120.00	1.00	408.49	1.16	0.04
5513	38.11	10.00	120.00	1.00	0.00	0.00	0.00
4447	250.66	8.00	120.00	1.00	1.47	0.01	0.00
7541	18.01	10.00	120.00	1.00	0.00	0.00	0.00
5403	9.58	16.00	120.00	1.00	0.00	0.00	0.00
9288	51.17	10.00	120.00	1.00	1.47	0.01	0.00
8694	7.88	12.00	120.00	1.00	0.00	0.00	0.00
4753	7.84	8.00	120.00	1.00	0.00	0.00	0.00
7394	9.64	12.00	120.00	1.00	0.00	0.00	0.00
9423	8.60	6.00	120.00	1.00	63.52	0.72	0.00
2028	16.17	8.00	120.00	1.00	0.00	0.00	0.00
280	481.22	8.00	113.00	1.00	41.41	0.26	0.03
215	3436.18	14.00	95.00	0.00	0.00	0.00	0.00
225	47.22	12.00	105.00	1.00	172.23	0.49	0.01
210	1255.77	8.00	105.00	1.00	5.57	0.04	0.00
220	324.18	10.00	105.00	1.00	160.47	0.66	0.10
235	22.23	12.00	115.00	1.00	0.00	0.00	0.00
240	1920.60	10.00	115.00	1.00	167.37	0.68	0.54
306	467.02	8.00	110.00	1.00	12.98	0.08	0.00
250	203.08	10.00	113.00	1.00	138.49	0.57	0.04
255	143.19	10.00	113.00	1.00	135.63	0.55	0.03
260	194.29	10.00	113.00	1.00	105.08	0.43	0.02
265	578.08	10.00	113.00	1.00	107.29	0.44	0.07
270	687.61	8.00	113.00	1.00	51.14	0.33	0.07
275	954.54	8.00	113.00	1.00	45.60	0.29	0.07
285	325.49	10.00	117.00	1.00	117.41	0.48	0.05

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
290	163.79	10.00	117.00	1.00	87.65	0.36	0.01
295	448.37	10.00	117.00	1.00	57.47	0.23	0.02
300	178.77	10.00	110.00	1.00	35.73	0.15	0.00
305	899.05	10.00	110.00	1.00	27.75	0.11	0.01
245	825.22	8.00	113.00	1.00	134.45	0.86	0.47
165	716.38	16.00	110.00	1.00	0.00	0.00	0.00
25	615.31	12.00	110.00	1.00	205.14	0.58	0.11
30	175.91	14.00	110.00	1.00	187.42	0.39	0.01
35	1059.70	12.00	110.00	1.00	97.58	0.28	0.05
40	460.90	12.00	105.00	1.00	206.81	0.59	0.09
45	384.10	12.00	105.00	1.00	139.00	0.39	0.04
50	602.08	8.00	105.00	1.00	7.80	0.05	0.00
205	629.84	8.00	105.00	1.00	39.24	0.25	0.04
975	1360.42	12.00	110.00	0.00	0.00	0.00	0.00
55	177.96	8.00	105.00	1.00	69.76	0.45	0.03
925	4178.32	36.00	120.00	1.00	3599.88	1.13	0.61
930	1076.01	10.00	113.00	1.00	597.93	2.44	3.32
996	195.56	6.00	113.00	1.00	34.84	0.40	0.04
940	534.75	8.00	113.00	1.00	102.56	0.65	0.19
945	500.68	8.00	113.00	1.00	99.16	0.63	0.16
950	315.10	10.00	113.00	1.00	477.57	1.95	0.64
955	783.41	10.00	113.00	1.00	562.85	2.30	2.16
960	605.24	6.00	112.00	1.00	9.67	0.11	0.01
961	457.82	8.00	112.00	1.00	18.75	0.12	0.01
965	1412.37	10.00	112.00	1.00	525.87	2.15	3.49
970	868.81	12.00	110.00	1.00	182.73	0.52	0.13
915	387.49	8.00	117.00	1.00	3.61	0.02	0.00
980	893.99	8.00	111.00	1.00	152.29	0.97	0.67
985	254.31	8.00	111.00	1.00	84.36	0.54	0.06
990	153.10	8.00	113.00	1.00	71.19	0.45	0.03
995	301.97	8.00	113.00	1.00	33.98	0.22	0.01
935	722.61	8.00	113.00	1.00	110.52	0.71	0.29
585	123.22	10.00	116.00	1.00	120.31	0.49	0.02
310	686.04	10.00	95.00	1.00	161.57	0.66	0.26
170	303.03	14.00	105.00	1.00	316.44	0.66	0.06
175	669.58	14.00	105.00	1.00	102.87	0.21	0.02
180	921.92	14.00	105.00	1.00	82.05	0.17	0.02
185	289.92	8.00	105.00	1.00	29.02	0.19	0.01
190	700.73	8.00	105.00	1.00	16.52	0.11	0.01
195	1169.82	8.00	113.00	1.00	9.38	0.06	0.00
200	960.60	8.00	105.00	1.00	15.65	0.10	0.01
545	616.26	8.00	116.00	1.00	3.81	0.02	0.00
495	7.18	16.00	105.00	1.00	2121.98	3.39	0.03
500	5929.06	21.00	105.00	1.00	2641.00	2.45	8.83
505	83.52	16.00	120.00	1.00	787.86	1.26	0.04
575	173.53	8.00	116.00	1.00	32.86	0.21	0.01

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
515	503.11	10.00	116.00	1.00	137.00	0.56	0.10
520	318.19	12.00	116.00	1.00	283.58	0.80	0.10
525	155.05	10.00	116.00	1.00	15.91	0.06	0.00
530	325.14	10.00	116.00	1.00	124.12	0.51	0.05
535	163.51	10.00	116.00	1.00	21.15	0.09	0.00
540	206.92	10.00	116.00	1.00	13.41	0.05	0.00
550	495.13	8.00	116.00	1.00	4.65	0.03	0.00
555	159.72	8.00	116.00	1.00	19.14	0.12	0.00
560	327.43	8.00	116.00	1.00	58.10	0.37	0.04
565	697.14	8.00	116.00	1.00	37.04	0.24	0.04
570	278.63	8.00	116.00	1.00	7.56	0.05	0.00
510	881.35	12.00	116.00	1.00	533.23	1.51	0.86
316	270.36	10.00	113.00	1.00	167.54	0.68	0.08
450	324.11	10.00	116.00	1.00	74.37	0.30	0.02
320	463.26	8.00	113.00	1.00	13.87	0.09	0.00
325	353.63	10.00	113.00	1.00	174.43	0.71	0.11
330	944.51	10.00	113.00	1.00	199.11	0.81	0.38
335	1129.83	12.00	105.00	1.00	423.16	1.20	0.86
910	384.13	10.00	116.00	1.00	43.95	0.18	0.01
485	566.54	12.00	116.00	1.00	305.27	0.87	0.20
340	879.66	12.00	105.00	1.00	421.85	1.20	0.67
130	186.00	14.00	113.00	1.00	0.00	0.00	0.00
70	150.00	12.00	105.00	1.00	180.83	0.51	0.02
75	305.59	12.00	105.00	1.00	142.96	0.41	0.03
80	629.76	8.00	105.00	1.00	34.75	0.22	0.03
85	631.83	12.00	113.00	1.00	201.61	0.57	0.11
160	396.34	12.00	110.00	1.00	316.44	0.90	0.16
95	107.95	10.00	113.00	1.00	66.19	0.27	0.01
100	35.71	10.00	113.00	1.00	96.01	0.39	0.00
105	225.34	12.00	113.00	1.00	286.74	0.81	0.07
110	179.32	8.00	113.00	1.00	21.08	0.13	0.00
115	252.26	8.00	113.00	1.00	5.20	0.03	0.00
120	1377.60	8.00	113.00	1.00	2.08	0.01	0.00
125	319.98	12.00	113.00	1.00	309.56	0.88	0.12
65	686.79	8.00	105.00	1.00	38.72	0.25	0.05
135	1286.66	14.00	113.00	1.00	318.16	0.66	0.24
145	191.40	12.00	105.00	1.00	219.56	0.62	0.04
150	166.00	12.00	110.00	1.00	202.34	0.57	0.03
155	336.24	12.00	110.00	1.00	188.82	0.54	0.05
90	847.20	12.00	113.00	1.00	190.72	0.54	0.13
580	169.59	10.00	116.00	1.00	106.65	0.44	0.02
455	603.59	12.00	116.00	1.00	322.10	0.91	0.23
460	411.79	12.00	116.00	1.00	318.40	0.90	0.15
465	295.92	12.00	116.00	1.00	305.27	0.87	0.10
470	467.63	12.00	116.00	1.00	69.93	0.20	0.01
475	347.19	8.00	116.00	1.00	79.84	0.51	0.07

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
480	470.74	12.00	116.00	1.00	236.52	0.67	0.10
60	223.17	8.00	105.00	1.00	35.49	0.23	0.01
2192	13.03	8.00	120.00	0.00	0.00	0.00	0.00
5913	28.87	10.00	100.00	0.00	0.00	0.00	0.00
5357	24.63	8.00	120.00	0.00	0.00	0.00	0.00
4752	11.39	6.00	100.00	0.00	0.00	0.00	0.00
9258	13.11	12.00	120.00	0.00	0.00	0.00	0.00
5358	17.73	48.00	120.00	0.00	0.00	0.00	0.00
5408	24.32	48.00	100.00	0.00	0.00	0.00	0.00
2351	26.00	10.00	115.00	0.00	0.00	0.00	0.00
920	4779.88	14.00	80.00	0.00	0.00	0.00	0.00
491	382.10	16.00	120.00	0.00	0.00	0.00	0.00
490	603.27	16.00	120.00	0.00	0.00	0.00	0.00
345	554.39	8.00	113.00	1.00	218.55	1.39	0.79
835	599.93	8.00	117.00	1.00	6.53	0.04	0.00
776	248.10	8.00	115.00	1.00	1090.25	6.96	6.67
780	317.24	8.00	115.00	1.00	515.87	3.29	2.13
785	719.39	8.00	115.00	1.00	674.57	4.31	7.95
855	1514.47	8.00	95.00	1.00	269.86	1.72	4.32
795	481.83	12.00	115.00	1.00	1604.29	4.55	3.68
800	1078.58	10.00	117.00	1.00	55.76	0.23	0.04
805	9.36	14.00	117.00	1.00	1595.30	3.32	0.03
810	741.82	8.00	117.00	1.00	20.39	0.13	0.01
815	521.61	8.00	117.00	1.00	14.91	0.10	0.00
820	816.88	8.00	117.00	1.00	4.86	0.03	0.00
825	281.89	8.00	117.00	1.00	5.41	0.03	0.00
830	568.92	8.00	117.00	1.00	23.11	0.15	0.01
775	792.31	12.00	115.00	1.00	1087.07	3.08	2.94
840	947.17	8.00	95.00	1.00	246.67	1.57	2.31
845	1388.62	8.00	95.00	1.00	12.00	0.08	0.01
850	715.95	8.00	95.00	1.00	287.32	1.83	2.30
790	475.69	8.00	115.00	1.00	680.09	4.34	5.34
595	120.81	12.00	116.00	1.00	282.55	0.80	0.04
735	859.60	8.00	110.00	1.00	14.88	0.09	0.01
600	131.25	12.00	116.00	1.00	283.98	0.81	0.04
605	372.63	12.00	116.00	1.00	137.83	0.39	0.03
610	857.05	8.00	110.00	1.00	9.79	0.06	0.00
615	614.66	8.00	110.00	1.00	11.50	0.07	0.00
620	317.10	8.00	110.00	1.00	18.34	0.12	0.00
625	606.61	8.00	110.00	1.00	10.36	0.07	0.00
630	259.23	8.00	110.00	1.00	18.71	0.12	0.00
770	565.13	8.00	115.00	1.00	473.11	3.02	3.24
635	198.49	8.00	110.00	1.00	43.71	0.28	0.02
3830	620.06	6.00	112.00	1.00	120.07	1.36	1.20
3840	151.30	10.00	110.00	1.00	365.78	1.49	0.20
3845	485.12	10.00	110.00	1.00	301.56	1.23	0.44

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
3850	596.68	8.00	112.00	1.00	13.28	0.08	0.00
3855	434.62	8.00	113.00	1.00	16.24	0.10	0.01
3860	435.47	6.00	113.00	1.00	4.51	0.05	0.00
3865	586.40	6.00	113.00	1.00	3.84	0.04	0.00
3870	504.16	10.00	110.00	1.00	220.43	0.90	0.26
3875	951.50	8.00	110.00	1.00	134.41	0.86	0.58
3880	141.77	8.00	110.00	1.00	61.11	0.39	0.02
3885	146.91	8.00	110.00	1.00	48.51	0.31	0.01
3890	338.78	8.00	110.00	1.00	40.57	0.26	0.02
3895	582.94	8.00	110.00	1.00	75.79	0.48	0.12
3835	385.55	10.00	110.00	1.00	389.11	1.59	0.56
2290	1190.54	10.00	114.00	1.00	431.59	1.76	1.97
1150	868.06	12.00	110.00	1.00	43.79	0.12	0.01
590	171.56	10.00	116.00	1.00	138.76	0.57	0.03
860	1266.03	8.00	110.00	1.00	6.53	0.04	0.00
740	679.65	8.00	110.00	1.00	18.26	0.12	0.01
745	363.91	10.00	100.00	1.00	157.94	0.65	0.12
746	281.36	10.00	100.00	1.00	252.50	1.03	0.22
747	337.70	10.00	100.00	1.00	88.66	0.36	0.04
750	420.59	8.00	100.00	1.00	132.56	0.85	0.30
752	617.62	8.00	100.00	1.00	192.19	1.23	0.86
755	37.12	10.00	100.00	1.00	384.15	1.57	0.06
760	293.75	14.00	115.00	1.00	2219.39	4.63	1.93
765	772.35	8.00	115.00	1.00	464.95	2.97	4.29
640	68.07	8.00	110.00	1.00	37.00	0.24	0.00
350	498.18	8.00	113.00	1.00	10.85	0.07	0.00
1060	212.11	8.00	112.00	1.00	84.39	0.54	0.05
1065	1060.34	8.00	112.00	1.00	43.33	0.28	0.05
1070	302.69	8.00	112.00	1.00	129.93	0.83	0.11
1075	927.64	6.00	112.00	1.00	36.87	0.42	0.13
1140	3.41	10.00	110.00	1.00	813.97	3.33	0.02
1095	128.72	6.00	110.00	1.00	5.87	0.07	0.00
1100	663.53	8.00	95.00	1.00	265.50	1.69	1.84
1105	524.04	4.00	110.00	1.00	4.54	0.12	0.02
1110	49.85	14.00	95.00	1.00	10.57	0.02	0.00
1055	970.21	8.00	112.00	1.00	45.99	0.29	0.07
1120	201.38	12.00	95.00	1.00	811.89	2.30	0.62
1125	8.74	12.00	95.00	1.00	813.97	2.31	0.03
1080	1796.91	14.00	110.00	1.00	0.00	0.00	0.00
870	179.53	10.00	110.00	1.00	25.92	0.11	0.00
1005	966.12	6.00	100.00	1.00	7.33	0.08	0.01
875	498.71	8.00	110.00	1.00	8.64	0.06	0.00
885	1092.61	8.00	117.00	1.00	26.49	0.17	0.03
890	673.30	8.00	117.00	1.00	8.97	0.06	0.00
895	522.80	8.00	117.00	1.00	11.25	0.07	0.00
900	386.78	8.00	117.00	1.00	9.74	0.06	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
1050	53.96	8.00	112.00	1.00	60.41	0.39	0.01
905	556.54	8.00	117.00	1.00	21.83	0.14	0.01
710	218.05	8.00	116.00	1.00	478.98	3.06	1.26
655	84.66	12.00	116.00	1.00	2.17	0.01	0.00
660	1375.43	14.00	116.00	1.00	2195.55	4.58	8.71
730	269.63	8.00	110.00	1.00	41.44	0.26	0.02
670	604.21	8.00	110.00	1.00	12.51	0.08	0.00
675	156.20	8.00	110.00	1.00	14.13	0.09	0.00
680	180.71	8.00	110.00	1.00	1.56	0.01	0.00
685	500.65	8.00	110.00	1.00	0.00	0.00	0.00
690	356.68	12.00	116.00	1.00	1722.53	4.89	3.05
695	340.19	12.00	116.00	1.00	1350.92	3.83	1.86
700	136.04	8.00	116.00	1.00	858.16	5.48	2.31
705	1116.15	8.00	116.00	1.00	375.78	2.40	4.11
650	96.56	8.00	110.00	1.00	1.27	0.01	0.00
715	1137.46	8.00	116.00	1.00	476.10	3.04	6.49
720	197.30	8.00	116.00	1.00	2.07	0.01	0.00
725	1010.50	10.00	110.00	1.00	45.07	0.18	0.03
665	652.03	8.00	110.00	1.00	6.70	0.04	0.00
1145	117.43	12.00	110.00	1.00	770.18	2.18	0.25
865	918.29	8.00	110.00	1.00	20.52	0.13	0.02
1010	779.80	10.00	95.00	1.00	13.24	0.05	0.00
1015	468.49	12.00	100.00	1.00	494.01	1.40	0.52
1020	904.68	8.00	113.00	1.00	7.48	0.05	0.00
1025	767.51	12.00	110.00	1.00	763.13	2.16	1.61
1030	727.41	12.00	112.00	1.00	341.49	0.97	0.33
1035	1378.91	12.00	112.00	1.00	261.93	0.74	0.39
1040	441.26	8.00	112.00	1.00	39.34	0.25	0.02
1045	1055.69	6.00	112.00	1.00	55.15	0.63	0.48
645	199.73	10.00	110.00	1.00	37.00	0.15	0.00
906	192.59	8.00	117.00	1.00	29.53	0.19	0.01
3900	973.87	6.00	110.00	1.00	53.85	0.61	0.44
1390	453.20	10.00	100.00	1.00	483.75	1.98	1.18
1335	960.62	10.00	110.00	1.00	97.81	0.40	0.11
1340	1312.19	8.00	110.00	1.00	25.13	0.16	0.03
1345	635.19	8.00	113.00	1.00	8.23	0.05	0.00
1350	1185.72	8.00	113.00	1.00	7.36	0.05	0.00
1355	184.43	8.00	113.00	1.00	21.48	0.14	0.00
1360	1097.26	8.00	113.00	1.00	7.66	0.05	0.00
1365	932.31	8.00	113.00	1.00	42.89	0.27	0.06
1370	272.87	8.00	113.00	1.00	65.30	0.42	0.04
1375	1038.33	12.00	114.00	1.00	188.57	0.53	0.12
1440	422.42	8.00	110.00	1.00	8.55	0.05	0.00
1385	388.67	12.00	100.00	1.00	110.06	0.31	0.03
1330	607.54	10.00	110.00	1.00	106.55	0.44	0.08
1395	328.37	6.00	100.00	1.00	114.97	1.30	0.72

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
1400	946.36	8.00	100.00	1.00	109.57	0.70	0.47
1405	293.22	8.00	114.00	1.00	0.00	0.00	0.00
1410	398.04	8.00	114.00	1.00	13.88	0.09	0.00
1415	946.24	8.00	114.00	1.00	6.69	0.04	0.00
1420	578.42	8.00	114.00	1.00	10.81	0.07	0.00
1425	325.54	8.00	114.00	1.00	29.11	0.19	0.01
1430	583.83	8.00	110.00	1.00	12.26	0.08	0.00
1435	33.17	8.00	110.00	1.00	8.98	0.06	0.00
1380	536.29	16.00	114.00	1.00	197.87	0.32	0.02
1165	240.15	8.00	95.00	1.00	488.45	3.12	2.08
1305	72.89	1.00	100.00	1.00	18.32	7.49	14.62
1170	684.33	8.00	95.00	1.00	335.11	2.14	2.95
1325	170.87	12.00	110.00	1.00	38.76	0.11	0.00
1175	263.12	12.00	95.00	1.00	513.59	1.46	0.35
2110	152.40	6.00	114.00	1.00	59.07	0.67	0.08
2055	145.39	8.00	116.00	1.00	19.08	0.12	0.00
2060	502.81	10.00	114.00	1.00	88.74	0.36	0.04
2065	271.08	6.00	114.00	1.00	0.97	0.01	0.00
2070	449.01	8.00	114.00	1.00	7.56	0.05	0.00
2075	132.13	8.00	116.00	1.00	21.56	0.14	0.00
2080	696.13	8.00	116.00	1.00	0.34	0.00	0.00
2150	228.13	6.00	114.00	1.00	14.00	0.16	0.01
2086	232.01	8.00	114.00	1.00	45.50	0.29	0.02
2090	418.44	10.00	114.00	1.00	69.94	0.29	0.02
2095	747.60	6.00	114.00	1.00	18.68	0.21	0.04
2100	399.51	6.00	114.00	1.00	0.64	0.01	0.00
2105	204.55	6.00	114.00	1.00	26.87	0.30	0.02
2050	830.99	8.00	116.00	1.00	60.11	0.38	0.10
2115	397.75	10.00	114.00	1.00	49.33	0.20	0.01
2120	102.81	10.00	114.00	1.00	107.60	0.44	0.01
2125	950.31	8.00	114.00	1.00	15.02	0.10	0.01
2130	225.96	6.00	114.00	1.00	14.63	0.17	0.01
2135	311.45	8.00	114.00	1.00	35.24	0.22	0.01
2140	389.42	10.00	114.00	1.00	71.45	0.29	0.02
2145	819.19	8.00	114.00	1.00	2.74	0.02	0.00
2085	448.42	8.00	114.00	1.00	32.96	0.21	0.02
1160	801.66	12.00	100.00	1.00	814.42	2.31	2.26
1736	49.66	8.00	100.00	1.00	2.15	0.01	0.00
1445	280.96	8.00	110.00	1.00	9.96	0.06	0.00
1310	720.48	16.00	100.00	1.00	22.18	0.04	0.00
1311	127.36	18.00	100.00	1.00	20.04	0.03	0.00
1320	332.11	12.00	95.00	1.00	96.65	0.27	0.02
1180	285.29	14.00	95.00	1.00	254.55	0.53	0.05
1670	448.24	6.00	97.00	1.00	135.17	1.53	1.40
1610	502.57	6.00	85.00	1.00	10.02	0.11	0.02
1615	415.13	6.00	85.00	1.00	2.00	0.02	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
1620	592.67	6.00	85.00	1.00	9.37	0.11	0.02
1625	914.03	10.00	114.00	1.00	172.28	0.70	0.28
1630	430.00	10.00	114.00	1.00	401.76	1.64	0.62
1645	810.97	8.00	100.00	1.00	27.40	0.17	0.03
1650	279.68	10.00	100.00	1.00	646.47	2.64	1.25
1655	44.55	10.00	100.00	1.00	555.75	2.27	0.15
1730	1245.20	6.00	97.00	1.00	78.61	0.89	1.43
1665	620.49	6.00	97.00	1.00	106.24	1.21	1.24
1605	141.94	6.00	85.00	1.00	25.34	0.29	0.03
1675	407.91	6.00	97.00	1.00	142.16	1.61	1.40
1680	624.19	6.00	105.00	1.00	249.69	2.83	5.26
1685	757.87	6.00	105.00	1.00	245.03	2.78	6.17
1690	279.28	8.00	97.00	1.00	261.86	1.67	0.73
1695	1080.66	8.00	97.00	1.00	382.10	2.44	5.72
1700	1197.93	16.00	114.00	1.00	696.43	1.11	0.49
1705	97.90	10.00	100.00	1.00	543.57	2.22	0.32
1710	459.08	20.00	120.00	1.00	3236.68	3.31	0.99
1715	517.01	10.00	100.00	1.00	416.10	1.70	1.02
1720	384.44	10.00	100.00	1.00	743.95	3.04	2.23
1725	281.89	10.00	100.00	1.00	577.38	2.36	1.02
1660	245.55	8.00	100.00	1.00	28.09	0.18	0.01
1455	277.51	6.00	110.00	1.00	5.47	0.06	0.00
1600	1207.42	10.00	100.00	1.00	706.29	2.89	6.35
1585	1554.75	6.00	100.00	1.00	5.69	0.06	0.01
1255	360.54	8.00	116.00	1.00	1.73	0.01	0.00
1195	995.43	10.00	95.00	1.00	115.85	0.47	0.20
1200	950.67	12.00	112.00	1.00	241.50	0.69	0.23
1205	212.36	12.00	116.00	1.00	257.92	0.73	0.04
1210	280.90	12.00	116.00	1.00	211.80	0.60	0.03
1215	341.05	8.00	120.00	1.00	15.52	0.10	0.00
1220	659.20	8.00	120.00	1.00	48.68	0.31	0.03
1225	383.91	8.00	116.00	1.00	31.57	0.20	0.01
1230	244.18	8.00	116.00	1.00	11.27	0.07	0.00
1300	596.56	8.00	112.00	1.00	14.01	0.09	0.01
1240	212.53	8.00	116.00	1.00	11.92	0.08	0.00
1245	425.48	8.00	116.00	1.00	17.62	0.11	0.01
1250	100.23	8.00	116.00	1.00	4.68	0.03	0.00
1190	1083.69	8.00	95.00	1.00	110.57	0.71	0.59
1260	364.90	8.00	116.00	1.00	14.87	0.09	0.00
1265	784.68	8.00	116.00	1.00	15.84	0.10	0.01
1270	515.82	12.00	108.00	1.00	212.96	0.60	0.07
1275	1305.52	6.00	108.00	1.00	22.40	0.25	0.08
1280	248.18	12.00	114.00	1.00	263.71	0.75	0.05
1285	793.48	10.00	110.00	1.00	79.99	0.33	0.04
1290	1079.67	10.00	117.00	1.00	175.70	0.72	0.24
1291	534.57	8.00	114.00	1.00	174.23	1.11	0.35

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
1295	959.72	16.00	114.00	1.00	187.60	0.30	0.03
1235	597.13	8.00	116.00	1.00	14.64	0.09	0.01
1735	302.61	12.00	100.00	1.00	248.86	0.71	0.09
1450	387.03	8.00	110.00	1.00	13.81	0.09	0.00
1590	552.64	6.00	100.00	1.00	92.60	1.05	0.81
1595	315.96	6.00	100.00	1.00	61.88	0.70	0.22
1185	358.27	12.00	95.00	1.00	120.43	0.34	0.03
2045	392.79	10.00	117.00	1.00	188.93	0.77	0.13
3825	678.81	12.00	100.00	1.00	945.32	2.68	2.52
1960	149.34	8.00	97.00	1.00	198.04	1.26	0.23
1900	2335.48	14.00	116.00	1.00	2193.93	4.57	14.77
1905	309.56	10.00	97.00	1.00	74.41	0.30	0.03
1910	49.09	6.00	97.00	1.00	52.02	0.59	0.03
1915	549.61	12.00	97.00	1.00	84.29	0.24	0.02
1920	340.97	6.00	97.00	1.00	49.14	0.56	0.15
1925	748.45	6.00	97.00	1.00	26.81	0.30	0.11
1930	806.53	6.00	97.00	1.00	14.96	0.17	0.04
2000	956.82	6.00	97.00	1.00	1.54	0.02	0.00
1940	462.61	8.00	113.00	1.00	169.32	1.08	0.41
1945	194.46	8.00	113.00	1.00	37.87	0.24	0.01
1950	289.34	8.00	113.00	1.00	93.78	0.60	0.09
1955	534.94	8.00	113.00	1.00	100.69	0.64	0.18
1895	506.58	10.00	113.00	1.00	290.75	1.19	0.41
1965	237.47	8.00	97.00	1.00	226.44	1.45	0.48
1970	786.73	8.00	97.00	1.00	34.33	0.22	0.05
1975	774.00	8.00	97.00	1.00	41.97	0.27	0.07
1980	440.24	8.00	97.00	1.00	48.11	0.31	0.05
1985	603.08	8.00	97.00	1.00	57.56	0.37	0.10
1990	805.21	6.00	97.00	1.00	18.46	0.21	0.06
1995	59.68	6.00	97.00	1.00	17.10	0.19	0.00
1935	568.38	6.00	97.00	1.00	9.79	0.11	0.01
1738	22.41	8.00	114.00	1.00	0.00	0.00	0.00
1860	858.30	6.00	97.00	1.00	87.24	0.99	1.20
1739	22.55	8.00	114.00	1.00	1.02	0.01	0.00
1740	524.21	10.00	113.00	1.00	251.96	1.03	0.32
1741	23.71	8.00	100.00	1.00	1.33	0.01	0.00
1890	1251.53	16.00	120.00	1.00	981.51	1.57	0.88
1745	558.16	10.00	113.00	1.00	164.76	0.67	0.16
420	424.38	8.00	116.00	1.00	5.65	0.04	0.00
370	494.31	8.00	95.00	1.00	240.30	1.53	1.15
375	924.95	8.00	95.00	1.00	244.27	1.56	2.22
380	676.33	8.00	95.00	0.00	0.00	0.00	0.00
445	349.03	10.00	116.00	1.00	0.08	0.00	0.00
390	383.31	8.00	100.00	1.00	242.67	1.55	0.83
391	73.87	8.00	100.00	1.00	96.07	0.61	0.03
395	617.87	8.00	100.00	1.00	99.72	0.64	0.26

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
396	450.65	8.00	100.00	1.00	135.60	0.87	0.33
400	251.24	8.00	100.00	1.00	205.27	1.31	0.40
405	376.31	8.00	100.00	1.00	194.17	1.24	0.54
410	375.66	8.00	100.00	1.00	17.66	0.11	0.01
415	482.49	8.00	100.00	1.00	5.95	0.04	0.00
365	426.07	8.00	113.00	1.00	237.37	1.52	0.70
425	168.02	8.00	116.00	1.00	20.34	0.13	0.00
430	102.09	10.00	116.00	1.00	26.61	0.11	0.00
435	353.05	10.00	116.00	1.00	35.32	0.14	0.01
440	363.43	10.00	116.00	1.00	29.72	0.12	0.00
385	775.28	8.00	95.00	1.00	449.48	2.87	5.76
2285	962.24	10.00	114.00	1.00	455.89	1.86	1.76
1737	22.57	8.00	100.00	1.00	0.50	0.00	0.00
2005	1260.90	10.00	113.00	1.00	145.16	0.59	0.28
1865	1162.05	8.00	97.00	1.00	142.23	0.91	0.97
1870	894.35	6.00	97.00	1.00	152.80	1.73	3.52
1875	1110.08	10.00	115.00	1.00	532.72	2.18	2.67
1880	259.48	10.00	113.00	1.00	257.72	1.05	0.17
1885	96.69	10.00	113.00	1.00	106.86	0.44	0.01
1750	132.69	10.00	115.00	1.00	9.36	0.04	0.00
360	1126.13	8.00	113.00	1.00	232.59	1.48	1.79
2230	1034.38	10.00	114.00	1.00	80.57	0.33	0.08
2180	510.15	8.00	114.00	1.00	7.66	0.05	0.00
2185	1643.26	16.00	120.00	1.00	1760.75	2.81	3.39
2186	20.57	10.00	117.00	1.00	333.03	1.36	0.02
2190	667.42	12.00	120.00	1.00	1426.23	4.05	3.79
P490-255-1-8	21.18	12.00	120.00	1.00	0.00	0.00	0.00
2195	489.30	12.00	120.00	1.00	1425.27	4.04	2.77
2200	981.27	10.00	120.00	1.00	695.37	2.84	3.58
2205	433.40	10.00	114.00	1.00	358.21	1.46	0.51
2275	350.60	10.00	114.00	1.00	109.71	0.45	0.05
2215	518.94	10.00	115.00	1.00	397.24	1.62	0.73
2220	182.74	10.00	115.00	1.00	725.66	2.96	0.78
2225	778.94	10.00	115.00	1.00	319.02	1.30	0.73
2175	509.42	8.00	114.00	1.00	3.69	0.02	0.00
2235	220.55	10.00	114.00	1.00	2.27	0.01	0.00
2240	159.83	10.00	113.00	1.00	263.89	1.08	0.11
2245	441.47	12.00	114.00	1.00	768.96	2.18	0.88
2250	498.61	10.00	113.00	1.00	149.16	0.61	0.12
2255	855.68	10.00	113.00	1.00	148.41	0.61	0.20
2260	621.16	10.00	113.00	1.00	262.76	1.07	0.42
2265	386.15	10.00	113.00	1.00	257.05	1.05	0.25
2270	313.32	10.00	114.00	1.00	428.90	1.75	0.51
2210	387.69	10.00	115.00	1.00	705.00	2.88	1.57
2015	459.60	10.00	113.00	1.00	14.64	0.06	0.00
2154	152.43	6.00	114.00	1.00	28.25	0.32	0.02

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
2020	8.97	10.00	113.00	1.00	0.00	0.00	0.00
2030	731.21	10.00	113.00	1.00	11.41	0.05	0.00
1820	251.39	8.00	97.00	1.00	676.69	4.32	3.83
1765	267.64	10.00	113.00	1.00	174.51	0.71	0.08
1770	390.21	10.00	113.00	1.00	326.89	1.34	0.39
1775	410.54	8.00	113.00	1.00	151.23	0.97	0.29
1780	597.19	8.00	113.00	1.00	132.26	0.84	0.33
1790	945.41	18.00	120.00	1.00	3236.68	4.08	3.40
1794	254.61	18.00	117.00	1.00	1442.32	1.82	0.21
1855	757.88	6.00	97.00	1.00	98.99	1.12	1.33
1797	93.05	18.00	117.00	1.00	2796.58	3.53	0.23
1800	62.97	6.00	115.00	1.00	392.36	4.45	1.04
1805	80.24	10.00	115.00	1.00	1276.67	5.22	0.98
1810	61.42	24.00	120.00	1.00	2346.56	1.66	0.03
1815	68.73	10.00	115.00	1.00	1669.03	6.82	1.37
1760	367.48	8.00	115.00	1.00	2.02	0.01	0.00
1821	5.67	10.00	120.00	1.00	2351.10	9.60	0.20
1825	301.23	8.00	97.00	1.00	570.87	3.64	3.35
1830	938.29	8.00	97.00	1.00	396.79	2.53	5.32
1835	316.41	8.00	97.00	1.00	312.32	1.99	1.15
1840	1175.84	8.00	97.00	1.00	7.52	0.05	0.00
1845	500.74	8.00	97.00	1.00	303.31	1.94	1.73
1850	286.06	8.00	97.00	1.00	452.28	2.89	2.07
1795	711.04	18.00	117.00	1.00	1438.36	1.81	0.59
2280	197.11	10.00	114.00	1.00	7.29	0.03	0.00
2010	1048.97	10.00	113.00	1.00	116.19	0.47	0.16
2155	236.07	6.00	114.00	1.00	19.41	0.22	0.02
2160	532.49	8.00	114.00	1.00	6.38	0.04	0.00
2165	178.73	8.00	114.00	1.00	9.55	0.06	0.00
2170	123.97	10.00	114.00	1.00	11.82	0.05	0.00
1755	364.73	8.00	115.00	1.00	2.02	0.01	0.00
2035	840.74	10.00	113.00	1.00	0.43	0.00	0.00
355	346.70	6.00	113.00	1.00	227.98	2.59	2.16
1460	850.09	8.00	110.00	1.00	30.22	0.19	0.03
2325	143.69	10.00	114.00	1.00	50.77	0.21	0.00
2560	744.68	8.00	97.00	1.00	29.88	0.19	0.03
2565	395.55	6.00	97.00	0.00	0.00	0.00	0.00
2570	1173.92	6.00	97.00	1.00	9.77	0.11	0.03
2575	575.35	6.00	97.00	1.00	17.08	0.19	0.04
2580	288.59	10.00	112.00	1.00	188.50	0.77	0.11
2585	877.69	10.00	112.00	1.00	197.67	0.81	0.35
2590	496.04	10.00	112.00	1.00	198.70	0.81	0.20
2530	279.92	6.00	112.00	1.00	159.20	1.81	0.91
2305	689.89	12.00	114.00	1.00	885.26	2.51	1.78
2455	422.03	12.00	114.00	1.00	704.61	2.00	0.71
2310	1703.73	12.00	114.00	1.00	542.46	1.54	1.77

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
2320	758.83	10.00	115.00	1.00	40.82	0.17	0.02
2555	680.51	6.00	97.00	1.00	2.67	0.03	0.00
2330	260.67	10.00	114.00	1.00	38.78	0.16	0.00
2335	545.05	8.00	114.00	1.00	10.66	0.07	0.00
2340	641.05	8.00	114.00	1.00	12.08	0.08	0.00
2345	1258.93	8.00	114.00	1.00	19.21	0.12	0.02
2350	47.87	8.00	115.00	1.00	46.54	0.30	0.00
2355	425.60	10.00	114.00	1.00	19.78	0.08	0.00
2360	106.42	8.00	115.00	1.00	18.69	0.12	0.00
2365	490.72	8.00	115.00	1.00	5.06	0.03	0.00
2370	770.07	8.00	115.00	1.00	3.96	0.03	0.00
2375	305.54	8.00	115.00	1.00	19.88	0.13	0.00
2450	609.90	14.00	116.00	1.00	126.63	0.26	0.02
2385	463.12	8.00	114.00	1.00	44.21	0.28	0.03
2390	76.43	8.00	114.00	1.00	94.33	0.60	0.02
2550	898.83	6.00	97.00	1.00	8.82	0.10	0.02
2395	328.54	8.00	114.00	1.00	125.49	0.80	0.16
2475	2290.34	8.00	115.00	1.00	116.37	0.74	0.98
3295	590.02	8.00	112.00	1.00	58.36	0.37	0.07
3300	1166.27	6.00	112.00	1.00	47.71	0.54	0.41
3305	370.50	6.00	112.00	1.00	27.02	0.31	0.05
3310	97.95	10.00	112.00	1.00	251.96	1.03	0.06
3315	806.15	8.00	114.00	1.00	5.83	0.04	0.00
3260	958.69	10.00	112.00	1.00	243.68	1.00	0.57
2300	295.78	10.00	114.00	1.00	471.97	1.93	0.58
2880	59.21	10.00	112.00	1.00	95.65	0.39	0.01
2600	14.41	14.00	114.00	1.00	295.96	0.62	0.00
2460	1078.14	14.00	114.00	1.00	490.26	1.02	0.44
2465	464.39	14.00	112.00	1.00	238.78	0.50	0.05
2470	1022.92	12.00	112.00	1.00	202.41	0.57	0.18
3290	1175.15	10.00	111.00	1.00	174.65	0.71	0.38
2480	199.25	8.00	112.00	1.00	40.08	0.26	0.01
2485	908.75	10.00	113.00	1.00	121.34	0.50	0.15
2490	549.55	8.00	113.00	1.00	116.23	0.74	0.24
2495	26.56	8.00	114.00	1.00	730.93	4.67	0.35
2500	943.48	6.00	112.00	1.00	41.96	0.48	0.26
2505	60.24	6.00	112.00	1.00	115.37	1.31	0.11
2510	696.04	6.00	112.00	1.00	63.10	0.72	0.41
2515	381.31	8.00	112.00	1.00	59.72	0.38	0.05
2520	249.72	8.00	112.00	1.00	98.74	0.63	0.08
2525	534.30	6.00	112.00	1.00	42.49	0.48	0.15
2595	987.16	14.00	114.00	1.00	689.00	1.44	0.76
2535	869.21	8.00	112.00	1.00	9.38	0.06	0.00
2540	365.06	8.00	97.00	1.00	12.36	0.08	0.00
2400	1501.77	8.00	120.00	1.00	41.26	0.26	0.09
3285	381.38	8.00	112.00	1.00	29.46	0.19	0.01

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
2620	544.21	14.00	114.00	1.00	394.67	0.82	0.15
2835	540.61	6.00	112.00	1.00	7.98	0.09	0.01
2840	667.76	6.00	112.00	1.00	23.63	0.27	0.06
2841	62.28	6.00	112.00	1.00	14.11	0.16	0.00
2845	813.48	10.00	112.00	1.00	64.42	0.26	0.04
2850	1412.84	16.00	114.00	1.00	387.89	0.62	0.16
2855	230.64	10.00	112.00	1.00	39.81	0.16	0.00
2860	329.65	8.00	112.00	1.00	25.68	0.16	0.01
2865	976.83	8.00	112.00	1.00	38.21	0.24	0.06
2810	317.18	8.00	112.00	1.00	75.71	0.48	0.06
2610	352.13	10.00	114.00	1.00	166.90	0.68	0.10
2615	21.23	8.00	114.00	1.00	205.52	1.31	0.03
2830	396.09	6.00	112.00	1.00	0.84	0.01	0.00
2624	690.10	8.00	114.00	1.00	32.17	0.21	0.03
2625	878.81	6.00	112.00	1.00	40.76	0.46	0.23
2630	273.09	6.00	112.00	1.00	41.50	0.47	0.07
2635	407.02	12.00	114.00	1.00	99.39	0.28	0.02
2640	1348.11	6.00	116.00	1.00	28.54	0.32	0.17
2645	498.94	6.00	114.00	1.00	53.46	0.61	0.21
2650	1293.08	10.00	114.00	1.00	162.16	0.66	0.35
2655	1286.40	14.00	114.00	1.00	378.00	0.79	0.32
2660	1201.08	6.00	112.00	1.00	21.98	0.25	0.10
2665	851.27	14.00	114.00	1.00	501.22	1.04	0.36
2670	858.38	8.00	114.00	1.00	114.44	0.73	0.36
2740	432.82	12.00	114.00	1.00	93.02	0.26	0.02
2680	350.33	8.00	112.00	1.00	51.11	0.33	0.03
2825	143.26	12.00	112.00	1.00	394.81	1.12	0.07
2685	405.13	8.00	110.00	1.00	138.95	0.89	0.26
2415	1483.80	14.00	114.00	1.00	1493.11	3.11	4.76
2420	1532.10	12.00	114.00	1.00	542.40	1.54	1.59
2425	203.44	12.00	114.00	1.00	755.89	2.14	0.39
2430	22.83	12.00	114.00	1.00	70.41	0.20	0.00
2435	35.74	14.00	114.00	1.00	70.41	0.15	0.00
2440	60.23	12.00	114.00	1.00	56.22	0.16	0.00
2445	1051.07	8.00	100.00	1.00	19.29	0.12	0.02
2380	491.29	8.00	115.00	1.00	39.64	0.25	0.03
2875	506.54	10.00	112.00	1.00	41.33	0.17	0.01
2605	196.97	10.00	114.00	1.00	190.85	0.78	0.07
2749	275.28	8.00	112.00	1.00	19.85	0.13	0.00
2410	1103.88	14.00	114.00	1.00	1471.05	3.07	3.44
2755	555.54	6.00	117.00	1.00	6.09	0.07	0.00
2760	659.07	8.00	112.00	1.00	17.34	0.11	0.01
2765	331.65	8.00	112.00	1.00	20.63	0.13	0.01
2770	815.38	8.00	112.00	1.00	33.35	0.21	0.04
2775	390.51	8.00	112.00	1.00	22.17	0.14	0.01
2780	468.53	8.00	112.00	1.00	56.44	0.36	0.05

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
2785	260.96	6.00	112.00	1.00	34.57	0.39	0.05
2790	304.81	4.00	112.00	1.00	6.61	0.17	0.02
2795	294.34	6.00	112.00	1.00	15.39	0.17	0.01
2800	340.97	6.00	112.00	1.00	41.25	0.47	0.09
2805	465.66	6.00	116.00	1.00	28.21	0.32	0.06
2870	1092.69	8.00	112.00	1.00	25.59	0.16	0.03
2815	1126.29	8.00	112.00	1.00	109.24	0.70	0.43
2820	398.74	10.00	114.00	1.00	270.69	1.11	0.25
2405	354.74	8.00	115.00	1.00	66.13	0.42	0.05
3280	545.64	6.00	112.00	1.00	37.66	0.43	0.12
2690	1039.83	12.00	112.00	1.00	212.46	0.60	0.20
2930	620.62	8.00	117.00	1.00	28.85	0.18	0.02
3165	464.94	8.00	112.00	1.00	98.85	0.63	0.14
3170	58.62	8.00	112.00	1.00	42.72	0.27	0.00
3175	472.03	12.00	112.00	1.00	168.35	0.48	0.05
3115	590.15	6.00	114.00	1.00	7.77	0.09	0.01
2890	652.89	8.00	110.00	1.00	10.25	0.07	0.00
3040	302.28	10.00	112.00	1.00	187.14	0.76	0.10
2900	1798.65	6.00	112.00	1.00	4.52	0.05	0.01
2905	1239.25	10.00	112.00	1.00	122.58	0.50	0.17
2910	379.98	6.00	112.00	1.00	4.44	0.05	0.00
2915	263.77	12.00	111.00	1.00	215.69	0.61	0.04
2920	264.62	6.00	114.00	1.00	144.67	1.64	0.64
2925	42.83	8.00	114.00	1.00	60.56	0.39	0.01
3160	761.95	8.00	112.00	1.00	18.35	0.12	0.01
2935	592.77	8.00	117.00	1.00	11.33	0.07	0.00
2940	805.76	8.00	117.00	1.00	25.48	0.16	0.02
2945	85.31	8.00	117.00	1.00	35.93	0.23	0.00
2950	496.20	6.00	114.00	1.00	30.72	0.35	0.07
2955	629.64	8.00	114.00	1.00	17.92	0.11	0.01
2960	231.38	8.00	114.00	1.00	44.62	0.28	0.02
3035	746.70	8.00	112.00	1.00	7.86	0.05	0.00
2970	312.07	10.00	117.00	1.00	20.43	0.08	0.00
2975	794.04	10.00	117.00	1.00	31.40	0.13	0.01
2980	48.02	10.00	117.00	1.00	54.04	0.22	0.00
2985	1007.49	12.00	114.00	1.00	87.35	0.25	0.03
2990	111.00	12.00	114.00	1.00	271.73	0.77	0.03
2995	808.81	8.00	112.00	1.00	33.75	0.22	0.04
3155	294.76	8.00	110.00	1.00	84.19	0.54	0.07
3000	924.44	12.00	112.00	1.00	74.04	0.21	0.02
3080	50.97	6.00	112.00	1.00	64.16	0.73	0.03
9435	113.36	12.00	120.00	1.00	1.03	0.00	0.00
4655	107.61	16.00	115.00	1.00	64.40	0.10	0.00
2295	617.11	10.00	114.00	1.00	418.23	1.71	0.96
3470	18.37	6.00	112.00	1.00	79.02	0.90	0.02
3185	1193.45	8.00	112.00	1.00	101.41	0.65	0.40

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
3045	756.50	8.00	112.00	1.00	85.48	0.55	0.18
3050	528.61	8.00	114.00	1.00	59.02	0.38	0.06
3055	296.38	10.00	114.00	1.00	86.45	0.35	0.03
3060	5780.72	12.00	120.00	1.00	253.48	0.72	1.32
3065	251.56	10.00	114.00	1.00	173.05	0.71	0.08
3075	551.20	6.00	112.00	1.00	19.96	0.23	0.04
5046	40.55	33.00	110.00	1.00	1706.81	0.64	0.00
3085	333.75	8.00	110.00	1.00	81.67	0.52	0.08
3090	556.19	12.00	112.00	1.00	113.17	0.32	0.03
3095	472.86	8.00	114.00	1.00	28.96	0.18	0.02
3100	631.29	8.00	114.00	1.00	10.92	0.07	0.00
3105	563.82	6.00	114.00	1.00	14.05	0.16	0.02
3110	279.95	6.00	114.00	1.00	16.01	0.18	0.01
3180	670.85	8.00	108.00	1.00	62.54	0.40	0.10
3120	314.25	6.00	114.00	1.00	12.57	0.14	0.01
3125	289.00	10.00	114.00	1.00	71.06	0.29	0.02
3130	283.52	6.00	114.00	1.00	18.20	0.21	0.02
3135	334.38	6.00	112.00	1.00	24.07	0.27	0.03
3140	762.66	6.00	112.00	1.00	26.17	0.30	0.08
3145	280.98	8.00	108.00	1.00	107.74	0.69	0.11
3150	296.59	6.00	112.00	1.00	23.46	0.27	0.03
3005	343.05	8.00	112.00	1.00	132.24	0.84	0.18
3210	636.47	8.00	108.00	1.00	68.35	0.44	0.11
3435	837.97	10.00	110.00	1.00	106.01	0.43	0.11
3440	481.76	6.00	112.00	1.00	80.08	0.91	0.44
3445	1309.73	8.00	112.00	1.00	171.57	1.10	1.20
3450	487.52	6.00	112.00	1.00	5.13	0.06	0.00
3455	158.74	6.00	112.00	1.00	59.34	0.67	0.08
3390	478.08	6.00	110.00	1.00	75.69	0.86	0.41
3195	37.37	6.00	112.00	1.00	41.24	0.47	0.01
3320	958.35	6.00	108.00	1.00	65.71	0.75	0.65
3200	319.46	8.00	112.00	1.00	112.52	0.72	0.13
3205	668.26	8.00	108.00	1.00	27.23	0.17	0.02
3209	475.56	6.00	108.00	1.00	35.47	0.40	0.10
3425	384.56	8.00	110.00	1.00	223.51	1.43	0.60
3215	448.15	8.00	112.00	1.00	131.27	0.84	0.24
3220	403.80	6.00	112.00	1.00	27.32	0.31	0.05
3225	536.72	10.00	112.00	1.00	114.43	0.47	0.08
3230	369.39	8.00	112.00	1.00	63.28	0.40	0.05
3235	725.28	8.00	110.00	1.00	89.28	0.57	0.21
3240	213.44	10.00	114.00	1.00	70.37	0.29	0.01
3245	577.18	10.00	114.00	1.00	56.13	0.23	0.02
3250	301.22	6.00	112.00	1.00	46.42	0.53	0.10
3255	951.79	6.00	112.00	1.00	60.48	0.69	0.52
3316	49.50	12.00	114.00	1.00	4.70	0.01	0.00
3264	631.59	10.00	112.00	1.00	133.03	0.54	0.12

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
3265	635.89	8.00	112.00	1.00	98.46	0.63	0.20
3270	342.38	6.00	112.00	1.00	40.64	0.46	0.08
3271	240.23	8.00	112.00	1.00	35.18	0.22	0.01
3350	202.92	12.00	112.00	1.00	242.98	0.69	0.05
3020	137.12	12.00	114.00	1.00	145.63	0.41	0.01
3025	8.85	12.00	114.00	1.00	45.82	0.13	0.00
3030	835.53	12.00	114.00	1.00	50.03	0.14	0.01
2965	550.31	8.00	117.00	1.00	19.15	0.12	0.01
3465	1021.10	6.00	112.00	1.00	126.91	1.44	2.18
3190	416.75	6.00	112.00	1.00	35.57	0.40	0.08
3324	236.08	8.00	112.00	1.00	102.75	0.66	0.08
3325	564.23	12.00	108.00	1.00	84.31	0.24	0.02
3330	390.97	12.00	108.00	1.00	127.21	0.36	0.03
3335	375.35	12.00	112.00	1.00	87.90	0.25	0.01
3340	203.30	6.00	112.00	1.00	44.12	0.50	0.06
3345	481.36	6.00	112.00	1.00	23.31	0.26	0.04
3015	1078.33	10.00	112.00	1.00	176.90	0.72	0.33
3355	478.46	6.00	112.00	1.00	21.92	0.25	0.04
3360	372.80	12.00	112.00	1.00	230.85	0.65	0.08
3365	480.06	12.00	112.00	1.00	221.56	0.63	0.10
3370	384.81	8.00	112.00	1.00	140.66	0.90	0.24
3375	371.71	12.00	108.00	1.00	71.90	0.20	0.01
3380	481.05	6.00	112.00	1.00	66.75	0.76	0.31
3385	388.05	8.00	110.00	1.00	86.13	0.55	0.10
3460	364.45	8.00	120.00	1.00	36.55	0.23	0.02
3395	940.67	8.00	110.00	1.00	102.50	0.65	0.34
3400	445.80	10.00	112.00	1.00	267.25	1.09	0.31
3405	496.98	10.00	112.00	1.00	371.82	1.52	0.65
3410	429.42	8.00	112.00	1.00	11.67	0.07	0.00
3415	613.83	10.00	112.00	1.00	483.83	1.98	1.30
3010	811.02	12.00	112.00	1.00	188.42	0.53	0.12
3275	90.37	10.00	112.00	1.00	117.26	0.48	0.01
2695	772.42	8.00	110.00	1.00	90.66	0.58	0.23
1465	442.70	8.00	112.00	1.00	29.10	0.19	0.02
3675	465.47	8.00	110.00	1.00	51.29	0.33	0.05
3680	360.34	10.00	110.00	1.00	6.48	0.03	0.00
3685	330.09	8.00	110.00	1.00	18.64	0.12	0.01
3690	339.74	6.00	110.00	1.00	31.66	0.36	0.06
3695	708.90	6.00	110.00	1.00	23.20	0.26	0.07
3705	473.52	12.00	116.00	1.00	24.58	0.07	0.00
3710	656.09	14.00	112.00	1.00	484.02	1.01	0.27
3715	938.86	14.00	112.00	1.00	438.04	0.91	0.32
3720	599.48	12.00	116.00	1.00	16.86	0.05	0.00
3730	570.32	6.00	110.00	1.00	8.01	0.09	0.01
3735	676.15	6.00	110.00	1.00	9.46	0.11	0.01
3740	690.02	6.00	110.00	1.00	10.29	0.12	0.01

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
3745	658.66	12.00	116.00	1.00	1.17	0.00	0.00
3485	254.61	8.00	108.00	1.00	231.44	1.48	0.44
3490	686.13	10.00	112.00	1.00	448.22	1.83	1.26
3495	709.16	6.00	110.00	1.00	31.35	0.36	0.12
3500	641.82	6.00	110.00	1.00	194.04	2.20	3.11
3505	862.61	6.00	110.00	1.00	80.00	0.91	0.81
3510	216.95	6.00	110.00	1.00	39.85	0.45	0.06
3515	710.41	10.00	112.00	1.00	567.34	2.32	2.02
3520	320.67	6.00	110.00	1.00	19.90	0.23	0.02
3525	150.15	6.00	110.00	1.00	104.47	1.19	0.23
3530	678.47	6.00	110.00	1.00	115.87	1.31	1.27
3535	332.14	6.00	110.00	1.00	29.18	0.33	0.05
3670	191.59	8.00	110.00	1.00	25.70	0.16	0.01
3540	1003.88	8.00	110.00	1.00	50.55	0.32	0.10
4450	1482.21	12.00	111.00	1.00	5.55	0.02	0.00
4465	2225.13	36.00	120.00	1.00	3634.68	1.15	0.33
4470	752.94	20.00	112.00	1.00	141.59	0.14	0.01
4475	436.04	8.00	117.00	1.00	149.19	0.95	0.28
4480	679.65	8.00	117.00	1.00	77.18	0.49	0.13
4485	371.73	12.00	117.00	1.00	77.09	0.22	0.01
3480	792.32	6.00	112.00	1.00	42.91	0.49	0.23
4435	1027.02	36.00	120.00	1.00	3636.95	1.15	0.15
3750	1539.32	12.00	114.00	1.00	218.01	0.62	0.29
3625	11.59	14.00	114.00	1.00	990.36	2.06	0.02
3630	386.59	12.00	114.00	1.00	990.36	2.81	1.23
3635	341.52	8.00	110.00	1.00	64.56	0.41	0.05
3640	1326.75	12.00	114.00	1.00	691.93	1.96	2.17
3645	1627.91	10.00	114.00	1.00	474.38	1.94	3.21
3650	1614.15	8.00	114.00	1.00	48.87	0.31	0.14
3655	239.37	6.00	110.00	1.00	26.10	0.30	0.03
3660	324.88	6.00	110.00	1.00	9.02	0.10	0.01
3665	496.15	6.00	110.00	1.00	44.30	0.50	0.16
3541	223.63	12.00	110.00	1.00	62.48	0.18	0.00
4430	216.84	12.00	120.00	1.00	160.94	0.46	0.02
4040	169.95	6.00	112.00	1.00	56.55	0.64	0.08
4050	174.60	12.00	112.00	1.00	296.31	0.84	0.06
3985	491.20	12.00	100.00	1.00	144.52	0.41	0.06
3990	157.88	8.00	112.00	1.00	133.55	0.85	0.09
3995	382.97	6.00	112.00	1.00	76.27	0.87	0.32
4000	492.68	12.00	112.00	1.00	310.05	0.88	0.19
4005	481.60	12.00	112.00	1.00	319.89	0.91	0.19
4010	376.08	6.00	112.00	1.00	55.26	0.63	0.17
4015	482.07	6.00	112.00	1.00	36.98	0.42	0.10
4020	492.28	8.00	112.00	1.00	51.00	0.33	0.05
4025	206.55	6.00	112.00	1.00	63.03	0.72	0.12
4030	481.36	10.00	116.00	1.00	79.36	0.32	0.03

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
4035	494.66	10.00	112.00	1.00	80.06	0.33	0.04
3975	193.39	10.00	112.00	1.00	162.77	0.66	0.05
4045	476.62	6.00	112.00	1.00	12.34	0.14	0.01
3980	380.06	6.00	112.00	1.00	70.47	0.80	0.27
3760	786.16	10.00	116.00	1.00	343.12	1.40	0.82
3905	338.91	6.00	110.00	1.00	23.84	0.27	0.03
3765	426.18	10.00	116.00	1.00	303.83	1.24	0.36
3770	927.06	10.00	116.00	1.00	470.16	1.92	1.74
3775	1783.67	18.00	110.00	1.00	0.00	0.00	0.00
3780	278.52	8.00	112.00	1.00	640.65	4.09	2.94
3785	540.46	4.00	120.00	1.00	103.92	2.65	5.06
3790	92.24	8.00	120.00	1.00	94.87	0.61	0.02
3795	549.70	14.00	112.00	1.00	928.78	1.94	0.76
3800	412.84	14.00	112.00	1.00	1074.43	2.24	0.74
2885	101.86	6.00	112.00	0.00	0.00	0.00	0.00
3420	566.54	8.00	120.00	0.00	0.00	0.00	0.00
3696	620.83	6.00	110.00	0.00	0.00	0.00	0.00
3536	617.17	6.00	110.00	0.00	0.00	0.00	0.00
4445	423.22	12.00	125.00	0.00	0.00	0.00	0.00
3615	108.82	12.00	130.00	0.00	0.00	0.00	0.00
3620	147.89	4.00	130.00	0.00	0.00	0.00	0.00
3805	257.43	8.00	112.00	1.00	132.90	0.85	0.15
3970	428.91	6.00	112.00	1.00	57.91	0.66	0.21
3810	689.06	6.00	112.00	1.00	129.47	1.47	1.53
3544	306.66	6.00	110.00	1.00	284.47	3.23	3.02
3550	9.12	10.00	112.00	1.00	204.70	0.84	0.00
3555	677.98	6.00	116.00	1.00	9.54	0.11	0.01
3560	667.32	10.00	114.00	1.00	99.65	0.41	0.07
3565	569.51	8.00	116.00	1.00	5.16	0.03	0.00
3570	637.98	10.00	114.00	1.00	31.59	0.13	0.01
3580	1205.94	14.00	105.00	1.00	1.67	0.00	0.00
3585	101.04	10.00	114.00	1.00	478.98	1.96	0.20
3590	335.43	10.00	114.00	1.00	29.69	0.12	0.00
3545	364.36	8.00	100.00	1.00	292.50	1.87	1.11
4055	358.34	12.00	112.00	1.00	306.96	0.87	0.13
3755	928.62	12.00	114.00	1.00	412.83	1.17	0.58
3910	755.63	8.00	112.00	1.00	84.38	0.54	0.19
3915	216.32	10.00	112.00	1.00	246.46	1.01	0.13
3920	756.78	6.00	112.00	1.00	17.01	0.19	0.04
3925	814.71	6.00	100.00	1.00	53.67	0.61	0.44
3930	642.88	12.00	112.00	1.00	256.08	0.73	0.17
3935	290.88	10.00	112.00	1.00	292.41	1.19	0.24
3940	545.19	12.00	120.00	1.00	666.30	1.89	0.76
3945	359.77	8.00	120.00	1.00	214.71	1.37	0.44
3950	242.48	12.00	120.00	1.00	441.70	1.25	0.16
3955	389.50	12.00	120.00	1.00	458.08	1.30	0.27

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
3960	368.81	12.00	112.00	1.00	361.20	1.02	0.19
3965	546.13	8.00	120.00	1.00	23.09	0.15	0.01
3605	73.24	14.00	130.00	1.00	0.00	0.00	0.00
4425	889.12	10.00	116.00	1.00	62.25	0.25	0.04
3815	686.25	6.00	112.00	1.00	22.22	0.25	0.06
4075	142.80	10.00	112.00	1.00	243.49	0.99	0.08
4315	494.78	6.00	114.00	1.00	16.36	0.19	0.02
4320	339.91	6.00	112.00	1.00	30.08	0.34	0.05
4325	279.70	10.00	114.00	1.00	94.72	0.39	0.03
4330	185.86	6.00	112.00	1.00	25.47	0.29	0.02
4335	453.06	6.00	112.00	1.00	3.33	0.04	0.00
4340	472.72	10.00	112.00	1.00	51.13	0.21	0.02
4345	200.26	10.00	114.00	1.00	58.57	0.24	0.01
4350	416.65	10.00	114.00	1.00	62.29	0.25	0.02
4355	704.49	10.00	114.00	1.00	46.24	0.19	0.02
4295	476.32	8.00	114.00	1.00	12.59	0.08	0.00
4070	218.97	10.00	112.00	1.00	212.40	0.87	0.10
4220	501.37	10.00	114.00	1.00	133.76	0.55	0.09
4310	337.34	10.00	114.00	1.00	128.56	0.53	0.06
4080	490.39	6.00	112.00	1.00	17.59	0.20	0.03
4085	288.04	10.00	112.00	1.00	69.58	0.28	0.02
4095	470.35	8.00	114.00	1.00	9.04	0.06	0.00
4100	101.06	6.00	113.00	1.00	13.45	0.15	0.00
4105	298.25	8.00	113.00	1.00	31.34	0.20	0.01
4110	442.52	10.00	112.00	1.00	102.02	0.42	0.05
4115	63.47	6.00	112.00	1.00	10.54	0.12	0.00
4120	872.26	6.00	114.00	1.00	6.65	0.08	0.01
4125	524.50	8.00	114.00	1.00	17.88	0.11	0.01
4130	361.01	8.00	114.00	1.00	7.04	0.04	0.00
4135	348.39	6.00	112.00	1.00	15.78	0.18	0.02
4140	180.59	6.00	112.00	1.00	10.35	0.12	0.00
4215	476.84	10.00	108.00	1.00	172.03	0.70	0.16
4305	759.78	8.00	114.00	1.00	12.23	0.08	0.01
4150	195.95	10.00	114.00	1.00	32.12	0.13	0.00
4230	476.30	6.00	112.00	1.00	35.04	0.40	0.09
2711	201.63	8.00	112.00	1.00	97.52	0.62	0.06
2715	978.56	10.00	112.00	1.00	124.84	0.51	0.17
2720	619.84	10.00	112.00	1.00	188.06	0.77	0.23
2725	512.37	6.00	112.00	1.00	20.42	0.23	0.04
2730	924.22	12.00	116.00	1.00	163.75	0.46	0.10
2735	464.70	12.00	112.00	1.00	174.43	0.49	0.06
2675	26.75	6.00	114.00	1.00	33.28	0.38	0.00
4650	422.23	16.00	115.00	1.00	464.75	0.74	0.08
3475	411.91	6.00	112.00	1.00	57.39	0.65	0.20
4065	18.45	10.00	112.00	1.00	137.27	0.56	0.00
4365	223.92	6.00	114.00	1.00	9.75	0.11	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
4225	416.78	6.00	112.00	1.00	4.08	0.05	0.00
2710	994.42	8.00	112.00	1.00	111.03	0.71	0.41
4235	253.77	6.00	112.00	1.00	8.16	0.09	0.00
4240	481.34	6.00	112.00	1.00	39.28	0.45	0.12
4245	499.86	6.00	116.00	1.00	18.29	0.21	0.03
4250	482.47	8.00	112.00	1.00	96.75	0.62	0.15
4255	238.68	10.00	114.00	1.00	131.16	0.54	0.04
4260	452.31	10.00	114.00	1.00	33.35	0.14	0.01
4265	230.53	6.00	112.00	1.00	29.80	0.34	0.03
4270	258.19	10.00	114.00	1.00	52.90	0.22	0.01
4275	472.00	6.00	112.00	1.00	30.84	0.35	0.07
4280	497.68	10.00	114.00	1.00	39.48	0.16	0.01
4285	475.22	8.00	112.00	1.00	73.76	0.47	0.09
4290	363.65	10.00	114.00	1.00	158.36	0.65	0.09
4360	608.62	6.00	114.00	1.00	9.79	0.11	0.01
4300	367.19	6.00	112.00	1.00	37.10	0.42	0.08
4155	484.54	10.00	114.00	1.00	58.58	0.24	0.02
2705	1126.39	10.00	110.00	1.00	124.38	0.51	0.20
4375	3626.08	21.00	114.00	1.00	2200.00	2.04	3.31
4585	372.73	8.00	116.00	1.00	97.84	0.62	0.11
4590	319.62	8.00	116.00	1.00	98.33	0.63	0.10
4595	538.83	8.00	116.00	1.00	0.44	0.00	0.00
4600	384.71	8.00	116.00	1.00	41.56	0.27	0.02
4605	369.70	8.00	116.00	1.00	7.19	0.05	0.00
4610	249.10	8.00	116.00	1.00	34.37	0.22	0.01
4615	799.37	24.00	120.00	1.00	1645.60	1.17	0.20
4620	195.54	10.00	114.00	1.00	483.25	1.97	0.40
4625	99.51	16.00	120.00	1.00	470.86	0.75	0.02
4630	801.13	8.00	117.00	1.00	2.54	0.02	0.00
4635	861.62	8.00	116.00	1.00	70.80	0.45	0.14
4575	578.02	18.00	115.00	1.00	906.80	1.14	0.21
4580	172.94	18.00	115.00	1.00	97.80	0.12	0.00
4500	521.08	20.00	112.00	1.00	4.40	0.00	0.00
4376	75.15	21.00	114.00	1.00	3464.95	3.21	0.16
4377	408.61	42.00	120.00	1.00	3727.08	0.86	0.03
4378	89.98	42.00	120.00	1.00	3727.08	0.86	0.01
4380	1071.94	42.00	120.00	1.00	3727.08	0.86	0.08
4381	178.54	21.00	114.00	1.00	3464.95	3.21	0.38
4390	4386.89	27.00	120.00	1.00	3726.27	2.09	2.77
4395	538.21	12.00	117.00	1.00	156.18	0.44	0.05
4400	465.78	24.00	120.00	1.00	3498.83	2.48	0.46
4405	247.89	24.00	120.00	1.00	3637.95	2.58	0.27
4410	441.44	36.00	120.00	1.00	3637.15	1.15	0.07
4640	435.66	8.00	116.00	1.00	66.62	0.43	0.07
4505	56.27	24.00	120.00	1.00	55.56	0.04	0.00
4170	468.75	6.00	114.00	1.00	19.48	0.22	0.03

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
4175	503.90	12.00	114.00	1.00	183.12	0.52	0.07
4180	888.47	10.00	114.00	1.00	57.50	0.23	0.04
4185	200.05	10.00	114.00	1.00	140.68	0.57	0.04
4190	610.10	10.00	114.00	1.00	146.58	0.60	0.14
4195	303.48	8.00	114.00	1.00	5.47	0.03	0.00
4200	260.27	8.00	114.00	1.00	53.47	0.34	0.03
4205	482.19	6.00	112.00	1.00	45.03	0.51	0.15
4210	500.59	8.00	112.00	1.00	59.15	0.38	0.06
4145	766.64	10.00	114.00	1.00	44.98	0.18	0.02
4645	286.42	10.00	115.00	1.00	66.62	0.27	0.01
4370	491.01	6.00	114.00	1.00	7.49	0.08	0.01
4165	504.12	8.00	114.00	1.00	24.41	0.16	0.01
4510	409.93	12.00	115.00	1.00	55.56	0.16	0.01
4515	707.47	12.00	120.00	1.00	22.89	0.06	0.00
4520	130.39	12.00	115.00	1.00	18.69	0.05	0.00
4525	836.09	12.00	115.00	1.00	6.14	0.02	0.00
4530	431.16	8.00	116.00	1.00	2.15	0.01	0.00
4535	626.15	8.00	116.00	1.00	2.79	0.02	0.00
4540	1384.10	10.00	116.00	1.00	14.68	0.06	0.00
4545	927.45	10.00	116.00	1.00	22.25	0.09	0.01
4550	314.94	12.00	115.00	1.00	41.73	0.12	0.00
4555	1186.54	10.00	130.00	1.00	140.55	0.57	0.19
4560	2277.32	24.00	120.00	1.00	1021.81	0.72	0.24
4565	231.84	18.00	115.00	1.00	1065.88	1.34	0.12
4570	88.67	18.00	115.00	1.00	1005.12	1.27	0.04
4160	190.31	6.00	112.00	1.00	17.23	0.20	0.01
4490	643.13	8.00	117.00	1.00	73.71	0.47	0.11
2700	825.60	12.00	110.00	1.00	145.67	0.41	0.08
3820	664.07	14.00	110.00	1.00	1005.25	2.10	1.09
4880	431.87	16.00	116.00	1.00	1079.11	1.72	0.38
4945	84.36	16.00	117.00	1.00	290.03	0.46	0.01
4885	373.67	8.00	120.00	1.00	1.35	0.01	0.00
4890	104.65	8.00	120.00	1.00	152.65	0.97	0.07
4895	706.91	8.00	120.00	1.00	58.71	0.37	0.08
4900	416.13	8.00	120.00	1.00	97.16	0.62	0.12
4905	350.85	8.00	120.00	1.00	58.71	0.37	0.04
4910	365.08	16.00	116.00	1.00	928.24	1.48	0.25
4915	268.49	16.00	117.00	1.00	247.04	0.39	0.02
4920	101.91	8.00	116.00	1.00	155.88	0.99	0.07
4925	226.07	16.00	117.00	1.00	394.23	0.63	0.03
4930	397.47	30.00	120.00	1.00	6982.89	3.17	0.49
4935	434.10	12.00	116.00	1.00	213.91	0.61	0.08
4940	1319.84	30.00	120.00	1.00	5284.16	2.40	0.98
4875	936.24	8.00	120.00	1.00	44.45	0.28	0.06
4670	208.24	18.00	115.00	1.00	956.67	1.21	0.08
4805	198.76	8.00	116.00	1.00	78.11	0.50	0.04

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
4675	48.65	18.00	115.00	1.00	827.51	1.04	0.02
4680	464.99	10.00	120.00	1.00	2.41	0.01	0.00
4685	254.55	16.00	115.00	1.00	495.15	0.79	0.05
4690	781.92	14.00	120.00	1.00	60.22	0.13	0.01
4691	402.35	8.00	120.00	1.00	55.52	0.35	0.04
4695	1061.00	10.00	120.00	1.00	55.52	0.23	0.04
4700	302.50	10.00	115.00	1.00	54.69	0.22	0.01
4705	52.21	16.00	115.00	1.00	523.82	0.84	0.01
4710	480.32	16.00	115.00	1.00	434.94	0.69	0.08
4715	711.48	10.00	115.00	1.00	90.46	0.37	0.06
4720	501.64	16.00	115.00	1.00	578.52	0.92	0.14
4870	787.48	8.00	120.00	1.00	44.45	0.28	0.05
4725	93.15	20.00	120.00	1.00	2105.83	2.15	0.09
6955	525.97	8.00	116.00	1.00	80.18	0.51	0.11
5610	551.86	10.00	111.00	1.00	123.18	0.50	0.09
5615	733.51	8.00	115.00	1.00	41.23	0.26	0.05
5620	361.82	6.00	115.00	1.00	32.43	0.37	0.06
5625	520.06	8.00	115.00	1.00	22.34	0.14	0.01
5630	703.19	8.00	115.00	1.00	46.37	0.30	0.05
5635	773.50	12.00	90.00	1.00	323.69	0.92	0.48
5640	393.49	10.00	90.00	1.00	293.49	1.20	0.49
5645	299.90	10.00	90.00	1.00	267.81	1.09	0.32
5650	49.28	10.00	115.00	1.00	149.45	0.61	0.01
5655	206.11	6.00	115.00	1.00	40.58	0.46	0.05
5660	1190.85	6.00	115.00	1.00	20.22	0.23	0.08
5665	786.07	6.00	115.00	1.00	25.30	0.29	0.08
5600	122.23	10.00	111.00	1.00	98.97	0.40	0.01
5605	654.97	10.00	111.00	1.00	91.93	0.38	0.07
5250	220.54	8.00	115.00	1.00	1.81	0.01	0.00
4950	85.71	16.00	117.00	1.00	664.67	1.06	0.03
4810	371.05	8.00	116.00	1.00	76.23	0.49	0.07
4815	571.60	8.00	116.00	1.00	75.40	0.48	0.11
4820	359.70	8.00	116.00	1.00	3.71	0.02	0.00
4825	320.00	16.00	116.00	1.00	900.69	1.44	0.20
4830	336.38	10.00	117.00	1.00	111.76	0.46	0.04
4835	199.26	16.00	116.00	1.00	915.95	1.46	0.13
4840	49.50	16.00	116.00	1.00	963.88	1.54	0.04
4845	644.17	10.00	117.00	1.00	111.99	0.46	0.08
4850	697.05	10.00	117.00	1.00	111.62	0.46	0.09
4855	53.51	16.00	116.00	1.00	1016.88	1.62	0.04
4860	163.14	16.00	116.00	1.00	1034.54	1.65	0.13
4865	307.36	8.00	120.00	1.00	43.60	0.28	0.02
4730	67.09	20.00	100.00	1.00	4072.02	4.16	0.31
5670	1644.61	6.00	70.00	1.00	15.93	0.18	0.17
5175	143.46	18.00	116.00	1.00	770.06	0.97	0.04
5240	180.74	8.00	115.00	1.00	79.32	0.51	0.04

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
5180	227.39	18.00	116.00	1.00	642.29	0.81	0.04
5185	436.21	10.00	120.00	1.00	81.55	0.33	0.03
5190	611.04	10.00	120.00	1.00	81.55	0.33	0.04
5195	173.96	18.00	116.00	1.00	852.61	1.07	0.06
5200	285.96	8.00	117.00	1.00	12.87	0.08	0.00
5205	241.50	8.00	117.00	1.00	15.14	0.10	0.00
5210	327.38	8.00	117.00	1.00	0.00	0.00	0.00
5215	377.10	8.00	117.00	1.00	15.54	0.10	0.00
5220	256.01	8.00	117.00	1.00	99.06	0.63	0.08
5225	405.13	8.00	116.00	1.00	114.57	0.73	0.17
5230	204.67	8.00	116.00	1.00	63.16	0.40	0.03
5235	332.87	8.00	116.00	1.00	53.63	0.34	0.03
5170	654.32	18.00	116.00	1.00	782.14	0.99	0.18
4960	173.30	10.00	120.00	1.00	43.25	0.18	0.00
5100	255.03	8.00	120.00	1.00	65.34	0.42	0.03
4965	666.36	10.00	120.00	1.00	3.86	0.02	0.00
4970	506.94	10.00	120.00	1.00	3.86	0.02	0.00
4975	802.79	10.00	120.00	1.00	3.86	0.02	0.00
4980	275.37	10.00	120.00	1.00	11.19	0.05	0.00
4985	158.67	10.00	120.00	1.00	21.70	0.09	0.00
4990	76.30	10.00	120.00	1.00	21.70	0.09	0.00
4995	216.52	16.00	117.00	1.00	677.09	1.08	0.08
5000	169.69	16.00	117.00	1.00	642.49	1.03	0.06
5005	104.39	10.00	117.00	1.00	39.14	0.16	0.00
5010	122.55	10.00	117.00	1.00	2.69	0.01	0.00
5015	120.11	8.00	120.00	1.00	0.93	0.01	0.00
5165	228.47	12.00	116.00	1.00	185.90	0.53	0.03
5020	767.40	8.00	120.00	1.00	34.60	0.22	0.03
4735	134.63	20.00	100.00	1.00	1966.19	2.01	0.16
4745	71.98	30.00	112.00	1.00	0.00	0.00	0.00
4750	678.25	30.00	120.00	1.00	0.00	0.00	0.00
4751	57.74	8.00	112.00	1.00	0.00	0.00	0.00
4755	84.44	30.00	120.00	1.00	1261.64	0.57	0.00
4760	1463.05	30.00	120.00	1.00	6773.99	3.07	1.71
4765	1461.86	16.00	117.00	1.00	1261.64	2.01	1.71
4770	82.24	16.00	117.00	1.00	213.01	0.34	0.00
4775	1642.58	30.00	120.00	1.00	6982.89	3.17	2.04
4780	218.48	16.00	116.00	1.00	995.70	1.59	0.17
4785	717.35	8.00	120.00	1.00	64.01	0.41	0.09
4790	793.63	8.00	120.00	1.00	64.89	0.41	0.11
4795	32.63	16.00	116.00	1.00	971.72	1.55	0.02
4740	172.20	20.00	100.00	1.00	1645.60	1.68	0.15
5245	397.23	8.00	115.00	1.00	22.98	0.15	0.01
4955	214.84	10.00	117.00	1.00	64.95	0.27	0.01
5105	278.45	16.00	116.00	1.00	572.22	0.91	0.08
5110	146.06	16.00	116.00	1.00	543.75	0.87	0.04

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
5115	43.52	16.00	116.00	1.00	542.04	0.86	0.01
5120	859.84	8.00	120.00	1.00	38.29	0.24	0.04
5125	765.10	8.00	120.00	1.00	29.87	0.19	0.02
5130	276.79	16.00	120.00	1.00	503.19	0.80	0.06
5135	367.52	8.00	116.00	1.00	1.71	0.01	0.00
5140	504.44	16.00	120.00	1.00	531.01	0.85	0.11
5145	304.61	16.00	120.00	1.00	351.75	0.56	0.03
5150	153.96	16.00	120.00	1.00	351.16	0.56	0.02
5155	102.98	12.00	120.00	1.00	317.20	0.90	0.04
5160	303.92	12.00	116.00	1.00	131.29	0.37	0.02
4800	135.72	16.00	116.00	1.00	990.99	1.58	0.10
5595	1288.46	12.00	117.00	1.00	283.18	0.80	0.38
5025	546.39	8.00	120.00	1.00	34.60	0.22	0.02
5510	309.17	12.00	110.00	1.00	25.62	0.07	0.00
5450	325.95	12.00	120.00	1.00	548.87	1.56	0.32
5455	940.20	12.00	112.00	1.00	335.55	0.95	0.42
5515	967.65	10.00	111.00	1.00	212.32	0.87	0.45
5465	547.58	10.00	116.00	1.00	173.17	0.71	0.16
5470	75.34	10.00	116.00	1.00	150.18	0.61	0.02
5475	16.43	8.00	117.00	1.00	135.96	0.87	0.01
5480	747.57	8.00	116.00	1.00	22.99	0.15	0.02
5485	607.45	8.00	116.00	1.00	14.65	0.09	0.01
5490	94.25	10.00	116.00	1.00	110.91	0.45	0.01
5495	132.08	10.00	100.00	1.00	50.54	0.21	0.01
5500	442.29	6.00	116.00	1.00	60.38	0.69	0.22
5503	259.76	10.00	116.00	1.00	11.47	0.05	0.00
5505	1457.71	10.00	120.00	1.00	369.06	1.51	1.64
5445	366.25	10.00	120.00	1.00	955.88	3.90	2.41
5511	146.97	12.00	110.00	1.00	0.00	0.00	0.00
5460	1448.90	10.00	120.00	1.00	395.53	1.62	1.86
5260	217.36	8.00	116.00	1.00	26.22	0.17	0.01
5265	448.47	8.00	116.00	1.00	30.09	0.19	0.02
5270	235.56	8.00	116.00	1.00	32.74	0.21	0.01
5275	243.22	18.00	116.00	1.00	513.04	0.65	0.03
5281	25.56	10.00	120.00	1.00	0.00	0.00	0.00
5290	1192.65	14.00	117.00	1.00	32.90	0.07	0.00
5295	357.25	18.00	120.00	1.00	283.38	0.36	0.01
5300	283.18	18.00	120.00	1.00	205.86	0.26	0.01
5440	1735.89	10.00	120.00	1.00	601.32	2.46	4.84
5305	409.99	10.00	120.00	1.00	4.61	0.02	0.00
8640	19.81	12.00	113.00	1.00	310.67	0.88	0.01
8645	587.13	12.00	113.00	1.00	12.90	0.04	0.00
8575	39.10	14.00	112.00	1.00	289.25	0.60	0.01
8580	111.11	8.00	112.00	1.00	19.88	0.13	0.00
8585	415.11	8.00	112.00	1.00	17.10	0.11	0.01
8590	498.42	6.00	110.00	1.00	39.00	0.44	0.12

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
8595	739.78	14.00	110.00	1.00	297.06	0.62	0.12
8600	87.16	14.00	110.00	1.00	343.40	0.72	0.02
8605	248.04	8.00	110.00	1.00	86.37	0.55	0.06
8615	394.30	12.00	110.00	1.00	237.37	0.67	0.09
8620	956.79	8.00	113.00	1.00	73.85	0.47	0.18
8625	476.46	8.00	113.00	1.00	5.53	0.04	0.00
8630	691.50	16.00	120.00	1.00	429.77	0.69	0.10
8635	705.32	16.00	120.00	1.00	442.95	0.71	0.11
8565	43.76	8.00	112.00	1.00	22.74	0.15	0.00
8570	49.06	8.00	112.00	1.00	29.94	0.19	0.00
4665	365.70	12.00	115.00	1.00	32.05	0.09	0.00
5255	513.99	8.00	115.00	1.00	20.83	0.13	0.01
5520	227.76	10.00	111.00	1.00	152.64	0.62	0.06
5401	9.45	16.00	120.00	1.00	0.00	0.00	0.00
5425	518.99	16.00	100.00	1.00	730.18	1.17	0.29
5430	4.28	10.00	120.00	1.00	0.00	0.00	0.00
5435	2402.60	16.00	100.00	1.00	1038.39	1.66	2.61
5310	538.80	8.00	120.00	1.00	0.58	0.00	0.00
8550	788.31	12.00	112.00	1.00	50.07	0.14	0.01
5745	1502.06	10.00	120.00	1.00	11.41	0.05	0.00
5740	259.11	10.00	120.00	1.00	33.75	0.14	0.00
5530	548.54	8.00	111.00	1.00	24.71	0.16	0.01
5675	257.51	6.00	90.00	0.00	0.00	0.00	0.00
5535	1119.44	10.00	111.00	1.00	171.69	0.70	0.35
5540	685.43	12.00	112.00	1.00	431.08	1.22	0.48
5545	1244.22	12.00	117.00	1.00	197.89	0.56	0.19
5550	1382.08	12.00	117.00	1.00	172.47	0.49	0.16
5555	1219.21	12.00	112.00	1.00	212.61	0.60	0.23
5560	492.52	6.00	110.00	1.00	7.84	0.09	0.01
5565	98.21	8.00	117.00	1.00	19.25	0.12	0.00
5570	364.44	10.00	117.00	1.00	6.07	0.02	0.00
5575	460.52	12.00	117.00	1.00	150.46	0.43	0.04
5580	1011.05	12.00	117.00	1.00	148.11	0.42	0.09
5735	92.76	10.00	120.00	1.00	33.75	0.14	0.00
5585	1948.03	12.00	112.00	1.00	187.49	0.53	0.29
5330	837.29	16.00	117.00	1.00	212.25	0.34	0.04
5335	122.95	10.00	120.00	1.00	19.87	0.08	0.00
5340	568.36	10.00	120.00	1.00	20.24	0.08	0.00
5345	216.23	10.00	120.00	1.00	0.37	0.00	0.00
5350	50.09	16.00	117.00	1.00	899.34	1.44	0.03
5355	1494.10	18.00	117.00	1.00	1337.14	1.69	1.09
5356	29.31	18.00	117.00	1.00	1337.13	1.69	0.02
5320	550.54	10.00	120.00	1.00	0.00	0.00	0.00
5325	266.50	16.00	120.00	1.00	607.76	0.97	0.08
5525	1057.94	8.00	111.00	1.00	31.82	0.20	0.04
5680	300.81	6.00	90.00	0.00	0.00	0.00	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
5685	783.99	6.00	90.00	1.00	29.83	0.34	0.17
5690	526.62	6.00	60.00	1.00	21.43	0.24	0.13
5695	2196.57	6.00	115.00	1.00	54.53	0.62	0.93
5705	934.96	12.00	90.00	1.00	19.39	0.05	0.00
5710	272.26	6.00	90.00	1.00	20.14	0.23	0.03
5715	270.88	6.00	90.00	1.00	14.81	0.17	0.02
5720	32.11	6.00	90.00	1.00	5.34	0.06	0.00
5725	892.94	6.00	60.00	1.00	17.91	0.20	0.16
5730	1854.96	6.00	115.00	1.00	54.53	0.62	0.79
5315	507.08	16.00	120.00	1.00	722.54	1.15	0.20
5590	200.94	12.00	117.00	1.00	143.21	0.41	0.02
5099	147.57	10.00	116.00	1.00	62.67	0.26	0.01
8540	36.79	8.00	112.00	1.00	34.03	0.22	0.00
6065	51.78	10.00	115.00	1.00	291.97	1.19	0.04
6075	160.39	10.00	115.00	1.00	103.00	0.42	0.02
6080	722.94	8.00	115.00	1.00	15.63	0.10	0.01
6085	320.65	8.00	115.00	1.00	11.10	0.07	0.00
6140	357.54	12.00	113.00	1.00	325.61	0.92	0.15
6135	309.84	12.00	113.00	1.00	388.70	1.10	0.18
6130	528.74	8.00	116.00	1.00	6.52	0.04	0.00
6090	278.17	8.00	115.00	1.00	29.18	0.19	0.01
6125	360.32	8.00	116.00	1.00	3.46	0.02	0.00
6120	159.83	8.00	116.00	1.00	2.44	0.02	0.00
6115	578.32	8.00	116.00	1.00	3.45	0.02	0.00
6110	411.07	10.00	116.00	1.00	53.17	0.22	0.01
6095	914.85	8.00	115.00	1.00	6.30	0.04	0.00
6070	248.74	12.00	113.00	1.00	139.00	0.39	0.02
5830	761.32	16.00	116.00	1.00	276.81	0.44	0.05
5985	453.83	10.00	115.00	1.00	14.35	0.06	0.00
5835	199.40	16.00	116.00	1.00	278.07	0.44	0.01
5840	43.63	16.00	116.00	1.00	278.83	0.44	0.00
5845	377.60	16.00	116.00	1.00	213.39	0.34	0.02
5850	55.16	16.00	116.00	1.00	232.84	0.37	0.00
5855	427.66	10.00	120.00	1.00	63.15	0.26	0.02
5860	478.76	10.00	120.00	1.00	52.41	0.21	0.01
5865	384.39	8.00	120.00	1.00	8.95	0.06	0.00
5870	821.80	8.00	120.00	1.00	18.22	0.12	0.01
5875	495.51	8.00	120.00	1.00	18.06	0.12	0.01
5880	246.23	16.00	116.00	1.00	246.52	0.39	0.01
5885	332.61	10.00	120.00	1.00	0.76	0.00	0.00
6105	404.84	10.00	115.00	1.00	159.57	0.65	0.10
5890	347.13	16.00	116.00	1.00	303.74	0.48	0.03
5991	384.03	10.00	115.00	1.00	203.49	0.83	0.16
6765	862.34	12.00	120.00	1.00	128.68	0.37	0.06
6770	212.06	10.00	108.00	1.00	39.05	0.16	0.00
6775	317.80	8.00	130.00	1.00	57.44	0.37	0.03

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
6780	334.92	16.00	130.00	1.00	106.35	0.17	0.00
6785	444.16	16.00	130.00	1.00	143.27	0.23	0.01
6790	211.43	8.00	130.00	1.00	10.14	0.06	0.00
6795	60.14	8.00	130.00	1.00	6.30	0.04	0.00
6100	833.42	10.00	115.00	1.00	110.32	0.45	0.11
5990	82.46	10.00	115.00	1.00	204.04	0.83	0.03
5995	1236.74	16.00	115.00	1.00	616.99	0.98	0.40
6000	265.16	16.00	115.00	1.00	589.81	0.94	0.08
6005	769.60	8.00	113.00	1.00	40.53	0.26	0.05
6010	740.19	8.00	120.00	1.00	34.08	0.22	0.03
6015	369.00	16.00	113.00	1.00	635.96	1.01	0.13
6020	118.00	12.00	120.00	1.00	182.57	0.52	0.01
6025	626.93	16.00	113.00	1.00	582.08	0.93	0.19
6030	410.75	12.00	108.00	1.00	187.61	0.53	0.07
6035	438.66	10.00	90.00	1.00	180.33	0.74	0.22
6040	2370.44	16.00	113.00	1.00	874.19	1.39	1.50
6045	71.82	16.00	113.00	1.00	785.45	1.25	0.04
6050	3023.53	12.00	110.00	1.00	371.48	1.05	1.67
6055	53.03	12.00	120.00	1.00	94.16	0.27	0.00
6060	129.47	12.00	110.00	1.00	460.23	1.31	0.11
5895	628.36	16.00	116.00	1.00	222.31	0.35	0.03
6205	858.57	10.00	115.00	1.00	56.11	0.23	0.03
6330	432.92	8.00	112.00	1.00	14.70	0.09	0.00
6245	260.20	10.00	116.00	1.00	34.93	0.14	0.00
6240	567.73	24.00	125.00	1.00	3480.20	2.47	0.53
6335	407.14	8.00	113.00	1.00	32.28	0.21	0.02
6340	157.60	10.00	114.00	1.00	56.43	0.23	0.01
6235	13.26	24.00	125.00	1.00	2628.51	1.86	0.01
6285	539.97	8.00	116.00	1.00	8.48	0.05	0.00
6230	887.62	16.00	113.00	1.00	1013.46	1.62	0.74
6225	667.88	16.00	113.00	1.00	1024.48	1.63	0.57
6220	970.32	8.00	115.00	1.00	57.93	0.37	0.11
6345	138.51	8.00	114.00	1.00	16.88	0.11	0.00
6215	223.47	10.00	115.00	1.00	70.22	0.29	0.01
6210	1222.83	10.00	115.00	1.00	46.07	0.19	0.03
6250	350.41	10.00	116.00	1.00	31.98	0.13	0.00
6200	760.94	8.00	117.00	1.00	12.82	0.08	0.01
6195	469.45	12.00	115.00	1.00	163.61	0.46	0.05
6190	291.29	12.00	115.00	1.00	202.73	0.58	0.05
6185	1172.35	8.00	120.00	1.00	35.11	0.22	0.05
6180	685.90	10.00	115.00	1.00	109.65	0.45	0.09
6175	202.80	10.00	115.00	1.00	140.46	0.57	0.04
6170	927.90	12.00	113.00	1.00	101.43	0.29	0.04
6165	1350.15	12.00	113.00	1.00	264.92	0.75	0.38
6160	82.60	12.00	113.00	1.00	223.16	0.63	0.02
6155	668.56	12.00	113.00	1.00	382.96	1.09	0.37

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
6150	620.38	8.00	117.00	1.00	60.73	0.39	0.08
6145	629.34	8.00	117.00	1.00	57.35	0.37	0.07
6350	658.03	6.00	114.00	1.00	6.66	0.08	0.01
6255	175.32	10.00	116.00	1.00	12.57	0.05	0.00
6275	323.75	8.00	116.00	1.00	17.14	0.11	0.00
5960	245.72	12.00	115.00	1.00	252.99	0.72	0.06
5980	153.70	10.00	115.00	1.00	83.23	0.34	0.01
5912	19.58	8.00	115.00	1.00	0.00	0.00	0.00
5920	36.88	16.00	115.00	1.00	222.31	0.35	0.00
5925	575.28	16.00	115.00	1.00	418.63	0.67	0.09
6355	393.33	8.00	114.00	1.00	31.64	0.20	0.02
5935	516.70	10.00	115.00	1.00	41.43	0.17	0.00
5950	568.92	12.00	115.00	1.00	241.52	0.69	0.13
5955	204.81	12.00	115.00	1.00	302.33	0.86	0.07
5905	342.79	12.00	120.00	1.00	0.00	0.00	0.00
5965	198.44	10.00	115.00	1.00	89.61	0.37	0.02
5970	142.45	10.00	115.00	1.00	110.17	0.45	0.02
5975	285.02	10.00	115.00	1.00	75.53	0.31	0.02
5910	442.97	16.00	115.00	1.00	0.00	0.00	0.00
6265	918.41	8.00	116.00	1.00	10.51	0.07	0.00
6290	231.92	8.00	112.00	1.00	6.20	0.04	0.00
6295	1092.71	8.00	112.00	1.00	10.50	0.07	0.01
6300	477.68	8.00	112.00	1.00	17.88	0.11	0.01
6305	922.96	8.00	112.00	1.00	11.32	0.07	0.01
6310	589.88	10.00	114.00	1.00	57.04	0.23	0.02
6315	236.63	8.00	112.00	1.00	19.48	0.12	0.00
6320	431.54	8.00	112.00	1.00	18.03	0.12	0.01
6325	655.02	8.00	112.00	1.00	22.02	0.14	0.01
6260	132.24	8.00	116.00	1.00	35.19	0.22	0.01
5900	990.82	10.00	116.00	1.00	0.70	0.00	0.00
6270	363.74	8.00	116.00	1.00	5.78	0.04	0.00
6365	287.49	10.00	114.00	1.00	28.22	0.12	0.00
6585	717.01	8.00	116.00	1.00	51.43	0.33	0.07
6590	443.03	12.00	116.00	1.00	275.20	0.78	0.13
6595	791.96	12.00	116.00	1.00	479.41	1.36	0.64
6600	521.31	12.00	116.00	1.00	487.43	1.38	0.43
6605	342.43	8.00	116.00	1.00	188.30	1.20	0.35
6610	651.15	8.00	117.00	1.00	85.06	0.54	0.15
6615	552.10	8.00	117.00	1.00	68.08	0.43	0.08
6620	753.92	8.00	117.00	1.00	99.97	0.64	0.24
6580	218.32	12.00	116.00	1.00	216.20	0.61	0.04
6510	215.58	12.00	40.00	1.00	447.47	1.27	1.09
6370	240.21	10.00	113.00	1.00	32.08	0.13	0.00
6375	426.90	8.00	113.00	1.00	23.79	0.15	0.01
6380	184.94	10.00	114.00	0.00	0.00	0.00	0.00
6385	205.60	10.00	114.00	1.00	2.71	0.01	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
6390	506.44	10.00	114.00	1.00	41.34	0.17	0.01
6395	492.22	10.00	114.00	1.00	47.01	0.19	0.01
6400	81.68	8.00	114.00	1.00	49.86	0.32	0.01
6405	70.02	8.00	114.00	1.00	51.35	0.33	0.01
6410	92.72	8.00	114.00	1.00	38.63	0.25	0.01
6415	25.66	8.00	114.00	1.00	52.70	0.34	0.00
6420	104.35	8.00	114.00	1.00	68.97	0.44	0.02
6425	90.36	8.00	114.00	1.00	70.90	0.45	0.02
6575	275.73	12.00	116.00	1.00	147.48	0.42	0.02
6430	301.87	8.00	114.00	1.00	13.22	0.08	0.00
6360	134.71	12.00	114.00	1.00	78.62	0.22	0.00
5050	35.66	27.00	115.00	1.00	6450.00	3.61	0.07
5055	3746.96	30.00	130.00	1.00	6450.00	2.93	3.46
5060	58.31	16.00	115.00	1.00	599.34	0.96	0.02
5065	614.64	10.00	115.00	1.00	1.07	0.00	0.00
3595	37.19	12.00	130.00	0.00	0.00	0.00	0.00
5070	467.95	16.00	115.00	1.00	596.21	0.95	0.14
5075	659.06	6.00	116.00	1.00	0.48	0.01	0.00
5080	162.58	16.00	116.00	1.00	589.46	0.94	0.05
5085	347.72	10.00	116.00	1.00	65.86	0.27	0.02
5090	252.21	16.00	116.00	1.00	518.77	0.83	0.06
5095	256.21	16.00	116.00	1.00	530.11	0.85	0.06
5030	675.69	16.00	120.00	1.00	681.63	1.09	0.24
6950	239.32	8.00	116.00	1.00	87.55	0.56	0.06
5045	3059.15	33.00	110.00	1.00	1706.81	0.64	0.21
6515	393.54	16.00	114.00	1.00	950.99	1.52	0.29
6520	127.50	16.00	114.00	1.00	1143.82	1.83	0.13
6530	207.86	12.00	116.00	1.00	91.90	0.26	0.01
6535	463.50	12.00	116.00	1.00	100.04	0.28	0.02
6540	272.62	12.00	116.00	1.00	110.31	0.31	0.01
6545	442.15	8.00	116.00	1.00	19.17	0.12	0.01
6550	632.67	8.00	116.00	1.00	4.58	0.03	0.00
6555	271.34	8.00	116.00	1.00	36.90	0.24	0.01
6560	493.71	8.00	116.00	1.00	5.69	0.04	0.00
6565	560.24	8.00	116.00	1.00	4.68	0.03	0.00
6570	499.99	12.00	116.00	1.00	99.09	0.28	0.02
6505	723.82	10.00	115.00	1.00	0.60	0.00	0.00
5040	414.24	33.00	110.00	1.00	1706.81	0.64	0.03
6880	332.79	10.00	116.00	1.00	138.36	0.57	0.06
6885	937.21	8.00	116.00	1.00	32.42	0.21	0.04
6890	721.36	8.00	116.00	1.00	21.79	0.14	0.01
6895	641.67	12.00	113.00	1.00	40.13	0.11	0.01
6900	265.58	12.00	116.00	1.00	58.95	0.17	0.00
6905	304.52	8.00	116.00	1.00	16.64	0.11	0.00
6910	306.65	8.00	117.00	1.00	0.00	0.00	0.00
6915	533.51	8.00	117.00	1.00	18.20	0.12	0.01

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
6920	635.67	12.00	116.00	1.00	36.36	0.10	0.00
6925	283.29	8.00	116.00	1.00	53.81	0.34	0.03
6930	283.60	8.00	116.00	1.00	19.05	0.12	0.00
6935	875.70	12.00	116.00	1.00	116.42	0.33	0.05
6875	261.81	10.00	116.00	1.00	57.92	0.24	0.01
6940	1342.95	8.00	116.00	1.00	33.94	0.22	0.06
6870	53.14	10.00	116.00	1.00	49.55	0.20	0.00
6945	570.08	8.00	116.00	1.00	65.41	0.42	0.08
6450	514.11	8.00	114.00	1.00	0.90	0.01	0.00
6455	486.01	8.00	114.00	1.00	0.98	0.01	0.00
6460	623.35	8.00	114.00	1.00	1.37	0.01	0.00
6465	632.90	8.00	113.00	1.00	37.80	0.24	0.03
6470	268.95	12.00	113.00	1.00	193.07	0.55	0.04
6475	243.23	8.00	113.00	1.00	19.34	0.12	0.00
6480	856.67	12.00	114.00	1.00	233.58	0.66	0.19
6490	1168.49	12.00	108.00	1.00	262.62	0.75	0.35
6495	53.45	12.00	108.00	1.00	98.00	0.28	0.00
6500	437.79	12.00	108.00	1.00	97.40	0.28	0.02
6435	484.88	8.00	114.00	1.00	16.19	0.10	0.01
6445	547.24	8.00	114.00	1.00	13.48	0.09	0.00
6805	189.48	10.00	117.00	1.00	41.17	0.17	0.00
6810	603.66	8.00	113.00	1.00	50.19	0.32	0.06
6815	177.05	8.00	116.00	1.00	43.58	0.28	0.01
6820	684.79	8.00	116.00	1.00	32.52	0.21	0.03
6825	435.61	10.00	116.00	1.00	55.20	0.23	0.01
6830	287.77	10.00	116.00	1.00	91.50	0.37	0.03
6835	641.50	10.00	116.00	1.00	135.95	0.56	0.12
6840	533.72	10.00	116.00	1.00	36.20	0.15	0.01
6845	965.55	10.00	116.00	1.00	39.97	0.16	0.02
6850	720.97	10.00	116.00	1.00	46.29	0.19	0.02
6855	892.84	10.00	116.00	1.00	41.29	0.17	0.02
6860	258.42	10.00	116.00	1.00	32.13	0.13	0.00
6865	1525.94	10.00	116.00	1.00	63.36	0.26	0.07
6440	550.05	12.00	114.00	1.00	127.78	0.36	0.04
6796	178.47	16.00	130.00	1.00	195.75	0.31	0.01
5035	2647.57	36.00	120.00	1.00	7456.46	2.35	1.52
8535	281.50	8.00	110.00	1.00	72.48	0.46	0.05
6280	323.10	8.00	116.00	1.00	6.41	0.04	0.00
7195	860.55	8.00	114.00	1.00	106.10	0.68	0.30
7200	554.48	14.00	127.00	1.00	437.69	0.91	0.15
7205	366.95	12.00	116.00	1.00	353.39	1.00	0.17
7190	1028.44	8.00	114.00	1.00	101.50	0.65	0.34
6970	226.85	12.00	116.00	1.00	306.53	0.87	0.08
6975	375.56	12.00	116.00	1.00	319.13	0.91	0.14
6980	512.44	12.00	116.00	1.00	187.11	0.53	0.07
6985	242.72	12.00	116.00	1.00	82.87	0.24	0.01

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
6990	599.96	10.00	116.00	1.00	102.29	0.42	0.07
7960	39.38	8.00	116.00	1.00	152.79	0.98	0.03
7895	179.70	10.00	114.00	1.00	72.51	0.30	0.01
7900	554.17	10.00	114.00	1.00	83.14	0.34	0.04
7905	390.34	8.00	114.00	1.00	29.21	0.19	0.01
7910	547.13	8.00	114.00	1.00	5.20	0.03	0.00
7915	394.51	8.00	114.00	1.00	34.60	0.22	0.02
7920	723.02	8.00	114.00	1.00	8.36	0.05	0.00
7995	333.82	8.00	116.00	1.00	94.73	0.60	0.10
7930	596.21	8.00	114.00	1.00	14.43	0.09	0.01
7935	286.86	8.00	114.00	1.00	58.73	0.37	0.03
7940	347.77	8.00	114.00	1.00	10.73	0.07	0.00
7945	291.66	8.00	114.00	1.00	74.08	0.47	0.05
7950	1683.24	8.00	114.00	1.00	46.85	0.30	0.13
7955	356.38	8.00	116.00	1.00	134.30	0.86	0.19
7890	408.08	8.00	114.00	1.00	3.66	0.02	0.00
7965	231.63	8.00	114.00	1.00	127.43	0.81	0.12
7970	134.51	12.00	116.00	1.00	281.78	0.80	0.04
7975	341.98	12.00	116.00	1.00	190.83	0.54	0.05
7980	279.03	14.00	116.00	1.00	193.28	0.40	0.02
7985	195.09	16.00	116.00	1.00	369.86	0.59	0.02
7990	54.49	16.00	116.00	1.00	376.11	0.60	0.01
7925	235.06	8.00	114.00	1.00	43.87	0.28	0.02
6965	617.40	12.00	116.00	1.00	213.29	0.61	0.11
7545	322.15	16.00	100.00	1.00	954.48	1.52	0.30
6995	611.47	8.00	117.00	1.00	150.87	0.96	0.41
7885	374.01	8.00	114.00	1.00	10.83	0.07	0.00
7440	1217.25	14.00	120.00	1.00	496.41	1.03	0.46
7445	164.60	8.00	120.00	1.00	138.06	0.88	0.09
7450	452.82	14.00	120.00	1.00	636.53	1.33	0.27
7455	530.56	14.00	120.00	1.00	503.60	1.05	0.21
7435	1424.97	14.00	120.00	1.00	584.91	1.22	0.73
7520	944.18	14.00	120.00	1.00	506.97	1.06	0.37
7405	258.46	8.00	117.00	1.00	85.72	0.55	0.06
7430	364.50	8.00	120.00	1.00	14.97	0.10	0.00
7010	153.63	10.00	116.00	1.00	127.28	0.52	0.03
7015	121.08	10.00	116.00	1.00	56.08	0.23	0.00
7025	496.14	12.00	116.00	1.00	146.95	0.42	0.04
7030	163.69	12.00	116.00	1.00	152.45	0.43	0.02
7045	523.79	8.00	116.00	1.00	12.89	0.08	0.00
7050	208.31	8.00	116.00	1.00	115.76	0.74	0.09
7075	480.84	14.00	116.00	1.00	100.31	0.21	0.01
7080	18.24	16.00	116.00	1.00	0.00	0.00	0.00
7090	577.22	10.00	116.00	1.00	101.08	0.41	0.06
7040	372.34	8.00	116.00	1.00	79.28	0.51	0.08
7540	46.25	14.00	125.00	1.00	887.37	1.85	0.05

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
7410	184.73	8.00	117.00	1.00	74.54	0.48	0.03
7415	769.20	14.00	117.00	1.00	447.23	0.93	0.25
7420	522.11	16.00	120.00	1.00	110.61	0.18	0.01
7425	575.13	14.00	120.00	1.00	578.60	1.21	0.29
7000	618.95	8.00	117.00	1.00	153.86	0.98	0.43
7880	455.26	10.00	114.00	1.00	56.45	0.23	0.02
7790	1996.55	14.00	100.00	1.00	546.97	1.14	1.27
7725	248.90	16.00	110.00	1.00	640.00	1.02	0.09
7730	280.18	12.00	110.00	1.00	388.56	1.10	0.17
7735	283.02	8.00	120.00	1.00	164.38	1.05	0.21
7740	270.17	8.00	120.00	1.00	249.62	1.59	0.44
7745	282.11	12.00	120.00	1.00	54.92	0.16	0.00
7750	23.94	12.00	110.00	1.00	798.06	2.26	0.05
7755	791.02	8.00	120.00	1.00	117.88	0.75	0.32
7760	121.32	8.00	120.00	1.00	96.68	0.62	0.03
7765	432.41	8.00	120.00	1.00	22.43	0.14	0.01
7770	202.68	12.00	120.00	1.00	366.31	1.04	0.09
7840	284.44	8.00	120.00	1.00	10.37	0.07	0.00
7780	500.79	12.00	120.00	1.00	322.99	0.92	0.18
7785	450.92	12.00	110.00	1.00	629.72	1.79	0.66
7720	831.89	16.00	120.00	1.00	763.55	1.22	0.37
7795	2028.31	12.00	100.00	1.00	902.47	2.56	6.91
7825	170.88	8.00	120.00	1.00	40.96	0.26	0.01
7830	637.29	8.00	120.00	1.00	14.44	0.09	0.01
7835	683.18	8.00	120.00	1.00	5.83	0.04	0.00
7775	370.49	12.00	120.00	1.00	333.15	0.95	0.14
7700	752.98	12.00	120.00	1.00	0.00	0.00	0.00
7715	624.58	12.00	115.00	1.00	328.02	0.93	0.25
1550	1173.29	8.00	97.00	1.00	225.64	1.44	2.34
1485	501.22	10.00	97.00	1.00	271.25	1.11	0.47
1490	685.69	8.00	97.00	1.00	420.60	2.68	4.33
1495	557.83	8.00	97.00	1.00	854.95	5.46	13.11
1500	574.09	12.00	100.00	1.00	447.90	1.27	0.53
1505	351.86	12.00	100.00	1.00	368.05	1.04	0.23
1510	223.17	8.00	100.00	1.00	178.45	1.14	0.27
1515	409.51	8.00	95.00	1.00	106.61	0.68	0.21
1525	402.73	8.00	95.00	1.00	93.62	0.60	0.16
1530	617.96	10.00	110.00	1.00	77.83	0.32	0.05
1535	960.62	8.00	110.00	1.00	38.81	0.25	0.06
1540	208.21	6.00	110.00	1.00	51.15	0.58	0.09
1545	1107.73	10.00	97.00	1.00	680.36	2.78	5.75
1480	671.68	10.00	97.00	1.00	611.99	2.50	2.87
1551	634.98	6.00	97.00	1.00	230.10	2.61	5.33
1555	527.90	10.00	112.00	1.00	54.69	0.22	0.02
1560	683.06	10.00	112.00	1.00	85.34	0.35	0.06
1565	388.00	8.00	112.00	1.00	106.40	0.68	0.15

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
1570	688.77	8.00	114.00	1.00	57.54	0.37	0.08
1575	376.16	10.00	100.00	1.00	943.19	3.85	3.38
1520	228.70	8.00	95.00	1.00	76.96	0.49	0.06
6960	227.66	12.00	116.00	1.00	129.97	0.37	0.02
8150	167.42	8.00	112.00	1.00	73.83	0.47	0.03
7845	492.63	8.00	120.00	1.00	8.56	0.05	0.00
7705	20.71	16.00	120.00	1.00	591.68	0.94	0.01
7710	435.48	12.00	115.00	1.00	438.75	1.24	0.30
8095	608.46	8.00	113.00	1.00	33.35	0.21	0.03
8030	78.36	8.00	110.00	1.00	156.84	1.00	0.06
8035	867.40	8.00	112.00	1.00	91.78	0.59	0.25
8040	471.16	16.00	116.00	1.00	185.12	0.30	0.02
8045	333.15	8.00	108.00	1.00	92.78	0.59	0.10
8050	43.36	8.00	108.00	1.00	75.64	0.48	0.01
8055	908.32	8.00	111.00	1.00	95.95	0.61	0.29
8060	798.07	12.00	112.00	1.00	183.18	0.52	0.11
8065	83.85	12.00	113.00	1.00	75.11	0.21	0.00
8070	991.08	12.00	113.00	1.00	50.43	0.14	0.01
8140	239.16	8.00	112.00	1.00	28.06	0.18	0.01
8080	581.75	6.00	108.00	1.00	13.74	0.16	0.02
8085	530.83	12.00	112.00	1.00	108.07	0.31	0.03
8090	464.87	12.00	110.00	1.00	32.69	0.09	0.00
8025	2061.14	12.00	112.00	1.00	247.68	0.70	0.52
8100	734.33	12.00	110.00	1.00	46.02	0.13	0.01
8105	95.35	8.00	108.00	1.00	55.06	0.35	0.01
8110	309.95	8.00	108.00	1.00	26.57	0.17	0.01
8115	803.12	12.00	112.00	1.00	157.77	0.45	0.09
8120	569.09	8.00	112.00	1.00	78.07	0.50	0.12
8125	387.26	12.00	112.00	1.00	75.26	0.21	0.01
8130	614.42	8.00	112.00	1.00	60.77	0.39	0.08
8135	483.87	8.00	112.00	1.00	21.92	0.14	0.01
8075	277.20	6.00	108.00	1.00	29.79	0.34	0.04
7855	824.81	8.00	120.00	1.00	21.21	0.14	0.01
8000	293.04	16.00	116.00	1.00	472.37	0.75	0.06
7860	183.32	8.00	120.00	1.00	171.44	1.09	0.15
7865	533.71	8.00	120.00	1.00	195.98	1.25	0.55
8020	1230.85	16.00	114.00	1.00	508.12	0.81	0.28
7870	314.81	8.00	120.00	1.00	207.45	1.32	0.36
7650	617.32	12.00	112.00	1.00	465.61	1.32	0.50
7600	44.59	12.00	112.00	1.00	788.49	2.24	0.10
7605	3205.80	16.00	112.00	1.00	1253.76	2.00	4.01
7610	128.33	8.00	115.00	1.00	170.50	1.09	0.11
7615	337.09	8.00	115.00	1.00	71.75	0.46	0.06
7620	256.72	8.00	115.00	1.00	57.58	0.37	0.03
7625	598.03	8.00	115.00	1.00	47.42	0.30	0.05
7695	303.41	12.00	120.00	1.00	367.38	1.04	0.14

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
7635	239.29	8.00	115.00	1.00	7.48	0.05	0.00
7640	477.92	8.00	115.00	1.00	133.90	0.85	0.26
7645	332.40	8.00	115.00	1.00	5.79	0.04	0.00
7655	48.04	16.00	115.00	1.00	574.03	0.92	0.01
7660	467.35	12.00	112.00	1.00	461.26	1.31	0.37
7670	102.14	20.00	115.00	1.00	1451.90	1.48	0.05
7675	68.24	20.00	115.00	1.00	1819.28	1.86	0.05
7685	216.14	8.00	115.00	1.00	112.77	0.72	0.09
7687	41.64	12.00	115.00	1.00	574.03	1.63	0.05
7690	647.00	8.00	115.00	1.00	118.54	0.76	0.29
7630	489.43	8.00	115.00	1.00	91.27	0.58	0.13
8145	220.37	8.00	112.00	1.00	45.77	0.29	0.02
7850	556.20	8.00	120.00	1.00	13.46	0.09	0.00
8005	807.86	8.00	114.00	1.00	48.76	0.31	0.07
8010	299.34	8.00	114.00	1.00	61.08	0.39	0.04
8015	638.59	16.00	114.00	1.00	436.07	0.70	0.11
7875	1159.42	8.00	114.00	1.00	87.61	0.56	0.30
1475	453.39	8.00	97.00	1.00	215.33	1.37	0.83
8440	491.39	8.00	116.00	1.00	30.34	0.19	0.02
8365	1078.61	10.00	108.00	1.00	62.07	0.25	0.05
8370	1272.66	10.00	108.00	1.00	59.63	0.24	0.06
8375	621.18	8.00	110.00	1.00	74.35	0.47	0.12
8380	554.50	8.00	110.00	1.00	51.22	0.33	0.05
8385	664.97	8.00	110.00	1.00	37.92	0.24	0.04
8465	440.51	12.00	113.00	1.00	64.71	0.18	0.01
8395	122.39	8.00	116.00	1.00	40.78	0.26	0.01
8400	138.56	8.00	110.00	1.00	76.60	0.49	0.03
8405	683.50	6.00	114.00	1.00	27.02	0.31	0.07
8410	135.10	6.00	114.00	1.00	15.46	0.18	0.01
8415	197.00	6.00	114.00	1.00	26.65	0.30	0.01
8420	142.32	6.00	110.00	1.00	47.26	0.54	0.05
8430	151.49	8.00	112.00	1.00	51.32	0.33	0.01
8360	1446.12	6.00	108.00	1.00	16.82	0.19	0.08
8445	970.02	8.00	116.00	1.00	9.03	0.06	0.00
8450	266.30	8.00	116.00	1.00	18.14	0.12	0.00
8455	400.51	8.00	116.00	1.00	31.92	0.20	0.02
8460	516.40	8.00	108.00	1.00	42.04	0.27	0.04
8390	120.47	8.00	108.00	1.00	33.92	0.22	0.01
8165	547.60	6.00	113.00	1.00	8.83	0.10	0.01
8315	404.21	8.00	108.00	1.00	95.57	0.61	0.13
8170	530.13	8.00	112.00	1.00	18.33	0.12	0.01
8175	193.93	12.00	112.00	1.00	77.91	0.22	0.01
8180	37.62	8.00	112.00	1.00	27.23	0.17	0.00
8185	512.21	6.00	113.00	1.00	7.70	0.09	0.01
8190	1578.77	12.00	112.00	1.00	55.21	0.16	0.02
8195	576.16	8.00	112.00	1.00	24.45	0.16	0.01

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
8355	686.44	10.00	113.00	1.00	70.48	0.29	0.04
8205	376.93	8.00	113.00	1.00	15.09	0.10	0.00
9230	611.19	6.00	112.00	1.00	23.54	0.27	0.06
9165	210.00	16.00	112.00	1.00	538.27	0.86	0.05
9170	481.95	8.00	112.00	1.00	38.78	0.25	0.03
9175	977.75	16.00	112.00	1.00	462.41	0.74	0.19
9256	12.65	16.00	100.00	1.00	976.75	1.56	0.01
9185	361.36	16.00	112.00	1.00	488.52	0.78	0.08
9190	405.48	8.00	112.00	1.00	63.26	0.40	0.06
9195	571.37	8.00	112.00	1.00	29.34	0.19	0.02
9200	594.03	16.00	112.00	1.00	416.52	0.66	0.10
9205	383.62	8.00	112.00	1.00	6.17	0.04	0.00
9210	592.87	16.00	112.00	1.00	386.36	0.62	0.08
9215	955.88	16.00	112.00	1.00	370.52	0.59	0.13
9220	472.93	8.00	112.00	1.00	37.86	0.24	0.03
9225	516.14	8.00	112.00	1.00	2.86	0.02	0.00
9160	157.16	16.00	112.00	1.00	976.75	1.56	0.12
9235	32.44	8.00	112.00	1.00	67.48	0.43	0.01
9240	351.66	8.00	112.00	1.00	48.89	0.31	0.03
9245	401.07	8.00	112.00	1.00	19.90	0.13	0.01
9180	802.06	10.00	112.00	1.00	66.22	0.27	0.38
8160	218.28	8.00	113.00	1.00	28.38	0.18	0.01
8470	877.56	12.00	113.00	1.00	129.36	0.37	0.07
8320	55.00	8.00	116.00	1.00	29.24	0.19	0.00
8325	8.48	8.00	116.00	1.00	9.96	0.06	0.00
8330	6.41	8.00	116.00	1.00	11.58	0.07	0.00
8335	44.92	8.00	116.00	1.00	34.69	0.22	0.00
8340	781.29	10.00	113.00	1.00	63.65	0.26	0.04
8345	1583.79	8.00	116.00	1.00	27.66	0.18	0.05
8350	548.73	8.00	116.00	1.00	27.66	0.18	0.02
8210	258.07	8.00	113.00	1.00	5.78	0.04	0.00
9155	41.83	8.00	112.00	1.00	64.97	0.41	0.01
8755	179.99	8.00	120.00	1.00	39.12	0.25	0.01
8692	5.99	12.00	113.00	1.00	0.00	0.00	0.00
8695	1102.26	12.00	113.00	1.00	22.93	0.07	0.00
8700	407.02	12.00	113.00	1.00	55.10	0.16	0.01
8705	374.89	12.00	113.00	1.00	71.94	0.20	0.01
8710	999.59	8.00	120.00	1.00	29.04	0.19	0.03
8785	298.44	8.00	120.00	1.00	7.61	0.05	0.00
8720	824.17	8.00	113.00	1.00	265.99	1.70	1.68
8725	61.53	12.00	113.00	1.00	258.18	0.73	0.02
8730	646.58	12.00	120.00	1.00	316.13	0.90	0.22
8735	124.48	12.00	110.00	1.00	154.49	0.44	0.01
8740	177.75	8.00	120.00	1.00	50.81	0.32	0.01
8745	810.87	8.00	120.00	1.00	1.46	0.01	0.00
8750	419.28	12.00	120.00	1.00	330.62	0.94	0.15

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
8690	504.85	12.00	113.00	1.00	0.00	0.00	0.00
8760	362.11	8.00	120.00	1.00	34.19	0.22	0.01
8770	147.31	8.00	120.00	1.00	4.02	0.03	0.00
8775	671.25	8.00	120.00	1.00	4.24	0.03	0.00
8780	244.16	8.00	120.00	1.00	5.50	0.04	0.00
8715	330.40	8.00	120.00	1.00	52.80	0.34	0.03
8480	633.45	8.00	110.00	1.00	103.69	0.66	0.24
8650	593.25	12.00	113.00	1.00	48.15	0.14	0.01
8485	622.43	8.00	110.00	1.00	123.38	0.79	0.32
8490	407.02	8.00	112.00	1.00	54.55	0.35	0.04
8495	258.88	8.00	112.00	1.00	53.77	0.34	0.03
8500	290.50	8.00	112.00	1.00	46.81	0.30	0.02
8505	484.67	8.00	112.00	1.00	64.17	0.41	0.07
8510	93.21	6.00	112.00	1.00	22.26	0.25	0.01
8685	997.30	8.00	113.00	1.00	7.46	0.05	0.00
8515	246.74	6.00	112.00	1.00	18.50	0.21	0.01
8285	704.96	8.00	112.00	1.00	6.57	0.04	0.00
8225	386.99	8.00	112.00	1.00	8.45	0.05	0.00
8230	142.18	8.00	112.00	1.00	15.03	0.10	0.00
8235	358.20	6.00	115.00	1.00	3.73	0.04	0.00
8310	764.54	8.00	108.00	1.00	95.57	0.61	0.25
8245	401.85	8.00	112.00	1.00	7.72	0.05	0.00
8250	605.40	6.00	113.00	1.00	3.50	0.04	0.00
8255	79.93	8.00	112.00	1.00	2.92	0.02	0.00
8260	438.27	8.00	112.00	1.00	29.58	0.19	0.02
8265	550.73	8.00	112.00	1.00	19.12	0.12	0.01
8270	527.71	6.00	113.00	1.00	23.01	0.26	0.05
8275	683.49	8.00	113.00	1.00	24.96	0.16	0.02
8280	377.26	8.00	113.00	1.00	64.74	0.41	0.06
8220	64.01	8.00	112.00	1.00	10.70	0.07	0.00
8290	1251.70	12.00	112.00	1.00	15.85	0.04	0.00
8295	348.75	12.00	112.00	1.00	23.99	0.07	0.00
8300	577.93	8.00	112.00	1.00	18.82	0.12	0.01
8305	189.01	8.00	112.00	1.00	10.06	0.06	0.00
8240	353.34	6.00	115.00	1.00	1.16	0.01	0.00
8790	797.68	8.00	120.00	1.00	16.84	0.11	0.01
8475	886.82	8.00	110.00	1.00	118.07	0.75	0.42
8655	798.87	12.00	113.00	1.00	327.46	0.93	0.33
8660	192.07	12.00	120.00	1.00	136.28	0.39	0.01
8665	1506.15	8.00	120.00	1.00	27.27	0.17	0.04
8670	149.55	12.00	120.00	1.00	89.37	0.25	0.00
8675	192.06	12.00	120.00	1.00	105.93	0.30	0.01
8680	460.06	8.00	113.00	1.00	9.89	0.06	0.00
8215	359.26	6.00	112.00	1.00	7.50	0.09	0.00
9150	679.95	6.00	112.00	1.00	14.53	0.16	0.03
8520	278.18	8.00	112.00	1.00	39.54	0.25	0.02

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
9060	1119.70	10.00	112.00	1.00	66.49	0.27	0.06
8986	371.47	18.00	120.00	1.00	318.95	0.40	0.02
8992	178.95	18.00	120.00	1.00	318.95	0.40	0.01
8995	44.99	12.00	120.00	1.00	1.25	0.00	0.00
9015	194.10	12.00	120.00	1.00	6.57	0.02	0.00
9020	704.01	16.00	112.00	1.00	36.73	0.06	0.00
9025	7.88	16.00	112.00	1.00	0.00	0.00	0.00
9030	65.18	8.00	112.00	1.00	0.08	0.00	0.00
9095	240.86	10.00	112.00	1.00	18.30	0.07	0.00
9040	143.22	8.00	112.00	1.00	15.24	0.10	0.00
9045	636.49	10.00	112.00	1.00	72.03	0.29	0.04
9050	10.46	12.00	113.00	1.00	409.51	1.16	0.01
9055	724.00	16.00	112.00	1.00	410.48	0.65	0.11
8980	68.91	12.00	120.00	1.00	7.82	0.02	0.00
9065	1323.31	10.00	112.00	1.00	59.20	0.24	0.06
9070	623.44	8.00	112.00	1.00	11.23	0.07	0.00
9075	35.53	8.00	112.00	1.00	26.03	0.17	0.00
9080	1007.06	8.00	112.00	1.00	3.04	0.02	0.00
9085	391.08	8.00	112.00	1.00	15.66	0.10	0.00
9086	161.33	8.00	112.00	1.00	12.45	0.08	0.00
9090	709.27	8.00	112.00	1.00	55.85	0.36	0.08
9035	786.13	6.00	112.00	1.00	18.66	0.21	0.05
8945	510.34	12.00	113.00	1.00	14.67	0.04	0.00
8810	297.58	8.00	120.00	1.00	22.40	0.14	0.01
8815	305.66	8.00	120.00	1.00	34.79	0.22	0.01
8820	351.17	8.00	112.00	1.00	70.27	0.45	0.06
8975	299.06	12.00	120.00	1.00	243.99	0.69	0.06
8825	279.69	12.00	120.00	1.00	285.54	0.81	0.08
7375	1512.32	8.00	120.00	1.00	16.14	0.10	0.02
7330	518.49	8.00	120.00	1.00	90.41	0.58	0.13
7331	636.24	10.00	120.00	1.00	47.21	0.19	0.02
7332	461.46	12.00	120.00	1.00	42.50	0.12	0.00
7400	392.88	8.00	117.00	1.00	6.89	0.04	0.00
7350	591.66	12.00	120.00	1.00	39.91	0.11	0.00
7365	321.21	12.00	120.00	1.00	61.74	0.18	0.01
7320	526.95	10.00	116.00	1.00	48.52	0.20	0.01
7390	604.93	16.00	120.00	1.00	7.72	0.01	0.00
7395	493.39	8.00	117.00	1.00	99.50	0.64	0.15
4660	297.69	12.00	115.00	1.00	34.46	0.10	0.00
8155	2091.12	12.00	112.00	1.00	132.39	0.38	0.17
9100	455.01	10.00	112.00	1.00	39.16	0.16	0.01
8950	444.49	6.00	112.00	1.00	57.49	0.65	0.22
8955	929.77	6.00	112.00	1.00	38.66	0.44	0.22
8960	132.02	12.00	113.00	1.00	1.39	0.00	0.00
8965	971.78	12.00	120.00	1.00	100.54	0.29	0.04
8830	1098.72	16.00	120.00	1.00	315.53	0.50	0.08

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
7315	1729.82	30.00	120.00	1.00	2964.76	1.35	0.44
9395	676.38	10.00	116.00	1.00	62.75	0.26	0.03
9310	330.56	8.00	114.00	1.00	54.55	0.35	0.04
9315	233.28	8.00	114.00	1.00	50.96	0.33	0.02
9320	298.35	8.00	114.00	1.00	18.91	0.12	0.00
9325	308.09	8.00	114.00	1.00	89.90	0.57	0.08
9330	989.18	10.00	114.00	1.00	34.96	0.14	0.02
9335	345.37	10.00	114.00	1.00	45.16	0.18	0.01
9340	379.30	10.00	114.00	1.00	37.60	0.15	0.01
9425	110.71	21.00	110.00	1.00	2348.52	2.18	0.12
9355	579.68	27.00	100.00	1.00	1150.00	0.64	0.06
9370	1566.32	21.00	110.00	1.00	2348.52	2.18	1.72
9375	690.41	8.00	116.00	1.00	9.65	0.06	0.00
9380	40.49	21.00	110.00	1.00	2348.52	2.18	0.04
9400	956.78	8.00	114.00	1.00	23.88	0.15	0.02
9405	276.92	8.00	116.00	1.00	38.73	0.25	0.02
9410	924.29	8.00	116.00	1.00	36.63	0.23	0.05
5	174.24	12.00	90.00	1.00	622.67	1.77	0.36
9350	261.79	10.00	114.00	1.00	63.72	0.26	0.01
9110	281.24	8.00	112.00	1.00	85.81	0.55	0.07
9115	410.10	8.00	112.00	1.00	89.93	0.57	0.11
9120	204.56	10.00	112.00	1.00	135.50	0.55	0.04
9125	343.44	10.00	112.00	1.00	105.10	0.43	0.04
9130	209.80	10.00	112.00	1.00	173.63	0.71	0.07
9135	426.32	8.00	112.00	1.00	3.68	0.02	0.00
9290	993.72	8.00	114.00	1.00	11.70	0.07	0.01
9140	563.27	8.00	112.00	1.00	21.70	0.14	0.01
8910	369.18	10.00	110.00	1.00	65.21	0.27	0.02
8845	779.73	12.00	120.00	1.00	173.72	0.49	0.09
8850	147.13	10.00	112.00	1.00	80.00	0.33	0.01
8855	425.09	6.00	110.00	1.00	39.16	0.44	0.11
8860	210.31	6.00	110.00	1.00	32.09	0.36	0.04
8865	720.75	6.00	110.00	1.00	6.57	0.07	0.01
8870	102.03	6.00	110.00	1.00	18.88	0.21	0.01
8940	1135.96	12.00	112.00	1.00	46.91	0.13	0.01
8880	814.73	16.00	110.00	1.00	94.22	0.15	0.01
8885	637.30	6.00	110.00	1.00	81.31	0.92	0.62
8890	622.37	12.00	110.00	1.00	144.10	0.41	0.06
8895	1099.54	12.00	110.00	1.00	129.21	0.37	0.09
8900	682.97	6.00	110.00	1.00	45.16	0.51	0.22
8905	899.67	8.00	110.00	1.00	43.00	0.27	0.07
8840	482.37	12.00	120.00	1.00	5.23	0.01	0.00
8915	39.29	10.00	110.00	1.00	48.88	0.20	0.00
8920	864.21	8.00	115.00	1.00	97.11	0.62	0.26
8925	2184.88	10.00	110.00	1.00	13.99	0.06	0.01
8930	673.20	8.00	112.00	1.00	4.64	0.03	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
8935	113.22	8.00	112.00	1.00	4.87	0.03	0.00
8875	857.50	10.00	110.00	1.00	124.78	0.51	0.15
9430	1871.93	12.00	117.00	1.00	0.00	0.00	0.00
9105	751.59	8.00	112.00	1.00	76.61	0.49	0.15
9265	490.57	8.00	112.00	1.00	37.32	0.24	0.03
9270	379.51	8.00	112.00	1.00	129.51	0.83	0.21
9275	1756.74	27.00	100.00	1.00	976.75	0.55	0.13
9280	934.88	27.00	100.00	1.00	2348.52	1.32	0.36
8835	713.49	16.00	120.00	1.00	318.95	0.51	0.06
9145	334.32	8.00	112.00	1.00	26.49	0.17	0.01
8525	180.11	6.00	112.00	1.00	17.46	0.20	0.01
1470	511.02	8.00	112.00	1.00	24.82	0.16	0.01
386	73.22	8.00	95.00	1.00	448.00	2.86	0.54
9446	3947.37	16.00	125.00	1.00	126.44	0.20	0.05
9087	38.42	8.00	112.00	1.00	24.10	0.15	0.00
8786	185.00	8.00	120.00	1.00	22.63	0.14	0.00
8771	27.28	8.00	120.00	1.00	11.48	0.07	0.00
5992	309.01	10.00	115.00	1.00	157.34	0.64	0.08
5131	114.09	16.00	120.00	1.00	503.19	0.80	0.02
5981	362.55	8.00	115.00	1.00	4.00	0.03	0.00
5106	273.49	16.00	116.00	1.00	575.55	0.92	0.08
4486	289.41	12.00	117.00	1.00	74.51	0.21	0.01
5691	59.69	6.00	50.00	1.00	41.94	0.48	0.07
1086	688.23	10.00	110.00	1.00	37.92	0.15	0.01
1546	520.63	10.00	97.00	1.00	696.53	2.85	2.82
2426	26.99	12.00	114.00	1.00	753.61	2.14	0.05
2421	240.07	12.00	114.00	1.00	1493.11	4.24	1.63
2422	20.96	12.00	120.00	1.00	1243.34	3.53	0.09
1156	560.08	24.00	120.00	1.00	3599.60	2.55	0.59
1801	611.88	10.00	115.00	1.00	392.36	1.60	0.84
1477	61.85	8.00	120.00	1.00	215.33	1.37	0.08
9401	222.24	8.00	114.00	1.00	2.20	0.01	0.00
9406	931.87	8.00	114.00	1.00	13.41	0.09	0.01
8801	51.38	8.00	120.00	1.00	23.02	0.15	0.00
8806	287.56	8.00	120.00	1.00	29.62	0.19	0.01
8811	225.12	8.00	120.00	1.00	8.61	0.05	0.00
1701	18.83	16.00	115.00	1.00	246.73	0.39	0.00
1036	306.04	12.00	112.00	1.00	273.04	0.77	0.09
7035	817.40	8.00	116.00	1.00	19.21	0.12	0.01
7130	702.23	12.00	116.00	1.00	60.38	0.17	0.01
7135	497.01	8.00	116.00	1.00	32.45	0.21	0.02
7505	510.48	8.00	125.00	1.00	2.19	0.01	0.00
7460	1011.28	12.00	120.00	1.00	493.41	1.40	0.80
7465	965.95	12.00	120.00	1.00	438.30	1.24	0.62
7470	479.49	14.00	125.00	1.00	261.34	0.54	0.05
7475	1261.24	8.00	125.00	1.00	68.09	0.43	0.17

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
7485	576.98	8.00	120.00	1.00	0.00	0.00	0.00
7490	199.46	8.00	125.00	1.00	14.19	0.09	0.00
7495	202.73	8.00	125.00	1.00	5.72	0.04	0.00
7500	326.52	8.00	125.00	1.00	3.39	0.02	0.00
7510	465.93	8.00	125.00	1.00	2.48	0.02	0.00
7515	177.46	8.00	125.00	1.00	6.54	0.04	0.00
6526	52.47	8.00	114.00	0.00	0.00	0.00	0.00
7085	23.57	12.00	135.00	0.00	0.00	0.00	0.00
7676	14.80	16.00	115.00	0.00	0.00	0.00	0.00
7684	15.96	48.00	120.00	0.00	0.00	0.00	0.00
921	2669.49	14.00	80.00	0.00	0.00	0.00	0.00
7525	939.71	12.00	120.00	1.00	479.23	1.36	0.71
7480	1343.15	8.00	127.00	1.00	91.18	0.58	0.30
7270	213.86	12.00	114.00	1.00	68.17	0.19	0.00
7275	384.54	12.00	114.00	1.00	62.22	0.18	0.01
7280	314.07	12.00	114.00	1.00	144.10	0.41	0.03
7285	603.98	8.00	114.00	1.00	6.75	0.04	0.00
7290	415.57	12.00	114.00	1.00	34.63	0.10	0.00
7070	324.15	12.00	116.00	1.00	135.32	0.38	0.02
7020	476.49	8.00	116.00	1.00	83.07	0.53	0.11
7125	643.37	8.00	116.00	1.00	3.74	0.02	0.00
7110	457.40	8.00	116.00	1.00	10.65	0.07	0.00
7055	277.10	12.00	116.00	1.00	251.32	0.71	0.07
7060	386.86	12.00	116.00	1.00	358.03	1.02	0.18
7065	957.37	12.00	116.00	1.00	135.32	0.38	0.07
7095	161.53	12.00	116.00	1.00	129.92	0.37	0.01
7100	322.24	12.00	116.00	1.00	91.43	0.26	0.01
7105	655.75	8.00	116.00	1.00	21.59	0.14	0.01
7265	209.36	12.00	114.00	1.00	107.92	0.31	0.01
7295	394.90	8.00	114.00	1.00	21.15	0.13	0.01
7800	405.07	12.00	112.00	1.00	894.33	2.54	1.10
7805	30.31	8.00	112.00	1.00	164.01	1.05	0.03
7810	560.33	8.00	112.00	1.00	157.23	1.00	0.44
7815	219.78	10.00	112.00	1.00	135.45	0.55	0.04
7820	762.88	12.00	112.00	1.00	709.53	2.01	1.35
7300	578.81	8.00	114.00	1.00	7.17	0.05	0.00
7333	175.88	24.00	120.00	1.00	3194.74	2.27	0.15
7340	2085.89	18.00	120.00	1.00	1064.28	1.34	0.95
7345	25.76	14.00	120.00	1.00	356.24	0.74	0.01
7355	1884.82	12.00	120.00	1.00	306.78	0.87	0.62
7360	309.53	16.00	120.00	1.00	49.45	0.08	0.00
7370	466.72	14.00	120.00	1.00	710.54	1.48	0.34
7380	1754.75	16.00	120.00	1.00	25.56	0.04	0.00
7385	1276.43	16.00	120.00	1.00	13.12	0.02	0.00
7120	251.20	12.00	116.00	1.00	51.02	0.14	0.00
7310	259.76	30.00	115.00	1.00	4269.27	1.94	0.14

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
6715	224.01	8.00	117.00	1.00	130.98	0.84	0.12
6755	284.83	8.00	117.00	1.00	163.11	1.04	0.22
6760	851.73	24.00	120.00	1.00	1615.30	1.15	0.21
6745	242.62	14.00	108.00	1.00	120.69	0.25	0.01
6740	448.92	16.00	90.00	1.00	1090.19	1.74	0.65
6735	1131.63	16.00	122.00	1.00	281.68	0.45	0.08
6630	375.94	16.00	116.00	1.00	1328.73	2.12	0.49
6635	296.84	16.00	116.00	1.00	1093.47	1.74	0.27
6640	491.92	16.00	116.00	1.00	907.38	1.45	0.32
6645	164.17	8.00	116.00	1.00	235.79	1.50	0.25
6650	344.46	8.00	116.00	1.00	133.70	0.85	0.19
6525	204.29	16.00	116.00	1.00	1147.76	1.83	0.20
6660	163.98	10.00	117.00	1.00	62.64	0.26	0.01
6665	740.87	8.00	116.00	1.00	108.21	0.69	0.27
6670	713.67	8.00	116.00	1.00	58.88	0.38	0.08
6675	262.73	8.00	116.00	1.00	95.86	0.61	0.08
6680	190.34	10.00	117.00	1.00	30.37	0.12	0.00
6685	349.58	10.00	117.00	1.00	98.53	0.40	0.04
6690	338.51	10.00	117.00	1.00	142.17	0.58	0.07
6695	190.29	8.00	117.00	1.00	70.99	0.45	0.03
6700	428.70	8.00	117.00	1.00	60.25	0.38	0.05
6705	169.02	8.00	117.00	1.00	50.60	0.32	0.01
6710	134.06	8.00	117.00	1.00	134.34	0.86	0.07
6750	1041.58	12.00	108.00	1.00	523.51	1.49	1.12
7185	39.09	8.00	110.00	1.00	10.62	0.07	0.00
7115	757.41	8.00	116.00	1.00	5.15	0.03	0.00
7250	770.47	8.00	114.00	1.00	3.94	0.03	0.00
7240	507.33	8.00	114.00	1.00	7.44	0.05	0.00
7235	284.93	8.00	114.00	1.00	16.92	0.11	0.00
7230	478.10	8.00	114.00	1.00	8.22	0.05	0.00
7260	412.52	8.00	114.00	1.00	31.89	0.20	0.02
7220	358.47	8.00	114.00	1.00	38.70	0.25	0.02
7145	528.35	8.00	116.00	1.00	11.60	0.07	0.00
7210	409.55	8.00	114.00	1.00	51.86	0.33	0.04
7255	665.08	8.00	114.00	1.00	19.84	0.13	0.01
7140	413.55	8.00	116.00	1.00	16.86	0.11	0.00
7245	418.52	8.00	114.00	1.00	8.81	0.06	0.00
7175	266.08	10.00	114.00	1.00	2.25	0.01	0.00
7225	457.70	8.00	114.00	1.00	31.05	0.20	0.02
7165	270.41	12.00	114.00	1.00	43.05	0.12	0.00
7160	726.57	12.00	114.00	1.00	39.55	0.11	0.01
7155	195.20	8.00	108.00	1.00	32.13	0.21	0.01
7150	273.56	12.00	115.00	1.00	62.48	0.18	0.00
7215	584.88	8.00	114.00	1.00	6.33	0.04	0.00
6655	256.44	8.00	116.00	1.00	81.51	0.52	0.06
6725	288.66	16.00	116.00	1.00	892.43	1.42	0.18

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
7170	380.87	10.00	114.00	1.00	63.68	0.26	0.02
7180	192.52	8.00	114.00	1.00	26.19	0.17	0.01
6720	891.22	8.00	117.00	1.00	26.93	0.17	0.02
5750	1308.58	16.00	120.00	1.00	92.25	0.15	0.01
5915	119.37	16.00	115.00	1.00	0.00	0.00	0.00
5360	28.72	16.00	117.00	1.00	1337.13	2.13	0.04
5365	965.19	16.00	117.00	1.00	1337.13	2.13	1.25
5370	605.97	16.00	117.00	1.00	1335.96	2.13	0.79
5375	1062.85	16.00	117.00	1.00	1287.39	2.05	1.29
5816	253.46	12.00	116.00	1.00	6.18	0.02	0.00
5825	432.99	12.00	116.00	1.00	1.21	0.00	0.00
5930	614.39	16.00	115.00	1.00	26.74	0.04	0.00
5940	500.26	10.00	115.00	1.00	37.41	0.15	0.00
5945	349.08	12.00	115.00	1.00	26.89	0.08	0.00
7560	255.30	10.00	115.00	1.00	3.20	0.01	0.00
7565	542.60	8.00	115.00	1.00	0.60	0.00	0.00
7570	683.20	8.00	115.00	1.00	0.45	0.00	0.00
7585	392.37	12.00	115.00	1.00	3.98	0.01	0.00
7590	154.57	12.00	115.00	1.00	0.00	0.00	0.00
7580	837.81	12.00	115.00	1.00	9.89	0.03	0.00
5805	396.52	10.00	116.00	1.00	3.67	0.01	0.00
5800	64.00	12.00	116.00	1.00	8.42	0.02	0.00
5795	491.89	12.00	116.00	1.00	14.59	0.04	0.00
5790	689.85	16.00	120.00	1.00	48.29	0.08	0.00
5785	1748.62	16.00	116.00	1.00	48.38	0.08	0.00
5780	203.37	16.00	116.00	1.00	33.01	0.05	0.00
5775	1667.28	12.00	117.00	1.00	15.28	0.04	0.00
5774	311.56	8.00	117.00	1.00	15.28	0.10	0.00
5815	1040.29	12.00	116.00	1.00	5.23	0.01	0.00
5810	437.41	10.00	116.00	1.00	2.24	0.01	0.00
5420	188.03	16.00	100.00	1.00	366.44	0.58	0.03
5400	2165.69	16.00	120.00	1.00	691.27	1.10	0.79
7575	232.54	8.00	115.00	1.00	0.45	0.00	0.00
5817	96.69	12.00	116.00	1.00	5.23	0.01	0.00
5399	1448.52	16.00	120.00	1.00	1389.87	2.22	1.93
P15	545.08	8.00	127.00	1.00	6.57	0.04	0.00
P27	572.88	8.00	127.00	1.00	26.12	0.17	0.01
P29	501.35	8.00	127.00	1.00	46.03	0.29	0.03
P43	527.12	8.00	127.00	1.00	40.36	0.26	0.03
P45	1474.32	8.00	127.00	1.00	190.96	1.22	1.31
P79	752.48	8.00	127.00	1.00	60.60	0.39	0.08
P85	1374.59	8.00	127.00	1.00	44.64	0.28	0.08
P97	389.33	8.00	127.00	1.00	3.01	0.02	0.00
P99	767.74	8.00	127.00	1.00	1.92	0.01	0.00
P109	867.64	8.00	127.00	1.00	0.80	0.01	0.00
P113	439.53	8.00	127.00	1.00	0.24	0.00	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P115	1011.19	8.00	127.00	1.00	0.80	0.01	0.00
P117	1583.02	8.00	127.00	1.00	28.41	0.18	0.04
P119	173.09	8.00	127.00	1.00	30.92	0.20	0.01
P123	84.91	8.00	127.00	1.00	29.05	0.19	0.00
P125	756.95	8.00	127.00	1.00	44.72	0.29	0.05
P127	346.24	8.00	127.00	1.00	28.41	0.18	0.01
P131	452.81	8.00	130.00	1.00	10.18	0.06	0.00
P133	253.60	8.00	130.00	1.00	6.66	0.04	0.00
P135	586.15	8.00	130.00	1.00	23.60	0.15	0.01
P137	610.93	8.00	130.00	1.00	4.90	0.03	0.00
P139	307.58	8.00	130.00	1.00	12.71	0.08	0.00
P141	647.02	8.00	130.00	1.00	31.07	0.20	0.02
P143	274.65	8.00	130.00	1.00	34.74	0.22	0.01
P145	512.40	10.00	130.00	1.00	74.55	0.30	0.03
P147	182.58	10.00	130.00	1.00	94.71	0.39	0.01
P149	762.42	10.00	130.00	1.00	98.83	0.40	0.06
P151	666.91	12.00	127.00	1.00	11.64	0.03	0.00
P155	222.23	12.00	127.00	1.00	8.36	0.02	0.00
P157	85.36	12.00	120.00	1.00	17.16	0.05	0.00
P159	192.64	12.00	127.00	1.00	3.28	0.01	0.00
P161	265.64	12.00	127.00	1.00	2.01	0.01	0.00
P165	935.92	8.00	127.00	1.00	157.18	1.00	0.58
P167	412.35	8.00	127.00	1.00	47.36	0.30	0.03
P169	496.97	8.00	127.00	1.00	16.50	0.11	0.00
P171	211.25	8.00	127.00	1.00	2.49	0.02	0.00
P173	205.29	8.00	127.00	1.00	2.49	0.02	0.00
P175	671.95	8.00	127.00	1.00	30.65	0.20	0.02
P177	575.67	8.00	127.00	1.00	25.25	0.16	0.01
P179	181.42	8.00	127.00	1.00	0.00	0.00	0.00
P181	557.21	8.00	127.00	1.00	55.32	0.35	0.05
P183	138.03	8.00	127.00	1.00	55.10	0.35	0.01
P187	1129.84	8.00	127.00	1.00	0.00	0.00	0.00
P189	1397.54	10.00	127.00	1.00	87.92	0.36	0.10
P193	129.26	8.00	120.00	1.00	2.51	0.02	0.00
P197	299.21	8.00	127.00	1.00	8.66	0.06	0.00
P205	590.11	10.00	127.00	1.00	33.30	0.14	0.01
P207	1554.39	10.00	127.00	1.00	21.37	0.09	0.01
P209	1449.82	8.00	120.00	1.00	59.88	0.38	0.17
P217	1971.56	8.00	120.00	1.00	38.96	0.25	0.10
P221	576.96	8.00	120.00	1.00	17.50	0.11	0.01
P241	2339.55	16.00	115.00	1.00	396.43	0.63	0.33
P249	206.20	8.00	127.00	1.00	20.30	0.13	0.00
P253	1049.36	8.00	127.00	1.00	86.80	0.55	0.22
P283	3499.78	12.00	120.00	1.00	763.37	2.17	6.24
P287	4795.45	8.00	130.00	1.00	0.12	0.00	0.00
P289	912.50	36.00	130.00	1.00	0.00	0.00	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P295	376.85	8.00	127.00	1.00	73.43	0.47	0.06
P299	1344.62	8.00	120.00	1.00	44.97	0.29	0.09
P301	269.06	8.00	127.00	1.00	20.30	0.13	0.00
P303	376.04	8.00	127.00	1.00	0.00	0.00	0.00
P935	453.66	12.00	127.00	1.00	3.28	0.01	0.00
P947	591.23	12.00	127.00	1.00	2.01	0.01	0.00
P961	161.15	8.00	127.00	1.00	9.26	0.06	0.00
P963	147.53	8.00	127.00	1.00	14.30	0.09	0.00
P965	335.01	8.00	127.00	1.00	9.19	0.06	0.00
P967	225.76	8.00	127.00	1.00	28.47	0.18	0.01
P971	325.09	10.00	127.00	1.00	123.59	0.50	0.04
P973	634.50	10.00	127.00	1.00	150.80	0.62	0.12
P991	1350.99	12.00	127.00	1.00	170.86	0.48	0.14
P1009	1538.10	8.00	127.00	1.00	109.70	0.70	0.49
P1013	138.67	12.00	112.00	1.00	0.00	0.00	0.00
P1017	3682.66	30.00	115.00	1.00	1712.69	0.78	0.37
P1027	316.17	30.00	115.00	1.00	1604.32	0.73	0.03
P1035	879.23	8.00	127.00	1.00	1.74	0.01	0.00
P1041	72.61	8.00	127.00	1.00	3.52	0.02	0.00
P1049	344.35	8.00	127.00	1.00	1.40	0.01	0.00
P1051	299.64	8.00	130.00	1.00	96.49	0.62	0.07
P1053	610.67	12.00	127.00	1.00	38.64	0.11	0.00
P1061	548.38	10.00	127.00	1.00	42.32	0.17	0.01
P1069	231.36	8.00	127.00	1.00	84.30	0.54	0.05
P1071	44.43	8.00	127.00	1.00	54.30	0.35	0.00
P1089	819.98	10.00	127.00	1.00	93.44	0.38	0.07
P1095	531.59	10.00	127.00	1.00	5.93	0.02	0.00
P1105	248.54	10.00	127.00	1.00	115.67	0.47	0.03
P1109	852.59	8.00	127.00	1.00	2.81	0.02	0.00
P1117	2060.00	8.00	127.00	1.00	19.82	0.13	0.03
P1119	738.33	10.00	127.00	1.00	70.11	0.29	0.03
P1121	476.50	8.00	127.00	1.00	23.84	0.15	0.01
P1125	1670.76	10.00	127.00	1.00	159.48	0.65	0.36
P1127	335.60	8.00	127.00	1.00	57.40	0.37	0.03
P1129	372.70	10.00	127.00	1.00	123.84	0.51	0.05
P1133	342.13	10.00	127.00	1.00	103.35	0.42	0.03
P1137	249.91	12.00	127.00	1.00	66.01	0.19	0.00
P1139	199.33	8.00	127.00	1.00	28.09	0.18	0.01
P1141	109.49	10.00	127.00	1.00	119.19	0.49	0.01
P1143	32.52	8.00	127.00	1.00	25.79	0.16	0.00
P1147	291.94	8.00	127.00	1.00	30.57	0.20	0.01
P1149	768.88	8.00	127.00	1.00	36.26	0.23	0.03
P1151	680.53	8.00	127.00	1.00	56.02	0.36	0.06
P1155	860.24	8.00	127.00	1.00	27.49	0.18	0.02
P1173	372.00	8.00	127.00	1.00	1.82	0.01	0.00
P1177	897.41	8.00	127.00	1.00	26.12	0.17	0.02

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1181	167.83	12.00	127.00	1.00	104.43	0.30	0.01
P1183	349.10	12.00	127.00	1.00	348.33	0.99	0.12
P1187	218.84	8.00	127.00	1.00	16.81	0.11	0.00
P1197	64.70	8.00	127.00	1.00	5.95	0.04	0.00
P1201	269.73	8.00	127.00	1.00	48.70	0.31	0.02
P1213	580.57	8.00	130.00	1.00	107.98	0.69	0.17
P1225	262.75	12.00	130.00	1.00	227.57	0.65	0.04
P1227	268.96	12.00	130.00	1.00	171.24	0.49	0.03
P1229	804.72	8.00	130.00	1.00	29.81	0.19	0.02
P1231	362.85	8.00	130.00	1.00	7.50	0.05	0.00
P1233	544.97	8.00	130.00	1.00	5.67	0.04	0.00
P1235	606.79	8.00	130.00	1.00	48.37	0.31	0.04
P1237	951.79	12.00	130.00	1.00	137.52	0.39	0.06
P1239	658.00	8.00	127.00	1.00	1.77	0.01	0.00
P1243	164.96	8.00	127.00	1.00	5.97	0.04	0.00
P1255	1154.10	8.00	125.00	1.00	13.33	0.09	0.01
P1257	349.38	8.00	125.00	1.00	57.11	0.36	0.03
P1261	878.02	8.00	125.00	1.00	7.94	0.05	0.00
P1267	176.65	8.00	130.00	1.00	92.70	0.59	0.04
P1273	769.62	8.00	130.00	1.00	68.41	0.44	0.10
P1293	542.97	8.00	127.00	1.00	6.03	0.04	0.00
P1309	418.96	8.00	127.00	1.00	1.83	0.01	0.00
P1313	336.36	8.00	127.00	1.00	78.77	0.50	0.06
P1315	320.59	8.00	127.00	1.00	68.22	0.44	0.04
P1317	591.47	30.00	115.00	1.00	2807.23	1.27	0.15
P1321	144.66	8.00	127.00	1.00	3.34	0.02	0.00
P1323	259.21	8.00	127.00	1.00	1.27	0.01	0.00
P1343	397.54	8.00	120.00	1.00	0.96	0.01	0.00
P1345	548.62	8.00	120.00	1.00	30.11	0.19	0.02
P1347	923.38	8.00	120.00	1.00	9.31	0.06	0.00
P1349	486.79	8.00	120.00	1.00	10.24	0.07	0.00
P1351	278.86	8.00	120.00	1.00	16.63	0.11	0.00
P1359	1196.73	8.00	120.00	1.00	30.07	0.19	0.04
P1365	168.19	8.00	130.00	1.00	26.99	0.17	0.00
P1371	292.33	8.00	130.00	1.00	28.35	0.18	0.01
P1375	571.41	8.00	130.00	1.00	12.40	0.08	0.00
P1381	1249.60	8.00	130.00	1.00	3.16	0.02	0.00
P1383	693.66	10.00	125.00	1.00	37.56	0.15	0.01
P1385	101.91	8.00	130.00	1.00	35.25	0.22	0.00
P1387	245.99	8.00	130.00	1.00	38.66	0.25	0.01
P1389	139.82	8.00	130.00	1.00	10.49	0.07	0.00
P1391	297.55	8.00	130.00	1.00	19.78	0.13	0.00
P1395	1260.92	8.00	130.00	1.00	9.07	0.06	0.00
P1397	1766.64	10.00	130.00	1.00	81.36	0.33	0.10
P1399	244.47	12.00	120.00	1.00	320.76	0.91	0.09
P1401	408.16	8.00	120.00	1.00	91.11	0.58	0.10

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1403	163.65	8.00	130.00	1.00	56.35	0.36	0.01
P1405	126.26	16.00	130.00	1.00	249.57	0.40	0.01
P1407	226.62	8.00	130.00	1.00	58.32	0.37	0.02
P1409	302.66	16.00	130.00	1.00	247.00	0.39	0.01
P1421	319.88	8.00	120.00	1.00	32.30	0.21	0.01
P1423	364.00	8.00	120.00	1.00	4.48	0.03	0.00
P1425	155.86	8.00	120.00	1.00	18.90	0.12	0.00
P1431	855.14	8.00	130.00	1.00	38.41	0.25	0.04
P1435	504.86	8.00	127.00	1.00	25.29	0.16	0.01
P1437	151.19	8.00	127.00	1.00	165.58	1.06	0.10
P1439	210.17	8.00	127.00	1.00	186.05	1.19	0.18
P1441	546.55	8.00	127.00	1.00	17.78	0.11	0.01
P1449	1269.67	8.00	127.00	1.00	0.00	0.00	0.00
P1455	633.23	10.00	125.00	1.00	37.56	0.15	0.01
P1459	187.86	8.00	130.00	1.00	33.68	0.21	0.01
P1461	248.43	8.00	130.00	1.00	4.51	0.03	0.00
P1463	268.74	8.00	130.00	1.00	5.22	0.03	0.00
P1465	357.97	8.00	127.00	1.00	21.11	0.13	0.01
P1467	345.44	8.00	127.00	1.00	2.32	0.01	0.00
P1471	283.87	8.00	127.00	1.00	20.70	0.13	0.00
P1477	850.67	8.00	127.00	1.00	20.77	0.13	0.01
P1479	373.74	8.00	127.00	1.00	108.30	0.69	0.12
P1481	1067.73	8.00	127.00	1.00	64.90	0.41	0.13
P1483	646.87	8.00	127.00	1.00	79.87	0.51	0.11
P1485	765.91	8.00	127.00	1.00	68.52	0.44	0.10
P1487	709.07	8.00	127.00	1.00	135.32	0.86	0.33
P1491	189.57	8.00	127.00	1.00	42.88	0.27	0.01
P1495	1362.18	8.00	130.00	1.00	57.51	0.37	0.13
P1497	785.96	8.00	127.00	1.00	11.45	0.07	0.00
P1499	426.16	8.00	127.00	1.00	65.01	0.41	0.05
P1501	391.87	8.00	127.00	1.00	59.59	0.38	0.04
P1503	771.03	8.00	127.00	1.00	53.21	0.34	0.06
P1505	756.70	8.00	127.00	1.00	41.17	0.26	0.04
P1525	402.48	10.00	120.00	1.00	16.22	0.07	0.00
P1527	112.98	10.00	120.00	1.00	8.77	0.04	0.00
P1541	189.73	8.00	127.00	1.00	73.29	0.47	0.03
P1543	11.87	10.00	127.00	1.00	274.95	1.12	0.01
P1545	402.85	10.00	127.00	1.00	179.23	0.73	0.11
P1549	511.46	8.00	120.00	1.00	44.15	0.28	0.03
P1555	378.01	8.00	120.00	1.00	19.44	0.12	0.01
P1557	661.05	8.00	120.00	1.00	0.56	0.00	0.00
P1565	393.73	8.00	130.00	1.00	13.97	0.09	0.00
P1567	275.27	8.00	130.00	1.00	0.27	0.00	0.00
P1569	551.01	8.00	130.00	1.00	11.45	0.07	0.00
P1571	415.25	16.00	130.00	1.00	316.84	0.51	0.03
P1573	126.64	8.00	130.00	1.00	67.45	0.43	0.02

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1579	183.49	8.00	127.00	1.00	63.86	0.41	0.02
P1587	79.33	8.00	127.00	1.00	5.23	0.03	0.00
P1599	204.48	8.00	130.00	1.00	41.97	0.27	0.01
P1605	286.37	10.00	127.00	1.00	82.35	0.34	0.02
P1615	668.91	8.00	127.00	1.00	0.00	0.00	0.00
P1627	554.26	8.00	127.00	1.00	45.45	0.29	0.03
P1629	366.23	8.00	127.00	1.00	36.58	0.23	0.02
P1631	719.09	8.00	127.00	1.00	13.69	0.09	0.00
P1645	1346.52	14.00	127.00	1.00	439.92	0.92	0.37
P1647	464.02	12.00	130.00	1.00	341.55	0.97	0.16
P1649	253.87	8.00	130.00	1.00	16.73	0.11	0.00
P1651	60.84	12.00	120.00	1.00	172.56	0.49	0.01
P1653	547.13	12.00	120.00	1.00	172.56	0.49	0.06
P1669	1240.38	8.00	120.00	1.00	30.71	0.20	0.04
P1673	1689.75	8.00	120.00	1.00	40.17	0.26	0.09
P1675	659.79	8.00	130.00	1.00	4.47	0.03	0.00
P1679	235.64	8.00	130.00	1.00	37.40	0.24	0.01
P1681	134.91	8.00	127.00	1.00	10.16	0.06	0.00
P1685	338.06	8.00	120.00	1.00	2.71	0.02	0.00
P1697	827.44	8.00	127.00	1.00	18.33	0.12	0.01
P1699	360.17	8.00	127.00	1.00	36.15	0.23	0.01
P1707	864.80	8.00	130.00	1.00	152.56	0.97	0.49
P1715	234.72	8.00	127.00	1.00	17.80	0.11	0.00
P1717	306.40	12.00	127.00	1.00	125.58	0.36	0.02
P1735	229.56	8.00	120.00	1.00	31.30	0.20	0.01
P1737	160.91	8.00	120.00	1.00	3.30	0.02	0.00
P1739	357.43	12.00	127.00	1.00	57.60	0.16	0.00
P1751	415.64	8.00	127.00	1.00	1.12	0.01	0.00
P1765	851.48	8.00	127.00	1.00	13.81	0.09	0.01
P1769	11.66	6.00	127.00	1.00	0.00	0.00	0.00
P1775	346.92	10.00	120.00	1.00	178.24	0.73	0.10
P1180	579.60	12.00	120.00	1.00	767.07	2.18	1.04
1182	608.36	36.00	120.00	1.00	3637.51	1.15	0.09
1194	1060.76	16.00	127.00	1.00	224.63	0.36	0.04
1196	76.29	10.00	127.00	1.00	5.14	0.02	0.00
1198	410.34	36.00	120.00	1.00	3634.68	1.15	0.06
1204	487.01	8.00	127.00	1.00	81.77	0.52	0.09
1206	122.21	8.00	127.00	1.00	201.65	1.29	0.12
1208	86.02	8.00	127.00	1.00	8.18	0.05	0.00
1212	167.40	16.00	125.00	1.00	151.46	0.24	0.00
1214	385.21	8.00	127.00	1.00	67.48	0.43	0.05
1216	169.61	8.00	127.00	1.00	129.90	0.83	0.07
1218	364.26	8.00	127.00	1.00	107.02	0.68	0.11
1222	173.81	8.00	127.00	1.00	230.99	1.47	0.22
1224	922.00	16.00	120.00	1.00	953.69	1.52	0.61
1226	39.94	6.00	120.00	1.00	0.00	0.00	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
1232	6.35	10.00	120.00	1.00	0.00	0.00	0.00
1234	12.30	10.00	127.00	1.00	0.00	0.00	0.00
1236	217.46	16.00	125.00	1.00	871.94	1.39	0.11
1238	97.74	12.00	127.00	1.00	278.37	0.79	0.02
1248	30.10	12.00	127.00	1.00	278.37	0.79	0.01
1252	11.81	10.00	127.00	1.00	0.00	0.00	0.00
1254	1465.61	12.00	127.00	1.00	114.46	0.32	0.07
1256	1520.93	16.00	125.00	1.00	461.05	0.74	0.24
1264	352.71	36.00	120.00	1.00	3637.95	1.15	0.05
1266	257.33	18.00	120.00	1.00	206.76	0.26	0.01
1268	465.26	8.00	127.00	1.00	30.92	0.20	0.01
1272	169.88	8.00	127.00	1.00	1.96	0.01	0.00
1274	174.30	8.00	127.00	1.00	193.31	1.23	0.16
1276	309.50	8.00	127.00	1.00	2.49	0.02	0.00
1282	82.82	8.00	127.00	1.00	17.50	0.11	0.00
1286	161.68	8.00	127.00	1.00	16.31	0.10	0.00
1288	169.53	8.00	127.00	1.00	0.00	0.00	0.00
1296	116.80	16.00	120.00	1.00	647.88	1.03	0.04
1298	191.50	8.00	127.00	1.00	2.51	0.02	0.00
1302	151.62	10.00	130.00	1.00	47.22	0.19	0.00
1304	366.75	10.00	127.00	1.00	33.81	0.14	0.00
1306	293.71	10.00	120.00	1.00	40.43	0.17	0.01
1308	151.72	10.00	120.00	1.00	45.88	0.19	0.00
1312	1368.40	12.00	116.00	1.00	0.00	0.00	0.00
1318	342.59	10.00	120.00	1.00	6.71	0.03	0.00
1324	269.35	12.00	114.00	1.00	139.43	0.40	0.02
1326	628.45	12.00	127.00	1.00	68.19	0.19	0.01
1332	681.13	12.00	127.00	1.00	52.35	0.15	0.01
1336	553.19	12.00	127.00	1.00	101.04	0.29	0.02
1338	1150.83	24.00	116.00	1.00	2693.25	1.91	0.77
1344	281.10	16.00	120.00	1.00	557.25	0.89	0.07
1346	806.23	12.00	120.00	1.00	46.65	0.13	0.01
1348	1563.95	12.00	120.00	1.00	37.28	0.11	0.01
1352	373.66	12.00	120.00	1.00	19.47	0.06	0.00
1354	316.21	8.00	120.00	1.00	0.00	0.00	0.00
1356	520.24	18.00	120.00	1.00	1068.30	1.35	0.24
1362	50.75	8.00	127.00	1.00	0.94	0.01	0.00
1364	1069.78	30.00	108.00	1.00	2866.59	1.30	0.31
1366	628.30	30.00	108.00	1.00	2776.18	1.26	0.17
1368	1417.57	16.00	113.00	1.00	1048.62	1.67	1.25
1372	742.62	16.00	113.00	1.00	916.50	1.46	0.51
1374	782.01	8.00	130.00	1.00	81.45	0.52	0.14
1376	663.82	12.00	120.00	1.00	285.23	0.81	0.19
1384	242.57	8.00	120.00	1.00	38.29	0.24	0.01
1388	440.45	8.00	127.00	1.00	5.20	0.03	0.00
1392	445.51	12.00	127.00	1.00	172.95	0.49	0.05

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
1398	47.75	27.00	100.00	1.00	2316.23	1.30	0.02
1402	247.07	12.00	113.00	1.00	151.77	0.43	0.02
1404	1643.73	12.00	127.00	1.00	86.07	0.24	0.05
1412	257.48	8.00	115.00	1.00	64.00	0.41	0.04
1416	170.14	10.00	130.00	1.00	51.12	0.21	0.00
1422	958.86	18.00	130.00	1.00	320.63	0.40	0.04
1428	262.76	16.00	130.00	1.00	6.77	0.01	0.00
1436	404.90	12.00	127.00	1.00	73.85	0.21	0.01
1438	392.36	12.00	127.00	0.00	0.00	0.00	0.00
1442	638.84	12.00	127.00	1.00	28.06	0.08	0.00
1446	115.25	12.00	127.00	1.00	107.17	0.30	0.00
1448	1169.05	8.00	120.00	1.00	21.04	0.13	0.02
1464	866.40	8.00	127.00	1.00	0.00	0.00	0.00
1472	1068.47	16.00	114.00	1.00	392.43	0.63	0.12
1474	100.07	8.00	120.00	1.00	9.71	0.06	0.00
1476	149.45	16.00	116.00	1.00	1052.74	1.68	0.13
1478	125.49	16.00	116.00	1.00	964.98	1.54	0.09
1482	133.64	8.00	120.00	1.00	36.39	0.23	0.01
1484	460.92	8.00	127.00	1.00	0.00	0.00	0.00
1486	187.63	12.00	116.00	1.00	213.91	0.61	0.03
1488	204.61	16.00	116.00	1.00	820.62	1.31	0.11
1492	237.08	16.00	116.00	1.00	803.35	1.28	0.12
1494	420.71	8.00	120.00	1.00	13.13	0.08	0.00
1496	437.30	8.00	120.00	1.00	170.37	1.09	0.35
1498	1370.03	12.00	127.00	1.00	135.02	0.38	0.09
1504	280.81	8.00	120.00	1.00	91.11	0.58	0.07
1508	107.80	8.00	127.00	1.00	51.72	0.33	0.01
1512	1460.14	14.00	127.00	1.00	440.33	0.92	0.40
1514	7.69	8.00	120.00	1.00	21.90	0.14	0.00
1516	480.64	8.00	127.00	1.00	20.52	0.13	0.01
1518	205.92	12.00	130.00	1.00	87.76	0.25	0.01
1522	597.13	12.00	120.00	1.00	227.21	0.64	0.11
1524	379.18	12.00	120.00	1.00	353.29	1.00	0.16
1526	811.98	12.00	127.00	1.00	313.60	0.89	0.23
1532	1159.85	16.00	120.00	1.00	281.68	0.45	0.08
1536	359.56	12.00	120.00	1.00	0.62	0.00	0.00
1538	101.01	12.00	127.00	1.00	2.94	0.01	0.00
1542	213.27	8.00	127.00	1.00	1.85	0.01	0.00
1544	187.91	8.00	127.00	1.00	183.49	1.17	0.16
1558	649.13	18.00	125.00	1.00	983.35	1.24	0.24
1562	1901.16	18.00	127.00	1.00	981.70	1.24	0.67
1566	450.86	10.00	120.00	1.00	25.07	0.10	0.00
1572	634.54	18.00	127.00	1.00	745.33	0.94	0.14
1574	212.51	8.00	120.00	1.00	71.75	0.46	0.03
1576	480.78	12.00	120.00	1.00	97.61	0.28	0.02
1584	239.97	8.00	130.00	1.00	8.76	0.06	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
1586	240.48	12.00	127.00	1.00	57.91	0.16	0.00
1592	337.78	16.00	120.00	1.00	396.39	0.63	0.04
1594	282.07	12.00	127.00	1.00	87.48	0.25	0.01
1598	87.99	12.00	120.00	1.00	40.86	0.12	0.00
1602	702.43	12.00	120.00	1.00	0.16	0.00	0.00
1604	1058.04	12.00	120.00	1.00	114.13	0.32	0.06
1606	263.41	8.00	120.00	1.00	25.76	0.16	0.01
1608	37.06	12.00	127.00	1.00	170.89	0.48	0.00
1612	173.88	18.00	120.00	1.00	175.81	0.22	0.00
1618	642.69	8.00	120.00	1.00	1.31	0.01	0.00
1622	146.41	12.00	120.00	1.00	10.29	0.03	0.00
1624	116.52	8.00	127.00	1.00	55.77	0.36	0.01
1626	659.19	8.00	127.00	1.00	208.96	1.33	0.69
1628	350.19	18.00	116.00	1.00	481.11	0.61	0.04
1632	448.38	8.00	127.00	1.00	32.12	0.20	0.01
1634	490.50	12.00	120.00	1.00	371.84	1.05	0.23
1636	510.34	8.00	120.00	1.00	55.10	0.35	0.05
1638	216.08	18.00	120.00	1.00	176.07	0.22	0.00
1640	109.31	18.00	120.00	1.00	176.07	0.22	0.00
1642	211.39	18.00	120.00	1.00	190.82	0.24	0.00
1644	96.08	16.00	120.00	1.00	350.70	0.56	0.01
1646	508.96	8.00	127.00	1.00	0.30	0.00	0.00
1648	182.22	16.00	120.00	1.00	647.88	1.03	0.06
1652	72.14	12.00	116.00	1.00	115.27	0.33	0.00
1654	430.32	8.00	127.00	1.00	16.96	0.11	0.00
1656	157.90	10.00	116.00	1.00	54.89	0.22	0.01
1658	964.86	8.00	120.00	1.00	0.00	0.00	0.00
1668	89.56	8.00	120.00	1.00	0.00	0.00	0.00
1672	101.49	8.00	120.00	1.00	0.00	0.00	0.00
1674	653.03	16.00	113.00	1.00	1178.93	1.88	0.72
1676	409.04	8.00	130.00	1.00	154.45	0.99	0.23
1678	787.22	8.00	120.00	1.00	8.77	0.06	0.00
1682	310.23	12.00	120.00	1.00	154.71	0.44	0.03
1684	331.54	12.00	120.00	1.00	172.56	0.49	0.04
1686	264.64	12.00	115.00	1.00	72.09	0.20	0.01
1688	180.16	10.00	114.00	1.00	46.08	0.19	0.00
1692	471.97	10.00	127.00	1.00	23.96	0.10	0.00
1694	427.04	10.00	130.00	1.00	0.00	0.00	0.00
1696	686.22	12.00	114.00	1.00	213.19	0.60	0.13
1698	1699.04	24.00	122.00	1.00	2689.58	1.91	1.03
1704	501.88	8.00	127.00	1.00	20.30	0.13	0.01
1706	419.23	14.00	120.00	1.00	710.92	1.48	0.31
1708	208.19	8.00	127.00	1.00	5.29	0.03	0.00
1722	464.46	30.00	115.00	1.00	2804.56	1.27	0.11
1724	671.85	8.00	127.00	1.00	49.90	0.32	0.05
1728	173.94	12.00	117.00	1.00	166.74	0.47	0.02

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
1756	1719.46	12.00	125.00	1.00	2.13	0.01	0.00
1766	60.11	8.00	120.00	1.00	0.00	0.00	0.00
1768	180.95	8.00	120.00	1.00	0.85	0.01	0.00
1772	16.76	8.00	120.00	1.00	333.03	2.13	0.05
1774	16.70	8.00	120.00	1.00	0.00	0.00	0.00
1776	13.74	12.00	120.00	1.00	1425.27	4.04	0.08
1778	21.73	12.00	120.00	1.00	0.00	0.00	0.00
1782	9.38	16.00	120.00	1.00	0.00	0.00	0.00
1784	19.27	12.00	120.00	1.00	172.23	0.49	0.00
1788	365.41	10.00	120.00	1.00	14.08	0.06	0.00
1792	32.31	10.00	120.00	1.00	62.61	0.26	0.00
1802	40.85	10.00	120.00	1.00	0.00	0.00	0.00
1804	32.95	14.00	120.00	1.00	0.00	0.00	0.00
1806	319.44	14.00	127.00	1.00	16.71	0.03	0.00
1808	29.86	10.00	120.00	1.00	0.00	0.00	0.00
1812	312.07	12.00	127.00	1.00	274.95	0.78	0.07
1816	58.05	16.00	120.00	1.00	0.00	0.00	0.00
1824	21.45	8.00	120.00	1.00	1.73	0.01	0.00
1832	84.98	8.00	120.00	1.00	0.00	0.00	0.00
P510-318-1-8	15.99	12.00	120.00	1.00	0.00	0.00	0.00
1846	184.42	12.00	120.00	1.00	89.89	0.26	0.01
1852	10.34	12.00	120.00	1.00	2.08	0.01	0.00
1854	6.85	10.00	120.00	1.00	813.97	3.33	0.03
1856	237.12	8.00	120.00	1.00	81.64	0.52	0.05
1858	355.72	10.00	130.00	1.00	50.09	0.20	0.01
1862	561.86	10.00	130.00	1.00	99.77	0.41	0.05
1864	196.27	8.00	130.00	1.00	7.41	0.05	0.00
1866	254.90	8.00	127.00	1.00	28.78	0.18	0.01
1868	206.84	10.00	127.00	1.00	113.64	0.46	0.02
1872	647.57	8.00	127.00	1.00	178.95	1.14	0.51
1874	449.28	8.00	127.00	1.00	78.78	0.50	0.08
1876	455.68	8.00	127.00	1.00	207.93	1.33	0.47
1878	372.29	8.00	127.00	1.00	119.38	0.76	0.14
1882	500.59	10.00	127.00	1.00	21.52	0.09	0.00
1884	1412.15	10.00	127.00	1.00	116.13	0.47	0.17
1886	278.67	10.00	127.00	1.00	123.59	0.50	0.04
1888	1346.32	8.00	127.00	1.00	53.87	0.34	0.11
1892	823.30	8.00	127.00	1.00	11.61	0.07	0.00
1894	693.87	8.00	127.00	0.00	0.00	0.00	0.00
1896	748.74	8.00	127.00	1.00	6.99	0.04	0.00
1902	738.61	8.00	127.00	1.00	835.97	5.34	10.11
1904	770.63	8.00	127.00	1.00	321.49	2.05	1.80
1906	487.64	6.00	110.00	1.00	17.13	0.19	0.03
1908	717.60	8.00	127.00	1.00	141.76	0.90	0.37
1912	1409.56	12.00	120.00	1.00	114.66	0.33	0.07
1914	315.19	12.00	120.00	1.00	283.83	0.81	0.09

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
1916	1431.97	8.00	127.00	1.00	5.61	0.04	0.00
1918	408.45	14.00	127.00	1.00	498.50	1.04	0.14
1922	746.76	14.00	127.00	1.00	420.29	0.88	0.19
1924	1326.83	8.00	127.00	1.00	57.96	0.37	0.13
1926	192.46	8.00	127.00	1.00	39.45	0.25	0.01
1928	521.59	12.00	125.00	1.00	268.78	0.76	0.12
1932	477.67	12.00	125.00	1.00	276.36	0.78	0.12
1934	1184.80	8.00	127.00	1.00	5.86	0.04	0.00
1936	722.05	8.00	127.00	1.00	24.60	0.16	0.01
1938	1378.46	8.00	127.00	1.00	50.66	0.32	0.10
1942	324.01	12.00	113.00	1.00	92.33	0.26	0.01
1944	1484.02	12.00	116.00	1.00	206.29	0.59	0.25
1946	70.11	8.00	130.00	1.00	43.39	0.28	0.00
1948	646.22	12.00	130.00	1.00	39.53	0.11	0.00
1952	539.15	12.00	130.00	1.00	45.52	0.13	0.00
1956	512.70	12.00	127.00	1.00	451.79	1.28	0.31
1958	691.55	16.00	125.00	1.00	282.46	0.45	0.04
1964	1052.51	16.00	125.00	1.00	691.27	1.10	0.36
1966	732.43	16.00	125.00	1.00	158.39	0.25	0.02
1968	262.46	12.00	125.00	1.00	164.18	0.47	0.03
1972	845.64	16.00	115.00	1.00	383.58	0.61	0.11
1974	210.04	6.00	120.00	1.00	60.38	0.69	0.10
1982	348.74	12.00	120.00	1.00	62.25	0.18	0.01
1984	1042.42	10.00	108.00	1.00	51.18	0.21	0.04
1986	898.12	12.00	116.00	1.00	79.57	0.23	0.03
1992	300.67	12.00	112.00	1.00	389.53	1.11	0.18
1994	377.80	14.00	120.00	1.00	396.97	0.83	0.09
1996	310.86	8.00	130.00	1.00	41.12	0.26	0.02
1998	193.90	8.00	130.00	1.00	14.20	0.09	0.00
2002	227.09	12.00	120.00	1.00	91.11	0.26	0.01
2004	1062.10	10.00	127.00	1.00	165.73	0.68	0.24
2012	175.08	12.00	127.00	1.00	108.60	0.31	0.01
2014	294.68	12.00	120.00	1.00	321.92	0.91	0.11
2018	139.62	8.00	130.00	1.00	96.06	0.61	0.03
2032	193.90	12.00	120.00	1.00	424.31	1.20	0.12
2034	1510.80	16.00	120.00	1.00	787.79	1.26	0.70
2036	763.57	6.00	120.00	1.00	21.36	0.24	0.05
2038	1641.36	12.00	127.00	1.00	501.88	1.42	1.21
2040	614.71	10.00	120.00	1.00	31.49	0.13	0.01
2042	1290.61	10.00	120.00	1.00	0.00	0.00	0.00
2044	310.91	12.00	120.00	1.00	65.01	0.18	0.01
2046	403.04	12.00	120.00	1.00	39.35	0.11	0.00
2048	477.49	12.00	120.00	1.00	2.54	0.01	0.00
2052	409.41	12.00	120.00	1.00	19.46	0.06	0.00
2054	554.19	12.00	120.00	1.00	127.39	0.36	0.04
2056	1250.54	12.00	120.00	1.00	80.59	0.23	0.03

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
2058	711.87	12.00	120.00	1.00	80.59	0.23	0.02
2062	1020.62	6.00	97.00	1.00	17.95	0.20	0.08
2064	195.49	10.00	108.00	1.00	30.27	0.12	0.00
2072	916.81	12.00	120.00	1.00	101.46	0.29	0.04
2074	304.44	6.00	110.00	1.00	143.79	1.63	0.85
2076	675.63	6.00	120.00	1.00	131.52	1.49	1.36
2082	930.41	27.00	120.00	1.00	3716.08	2.08	0.59
2088	14.42	8.00	127.00	1.00	20.84	0.13	0.00
2092	522.18	8.00	127.00	1.00	39.82	0.25	0.03
2094	405.99	8.00	127.00	1.00	35.32	0.23	0.02
2096	1195.36	18.00	127.00	1.00	884.10	1.11	0.35
2098	1455.82	8.00	130.00	1.00	169.64	1.08	1.00
2102	1027.63	8.00	120.00	1.00	161.73	1.03	0.75
2104	315.34	12.00	127.00	1.00	160.46	0.46	0.03
2106	265.88	12.00	127.00	1.00	62.65	0.18	0.00
2108	1335.41	8.00	130.00	1.00	6.37	0.04	0.00
2112	1268.69	8.00	130.00	1.00	36.27	0.23	0.05
2114	66.39	8.00	120.00	1.00	7.07	0.05	0.00
2116	154.49	12.00	120.00	1.00	4.77	0.01	0.00
2118	127.40	12.00	120.00	1.00	40.86	0.12	0.00
2124	1255.72	8.00	120.00	1.00	86.56	0.55	0.29
2126	397.72	10.00	120.00	1.00	46.41	0.19	0.01
2128	129.47	10.00	120.00	1.00	126.51	0.52	0.02
2134	25.46	8.00	120.00	1.00	0.21	0.00	0.00
2136	153.31	8.00	130.00	1.00	40.53	0.26	0.01
P1	357.62	6.00	113.00	1.00	11.11	0.13	0.01
P11	953.56	6.00	113.00	1.00	0.96	0.01	0.00
P1113	156.60	16.00	120.00	1.00	429.15	0.68	0.02
P-A1-1	497.53	8.00	130.00	1.00	6.81	0.04	0.00
P-A1-3	264.49	8.00	130.00	1.00	18.95	0.12	0.00
P-A1-4	129.89	8.00	130.00	1.00	4.74	0.03	0.00
P-A1-5	120.62	8.00	130.00	1.00	4.58	0.03	0.00
P-A1-6	452.77	8.00	130.00	1.00	4.38	0.03	0.00
P-A1-7	977.53	8.00	130.00	1.00	8.68	0.06	0.00
P-A1-8	239.71	8.00	130.00	1.00	8.72	0.06	0.00
P-A1-9	489.13	8.00	130.00	1.00	3.34	0.02	0.00
P-A1-10	399.63	8.00	130.00	1.00	17.40	0.11	0.00
P-A1-11	194.65	8.00	130.00	1.00	4.18	0.03	0.00
P-A1-12	297.92	8.00	130.00	1.00	20.11	0.13	0.00
P1115	604.78	14.00	127.00	1.00	519.22	1.08	0.22
P1123	524.35	8.00	127.00	1.00	47.36	0.30	0.04
P1131	199.25	8.00	127.00	1.00	71.81	0.46	0.03
P1135	25.98	6.00	120.00	1.00	5.04	0.06	0.00
P1153	47.00	6.00	120.00	1.00	5.62	0.06	0.00
P1157	297.78	6.00	120.00	1.00	2.59	0.03	0.00
P1159	252.30	6.00	120.00	1.00	6.61	0.08	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1161	269.53	6.00	120.00	1.00	12.18	0.14	0.01
P1163	241.75	8.00	120.00	1.00	3.76	0.02	0.00
P1165	202.67	8.00	120.00	1.00	2.19	0.01	0.00
P1167	216.56	8.00	120.00	1.00	3.76	0.02	0.00
P1169	270.09	8.00	120.00	1.00	4.98	0.03	0.00
P1171	67.73	8.00	120.00	1.00	10.07	0.06	0.00
P1175	1815.67	8.00	120.00	1.00	36.02	0.23	0.08
P1185	452.70	6.00	120.00	1.00	8.63	0.10	0.01
P1189	291.15	6.00	120.00	1.00	3.62	0.04	0.00
P1191	90.18	6.00	120.00	1.00	4.93	0.06	0.00
P1193	264.69	6.00	120.00	1.00	9.53	0.11	0.00
P1195	44.99	6.00	120.00	1.00	7.88	0.09	0.00
P1199	500.48	6.00	120.00	1.00	9.11	0.10	0.01
P1203	587.09	6.00	120.00	1.00	4.95	0.06	0.00
P1205	374.31	6.00	120.00	1.00	15.29	0.17	0.01
P1207	1023.01	6.00	120.00	1.00	17.08	0.19	0.05
P1209	648.91	6.00	120.00	1.00	9.21	0.10	0.01
P1211	638.82	6.00	120.00	1.00	4.40	0.05	0.00
P1215	319.53	12.00	130.00	1.00	331.21	0.94	0.10
P1217	340.89	8.00	120.00	1.00	10.43	0.07	0.00
P1219	356.90	6.00	110.00	1.00	22.14	0.25	0.03
P1221	83.63	8.00	112.00	1.00	66.05	0.42	0.01
P1223	122.62	6.00	114.00	1.00	21.51	0.24	0.01
P1230	221.04	6.00	112.00	1.00	17.96	0.20	0.01
P1234	109.58	8.00	112.00	1.00	16.86	0.11	0.00
P1236	483.23	8.00	112.00	1.00	18.49	0.12	0.01
P1238	344.03	6.00	112.00	1.00	8.52	0.10	0.00
P1240	184.16	6.00	112.00	1.00	5.06	0.06	0.00
P1242	177.17	6.00	112.00	1.00	9.25	0.10	0.00
P1244	166.19	8.00	112.00	1.00	30.99	0.20	0.01
P1246	287.61	8.00	112.00	1.00	34.35	0.22	0.01
P1248	696.74	8.00	112.00	1.00	22.13	0.14	0.01
P1250	444.16	12.00	112.00	1.00	41.29	0.12	0.00
P1252	95.43	8.00	112.00	1.00	19.39	0.12	0.00
P1254	496.85	6.00	120.00	1.00	13.35	0.15	0.01
P1256	261.82	8.00	112.00	1.00	2.87	0.02	0.00
P1258	602.07	12.00	112.00	1.00	76.78	0.22	0.02
P-E2-0	898.68	8.00	115.00	1.00	3.74	0.02	0.00
P-E2-2	248.77	8.00	115.00	1.00	3.78	0.02	0.00
P-E2-3	274.40	8.00	115.00	1.00	4.26	0.03	0.00
P-E2-4	238.37	6.00	115.00	1.00	3.01	0.03	0.00
P-E2-5	214.80	6.00	115.00	1.00	5.28	0.06	0.00
P-E2-6	407.78	8.00	130.00	1.00	8.04	0.05	0.00
P-E2-7	581.13	8.00	130.00	1.00	5.49	0.04	0.00
P-E2-9	519.36	8.00	130.00	1.00	1.09	0.01	0.00
P-E2-10	221.98	8.00	130.00	1.00	10.81	0.07	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P-E2-11	207.15	8.00	130.00	1.00	47.31	0.30	0.01
P-E2-16	297.76	8.00	130.00	1.00	38.46	0.25	0.01
P-E2-19	314.54	8.00	130.00	1.00	28.60	0.18	0.01
P-E2-21	126.74	8.00	130.00	1.00	69.57	0.44	0.02
P-E2-24	488.93	8.00	130.00	1.00	17.69	0.11	0.01
P-E2-36	313.03	8.00	130.00	1.00	4.62	0.03	0.00
P-E2-41	277.73	8.00	130.00	1.00	72.20	0.46	0.04
NC-375-318-1	417.81	8.00	115.00	0.00	0.00	0.00	0.00
P-E2-44	453.59	8.00	115.00	1.00	4.82	0.03	0.00
P-E2-45	502.75	8.00	115.00	1.00	5.37	0.03	0.00
P-E2-46	167.61	8.00	115.00	1.00	2.49	0.02	0.00
P-E2-48	393.95	8.00	115.00	1.00	4.82	0.03	0.00
P-E2-50	470.89	8.00	115.00	1.00	3.20	0.02	0.00
P-E2-51	295.70	8.00	115.00	1.00	3.54	0.02	0.00
P-E2-53	427.10	8.00	115.00	1.00	6.19	0.04	0.00
P-E2-54	223.98	6.00	115.00	1.00	4.52	0.05	0.00
P-E2-56	410.81	6.00	115.00	1.00	11.07	0.13	0.01
P-E2-57	291.60	8.00	115.00	1.00	11.15	0.07	0.00
P-E2-58	416.65	8.00	130.00	1.00	6.13	0.04	0.00
P-E2-60	333.04	12.00	130.00	1.00	155.59	0.44	0.03
P-E2-62	584.09	8.00	130.00	1.00	12.70	0.08	0.00
P-E2-63	144.34	8.00	130.00	1.00	83.80	0.53	0.03
P-E2-64	413.93	8.00	130.00	1.00	3.24	0.02	0.00
P-E2-65	1366.96	8.00	130.00	1.00	95.11	0.61	0.32
P-E2-66	499.44	8.00	115.00	1.00	6.43	0.04	0.00
P-E2-67	149.61	8.00	130.00	1.00	82.63	0.53	0.03
P-E2-68	150.12	8.00	130.00	1.00	0.72	0.00	0.00
P-E2-69	354.72	8.00	130.00	1.00	80.58	0.51	0.06
P-E2-72	203.63	8.00	130.00	1.00	78.03	0.50	0.03
P-E2-76	189.93	8.00	130.00	1.00	76.40	0.49	0.03
P-E2-81	534.62	8.00	130.00	1.00	74.15	0.47	0.08
P-E2-83	211.99	8.00	130.00	1.00	1.51	0.01	0.00
P-E2-84	186.38	8.00	130.00	1.00	0.64	0.00	0.00
P-E2-85	197.18	8.00	130.00	1.00	1.13	0.01	0.00
P1260	294.75	8.00	112.00	1.00	24.13	0.15	0.01
P1262	164.73	8.00	120.00	1.00	9.35	0.06	0.00
P1264	283.41	16.00	114.00	1.00	409.05	0.65	0.04
P1266	182.85	12.00	120.00	1.00	351.52	1.00	0.08
P1268	39.73	12.00	120.00	1.00	437.19	1.24	0.03
P1270	285.77	8.00	120.00	1.00	97.99	0.63	0.08
P1272	353.04	8.00	120.00	1.00	145.29	0.93	0.21
P1274	1133.59	8.00	120.00	1.00	105.44	0.67	0.37
P1276	646.83	14.00	125.00	1.00	251.58	0.52	0.06
P1278	724.10	12.00	120.00	1.00	339.58	0.96	0.29
P1280	318.70	8.00	127.00	1.00	6.15	0.04	0.00
P1282	124.57	8.00	120.00	1.00	27.33	0.17	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1284	160.14	8.00	120.00	1.00	28.80	0.18	0.00
P1286	667.58	8.00	120.00	1.00	8.40	0.05	0.00
P1288	150.28	8.00	120.00	1.00	33.75	0.22	0.01
P1290	762.23	8.00	120.00	1.00	9.98	0.06	0.00
P1292	152.68	8.00	120.00	1.00	0.64	0.00	0.00
P1294	207.77	8.00	120.00	1.00	5.86	0.04	0.00
P1296	373.45	8.00	120.00	1.00	5.39	0.03	0.00
P1298	208.87	8.00	120.00	1.00	19.48	0.12	0.00
P1300	812.78	8.00	120.00	1.00	5.64	0.04	0.00
P1302	168.24	8.00	120.00	1.00	8.14	0.05	0.00
P1304	735.24	8.00	120.00	1.00	5.36	0.03	0.00
P1306	215.59	8.00	120.00	1.00	6.94	0.04	0.00
P1308	704.73	8.00	120.00	1.00	5.13	0.03	0.00
P1310	719.42	8.00	120.00	1.00	11.92	0.08	0.00
P1312	309.59	8.00	120.00	1.00	6.64	0.04	0.00
P1314	430.90	8.00	120.00	1.00	8.87	0.06	0.00
P1316	219.14	8.00	120.00	1.00	21.44	0.14	0.00
P1318	217.54	8.00	120.00	1.00	28.35	0.18	0.01
P1320	152.53	8.00	120.00	1.00	41.39	0.26	0.01
P1322	385.81	8.00	120.00	1.00	10.55	0.07	0.00
P1324	1438.70	10.00	108.00	1.00	16.71	0.07	0.01
P1328	492.30	12.00	120.00	1.00	65.00	0.18	0.01
P1330	209.17	8.00	120.00	1.00	35.64	0.23	0.01
P1332	192.30	8.00	120.00	1.00	6.54	0.04	0.00
P1334	274.76	8.00	120.00	1.00	12.66	0.08	0.00
P1336	212.80	8.00	120.00	1.00	13.47	0.09	0.00
P1338	1433.04	8.00	120.00	1.00	8.54	0.05	0.00
P1340	1609.03	8.00	120.00	1.00	10.11	0.06	0.00
P-P3-0	446.66	10.00	112.00	1.00	13.87	0.06	0.00
P-P3-1	317.48	12.00	130.00	1.00	120.01	0.34	0.02
P-P3-2	175.65	12.00	130.00	1.00	46.18	0.13	0.00
P-P3-3	454.22	12.00	130.00	1.00	68.82	0.20	0.01
P-P3-12	424.20	10.00	130.00	1.00	54.41	0.22	0.01
P-P3-13	192.06	8.00	130.00	1.00	11.52	0.07	0.00
P-P3-16	513.57	8.00	130.00	1.00	18.34	0.12	0.01
P-P3-22	446.17	12.00	130.00	1.00	18.31	0.05	0.00
P-P3-25	285.93	12.00	130.00	1.00	0.00	0.00	0.00
P-P3-28	1644.99	8.00	130.00	1.00	9.13	0.06	0.01
P-P3-34	254.65	8.00	130.00	1.00	13.79	0.09	0.00
P-P3-35	290.27	8.00	130.00	1.00	36.08	0.23	0.01
P-P3-37	745.73	8.00	130.00	1.00	11.20	0.07	0.00
P-P3-38	663.41	8.00	130.00	1.00	15.89	0.10	0.01
P-P3-42	900.40	8.00	130.00	1.00	21.63	0.14	0.01
P-P3-43	780.28	8.00	130.00	1.00	19.31	0.12	0.01
P-P3-44	225.15	8.00	130.00	1.00	19.33	0.12	0.00
P-P3-45	129.97	8.00	130.00	1.00	3.15	0.02	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P-P3-46	212.76	8.00	130.00	1.00	26.63	0.17	0.00
P-P3-47	217.55	8.00	130.00	1.00	29.78	0.19	0.01
P-P3-49	761.70	8.00	130.00	1.00	1.55	0.01	0.00
P-P3-54	1118.71	8.00	130.00	1.00	9.40	0.06	0.00
P-P3-57	243.27	8.00	130.00	1.00	5.97	0.04	0.00
P-P3-58	176.67	8.00	130.00	1.00	10.99	0.07	0.00
P-P3-62	451.89	8.00	130.00	1.00	4.82	0.03	0.00
P-P3-63	236.53	8.00	130.00	1.00	3.64	0.02	0.00
P-P3-69	180.58	8.00	130.00	1.00	25.38	0.16	0.00
P-P3-70	355.90	8.00	130.00	1.00	4.02	0.03	0.00
P-P3-71	267.69	8.00	130.00	1.00	8.04	0.05	0.00
P-P3-81	250.09	12.00	130.00	1.00	6.47	0.02	0.00
NC-375-318-2	334.94	10.00	115.00	0.00	0.00	0.00	0.00
P-P3-85	368.60	12.00	130.00	1.00	10.31	0.03	0.00
P-P3-87	642.50	8.00	130.00	1.00	3.92	0.03	0.00
P-P3-88	218.27	8.00	130.00	1.00	1.41	0.01	0.00
P-P3-89	599.62	8.00	130.00	1.00	6.93	0.04	0.00
P-P3-92	209.37	8.00	130.00	1.00	5.00	0.03	0.00
P-P3-93	406.59	8.00	130.00	1.00	18.79	0.12	0.00
P-P3-94	166.92	8.00	115.00	1.00	20.80	0.13	0.00
P-P3-95	144.62	8.00	115.00	1.00	29.27	0.19	0.00
P-P3-99	291.68	8.00	115.00	1.00	23.77	0.15	0.01
P-P3-102	271.46	8.00	115.00	1.00	21.99	0.14	0.01
P-P3-103	162.65	6.00	115.00	1.00	48.81	0.55	0.06
P-P3-105	441.49	8.00	115.00	1.00	10.95	0.07	0.00
P-P3-106	195.01	8.00	130.00	1.00	12.14	0.08	0.00
P-P3-110	126.90	8.00	130.00	1.00	2.43	0.02	0.00
P-P3-111	374.80	8.00	130.00	1.00	5.73	0.04	0.00
P-P3-112	204.58	8.00	130.00	1.00	19.77	0.13	0.00
P-P3-116	248.49	8.00	130.00	1.00	8.34	0.05	0.00
P-P3-117	610.36	8.00	130.00	1.00	5.93	0.04	0.00
P-P3-126	137.03	10.00	115.00	1.00	17.14	0.07	0.00
P-P3-127	367.43	8.00	130.00	1.00	99.14	0.63	0.09
P-P3-131	198.82	8.00	130.00	1.00	97.57	0.62	0.05
P-P3-135	457.66	8.00	130.00	1.00	94.40	0.60	0.11
P-P3-139	296.41	8.00	130.00	1.00	90.04	0.57	0.06
P-P3-144	154.63	8.00	130.00	1.00	88.25	0.56	0.03
P-P3-145	154.69	8.00	130.00	1.00	1.15	0.01	0.00
P-P3-146	252.09	8.00	130.00	1.00	1.09	0.01	0.00
P-P3-147	128.84	8.00	130.00	1.00	0.60	0.00	0.00
P1342	478.38	12.00	116.00	1.00	85.38	0.24	0.02
P1344	240.30	10.00	116.00	1.00	151.97	0.62	0.06
P1348	486.43	8.00	130.00	1.00	14.30	0.09	0.00
P1350	1086.14	12.00	120.00	1.00	256.40	0.73	0.26
P1352	341.37	14.00	120.00	1.00	384.61	0.80	0.08
P1354	313.87	8.00	125.00	1.00	37.96	0.24	0.01

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1356	811.62	12.00	120.00	1.00	350.05	0.99	0.34
P1358	1651.68	12.00	130.00	1.00	462.57	1.31	1.00
P1360	463.15	8.00	130.00	1.00	152.93	0.98	0.26
P1362	2159.99	8.00	130.00	1.00	50.94	0.33	0.16
P1364	858.29	8.00	130.00	1.00	83.84	0.54	0.16
P1366	46.63	8.00	130.00	1.00	6.19	0.04	0.00
P1368	168.08	8.00	127.00	1.00	9.12	0.06	0.00
P1372	327.92	8.00	127.00	1.00	24.52	0.16	0.01
P1374	225.85	16.00	120.00	1.00	49.45	0.08	0.00
P1376	563.51	12.00	120.00	1.00	275.46	0.78	0.15
P1378	2078.25	8.00	120.00	1.00	77.88	0.50	0.39
P-P4-0	1012.03	8.00	120.00	1.00	4.64	0.03	0.00
P-P4-2	2252.21	10.00	130.00	1.00	34.90	0.14	0.03
P-P4-6	655.71	10.00	130.00	1.00	18.63	0.08	0.00
P-P4-9	665.43	8.00	130.00	1.00	7.44	0.05	0.00
P-P4-10	675.90	8.00	120.00	1.00	7.23	0.05	0.00
P-P4-12	182.71	8.00	120.00	1.00	18.99	0.12	0.00
P-P4-13	612.08	8.00	120.00	1.00	9.65	0.06	0.00
P-P4-16	354.30	8.00	120.00	1.00	4.72	0.03	0.00
P-P4-18	595.88	8.00	120.00	1.00	17.86	0.11	0.01
P-P4-19	311.83	8.00	120.00	1.00	46.06	0.29	0.02
P-P4-20	503.52	8.00	120.00	1.00	31.34	0.20	0.02
P-P4-24	256.81	8.00	120.00	1.00	20.03	0.13	0.00
P-P4-28	588.51	8.00	120.00	1.00	8.84	0.06	0.00
P-P4-30	254.41	8.00	120.00	1.00	2.93	0.02	0.00
P-P4-33	351.39	8.00	120.00	1.00	28.22	0.18	0.01
P-P4-46	202.32	8.00	120.00	1.00	1.99	0.01	0.00
P-P4-47	389.60	8.00	120.00	1.00	10.69	0.07	0.00
P-P4-50	708.76	6.00	130.00	1.00	13.28	0.15	0.02
P-P4-52	1559.02	16.00	120.00	1.00	0.00	0.00	0.00
P-P4-53	492.44	8.00	120.00	1.00	5.26	0.03	0.00
P1380	381.90	10.00	112.00	1.00	20.75	0.08	0.00
P1382	354.81	8.00	112.00	1.00	13.34	0.09	0.00
P1384	356.86	8.00	112.00	1.00	42.70	0.27	0.02
P1386	337.17	8.00	112.00	1.00	1.75	0.01	0.00
P1388	363.68	8.00	112.00	1.00	102.65	0.66	0.13
P1390	221.28	8.00	127.00	1.00	42.76	0.27	0.01
P1392	1285.49	10.00	127.00	1.00	99.14	0.40	0.11
P1394	139.20	10.00	127.00	1.00	16.38	0.07	0.00
P1396	766.15	8.00	127.00	1.00	12.58	0.08	0.00
P1398	78.33	10.00	116.00	1.00	35.08	0.14	0.00
P-P5-0	132.41	8.00	130.00	1.00	20.06	0.13	0.00
P-P5-1	820.25	8.00	130.00	1.00	3.76	0.02	0.00
P-P5-2	277.60	8.00	130.00	1.00	2.45	0.02	0.00
P-P5-3	271.49	8.00	130.00	1.00	1.69	0.01	0.00
P-P5-4	304.64	8.00	130.00	1.00	4.68	0.03	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P-P5-5	251.87	8.00	130.00	1.00	17.44	0.11	0.00
P-P5-6	225.70	8.00	130.00	1.00	32.13	0.21	0.01
P-P5-7	214.97	8.00	130.00	1.00	4.72	0.03	0.00
P-P5-8	430.72	8.00	130.00	1.00	9.93	0.06	0.00
P-P5-15	425.25	8.00	130.00	1.00	25.12	0.16	0.01
P-P5-16	255.45	8.00	130.00	1.00	71.26	0.45	0.04
P-P5-17	994.20	8.00	130.00	1.00	8.30	0.05	0.00
P-P5-27	658.53	8.00	130.00	1.00	9.08	0.06	0.00
P-P5-28	447.18	8.00	130.00	1.00	12.08	0.08	0.00
P-P5-29	169.46	8.00	130.00	1.00	1.52	0.01	0.00
P-P5-30	62.62	8.00	130.00	1.00	9.04	0.06	0.00
P-P5-36	186.04	8.00	130.00	1.00	15.41	0.10	0.00
P-P5-37	318.54	8.00	130.00	1.00	12.07	0.08	0.00
P-P5-38	392.05	8.00	130.00	1.00	10.37	0.07	0.00
P-P5-40	186.28	8.00	130.00	1.00	18.53	0.12	0.00
P-P5-41	848.56	8.00	130.00	1.00	4.02	0.03	0.00
P-P5-47	871.97	8.00	130.00	1.00	3.96	0.03	0.00
P-P5-48	225.01	8.00	130.00	1.00	0.00	0.00	0.00
P-P5-49	747.36	12.00	130.00	1.00	510.20	1.45	0.54
P-P5-50	1093.22	8.00	130.00	1.00	13.17	0.08	0.01
P-P5-54	704.87	8.00	130.00	1.00	9.48	0.06	0.00
P-P5-55	462.72	8.00	130.00	1.00	24.05	0.15	0.01
P-P5-59	918.56	8.00	130.00	1.00	5.89	0.04	0.00
P-P5-60	231.63	8.00	130.00	1.00	14.55	0.09	0.00
P-P5-62	277.22	8.00	130.00	1.00	4.20	0.03	0.00
P-P5-63	515.22	8.00	130.00	1.00	5.39	0.03	0.00
P-P5-70	397.94	8.00	130.00	1.00	9.25	0.06	0.00
P-P5-71	545.44	8.00	130.00	1.00	9.59	0.06	0.00
P-P5-76	245.94	8.00	130.00	1.00	4.42	0.03	0.00
P-P5-77	301.28	8.00	130.00	1.00	5.71	0.04	0.00
P-P5-78	117.75	8.00	130.00	1.00	0.84	0.01	0.00
P-P5-79	568.15	8.00	130.00	1.00	5.37	0.03	0.00
P-P5-80	437.90	8.00	130.00	1.00	9.26	0.06	0.00
P-P5-81	382.35	8.00	130.00	1.00	3.96	0.03	0.00
P-P5-82	146.30	8.00	130.00	1.00	2.43	0.02	0.00
P-P5-83	536.95	8.00	130.00	1.00	7.50	0.05	0.00
P-P5-85	321.78	8.00	130.00	1.00	7.58	0.05	0.00
P-P5-86	854.59	8.00	130.00	1.00	6.75	0.04	0.00
P-P5-88	179.53	8.00	130.00	1.00	2.73	0.02	0.00
P-P5-89	470.96	8.00	130.00	1.00	9.87	0.06	0.00
P-P5-90	673.70	8.00	130.00	1.00	7.86	0.05	0.00
P-P5-93	146.42	8.00	130.00	1.00	0.68	0.00	0.00
P-P5-95	208.88	8.00	130.00	1.00	38.34	0.24	0.01
P-P5-103	1068.35	8.00	130.00	1.00	6.71	0.04	0.00
P-P5-108	1191.73	8.00	130.00	1.00	12.42	0.08	0.01
P1400	2384.96	36.00	120.00	1.00	6708.14	2.11	1.13

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1402	451.25	10.00	127.00	1.00	300.59	1.23	0.31
P1404	392.09	8.00	127.00	1.00	51.61	0.33	0.03
P1406	769.22	8.00	127.00	1.00	15.55	0.10	0.01
P1410	142.06	8.00	127.00	1.00	37.56	0.24	0.01
P1412	170.75	8.00	130.00	1.00	44.63	0.28	0.01
P1414	2971.53	36.00	120.00	1.00	6450.00	2.03	1.31
P1416	381.88	10.00	127.00	1.00	12.48	0.05	0.00
P1418	231.18	8.00	127.00	1.00	59.39	0.38	0.02
P1420	231.77	8.00	127.00	1.00	48.80	0.31	0.02
P1422	178.49	8.00	127.00	1.00	18.32	0.12	0.00
P1424	224.15	10.00	127.00	1.00	24.80	0.10	0.00
P1426	724.13	30.00	125.00	1.00	1604.32	0.73	0.05
P1428	705.85	24.00	125.00	1.00	1820.15	1.29	0.20
P1430	4225.98	24.00	125.00	1.00	1385.63	0.98	0.72
P1432	250.58	8.00	127.00	1.00	0.26	0.00	0.00
P1434	100.73	10.00	127.00	1.00	96.23	0.39	0.01
P1436	4070.45	12.00	127.00	1.00	346.15	0.98	1.51
P1438	205.77	12.00	127.00	1.00	1.73	0.00	0.00
P1440	1287.63	12.00	127.00	1.00	135.02	0.38	0.08
P1442	307.74	12.00	130.00	1.00	73.63	0.21	0.01
P1444	1628.87	12.00	130.00	1.00	135.02	0.38	0.10
P1446	631.94	12.00	130.00	1.00	32.04	0.09	0.00
P1448	227.53	12.00	130.00	1.00	32.04	0.09	0.00
P1450	715.22	12.00	113.00	1.00	19.55	0.06	0.00
P1452	341.58	8.00	127.00	1.00	94.64	0.60	0.08
P1454	134.28	6.00	112.00	1.00	10.24	0.12	0.00
P1456	196.80	6.00	112.00	1.00	13.49	0.15	0.01
P1458	754.59	16.00	130.00	1.00	32.04	0.05	0.00
P1460	269.77	16.00	130.00	1.00	51.40	0.08	0.00
P1462	1148.59	16.00	130.00	1.00	72.10	0.12	0.01
P1464	1294.78	16.00	130.00	1.00	99.35	0.16	0.01
P1466	689.95	16.00	130.00	1.00	664.79	1.06	0.20
P1468	998.45	8.00	127.00	1.00	7.86	0.05	0.00
P1470	449.13	8.00	127.00	1.00	335.18	2.14	1.13
P1472	980.14	8.00	127.00	1.00	291.47	1.86	1.91
P1474	257.50	8.00	127.00	1.00	4.10	0.03	0.00
P1476	430.81	8.00	127.00	1.00	490.27	3.13	2.19
P1478	542.66	8.00	127.00	1.00	478.17	3.05	2.64
P1480	255.47	8.00	127.00	1.00	3.72	0.02	0.00
P1482	1021.99	16.00	127.00	1.00	764.44	1.22	0.41
P1484	309.47	12.00	130.00	1.00	32.04	0.09	0.00
P1486	181.79	12.00	130.00	1.00	16.79	0.05	0.00
P1488	876.90	12.00	130.00	1.00	0.00	0.00	0.00
P1490	150.37	8.00	130.00	1.00	14.74	0.09	0.00
P1492	239.52	8.00	130.00	1.00	8.82	0.06	0.00
P1494	639.08	8.00	130.00	1.00	3.12	0.02	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1496	164.39	8.00	130.00	1.00	3.92	0.03	0.00
P1498	611.22	8.00	130.00	1.00	9.04	0.06	0.00
P1500	388.24	8.00	130.00	1.00	6.78	0.04	0.00
P1502	630.99	8.00	130.00	1.00	0.33	0.00	0.00
P1504	760.83	8.00	130.00	1.00	16.55	0.11	0.01
P1506	742.11	12.00	130.00	1.00	487.42	1.38	0.50
P1508	244.24	12.00	130.00	1.00	113.11	0.32	0.01
P1510	226.28	12.00	130.00	1.00	480.24	1.36	0.15
P1512	350.93	12.00	130.00	1.00	59.62	0.17	0.00
P1514	622.88	12.00	130.00	1.00	73.63	0.21	0.01
P1516	248.29	12.00	130.00	1.00	63.42	0.18	0.00
P1518	362.24	12.00	130.00	1.00	145.26	0.41	0.03
P1520	441.52	12.00	130.00	1.00	57.33	0.16	0.01
P1522	769.44	12.00	130.00	1.00	215.36	0.61	0.11
P1524	400.93	12.00	130.00	1.00	296.03	0.84	0.11
P1526	252.82	12.00	130.00	1.00	192.70	0.55	0.03
P1528	1139.84	24.00	125.00	1.00	3961.92	2.81	1.36
P1530	1012.70	12.00	130.00	1.00	488.74	1.39	0.68
P1532	367.02	12.00	130.00	1.00	59.70	0.17	0.00
P1536	744.39	12.00	130.00	1.00	276.77	0.79	0.17
P1538	1141.19	24.00	125.00	1.00	3473.18	2.46	1.07
P1540	1373.61	12.00	130.00	1.00	154.80	0.44	0.11
P1542	478.99	12.00	130.00	1.00	81.99	0.23	0.01
P1544	1121.22	12.00	130.00	1.00	50.39	0.14	0.01
P1546	481.90	12.00	130.00	1.00	59.42	0.17	0.01
P1548	452.03	12.00	130.00	1.00	37.67	0.11	0.00
P1550	51.96	12.00	130.00	1.00	37.51	0.11	0.00
P1552	290.65	12.00	130.00	1.00	88.20	0.25	0.01
P1554	328.61	12.00	130.00	1.00	78.64	0.22	0.01
P1556	341.46	12.00	130.00	1.00	82.43	0.23	0.01
P1558	275.61	12.00	130.00	1.00	203.76	0.58	0.03
P1560	388.81	12.00	130.00	1.00	59.89	0.17	0.01
P1562	196.29	8.00	130.00	1.00	84.23	0.54	0.04
P1564	304.19	8.00	130.00	1.00	30.67	0.20	0.01
P1566	793.06	8.00	130.00	1.00	20.07	0.13	0.01
P1568	354.17	8.00	130.00	1.00	26.09	0.17	0.01
P1570	207.27	8.00	130.00	1.00	10.49	0.07	0.00
P1572	218.23	12.00	130.00	1.00	57.49	0.16	0.00
P1574	270.48	12.00	130.00	1.00	30.07	0.09	0.00
P1576	255.74	8.00	130.00	1.00	51.40	0.33	0.02
1786	8.93	12.00	130.00	0.00	0.00	0.00	0.00
1814	50.63	48.00	130.00	0.00	0.00	0.00	0.00
1828	48.30	8.00	120.00	0.00	0.00	0.00	0.00
1842	11.24	12.00	120.00	0.00	0.00	0.00	0.00
1848	8.22	8.00	120.00	0.00	0.00	0.00	0.00
1954	2344.08	12.00	115.00	0.00	0.00	0.00	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1534	835.32	8.00	111.00	0.00	0.00	0.00	0.00
P1578	241.03	8.00	130.00	1.00	78.01	0.50	0.04
P1580	460.37	8.00	130.00	1.00	73.57	0.47	0.07
P1582	252.98	8.00	130.00	1.00	43.69	0.28	0.01
P1584	153.71	8.00	130.00	1.00	3.75	0.02	0.00
P1586	894.04	8.00	130.00	1.00	8.68	0.06	0.00
P1588	254.44	8.00	130.00	1.00	7.06	0.05	0.00
P1590	472.41	8.00	130.00	1.00	8.87	0.06	0.00
P1592	326.52	8.00	130.00	1.00	22.98	0.15	0.01
P1594	323.82	8.00	130.00	1.00	48.72	0.31	0.02
P1596	308.57	8.00	130.00	1.00	39.57	0.25	0.01
P1598	288.60	8.00	130.00	1.00	73.13	0.47	0.04
P1600	305.10	8.00	130.00	1.00	84.34	0.54	0.06
P1602	996.32	8.00	130.00	1.00	7.82	0.05	0.00
P1604	802.55	8.00	130.00	1.00	8.72	0.06	0.00
P1606	1208.11	8.00	130.00	1.00	18.94	0.12	0.01
P1608	262.77	8.00	130.00	1.00	42.43	0.27	0.01
P1610	252.49	8.00	130.00	1.00	32.44	0.21	0.01
P1612	266.84	8.00	130.00	1.00	27.46	0.18	0.01
P1614	330.30	8.00	130.00	1.00	13.08	0.08	0.00
P1616	970.18	8.00	130.00	1.00	13.71	0.09	0.01
P1618	517.88	8.00	130.00	1.00	38.99	0.25	0.02
P1620	265.07	8.00	130.00	1.00	42.12	0.27	0.01
P1622	1145.79	8.00	130.00	1.00	12.87	0.08	0.01
P1624	265.04	8.00	130.00	1.00	22.97	0.15	0.00
P1626	683.82	8.00	130.00	1.00	17.00	0.11	0.01
P1628	247.73	8.00	130.00	1.00	10.09	0.06	0.00
P1630	315.68	8.00	130.00	1.00	14.54	0.09	0.00
P1632	332.76	8.00	130.00	1.00	15.88	0.10	0.00
P1634	338.73	8.00	130.00	1.00	11.44	0.07	0.00
P1636	335.78	12.00	130.00	1.00	117.80	0.33	0.01
P1638	260.44	8.00	130.00	1.00	12.71	0.08	0.00
P1640	258.12	8.00	130.00	1.00	31.21	0.20	0.01
P1642	335.57	8.00	130.00	1.00	17.95	0.11	0.00
P1644	365.50	8.00	130.00	1.00	0.00	0.00	0.00
P1646	784.62	8.00	130.00	1.00	141.09	0.90	0.38
P1648	209.31	10.00	130.00	1.00	111.60	0.46	0.02
P1650	572.30	10.00	130.00	1.00	36.35	0.15	0.01
P1652	80.92	10.00	130.00	1.00	110.47	0.45	0.01
P1654	148.72	10.00	130.00	1.00	75.25	0.31	0.01
P1656	387.93	10.00	130.00	1.00	1.51	0.01	0.00
P1658	36.81	16.00	116.00	1.00	1075.50	1.72	0.03
P1660	63.38	8.00	116.00	1.00	94.39	0.60	0.02
P1662	400.41	8.00	116.00	1.00	19.34	0.12	0.01
P1664	350.10	8.00	116.00	1.00	0.50	0.00	0.00
P1666	244.22	8.00	116.00	1.00	0.04	0.00	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1668	542.87	8.00	116.00	1.00	157.24	1.00	0.40
P1670	631.28	8.00	116.00	1.00	59.54	0.38	0.08
P1672	855.29	8.00	116.00	1.00	59.54	0.38	0.10
P1674	368.46	8.00	116.00	1.00	97.68	0.62	0.11
P1676	593.28	16.00	117.00	1.00	668.19	1.07	0.21
P1678	110.04	16.00	120.00	1.00	693.30	1.11	0.04
P1680	234.36	16.00	120.00	1.00	689.83	1.10	0.09
P1682	110.71	10.00	116.00	1.00	7.48	0.03	0.00
P1684	399.54	10.00	116.00	1.00	3.09	0.01	0.00
P1686	896.26	10.00	116.00	1.00	3.09	0.01	0.00
P1688	677.88	10.00	116.00	1.00	4.38	0.02	0.00
P1690	465.85	8.00	120.00	1.00	0.00	0.00	0.00
P1692	772.97	8.00	116.00	1.00	0.00	0.00	0.00
P1694	207.51	16.00	117.00	1.00	612.13	0.98	0.06
P1696	100.66	10.00	120.00	1.00	14.18	0.06	0.00
P1698	117.19	8.00	116.00	1.00	56.21	0.36	0.01
P1700	1113.63	8.00	116.00	1.00	22.00	0.14	0.02
P1702	491.64	8.00	116.00	1.00	34.21	0.22	0.02
P1704	141.08	8.00	116.00	1.00	56.21	0.36	0.02
P1706	330.35	8.00	116.00	1.00	0.16	0.00	0.00
P1708	959.81	12.00	115.00	1.00	10.76	0.03	0.00
P1710	382.10	10.00	127.00	1.00	32.28	0.13	0.00
P1712	192.65	10.00	127.00	1.00	88.56	0.36	0.01
P1714	77.86	10.00	127.00	1.00	53.56	0.22	0.00
P1716	172.34	10.00	127.00	1.00	25.85	0.11	0.00
P1718	355.64	10.00	127.00	1.00	5.52	0.02	0.00
P1720	642.98	10.00	127.00	1.00	31.37	0.13	0.01
P1722	118.43	16.00	115.00	1.00	529.62	0.85	0.03
P1724	315.79	16.00	115.00	1.00	466.97	0.75	0.06
P1726	322.99	8.00	130.00	1.00	63.33	0.40	0.04
P1728	749.93	8.00	130.00	1.00	23.34	0.15	0.01
P1730	624.95	8.00	130.00	1.00	23.80	0.15	0.01
P1732	506.84	8.00	130.00	1.00	40.36	0.26	0.02
P1734	392.31	10.00	117.00	1.00	39.07	0.16	0.01
P1736	267.35	12.00	125.00	1.00	14.75	0.04	0.00
P1738	609.38	8.00	130.00	1.00	130.43	0.83	0.26
P1740	769.54	8.00	130.00	1.00	258.78	1.65	1.15
P1742	685.39	8.00	130.00	1.00	436.25	2.78	2.69
P1758	15.30	6.00	130.00	1.00	507.80	5.76	0.32
P1760	8.57	6.00	130.00	1.00	0.00	0.00	0.00
P1762	981.72	8.00	130.00	1.00	546.61	3.49	5.86
P1764	929.49	8.00	130.00	1.00	509.01	3.25	4.86
P1768	64.46	6.00	130.00	1.00	509.01	5.78	1.37
P1770	299.84	8.00	130.00	1.00	507.80	3.24	1.56
P1772	1134.28	8.00	130.00	1.00	128.83	0.82	0.47
P1774	148.95	8.00	130.00	1.00	2.39	0.02	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1776	1449.61	8.00	130.00	1.00	115.21	0.74	0.48
P1778	407.94	8.00	130.00	1.00	11.25	0.07	0.00
P1780	344.97	8.00	130.00	1.00	100.97	0.64	0.09
P1782	1268.52	8.00	130.00	1.00	451.02	2.88	5.30
P1784	367.19	8.00	130.00	1.00	363.82	2.32	1.03
P1786	730.69	8.00	130.00	1.00	179.64	1.15	0.56
P1788	498.90	8.00	130.00	1.00	6.95	0.04	0.00
P1790	591.83	8.00	130.00	1.00	168.94	1.08	0.40
P1792	387.55	8.00	130.00	1.00	4.76	0.03	0.00
P1794	252.50	8.00	130.00	1.00	164.41	1.05	0.16
P1796	419.14	8.00	130.00	1.00	120.33	0.77	0.15
P1798	374.77	8.00	130.00	1.00	7.23	0.05	0.00
P1800	337.73	8.00	130.00	1.00	113.70	0.73	0.11
P1802	245.01	8.00	130.00	1.00	44.64	0.28	0.01
P1804	202.22	8.00	130.00	1.00	1.97	0.01	0.00
P1806	649.86	8.00	130.00	1.00	42.66	0.27	0.03
P1808	207.76	8.00	130.00	1.00	167.19	1.07	0.14
P1810	713.82	8.00	130.00	1.00	164.36	1.05	0.46
P1812	423.30	8.00	130.00	1.00	166.67	1.06	0.28
P1814	514.87	8.00	130.00	1.00	157.60	1.01	0.31
P1816	760.52	8.00	130.00	1.00	150.49	0.96	0.42
P1818	482.07	8.00	130.00	1.00	7.37	0.05	0.00
P1824	157.42	8.00	130.00	1.00	1.39	0.01	0.00
P1826	48.76	6.00	130.00	1.00	0.82	0.01	0.00
P1854	243.08	8.00	130.00	1.00	1.69	0.01	0.00
P1856	317.15	8.00	130.00	1.00	10.87	0.07	0.00
P1858	200.05	8.00	130.00	1.00	22.45	0.14	0.00
P1860	379.95	8.00	130.00	1.00	2.23	0.01	0.00
P1862	402.09	8.00	130.00	1.00	4.50	0.03	0.00
P1864	201.99	8.00	130.00	1.00	3.56	0.02	0.00
P1866	218.57	8.00	130.00	1.00	15.17	0.10	0.00
P1868	152.76	8.00	130.00	1.00	2.69	0.02	0.00
P1870	554.27	8.00	130.00	1.00	5.79	0.04	0.00
P1872	195.41	10.00	130.00	1.00	39.06	0.16	0.00
P1874	291.37	8.00	130.00	1.00	83.16	0.53	0.05
P1876	1022.91	8.00	130.00	1.00	39.82	0.25	0.05
P1878	777.63	8.00	130.00	1.00	19.80	0.13	0.01
P1880	281.56	10.00	130.00	1.00	40.12	0.16	0.00
P1882	315.44	8.00	130.00	1.00	7.72	0.05	0.00
P1884	223.86	8.00	130.00	1.00	133.93	0.85	0.10
P1886	227.88	10.00	130.00	1.00	53.47	0.22	0.01
P1888	138.83	8.00	130.00	1.00	0.00	0.00	0.00
P1890	162.57	8.00	130.00	1.00	18.35	0.12	0.00
P1892	373.46	8.00	130.00	1.00	2.29	0.01	0.00
P1894	717.39	8.00	130.00	1.00	8.26	0.05	0.00
P1896	1651.92	8.00	130.00	1.00	143.11	0.91	0.82

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1904	7.99	6.00	130.00	1.00	0.00	0.00	0.00
P1906	51.82	12.00	130.00	1.00	0.00	0.00	0.00
P1914	222.17	8.00	130.00	1.00	32.75	0.21	0.01
P1916	846.44	8.00	130.00	1.00	10.21	0.07	0.00
P1918	883.93	8.00	130.00	1.00	11.67	0.07	0.00
P1920	208.25	8.00	130.00	1.00	41.43	0.26	0.01
P1922	265.05	8.00	130.00	1.00	6.35	0.04	0.00
P1924	323.22	8.00	130.00	1.00	50.30	0.32	0.02
P1926	214.00	8.00	130.00	1.00	4.56	0.03	0.00
P1928	213.00	8.00	130.00	1.00	107.76	0.69	0.06
P1930	252.01	12.00	130.00	1.00	8.62	0.02	0.00
P1932	262.42	12.00	130.00	1.00	118.35	0.34	0.01
P1934	1090.04	12.00	130.00	1.00	207.72	0.59	0.15
P1936	2041.81	12.00	127.00	1.00	502.42	1.43	1.51
P1938	288.61	12.00	130.00	1.00	231.61	0.66	0.05
P1940	536.17	8.00	130.00	1.00	7.09	0.05	0.00
P1942	454.78	8.00	130.00	1.00	8.28	0.05	0.00
P1944	259.37	8.00	130.00	1.00	64.89	0.41	0.03
P1946	299.85	8.00	130.00	1.00	82.83	0.53	0.05
P1948	516.04	8.00	130.00	1.00	10.07	0.06	0.00
P1950	377.09	8.00	130.00	1.00	6.07	0.04	0.00
P1952	342.51	8.00	125.00	1.00	9.38	0.06	0.00
P1954	931.21	8.00	130.00	1.00	17.68	0.11	0.01
P1956	111.23	8.00	130.00	1.00	3.64	0.02	0.00
P1958	175.76	8.00	130.00	1.00	7.48	0.05	0.00
P1960	306.66	12.00	130.00	1.00	13.60	0.04	0.00
P1962	930.50	8.00	127.00	1.00	5.80	0.04	0.00
P1964	248.16	8.00	127.00	1.00	2.53	0.02	0.00
P1966	556.24	8.00	130.00	1.00	8.65	0.06	0.00
P1968	130.26	8.00	130.00	1.00	6.09	0.04	0.00
P1970	333.67	12.00	127.00	1.00	7.37	0.02	0.00
P1972	553.50	8.00	130.00	1.00	3.29	0.02	0.00
P1974	428.73	16.00	116.00	1.00	1090.15	1.74	0.39
P1976	503.44	8.00	127.00	1.00	2.13	0.01	0.00
P1978	721.85	8.00	130.00	1.00	8.70	0.06	0.00
P1980	274.06	8.00	130.00	1.00	4.04	0.03	0.00
P1982	576.86	8.00	130.00	1.00	10.27	0.07	0.00
P1984	1049.56	8.00	130.00	1.00	6.73	0.04	0.00
P1986	344.06	12.00	127.00	1.00	14.67	0.04	0.00
P1988	295.20	8.00	127.00	1.00	16.30	0.10	0.00
P1990	319.17	8.00	127.00	1.00	4.20	0.03	0.00
P1992	330.01	8.00	127.00	1.00	6.65	0.04	0.00
P1994	332.52	8.00	127.00	1.00	28.21	0.18	0.01
P1996	463.49	8.00	127.00	1.00	9.42	0.06	0.00
P1998	249.16	8.00	127.00	1.00	13.21	0.08	0.00
P2000	300.34	8.00	127.00	1.00	7.52	0.05	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P2002	1003.18	8.00	127.00	1.00	0.39	0.00	0.00
P2004	862.21	8.00	120.00	1.00	7.70	0.05	0.00
P2006	1203.30	12.00	130.00	1.00	47.66	0.14	0.01
P2008	1798.43	12.00	127.00	1.00	50.47	0.14	0.02
P2010	267.33	12.00	127.00	1.00	58.91	0.17	0.00
P2012	387.53	18.00	127.00	1.00	758.99	0.96	0.09
P2014	436.37	8.00	127.00	1.00	19.79	0.13	0.01
P2016	485.31	8.00	130.00	1.00	26.81	0.17	0.01
P2018	562.06	8.00	130.00	1.00	12.00	0.08	0.00
P2020	304.59	8.00	130.00	1.00	3.26	0.02	0.00
P2022	550.09	8.00	130.00	1.00	13.42	0.09	0.00
P2024	811.25	8.00	127.00	1.00	8.84	0.06	0.00
P2026	836.38	8.00	127.00	1.00	17.56	0.11	0.01
P2028	664.22	8.00	127.00	1.00	13.24	0.08	0.00
P2030	487.83	8.00	127.00	1.00	9.74	0.06	0.00
P2032	914.59	8.00	127.00	1.00	11.23	0.07	0.00
P2034	146.86	16.00	125.00	1.00	308.48	0.49	0.01
P2036	3383.09	12.00	127.00	1.00	150.09	0.43	0.27
P2038	763.83	16.00	125.00	1.00	527.38	0.84	0.16
P2040	149.19	12.00	127.00	1.00	157.16	0.45	0.01
P2042	829.32	12.00	127.00	1.00	120.47	0.34	0.04
P2044	498.30	16.00	100.00	1.00	1079.60	1.72	0.58
P2046	496.33	8.00	127.00	1.00	120.47	0.77	0.19
P2048	474.28	8.00	127.00	1.00	120.47	0.77	0.18
P2050	2333.05	8.00	127.00	1.00	49.03	0.31	0.17
P2052	1161.92	8.00	127.00	1.00	71.44	0.46	0.17
P2054	500.98	16.00	125.00	1.00	190.82	0.30	0.02
P2056	875.14	16.00	125.00	1.00	218.96	0.35	0.04
P2058	467.71	12.00	125.00	1.00	94.26	0.27	0.02
P2060	267.26	12.00	125.00	1.00	76.35	0.22	0.01
P2062	697.60	12.00	125.00	1.00	102.79	0.29	0.03
P2064	494.60	12.00	125.00	1.00	133.78	0.38	0.03
P2066	210.78	8.00	127.00	1.00	10.69	0.07	0.00
P2068	318.54	8.00	127.00	1.00	25.51	0.16	0.01
P2070	510.31	8.00	127.00	1.00	36.17	0.23	0.02
P2072	108.26	8.00	127.00	1.00	41.73	0.27	0.01
P2074	1690.83	8.00	127.00	1.00	16.47	0.11	0.02
P2076	1129.62	8.00	127.00	1.00	27.71	0.18	0.03
P2078	658.30	8.00	127.00	1.00	30.40	0.19	0.02
P2080	982.62	12.00	112.00	1.00	498.27	1.41	0.90
P2082	226.58	8.00	127.00	1.00	162.72	1.04	0.15
P2084	257.19	8.00	127.00	1.00	122.98	0.78	0.10
P2086	737.80	8.00	127.00	1.00	90.58	0.58	0.16
P2088	2518.89	8.00	127.00	1.00	46.68	0.30	0.16
P2090	260.28	10.00	130.00	1.00	29.94	0.12	0.00
P2092	79.59	10.00	130.00	1.00	24.84	0.10	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P2094	265.40	10.00	130.00	1.00	54.29	0.22	0.01
P2096	1089.97	10.00	130.00	1.00	5.10	0.02	0.00
P2098	457.88	10.00	111.00	1.00	67.86	0.28	0.03
P2100	792.61	10.00	111.00	1.00	117.13	0.48	0.12
P2102	766.97	8.00	130.00	1.00	33.45	0.21	0.03
P2104	804.76	10.00	90.00	1.00	119.44	0.49	0.19
P2106	1943.79	8.00	130.00	1.00	59.59	0.38	0.19
P2108	357.92	10.00	120.00	1.00	48.91	0.20	0.01
P2110	596.91	16.00	116.00	1.00	246.77	0.39	0.03
P2112	264.28	8.00	120.00	1.00	30.66	0.20	0.01
P2114	460.96	8.00	120.00	1.00	0.20	0.00	0.00
P2116	1009.91	12.00	116.00	1.00	0.09	0.00	0.00
P2118	1842.10	16.00	115.00	1.00	246.57	0.39	0.11
P2120	983.57	16.00	115.00	1.00	281.45	0.45	0.07
P2122	376.95	16.00	115.00	1.00	2.67	0.00	0.00
P2124	204.97	16.00	115.00	1.00	2.67	0.00	0.00
P2126	298.29	16.00	130.00	1.00	149.70	0.24	0.01
P2128	28.62	12.00	127.00	1.00	0.00	0.00	0.00
P2136	3201.97	8.00	127.00	1.00	57.51	0.37	0.31
P2138	703.33	8.00	127.00	1.00	57.51	0.37	0.07
P2140	468.29	8.00	127.00	1.00	54.38	0.35	0.04
P2142	199.60	8.00	127.00	1.00	3.94	0.03	0.00
P2144	301.72	8.00	127.00	1.00	46.54	0.30	0.02
P2146	749.61	8.00	127.00	1.00	6.49	0.04	0.00
P2148	413.76	8.00	127.00	1.00	31.33	0.20	0.01
P2150	438.63	8.00	127.00	1.00	9.83	0.06	0.00
P2152	623.80	8.00	127.00	1.00	14.77	0.09	0.00
P2154	466.89	8.00	127.00	1.00	4.56	0.03	0.00
P2156	871.30	12.00	127.00	1.00	0.00	0.00	0.00
P2158	755.54	12.00	130.00	1.00	34.87	0.10	0.00
P2160	34.90	12.00	130.00	1.00	43.83	0.12	0.00
P2162	497.51	12.00	130.00	1.00	64.17	0.18	0.01
P2164	303.71	12.00	130.00	1.00	88.61	0.25	0.01
P2166	1033.45	12.00	130.00	1.00	146.98	0.42	0.08
P2168	667.30	8.00	130.00	1.00	17.59	0.11	0.01
P2170	1014.00	8.00	130.00	1.00	12.89	0.08	0.01
P2172	644.89	8.00	130.00	1.00	8.36	0.05	0.00
P2174	281.72	8.00	130.00	1.00	2.85	0.02	0.00
P2176	293.24	8.00	130.00	1.00	4.33	0.03	0.00
P2178	431.08	8.00	130.00	1.00	5.71	0.04	0.00
P2180	213.45	8.00	130.00	1.00	8.72	0.06	0.00
P2182	700.63	8.00	130.00	1.00	30.78	0.20	0.02
P2184	1242.01	8.00	130.00	1.00	14.26	0.09	0.01
P2186	426.00	8.00	130.00	1.00	3.26	0.02	0.00
P2188	256.91	8.00	130.00	1.00	16.89	0.11	0.00
P2190	663.37	8.00	130.00	1.00	32.42	0.21	0.02

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P2192	815.38	8.00	130.00	1.00	4.92	0.03	0.00
P2194	266.31	8.00	130.00	1.00	9.26	0.06	0.00
P2196	308.36	8.00	130.00	1.00	2.53	0.02	0.00
P2198	306.71	8.00	130.00	1.00	3.07	0.02	0.00
P2200	434.68	8.00	130.00	1.00	6.43	0.04	0.00
P2202	76.68	8.00	127.00	1.00	21.86	0.14	0.00
P2204	22.55	8.00	125.00	1.00	2.77	0.02	0.00
P490-375-2-6	24.43	6.00	125.00	1.00	0.44	0.01	0.00
P490-375-2-4	30.09	4.00	125.00	1.00	0.00	0.00	0.00
P496	12.88	4.00	125.00	1.00	0.00	0.00	0.00
P498	28.32	6.00	125.00	1.00	0.00	0.00	0.00
P500	175.49	8.00	120.00	1.00	17.92	0.11	0.00
P502	593.79	8.00	130.00	1.00	9.50	0.06	0.00
P504	404.00	8.00	130.00	1.00	60.26	0.38	0.04
P506	532.70	8.00	130.00	1.00	80.01	0.51	0.09
P508	354.28	8.00	127.00	1.00	98.03	0.63	0.09
P510	587.02	8.00	130.00	1.00	8.28	0.05	0.00
P512	402.18	8.00	130.00	1.00	95.41	0.61	0.09
P514	513.38	8.00	130.00	1.00	8.40	0.05	0.00
P516	545.38	8.00	130.00	1.00	7.76	0.05	0.00
P518	169.82	8.00	130.00	1.00	115.28	0.74	0.06
P520	462.21	8.00	130.00	1.00	15.61	0.10	0.00
P522	313.71	8.00	130.00	1.00	6.85	0.04	0.00
P524	235.88	8.00	130.00	1.00	2.59	0.02	0.00
P526	470.11	8.00	130.00	1.00	4.88	0.03	0.00
P528	121.99	8.00	130.00	1.00	13.87	0.09	0.00
P530	113.90	8.00	130.00	1.00	12.60	0.08	0.00
P532	213.43	8.00	130.00	1.00	0.34	0.00	0.00
P534	208.75	8.00	130.00	1.00	5.83	0.04	0.00
P536	441.93	8.00	130.00	1.00	4.12	0.03	0.00
P538	231.80	8.00	130.00	1.00	0.85	0.01	0.00
P540	151.61	8.00	130.00	1.00	2.15	0.01	0.00
P542	534.81	8.00	130.00	1.00	0.54	0.00	0.00
P544	852.58	6.00	120.00	1.00	0.60	0.01	0.00
P546	325.36	8.00	127.00	1.00	39.63	0.25	0.02
P548	837.02	8.00	127.00	1.00	15.39	0.10	0.01
P550	439.01	8.00	127.00	1.00	21.83	0.14	0.01
P552	168.08	8.00	127.00	1.00	7.60	0.05	0.00
P554	257.54	8.00	127.00	1.00	1.10	0.01	0.00
P556	878.47	8.00	127.00	1.00	0.00	0.00	0.00
P558	81.85	10.00	110.00	1.00	126.33	0.52	0.01
P560	144.32	10.00	110.00	1.00	130.34	0.53	0.03
P562	476.34	8.00	110.00	1.00	64.19	0.41	0.07
P564	98.52	12.00	110.00	1.00	200.25	0.57	0.02
P566	271.77	12.00	110.00	1.00	194.85	0.55	0.05
P568	51.41	6.00	110.00	1.00	15.45	0.18	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P570	164.40	6.00	110.00	1.00	5.99	0.07	0.00
P572	169.02	6.00	110.00	1.00	1.57	0.02	0.00
P574	164.20	10.00	110.00	1.00	128.04	0.52	0.03
P576	247.03	6.00	110.00	1.00	3.40	0.04	0.00
P578	131.11	6.00	110.00	1.00	1.99	0.02	0.00
P580	178.12	6.00	110.00	1.00	2.41	0.03	0.00
P582	83.06	6.00	110.00	1.00	0.52	0.01	0.00
P584	95.13	6.00	110.00	1.00	14.65	0.17	0.00
P586	262.93	10.00	113.00	1.00	66.88	0.27	0.01
P588	286.33	10.00	113.00	1.00	53.57	0.22	0.01
P590	503.99	8.00	110.00	1.00	24.48	0.16	0.01
P592	366.09	8.00	110.00	1.00	8.86	0.06	0.00
P594	173.58	8.00	110.00	1.00	3.88	0.02	0.00
P596	326.26	8.00	110.00	1.00	4.02	0.03	0.00
P598	511.12	8.00	116.00	1.00	31.44	0.20	0.02
P600	257.30	8.00	116.00	1.00	45.54	0.29	0.02
P602	26.18	12.00	90.00	1.00	951.34	2.70	0.12
P604	877.44	16.00	115.00	1.00	326.88	0.52	0.09
P606	195.60	16.00	115.00	1.00	328.67	0.52	0.02
P608	402.19	16.00	115.00	1.00	326.88	0.52	0.04
P610	738.02	14.00	113.00	1.00	321.14	0.67	0.14
P612	93.42	14.00	125.00	1.00	0.22	0.00	0.00
P614	838.40	16.00	115.00	1.00	622.67	0.99	0.27
P616	34.94	10.00	120.00	1.00	305.90	1.25	0.03
P618	53.81	14.00	115.00	1.00	0.00	0.00	0.00
P620	169.70	14.00	115.00	1.00	415.17	0.87	0.05
P622	1517.22	16.00	115.00	1.00	141.77	0.23	0.03
P624	34.82	16.00	115.00	1.00	390.09	0.62	0.00
P626	940.67	16.00	125.00	1.00	1595.30	2.55	1.50
P628	204.73	8.00	120.00	1.00	1.15	0.01	0.00
P630	456.72	8.00	120.00	1.00	10.09	0.06	0.00
P632	216.14	8.00	120.00	1.00	4.80	0.03	0.00
P634	946.84	8.00	120.00	1.00	20.56	0.13	0.02
P636	928.25	8.00	120.00	1.00	25.08	0.16	0.02
P638	1010.57	16.00	115.00	1.00	415.17	0.66	0.16
P640	331.98	10.00	125.00	1.00	192.94	0.79	0.10
P642	300.45	10.00	125.00	1.00	257.95	1.05	0.16
P644	164.41	8.00	125.00	1.00	9.30	0.06	0.00
P646	246.72	8.00	125.00	1.00	5.33	0.03	0.00
P648	208.08	8.00	125.00	1.00	0.76	0.00	0.00
P650	244.59	10.00	125.00	1.00	180.53	0.74	0.07
P652	191.46	10.00	125.00	1.00	550.99	2.25	0.42
P654	701.55	8.00	115.00	1.00	0.00	0.00	0.00
P656	327.73	10.00	116.00	1.00	17.48	0.07	0.00
P658	644.32	8.00	116.00	1.00	11.41	0.07	0.00
P660	196.63	6.00	116.00	1.00	5.22	0.06	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P662	395.63	8.00	116.00	1.00	6.27	0.04	0.00
P664	322.21	8.00	116.00	1.00	1.81	0.01	0.00
P666	287.32	8.00	116.00	1.00	15.53	0.10	0.00
P668	227.20	8.00	116.00	1.00	4.92	0.03	0.00
P670	141.02	8.00	113.00	1.00	1.63	0.01	0.00
P672	276.92	10.00	125.00	1.00	177.24	0.72	0.07
P674	245.47	10.00	125.00	1.00	163.65	0.67	0.06
P676	275.56	10.00	125.00	1.00	151.64	0.62	0.06
P678	123.67	10.00	125.00	1.00	147.38	0.60	0.02
P680	320.67	10.00	125.00	1.00	137.81	0.56	0.05
P682	1360.15	10.00	125.00	1.00	124.41	0.51	0.19
P684	302.06	8.00	125.00	1.00	12.00	0.08	0.00
P686	257.26	8.00	125.00	1.00	5.63	0.04	0.00
P688	208.55	8.00	125.00	1.00	3.40	0.02	0.00
P690	171.19	8.00	125.00	1.00	8.34	0.05	0.00
P692	275.23	8.00	125.00	1.00	3.90	0.02	0.00
P694	193.09	8.00	125.00	1.00	2.77	0.02	0.00
P696	238.49	8.00	125.00	1.00	2.93	0.02	0.00
P698	383.14	8.00	125.00	1.00	6.25	0.04	0.00
P700	213.96	8.00	125.00	1.00	2.27	0.01	0.00
P702	483.04	8.00	125.00	1.00	5.65	0.04	0.00
P704	207.70	8.00	125.00	1.00	1.57	0.01	0.00
P706	263.19	12.00	116.00	1.00	412.56	1.17	0.16
P710	461.12	12.00	110.00	1.00	318.78	0.90	0.19
P712	211.41	12.00	116.00	1.00	335.96	0.95	0.09
P714	153.90	8.00	116.00	1.00	76.60	0.49	0.03
P716	146.72	8.00	116.00	1.00	85.05	0.54	0.03
P718	191.70	8.00	116.00	1.00	60.65	0.39	0.02
P720	378.61	8.00	116.00	1.00	24.90	0.16	0.01
P722	230.43	8.00	116.00	1.00	5.30	0.03	0.00
P724	521.26	8.00	116.00	1.00	20.06	0.13	0.01
P726	625.46	8.00	116.00	1.00	17.64	0.11	0.01
P728	433.79	12.00	116.00	1.00	420.23	1.19	0.27
P730	136.30	12.00	116.00	1.00	282.68	0.80	0.04
P732	165.26	8.00	116.00	1.00	13.37	0.09	0.00
P734	270.79	8.00	116.00	1.00	7.61	0.05	0.00
P736	502.60	8.00	116.00	1.00	5.45	0.03	0.00
P738	147.33	8.00	116.00	1.00	13.78	0.09	0.00
P740	213.63	8.00	116.00	1.00	2.33	0.01	0.00
P742	91.88	12.00	116.00	1.00	291.05	0.83	0.03
P744	213.66	8.00	116.00	1.00	10.75	0.07	0.00
P746	104.52	8.00	116.00	1.00	4.46	0.03	0.00
P748	142.15	8.00	116.00	1.00	1.85	0.01	0.00
P750	159.92	8.00	116.00	1.00	1.77	0.01	0.00
P752	187.13	8.00	116.00	1.00	5.26	0.03	0.00
P754	343.24	8.00	116.00	1.00	2.39	0.02	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P756	2784.07	12.00	130.00	1.00	2.67	0.01	0.00
P758	63.39	12.00	116.00	1.00	423.99	1.20	0.04
P760	679.82	12.00	116.00	1.00	109.24	0.31	0.04
P762	460.76	8.00	130.00	1.00	107.49	0.69	0.14
P764	297.80	8.00	130.00	1.00	34.74	0.22	0.01
P766	289.22	8.00	130.00	1.00	18.43	0.12	0.00
P768	228.76	8.00	130.00	1.00	26.61	0.17	0.01
P770	715.37	8.00	130.00	1.00	18.07	0.12	0.01
P772	976.46	16.00	115.00	1.00	141.83	0.23	0.02
P774	999.93	16.00	115.00	1.00	61.03	0.10	0.00
P776	172.58	16.00	115.00	1.00	2.94	0.00	0.00
P778	175.14	8.00	120.00	1.00	36.70	0.23	0.01
P780	457.48	8.00	120.00	1.00	14.81	0.09	0.00
P782	392.30	8.00	120.00	1.00	9.77	0.06	0.00
P784	301.12	8.00	120.00	1.00	31.66	0.20	0.01
P786	257.64	8.00	120.00	1.00	13.69	0.09	0.00
P788	256.41	8.00	120.00	1.00	5.85	0.04	0.00
P790	223.13	8.00	120.00	1.00	4.33	0.03	0.00
P792	782.26	8.00	120.00	1.00	3.84	0.02	0.00
P794	407.25	8.00	120.00	1.00	1.15	0.01	0.00
P796	892.82	8.00	120.00	1.00	10.94	0.07	0.00
P798	196.19	8.00	120.00	1.00	23.66	0.15	0.00
P800	478.64	8.00	120.00	1.00	20.77	0.13	0.01
P802	252.18	8.00	120.00	1.00	43.39	0.28	0.02
P804	587.21	8.00	120.00	1.00	2.69	0.02	0.00
P806	457.95	8.00	120.00	1.00	21.25	0.14	0.01
P808	179.26	8.00	120.00	1.00	7.48	0.05	0.00
P810	688.80	8.00	120.00	1.00	0.25	0.00	0.00
P812	1415.70	8.00	120.00	1.00	11.38	0.07	0.01
P814	397.48	10.00	120.00	1.00	16.43	0.07	0.00
P816	400.46	10.00	120.00	1.00	4.78	0.02	0.00
P818	990.37	10.00	120.00	1.00	0.00	0.00	0.00
P820	330.48	8.00	120.00	1.00	0.64	0.00	0.00
P822	282.38	8.00	120.00	1.00	6.59	0.04	0.00
P824	234.87	8.00	120.00	1.00	29.57	0.19	0.01
P826	407.61	8.00	120.00	1.00	13.08	0.08	0.00
P828	190.35	8.00	120.00	1.00	18.40	0.12	0.00
P830	309.68	8.00	120.00	1.00	7.13	0.05	0.00
P832	295.74	8.00	120.00	1.00	1.87	0.01	0.00
P834	1323.01	12.00	120.00	1.00	30.64	0.09	0.01
P836	324.06	12.00	120.00	1.00	57.68	0.16	0.00
P838	286.48	8.00	120.00	1.00	4.46	0.03	0.00
P840	370.86	8.00	120.00	1.00	30.54	0.19	0.01
P842	221.35	8.00	120.00	1.00	8.34	0.05	0.00
P844	338.16	8.00	120.00	1.00	2.21	0.01	0.00
P846	420.25	8.00	120.00	1.00	10.80	0.07	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P848	308.55	8.00	120.00	1.00	12.52	0.08	0.00
P850	184.39	8.00	120.00	1.00	4.04	0.03	0.00
P852	179.28	8.00	120.00	1.00	4.32	0.03	0.00
P854	405.12	8.00	120.00	1.00	6.27	0.04	0.00
P856	199.26	8.00	120.00	1.00	2.51	0.02	0.00
P858	307.76	12.00	120.00	1.00	53.95	0.15	0.00
P860	297.59	8.00	120.00	1.00	23.69	0.15	0.01
P862	573.99	8.00	120.00	1.00	10.29	0.07	0.00
P864	44.00	8.00	120.00	1.00	20.45	0.13	0.00
P866	918.34	8.00	120.00	1.00	5.87	0.04	0.00
P868	573.33	8.00	120.00	1.00	18.27	0.12	0.01
P870	173.85	8.00	120.00	1.00	6.05	0.04	0.00
P872	361.40	8.00	120.00	1.00	3.58	0.02	0.00
P1744	16.02	6.00	140.00	0.00	0.00	0.00	0.00
P1746	17.80	6.00	140.00	0.00	0.00	0.00	0.00
P1748	9.80	4.00	140.00	0.00	0.00	0.00	0.00
P1750	12.73	4.00	140.00	0.00	0.00	0.00	0.00
P1766	56.07	6.00	130.00	0.00	0.00	0.00	0.00
P1820	19.72	6.00	140.00	0.00	0.00	0.00	0.00
P1822	21.82	10.00	130.00	0.00	0.00	0.00	0.00
P1828	77.89	6.00	140.00	0.00	0.00	0.00	0.00
P1830	19.11	6.00	140.00	0.00	0.00	0.00	0.00
P1832	60.11	6.00	140.00	0.00	0.00	0.00	0.00
P1834	22.83	6.00	140.00	0.00	0.00	0.00	0.00
P1836	18.45	6.00	140.00	0.00	0.00	0.00	0.00
P1838	20.17	8.00	130.00	0.00	0.00	0.00	0.00
P1840	8.17	4.00	130.00	0.00	0.00	0.00	0.00
P1842	14.53	8.00	130.00	0.00	0.00	0.00	0.00
P1844	7.72	8.00	130.00	0.00	0.00	0.00	0.00
P1846	8.59	4.00	130.00	0.00	0.00	0.00	0.00
P1848	27.09	8.00	130.00	0.00	0.00	0.00	0.00
P1850	18.40	6.00	130.00	0.00	0.00	0.00	0.00
P1852	8.51	6.00	130.00	0.00	0.00	0.00	0.00
P1898	5.86	8.00	130.00	0.00	0.00	0.00	0.00
P1900	5.38	6.00	130.00	0.00	0.00	0.00	0.00
P1902	9.03	8.00	130.00	0.00	0.00	0.00	0.00
P1908	9.07	6.00	130.00	0.00	0.00	0.00	0.00
P1910	8.57	8.00	130.00	0.00	0.00	0.00	0.00
P1912	39.13	6.00	130.00	0.00	0.00	0.00	0.00
P550-490-1-6	6.76	8.00	127.00	0.00	0.00	0.00	0.00
P2206	17.01	8.00	140.00	0.00	0.00	0.00	0.00
P2208	10.04	8.00	140.00	0.00	0.00	0.00	0.00
P874	498.56	8.00	120.00	1.00	8.16	0.05	0.00
P876	60.74	8.00	120.00	1.00	27.39	0.17	0.00
P878	245.56	8.00	120.00	1.00	4.80	0.03	0.00
P880	718.15	8.00	120.00	1.00	15.86	0.10	0.01

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P882	165.55	8.00	120.00	1.00	28.19	0.18	0.00
P884	360.83	8.00	120.00	1.00	8.38	0.05	0.00
P886	293.73	8.00	120.00	1.00	14.43	0.09	0.00
P888	221.90	8.00	120.00	1.00	5.93	0.04	0.00
P890	241.60	8.00	120.00	1.00	5.75	0.04	0.00
P892	307.30	10.00	125.00	1.00	204.91	0.84	0.11
P894	292.20	10.00	125.00	1.00	183.64	0.75	0.08
P896	531.94	8.00	130.00	1.00	26.46	0.17	0.01
P898	242.70	8.00	130.00	1.00	98.65	0.63	0.06
P900	331.61	8.00	130.00	1.00	5.35	0.03	0.00
P902	553.32	8.00	130.00	1.00	58.04	0.37	0.05
P904	578.50	8.00	130.00	1.00	65.54	0.42	0.07
P906	218.72	8.00	130.00	1.00	107.33	0.69	0.06
P908	366.04	8.00	130.00	1.00	1.99	0.01	0.00
P910	164.87	8.00	130.00	1.00	112.47	0.72	0.05
P912	772.27	10.00	113.00	1.00	97.16	0.40	0.08
P914	166.85	8.00	130.00	1.00	80.57	0.51	0.03
P916	386.23	8.00	130.00	1.00	39.75	0.25	0.02
P918	489.34	8.00	130.00	1.00	39.27	0.25	0.02
P920	352.82	8.00	130.00	1.00	3.84	0.02	0.00
P922	25.62	8.00	130.00	1.00	21.85	0.14	0.00
P924	199.81	8.00	130.00	1.00	3.82	0.02	0.00
P926	661.70	8.00	130.00	1.00	58.47	0.37	0.06
P928	305.40	10.00	114.00	1.00	34.36	0.14	0.00
P930	511.80	10.00	114.00	1.00	71.30	0.29	0.03
P932	89.35	8.00	114.00	1.00	23.64	0.15	0.00
P934	302.67	8.00	114.00	1.00	4.74	0.03	0.00
P936	270.53	8.00	114.00	1.00	12.35	0.08	0.00
P938	645.80	8.00	114.00	1.00	12.48	0.08	0.00
P490-255-1-6	17.44	12.00	120.00	1.00	1425.29	4.04	0.10
P948	267.02	8.00	110.00	1.00	2.34	0.01	0.00
P950	590.02	8.00	115.00	1.00	7.88	0.05	0.00
P952	195.98	8.00	115.00	1.00	4.62	0.03	0.00
P954	217.97	6.00	114.00	1.00	34.65	0.39	0.04
P956	11.12	10.00	127.00	1.00	97.18	0.40	0.00
P958	287.59	10.00	127.00	1.00	102.32	0.42	0.03
P960	295.64	10.00	127.00	1.00	138.23	0.56	0.05
P962	463.26	10.00	127.00	1.00	139.86	0.57	0.08
P964	135.35	10.00	127.00	1.00	0.00	0.00	0.00
P966	522.71	8.00	127.00	1.00	26.99	0.17	0.01
P968	621.73	8.00	127.00	1.00	26.99	0.17	0.01
P970	312.55	12.00	120.00	1.00	1425.29	4.04	1.77
P974	306.76	8.00	113.00	1.00	116.37	0.74	0.14
P976	374.49	8.00	120.00	1.00	13.93	0.09	0.00
P978	390.47	8.00	120.00	1.00	7.52	0.05	0.00
P980	715.06	8.00	120.00	1.00	1.87	0.01	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P982	564.80	8.00	120.00	1.00	3.26	0.02	0.00
P984	418.98	6.00	97.00	1.00	8.30	0.09	0.01
P986	286.28	6.00	97.00	1.00	1.39	0.02	0.00
P988	306.62	6.00	97.00	1.00	5.38	0.06	0.00
P990	269.72	6.00	97.00	1.00	11.29	0.13	0.01
P992	368.82	6.00	97.00	1.00	19.79	0.22	0.03
P994	156.98	6.00	97.00	1.00	3.46	0.04	0.00
P996	594.06	6.00	97.00	1.00	7.74	0.09	0.01
P998	284.60	6.00	112.00	1.00	24.49	0.28	0.03
P1000	290.15	8.00	110.00	1.00	70.67	0.45	0.05
P1002	302.16	10.00	114.00	1.00	83.04	0.34	0.02
P1004	767.75	6.00	112.00	1.00	16.51	0.19	0.03
P1006	507.11	6.00	112.00	1.00	19.87	0.23	0.03
P1008	392.12	12.00	110.00	1.00	185.14	0.53	0.06
P1010	557.97	8.00	110.00	1.00	59.33	0.38	0.07
P1012	184.76	8.00	110.00	1.00	70.28	0.45	0.03
P1014	105.01	8.00	110.00	1.00	13.78	0.09	0.00
P1016	1204.03	8.00	110.00	1.00	108.38	0.69	0.49
P1018	649.49	8.00	113.00	1.00	15.75	0.10	0.01
P1020	216.55	8.00	113.00	1.00	26.87	0.17	0.01
P1022	376.53	6.00	113.00	1.00	8.34	0.09	0.01
P1024	383.16	6.00	113.00	1.00	12.18	0.14	0.01
P1026	422.08	8.00	112.00	1.00	53.21	0.34	0.04
P1028	316.93	6.00	112.00	1.00	15.87	0.18	0.01
P1030	985.31	6.00	112.00	1.00	18.19	0.21	0.03
P1032	1322.74	12.00	108.00	1.00	277.37	0.79	0.31
P1034	303.63	8.00	120.00	1.00	59.87	0.38	0.03
P1036	471.44	8.00	120.00	1.00	56.75	0.36	0.03
P1038	232.13	8.00	120.00	1.00	51.81	0.33	0.02
P1040	556.37	12.00	120.00	1.00	83.36	0.24	0.02
P1042	7.18	6.00	120.00	1.00	0.00	0.00	0.00
P1044	5.14	4.00	120.00	1.00	0.00	0.00	0.00
P1046	10.43	4.00	120.00	1.00	1.09	0.03	0.00
P1048	67.34	6.00	120.00	1.00	0.00	0.00	0.00
P1050	8.97	6.00	120.00	1.00	11.29	0.13	0.00
P1052	13.99	20.00	115.00	1.00	1819.28	1.86	0.01
P1054	24.50	16.00	120.00	1.00	0.00	0.00	0.00
P1056	26.08	16.00	120.00	1.00	0.00	0.00	0.00
P1058	21.41	16.00	120.00	1.00	0.00	0.00	0.00
P1068	889.04	30.00	120.00	1.00	5124.77	2.33	0.62
P1070	81.26	24.00	120.00	1.00	719.27	0.51	0.00
P1080	44.50	30.00	90.00	1.00	8033.93	3.65	0.12
P1086	7.54	30.00	120.00	1.00	8033.93	3.65	0.01
P1088	606.81	30.00	120.00	1.00	8035.63	3.65	0.98
P1090	3.59	30.00	100.00	1.00	8033.93	3.65	0.01
P1092	1066.03	12.00	127.00	1.00	260.25	0.74	0.23

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1094	294.05	12.00	127.00	1.00	384.12	1.09	0.13
P1096	755.17	12.00	127.00	1.00	0.54	0.00	0.00
ZONESEP700N-7(	95.41	30.00	115.00	1.00	1604.32	0.73	0.01
P1100	7.24	10.00	120.00	1.00	0.00	0.00	0.00
P1104	24.53	6.00	120.00	1.00	0.00	0.00	0.00
P1112	73.46	30.00	120.00	1.00	2400.00	1.09	0.01
P1114	14.44	30.00	120.00	1.00	2400.00	1.09	0.00
P1116	37.13	30.00	115.00	1.00	1881.35	0.85	0.00
P1118	41.38	30.00	120.00	1.00	2400.00	1.09	0.01
P1124	87.02	10.00	120.00	1.00	0.00	0.00	0.00
P1126	822.06	16.00	130.00	1.00	447.78	0.71	0.12
P1140	1449.73	8.00	127.00	1.00	3.41	0.02	0.00
P1142	29.50	12.00	127.00	1.00	0.00	0.00	0.00
P1144	30.85	12.00	127.00	1.00	130.03	0.37	0.00
P1146	909.99	8.00	115.00	1.00	15.05	0.10	0.01
P1148	97.14	10.00	130.00	1.00	92.46	0.38	0.01
P1154	87.52	10.00	130.00	1.00	0.00	0.00	0.00
P1156	9.80	10.00	130.00	1.00	2.13	0.01	0.00
P1162	4.77	16.00	120.00	1.00	0.00	0.00	0.00
P1186	1211.36	16.00	130.00	1.00	276.81	0.44	0.07
P1188	500.26	8.00	130.00	1.00	176.15	1.12	0.37
P1190	1015.57	16.00	100.00	1.00	959.13	1.53	0.95
P1192	37.46	16.00	100.00	1.00	1038.51	1.66	0.04
P1194	2299.41	16.00	100.00	1.00	1038.51	1.66	2.50
P1198	332.76	8.00	127.00	1.00	76.05	0.49	0.05
P1202	103.58	21.00	130.00	1.00	2198.95	2.04	0.07
NC490-446-1	71.61	14.00	95.00	1.00	0.00	0.00	0.00
P1206	556.28	10.00	127.00	1.00	22.34	0.09	0.00
P1208	799.15	8.00	127.00	1.00	16.79	0.11	0.01
P1210	1015.58	12.00	130.00	1.00	8.36	0.02	0.00
P1212	326.34	12.00	130.00	1.00	1.15	0.00	0.00
P1214	18.27	12.00	130.00	1.00	0.00	0.00	0.00
P1216	17.70	12.00	130.00	1.00	0.00	0.00	0.00
P1218	17.21	3.00	130.00	1.00	4.70	0.21	0.00
P1220	19.75	3.00	130.00	1.00	2.03	0.09	0.00
P1222	130.76	8.00	100.00	1.00	41.98	0.27	0.01
P1224	1592.40	12.00	120.00	1.00	61.27	0.17	0.03
P1226	16.39	12.00	90.00	1.00	550.98	1.56	0.03
P1228	5.47	12.00	90.00	1.00	0.00	0.00	0.00
P1232	4.44	12.00	90.00	1.00	0.00	0.00	0.00
P1259	5.84	12.00	116.00	1.00	1.55	0.00	0.00
P1263	6.35	12.00	110.00	1.00	0.52	0.00	0.00
P1265	456.38	8.00	130.00	1.00	46.00	0.29	0.03
P1269	398.56	10.00	114.00	1.00	75.39	0.31	0.03
P1271	402.41	6.00	112.00	1.00	19.36	0.22	0.03
P1275	482.94	6.00	120.00	1.00	12.52	0.14	0.01

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1277	383.05	12.00	108.00	1.00	98.71	0.28	0.02
P1279	267.98	12.00	108.00	1.00	146.20	0.41	0.03
P1281	161.88	8.00	120.00	1.00	7.84	0.05	0.00
P1285	619.41	8.00	117.00	1.00	11.52	0.07	0.00
P1287	371.13	18.00	116.00	1.00	688.51	0.87	0.08
P1289	28.90	20.00	112.00	1.00	140.89	0.14	0.00
P1291	155.21	12.00	125.00	1.00	8.06	0.02	0.00
P1295	73.23	8.00	120.00	1.00	6.69	0.04	0.00
P1297	4701.96	24.00	120.00	1.00	3599.88	2.55	4.94
P1301	156.13	10.00	120.00	1.00	0.00	0.00	0.00
P1303	82.85	10.00	120.00	1.00	334.52	1.37	0.08
P1305	84.75	12.00	110.00	0.00	0.00	0.00	0.00
P1307	1206.79	14.00	105.00	1.00	1488.21	3.10	4.48
P1311	1898.89	16.00	115.00	1.00	1435.43	2.29	2.90
P1319	36.59	8.00	120.00	1.00	200.93	1.28	0.04
P1325	2454.83	14.00	117.00	1.00	2285.89	4.76	16.49
P1327	11.49	14.00	117.00	1.00	1896.13	3.95	0.05
P1329	74.07	12.00	130.00	1.00	94.95	0.27	0.00
P1331	451.14	8.00	130.00	1.00	135.90	0.87	0.20
P1333	256.17	12.00	130.00	1.00	40.21	0.11	0.00
P1335	280.92	16.00	120.00	1.00	648.34	1.03	0.09
P1337	27.29	30.00	117.00	1.00	5385.16	2.44	0.02
P1339	34.45	8.00	127.00	1.00	85.75	0.55	0.01
P1341	100.12	8.00	127.00	1.00	109.70	0.70	0.03
P1353	1356.81	16.00	112.00	1.00	309.12	0.49	0.13
P1355	278.71	16.00	120.00	1.00	860.22	1.37	0.15
P1357	27.32	10.00	112.00	1.00	45.01	0.18	0.00
P1361	171.60	6.00	110.00	1.00	21.31	0.24	0.01
P1363	183.77	16.00	127.00	1.00	1076.86	1.72	0.14
P1367	27.68	16.00	100.00	1.00	437.07	0.70	0.01
P1369	173.83	16.00	125.00	1.00	0.00	0.00	0.00
P1373	47.94	12.00	117.00	1.00	227.46	0.65	0.01
P1377	708.22	12.00	112.00	1.00	134.96	0.38	0.06
P1379	155.20	6.00	110.00	1.00	34.48	0.39	0.03
P1393	181.68	12.00	110.00	1.00	163.44	0.46	0.02
P1411	321.89	16.00	117.00	1.00	625.71	1.00	0.10
P1413	217.02	16.00	116.00	1.00	918.13	1.47	0.14
P1419	215.30	16.00	116.00	1.00	904.84	1.44	0.14
P1427	67.27	16.00	116.00	1.00	1077.99	1.72	0.06
P1429	79.74	16.00	116.00	1.00	790.22	1.26	0.04
P1433	313.96	16.00	116.00	1.00	901.27	1.44	0.20
P1445	789.41	6.00	115.00	1.00	28.40	0.32	0.10
P1447	433.70	12.00	114.00	1.00	19.27	0.05	0.00
P1451	702.09	6.00	115.00	1.00	22.13	0.25	0.06
P1457	550.14	12.00	115.00	1.00	165.60	0.47	0.06
P1473	698.61	12.00	114.00	1.00	165.65	0.47	0.08

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1475	923.29	8.00	115.00	1.00	45.23	0.29	0.07
P1493	589.72	10.00	113.00	1.00	288.66	1.18	0.47
P1507	355.69	10.00	115.00	1.00	540.61	2.21	0.88
P1509	198.57	8.00	114.00	1.00	11.68	0.07	0.00
P1511	796.14	8.00	115.00	1.00	9.63	0.06	0.00
P1513	12.76	10.00	127.00	1.00	135.28	0.55	0.00
P1515	402.75	10.00	127.00	1.00	97.18	0.40	0.03
P1519	208.47	6.00	115.00	1.00	166.32	1.89	0.70
P1521	638.32	8.00	113.00	1.00	6.41	0.04	0.00
P1523	57.11	12.00	110.00	1.00	205.14	0.58	0.01
P1529	982.25	12.00	120.00	1.00	224.33	0.64	0.18
P1531	994.89	12.00	130.00	1.00	2.67	0.01	0.00
P1533	75.97	12.00	130.00	1.00	117.47	0.33	0.00
P1535	239.79	12.00	130.00	1.00	50.67	0.14	0.00
P1537	549.85	12.00	130.00	1.00	1.91	0.01	0.00
P1539	310.67	8.00	130.00	1.00	30.13	0.19	0.01
P1547	332.99	8.00	130.00	1.00	6.59	0.04	0.00
P1551	1418.87	8.00	130.00	1.00	3.27	0.02	0.00
P1553	1287.87	8.00	130.00	1.00	1.86	0.01	0.00
P1559	639.21	12.00	130.00	1.00	38.91	0.11	0.00
P1561	403.76	12.00	130.00	1.00	82.53	0.23	0.01
P1563	415.68	12.00	130.00	1.00	64.63	0.18	0.01
P1575	549.95	12.00	130.00	1.00	19.42	0.06	0.00
P1577	194.47	12.00	130.00	1.00	10.31	0.03	0.00
P1581	551.88	8.00	130.00	1.00	14.52	0.09	0.00
P1583	686.45	8.00	130.00	1.00	23.97	0.15	0.01
P1585	273.59	8.00	130.00	1.00	10.71	0.07	0.00
P1589	760.28	8.00	130.00	1.00	0.31	0.00	0.00
P1591	291.20	8.00	130.00	1.00	15.87	0.10	0.00
P1593	616.91	8.00	130.00	1.00	8.07	0.05	0.00
P1595	615.94	8.00	130.00	1.00	5.22	0.03	0.00
P1597	299.10	8.00	130.00	1.00	2.77	0.02	0.00
P1601	1101.80	8.00	130.00	1.00	1.41	0.01	0.00
P1603	1175.87	8.00	130.00	1.00	4.44	0.03	0.00
P1607	50.38	16.00	120.00	1.00	2.94	0.00	0.00
P1611	1185.46	14.00	117.00	1.00	44.01	0.09	0.01
P1613	124.41	12.00	127.00	1.00	6.95	0.02	0.00
P1617	827.73	8.00	130.00	1.00	10.95	0.07	0.00
P1619	60.91	8.00	130.00	1.00	8.96	0.06	0.00
P1621	1173.05	8.00	130.00	1.00	1.99	0.01	0.00
P1623	374.59	12.00	120.00	1.00	7.78	0.02	0.00
P1625	94.02	12.00	120.00	1.00	6.99	0.02	0.00
P1633	304.49	12.00	120.00	1.00	0.16	0.00	0.00
P1635	318.05	18.00	120.00	1.00	160.63	0.20	0.00
P1637	248.96	12.00	120.00	1.00	130.03	0.37	0.02
P1639	215.18	12.00	120.00	1.00	7.78	0.02	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1641	869.91	8.00	130.00	1.00	0.78	0.01	0.00
P1643	579.04	8.00	130.00	1.00	30.91	0.20	0.02
P1655	1103.69	8.00	130.00	1.00	10.42	0.07	0.00
P1657	386.64	8.00	120.00	1.00	0.52	0.00	0.00
P1659	278.09	8.00	120.00	1.00	0.00	0.00	0.00
P1661	1099.42	8.00	130.00	1.00	0.32	0.00	0.00
P1663	213.79	10.00	130.00	1.00	4.74	0.02	0.00
P1665	415.70	8.00	127.00	1.00	0.24	0.00	0.00
P1667	291.28	12.00	125.00	1.00	5.54	0.02	0.00
P1671	378.73	8.00	127.00	1.00	2.20	0.01	0.00
P1677	119.63	8.00	127.00	1.00	0.86	0.01	0.00
P1683	248.90	18.00	120.00	1.00	258.69	0.33	0.01
P1687	704.76	8.00	130.00	1.00	17.17	0.11	0.01
P1689	454.99	14.00	127.00	1.00	0.16	0.00	0.00
P1691	1670.39	8.00	127.00	1.00	34.53	0.22	0.06
P1693	249.58	12.00	116.00	1.00	230.03	0.65	0.05
P1695	539.00	8.00	130.00	1.00	18.37	0.12	0.01
P1701	1198.85	8.00	130.00	1.00	10.45	0.07	0.00
P1703	264.31	8.00	120.00	1.00	0.12	0.00	0.00
P1705	375.16	8.00	116.00	1.00	65.74	0.42	0.05
P1709	105.08	10.00	127.00	1.00	198.05	0.81	0.03
P1711	514.09	18.00	116.00	1.00	578.89	0.73	0.08
P1713	881.75	10.00	130.00	1.00	109.88	0.45	0.09
P1719	497.90	18.00	116.00	1.00	919.65	1.16	0.19
P1721	362.69	12.00	115.00	1.00	129.16	0.37	0.03
P1723	82.33	10.00	130.00	1.00	67.04	0.27	0.00
P1725	612.04	10.00	130.00	1.00	1.51	0.01	0.00
P1727	412.58	10.00	130.00	1.00	66.57	0.27	0.02
P1729	99.64	8.00	120.00	1.00	90.74	0.58	0.02
P1731	230.31	10.00	130.00	1.00	91.20	0.37	0.02
P1733	119.59	10.00	130.00	1.00	161.21	0.66	0.03
P1741	114.75	12.00	130.00	1.00	0.00	0.00	0.00
P1743	418.21	12.00	130.00	1.00	3.70	0.01	0.00
P1745	1686.99	8.00	130.00	1.00	0.60	0.00	0.00
P1747	310.85	10.00	127.00	1.00	23.46	0.10	0.00
P1749	111.71	10.00	127.00	1.00	64.59	0.26	0.00
P1753	307.35	10.00	130.00	1.00	11.03	0.05	0.00
P1755	345.92	12.00	130.00	1.00	1.50	0.00	0.00
P1759	149.82	12.00	130.00	1.00	6.67	0.02	0.00
P1761	833.72	8.00	130.00	1.00	1.50	0.01	0.00
P1763	187.09	10.00	130.00	1.00	1.13	0.00	0.00
P1767	276.47	10.00	130.00	1.00	5.17	0.02	0.00
P1771	1420.24	10.00	130.00	1.00	0.38	0.00	0.00
P1773	680.39	12.00	130.00	1.00	185.67	0.53	0.08
P1777	272.51	12.00	130.00	1.00	0.00	0.00	0.00
P1779	673.00	12.00	130.00	1.00	0.00	0.00	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1781	773.64	12.00	130.00	1.00	0.00	0.00	0.00
P1783	78.23	8.00	130.00	1.00	59.62	0.38	0.01
P1785	307.56	8.00	130.00	1.00	22.97	0.15	0.01
P1787	218.41	8.00	130.00	1.00	24.83	0.16	0.00
P1789	138.35	8.00	130.00	1.00	36.43	0.23	0.01
P1791	376.14	12.00	130.00	1.00	147.29	0.42	0.03
P1793	103.34	8.00	130.00	1.00	37.72	0.24	0.00
P1795	77.40	8.00	130.00	1.00	23.59	0.15	0.00
P1797	144.04	8.00	130.00	1.00	57.33	0.37	0.01
P1799	617.56	8.00	130.00	1.00	21.90	0.14	0.01
P1801	785.87	8.00	130.00	1.00	20.90	0.13	0.01
P1803	318.22	8.00	130.00	1.00	1.17	0.01	0.00
P1805	875.21	8.00	130.00	1.00	11.79	0.08	0.00
P1807	150.40	8.00	130.00	1.00	13.60	0.09	0.00
P1809	755.74	8.00	130.00	1.00	14.68	0.09	0.01
P1811	123.23	8.00	130.00	1.00	1.25	0.01	0.00
P1813	499.13	8.00	130.00	1.00	1.39	0.01	0.00
P1815	272.57	6.00	112.00	1.00	15.73	0.18	0.01
P1817	1053.56	6.00	115.00	1.00	42.10	0.48	0.27
P1821	399.82	8.00	112.00	1.00	37.08	0.24	0.02
P1823	186.59	6.00	108.00	1.00	67.74	0.77	0.13
P1825	477.05	10.00	112.00	1.00	132.83	0.54	0.09
P1827	368.89	6.00	115.00	1.00	15.66	0.18	0.02
P1829	393.46	6.00	115.00	1.00	34.00	0.39	0.07
P1831	477.23	6.00	110.00	1.00	29.05	0.33	0.07
P1833	632.64	8.00	112.00	1.00	89.79	0.57	0.17
P1835	629.03	6.00	100.00	1.00	20.20	0.23	0.05
P1837	328.93	10.00	114.00	1.00	91.34	0.37	0.03
P1839	1406.38	6.00	112.00	1.00	54.11	0.61	0.62
P1841	991.70	6.00	116.00	1.00	12.51	0.14	0.03
P1843	11.09	12.00	114.00	1.00	189.53	0.54	0.00
P1845	504.84	10.00	120.00	1.00	40.52	0.17	0.01
P1847	476.36	10.00	120.00	1.00	57.41	0.23	0.02
P1849	168.79	6.00	112.00	1.00	42.44	0.48	0.05
P1851	222.65	6.00	120.00	1.00	53.46	0.61	0.08
P1853	467.70	6.00	120.00	1.00	29.17	0.33	0.06
P1855	493.15	6.00	113.00	1.00	4.94	0.06	0.00
P1857	312.26	6.00	113.00	1.00	20.42	0.23	0.02
P1859	525.21	8.00	130.00	1.00	11.70	0.07	0.00
P1861	357.54	10.00	114.00	1.00	71.38	0.29	0.02
P1863	233.51	6.00	112.00	1.00	15.71	0.18	0.01
P1865	232.53	6.00	115.00	1.00	11.33	0.13	0.01
P1867	134.67	6.00	115.00	1.00	18.81	0.21	0.01
P1869	382.73	6.00	115.00	1.00	9.67	0.11	0.01
P1871	228.05	10.00	114.00	1.00	128.61	0.53	0.04
P1873	238.50	6.00	112.00	1.00	34.27	0.39	0.05

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1875	436.14	6.00	115.00	1.00	1.13	0.01	0.00
P1877	363.96	10.00	114.00	1.00	146.47	0.60	0.08
P1879	371.16	6.00	112.00	1.00	42.59	0.48	0.10
P1881	460.52	6.00	115.00	1.00	7.03	0.08	0.00
P1883	343.51	10.00	114.00	1.00	106.53	0.44	0.04
P1885	329.64	6.00	112.00	1.00	33.00	0.37	0.06
P1887	497.45	8.00	130.00	1.00	13.28	0.08	0.00
P1889	8.10	6.00	112.00	1.00	41.73	0.47	0.00
P1891	52.25	6.00	112.00	1.00	22.29	0.25	0.00
P1893	51.92	6.00	115.00	1.00	17.77	0.20	0.00
P1895	25.00	6.00	115.00	1.00	19.44	0.22	0.00
P1897	25.01	6.00	115.00	1.00	14.53	0.16	0.00
P1899	313.84	6.00	115.00	1.00	1.67	0.02	0.00
P1901	1519.91	6.00	115.00	1.00	1.67	0.02	0.00
P1903	318.32	4.00	115.00	1.00	1.67	0.04	0.00
P1905	711.04	12.00	111.00	1.00	299.16	0.85	0.22
P1907	413.94	10.00	114.00	1.00	221.23	0.90	0.17
P1909	984.74	8.00	114.00	1.00	36.83	0.24	0.05
P1911	39.85	12.00	111.00	1.00	331.31	0.94	0.01
P1913	633.93	10.00	112.00	1.00	136.07	0.56	0.11
P1915	253.39	6.00	130.00	1.00	60.81	0.69	0.09
P1917	1109.57	8.00	130.00	1.00	42.19	0.27	0.05
P1919	273.05	12.00	111.00	1.00	266.49	0.76	0.07
P1921	134.95	10.00	112.00	1.00	97.69	0.40	0.01
P1923	193.32	8.00	127.00	1.00	58.52	0.37	0.02
P1925	596.68	8.00	130.00	1.00	50.25	0.32	0.04
P1927	907.59	6.00	130.00	1.00	12.07	0.14	0.01
P1929	727.52	6.00	111.00	1.00	12.92	0.15	0.02
P1931	402.12	8.00	120.00	1.00	12.85	0.08	0.00
P1933	842.66	8.00	112.00	1.00	16.43	0.10	0.01
P1935	437.70	8.00	130.00	1.00	5.67	0.04	0.00
P1937	227.64	8.00	117.00	1.00	61.03	0.39	0.02
P1939	565.84	8.00	117.00	1.00	14.60	0.09	0.00
P1941	206.34	8.00	115.00	1.00	14.05	0.09	0.00
P1943	1070.78	10.00	110.00	1.00	116.67	0.48	0.13
P1945	880.61	10.00	113.00	1.00	27.37	0.11	0.01
P1947	82.37	4.00	110.00	1.00	0.20	0.01	0.00
P1951	491.50	8.00	120.00	0.00	0.00	0.00	0.00
P2005	24.94	10.00	120.00	1.00	3.67	0.02	0.00
P2007	225.21	10.00	120.00	1.00	0.00	0.00	0.00
P2009	1349.61	8.00	130.00	1.00	0.25	0.00	0.00
P2011	275.26	10.00	120.00	1.00	24.72	0.10	0.00
P2013	86.29	10.00	120.00	1.00	0.25	0.00	0.00
P2015	959.29	8.00	130.00	1.00	3.93	0.03	0.00
P2017	75.45	16.00	120.00	1.00	502.36	0.80	0.02
P2019	869.07	16.00	117.00	1.00	686.60	1.10	0.33

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P2021	355.68	8.00	127.00	1.00	73.19	0.47	0.05
P2023	81.45	8.00	127.00	1.00	212.74	1.36	0.09
P2025	902.32	8.00	130.00	1.00	105.40	0.67	0.26
P2027	1021.80	8.00	127.00	1.00	108.46	0.69	0.32
P2029	312.02	8.00	127.00	1.00	37.60	0.24	0.01
P2031	353.90	8.00	130.00	1.00	108.29	0.69	0.11
P2033	52.48	8.00	130.00	1.00	176.75	1.13	0.04
P2035	774.67	8.00	130.00	1.00	97.35	0.62	0.19
P2037	18.38	16.00	120.00	1.00	450.88	0.72	0.00
P2039	1090.18	8.00	127.00	1.00	79.77	0.51	0.19
P2041	835.06	8.00	130.00	1.00	68.12	0.43	0.11
P2043	413.49	20.00	112.00	1.00	2.95	0.00	0.00
P2047	137.66	8.00	115.00	1.00	59.01	0.38	0.02
P2049	900.46	16.00	120.00	1.00	411.85	0.66	0.13
P2051	1283.03	8.00	115.00	1.00	59.01	0.38	0.16
P2053	461.84	8.00	116.00	1.00	14.22	0.09	0.00
P2055	2634.18	12.00	110.00	1.00	0.30	0.00	0.00
P2057	515.90	8.00	120.00	1.00	17.76	0.11	0.01
P2059	286.15	10.00	120.00	1.00	0.24	0.00	0.00
P2061	505.72	10.00	130.00	1.00	408.25	1.67	0.59
P2063	924.55	10.00	130.00	1.00	432.02	1.76	1.20
P2065	1066.56	10.00	130.00	1.00	432.02	1.76	1.39
P2067	319.02	12.00	110.00	1.00	0.23	0.00	0.00
P2069	1481.68	10.00	130.00	1.00	0.07	0.00	0.00
P2071	593.77	10.00	120.00	1.00	19.63	0.08	0.00
P2073	213.02	12.00	108.00	1.00	75.42	0.21	0.01
P2075	851.29	8.00	127.00	1.00	17.71	0.11	0.01
P2077	265.13	12.00	127.00	1.00	125.26	0.36	0.01
P2079	237.23	8.00	130.00	1.00	46.36	0.30	0.01
P2081	151.81	8.00	130.00	1.00	90.70	0.58	0.03
P2083	442.85	8.00	130.00	1.00	44.40	0.28	0.02
P2085	596.45	8.00	130.00	1.00	48.46	0.31	0.04
P2087	56.17	12.00	127.00	1.00	314.90	0.89	0.02
P2089	1226.65	8.00	127.00	1.00	26.08	0.17	0.03
P2091	443.94	8.00	127.00	1.00	40.93	0.26	0.02
P2093	1351.47	12.00	127.00	1.00	292.52	0.83	0.33
P2095	446.10	18.00	127.00	1.00	612.03	0.77	0.07
P2097	192.92	8.00	130.00	1.00	328.38	2.10	0.45
P2099	891.48	8.00	130.00	1.00	187.19	1.19	0.73
P2101	230.91	8.00	130.00	1.00	330.93	2.11	0.54
P2103	1503.15	8.00	130.00	1.00	141.18	0.90	0.73
P2105	122.80	12.00	130.00	1.00	6.81	0.02	0.00
P2107	727.82	8.00	130.00	1.00	0.84	0.01	0.00
P2109	628.98	8.00	130.00	1.00	0.91	0.01	0.00
P2111	785.47	16.00	120.00	1.00	109.03	0.17	0.01
P2113	533.79	18.00	127.00	1.00	777.84	0.98	0.12

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P2115	529.12	10.00	120.00	1.00	13.87	0.06	0.00
P2117	1461.43	8.00	130.00	1.00	70.61	0.45	0.20
P2119	216.92	8.00	130.00	1.00	7.10	0.05	0.00
P2121	247.65	8.00	130.00	1.00	33.49	0.21	0.01
P2123	769.27	8.00	130.00	1.00	63.61	0.41	0.09
P2125	270.64	8.00	130.00	1.00	118.20	0.75	0.09
P2127	1296.18	8.00	130.00	1.00	47.87	0.31	0.09
P2129	448.98	16.00	115.00	1.00	459.61	0.73	0.08
P2131	231.05	16.00	100.00	1.00	768.28	1.23	0.14
P2133	2542.32	12.00	130.00	1.00	100.23	0.28	0.09
P2135	443.28	12.00	130.00	1.00	53.41	0.15	0.00
P2137	152.96	12.00	130.00	1.00	76.17	0.22	0.00
P2139	707.26	10.00	130.00	1.00	25.69	0.10	0.00
P2141	354.06	16.00	125.00	1.00	383.58	0.61	0.04
P2143	1249.27	12.00	127.00	1.00	75.11	0.21	0.03
P2145	1132.02	10.00	108.00	1.00	26.65	0.11	0.01
P2147	1224.68	10.00	108.00	1.00	63.61	0.26	0.06
P2149	143.12	8.00	130.00	1.00	43.76	0.28	0.01
P2151	177.04	8.00	130.00	1.00	37.18	0.24	0.01
P940	11.03	8.00	100.00	0.00	0.00	0.00	0.00
P944	10.30	6.00	100.00	0.00	0.00	0.00	0.00
P946	10.59	6.00	100.00	0.00	0.00	0.00	0.00
P1060	30.51	8.00	100.00	0.00	0.00	0.00	0.00
P1062	11.55	8.00	100.00	0.00	0.00	0.00	0.00
P1064	12.67	8.00	100.00	0.00	0.00	0.00	0.00
P1072	10.19	16.00	135.00	0.00	0.00	0.00	0.00
P1074	17.08	6.00	135.00	0.00	0.00	0.00	0.00
P1076	10.08	12.00	135.00	0.00	0.00	0.00	0.00
P1078	46.41	12.00	90.00	0.00	0.00	0.00	0.00
P1082	18.74	12.00	135.00	0.00	0.00	0.00	0.00
P1084	10.20	12.00	135.00	0.00	0.00	0.00	0.00
P1120	35.42	8.00	130.00	0.00	0.00	0.00	0.00
P1122	33.76	10.00	130.00	0.00	0.00	0.00	0.00
P1128	7.55	18.00	135.00	0.00	0.00	0.00	0.00
P1130	9.15	8.00	135.00	0.00	0.00	0.00	0.00
P1132	7.04	8.00	135.00	0.00	0.00	0.00	0.00
P1134	6.96	12.00	100.00	0.00	0.00	0.00	0.00
P1136	12.78	10.00	130.00	0.00	0.00	0.00	0.00
P1138	9.41	10.00	130.00	0.00	0.00	0.00	0.00
P1150	30.55	10.00	130.00	0.00	0.00	0.00	0.00
P1152	29.89	10.00	130.00	0.00	0.00	0.00	0.00
P1158	3.30	16.00	130.00	0.00	0.00	0.00	0.00
P1160	2.49	16.00	130.00	0.00	0.00	0.00	0.00
P1164	1.15	8.00	130.00	0.00	0.00	0.00	0.00
P1166	3.13	8.00	130.00	0.00	0.00	0.00	0.00
P1168	2.28	8.00	130.00	0.00	0.00	0.00	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P1172	9.42	8.00	130.00	0.00	0.00	0.00	0.00
P1174	9.96	8.00	130.00	0.00	0.00	0.00	0.00
P1176	7.60	8.00	130.00	0.00	0.00	0.00	0.00
P1178	4.23	8.00	130.00	0.00	0.00	0.00	0.00
P1182	3.96	8.00	130.00	0.00	0.00	0.00	0.00
P1200	18.40	12.00	130.00	0.00	0.00	0.00	0.00
P1443	1149.75	8.00	115.00	0.00	0.00	0.00	0.00
P1453	445.07	6.00	115.00	0.00	0.00	0.00	0.00
P1469	569.55	8.00	120.00	0.00	0.00	0.00	0.00
P1489	301.93	6.00	115.00	0.00	0.00	0.00	0.00
P1609	474.25	16.00	130.00	0.00	0.00	0.00	0.00
P1955	752.33	6.00	130.00	0.00	0.00	0.00	0.00
P1957	1772.59	6.00	130.00	0.00	0.00	0.00	0.00
P1959	477.55	6.00	130.00	0.00	0.00	0.00	0.00
P1961	187.46	6.00	130.00	0.00	0.00	0.00	0.00
P1963	125.74	6.00	130.00	0.00	0.00	0.00	0.00
P1965	353.84	6.00	130.00	0.00	0.00	0.00	0.00
P1967	208.43	6.00	130.00	0.00	0.00	0.00	0.00
P1969	229.80	6.00	130.00	0.00	0.00	0.00	0.00
P1971	1452.07	6.00	130.00	0.00	0.00	0.00	0.00
P1973	612.09	6.00	130.00	0.00	0.00	0.00	0.00
P1975	1231.60	6.00	130.00	0.00	0.00	0.00	0.00
P1977	225.52	6.00	130.00	0.00	0.00	0.00	0.00
P1979	1525.42	6.00	130.00	0.00	0.00	0.00	0.00
P1981	542.18	6.00	130.00	0.00	0.00	0.00	0.00
P1983	609.29	6.00	130.00	0.00	0.00	0.00	0.00
P1985	268.65	6.00	130.00	0.00	0.00	0.00	0.00
P1987	384.36	6.00	130.00	0.00	0.00	0.00	0.00
P1989	1343.90	6.00	130.00	0.00	0.00	0.00	0.00
P1991	1564.60	6.00	130.00	0.00	0.00	0.00	0.00
P1993	638.98	6.00	130.00	0.00	0.00	0.00	0.00
P1995	455.38	6.00	130.00	0.00	0.00	0.00	0.00
P1997	1289.92	6.00	130.00	0.00	0.00	0.00	0.00
P1999	954.56	6.00	130.00	0.00	0.00	0.00	0.00
P2001	573.99	6.00	130.00	0.00	0.00	0.00	0.00
P2003	766.67	6.00	130.00	0.00	0.00	0.00	0.00
P2045	533.35	8.00	115.00	0.00	0.00	0.00	0.00
P2153	1149.21	8.00	130.00	1.00	11.32	0.07	0.01
P2155	1676.44	8.00	130.00	1.00	9.23	0.06	0.01
P2157	767.16	8.00	125.00	1.00	26.46	0.17	0.02
P2159	668.87	8.00	125.00	1.00	14.22	0.09	0.01
P2161	434.79	8.00	130.00	1.00	13.47	0.09	0.00
P2163	386.77	8.00	130.00	1.00	4.48	0.03	0.00
P2165	564.09	8.00	130.00	1.00	10.57	0.07	0.00
P2167	380.18	8.00	130.00	1.00	12.82	0.08	0.00
P2169	57.90	8.00	130.00	1.00	48.72	0.31	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P2171	539.48	8.00	127.00	1.00	22.01	0.14	0.01
P2173	374.08	12.00	114.00	1.00	76.72	0.22	0.01
P2175	78.91	12.00	114.00	1.00	89.03	0.25	0.00
P2177	473.51	6.00	112.00	1.00	10.72	0.12	0.01
P2179	528.82	16.00	122.00	1.00	244.79	0.39	0.03
P2181	1105.05	8.00	125.00	1.00	32.87	0.21	0.04
P2183	357.11	18.00	120.00	1.00	1068.58	1.35	0.16
P2185	22.93	8.00	125.00	1.00	0.28	0.00	0.00
P2187	42.08	18.00	120.00	1.00	1074.53	1.35	0.02
P2189	229.70	12.00	127.00	1.00	478.80	1.36	0.16
P2191	163.70	30.00	115.00	1.00	2852.17	1.29	0.04
P2193	159.06	8.00	130.00	1.00	94.68	0.60	0.04
P2195	159.55	8.00	130.00	1.00	66.13	0.42	0.02
P2197	228.11	8.00	130.00	1.00	75.55	0.48	0.03
P2199	991.95	8.00	130.00	1.00	24.65	0.16	0.02
P2201	308.53	12.00	115.00	1.00	336.78	0.96	0.13
P2203	61.53	12.00	115.00	1.00	484.80	1.38	0.05
P2205	933.76	12.00	120.00	1.00	483.92	1.37	0.72
P2207	115.34	12.00	130.00	1.00	481.37	1.37	0.08
P2209	611.33	8.00	130.00	1.00	479.46	3.06	2.86
P2211	572.97	8.00	120.00	1.00	48.96	0.31	0.04
P2213	1050.60	8.00	130.00	1.00	50.17	0.32	0.08
P2215	178.07	8.00	127.00	1.00	40.32	0.26	0.01
P2217	707.19	8.00	130.00	1.00	12.33	0.08	0.00
P2219	865.01	8.00	130.00	1.00	9.57	0.06	0.00
P2221	342.28	8.00	130.00	1.00	18.00	0.11	0.00
P2223	357.95	8.00	130.00	1.00	2.40	0.02	0.00
P2225	161.24	8.00	130.00	1.00	1.15	0.01	0.00
P2227	484.31	8.00	130.00	1.00	2.04	0.01	0.00
P2229	16.14	14.00	120.00	1.00	710.92	1.48	0.01
P2231	201.90	8.00	127.00	1.00	8.75	0.06	0.00
P2233	17.26	8.00	127.00	0.00	0.00	0.00	0.00
P2237	164.28	8.00	120.00	1.00	134.80	0.86	0.09
P2239	294.84	8.00	120.00	1.00	75.47	0.48	0.05
P2241	445.43	8.00	130.00	1.00	65.43	0.42	0.05
P2243	207.44	16.00	110.00	1.00	763.55	1.22	0.11
P2245	107.51	16.00	114.00	1.00	523.57	0.84	0.03
P2247	479.35	8.00	127.00	1.00	123.55	0.79	0.19
P2249	21.73	8.00	108.00	1.00	127.45	0.81	0.01
P2251	14.32	8.00	108.00	1.00	72.86	0.47	0.00
P2253	10.38	8.00	116.00	1.00	25.05	0.16	0.00
P2255	545.88	8.00	116.00	1.00	67.33	0.43	0.08
P2257	597.05	8.00	115.00	1.00	26.15	0.17	0.02
P2259	596.77	12.00	130.00	1.00	84.37	0.24	0.02
P2261	572.34	8.00	115.00	1.00	49.73	0.32	0.05
P2263	696.26	8.00	116.00	1.00	36.15	0.23	0.03

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P2265	866.87	8.00	116.00	1.00	27.66	0.18	0.02
P2267	17.11	8.00	112.00	1.00	17.08	0.11	0.00
P2269	118.90	8.00	112.00	1.00	13.77	0.09	0.00
P2271	77.70	8.00	112.00	1.00	10.29	0.07	0.00
P2273	260.58	8.00	112.00	1.00	20.55	0.13	0.00
P2275	736.46	8.00	112.00	1.00	26.62	0.17	0.02
P2277	402.07	6.00	114.00	1.00	3.20	0.04	0.00
P2279	433.27	6.00	115.00	1.00	3.93	0.04	0.00
P2281	426.54	6.00	113.00	1.00	7.86	0.09	0.01
P2283	2237.73	16.00	130.00	1.00	710.24	1.13	0.74
P2285	241.15	8.00	130.00	1.00	48.40	0.31	0.02
P2287	876.13	8.00	130.00	1.00	90.70	0.58	0.19
P2289	788.69	8.00	130.00	1.00	36.81	0.23	0.03
P2291	678.06	8.00	130.00	1.00	14.54	0.09	0.00
P2293	1145.97	8.00	130.00	1.00	10.96	0.07	0.00
P2295	807.28	8.00	130.00	1.00	121.46	0.78	0.30
P2297	1572.81	8.00	130.00	0.00	0.00	0.00	0.00
P2299	346.23	10.00	127.00	1.00	146.95	0.60	0.06
P2301	493.29	10.00	120.00	1.00	155.44	0.63	0.11
P2303	197.74	10.00	130.00	1.00	170.86	0.70	0.05
P2305	190.37	10.00	130.00	1.00	155.59	0.64	0.04
P2307	335.34	10.00	130.00	1.00	126.09	0.52	0.04
P2309	1194.97	8.00	130.00	1.00	35.30	0.23	0.04
P2311	236.15	14.00	125.00	1.00	706.60	1.47	0.16
P2313	13.08	6.00	130.00	1.00	180.76	2.05	0.04
P2315	10.41	14.00	110.00	1.00	178.76	0.37	0.00
P2317	3.73	20.00	110.00	1.00	178.76	0.18	0.00
P2319	422.54	18.00	110.00	1.00	176.97	0.22	0.01
P2321	2137.62	12.00	112.00	1.00	636.11	1.80	3.09
P2323	43.99	12.00	120.00	1.00	152.38	0.43	0.00
P2325	54.98	8.00	130.00	1.00	176.97	1.13	0.04
P2327	1000.66	8.00	130.00	1.00	66.15	0.42	0.12
P2329	519.40	8.00	130.00	1.00	94.26	0.60	0.12
P2331	94.67	8.00	130.00	1.00	148.72	0.95	0.05
P2333	1011.10	8.00	130.00	1.00	88.56	0.57	0.21
P2335	1611.70	16.00	113.00	1.00	1278.95	2.04	2.06
P2337	381.60	30.00	108.00	1.00	2693.28	1.22	0.10
P2339	22.13	8.00	130.00	1.00	183.33	1.17	0.02
P2341	64.83	8.00	130.00	1.00	183.33	1.17	0.05
P2343	288.82	8.00	125.00	1.00	252.72	1.61	0.44
P2345	1030.29	8.00	125.00	1.00	106.58	0.68	0.32
P2347	1036.83	8.00	125.00	1.00	106.21	0.68	0.32
P2349	1178.63	8.00	125.00	1.00	46.16	0.29	0.08
P2351	11.62	12.00	115.00	1.00	252.99	0.72	0.00
P2353	41.39	12.00	115.00	1.00	0.00	0.00	0.00
P2355	184.38	10.00	115.00	1.00	75.53	0.31	0.01

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P2357	197.18	8.00	120.00	1.00	52.91	0.34	0.02
P2359	656.89	8.00	130.00	1.00	20.74	0.13	0.01
P2361	297.42	8.00	130.00	1.00	31.81	0.20	0.01
P2363	93.62	8.00	130.00	1.00	52.47	0.33	0.01
P2365	310.47	16.00	115.00	1.00	347.33	0.55	0.03
P2367	832.34	8.00	120.00	1.00	75.68	0.48	0.15
P2369	33.04	12.00	120.00	1.00	172.55	0.49	0.00
P2371	13.56	8.00	130.00	1.00	50.26	0.32	0.00
P2373	74.99	8.00	110.00	1.00	50.26	0.32	0.01
P2375	543.83	12.00	120.00	1.00	122.29	0.35	0.03
P2377	761.56	8.00	130.00	1.00	32.63	0.21	0.02
P2379	41.45	16.00	116.00	1.00	247.13	0.39	0.00
P2381	43.62	8.00	120.00	1.00	55.82	0.36	0.00
P2383	446.04	10.00	120.00	1.00	14.93	0.06	0.00
P2385	71.25	10.00	127.00	1.00	55.82	0.23	0.00
P2387	43.38	8.00	120.00	1.00	49.83	0.32	0.00
P2389	61.53	10.00	110.00	1.00	49.83	0.20	0.00
P2391	26.17	10.00	127.00	1.00	49.83	0.20	0.00
P2393	488.15	10.00	127.00	1.00	30.48	0.12	0.00
P2395	1132.83	10.00	127.00	1.00	19.35	0.08	0.00
P2397	54.44	8.00	117.00	1.00	21.72	0.14	0.00
P2399	297.57	16.00	116.00	1.00	209.35	0.33	0.01
P2401	793.97	8.00	130.00	1.00	21.34	0.14	0.01
P2403	52.00	12.00	116.00	1.00	12.09	0.03	0.00
P2405	85.28	8.00	117.00	1.00	2.50	0.02	0.00
P2407	805.52	10.00	120.00	1.00	2.50	0.01	0.00
P2409	639.06	16.00	120.00	1.00	79.23	0.13	0.00
P2411	162.37	16.00	120.00	1.00	35.27	0.06	0.00
P2413	1296.57	8.00	120.00	1.00	58.58	0.37	0.00
P2415	284.77	8.00	120.00	1.00	0.00	0.00	0.00
P2417	523.91	12.00	117.00	1.00	0.00	0.00	0.00
P2419	1377.40	12.00	130.00	1.00	136.09	0.39	0.09
P2421	128.05	8.00	130.00	1.00	29.81	0.19	0.00
P2423	526.27	12.00	130.00	1.00	106.28	0.30	0.02
P2425	135.69	8.00	130.00	1.00	28.74	0.18	0.00
P2427	533.87	8.00	130.00	1.00	29.21	0.19	0.01
P2429	373.71	12.00	130.00	1.00	369.48	1.05	0.15
P2431	1284.44	10.00	130.00	1.00	112.73	0.46	0.14
P2433	173.15	8.00	130.00	1.00	29.89	0.19	0.00
P2435	224.50	8.00	130.00	1.00	10.49	0.07	0.00
P2437	373.78	12.00	130.00	1.00	91.42	0.26	0.01
P2439	56.68	12.00	130.00	1.00	66.04	0.19	0.00
P2441	87.20	12.00	110.00	1.00	66.04	0.19	0.00
P2443	21.23	12.00	130.00	1.00	66.04	0.19	0.00
P2445	508.05	12.00	130.00	1.00	30.51	0.09	0.00
P2447	338.13	12.00	130.00	1.00	52.78	0.15	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P2449	723.71	12.00	130.00	1.00	25.21	0.07	0.00
P2451	97.56	12.00	130.00	1.00	87.21	0.25	0.00
P2453	400.39	12.00	130.00	1.00	55.56	0.16	0.00
P2455	623.17	12.00	130.00	1.00	117.45	0.33	0.03
P2457	379.32	8.00	130.00	1.00	38.54	0.25	0.02
P2459	523.62	8.00	130.00	1.00	26.99	0.17	0.01
P2461	244.07	8.00	130.00	1.00	12.92	0.08	0.00
P2463	553.56	8.00	130.00	1.00	18.77	0.12	0.01
P2465	246.71	8.00	130.00	1.00	14.33	0.09	0.00
P2467	567.92	8.00	130.00	1.00	14.78	0.09	0.00
P2469	239.39	8.00	130.00	1.00	5.67	0.04	0.00
P2471	465.63	8.00	130.00	1.00	14.07	0.09	0.00
P2473	1086.37	8.00	130.00	1.00	25.27	0.16	0.02
P2475	726.28	8.00	130.00	1.00	8.44	0.05	0.00
P2477	1286.50	8.00	130.00	1.00	3.02	0.02	0.00
P2479	2404.85	12.00	130.00	1.00	48.77	0.14	0.02
P2481	2154.99	8.00	130.00	1.00	10.56	0.07	0.01
P2483	5.83	12.00	130.00	1.00	38.21	0.11	0.00
P2485	9.18	12.00	130.00	1.00	38.21	0.11	0.00
P2487	197.06	8.00	130.00	1.00	38.21	0.24	0.01
P2489	1018.71	8.00	130.00	1.00	15.83	0.10	0.01
P2491	1789.87	8.00	130.00	1.00	14.97	0.10	0.01
P2493	1612.31	8.00	130.00	1.00	16.68	0.11	0.02
P2495	113.87	12.00	130.00	1.00	20.70	0.06	0.00
P2497	1169.92	8.00	130.00	1.00	15.31	0.10	0.01
P2499	283.13	12.00	130.00	1.00	130.96	0.37	0.02
P2501	306.07	12.00	130.00	1.00	289.56	0.82	0.08
P2503	677.32	10.00	130.00	1.00	200.91	0.82	0.21
P2505	637.45	10.00	130.00	1.00	170.12	0.69	0.15
P2507	1825.33	16.00	125.00	1.00	506.26	0.81	0.35
P2509	403.48	10.00	130.00	1.00	371.25	1.52	0.40
P2511	682.03	10.00	115.00	1.00	132.30	0.54	0.12
P2513	841.59	12.00	113.00	1.00	238.14	0.68	0.19
P2515	80.80	12.00	130.00	1.00	107.94	0.31	0.00
P2517	164.29	8.00	130.00	1.00	158.74	1.01	0.10
P2519	577.54	8.00	130.00	1.00	61.89	0.40	0.06
P2521	835.35	8.00	130.00	1.00	50.71	0.32	0.06
P2523	441.52	8.00	130.00	1.00	40.51	0.26	0.02
P2525	404.23	8.00	130.00	1.00	113.97	0.73	0.13
P2527	1317.38	8.00	130.00	1.00	83.27	0.53	0.24
P2529	1712.01	8.00	130.00	1.00	29.29	0.19	0.05
P2531	121.19	10.00	117.00	1.00	1.03	0.00	0.00
P2533	1659.29	8.00	130.00	1.00	0.16	0.00	0.00
P2535	323.53	16.00	130.00	1.00	234.42	0.37	0.01
P2537	959.83	16.00	130.00	1.00	56.82	0.09	0.00
P2539	2284.08	16.00	120.00	1.00	394.23	0.63	0.29

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P2543	4371.05	16.00	130.00	1.00	416.12	0.66	0.54
P2545	837.98	10.00	114.00	1.00	51.99	0.21	0.03
P2549	1298.59	16.00	130.00	1.00	394.72	0.63	0.14
P2551	4546.32	16.00	130.00	1.00	394.72	0.63	0.51
P2553	6323.14	16.00	130.00	1.00	0.00	0.00	0.00
P2555	987.49	12.00	130.00	1.00	442.35	1.25	0.55
P2557	289.57	12.00	130.00	1.00	358.34	1.02	0.11
P2559	585.10	12.00	130.00	1.00	440.28	1.25	0.32
P2561	291.49	12.00	130.00	1.00	391.20	1.11	0.13
P2563	1800.68	8.00	130.00	1.00	50.38	0.32	0.13
P2565	357.08	12.00	130.00	1.00	303.49	0.86	0.10
P2567	605.70	12.00	130.00	1.00	464.85	1.32	0.37
P2569	502.57	12.00	130.00	1.00	236.88	0.67	0.09
P2571	411.61	12.00	130.00	1.00	31.59	0.09	0.00
P2573	551.64	8.00	130.00	1.00	195.23	1.25	0.49
P2575	189.54	8.00	130.00	1.00	191.77	1.22	0.16
P2577	393.30	8.00	130.00	1.00	76.81	0.49	0.06
P2579	546.57	8.00	130.00	1.00	94.31	0.60	0.13
P2581	400.68	8.00	130.00	1.00	113.38	0.72	0.13
P2583	25.74	8.00	130.00	1.00	195.23	1.25	0.02
P2585	1451.20	8.00	130.00	1.00	37.96	0.24	0.06
P2587	723.67	12.00	130.00	1.00	463.62	1.32	0.44
P2589	321.36	12.00	130.00	1.00	404.64	1.15	0.15
P2591	1577.86	8.00	130.00	1.00	58.99	0.38	0.15
P2593	291.21	12.00	130.00	1.00	162.09	0.46	0.03
P2595	564.23	8.00	130.00	1.00	49.20	0.31	0.04
P2597	83.46	8.00	130.00	1.00	130.50	0.83	0.04
P2599	849.41	8.00	130.00	1.00	81.30	0.52	0.15
P2601	315.98	12.00	130.00	1.00	188.00	0.53	0.04
P2603	294.35	12.00	130.00	1.00	48.88	0.14	0.00
P2605	108.50	8.00	130.00	1.00	29.84	0.19	0.00
P2607	314.17	12.00	130.00	1.00	34.50	0.10	0.00
P2609	1091.87	8.00	130.00	1.00	6.21	0.04	0.00
P2611	435.39	8.00	130.00	1.00	38.82	0.25	0.02
P2613	79.96	8.00	130.00	1.00	4.66	0.03	0.00
P2615	348.78	8.00	130.00	1.00	9.08	0.06	0.00
P2617	904.54	8.00	130.00	1.00	1.47	0.01	0.00
P2619	265.68	8.00	130.00	1.00	4.45	0.03	0.00
P2621	272.18	8.00	130.00	1.00	2.80	0.02	0.00
P2623	264.45	8.00	130.00	1.00	3.39	0.02	0.00
P2625	334.44	8.00	130.00	1.00	10.87	0.07	0.00
P2627	296.92	8.00	130.00	1.00	6.14	0.04	0.00
P2629	519.09	8.00	130.00	1.00	97.97	0.63	0.13
P2631	1154.95	8.00	130.00	1.00	79.56	0.51	0.19
P2633	322.67	8.00	130.00	1.00	14.75	0.09	0.00
P2635	821.49	12.00	130.00	1.00	442.35	1.25	0.46

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P2637	94.92	8.00	130.00	1.00	38.82	0.25	0.00
P2639	362.45	8.00	130.00	1.00	21.35	0.14	0.01
P2641	525.65	8.00	130.00	1.00	17.47	0.11	0.01
P2643	730.12	8.00	130.00	1.00	97.25	0.62	0.18
P2647	540.04	12.00	120.00	1.00	358.49	1.02	0.24
P2649	7.61	12.00	115.00	1.00	591.68	1.68	0.01
P2651	245.92	12.00	113.00	1.00	179.76	0.51	0.03
P2653	268.02	8.00	130.00	1.00	242.51	1.55	0.36
P2655	712.24	12.00	113.00	1.00	154.52	0.44	0.07
P2657	157.60	6.00	115.00	1.00	1.89	0.02	0.00
P2659	3312.65	24.00	125.00	1.00	3600.73	2.55	3.31
P2661	400.98	8.00	130.00	1.00	123.14	0.79	0.15
P2663	402.78	16.00	116.00	1.00	229.92	0.37	0.02
P2665	353.47	12.00	116.00	1.00	203.72	0.58	0.06
P2667	61.56	8.00	130.00	1.00	25.25	0.16	0.00
P2669	9.84	16.00	116.00	1.00	29.81	0.05	0.00
P2671	723.14	16.00	127.00	1.00	71.55	0.11	0.00
P2673	174.84	8.00	130.00	1.00	79.91	0.51	0.03
P2675	1134.44	12.00	105.00	1.00	148.55	0.42	0.12
P2677	98.77	8.00	130.00	1.00	62.18	0.40	0.01
P2681	1377.73	16.00	120.00	1.00	2.94	0.00	0.00
P2683	368.35	16.00	120.00	1.00	681.73	1.09	0.13
P2685	16.95	16.00	115.00	1.00	542.07	0.86	0.00
P2687	4510.77	21.00	105.00	1.00	2641.00	2.45	6.72
P2691	309.35	16.00	116.00	1.00	961.34	1.53	0.22
P2693	118.48	8.00	130.00	1.00	61.45	0.39	0.01
P2695	718.18	10.00	112.00	1.00	676.30	2.76	2.83
P2697	159.36	8.00	130.00	1.00	28.18	0.18	0.00
P2699	301.35	12.00	120.00	1.00	36.39	0.10	0.00
P2701	2.14	8.00	127.00	1.00	25.35	0.16	0.00
P2703	8.67	6.00	115.00	1.00	0.00	0.00	0.00
P2705	6.62	6.00	115.00	1.00	0.00	0.00	0.00
P2707	9.10	8.00	115.00	1.00	0.00	0.00	0.00
P2709	9.16	8.00	115.00	1.00	1.09	0.01	0.00
P2711	2.38	8.00	115.00	1.00	0.76	0.00	0.00
P2713	2.28	8.00	115.00	1.00	0.00	0.00	0.00
P2727	8.18	8.00	130.00	1.00	119.86	0.77	0.00
P2729	9.77	12.00	120.00	1.00	172.55	0.49	0.00
P2743	55.01	21.00	130.00	1.00	1266.00	1.17	0.01
P2745	192.50	21.00	114.00	1.00	2198.95	2.04	0.18
P2751	16.03	42.00	120.00	1.00	1266.00	0.29	0.00
P2763	612.51	8.00	110.00	1.00	65.70	0.42	0.10
P2765	51.44	6.00	110.00	1.00	21.33	0.24	0.00
P2767	168.88	8.00	110.00	1.00	84.08	0.54	0.04
P2769	462.97	6.00	90.00	1.00	37.34	0.42	0.15
P2771	199.10	8.00	112.00	1.00	16.81	0.11	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P2773	56.00	8.00	115.00	1.00	12.82	0.08	0.00
P2775	558.90	8.00	115.00	1.00	8.48	0.05	0.00
P2777	114.94	8.00	115.00	1.00	9.20	0.06	0.00
P2779	930.27	8.00	112.00	1.00	28.53	0.18	0.03
P2781	464.51	4.00	110.00	1.00	9.37	0.24	0.06
P2783	435.86	6.00	116.00	1.00	18.49	0.21	0.02
P2787	385.73	8.00	120.00	1.00	7.94	0.05	0.00
P2789	496.66	12.00	130.00	1.00	46.58	0.13	0.00
P2791	97.75	8.00	120.00	1.00	32.80	0.21	0.00
P2793	128.86	12.00	116.00	1.00	115.27	0.33	0.01
P2795	391.10	8.00	120.00	1.00	6.15	0.04	0.00
P2797	524.48	8.00	116.00	1.00	149.03	0.95	0.35
P2799	87.01	8.00	130.00	1.00	26.43	0.17	0.00
P2801	82.04	8.00	112.00	1.00	129.51	0.83	0.04
P2803	447.80	8.00	112.00	1.00	71.80	0.46	0.08
P2809	684.26	12.00	116.00	1.00	1357.69	3.85	3.77
P2811	67.97	12.00	116.00	1.00	1724.18	4.89	0.58
P2813	142.71	12.00	116.00	1.00	1359.94	3.86	0.79
P2815	538.45	10.00	113.00	1.00	71.14	0.29	0.03
P2817	57.95	10.00	113.00	1.00	65.13	0.27	0.00
P2819	824.59	10.00	113.00	1.00	86.17	0.35	0.07
P2821	101.25	8.00	120.00	1.00	12.12	0.08	0.00
P2823	123.45	8.00	120.00	1.00	20.99	0.13	0.00
P2825	81.19	8.00	120.00	1.00	27.39	0.17	0.00
P2827	88.94	8.00	120.00	1.00	4.35	0.03	0.00
P2829	226.57	8.00	120.00	1.00	32.08	0.20	0.01
P2831	665.10	8.00	127.00	1.00	7.22	0.05	0.00
P2833	226.45	8.00	130.00	1.00	53.79	0.34	0.02
P2835	1425.54	8.00	127.00	1.00	31.92	0.20	0.05
P2837	60.11	8.00	115.00	1.00	34.21	0.22	0.00
P2839	295.23	8.00	116.00	1.00	47.93	0.31	0.02
P2841	316.28	8.00	116.00	1.00	25.65	0.16	0.01
P2843	429.06	8.00	130.00	1.00	17.89	0.11	0.00
P2845	37.07	8.00	130.00	1.00	31.11	0.20	0.00
P2847	47.28	8.00	130.00	1.00	19.45	0.12	0.00
P2849	299.53	8.00	113.00	1.00	21.86	0.14	0.01
P2851	201.34	8.00	113.00	1.00	24.38	0.16	0.00
P2853	35.93	16.00	130.00	1.00	2.94	0.00	0.00
P2855	909.23	12.00	110.00	1.00	316.45	0.90	0.37
P2857	18.69	12.00	105.00	0.00	0.00	0.00	0.00
P2861	11.15	8.00	116.00	0.00	0.00	0.00	0.00
P2863	175.04	10.00	117.00	1.00	177.31	0.72	0.05
P2865	29.92	10.00	120.00	0.00	0.00	0.00	0.00
P2867	141.77	8.00	130.00	1.00	112.59	0.72	0.05
P2869	185.50	8.00	117.00	1.00	5.09	0.03	0.00
P2871	66.19	8.00	117.00	1.00	1.74	0.01	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P2873	377.38	8.00	95.00	1.00	103.49	0.66	0.18
P2875	336.64	8.00	95.00	1.00	84.02	0.54	0.11
P2877	129.50	10.00	95.00	1.00	132.61	0.54	0.03
P2879	31.67	8.00	120.00	1.00	150.52	0.96	0.02
P2881	208.69	8.00	115.00	1.00	54.18	0.35	0.02
P2883	58.01	8.00	110.00	1.00	3.56	0.02	0.00
P2885	52.05	8.00	110.00	1.00	12.41	0.08	0.00
P2887	557.35	8.00	110.00	1.00	5.00	0.03	0.00
P2889	456.83	8.00	112.00	1.00	43.71	0.28	0.03
P2891	215.72	8.00	110.00	1.00	72.51	0.46	0.04
P2893	168.45	8.00	112.00	1.00	40.98	0.26	0.01
P2895	928.91	6.00	112.00	1.00	46.32	0.53	0.31
P2897	217.06	6.00	112.00	1.00	114.05	1.29	0.38
P2899	49.37	8.00	112.00	1.00	99.53	0.64	0.02
P2901	49.35	6.00	90.00	1.00	15.04	0.17	0.00
P2903	905.79	6.00	90.00	1.00	7.95	0.09	0.02
P2905	523.24	6.00	60.00	1.00	29.57	0.34	0.24
P2907	320.16	8.00	127.00	1.00	21.30	0.14	0.00
P2909	749.09	8.00	127.00	1.00	13.81	0.09	0.01
P2911	570.92	8.00	127.00	1.00	15.41	0.10	0.00
P2913	23.82	8.00	130.00	1.00	23.29	0.15	0.00
P2915	1949.69	12.00	127.00	1.00	80.14	0.23	0.05
P2917	171.54	12.00	130.00	1.00	132.24	0.38	0.01
P2919	654.05	8.00	110.00	1.00	13.63	0.09	0.01
P2921	57.81	12.00	114.00	1.00	38.39	0.11	0.00
P2923	912.17	8.00	130.00	1.00	15.90	0.10	0.01
P2925	444.65	8.00	130.00	1.00	4.43	0.03	0.00
P2927	81.21	8.00	130.00	1.00	25.80	0.16	0.00
P2929	59.97	8.00	114.00	1.00	44.62	0.28	0.00
P2931	51.75	8.00	114.00	1.00	125.68	0.80	0.03
P2933	274.39	8.00	114.00	1.00	31.04	0.20	0.01
P2935	307.24	8.00	116.00	1.00	3.45	0.02	0.00
P2937	212.22	8.00	116.00	1.00	7.87	0.05	0.00
P2939	418.27	8.00	116.00	1.00	1.25	0.01	0.00
P2941	53.48	12.00	130.00	1.00	55.35	0.16	0.00
P2943	860.25	8.00	112.00	1.00	169.05	1.08	0.77
P2945	60.96	8.00	112.00	1.00	178.23	1.14	0.06
P2947	59.71	10.00	112.00	1.00	132.46	0.54	0.01
P2949	412.71	8.00	120.00	1.00	43.12	0.28	0.03
P2951	98.85	8.00	120.00	1.00	45.08	0.29	0.01
P2953	419.27	8.00	120.00	1.00	37.29	0.24	0.02
P2955	411.06	8.00	120.00	1.00	26.56	0.17	0.01
P2957	57.75	8.00	120.00	1.00	32.00	0.20	0.00
P2959	129.79	8.00	120.00	1.00	12.28	0.08	0.00
P2961	64.23	8.00	112.00	1.00	12.63	0.08	0.00
P2963	61.95	10.00	112.00	1.00	78.72	0.32	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P2965	861.60	8.00	112.00	1.00	12.66	0.08	0.01
P2967	462.43	10.00	130.00	1.00	28.11	0.11	0.00
P2969	902.38	10.00	130.00	1.00	39.87	0.16	0.01
P2971	39.72	8.00	130.00	1.00	19.45	0.12	0.00
P2973	55.24	8.00	114.00	1.00	14.70	0.09	0.00
P2975	559.12	10.00	116.00	1.00	37.31	0.15	0.01
P2977	287.26	8.00	114.00	1.00	2.39	0.02	0.00
P2979	330.63	8.00	112.00	1.00	14.46	0.09	0.00
P2981	211.74	8.00	112.00	1.00	24.10	0.15	0.01
P2983	186.21	8.00	112.00	1.00	26.03	0.17	0.01
P2985	924.31	8.00	120.00	1.00	39.22	0.25	0.05
P2987	484.62	8.00	120.00	1.00	32.20	0.21	0.02
P2989	152.04	8.00	120.00	1.00	44.82	0.29	0.01
P2991	248.54	8.00	127.00	1.00	25.12	0.16	0.01
P2993	32.88	10.00	127.00	1.00	120.53	0.49	0.00
P2995	586.73	8.00	127.00	1.00	48.91	0.31	0.04
P2997	317.19	8.00	100.00	1.00	240.20	1.53	0.67
P2999	413.25	10.00	100.00	1.00	382.66	1.56	0.70
P3001	616.55	6.00	97.00	1.00	28.08	0.32	0.11
P3003	29.46	6.00	97.00	1.00	12.90	0.15	0.00
P3005	60.65	6.00	97.00	1.00	22.50	0.26	0.01
P3007	380.36	10.00	117.00	1.00	111.76	0.46	0.05
P3009	78.10	10.00	117.00	1.00	112.74	0.46	0.01
P3011	194.03	10.00	130.00	1.00	110.93	0.45	0.02
P3013	760.73	14.00	95.00	0.00	0.00	0.00	0.00
P3015	409.82	8.00	120.00	1.00	7.07	0.05	0.00
P3017	184.78	8.00	127.00	1.00	28.48	0.18	0.00
P3019	465.96	12.00	127.00	1.00	211.18	0.60	0.07
P3023	14.72	24.00	120.00	1.00	2641.00	1.87	0.01
P3027	40.87	21.00	120.00	1.00	1266.00	1.17	0.01
P3031	2112.47	20.00	120.00	1.00	3637.95	3.72	5.50
P3037	1408.04	12.00	120.00	1.00	760.30	2.16	2.49
P3047	307.57	8.00	100.00	1.00	97.15	0.62	0.12
P3049	640.08	10.00	113.00	1.00	101.41	0.41	0.07
P3051	386.90	10.00	120.00	1.00	10.47	0.04	0.00
P3053	1435.33	10.00	114.00	1.00	494.40	2.02	3.06
P3055	360.18	14.00	112.00	1.00	1071.15	2.23	0.64
P3057	321.64	8.00	112.00	1.00	130.12	0.83	0.18
P3059	1093.35	12.00	112.00	1.00	110.27	0.31	0.06
P3061	434.64	10.00	112.00	1.00	193.18	0.79	0.17
P3063	144.24	12.00	100.00	1.00	244.44	0.69	0.04
P3065	192.92	8.00	95.00	1.00	98.95	0.63	0.09
P3067	1345.38	8.00	127.00	1.00	109.70	0.70	0.43
P3069	1090.10	8.00	112.00	1.00	33.15	0.21	0.05
P3071	1213.02	8.00	113.00	1.00	251.81	1.61	2.23
P3073	190.62	8.00	110.00	1.00	54.47	0.35	0.02

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P3075	672.50	8.00	130.00	1.00	5.37	0.03	0.00
P3077	260.42	8.00	115.00	1.00	15.21	0.10	0.00
P3079	205.53	12.00	127.00	1.00	102.81	0.29	0.01
P3081	598.33	8.00	113.00	1.00	59.48	0.38	0.08
P3083	667.90	10.00	108.00	1.00	30.01	0.12	0.01
P3085	830.99	6.00	90.00	1.00	18.03	0.20	0.07
P3087	84.49	10.00	112.00	1.00	292.41	1.19	0.07
P3105	367.31	16.00	125.00	1.00	190.82	0.30	0.01
P3113	123.40	10.00	115.00	1.00	70.22	0.29	0.01
P3115	899.59	16.00	130.00	1.00	394.72	0.63	0.10
P3117	500.11	12.00	113.00	1.00	223.16	0.63	0.10
P3145	405.43	10.00	130.00	1.00	5.10	0.02	0.00
P3147	1095.75	10.00	120.00	1.00	0.00	0.00	0.00
P3149	425.13	10.00	120.00	1.00	0.00	0.00	0.00
P3151	4391.38	10.00	120.00	1.00	0.00	0.00	0.00
P3153	2162.15	12.00	130.00	1.00	117.47	0.33	0.10
P3155	271.05	10.00	120.00	1.00	21.70	0.09	0.00
V-418-GROSSE-6I	1.00	6.00	150.00	1.00	1.51	0.02	0.00
V-418-GROSSE-6I	1.00	6.00	150.00	1.00	1.51	0.02	0.00
P2689	152.71	6.00	112.00	0.00	0.00	0.00	0.00
P2715	7.02	6.00	115.00	0.00	0.00	0.00	0.00
P2717	5.84	6.00	115.00	0.00	0.00	0.00	0.00
P2719	6.30	8.00	115.00	0.00	0.00	0.00	0.00
P2721	9.06	8.00	115.00	0.00	0.00	0.00	0.00
P2723	11.20	10.00	115.00	0.00	0.00	0.00	0.00
P2725	11.42	10.00	115.00	0.00	0.00	0.00	0.00
P2747	984.61	42.00	130.00	0.00	0.00	0.00	0.00
P2755	1325.27	21.00	130.00	0.00	0.00	0.00	0.00
P2757	63.46	42.00	130.00	0.00	0.00	0.00	0.00
P2761	37.54	21.00	120.00	0.00	0.00	0.00	0.00
P2785	415.02	4.00	116.00	0.00	0.00	0.00	0.00
P2805	35.39	16.00	127.00	0.00	0.00	0.00	0.00
P2859	180.91	178.53	176.37	0.00	0.00	0.00	0.00
P3025	21.73	42.00	120.00	0.00	0.00	0.00	0.00
P3033	9.70	20.00	112.00	0.00	0.00	0.00	0.00
P3035	14.01	12.00	127.00	0.00	0.00	0.00	0.00
P3089	847.90	12.00	120.00	0.00	0.00	0.00	0.00
P3091	315.12	12.00	120.00	0.00	0.00	0.00	0.00
P3093	351.55	24.00	120.00	0.00	0.00	0.00	0.00
P3095	397.08	8.00	120.00	0.00	0.00	0.00	0.00
P3097	177.13	8.00	120.00	0.00	0.00	0.00	0.00
P3099	538.92	8.00	120.00	0.00	0.00	0.00	0.00
P3101	1577.53	8.00	120.00	0.00	0.00	0.00	0.00
P3103	166.26	24.00	120.00	0.00	0.00	0.00	0.00
P3107	1410.20	12.00	120.00	0.00	0.00	0.00	0.00
P3109	1762.53	10.00	120.00	0.00	0.00	0.00	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
P3111	1082.26	10.00	120.00	0.00	0.00	0.00	0.00
P3119	927.35	12.00	120.00	0.00	0.00	0.00	0.00
P3121	207.82	12.00	120.00	0.00	0.00	0.00	0.00
P3123	529.31	12.00	120.00	0.00	0.00	0.00	0.00
P3125	530.79	12.00	120.00	0.00	0.00	0.00	0.00
P3127	591.18	12.00	120.00	0.00	0.00	0.00	0.00
P3129	700.00	12.00	120.00	0.00	0.00	0.00	0.00
P3131	1071.71	12.00	120.00	0.00	0.00	0.00	0.00
P3133	383.49	12.00	120.00	0.00	0.00	0.00	0.00
P3135	288.60	12.00	120.00	0.00	0.00	0.00	0.00
P3137	774.20	12.00	120.00	0.00	0.00	0.00	0.00
P3139	1330.81	12.00	120.00	0.00	0.00	0.00	0.00
P3141	600.00	12.00	120.00	0.00	0.00	0.00	0.00
P3143	858.35	12.00	120.00	0.00	0.00	0.00	0.00
PU-330-446-ELLE	1.00	99.00	150.00	0.00	0.00	0.00	0.00
PU-330-446-ELLE	1.00	99.00	150.00	0.00	0.00	0.00	0.00
PU-330-446-ELLE	1.00	99.00	150.00	0.00	0.00	0.00	0.00
PU-330-446-ELLE	1.00	99.00	150.00	0.00	0.00	0.00	0.00
PU-330-446-ELLE	1.00	99.00	150.00	0.00	0.00	0.00	0.00
PU-330-446-ELLE	1.00	99.00	150.00	0.00	0.00	0.00	0.00
PU-446-850-CAL/	1.00	12.00	150.00	0.00	0.00	0.00	0.00
PU-446-850-CAL/	1.00	12.00	150.00	0.00	0.00	0.00	0.00
PU-446-850-CAL/	1.00	12.00	150.00	0.00	0.00	0.00	0.00
PU-446-850-CAL/	1.00	12.00	150.00	0.00	0.00	0.00	0.00
PU4481	1.00	12.00	150.00	0.00	0.00	0.00	0.00
PU4482	1.00	12.00	150.00	0.00	0.00	0.00	0.00
PU4501	1.00	12.00	150.00	0.00	0.00	0.00	0.00
PU4502	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V-SDCWA-NO1-F	1.00	27.00	150.00	0.00	0.00	0.00	0.00
V-SDCWA-NO1-F	1.00	27.00	150.00	0.00	0.00	0.00	0.00
V-TAP3-128PSI1	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V-TAP3-128PSI2	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V-TAP3-80PSI1	1.00	12.00	150.00	1.00	3464.95	9.83	0.02
V-TAP3-80PSI2	1.00	12.00	150.00	1.00	3464.95	9.83	0.02
V255BUTTERFLY-	1.00	8.00	150.00	1.00	1038.51	6.63	0.02
V255BUTTERFLY-	1.00	8.00	150.00	1.00	1038.51	6.63	0.02
V330-255-ELMS-	1.00	10.00	150.00	1.00	753.61	3.08	0.00
V330-255-ELMS-	1.00	10.00	150.00	1.00	753.61	3.08	0.00
V375-255-CANN	1.00	4.00	150.00	1.00	0.00	0.00	0.00
V375-255-CANN	1.00	4.00	150.00	1.00	0.00	0.00	0.00
V375-255-ETANK	1.00	8.00	150.00	1.00	730.18	4.66	0.01
V375-255-ETANK	1.00	8.00	150.00	1.00	730.18	4.66	0.01
V375-255-PALON	1.00	6.00	150.00	1.00	0.00	0.00	0.00
V375-255-PALON	1.00	6.00	150.00	1.00	0.00	0.00	0.00
V375-318-LASON	1.00	4.00	150.00	1.00	1145.89	29.26	0.53
V375-318-LASON	1.00	4.00	150.00	1.00	1145.89	29.26	0.53

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
V375-318-POINS	1.00	4.00	150.00	1.00	0.00	0.00	0.00
V375-318-POINS	1.00	4.00	150.00	1.00	0.00	0.00	0.00
V375-318-POINS	1.00	8.00	150.00	1.00	0.00	0.00	0.00
V375-318-POINS	1.00	8.00	150.00	1.00	0.00	0.00	0.00
V375-318ALICAN	1.00	4.00	150.00	1.00	509.01	13.00	0.12
V375-318ALICAN	1.00	4.00	150.00	1.00	509.01	13.00	0.12
V430-375-FARAD	1.00	6.00	150.00	1.00	0.00	0.00	0.00
V430-375-FARAD	1.00	6.00	150.00	1.00	0.00	0.00	0.00
V430-375-JACKSF	1.00	4.00	150.00	1.00	0.00	0.00	0.00
V430-375-JACKSF	1.00	4.00	150.00	1.00	0.00	0.00	0.00
V430-375-JACKSF	1.00	6.00	150.00	1.00	0.00	0.00	0.00
V430-375-JACKSF	1.00	6.00	150.00	1.00	0.00	0.00	0.00
V446-255-KELLY-	1.00	4.00	150.00	1.00	813.97	20.78	0.28
V446-255-KELLY-	1.00	4.00	150.00	1.00	813.97	20.78	0.28
V446-255-SIERRA	1.00	8.00	150.00	1.00	0.00	0.00	0.00
V446-255-SIERRA	1.00	8.00	150.00	1.00	0.00	0.00	0.00
V446-339-TAMAI	1.00	2.00	150.00	1.00	172.23	17.59	0.46
V446-339-TAMAI	1.00	2.00	150.00	1.00	172.23	17.59	0.46
V490-255-MAYC(	1.00	6.00	150.00	1.00	1425.29	16.17	0.11
V490-255-MAYC(	1.00	6.00	150.00	1.00	1425.27	16.17	0.11
V490-255-MAYC(	1.00	8.00	150.00	1.00	0.00	0.00	0.00
V490-255-MAYC(	1.00	8.00	150.00	1.00	0.00	0.00	0.00
V490-285-TANGL	1.00	4.00	150.00	1.00	333.03	8.50	0.05
V490-285-TANGL	1.00	4.00	150.00	1.00	333.03	8.50	0.05
V490-325-FOXTL	1.00	4.00	150.00	1.00	78.41	2.00	0.00
V490-325-FOXTL	1.00	4.00	150.00	1.00	78.41	2.00	0.00
V490-330-ELLERY	1.00	14.00	150.00	1.00	3236.68	6.75	0.01
V490-330-ELLERY	1.00	14.00	150.00	1.00	3437.81	7.16	0.01
V490-446-CHEST	1.00	4.00	150.00	1.00	2346.88	59.92	1.99
V490-446-CHEST	1.00	4.00	150.00	1.00	2345.72	59.89	1.99
V490-446-LRIVIEI	1.00	6.00	150.00	1.00	0.00	0.00	0.00
V490-446-LRIVIEI	1.00	6.00	150.00	1.00	2.08	0.02	0.00
V510-318-LOWEI	1.00	8.00	150.00	1.00	0.00	0.00	0.00
V510-318-LOWEI	1.00	8.00	150.00	1.00	0.00	0.00	0.00
V550-318-AYRES	1.00	6.00	150.00	1.00	1819.68	20.65	0.17
V550-318-AYRES	1.00	6.00	150.00	1.00	1819.68	20.65	0.17
V550-375-COLLE(	1.00	12.00	150.00	1.00	1337.13	3.79	0.00
V550-375-COLLE(	1.00	12.00	150.00	1.00	1337.13	3.79	0.00
V550-375-D3-12F	1.00	12.00	150.00	1.00	2400.00	6.81	0.01
V550-375-D3-12F	1.00	12.00	150.00	1.00	2400.00	6.81	0.01
V550-375-PALRO	1.00	10.00	150.00	1.00	0.00	0.00	0.00
V550-375-PALRO	1.00	10.00	150.00	1.00	0.00	0.00	0.00
V550-430-COLLE(	1.00	6.00	150.00	1.00	0.00	0.00	0.00
V550-430-COLLE(	1.00	6.00	150.00	1.00	0.00	0.00	0.00
V550-430-HAILEY	1.00	6.00	150.00	1.00	170.89	1.94	0.00
V550-430-HAILEY	1.00	6.00	150.00	1.00	170.89	1.94	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
V550-430-HAILEY	1.00	8.00	150.00	1.00	0.00	0.00	0.00
V550-430-HAILEY	1.00	8.00	150.00	1.00	0.00	0.00	0.00
V580-446-TAP-12	1.00	12.00	150.00	1.00	550.98	1.56	0.00
V580-446-TAP-12	1.00	12.00	150.00	1.00	550.98	1.56	0.00
V580-490ELMTAI	1.00	8.00	150.00	1.00	2193.93	14.00	0.06
V580-490ELMTAI	1.00	8.00	150.00	1.00	2193.93	14.00	0.06
V5841	1.00	12.00	150.00	1.00	0.00	0.00	0.00
V5842	1.00	12.00	150.00	1.00	0.00	0.00	0.00
V5921	1.00	12.00	150.00	1.00	2641.00	7.49	0.01
V5922	1.00	12.00	150.00	1.00	2641.00	7.49	0.01
V680-510-UPPER	1.00	6.00	150.00	1.00	408.49	4.64	0.01
V680-510-UPPER	1.00	6.00	150.00	1.00	408.49	4.64	0.01
V680-580S-LAGO	1.00	2.00	150.00	1.00	63.52	6.49	0.07
V680-580S-LAGO	1.00	2.00	150.00	1.00	63.52	6.49	0.07
V700-550-MELRC	1.00	6.00	150.00	1.00	274.95	3.12	0.01
V700-550-MELRC	1.00	6.00	150.00	1.00	274.95	3.12	0.01
V700-550-POINTI	1.00	8.00	150.00	1.00	0.00	0.00	0.00
V700-550-POINTI	1.00	8.00	150.00	1.00	0.00	0.00	0.00
V700-550-RPANC	1.00	6.00	150.00	1.00	0.00	0.00	0.00
V700-550-RPANC	1.00	6.00	150.00	1.00	0.00	0.00	0.00
V700-550POINTD	1.00	12.00	150.00	1.00	8033.93	22.79	0.09
V700-550POINTD	1.00	12.00	150.00	1.00	8033.93	22.79	0.09
V700-680-ALGA1	1.00	8.00	150.00	1.00	976.75	6.23	0.01
V700-680-ALGA1	1.00	8.00	150.00	1.00	976.75	6.23	0.01
P13	977.87	12.00	125.00	1.00	37.56	0.11	0.01
P17	349.39	12.00	125.00	1.00	0.00	0.00	0.00
P19	1011.65	12.00	125.00	1.00	0.00	0.00	0.00
P21	300.13	12.00	120.00	1.00	767.07	2.18	0.54
P23	547.22	10.00	114.00	1.00	471.97	1.93	1.07
P25	397.86	8.00	125.00	1.00	0.00	0.00	0.00
P31	644.86	12.00	125.00	1.00	0.00	0.00	0.00
V-TAP3-165PSI1	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V-TAP3-165PSI2	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V318-255-ENCIN	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V318-255-ENCIN	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V318-255-ENCIN	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V318-255-ENCIN	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V318-255-HILTOI	1.00	4.00	150.00	0.00	0.00	0.00	0.00
V318-255-HILTOI	1.00	4.00	150.00	0.00	0.00	0.00	0.00
V318-255-HILTOI	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V318-255-HILTOI	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V330-255-BUENA	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V330-255-BUENA	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V330-255-BUENA	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V330-255-BUENA	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V330-255-PINE-8	1.00	8.00	150.00	0.00	0.00	0.00	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
V330-255-PINE-8	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V330-255-PIPE-3	1.00	3.00	150.00	0.00	0.00	0.00	0.00
V330-255-PIPE-3	1.00	3.00	150.00	0.00	0.00	0.00	0.00
V375-255-CANN(	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V375-255-CANN(	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V375-255-PALOM	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V375-255-PALOM	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V375-255PALOM	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V375-255PALOM	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V375-255PALOM	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V375-255PALOM	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V375-318-BLKRL-	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V375-318-BLKRL-	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V375-318-BLKRL-	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V375-318-BLKRL-	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V375-318-BLKRL-	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V375-318-BLKRL-	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V375-318-BLKRL-	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V375-318-BLKRL-	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V375-318-DOVE-	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V375-318-DOVE-	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V375-318-LASON	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V375-318-LASON	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V375-318-POINS	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V375-318-POINS	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V375-318ALICAN	1.00	4.00	150.00	0.00	0.00	0.00	0.00
V375-318ALICAN	1.00	4.00	150.00	0.00	0.00	0.00	0.00
V375-318ALICAN	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V375-318ALICAN	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V375-318ALICAN	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V375-318ALICAN	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V430-375-JACKSF	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V430-375-JACKSF	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V446-255-KELLY-	1.00	4.00	150.00	0.00	0.00	0.00	0.00
V446-255-KELLY-	1.00	4.00	150.00	0.00	0.00	0.00	0.00
V446-255KELLY-6	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V446-255KELLY-6	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V446-255KELLY-6	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V446-255KELLY-6	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V446-330-CVIEW	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V446-330-CVIEW	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V446-330-DONN/	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V446-330-DONN/	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V446-349-TAMAI	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V446-349-TAMAI	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V490-255-MAYC(	1.00	6.00	150.00	0.00	0.00	0.00	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
V490-255-MAYC(	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V490-255-MAYC(	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V490-255-MAYC(	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V490-285TANGLE	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V490-285TANGLE	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V490-285TANGLE	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V490-285TANGLE	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V490-325-FOXTL	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V490-325-FOXTL	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V490-430-SALK-1	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V490-430-SALK-1	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V490-430-SALK-4	1.00	4.00	150.00	0.00	0.00	0.00	0.00
V490-430-SALK-4	1.00	4.00	150.00	0.00	0.00	0.00	0.00
V490-446-CHEST	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V490-446-CHEST	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V490-446-RISING	1.00	2.00	150.00	0.00	0.00	0.00	0.00
V490-446-RISING	1.00	2.00	150.00	0.00	0.00	0.00	0.00
V490-446RISING(	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V490-446RISING(	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V490-446RISING(	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V490-446RISING(	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V490-446RISINGI	1.00	2.00	150.00	0.00	0.00	0.00	0.00
V490-446RISINGI	1.00	2.00	150.00	0.00	0.00	0.00	0.00
V490-RANCHOCA	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V490-RANCHOCA	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V510-318-BOLER	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V510-318-BOLER	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V510-318-BOLER	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V510-318-BOLER	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V510-318-LACOS	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V510-318-LACOS	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V510-375-LAPIS-	1.00	4.00	150.00	0.00	0.00	0.00	0.00
V510-375-LAPIS-	1.00	4.00	150.00	0.00	0.00	0.00	0.00
V510-375-LAPIS-	1.00	4.00	150.00	0.00	0.00	0.00	0.00
V510-375-LAPIS-	1.00	4.00	150.00	0.00	0.00	0.00	0.00
V510-375-LAPIS-(	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V510-375-LAPIS-(	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V510-375-LAPIS-(	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V510-375-LAPIS-(	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V550-318-AYRES-	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V550-318-AYRES-	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V550-318-AYRES-	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V550-318-AYRES-	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V550-375-COLLE(	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V550-375-COLLE(	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V550-375-COLLE(	1.00	6.00	150.00	0.00	0.00	0.00	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
V550-375-COLLE(	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V550-375-COLLE(	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V550-375-COLLE(	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V550-375-D3-12S	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V550-375-D3-12S	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V550-375-PALRO	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V550-375-PALRO	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V550-375PALROA	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V550-375PALROA	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V550-375PALROA	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V550-375PALROA	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V550-430-COLLE(	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V550-430-COLLE(	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V550-430-COLLE(	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V550-430-COLLE(	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V550-430-COLLE(	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V550-430-COLLE(	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V550-490-FARAD	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V550-490-FARAD	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V580-446-TAP-12	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V580-446-TAP-12	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V580-446OLYMP	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V580-446OLYMP	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V580-446OLYMP	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V580-446OLYMP	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V5821	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V5822	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V5861	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V5862	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V5901	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V5902	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V6041	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V6042	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V6061	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V6062	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V680-510-ALGA2	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V680-510-ALGA2	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V680-510-ALGA2	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V680-510-ALGA2	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V680-510-ALGA2	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V680-510-ALGA2	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V680-510-ALGA2	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V680-510-ALGA2	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V680-510-UPPER	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V680-510-UPPER	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V680-510-ZODIA(	1.00	4.00	150.00	0.00	0.00	0.00	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
V680-510-ZODIA(	1.00	4.00	150.00	0.00	0.00	0.00	0.00
V680-510-ZODIA(	1.00	4.00	150.00	0.00	0.00	0.00	0.00
V680-510-ZODIA(	1.00	4.00	150.00	0.00	0.00	0.00	0.00
V680-510-ZODIA(	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V680-510-ZODIA(	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V680-510-ZODIA(	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V680-510-ZODIA(	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V680-510UNICOF	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V680-510UNICOF	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V680-580S-CALIB	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V680-580S-CALIB	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V680-580S-LAGO	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V680-580S-LAGO	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V680-580S-LAGO	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V680-580S-LAGO	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V700-375-ELF-PC	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V700-375-ELF-PC	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V700-375-ELF-PC	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V700-375-ELF-PC	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V700-375-ELF-PC	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V700-375-ELF-PC	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V700-375-ELF-PC	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V700-375-ELF-PC	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V700-550-MELRC	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V700-550-MELRC	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V700-550-MELRC	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V700-550-MELRC	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V700-550-MELRC	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V700-550-MELRC	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V700-550-POINTI	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V700-550-POINTI	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V700-550-POINTI	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V700-550-POINTI	1.00	6.00	150.00	0.00	0.00	0.00	0.00
V700-550-POINTI	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V700-550-POINTI	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V700-550-RANCH	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V700-550-RANCH	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V700-550-RPANC	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V700-550-RPANC	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V700-550-RPANC	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V700-550-RPANC	1.00	10.00	150.00	0.00	0.00	0.00	0.00
V700-550POINTD	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V700-550POINTD	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V700-550POINTD	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V700-550POINTD	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V700-550POINTD	1.00	12.00	150.00	0.00	0.00	0.00	0.00

PIPE ID	LENGTH	DIAMETER	ROUGHNESS	STATUS_1	MAX_FLOW	MAX_VELOC	MAX_HDLOSS
V700-550POINTD	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V700-680-ALGA1	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V700-680-ALGA1	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V700-680-ALGA1	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V700-680-ALGA1	1.00	12.00	150.00	0.00	0.00	0.00	0.00
V700-680-ALGA1	1.00	8.00	150.00	0.00	0.00	0.00	0.00
V700-680-ALGA1	1.00	8.00	150.00	0.00	0.00	0.00	0.00

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
1010	6.90	715.00	1007.58	126.52
1012	6.25	1015.00	1210.98	84.75
1020	4.82	1110.00	1425.23	136.32
1022	1.67	1115.00	1425.16	134.13
1032	0.92	745.00	1007.63	113.57
1036	3.60	820.00	1008.25	81.41
1046	28.87	738.00	1015.65	120.06
1048	7.50	760.00	1007.64	107.09
1058	1.31	1240.00	1423.70	79.44
1062	11.23	1255.00	1423.65	72.93
1064	13.95	675.00	779.32	45.11
1070	16.27	645.00	778.51	57.73
1090	1.85	1305.00	1570.46	114.79
1096	5.47	1155.00	1424.93	116.73
1108	0.08	1280.00	1570.41	125.58
1114	1.50	1280.00	1570.41	125.58
1122	7.10	810.00	1008.03	85.63
1130	2.73	930.00	1209.86	121.02
1134	1.10	830.00	1008.18	77.05
1140	5.80	545.00	778.44	100.95
1144	3.02	930.00	1209.86	121.02
1152	5.84	800.00	1007.96	89.93
1158	1.77	1280.00	1570.41	125.58
1164	3.50	1230.00	1424.43	84.08
1170	5.15	1165.00	1425.04	112.45
1180	1.95	1180.00	1425.53	106.18
1204	6.83	1425.00	1561.21	58.90
1206	5.43	1020.00	1210.69	82.46
1218	4.13	1110.00	1425.26	136.33
1220	1.73	1105.00	1213.29	46.83
1224	5.10	1090.00	1213.22	53.29
1228	6.47	1340.00	1570.69	99.76
1234	4.72	1470.00	1561.21	39.44
1238	7.00	1295.00	1570.46	119.12
1248	4.88	830.00	1008.18	77.05
1254	0.00	830.00	1008.19	77.06
1256	3.33	750.00	1007.60	111.40
1260	8.01	850.00	1007.97	68.31
1276	3.70	1220.00	1426.16	89.15
1284	2.50	810.00	1007.96	85.60
1286	7.04	582.00	778.41	84.93
1296	2.73	1220.00	1425.21	88.74
1300	5.10	555.00	778.30	96.56
1304	4.74	575.00	778.30	87.92
1306	3.73	545.00	778.29	100.88
1314	3.60	1410.00	1571.86	69.99

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
1316	3.65	1365.00	1571.87	89.46
1332	6.70	875.00	1007.95	57.49
1334	2.32	1220.00	1425.45	88.84
1360	6.60	1130.00	1425.29	127.69
1364	4.40	905.00	1007.92	44.51
1366	3.08	1420.00	1566.79	63.48
1376	1.27	735.00	1007.59	117.88
1392	4.97	1545.00	1784.52	103.58
1396	4.64	1050.00	1210.36	69.35
1410	2.50	910.00	1209.25	129.41
1418	4.78	1065.00	1210.37	62.86
1420	2.67	995.00	1209.89	92.92
1422	6.77	730.00	1007.59	120.04
1424	5.95	960.00	1209.69	107.98
1428	5.35	880.00	1007.81	55.27
1432	4.13	935.00	1209.55	118.73
1450	0.95	1215.00	1425.99	91.24
1452	1.52	580.00	778.31	85.76
1460	6.01	580.00	778.30	85.75
1462	1.00	1230.00	1426.64	85.03
1464	1.50	1195.00	1425.68	99.75
1468	3.83	850.00	1007.72	68.20
1470	0.29	840.00	1007.72	72.53
1472	2.63	700.00	1007.59	133.01
1476	7.35	680.00	1007.61	141.67
1486	7.85	710.00	1007.59	128.69
1490	4.08	705.00	1007.58	130.85
1492	1.05	590.00	778.34	81.44
1498	0.00	732.00	1030.62	129.13
1502	2.13	930.00	1209.44	120.84
1508	5.65	1000.00	1209.51	90.60
1518	4.28	740.00	1007.59	115.72
1526	0.45	980.00	1209.87	99.40
1528	1.22	980.00	1209.87	99.40
1530	0.67	1425.00	1568.48	62.05
1534	0.17	995.00	1209.89	92.92
1536	1.90	1230.00	1426.96	85.17
1538	6.50	1280.00	1570.23	125.50
1548	4.72	985.00	1209.83	97.22
1550	0.00	692.00	751.16	25.58
1552	3.40	1370.00	1573.86	88.16
1570	3.20	910.00	1007.94	42.35
1576	0.00	689.00	1027.56	146.40
1590	3.80	1225.00	1426.07	86.95
1606	0.95	1120.00	1425.28	132.01
1612	0.00	1215.00	1422.34	89.66

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
1614	0.00	1380.00	1402.07	9.55
1618	4.22	850.00	1007.72	68.20
1626	0.00	1380.00	1402.15	9.58
1628	0.00	1380.00	1402.19	9.59
1636	3.85	755.00	1007.59	109.23
1642	7.83	790.00	1007.62	94.11
1648	3.95	1005.00	1209.72	88.53
1652	4.29	608.00	778.33	73.66
1666	9.35	800.00	1007.74	89.83
1670	4.08	535.00	778.28	105.20
1672	3.00	800.00	1007.67	89.80
1676	0.00	721.00	1030.52	133.84
1678	0.00	689.00	1027.81	146.51
1680	7.48	625.00	778.35	66.31
1682	8.90	820.00	1007.72	81.18
1694	4.77	1245.00	1569.28	140.23
1706	1.88	905.00	1007.81	44.46
1718	4.53	935.00	1209.26	118.60
1720	12.70	1425.00	1569.11	62.32
1726	6.25	1480.00	1784.47	131.66
1732	3.72	1110.00	1425.28	136.34
1734	2.92	1310.00	1569.29	112.13
1736	1.67	1345.00	1569.29	96.99
1738	2.32	625.00	778.33	66.30
1750	6.02	1330.00	1570.69	104.08
1756	0.95	1060.00	1209.72	64.74
1758	4.80	1175.00	1425.50	108.33
1764	3.25	1190.00	1425.65	101.90
1766	0.90	1180.00	1425.48	106.15
1768	3.52	745.00	1007.58	113.55
1770	3.97	760.00	1007.59	107.06
1772	0.00	692.00	898.70	89.38
1788	0.57	735.00	1007.58	117.87
1804	3.77	1160.00	1425.45	114.79
1816	8.40	740.00	1007.58	115.71
1820	2.50	1325.00	1569.25	105.62
1822	2.22	1365.00	1569.25	88.32
1824	5.55	1295.00	1569.35	118.64
1826	5.85	555.00	778.28	96.55
1828	3.77	1215.00	1425.80	91.16
1842	6.52	580.00	778.28	85.74
1846	5.85	1420.00	1569.07	64.46
1848	2.40	1425.00	1569.03	62.28
1858	5.95	715.00	1007.58	126.52
1872	2.73	695.00	1007.58	135.17
1878	4.00	705.00	1007.59	130.85

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
1882	4.01	1085.00	1425.30	147.16
1906	5.78	880.00	1007.73	55.24
1914	8.48	1300.00	1569.16	116.39
1916	0.65	1290.00	1569.16	120.72
1930	2.06	610.00	778.28	72.77
1934	1.25	1120.00	1425.29	132.02
1936	2.77	1250.00	1569.19	138.03
1938	8.00	1135.00	1425.30	125.54
1948	2.62	1190.00	1425.48	101.83
1952	1.20	1395.00	1569.10	75.29
1954	1.25	1425.00	1569.11	62.32
1956	2.24	1185.00	1425.46	103.98
1974	15.33	1420.00	1569.18	64.51
1986	2.88	960.00	1209.25	107.78
1992	3.20	1240.00	1425.46	80.20
1994	2.25	1465.00	1784.47	138.15
2002	7.16	990.00	1209.20	94.79
2008	6.38	1005.00	1209.24	88.32
2014	2.05	1335.00	1569.21	101.28
2028	5.78	905.00	1209.05	131.48
2046	7.50	620.00	778.30	68.45
2056	1.73	800.00	1007.63	89.79
2070	6.63	1270.00	1569.17	129.37
2072	2.50	1275.00	1569.17	127.21
2086	2.88	1455.00	1569.07	49.33
2094	1.88	1150.00	1425.33	119.06
2096	0.00	940.00	1209.12	116.37
2098	1.13	940.00	1209.12	116.38
2108	4.13	1030.00	1209.49	77.62
2110	2.20	1160.00	1425.37	114.76
2118	6.32	865.00	1007.68	61.70
2124	4.97	1069.37	1209.32	60.52
2126	3.17	535.00	778.27	105.20
2140	6.11	535.00	778.27	105.20
2144	2.20	780.00	1007.62	98.43
2152	6.53	570.00	778.28	90.07
2170	4.82	829.91	1007.62	76.85
2174	4.98	1510.00	1784.49	118.70
2182	8.65	1555.00	1784.50	99.24
2190	3.63	815.00	1007.63	83.30
2192	7.40	1345.00	1569.19	96.95
2206	2.42	690.00	1007.63	137.35
2216	6.02	725.00	1007.58	122.20
2218	3.80	705.00	1007.60	130.85
2222	0.80	1430.00	1569.12	60.16
2232	1.63	960.00	1209.16	107.75

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
2242	3.55	1175.00	1425.42	108.29
2246	4.53	975.00	1209.15	101.25
2250	3.42	1445.00	1569.12	53.67
2256	3.47	805.00	1007.62	87.62
2260	2.25	800.00	1007.62	89.78
2262	5.07	650.00	778.30	55.48
2276	7.02	890.00	1007.62	50.86
2278	4.45	660.00	778.28	51.15
2280	0.47	1640.00	1784.53	62.50
2284	8.40	1610.00	1784.53	75.47
2296	3.47	1415.00	1569.16	66.66
2300	2.99	1070.63	1209.27	59.95
2302	2.77	1230.00	1425.61	84.59
2304	6.80	785.00	1007.61	96.26
2310	4.13	940.00	1209.09	116.36
2324	1.90	1230.00	1425.53	84.55
2326	3.70	955.00	1209.06	109.86
2330	0.00	692.00	898.70	89.38
2332	8.27	865.00	1007.64	61.68
2352	8.99	620.00	778.28	68.44
2354	1.75	910.00	1209.09	129.34
2356	6.05	920.00	1209.09	125.01
2364	0.00	485.00	681.81	85.11
2366	0.28	1100.00	1211.03	48.01
2368	2.53	1090.00	1211.02	52.33
2374	0.00	1100.00	1211.03	48.01
2376	0.90	1100.00	1211.06	48.02
2378	0.25	1090.00	1211.06	52.35
2382	7.28	935.00	1211.71	119.66
2384	0.00	935.00	1211.69	119.65
2386	7.72	1010.00	1211.94	87.32
2390	3.47	895.00	998.82	44.89
2394	2.75	895.00	1211.66	136.94
2396	1.22	860.00	998.40	59.85
2398	3.92	855.00	998.34	61.98
2400	0.00	860.00	998.40	59.85
2402	1.97	805.00	997.59	83.28
2404	5.53	830.00	997.93	72.62
2406	0.00	805.00	997.59	83.28
2408	3.07	740.00	997.55	111.37
2410	0.35	755.00	997.50	104.86
2412	1.95	745.00	997.57	109.22
2414	7.70	665.00	776.72	48.31
2416	5.32	665.00	780.25	49.84
2438	4.29	485.00	686.19	87.00
2440	0.00	485.00	785.52	129.96

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
2442	0.00	485.00	685.79	86.83
2446	2.41	855.00	1001.21	63.23
2450	0.00	475.00	779.80	131.80
2452	36.33	475.00	779.81	131.81
2454	8.88	475.00	779.79	131.80
2456	4.92	765.00	1004.16	103.42
2458	8.93	765.00	1004.18	103.43
2460	8.01	795.00	1004.11	90.42
2462	6.27	850.00	1005.00	67.03
2464	4.24	880.00	1005.00	54.05
2466	1.83	820.00	1005.01	80.00
2468	5.91	980.00	1211.33	100.03
2470	3.65	1015.00	1211.31	84.89
2472	2.13	965.00	1211.34	106.52
2474	1.85	1195.00	1410.55	93.21
2484	1.95	1145.00	1412.78	115.80
2486	1.20	1090.00	1212.92	53.15
2488	0.00	1090.00	1212.92	53.15
2490	3.05	1085.00	1212.89	55.30
2492	1.97	1100.00	1212.95	48.84
2494	0.00	1095.00	1212.95	51.01
2496	1.25	745.00	1004.93	112.40
2498	1.50	730.00	1004.93	118.89
2500	9.57	620.00	778.27	68.44
2502	1.50	750.00	1005.01	110.28
2504	2.27	720.00	1005.02	123.25
2506	0.00	585.00	779.96	84.31
2508	1.85	585.00	779.96	84.31
2510	0.87	585.00	779.96	84.31
2512	1.35	670.00	1006.45	145.49
2514	4.53	680.00	1006.28	141.10
2516	0.47	670.00	1006.46	145.50
2518	2.63	690.00	1006.50	136.86
2520	5.10	685.00	1006.47	139.02
2522	2.75	715.00	1006.52	126.06
2524	0.00	715.00	1006.53	126.07
2526	0.63	1240.00	1428.17	81.37
2528	4.82	1250.00	1433.08	79.17
2530	0.00	1235.00	1427.95	83.44
2532	4.05	1200.00	1424.33	97.01
2534	1.60	1175.00	1424.33	107.82
2536	0.57	1240.00	1424.33	79.71
2538	0.30	955.00	1211.39	110.87
2540	0.17	960.00	1211.24	108.65
2544	0.28	970.00	1211.41	104.40
2548	1.04	820.00	1007.13	80.92

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
2550	2.63	875.00	1007.66	57.37
2552	3.05	845.00	1007.37	70.21
2554	5.72	875.00	1007.66	57.37
2556	5.16	1070.00	1212.46	61.60
2560	2.42	1045.00	1212.70	72.52
2562	1.50	1030.00	1212.69	79.00
2564	1.17	1060.00	1212.71	66.04
2566	2.13	700.00	1007.59	133.01
2568	2.30	680.00	1007.58	141.66
2570	2.60	1155.00	1425.50	116.97
2574	2.93	940.00	1209.12	116.37
2576	4.25	910.00	1209.09	129.34
2578	1.05	915.00	1209.09	127.17
2580	0.80	925.00	1209.09	122.85
2582	0.00	910.00	1209.09	129.34
2590	3.90	890.00	1007.59	50.85
2592	0.63	910.00	1007.59	42.20
2594	1.02	890.00	1007.60	50.85
2596	0.00	985.00	1208.92	96.83
2598	1.30	985.00	1208.92	96.83
2600	3.80	985.00	1208.92	96.83
2602	2.37	1235.00	1551.49	136.86
2604	6.07	1260.00	1553.58	126.95
2608	0.00	724.00	1030.61	132.59
2642	4.22	735.00	1004.15	116.39
2644	0.00	735.00	1004.16	116.39
2652	7.20	715.00	1007.60	126.53
2658	5.50	1235.00	1412.00	76.54
2662	7.03	1220.00	1412.94	83.44
2668	3.08	1285.00	1411.52	54.71
2672	4.05	1280.00	1411.60	56.91
2674	1.95	1285.00	1411.97	54.91
2680	6.45	1280.00	1412.65	57.36
2688	4.36	1285.00	1413.38	55.52
2690	2.20	1325.00	1716.04	169.10
2692	0.00	1380.00	1716.22	145.39
2694	4.05	1395.00	1711.03	136.66
2696	2.38	1280.00	1415.13	58.44
2698	1.73	1260.00	1425.78	71.69
2700	5.35	1245.00	1423.78	77.31
2702	2.88	1280.00	1419.06	60.14
2704	3.50	1265.00	1418.77	66.50
2706	1.25	820.00	1007.62	81.13
2708	11.27	1325.00	1648.99	140.10
2714	6.66	1310.00	1647.20	145.81
2716	5.15	1290.00	1647.24	154.48

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
2718	2.20	1290.00	1647.19	154.46
2720	0.00	770.00	1008.12	102.97
2722	0.00	1000.00	1001.49	0.65
2724	0.00	770.00	1027.24	111.24
2728	6.36	910.00	1010.06	43.27
2730	1.42	910.00	1010.09	43.28
2740	9.73	890.00	997.21	46.36
2756	5.75	470.00	689.69	95.00
2780	1.19	715.00	777.92	27.21
2782	0.00	490.00	780.45	125.60
2784	1.27	470.00	780.40	134.23
2786	1.90	720.00	1003.93	122.78
2788	1.50	705.00	1003.93	129.27
2792	4.17	730.00	1003.97	118.47
2794	2.80	735.00	1004.00	116.33
2796	2.51	710.00	1004.00	127.14
2798	2.95	720.00	1004.29	122.94
2800	2.32	705.00	1004.28	129.42
2812	2.75	920.00	1211.15	125.90
2814	4.70	900.00	1211.15	134.55
2816	4.16	1280.00	1647.14	158.76
2818	8.00	1355.00	1647.07	126.30
2820	5.54	885.00	1004.31	51.59
2822	0.57	900.00	1004.31	45.11
2824	0.67	1150.00	1426.77	119.68
2832	4.80	1335.00	1647.18	135.00
2838	1.95	1305.00	1647.86	148.26
2848	3.15	1320.00	1647.04	141.43
2852	9.78	1325.00	1648.98	140.10
2854	3.88	1280.00	1648.79	159.48
2858	5.13	1280.00	1648.79	159.48
2860	8.04	495.00	779.14	122.87
2862	216.17	480.00	778.92	129.26
2868	2.57	1280.00	1515.22	101.72
2870	2.83	1285.00	1515.22	99.55
2876	1.30	1275.00	1523.39	107.41
2878	2.20	1265.00	1523.39	111.74
2886	2.65	1300.00	1547.76	107.14
2892	5.20	1535.00	1784.50	107.89
2894	6.97	1585.00	1784.61	86.32
2896	0.00	1560.00	1784.66	97.15
2898	0.00	730.00	743.50	5.84
2942	10.75	975.00	1210.53	101.85
2948	0.00	1010.00	1210.43	86.67
2952	6.32	980.00	1210.47	99.66
2956	4.15	945.00	1210.88	114.98

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
2964	3.09	920.00	1211.73	126.15
2970	15.95	1007.25	1210.43	87.86
2974	0.52	1010.00	1210.43	86.67
2978	7.07	1025.00	1210.42	80.18
2980	0.47	765.00	996.85	100.26
2982	2.83	775.00	996.85	95.94
2984	0.77	755.00	997.05	104.67
2986	11.91	770.00	997.05	98.18
2996	1.27	700.00	997.13	128.49
3004	0.00	485.00	681.79	85.10
3008	0.75	1040.00	1210.42	73.70
3020	2.30	800.00	996.84	85.12
3026	8.38	955.00	1211.09	110.74
3028	5.62	885.00	996.80	48.35
3034	2.30	900.00	1211.65	134.77
3056	0.68	930.00	1211.54	121.75
3062	0.98	665.00	997.29	143.69
3064	1.35	660.00	997.29	145.85
3066	8.81	695.00	997.25	130.70
3070	8.31	720.00	997.11	119.83
3080	10.80	700.00	997.13	128.49
3082	0.70	730.00	997.13	115.52
3088	3.76	695.00	1007.64	135.20
3094	2.47	765.00	996.88	100.27
3110	8.71	850.00	996.81	63.48
3144	2.71	665.00	997.28	143.69
3154	6.07	790.00	996.85	89.45
3156	1.27	840.00	1007.61	72.48
3158	1.44	780.00	996.88	93.79
3162	0.00	485.00	681.79	85.10
3176	3.13	1050.00	1210.41	69.37
3194	0.07	710.00	997.13	124.16
3230	2.97	580.00	776.84	85.12
3238	8.36	857.50	996.82	60.25
3254	6.80	615.00	776.83	69.98
3258	0.75	620.00	776.83	67.82
3270	1.83	600.00	776.86	76.48
3274	3.88	970.00	1209.04	103.37
3280	3.07	620.00	776.83	67.82
3284	1.53	635.00	776.83	61.33
3288	1.32	710.00	997.13	124.16
3290	0.28	730.00	997.13	115.52
3292	2.94	720.00	997.15	119.85
3298	8.78	880.00	996.80	50.51
3300	4.95	1455.00	1784.47	142.47
3304	0.85	660.00	997.29	145.85

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
3308	10.14	600.00	776.86	76.48
3310	10.35	805.00	996.84	82.96
3312	4.95	645.00	776.82	57.00
3314	5.68	970.00	1210.88	104.17
3328	3.55	755.00	1007.61	109.24
3336	3.83	785.00	996.90	91.63
3342	0.00	710.00	997.27	124.23
3348	7.50	1345.00	1569.16	96.94
3350	1.37	965.00	1211.01	106.38
3352	19.00	955.00	1211.09	110.74
3358	0.00	625.00	997.29	160.99
3360	2.17	625.00	997.29	160.99
3362	0.00	625.00	997.29	160.99
3370	4.34	655.00	997.28	148.01
3376	2.20	735.00	997.14	113.36
3392	2.90	850.00	996.83	63.49
3404	8.70	635.00	997.30	156.67
3418	2.71	855.00	996.83	61.33
3420	0.43	1075.00	1391.36	136.80
3428	7.90	1065.00	1392.85	141.77
3430	0.00	1075.00	1391.36	136.80
3432	7.05	1500.00	1784.46	123.01
3436	0.38	1090.00	1391.36	130.32
3440	2.44	515.00	776.90	113.26
3452	5.44	825.00	996.85	74.31
3458	3.44	545.00	776.89	100.28
3480	0.35	480.00	681.14	86.98
3486	3.09	750.00	997.08	106.85
3496	6.63	990.00	1210.91	95.53
3498	7.91	755.00	997.08	104.68
3500	2.29	965.00	1210.99	106.37
3512	7.78	660.00	997.30	145.86
3516	0.93	670.00	997.29	141.53
3528	0.57	710.00	997.29	124.24
3532	3.18	545.00	776.90	100.28
3538	2.16	480.00	776.90	128.39
3550	3.52	1040.00	1210.86	73.88
3552	0.00	480.00	681.85	87.29
3554	1.50	481.00	681.91	86.88
3556	6.67	670.00	997.29	141.53
3558	5.48	545.00	776.86	100.26
3566	9.68	985.00	1210.90	97.69
3576	3.97	775.00	997.05	96.02
3578	0.00	480.00	681.25	87.03
3584	0.03	780.00	997.05	93.86
3588	3.46	600.00	776.87	76.49

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
3594	0.95	690.00	997.30	132.88
3604	3.29	612.00	776.87	71.29
3612	3.77	840.00	996.82	67.81
3616	0.38	785.00	997.01	91.68
3622	0.77	795.00	996.94	87.33
3634	8.39	560.00	776.90	93.79
3646	2.65	970.00	1210.94	104.19
3650	1.11	475.00	776.90	130.55
3668	1.22	910.00	1211.29	130.29
3670	1.92	895.00	1211.29	136.77
3678	10.13	585.00	776.90	82.98
3686	4.41	720.00	997.30	119.92
3696	6.40	655.00	776.82	52.68
3702	2.80	980.00	1210.93	99.86
3704	6.92	1030.00	1210.83	78.20
3710	2.22	910.00	996.81	37.54
3716	2.41	950.00	1211.06	112.89
3718	1.57	890.00	996.81	46.19
3720	5.20	820.00	996.91	76.50
3726	0.00	825.00	996.91	74.34
3734	4.67	650.00	776.84	54.85
3738	4.32	1330.00	1569.16	103.42
3748	6.20	795.00	997.02	87.36
3750	2.65	835.00	996.87	70.00
3766	2.99	725.00	997.35	117.77
3772	4.80	680.00	776.79	41.86
3774	3.22	640.00	776.82	59.16
3782	2.58	550.00	776.94	98.13
3784	8.10	545.00	776.87	100.27
3786	5.17	1040.00	1210.79	73.86
3788	18.23	1060.00	1210.49	65.08
3798	2.63	480.00	776.91	128.39
3804	2.85	990.00	1210.90	95.53
3828	0.57	960.00	1210.99	108.54
3830	6.52	965.00	1210.98	106.37
3844	4.78	635.00	776.79	61.32
3856	4.17	565.00	776.92	91.64
3858	7.09	925.00	1211.11	123.72
3868	2.75	840.00	996.88	67.84
3874	1.04	805.00	997.02	83.04
3878	0.85	815.00	997.02	78.71
3880	3.12	555.00	776.85	95.94
3884	9.92	740.00	997.25	111.25
3896	3.27	755.00	997.32	104.79
3900	1.92	1050.00	1210.79	69.53
3908	8.90	615.00	777.73	70.37

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
3910	10.69	615.00	777.18	70.13
3912	8.69	600.00	776.88	76.49
3920	6.85	965.00	1210.95	106.36
3922	4.96	490.00	776.89	124.06
3924	4.50	995.00	1209.11	92.59
3934	9.88	1050.00	1210.57	69.44
3942	4.86	745.00	997.42	109.15
3948	6.34	755.00	997.50	104.86
3956	11.53	715.00	997.39	122.11
3958	5.18	1010.00	1210.88	86.87
3962	2.15	730.00	997.42	115.64
4002	15.69	475.00	776.93	130.56
4008	6.28	555.00	776.83	95.93
4010	2.16	665.00	776.82	48.36
4012	7.01	785.00	997.21	91.76
4026	7.55	800.00	997.27	85.31
4030	3.25	695.00	776.79	35.37
4032	3.60	680.00	776.74	41.83
4042	2.65	655.00	777.13	52.81
4050	5.66	680.00	777.11	41.99
4056	9.25	1000.00	1209.06	90.41
4064	2.88	1040.00	1210.82	73.87
4068	10.41	705.00	997.36	126.43
4074	4.25	1110.00	1395.73	123.56
4076	6.06	570.00	776.86	89.45
4080	2.41	865.00	1007.62	61.67
4088	5.20	735.00	997.57	113.55
4096	1.20	910.00	1211.11	130.21
4104	9.80	1050.00	1210.78	69.53
4118	1.23	945.00	1211.00	115.03
4120	8.65	1015.00	1210.88	84.71
4132	2.05	685.00	776.81	39.70
4142	4.25	825.00	997.04	74.39
4146	4.72	505.00	776.88	117.57
4158	9.88	835.00	997.05	70.08
4168	0.13	690.00	997.93	133.16
4170	3.20	695.00	997.93	131.00
4184	4.38	960.00	1210.95	108.52
4186	5.60	690.00	997.93	133.16
4188	2.40	860.00	1007.61	63.83
4200	3.55	500.00	776.93	119.75
4202	1.50	535.00	776.93	104.62
4204	1.40	1055.00	1210.82	67.38
4212	9.32	595.00	776.85	78.64
4214	7.29	565.00	776.86	91.61
4226	1.50	1115.00	1395.34	121.23

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
4228	7.28	770.00	997.34	98.31
4232	0.77	1130.00	1395.75	114.92
4238	3.10	785.00	997.40	91.85
4244	4.60	940.00	1211.05	117.21
4250	54.03	865.00	996.96	57.06
4252	3.98	940.00	1211.07	117.22
4254	0.00	910.00	996.96	37.61
4258	8.16	635.00	777.96	61.82
4266	5.19	640.00	778.18	59.76
4284	4.56	715.00	997.45	122.14
4286	5.38	765.00	997.40	100.50
4292	3.33	1083.00	1210.70	55.22
4298	6.97	730.00	997.63	115.73
4306	5.44	925.00	1211.05	123.70
4312	6.18	540.00	776.86	102.43
4320	3.17	955.00	1210.96	110.69
4322	7.53	895.00	996.96	44.09
4336	6.50	1010.00	1210.89	86.87
4344	4.17	870.00	997.00	54.92
4348	3.49	490.00	776.91	124.07
4356	2.97	1345.00	1569.12	96.92
4362	2.44	721.00	997.94	119.76
4370	6.10	995.00	1210.92	93.37
4372	3.72	745.00	997.57	109.22
4386	4.75	985.00	1210.92	97.69
4388	8.43	770.00	997.57	98.41
4404	3.70	945.00	1211.04	115.04
4418	9.93	800.00	997.33	85.33
4432	7.10	665.00	779.04	49.31
4436	11.35	1135.00	1396.57	113.11
4444	3.97	1050.00	1209.25	68.86
4450	1.85	600.00	776.88	76.49
4458	17.84	620.00	776.86	67.83
4462	4.90	900.00	996.97	41.93
4466	6.47	915.00	996.99	35.46
4468	6.97	730.00	997.91	115.86
4472	2.89	780.00	997.56	94.08
4474	2.80	745.00	997.58	109.23
4482	5.42	525.00	776.92	108.94
4500	5.72	755.00	997.64	104.93
4502	2.42	1065.00	1210.83	63.06
4504	3.35	1050.00	1210.83	69.55
4506	4.22	790.00	1007.61	94.10
4512	5.39	960.00	1211.04	108.56
4516	4.20	885.00	996.99	48.43
4520	4.05	965.00	1211.04	106.40

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
4524	8.52	885.00	997.06	48.46
4540	1.85	1065.00	1210.78	63.04
4552	3.35	1200.00	1395.32	84.46
4554	2.53	1170.00	1395.33	97.44
4560	6.97	1100.00	1210.74	47.89
4570	8.65	700.00	997.85	128.80
4576	0.52	475.00	776.96	130.58
4590	1.75	1120.00	1397.29	119.91
4592	2.75	1100.00	1397.30	128.56
4594	3.33	1075.00	1210.78	58.72
4606	3.68	615.00	776.85	69.99
4612	5.47	645.00	777.71	57.39
4618	4.78	790.00	997.49	89.72
4622	8.43	535.00	776.93	104.62
4642	4.60	1035.00	1210.89	76.06
4644	1.20	535.00	776.94	104.62
4648	4.80	1045.00	1210.88	71.73
4662	4.78	915.00	1211.05	128.02
4668	2.20	785.00	997.59	91.93
4694	4.97	990.00	1210.93	95.54
4704	0.70	745.00	997.64	109.25
4708	7.50	855.00	997.17	61.48
4714	7.45	720.00	997.94	120.19
4720	5.15	730.00	997.99	115.89
4730	4.59	970.00	1211.05	104.24
4734	3.48	1120.00	1397.29	119.91
4738	10.42	790.00	997.58	89.76
4748	4.37	500.00	776.97	119.77
4752	8.57	850.00	997.31	63.70
4758	2.47	1075.00	1210.85	58.75
4778	0.82	1100.00	1210.78	47.90
4786	1.25	550.00	776.95	98.14
4798	1.35	555.00	776.95	95.98
4804	8.84	565.00	776.97	91.66
4808	3.85	885.00	997.13	48.49
4816	4.26	1250.00	1425.70	75.98
4822	3.77	1170.00	1397.28	98.28
4834	11.02	950.00	1211.05	112.89
4836	3.32	1095.00	1210.76	50.06
4842	1.50	650.00	778.27	55.47
4846	2.63	815.00	997.59	78.96
4848	1.52	805.00	997.59	83.28
4850	6.52	1150.00	1397.29	106.94
4852	1.22	1095.00	1397.59	130.85
4854	2.60	1150.00	1397.40	106.99
4858	3.60	1165.00	1397.29	100.45

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
4866	6.90	1110.00	1397.58	124.36
4872	1.95	805.00	997.70	83.33
4882	3.27	485.00	776.96	126.26
4890	6.63	925.00	1211.09	123.71
4896	2.86	720.00	998.15	120.28
4906	4.72	860.00	997.31	59.38
4918	1.22	1060.00	1210.87	65.24
4926	3.17	1045.00	1210.89	71.74
4934	3.60	805.00	997.70	83.33
4940	1.38	1175.00	1397.58	96.25
4966	5.50	1040.00	1210.89	73.90
4970	5.22	785.00	997.81	92.02
4982	1.95	1265.00	1425.70	69.49
4984	0.00	720.00	781.14	26.44
4986	15.71	540.00	776.99	102.48
4992	3.10	1070.00	1210.85	60.91
4994	7.98	535.00	776.99	104.65
5006	5.68	1155.00	1397.40	104.82
5010	2.85	1240.00	1425.55	80.24
5012	4.44	610.00	776.85	72.15
5024	11.52	605.00	776.85	74.31
5028	0.35	710.00	782.14	31.19
5032	2.35	710.00	998.33	124.69
5034	4.67	730.00	998.16	115.96
5036	3.54	755.00	998.14	105.14
5048	2.57	515.00	776.98	113.29
5060	5.40	1135.00	1397.58	113.55
5062	5.43	930.00	1211.10	121.56
5066	4.47	925.00	1211.11	123.72
5076	4.38	775.00	998.46	96.63
5078	2.65	1105.00	1397.90	126.66
5080	11.07	920.00	1211.13	125.89
5094	3.40	950.00	1211.12	112.92
5108	14.30	810.00	998.06	81.32
5116	13.10	855.00	997.48	61.61
5128	3.45	1090.00	1210.81	52.24
5154	7.25	510.00	776.97	115.45
5156	5.37	965.00	1211.07	106.41
5158	4.45	710.00	781.78	31.04
5166	5.35	965.00	1211.07	106.41
5168	2.85	965.00	1211.09	106.42
5180	3.83	1095.00	1210.79	50.07
5184	6.45	1030.00	1210.90	78.23
5188	2.42	1100.00	1210.81	47.92
5200	7.90	890.00	1211.30	138.94
5220	5.11	835.00	997.68	70.35

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
5226	8.44	795.00	998.46	87.98
5242	2.17	1085.00	1210.81	54.41
5244	3.01	720.00	998.33	120.36
5248	2.55	1170.00	1398.07	98.62
5252	4.67	855.00	997.59	61.66
5262	3.50	735.00	1007.60	117.88
5270	5.02	760.00	998.24	103.02
5276	5.00	750.00	998.21	107.33
5296	1.95	1080.00	1210.81	56.57
5298	1.08	965.00	1211.10	106.42
5300	3.70	1200.00	1397.30	85.32
5314	3.80	945.00	1211.10	115.07
5316	2.20	765.00	998.20	100.85
5336	2.55	1040.00	1210.90	73.90
5338	2.65	1070.00	1210.86	60.91
5340	6.78	890.00	997.53	46.50
5354	1.15	840.00	1007.61	72.48
5356	3.55	780.00	998.48	94.48
5364	10.23	780.00	998.64	94.55
5366	0.00	475.00	776.97	130.58
5368	0.00	485.00	776.96	126.26
5378	0.00	475.00	776.97	130.58
5396	5.43	540.00	778.26	103.03
5402	5.41	805.00	998.60	83.72
5408	2.55	1070.00	1210.86	60.91
5414	0.50	1040.00	1210.90	73.90
5418	3.80	1060.00	1210.89	65.25
5428	5.01	1035.00	1210.95	76.09
5434	4.83	490.00	776.96	124.09
5436	2.03	850.00	998.34	64.15
5446	2.23	495.00	776.87	121.89
5456	3.80	1160.00	1397.96	102.90
5462	11.20	815.00	998.49	79.35
5532	5.65	1030.00	1210.98	78.26
5538	4.13	615.00	777.22	70.15
5546	3.25	1205.00	1397.31	83.16
5560	3.02	790.00	998.64	90.22
5562	0.60	1215.00	1397.31	78.84
5570	3.80	905.00	1211.42	132.51
5580	1.18	685.00	1001.12	136.70
5582	3.35	1092.57	1398.31	132.21
5586	0.45	710.00	780.25	30.38
5588	4.61	690.00	1001.12	134.54
5594	2.22	1120.00	1398.35	120.37
5600	4.58	700.00	1001.10	130.21
5606	8.78	890.00	997.56	46.51

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
5610	9.53	935.00	1211.13	119.41
5616	4.13	760.00	999.06	103.38
5618	4.30	970.00	1211.10	104.26
5638	1.32	965.00	1211.11	106.43
5646	2.80	965.00	1211.10	106.42
5652	6.58	1165.00	1398.12	100.81
5656	5.53	1205.00	1397.94	83.43
5658	4.94	800.00	999.06	86.08
5670	2.83	780.00	998.81	94.62
5684	9.73	510.00	776.82	115.38
5690	5.70	1145.00	1398.08	109.44
5692	2.63	515.00	776.84	113.23
5700	8.22	910.00	1211.42	130.35
5702	5.40	695.00	1007.67	135.21
5718	6.75	890.00	997.62	46.54
5736	7.89	850.00	998.44	64.19
5744	3.88	860.00	998.40	59.85
5752	3.26	525.00	776.83	108.90
5756	4.40	860.00	998.50	59.89
5758	4.78	590.00	777.15	80.93
5774	5.71	605.00	777.24	74.48
5776	9.34	685.00	1001.13	136.70
5780	1.97	640.00	777.24	59.35
5786	1.55	960.00	1211.13	108.60
5790	5.65	1120.00	1398.41	120.39
5792	2.67	1150.00	1398.32	107.38
5794	6.88	1015.00	1211.04	84.77
5804	5.74	835.00	998.62	70.75
5806	12.10	1010.00	1211.06	86.95
5814	5.63	840.00	998.75	68.65
5818	7.91	955.00	1209.01	109.84
5828	14.63	605.00	777.15	74.44
5832	2.42	910.00	1211.45	130.36
5834	3.37	915.00	1211.50	128.22
5836	3.30	910.00	1211.45	130.36
5844	1.63	1235.00	1397.39	70.22
5846	0.00	485.00	776.99	126.26
5848	0.00	490.00	776.99	124.10
5854	1.00	865.00	998.50	57.73
5868	3.58	900.00	997.69	42.24
5880	2.80	790.00	998.93	90.35
5882	5.65	940.00	1211.41	117.37
5894	27.20	555.00	777.21	96.09
5896	2.75	815.00	999.07	79.60
5908	2.45	755.00	1007.61	109.24
5918	0.82	1170.00	1398.29	98.72

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
5924	2.90	860.00	998.56	59.92
5934	10.97	1468.00	1784.47	136.85
5940	4.91	830.00	998.87	73.03
5946	3.21	555.00	776.83	95.93
5952	6.97	620.00	777.22	67.99
5958	3.72	620.00	777.22	67.99
5968	2.88	1110.00	1398.60	124.80
5974	6.13	775.00	999.16	96.94
5976	0.00	475.00	682.15	89.58
5978	3.13	410.00	682.15	117.69
5980	13.08	775.00	999.22	96.96
5988	2.65	615.00	777.22	70.15
5990	5.30	975.00	1211.17	102.13
6016	5.53	955.00	1211.34	110.85
6030	2.15	970.00	1211.34	104.36
6038	4.80	1095.00	1210.87	50.11
6044	7.24	555.00	776.83	95.93
6054	2.63	585.00	777.21	83.12
6068	3.22	715.00	778.86	27.62
6076	5.22	895.00	998.24	44.65
6078	5.65	955.00	1211.46	110.90
6084	9.89	870.00	998.77	55.68
6086	5.55	925.00	1211.50	123.89
6088	3.63	895.00	1211.55	136.89
6104	4.67	910.00	1211.55	130.40
6116	1.52	605.00	777.25	74.49
6124	1.75	690.00	778.86	38.43
6138	0.00	495.00	776.99	121.94
6140	6.14	555.00	777.29	96.12
6146	3.72	970.00	1211.32	104.36
6148	3.33	1165.00	1398.32	100.90
6166	4.60	1175.00	1398.38	96.60
6184	3.34	585.00	777.25	83.13
6190	0.00	485.00	776.99	126.27
6198	4.99	1085.00	1210.95	54.46
6212	9.67	1085.00	1210.97	54.47
6214	2.00	515.00	776.80	113.21
6226	3.52	950.00	1211.49	113.08
6234	8.31	770.00	998.32	98.74
6236	1.25	1190.00	1398.44	90.14
6238	0.85	1105.00	1398.67	126.99
6242	1.05	1175.00	1398.34	96.58
6244	4.57	805.00	999.04	83.91
6246	5.25	835.00	999.72	71.23
6254	5.08	815.00	999.28	79.69
6258	8.00	1110.00	1398.77	124.87

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
6260	4.00	1030.00	1211.04	78.29
6262	4.84	865.00	999.71	58.25
6272	6.25	1040.00	1211.03	73.96
6276	1.73	1235.00	1398.30	70.62
6278	7.70	1220.00	1398.30	77.10
6290	2.53	570.00	777.37	89.67
6298	2.19	785.00	999.22	92.63
6300	7.73	830.00	999.98	73.50
6304	10.92	660.00	777.37	50.75
6316	2.96	825.00	999.98	75.67
6332	1.35	925.00	1211.65	123.95
6342	5.03	940.00	1211.61	117.45
6344	7.28	950.00	1211.45	113.06
6350	19.64	1005.00	1211.13	89.14
6352	6.27	970.00	1211.45	104.41
6364	5.68	1107.00	1210.94	44.95
6368	0.00	505.00	777.00	117.62
6382	7.70	1375.00	1569.16	83.96
6392	1.13	710.00	778.30	29.54
6398	44.01	505.00	777.00	117.62
6404	1.20	625.00	777.29	65.86
6408	11.25	715.00	1001.49	123.89
6434	1.50	1180.00	1398.38	94.44
6438	6.27	900.00	999.70	43.11
6450	4.11	825.00	999.98	75.67
6456	1.02	840.00	999.98	69.18
6460	5.30	1035.00	1211.07	76.14
6468	6.65	1440.00	1784.47	148.96
6476	0.29	1195.00	1398.47	87.99
6482	22.25	475.00	682.15	89.58
6484	5.92	570.00	777.37	89.67
6488	2.65	1015.00	1211.15	84.82
6490	5.20	810.00	999.86	82.10
6502	1.00	1190.00	1398.50	90.16
6504	3.10	1015.00	1211.22	84.85
6508	2.05	1205.00	1398.51	83.68
6514	4.38	605.00	777.35	74.53
6518	9.30	905.00	1211.65	132.60
6526	0.00	530.00	776.63	106.65
6536	1.74	950.00	1211.64	113.14
6540	0.72	955.00	1211.46	110.90
6544	10.99	680.00	777.45	42.14
6546	2.61	685.00	777.58	40.03
6548	3.88	905.00	1211.70	132.63
6552	4.77	905.00	1211.77	132.66
6562	2.08	1065.00	1211.03	63.15

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
6572	0.00	540.00	776.63	102.33
6576	33.80	475.00	682.19	89.60
6578	5.10	1065.00	1211.03	63.15
6590	4.21	635.00	777.29	61.53
6596	2.11	795.00	999.87	88.59
6660	3.10	1035.00	1211.12	76.16
6668	4.65	810.00	999.87	82.11
6670	3.17	820.00	1000.06	77.86
6672	2.67	1225.00	1398.40	74.98
6674	6.25	1240.00	1398.40	68.50
6678	7.20	1220.00	1398.42	77.15
6690	1.77	605.00	777.36	74.53
6700	2.43	615.00	777.36	70.21
6702	10.65	1010.00	1211.42	87.10
6704	9.28	610.00	777.40	72.39
6708	5.75	585.00	777.38	83.19
6710	5.49	655.00	777.31	52.89
6716	5.73	1085.00	1210.99	54.48
6740	1.89	1195.00	1398.54	88.02
6770	4.30	1205.00	1398.53	83.69
6774	2.83	1245.00	1398.58	66.41
6776	1.73	755.00	1007.61	109.24
6802	6.36	590.00	777.38	81.03
6812	5.47	1165.00	1398.62	101.03
6818	4.15	590.00	777.39	81.03
6848	0.00	475.00	785.52	134.28
6862	7.22	995.00	1211.47	93.61
6864	7.38	780.00	1007.61	98.43
6878	0.00	485.00	785.52	129.96
6890	0.00	480.00	682.19	87.43
6914	0.00	485.00	682.24	85.29
6928	7.90	965.00	1211.53	106.61
6932	5.43	660.00	777.39	50.76
6940	4.95	1150.00	1398.69	107.54
6948	6.70	655.00	777.35	52.91
6966	2.41	650.00	777.35	55.07
6978	2.90	575.00	777.42	87.53
6980	1.65	1205.00	1398.55	83.70
6986	1.73	570.00	777.43	89.70
6994	2.50	1005.00	1211.52	89.31
7002	1.50	1150.00	1398.77	107.58
7010	3.91	635.00	777.35	61.56
7014	35.40	540.00	776.73	102.37
7018	8.43	1040.00	1211.19	74.03
7032	6.66	1135.00	1398.77	114.06
7046	26.05	515.00	777.08	113.33

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
7058	13.13	865.00	1001.24	58.91
7064	5.65	935.00	1211.69	119.65
7072	2.75	1100.00	1211.03	48.01
7074	5.20	1065.00	1211.16	63.21
7090	6.05	950.00	1211.79	113.21
7098	5.61	685.00	777.60	40.04
7104	8.32	1150.00	1399.09	107.72
7108	50.00	900.00	1211.83	134.85
7134	2.80	1090.00	1211.06	52.35
7150	4.50	640.00	777.37	59.40
7152	11.15	965.00	1211.56	106.62
7156	5.76	560.00	777.45	94.03
7158	3.90	560.00	777.45	94.03
7168	4.90	810.00	999.89	82.11
7170	1.25	685.00	777.60	40.04
7176	1.05	1005.00	1211.53	89.31
7182	0.60	1015.00	1211.58	85.01
7184	2.39	645.00	777.38	57.24
7192	2.32	585.00	777.42	83.21
7196	5.90	650.00	777.39	55.09
7200	0.90	1010.00	1211.52	87.15
7216	3.60	1030.00	1211.57	78.51
7218	6.89	835.00	1000.57	71.60
7220	5.97	840.00	1000.76	69.52
7222	2.00	705.00	1001.71	128.31
7224	6.07	745.00	1001.42	110.89
7226	8.88	865.00	1001.43	59.00
7230	0.75	870.00	1001.57	56.90
7232	19.25	525.00	777.24	109.08
7238	3.35	535.00	777.34	104.79
7246	1.80	1105.00	1211.08	45.87
7270	4.60	1145.00	1400.58	110.52
7278	7.57	1065.00	1211.18	63.22
7290	7.95	1100.00	1211.19	48.08
7302	2.63	800.00	1000.93	86.89
7308	1.38	795.00	1000.93	89.05
7314	3.27	580.00	777.43	85.38
7332	8.22	1215.00	1398.62	79.40
7348	3.97	840.00	1007.60	72.48
7352	4.55	1020.00	1211.68	82.89
7358	1.95	580.00	777.43	85.38
7362	5.00	585.00	777.43	83.21
7376	2.55	540.00	777.52	102.71
7380	2.03	485.00	785.52	129.96
7382	3.01	1025.00	1209.10	79.61
7390	5.13	1000.00	1211.55	91.48

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
7392	5.32	1245.00	1398.58	66.41
7398	0.57	1040.00	1211.57	74.19
7402	87.89	475.00	776.98	130.59
7404	53.07	480.00	776.99	128.43
7426	5.12	850.00	1000.73	65.18
7438	0.00	485.00	685.28	86.61
7448	0.03	485.00	685.28	86.61
7488	2.92	1065.00	1209.23	62.37
7490	4.36	780.00	1001.21	95.66
7498	6.71	790.00	1001.17	91.32
7518	3.25	775.00	1001.30	97.86
7522	8.78	995.00	1211.61	93.67
7534	3.47	950.00	1211.85	113.23
7538	2.57	745.00	1001.42	110.89
7554	4.05	555.00	777.45	96.20
7556	11.45	940.00	1211.83	117.55
7566	7.82	625.00	777.54	65.96
7570	1.15	575.00	777.45	87.55
7574	14.60	475.00	685.27	90.93
7578	6.81	545.00	777.59	100.58
7584	3.52	545.00	777.52	100.55
7598	0.55	1040.00	1209.12	73.13
7606	1.70	700.00	1002.03	130.61
7610	3.72	900.00	1003.65	44.82
7622	8.24	815.00	1000.93	80.40
7628	5.65	1015.00	1209.06	83.92
7634	4.10	960.00	1211.88	108.92
7646	12.05	1120.00	1404.29	122.94
7662	3.65	1085.00	1211.28	54.61
7664	0.69	805.00	1001.15	84.82
7668	15.28	705.00	777.48	31.34
7670	6.97	1065.00	1211.29	63.26
7698	3.70	565.00	777.51	91.90
7710	8.00	1215.00	1399.35	79.72
7712	3.15	1145.00	1401.78	111.04
7730	1.27	550.00	777.52	98.39
7732	8.82	780.00	1001.32	95.71
7736	7.96	725.00	1001.64	119.63
7744	8.98	790.00	1001.73	91.56
7750	3.77	860.00	1001.25	61.08
7752	7.40	605.00	777.51	74.60
7756	5.30	665.00	777.54	48.67
7764	3.52	870.00	1001.39	56.82
7766	1.38	685.00	777.54	40.02
7768	3.35	585.00	777.51	83.25
7774	8.30	1275.00	1398.62	53.46

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
7794	3.50	970.00	1211.91	104.61
7802	1.14	850.00	1001.13	65.35
7816	9.50	1180.00	1400.68	95.43
7818	9.57	1020.00	1211.91	82.99
7820	6.97	805.00	1001.19	84.84
7828	1.75	895.00	1003.77	47.04
7848	5.03	1135.00	1404.53	116.55
7852	11.18	605.00	778.26	74.92
7854	5.05	900.00	1003.22	44.64
7856	3.52	910.00	1003.77	40.55
7866	9.25	1150.00	1403.20	109.49
7870	1.80	925.00	1212.22	124.20
7872	7.65	640.00	777.61	59.51
7876	59.79	645.00	777.60	57.34
7884	2.13	925.00	1212.27	124.23
7886	11.10	495.00	777.11	121.99
7896	4.27	635.00	777.65	61.69
7900	0.91	650.00	778.00	55.35
7912	2.16	570.00	777.57	89.76
7920	5.52	765.00	1001.42	102.24
7924	0.70	910.00	1212.27	130.71
7928	5.49	955.00	1211.90	111.09
7932	5.39	775.00	1001.42	97.91
7938	4.63	645.00	778.27	57.63
7942	7.18	595.00	777.58	78.95
7944	12.82	515.00	777.53	113.53
7954	3.60	545.00	777.62	100.59
7962	2.08	560.00	777.59	94.10
7966	5.47	1015.00	1212.03	85.20
7984	10.10	1025.00	1212.18	80.94
7986	6.26	620.00	777.61	68.16
7988	4.55	730.00	1002.96	118.04
8004	2.25	890.00	1001.83	48.36
8008	1.27	895.00	1002.84	46.64
8020	1.73	565.00	777.57	91.92
8022	8.48	1345.00	1569.11	96.91
8026	3.29	1275.00	1398.80	53.54
8028	6.52	1275.00	1398.89	53.58
8038	5.05	1235.00	1399.39	71.09
8046	3.17	855.00	1001.20	63.22
8052	9.60	1190.00	1400.75	91.13
8062	1.92	725.00	777.76	22.82
8072	4.00	1010.00	1211.94	87.32
8076	0.00	730.00	1004.13	118.54
8078	2.51	730.00	777.78	20.66
8084	5.20	990.00	1211.96	95.98

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
8098	9.47	1070.00	1211.66	61.26
8104	4.00	1105.00	1211.67	46.13
8116	6.42	1115.00	1406.06	125.87
8118	5.17	1095.00	1211.43	50.35
8120	3.80	940.00	1208.96	116.31
8128	4.22	605.00	777.69	74.68
8130	3.75	505.00	777.75	117.94
8142	5.45	870.00	1001.18	56.73
8148	6.45	895.00	1007.60	48.69
8150	8.43	520.00	777.75	111.46
8156	5.43	945.00	1212.35	115.61
8160	6.60	620.00	795.04	75.70
8174	1.90	930.00	1212.35	122.10
8178	4.74	835.00	1001.21	71.88
8180	7.63	770.00	1004.16	101.26
8196	3.54	560.00	777.62	94.11
8198	5.93	1060.00	1211.69	65.60
8200	1.97	640.00	777.99	59.67
8206	2.57	850.00	1007.61	68.15
8212	2.57	860.00	1001.21	61.06
8228	9.07	1095.00	1211.90	50.55
8234	8.05	650.00	778.18	55.43
8236	2.10	1045.00	1212.18	72.29
8252	3.50	575.00	777.63	87.62
8258	14.37	585.00	777.71	83.33
8268	4.96	815.00	1001.30	80.56
8276	4.62	825.00	1001.27	76.23
8278	6.34	835.00	1001.34	71.93
8280	6.37	900.00	1001.45	43.87
8282	2.47	690.00	778.76	38.38
8284	4.38	630.00	778.27	64.12
8290	5.43	930.00	1001.44	30.89
8292	0.19	475.00	780.13	131.95
8296	6.00	730.00	1004.13	118.54
8304	6.66	533.62	777.65	105.53
8324	2.68	845.00	1001.21	67.55
8334	10.50	745.00	1001.81	111.05
8348	4.31	760.00	1001.79	104.56
8352	4.89	785.00	1001.78	93.74
8356	2.82	475.00	780.13	131.95
8360	4.76	825.00	1001.32	76.25
8364	7.72	1060.00	1211.83	65.66
8376	2.42	1070.00	1212.02	61.41
8382	2.75	1005.00	1212.05	89.54
8396	5.65	1130.00	1405.34	119.07
8398	18.95	555.00	778.15	96.50

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
8404	5.25	625.00	777.98	66.15
8406	1.70	620.00	777.96	68.31
8410	1.42	1135.00	1405.34	116.90
8422	0.72	685.00	778.41	40.39
8438	3.20	690.00	1004.10	135.83
8448	3.08	935.00	1212.47	119.99
8458	6.70	930.00	1212.48	122.15
8462	2.08	805.00	1001.78	85.10
8468	4.86	945.00	1212.56	115.70
8478	6.13	960.00	1212.64	109.25
8482	0.45	595.00	777.96	79.12
8492	8.17	890.00	1001.33	48.14
8508	2.55	510.00	784.96	118.90
8514	4.56	510.00	782.26	117.73
8518	9.71	980.00	1212.37	100.49
8528	6.90	1020.00	1212.35	83.18
8538	2.22	870.00	1001.22	56.74
8540	0.00	495.00	781.35	123.83
8542	5.70	495.00	780.12	123.30
8546	7.07	610.00	777.97	72.63
8552	4.60	725.00	1004.13	120.70
8556	2.45	1005.00	1212.48	89.72
8566	6.09	720.00	1004.13	122.87
8582	9.84	540.00	777.76	102.82
8584	19.14	540.00	777.82	102.84
8592	3.35	755.00	1007.61	109.24
8598	0.10	475.00	779.85	131.83
8600	7.31	605.00	777.97	74.80
8634	4.85	1120.00	1406.56	123.92
8638	9.39	560.00	777.65	94.12
8642	1.02	655.00	778.28	53.31
8646	0.65	640.00	778.15	59.74
8650	10.13	815.00	1001.62	80.70
8654	0.00	495.00	781.35	123.83
8660	6.35	1030.00	1212.65	78.99
8666	4.30	755.00	1004.14	107.74
8670	6.67	925.00	1212.50	124.33
8674	4.85	875.00	1001.24	54.59
8684	4.25	1050.00	1212.78	70.39
8688	2.85	880.00	1001.26	52.44
8704	1.20	1025.00	1212.48	81.07
8716	3.90	885.00	1001.28	50.28
8720	2.47	1040.00	1212.48	74.58
8722	2.42	790.00	1001.77	91.58
8728	5.50	900.00	1001.28	43.80
8740	48.24	480.00	779.68	129.59

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
8744	1.88	605.00	778.02	74.82
8746	7.37	585.00	778.01	83.47
8748	4.72	980.00	1212.69	100.62
8750	5.68	1295.00	1569.09	118.52
8762	7.78	1075.00	1212.19	59.32
8766	4.49	690.00	779.16	38.56
8768	7.98	650.00	779.15	55.85
8774	4.32	1125.00	1405.93	121.48
8778	2.38	555.00	778.44	96.62
8788	8.44	710.00	1004.10	127.18
8790	4.67	1130.00	1406.17	119.43
8796	7.18	815.00	1001.73	80.75
8816	6.13	1060.00	1213.37	66.32
8824	4.15	605.00	777.98	74.80
8832	2.58	630.00	778.05	64.02
8846	9.19	530.00	779.62	107.94
8852	47.00	650.00	778.09	55.39
8856	3.75	900.00	1001.28	43.80
8858	4.95	1305.00	1569.07	114.19
8860	6.81	790.00	1004.84	92.91
8866	9.65	915.00	1212.51	128.65
8876	6.59	875.00	1001.36	54.64
8878	4.08	915.00	1212.51	128.65
8880	4.05	895.00	1001.26	45.95
8882	4.00	760.00	1004.16	105.58
8886	1.32	1160.00	1406.16	106.45
8894	0.46	585.00	778.05	83.48
8904	6.07	1085.00	1212.38	55.08
8922	4.75	1000.00	1212.84	92.04
8928	11.00	1075.00	1213.79	60.02
8942	3.77	1010.00	1212.78	87.69
8946	2.05	1025.00	1212.70	81.17
8954	0.80	740.00	1004.16	114.23
8960	1.40	1230.00	1425.52	84.55
8968	1.70	950.00	1212.51	113.52
8976	0.82	945.00	1212.51	115.68
8978	3.45	1105.00	1212.71	46.58
9004	3.80	900.00	1001.36	43.83
9006	7.18	1155.00	1406.64	108.82
9010	3.52	1140.00	1406.18	115.10
9012	2.88	1115.00	1406.91	126.23
9014	3.20	1140.00	1406.81	115.38
9018	1.55	1270.00	1425.51	67.25
9024	0.13	550.00	778.56	98.84
9028	14.36	685.00	778.71	40.52
9030	0.00	755.00	1004.21	107.77

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
9040	9.83	860.00	1001.56	61.22
9042	1.55	915.00	1001.26	37.30
9046	6.70	805.00	1005.95	86.90
9050	4.00	765.00	1007.61	104.91
9056	4.50	875.00	1001.70	54.79
9074	1.50	1155.00	1406.18	108.62
9082	0.45	1175.00	1406.22	99.99
9090	9.85	615.00	778.04	70.51
9092	1.00	1040.00	1214.88	75.63
9110	22.24	635.00	778.07	61.87
9114	2.63	1030.00	1212.77	79.04
9118	4.22	775.00	1004.17	99.10
9124	0.39	675.00	778.44	44.73
9128	10.81	555.00	778.85	96.80
9148	10.10	850.00	1001.77	65.63
9154	6.14	850.00	1001.78	65.64
9176	3.63	1020.00	1213.10	83.50
9180	7.50	1025.00	1213.10	81.34
9186	7.33	975.00	1212.63	102.76
9190	4.28	660.00	778.11	51.08
9224	1.67	880.00	1001.70	52.63
9226	7.98	920.00	1212.51	126.49
9228	0.85	925.00	1212.51	124.33
9234	9.69	1005.00	1212.74	89.83
9240	4.55	1000.00	1212.69	91.97
9252	5.60	950.00	1212.53	113.52
9256	2.85	625.00	778.06	66.19
9264	1.95	960.00	1212.54	109.20
9278	10.42	1045.00	1214.88	73.46
9298	0.92	1195.00	1406.31	91.38
9302	6.02	600.00	778.08	77.01
9316	9.35	1110.00	1213.68	44.83
9318	1.73	605.00	778.10	74.86
9326	1.45	1130.00	1406.89	119.73
9328	9.93	965.00	1212.53	107.04
9336	8.77	995.00	1212.62	94.11
9338	13.15	855.00	1001.81	63.49
9352	8.38	915.00	1212.51	128.65
9356	1.50	945.00	1212.53	115.69
9364	10.88	675.00	1004.02	142.28
9368	6.44	705.00	1003.98	129.29
9398	4.95	1000.00	1212.67	91.97
9400	1.45	885.00	1007.61	53.02
9404	6.39	670.00	778.14	46.76
9412	0.72	745.00	1004.18	112.08
9414	5.68	720.00	1004.13	122.87

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
9416	5.94	810.00	1005.95	84.74
9424	15.57	810.00	1006.44	84.95
9428	10.83	650.00	778.08	55.39
9432	9.99	615.00	778.11	70.53
9434	3.49	1070.00	1216.51	63.36
9454	5.93	1135.00	1407.20	117.71
9464	1.35	960.00	1212.54	109.21
9476	3.80	685.00	778.32	40.35
9480	5.05	860.00	1005.93	63.10
9482	2.73	955.00	1212.53	111.37
9494	18.70	505.00	779.00	118.49
9496	5.62	835.00	1005.95	73.93
9500	7.50	695.00	1004.01	133.63
9502	8.85	525.00	778.62	109.68
9510	17.50	515.00	778.97	114.15
9516	1.92	1160.00	1406.74	106.70
9518	4.95	1205.00	1406.44	87.11
9520	6.80	890.00	1003.19	48.95
9548	2.15	680.00	778.25	42.49
9552	3.88	895.00	1001.93	46.24
9556	2.29	910.00	1001.93	39.75
9562	4.27	795.00	1004.82	90.74
9564	2.35	805.00	1004.82	86.41
9568	1.67	890.00	1007.60	50.85
9570	5.99	820.00	1004.82	79.92
9572	5.98	830.00	1005.97	76.09
9574	6.85	1110.00	1215.53	45.63
9578	4.05	1110.00	1218.98	47.13
9580	2.10	945.00	1212.53	115.69
9600	5.75	1170.00	1406.93	102.46
9620	9.78	605.00	778.20	74.90
9630	0.00	685.00	778.31	40.35
9646	1.17	875.00	1007.60	57.34
9650	6.55	895.00	1003.06	46.73
9652	4.65	900.00	1003.36	44.69
9654	2.15	900.00	1002.98	44.53
9658	0.45	610.00	778.16	72.72
9670	1.90	1005.00	1212.61	89.78
9680	7.05	1050.00	1213.18	70.56
9686	12.81	660.00	778.10	51.07
9690	0.75	1065.00	1213.43	64.19
9704	3.98	915.00	1002.97	38.04
9708	6.15	1025.00	1212.79	81.21
9716	3.42	995.00	1212.59	94.09
9724	3.29	980.00	1212.55	100.56
9742	3.40	1125.00	1407.56	122.19

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
9760	1.73	1135.00	1407.53	117.85
9762	2.90	1125.00	1408.09	122.42
9788	5.32	860.00	1006.03	63.15
9800	2.85	1185.00	1407.40	96.17
9810	2.42	905.00	1007.60	44.37
9812	0.87	1105.00	1216.51	48.22
9816	6.87	930.00	1212.51	122.17
9818	1.85	570.00	778.57	90.19
9830	2.13	1150.00	1407.53	111.37
9840	2.70	535.00	778.58	105.33
9854	2.42	910.00	1003.35	40.37
9856	3.70	1075.00	1213.43	59.86
9858	2.20	1065.00	1213.44	64.19
9860	17.78	625.00	778.10	66.20
9862	3.35	1145.00	1407.53	113.53
9876	2.17	620.00	778.14	68.38
9884	7.47	975.00	1212.55	102.73
9886	7.94	1055.00	1213.01	68.33
9936	4.17	685.00	778.10	40.26
9938	4.88	1020.00	1212.62	83.29
9942	4.70	1100.00	1216.51	50.38
9946	70.75	495.00	779.36	122.97
9952	2.50	1135.00	1408.09	118.09
9958	3.83	1175.00	1407.54	100.56
9960	2.80	935.00	1212.16	119.85
9962	2.60	915.00	1212.15	128.50
9964	0.00	780.00	1004.37	97.02
9966	0.00	780.00	1004.37	97.02
9970	9.60	815.00	1004.62	82.00
9976	2.52	960.00	1212.51	109.20
9982	3.45	900.00	1003.95	44.95
10002	7.39	770.00	1004.02	101.20
10008	4.65	1100.00	1213.50	49.08
10012	7.25	670.00	778.10	46.75
10014	1.70	870.00	1006.14	58.87
10028	2.63	680.00	778.11	42.43
10032	4.45	885.00	1005.26	52.00
10034	12.52	880.00	1006.94	54.89
10038	3.40	1150.00	1408.09	111.60
10040	5.86	1125.00	1425.42	129.91
10044	1.80	910.00	1212.08	130.63
10048	21.35	975.00	1212.56	102.73
10054	6.72	990.00	1212.62	96.27
10064	0.00	780.00	1004.37	97.02
10074	8.80	725.00	1004.00	120.65
10078	0.77	1135.00	1425.43	125.59

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
10080	7.73	1075.00	1213.53	59.90
10114	5.45	1010.00	1212.66	87.64
10120	1.73	1190.00	1407.59	94.09
10132	4.32	1115.00	1216.51	43.90
10136	1.80	1070.00	1213.20	61.92
10142	3.77	800.00	1004.48	88.42
10144	4.08	1105.00	1425.40	138.55
10146	3.52	1120.00	1425.42	132.07
10148	6.85	1055.00	1212.98	68.32
10154	11.02	970.00	1212.53	104.88
10156	5.03	1075.00	1213.20	59.76
10162	7.41	975.00	1212.52	102.71
10166	129.40	595.00	778.15	79.20
10172	0.70	604.00	778.18	75.32
10178	2.42	695.00	778.13	35.95
10182	2.08	580.00	778.29	85.75
10184	6.83	1165.00	1408.05	105.10
10202	19.39	630.00	778.14	64.06
10204	7.02	570.00	778.47	90.15
10216	3.13	640.00	778.14	59.74
10226	4.72	935.00	1212.16	119.85
10230	4.82	770.00	1004.58	101.44
10236	3.59	585.00	778.26	83.57
10238	43.51	960.00	1212.35	109.13
10242	1.71	1015.00	1212.67	85.48
10250	5.05	820.00	1004.50	79.78
10264	3.50	1165.00	1408.08	105.12
10274	3.68	1185.00	1408.03	96.44
10278	6.27	925.00	1212.05	124.13
10280	6.67	1110.00	1215.43	45.59
10294	5.65	930.00	1212.09	121.98
10298	2.17	1140.00	1425.42	123.43
10300	0.25	820.00	1007.96	81.28
10304	1.52	935.00	1212.09	119.82
10306	2.45	830.00	1007.96	76.96
10310	10.99	550.00	778.63	98.87
10312	5.97	535.00	778.83	105.44
10320	1.40	1120.00	1425.42	132.07
10322	14.25	500.00	779.35	120.80
10326	3.13	1055.00	1212.92	68.29
10336	7.85	1050.00	1212.84	70.42
10338	2.60	1065.00	1212.95	63.98
10350	1.05	785.00	1004.09	94.74
10354	8.35	1035.00	1212.75	76.87
10366	3.35	595.00	778.20	79.22
10368	2.00	595.00	778.21	79.23

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
10374	2.17	840.00	1007.98	72.64
10382	3.68	705.00	778.14	31.63
10390	2.85	880.00	1010.44	56.41
10396	3.35	710.00	1004.00	127.14
10406	3.85	1080.00	1212.94	57.49
10408	2.92	715.00	1004.00	124.97
10410	12.36	525.00	778.98	109.83
10414	4.20	710.00	1003.93	127.11
10422	7.36	760.00	1003.94	105.49
10426	2.83	990.00	1212.53	96.23
10428	6.13	1145.00	1409.00	114.16
10434	3.72	1125.00	1409.07	122.84
10440	11.27	860.00	1008.01	64.01
10442	8.40	975.00	1212.41	102.66
10458	3.60	850.00	1008.00	68.33
10462	2.35	815.00	1004.60	81.99
10466	2.15	1140.00	1409.07	116.35
10468	4.76	715.00	1007.62	126.54
10470	7.10	1135.00	1409.54	118.72
10486	4.68	1210.00	1407.85	85.56
10490	1.02	705.00	778.14	31.63
10496	6.47	725.00	1004.00	120.65
10500	5.15	585.00	778.26	83.57
10502	3.18	575.00	778.26	87.89
10512	3.22	1220.00	1407.84	81.23
10514	0.80	1230.00	1407.84	76.90
10516	0.22	1220.00	1407.84	81.23
10522	2.45	1070.00	1212.98	61.83
10524	2.22	1220.00	1407.86	81.24
10526	12.55	875.00	1008.44	57.70
10528	2.85	945.00	1212.07	115.49
10536	4.08	1040.00	1212.75	74.70
10538	0.00	1185.00	1408.03	96.44
10540	0.00	1185.00	1408.03	96.45
10544	4.82	1200.00	1408.03	89.96
10550	0.55	1185.00	1408.03	96.45
10552	5.45	1200.00	1408.45	90.14
10554	4.89	895.00	1010.04	49.75
10558	7.31	1065.00	1212.78	63.90
10560	2.90	1120.00	1213.94	40.62
10562	3.50	1240.00	1407.83	72.58
10576	6.07	675.00	778.12	44.59
10578	2.88	715.00	778.14	27.30
10580	1.13	1070.00	1212.99	61.83
10582	6.22	1095.00	1213.25	51.13
10586	5.68	770.00	1004.10	101.23

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
10588	2.91	740.00	1004.00	114.16
10594	5.64	795.00	1004.09	90.42
10598	10.00	710.00	778.14	29.46
10612	4.63	890.00	1010.45	52.09
10620	1.02	850.00	1006.77	67.79
10622	3.40	875.00	1008.36	57.67
10630	0.22	855.00	1006.77	65.63
10644	3.17	940.00	1212.05	117.64
10650	2.92	945.00	1212.07	115.49
10652	7.90	955.00	1212.10	111.18
10654	3.97	655.00	778.14	53.25
10662	4.40	860.00	1008.14	64.06
10664	6.88	1215.00	1425.50	91.03
10666	8.63	680.00	778.14	42.44
10676	7.30	625.00	778.15	66.23
10680	3.40	750.00	1004.00	109.84
10686	2.97	755.00	1004.00	107.67
10688	4.17	1105.00	1213.03	46.72
10690	2.88	810.00	1004.94	84.30
10694	11.92	1065.00	1212.77	63.90
10698	5.00	1210.00	1408.00	85.62
10704	4.62	605.00	778.18	74.89
10706	2.77	640.00	778.15	59.74
10708	3.85	1115.00	1213.59	42.64
10714	2.36	1120.00	1213.41	40.40
10716	4.65	825.00	1005.44	78.03
10718	2.10	840.00	1005.47	71.56
10722	20.41	530.00	778.99	107.67
10726	6.89	550.00	779.17	99.10
10732	7.65	1015.00	1212.58	85.44
10742	8.65	1015.00	1212.58	85.44
10766	0.50	590.00	778.21	81.39
10772	2.28	980.00	1212.44	100.51
10774	10.23	575.00	778.35	87.94
10784	4.38	1225.00	1407.93	79.11
10788	2.77	770.00	1004.12	101.24
10790	5.78	990.00	1212.54	96.23
10800	15.33	760.00	1004.00	105.51
10838	5.45	790.00	1004.47	92.74
10846	0.17	1105.00	1425.40	138.55
10848	6.58	975.00	1212.44	102.68
10862	1.22	790.00	1004.47	92.74
10868	3.35	1200.00	1408.90	90.33
10870	3.00	1125.00	1213.27	38.17
10872	6.01	1150.00	1425.44	119.11
10880	0.75	960.00	1212.28	109.10

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
10902	5.01	735.00	1003.92	116.29
10904	1.83	555.00	778.26	96.54
10906	3.47	850.00	1006.02	67.47
10910	1.22	730.00	1003.94	118.46
10912	3.17	925.00	1211.55	123.91
10928	4.72	1015.00	1212.59	85.44
10942	3.98	675.00	778.12	44.59
10946	0.70	1185.00	1409.18	96.94
10950	10.73	1035.00	1212.76	76.87
10952	1.20	830.00	1005.23	75.78
10960	8.30	1190.00	1409.00	94.70
10964	5.05	1170.00	1409.79	103.69
10966	2.32	945.00	1211.32	115.17
10974	4.05	815.00	1004.94	82.14
10980	3.52	770.00	1004.01	101.19
10988	7.68	795.00	1003.98	90.37
10990	0.75	770.00	1003.96	101.17
10992	0.35	915.00	1211.40	128.17
10998	2.65	905.00	1211.35	132.47
11000	1.12	930.00	1211.39	121.68
11010	5.41	895.00	1007.09	48.47
11014	3.95	1135.00	1410.45	119.12
11020	3.50	1145.00	1410.79	114.94
11024	29.67	485.00	779.36	127.29
11026	6.18	1110.00	1212.98	44.53
11030	2.47	720.00	778.14	25.14
11036	2.73	480.00	779.38	129.46
11046	9.30	640.00	778.15	59.74
11066	4.06	1040.00	1212.71	74.68
11072	1.38	850.00	1005.74	67.35
11090	0.50	820.00	1005.01	80.00
11094	4.95	680.00	778.14	42.44
11102	1.08	730.00	1003.94	118.46
11106	1.08	945.00	1211.36	115.18
11114	3.58	1185.00	1410.19	97.38
11118	0.00	1235.00	1407.96	74.79
11126	2.10	830.00	1005.23	75.78
11128	2.38	1215.00	1425.50	91.03
11130	22.34	755.00	1003.92	107.64
11132	5.75	775.00	1003.96	99.01
11136	3.97	605.00	778.16	74.88
11140	2.97	725.00	1003.94	120.62
11144	5.60	600.00	778.30	77.10
11152	1.75	745.00	1003.92	111.96
11158	1.34	940.00	1211.36	117.35
11160	2.30	875.00	1006.32	56.79

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
11166	1.15	840.00	1005.47	71.56
11178	6.15	1070.00	1212.78	61.74
11198	3.13	760.00	1003.91	105.47
11202	6.13	965.00	1211.32	106.52
11204	1.95	850.00	1005.74	67.35
11208	7.28	995.00	1211.26	93.52
11214	1.48	1110.00	1425.40	136.39
11216	4.31	790.00	1003.90	92.50
11218	2.90	910.00	1211.27	130.28
11220	3.40	1255.00	1407.96	66.14
11226	3.53	795.00	1003.96	90.36
11228	5.90	810.00	1003.90	83.85
11230	2.42	1125.00	1212.95	38.03
11236	3.10	1210.00	1410.18	86.56
11238	4.72	1220.00	1409.25	81.84
11246	3.30	860.00	1006.02	63.15
11254	0.92	1115.00	1412.65	128.71
11256	0.77	1125.00	1412.65	124.39
11258	6.44	1060.00	1212.71	66.04
11260	10.70	1255.00	1407.98	66.16
11266	4.78	565.00	779.03	92.55
11280	19.33	555.00	779.33	97.01
11306	5.76	870.00	1006.32	58.95
11310	2.95	1155.00	1425.44	116.95
11312	2.20	1135.00	1411.40	119.52
11314	9.05	575.00	778.75	88.11
11316	4.55	1190.00	1410.42	95.32
11320	1.40	585.00	778.63	83.73
11328	8.65	1230.00	1408.55	77.21
11332	3.52	1180.00	1410.75	99.78
11342	2.97	1260.00	1408.55	64.24
11346	4.08	580.00	778.26	85.73
11348	3.47	1230.00	1408.65	77.26
11350	4.50	950.00	1211.35	113.01
11356	7.40	730.00	778.14	20.82
11358	8.97	635.00	778.18	61.92
11366	7.03	755.00	1007.62	109.24
11368	4.82	500.00	779.38	120.81
11386	5.49	630.00	778.15	64.07
11398	1.15	965.00	1211.34	106.52
11400	1.63	645.00	778.15	57.58
11408	1.05	570.00	778.26	90.06
11418	6.96	1080.00	1212.88	57.46
11420	0.30	900.00	1007.09	46.31
11424	4.82	1105.00	1212.91	46.66
11430	1.30	1090.00	1212.92	53.16

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
11452	2.22	745.00	1003.94	111.97
11478	3.27	525.00	779.37	110.00
11492	0.77	495.00	779.38	122.98
11496	2.03	1130.00	1412.57	122.19
11510	7.10	600.00	778.51	77.19
11512	0.80	1135.00	1412.86	120.16
11514	1.35	1125.00	1415.02	125.41
11518	2.42	595.00	778.63	79.41
11526	0.92	505.00	779.37	118.65
11532	4.28	1230.00	1409.55	77.65
11542	3.83	755.00	1003.94	107.65
11546	6.40	1175.00	1411.28	102.17
11558	12.50	1035.00	1212.81	76.89
11560	0.45	1135.00	1412.85	120.15
11562	7.44	1050.00	1213.03	70.50
11572	1.08	750.00	1003.94	109.81
11576	2.88	905.00	1211.25	132.43
11580	4.78	930.00	1211.22	121.61
11584	4.08	1140.00	1412.29	117.75
11586	0.35	735.00	778.14	18.66
11590	2.70	765.00	1007.61	104.91
11604	0.57	1095.00	1212.95	51.01
11606	1.73	600.00	778.50	77.19
11612	13.72	1090.00	1212.97	53.18
11614	0.00	1095.00	1212.95	51.01
11616	5.40	1250.00	1425.51	75.90
11624	2.65	510.00	779.37	116.49
11626	2.92	500.00	779.38	120.81
11634	3.97	480.00	779.45	129.49
11654	1.45	715.00	778.15	27.31
11656	5.10	695.00	778.15	35.96
11658	8.20	1265.00	1408.63	62.11
11664	3.55	825.00	1003.96	77.39
11680	2.05	985.00	1211.22	97.82
11682	1.50	960.00	1211.22	108.63
11684	23.60	1020.00	1212.10	83.07
11692	3.83	760.00	1003.93	105.48
11696	2.95	1245.00	1409.81	71.27
11700	1.65	1275.00	1425.51	65.09
11704	6.80	1215.00	1409.97	84.31
11712	2.39	1085.00	1213.07	55.38
11720	7.65	1205.00	1410.81	89.00
11724	3.65	1295.00	1646.98	152.21
11726	5.03	840.00	1003.98	70.91
11728	9.82	1510.00	1784.48	118.69
11732	9.80	780.00	1003.94	96.84

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
11738	1.95	825.00	1003.96	77.39
11740	1.73	865.00	1003.98	60.10
11748	0.52	730.00	778.15	20.82
11750	6.42	730.00	1004.05	118.51
11754	4.60	1250.00	1646.98	171.67
11756	4.97	1285.00	1646.98	156.53
11758	5.90	770.00	1003.94	101.16
11760	5.20	570.00	778.95	90.36
11764	2.62	905.00	1211.19	132.41
11766	0.05	1122.33	1415.04	126.58
11778	5.03	1155.00	1412.92	111.53
11782	2.32	715.00	778.15	27.31
11798	2.88	660.00	778.20	51.11
11800	5.40	650.00	778.23	55.45
11826	3.04	940.00	1211.22	117.28
11828	8.07	1240.00	1410.00	73.51
11830	2.85	1275.00	1410.09	58.42
11834	5.06	1150.00	1414.89	114.55
11854	3.47	630.00	778.27	64.12
11866	1.40	500.00	779.51	120.87
11874	2.65	1195.00	1411.35	93.56
11876	6.47	690.00	778.17	38.13
11884	4.38	840.00	1003.96	70.90
11890	3.33	675.00	778.18	44.62
11914	5.72	1170.00	1413.14	105.14
11916	6.90	1170.00	1415.66	106.23
11930	3.78	790.00	1003.94	92.51
11944	4.97	955.00	1211.20	110.79
11954	5.17	1175.00	1412.89	102.87
11962	3.30	690.00	778.17	38.13
11970	4.03	1130.00	1417.28	124.23
11978	2.05	870.00	1003.98	57.94
11988	3.26	925.00	1211.19	123.76
11992	0.75	925.00	1211.19	123.76
11996	3.18	915.00	1211.19	128.08
12000	7.55	600.00	778.16	77.04
12014	1.00	1010.00	1211.22	87.01
12016	2.95	1300.00	1646.99	150.05
12020	2.95	635.00	778.27	61.96
12028	4.47	620.00	778.26	68.44
12030	3.97	870.00	1003.98	57.94
12036	8.10	955.00	1211.21	110.80
12050	7.20	975.00	1211.22	102.15
12052	8.20	965.00	1211.20	106.46
12058	5.34	1065.00	1213.09	64.04
12064	4.65	800.00	1003.94	88.19

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
12074	3.02	1140.00	1417.72	120.09
12084	1.63	650.00	778.27	55.47
12088	1.96	560.00	779.35	94.86
12090	1.34	555.00	779.34	97.01
12100	0.38	550.00	779.61	99.29
12102	0.43	550.00	779.61	99.29
12112	3.91	560.00	779.61	94.97
12120	2.03	900.00	1211.19	134.57
12124	17.35	1015.00	1211.33	84.90
12128	3.65	900.00	1003.97	44.96
12136	1.10	1035.00	1211.41	76.29
12140	8.61	1090.00	1213.74	53.51
12146	16.04	795.00	1003.94	90.35
12148	1.27	860.00	1003.97	62.26
12152	4.36	875.00	1003.99	55.78
12166	8.28	855.00	1003.96	64.42
12184	8.00	1280.00	1647.05	158.72
12186	2.80	918.50	1211.19	126.57
12190	6.20	615.00	779.29	71.04
12192	2.26	940.00	1211.19	117.27
12200	1.22	720.00	778.17	25.16
12210	7.28	615.00	778.25	70.59
12214	0.60	1195.00	1416.14	95.63
12226	6.04	1255.00	1410.81	67.38
12234	2.88	1265.00	1410.50	62.92
12242	3.00	1055.00	1212.18	67.97
12246	3.68	1070.00	1211.98	61.40
12250	4.70	1270.00	1410.27	60.66
12254	2.65	1270.00	1410.50	60.76
12264	3.58	1060.00	1209.16	64.50
12266	3.58	980.00	1211.19	99.98
12280	3.63	1055.00	1211.49	67.67
12282	8.17	1190.00	1413.24	96.54
12284	5.00	1225.00	1413.24	81.40
12296	2.13	1045.00	1211.41	71.96
12298	3.30	1200.00	1413.45	92.30
12300	1.77	1135.00	1419.30	122.94
12306	5.22	1150.00	1419.68	116.62
12308	1.95	1025.00	1211.25	80.54
12312	17.06	805.00	1003.94	86.03
12322	0.90	1285.00	1647.05	156.56
12326	8.25	895.00	1003.92	47.10
12336	0.35	1085.00	1213.04	55.37
12338	7.95	1315.00	1646.99	143.57
12356	29.55	840.00	1003.95	70.90
12358	1.42	850.00	1003.95	66.57

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
12364	1.67	1085.00	1213.04	55.37
12366	6.58	1145.00	1214.95	30.25
12378	1.88	1115.00	1213.04	42.40
12382	6.38	990.00	1211.19	95.65
12384	3.55	985.00	1211.19	97.81
12386	17.56	520.00	779.52	112.23
12388	3.02	1074.34	1209.16	58.30
12398	4.69	1170.00	1419.18	107.76
12414	0.47	1055.00	1209.16	66.66
12426	5.50	1205.00	1416.15	91.31
12440	0.00	635.00	779.48	62.48
12442	7.03	865.00	1007.60	61.67
12446	0.65	1080.00	1211.61	56.91
12452	1.83	1055.00	1211.49	67.67
12460	2.72	995.00	1211.19	93.49
12462	3.55	1025.00	1211.25	80.54
12464	4.60	1255.00	1411.45	67.65
12494	4.66	1055.00	1211.27	67.57
12496	4.22	1040.00	1211.21	74.04
12500	3.02	1095.00	1209.15	49.36
12502	13.45	640.00	778.26	59.79
12506	1.85	1185.00	1226.81	18.08
12508	2.00	850.00	1004.01	66.60
12518	8.90	685.00	778.26	40.33
12530	7.95	920.00	1211.19	125.92
12540	10.60	740.00	1004.93	114.56
12562	3.58	877.58	1004.00	54.67
12564	4.66	865.00	1004.00	60.11
12584	4.86	1205.00	1417.04	91.69
12604	1.15	1085.00	1211.45	54.68
12606	0.00	625.00	779.48	66.80
12610	1.32	1203.00	1421.76	94.60
12612	7.20	1330.00	1647.02	137.09
12620	7.92	1345.00	1647.03	130.61
12622	8.17	680.00	778.28	42.50
12628	1.30	1215.00	1413.88	86.00
12636	5.72	1245.00	1413.32	72.79
12648	0.35	865.00	1004.09	60.15
12656	1.08	1220.00	1414.48	84.10
12676	1.34	470.00	779.49	133.83
12684	1.47	1195.00	1419.18	96.94
12700	1.05	1095.00	1211.51	50.38
12708	7.10	785.00	1004.95	95.11
12710	4.55	790.00	1004.96	92.96
12716	3.95	575.00	779.62	88.48
12722	2.08	1115.00	1211.51	41.73

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
12726	3.20	1102.21	1211.47	47.25
12728	2.10	1190.00	1419.02	99.04
12734	5.15	1045.00	1211.18	71.86
12742	2.05	925.00	1208.95	122.79
12760	4.72	580.00	779.62	86.32
12762	25.31	525.00	779.53	110.07
12764	3.53	570.00	779.63	90.65
12772	4.53	590.00	779.61	81.99
12800	0.45	565.00	779.82	92.90
12802	3.17	1220.00	1416.27	84.87
12806	0.00	1185.00	1423.89	103.31
12808	2.45	1180.00	1421.21	104.31
12810	4.36	1235.00	1417.19	78.79
12818	1.95	1285.00	1647.08	156.57
12830	8.15	955.00	1211.12	110.76
12832	8.05	915.00	1211.13	128.05
12834	0.00	905.00	1211.13	132.38
12838	1.32	905.00	1211.13	132.38
12848	4.10	970.00	1211.13	104.27
12862	4.57	865.00	1211.16	149.69
12868	3.85	840.00	1004.96	71.34
12872	7.72	745.00	1005.03	112.44
12882	2.45	995.00	1211.12	93.46
12892	3.97	995.00	1211.13	93.46
12896	2.53	590.00	778.25	81.41
12898	5.17	1010.00	1211.14	86.98
12906	1.90	1225.00	1419.02	83.90
12910	6.69	1185.00	1423.92	103.32
12914	1.77	1125.00	1426.76	130.49
12924	3.35	1050.00	1211.17	69.69
12932	0.80	840.00	1004.96	71.34
12934	5.57	855.00	1007.60	65.99
12936	0.50	845.00	1004.96	69.17
12944	3.95	735.00	1005.29	116.88
12946	2.48	695.00	1005.29	134.18
12954	8.50	1310.00	1647.06	145.75
12964	8.38	780.00	1004.97	97.29
12976	0.45	875.00	1004.23	55.88
12978	6.35	800.00	1004.97	88.64
12982	0.76	890.00	1004.23	49.40
12992	0.20	755.00	1005.17	108.18
12994	2.30	755.00	1005.17	108.18
13010	3.60	1220.00	1418.89	86.01
13014	2.90	1240.00	1418.13	77.03
13018	3.05	1225.00	1419.07	83.92
13024	1.92	670.00	779.59	47.39

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
13026	4.55	680.00	1005.54	140.77
13028	0.00	670.00	779.59	47.39
13030	4.17	690.00	1005.54	136.45
13032	0.87	670.00	779.59	47.39
13034	1.12	670.00	779.59	47.39
13052	2.47	1090.00	1211.17	52.40
13054	3.90	765.00	1005.20	103.87
13060	8.70	1050.00	1211.15	69.69
13062	2.90	780.00	1005.20	97.38
13076	3.68	1090.00	1211.26	52.44
13086	4.97	1125.00	1211.25	37.30
13098	1.42	840.00	1004.97	71.34
13114	2.15	790.00	1005.29	93.10
13130	5.43	1150.00	1426.77	119.68
13132	2.42	1035.00	1209.09	75.28
13142	8.63	1215.00	1424.64	90.66
13144	0.72	610.00	780.02	73.52
13158	0.00	610.00	780.03	73.53
13160	1.13	840.00	1004.97	71.34
13170	1.45	1215.00	1426.78	91.58
13174	6.38	975.00	1211.12	102.11
13184	1.17	820.00	1005.29	80.13
13186	5.92	505.00	779.50	118.70
13216	5.65	1315.00	1647.06	143.59
13220	6.59	780.00	1005.29	97.42
13244	1.35	940.00	1211.17	117.26
13246	4.17	905.00	1211.17	132.40
13250	3.80	1145.00	1426.76	121.84
13252	11.65	1010.00	1211.12	86.97
13254	2.85	1190.00	1424.64	101.47
13256	3.40	1190.00	1424.64	101.47
13266	4.32	1365.00	1647.03	121.96
13272	1.01	1025.00	1209.09	79.60
13278	1.22	1220.00	1422.25	87.46
13282	5.65	1230.00	1424.11	83.94
13288	4.63	840.00	1004.97	71.34
13294	0.00	520.00	779.50	112.22
13300	0.65	520.00	779.50	112.22
13302	3.58	670.00	778.27	46.82
13304	0.94	610.00	780.03	73.53
13306	0.00	565.00	779.81	92.89
13308	0.20	565.00	779.81	92.89
13310	1.90	590.00	780.00	82.16
13318	7.61	655.00	779.76	53.95
13322	4.28	735.00	1005.33	116.90
13328	1.50	625.00	780.00	67.03

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
13334	1.61	540.00	779.58	103.60
13336	2.95	635.00	778.26	61.95
13344	0.43	625.00	780.02	67.04
13354	2.10	600.00	780.05	77.86
13358	1.65	655.00	778.27	53.30
13370	1.05	665.00	779.76	49.63
13374	1.98	770.00	1005.32	101.76
13376	1.89	630.00	780.07	64.90
13382	9.89	585.00	778.26	83.57
13384	0.00	565.00	779.82	92.90
13388	2.12	520.00	779.35	112.15
13398	6.22	995.00	1209.02	92.55
13410	4.57	945.00	1211.17	115.10
13418	0.30	850.00	1004.97	67.01
13420	0.13	1085.00	1211.19	54.57
13424	1.88	790.00	1005.29	93.10
13432	1.90	980.00	1211.12	99.94
13442	0.77	1000.00	1211.12	91.29
13446	5.75	850.00	1004.97	67.01
13448	2.20	850.00	1004.96	67.01
13454	1.38	1090.00	1211.20	52.41
13484	0.65	945.00	1211.17	115.10
13488	7.20	1145.00	1426.76	121.84
13496	10.52	960.00	1211.12	108.59
13500	1.22	725.00	1005.91	121.47
13502	4.40	805.00	1005.29	86.61
13518	4.51	735.00	1006.03	117.20
13522	3.56	720.00	1006.11	123.72
13530	5.32	760.00	1005.50	106.16
13550	2.77	1125.00	1211.16	37.26
13560	1.99	470.00	779.14	133.68
13566	0.00	465.00	779.14	135.85
13570	4.67	950.00	1211.19	112.95
13574	4.45	880.00	1004.93	54.02
13616	9.80	555.00	779.50	97.08
13620	7.72	575.00	779.50	88.43
13622	0.35	950.00	1211.19	112.95
13626	0.70	950.00	1211.20	112.95
13628	3.80	950.00	1211.19	112.95
13636	8.17	820.00	1005.35	80.15
13644	5.25	960.00	1211.17	108.61
13646	2.15	720.00	1006.12	123.73
13650	8.78	1095.00	1211.16	50.23
13652	4.17	985.00	1211.13	97.79
13662	3.70	1125.00	1425.99	130.16
13668	2.17	1025.00	1211.13	80.49

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
13678	4.15	770.00	1005.74	101.94
13688	2.25	1275.00	1423.16	64.07
13690	2.29	975.00	1211.13	102.11
13696	1.10	1245.00	1429.77	79.90
13702	0.40	685.00	779.76	40.98
13706	4.71	885.00	1005.20	51.98
13712	10.30	605.00	780.50	75.89
13716	2.64	1105.00	1422.98	137.51
13718	4.72	1015.00	1211.14	84.82
13722	5.75	1035.00	1211.14	76.17
13732	4.57	900.00	1211.23	134.59
13740	4.50	750.00	1006.09	110.74
13754	6.20	775.00	1005.74	99.78
13758	1.55	950.00	1211.20	112.95
13770	0.82	960.00	1211.20	108.63
13778	8.13	1225.00	1426.78	87.26
13780	8.60	1145.00	1426.00	121.51
13782	2.92	730.00	1006.23	119.45
13784	5.17	1350.00	1647.06	128.46
13808	0.52	1375.00	1647.06	117.65
13812	4.92	885.00	1211.39	141.14
13822	5.65	1345.00	1647.09	130.63
13824	5.22	1365.00	1647.07	121.97
13826	1.80	750.00	1006.15	110.77
13838	0.45	750.00	1006.21	110.79
13844	0.35	910.00	1211.23	130.26
13856	1.40	925.00	1211.23	123.77
13862	5.43	635.00	780.56	62.95
13866	3.35	1265.00	1428.00	70.49
13868	5.10	900.00	1005.34	45.55
13882	3.42	1085.00	1211.14	54.55
13884	7.05	985.00	1211.18	97.81
13886	8.50	850.00	1005.48	67.24
13902	4.22	710.00	1007.66	128.72
13904	2.63	885.00	1211.48	141.18
13906	7.03	920.00	1211.40	126.01
13908	3.30	960.00	1211.20	108.63
13912	10.45	660.00	1006.47	149.82
13914	3.22	975.00	1211.20	102.14
13916	1.10	925.00	1211.23	123.77
13918	0.92	750.00	1006.25	110.81
13920	1.08	750.00	1006.21	110.79
13924	1.83	770.00	1006.33	102.20
13928	2.25	1100.00	1211.14	48.06
13932	3.88	905.00	1005.53	43.47
13936	2.55	770.00	1006.25	102.16

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
13942	2.65	1115.00	1422.98	133.18
13952	2.01	1125.00	1422.98	128.86
13960	3.97	700.00	1007.69	133.05
13980	4.72	1135.00	1423.13	124.60
13988	2.10	765.00	1006.26	104.33
13998	1.05	660.00	781.34	52.47
14000	2.83	1160.00	1424.05	114.18
14002	3.49	985.00	1211.19	97.81
14008	4.80	1235.00	1426.05	82.62
14014	5.88	1005.00	1211.19	89.16
14016	5.65	985.00	1211.20	97.82
14022	4.42	810.00	1005.92	84.72
14028	5.20	1010.00	1211.14	86.98
14034	0.51	660.00	781.32	52.46
14054	1.30	660.00	781.32	52.46
14064	2.32	710.00	1006.50	128.22
14072	3.85	1045.00	1211.14	71.85
14086	2.25	1175.00	1424.33	107.82
14092	0.55	1095.00	1211.14	50.22
14096	2.38	1160.00	1424.04	114.18
14098	0.13	1235.00	1426.78	82.93
14100	4.25	710.00	1006.49	128.21
14104	5.03	780.00	1006.42	97.91
14106	4.25	1320.00	1647.04	141.42
14114	2.97	1370.00	1647.06	119.81
14116	2.17	880.00	1005.95	54.47
14120	4.30	1095.00	1422.98	141.83
14124	0.33	660.00	1006.47	149.82
14126	1.92	820.00	1006.21	80.52
14140	4.95	1140.00	1422.99	122.37
14148	1.52	515.00	779.28	114.28
14152	1.02	710.00	1006.45	128.20
14154	0.70	720.00	1006.46	123.87
14162	2.92	515.00	779.28	114.28
14170	0.13	775.00	1006.44	100.08
14178	6.14	530.00	779.46	107.88
14180	0.28	700.00	1007.78	133.10
14184	0.00	775.00	1006.58	100.14
14190	5.25	945.00	1211.23	115.13
14194	2.30	735.00	1006.30	117.32
14204	3.50	810.00	1006.15	84.82
14214	2.20	1010.00	1209.02	86.06
14220	3.07	800.00	1006.21	89.17
14222	0.30	805.00	1006.30	87.05
14224	2.20	1150.00	1423.03	118.07
14226	8.93	1165.00	1423.04	111.59

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
14232	0.20	770.00	1006.48	102.26
14238	1.27	770.00	1006.33	102.20
14248	6.42	775.00	1006.58	100.14
14262	4.28	540.00	779.49	103.56
14286	4.33	885.00	1211.53	141.20
14290	4.40	1345.00	1647.04	130.61
14296	11.15	1355.00	1646.94	126.24
14304	0.82	1235.00	1426.05	82.62
14324	130.97	700.00	1008.21	133.28
14326	4.82	795.00	1006.72	91.56
14332	7.45	905.00	1211.48	132.53
14334	2.15	760.00	1006.30	106.51
14344	6.58	1220.00	1425.19	88.73
14348	2.10	935.00	1211.39	119.52
14350	0.43	715.00	1006.53	126.07
14358	4.05	1030.00	1211.16	78.34
14366	2.63	550.00	779.52	99.25
14370	5.40	945.00	1208.95	114.14
14374	7.19	1075.00	1211.15	58.87
14384	0.22	880.00	1005.96	54.47
14386	5.31	860.00	1005.99	63.13
14400	4.31	840.00	1006.14	71.85
14406	6.92	1115.00	1422.83	133.12
14418	2.28	800.00	1006.51	89.30
14420	4.13	975.00	1208.95	101.17
14426	0.90	855.00	1006.20	65.38
14434	4.20	730.00	1006.86	119.72
14436	1.10	805.00	1006.31	87.05
14450	4.50	960.00	1211.24	108.65
14452	4.67	1420.00	1711.03	125.85
14454	6.56	980.00	1211.21	99.98
14460	3.25	1090.00	1211.15	52.39
14464	3.55	1115.00	1211.15	41.58
14468	11.40	600.00	780.73	78.15
14472	0.00	1085.00	1422.83	146.09
14476	4.70	1025.00	1211.18	80.51
14488	3.35	1235.00	1433.07	85.65
14490	9.85	1040.00	1211.20	74.03
14506	0.00	490.00	790.21	129.82
14524	2.10	800.00	1006.66	89.37
14528	3.42	820.00	1006.30	80.56
14538	3.40	1355.00	1649.61	127.40
14540	6.58	1360.00	1649.73	125.29
14546	1.79	890.00	1006.20	50.25
14550	2.35	950.00	1208.94	111.97
14556	2.83	770.00	1007.04	102.50

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
14568	2.44	835.00	1006.28	74.07
14572	2.71	845.00	1006.28	69.74
14574	8.05	1390.00	1650.90	112.82
14578	0.67	1105.00	1422.83	137.44
14580	6.19	870.00	1006.26	58.92
14590	3.42	1120.00	1422.80	130.94
14600	3.50	990.00	1208.95	94.68
14608	6.00	1190.00	1422.96	100.74
14612	3.22	520.00	779.30	112.13
14620	1.25	540.00	779.15	103.41
14622	6.32	1300.00	1426.78	54.82
14626	2.60	1115.00	1422.80	133.10
14630	4.28	820.00	1007.03	80.88
14636	1.56	580.00	779.65	86.33
14638	2.20	1345.00	1649.02	131.47
14640	0.00	585.00	780.73	84.64
14644	19.83	1330.00	1648.90	137.90
14652	1.35	1090.00	1211.17	52.40
14654	2.42	720.00	1007.13	124.17
14660	4.40	740.00	1006.91	115.42
14662	5.93	975.00	1211.50	102.27
14668	6.30	600.00	780.77	78.17
14672	0.13	970.00	1211.41	104.40
14680	0.00	678.00	778.27	43.36
14684	11.20	980.00	1211.42	100.07
14714	2.83	1105.00	1422.79	137.42
14726	3.22	1195.00	1423.11	98.64
14728	5.69	550.00	779.43	99.21
14730	2.57	755.00	1006.91	108.94
14732	3.90	770.00	1007.04	102.50
14734	1.65	1280.00	1433.38	66.33
14738	0.08	910.00	1007.59	42.20
14746	4.94	770.00	1007.04	102.50
14750	4.32	815.00	1007.03	83.04
14770	2.05	755.00	1006.92	108.94
14776	1.42	890.00	1006.46	50.36
14794	6.07	1419.29	1651.58	100.45
14798	5.25	995.00	1211.44	93.60
14800	0.10	640.00	781.56	61.22
14806	0.43	995.00	1211.47	93.61
14812	7.98	765.00	1007.04	104.67
14832	2.88	905.00	1007.58	44.36
14834	4.91	870.00	1006.43	59.00
14848	3.02	1025.00	1208.98	79.56
14854	7.45	635.00	780.91	63.10
14872	0.67	925.00	1208.93	122.78

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
14882	2.77	895.00	1006.90	48.39
14884	2.93	1020.00	1211.46	82.79
14886	0.81	990.00	1211.53	95.80
14896	2.54	1205.00	1423.07	94.30
14906	6.35	830.00	1007.15	76.61
14910	1.08	1280.00	1515.13	101.68
14918	4.05	1290.00	1515.09	97.34
14932	2.75	1195.00	1422.93	98.57
14938	0.17	1435.00	1653.74	94.59
14946	2.67	1305.00	1514.91	90.77
14950	3.80	680.00	1007.25	141.51
14952	0.64	675.00	1007.25	143.67
14956	6.35	955.00	1211.55	110.94
14958	2.75	1150.00	1422.67	117.91
14968	2.97	950.00	1211.61	113.13
14970	1.22	1170.00	1422.67	109.26
14974	4.82	705.00	1007.21	130.68
14986	10.53	1080.00	1211.23	56.75
14998	3.88	1105.00	1211.31	45.97
15002	1.15	1205.00	1423.04	94.29
15004	1.67	1025.00	1208.98	79.56
15010	3.83	975.00	1211.54	102.29
15012	1.95	1230.00	1423.04	83.48
15018	4.97	1340.00	1519.82	77.76
15022	4.16	696.00	1007.24	134.59
15024	10.80	1225.00	1423.27	85.74
15026	2.12	1055.00	1208.98	66.59
15034	0.82	935.00	1211.70	119.65
15036	7.87	990.00	1211.56	95.81
15072	7.72	845.00	1007.29	70.18
15074	1.73	880.00	1007.80	55.26
15084	1.63	780.00	1007.11	98.21
15086	4.72	780.00	1007.11	98.21
15094	1.55	940.00	1211.70	117.49
15100	3.33	810.00	1007.11	85.24
15116	2.13	950.00	1208.94	111.97
15118	0.63	985.00	1208.94	96.84
15130	5.57	1165.00	1422.57	111.38
15136	1.05	905.00	1211.70	132.63
15138	0.57	905.00	1211.70	132.63
15142	1.51	915.00	1211.70	128.30
15146	8.93	1030.00	1211.50	78.49
15148	2.97	1055.00	1211.55	67.70
15150	0.00	825.00	1007.14	78.76
15152	1.90	1260.00	1522.13	113.35
15162	1.27	825.00	1007.14	78.76

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
15170	1.90	1270.00	1521.16	108.61
15184	2.03	1230.00	1423.00	83.46
15188	7.37	805.00	1007.19	87.43
15196	1.37	1095.00	1211.31	50.30
15198	9.85	1285.00	1526.42	104.40
15200	3.42	1200.00	1422.93	96.40
15202	8.30	885.00	1007.31	52.89
15204	4.85	955.00	1208.92	109.80
15206	0.70	885.00	1007.88	53.14
15208	1.65	925.00	1211.70	123.98
15210	3.86	1215.00	1422.94	89.92
15220	1.50	975.00	1211.75	102.38
15236	3.13	1330.00	1519.98	82.15
15238	7.59	815.00	1007.33	83.17
15264	5.22	1005.00	1211.64	89.36
15274	6.27	1070.00	1211.56	61.22
15276	4.81	1070.00	1211.58	61.22
15290	0.70	925.00	1211.70	123.98
15292	0.88	1130.00	1422.56	126.51
15300	3.02	985.00	1208.94	96.84
15302	6.88	1150.00	1422.48	117.83
15308	2.54	940.00	1211.77	117.52
15316	3.17	685.00	785.25	43.35
15318	5.90	825.00	1007.78	79.04
15324	1.46	715.00	1007.42	126.45
15326	4.97	1250.00	1422.90	74.77
15330	1.65	905.00	1211.77	132.66
15332	0.20	900.00	1211.79	134.83
15346	5.40	955.00	1211.75	111.03
15354	2.18	645.00	781.01	58.82
15390	8.13	735.00	1007.33	117.77
15398	0.30	650.00	781.10	56.69
15400	2.75	1070.00	1211.61	61.23
15402	2.17	970.00	1211.75	104.54
15406	7.87	1085.00	1211.49	54.70
15426	1.30	930.00	1211.96	121.93
15428	2.77	925.00	1211.86	124.05
15430	4.78	1238.35	1423.00	79.85
15436	4.35	730.00	1007.40	119.96
15444	5.97	1020.00	1208.97	81.72
15450	1.52	1260.00	1423.00	70.48
15452	5.97	745.00	1007.45	113.49
15456	7.42	980.00	1211.77	100.22
15458	0.92	990.00	1211.74	95.89
15464	2.88	885.00	1008.67	53.48
15470	4.90	1000.00	1211.75	91.57

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
15490	2.28	1335.00	1530.27	84.44
15492	10.78	530.00	778.95	107.66
15510	7.15	1020.00	1211.75	82.92
15512	7.65	835.00	1007.94	74.78
15518	2.81	875.00	1007.92	57.48
15526	2.38	775.00	1007.51	100.54
15534	3.10	595.00	778.87	79.51
15550	1.45	1095.00	1422.56	141.65
15560	8.76	930.00	1208.92	120.61
15566	2.53	1135.00	1422.88	124.49
15568	2.10	1100.00	1422.50	139.46
15578	4.22	965.00	1211.91	106.77
15580	2.28	1080.00	1211.72	56.96
15588	2.01	1035.00	1211.90	76.50
15598	3.95	1050.00	1208.96	68.74
15612	1.77	880.00	1008.67	55.64
15622	9.23	810.00	1007.65	85.47
15630	2.03	750.00	1007.45	111.33
15632	3.88	1230.00	1422.30	83.16
15634	5.53	1215.00	1422.29	89.64
15636	2.13	805.00	1007.65	87.63
15646	3.35	1155.00	1422.50	115.67
15650	6.54	1330.00	1522.24	83.13
15660	4.22	770.00	1007.51	102.71
15668	4.80	1115.00	1422.39	132.92
15680	7.07	660.00	781.22	52.42
15686	4.80	635.00	780.94	63.11
15690	2.88	660.00	781.33	52.47
15698	0.99	705.00	1007.46	130.79
15700	4.63	675.00	1007.46	143.77
15706	1.52	620.00	780.84	69.55
15722	0.00	720.00	1007.43	124.30
15724	4.26	745.00	1007.47	113.50
15732	3.90	875.00	1008.66	57.80
15734	0.57	900.00	1008.67	46.99
15742	2.00	1310.00	1542.88	100.71
15744	2.92	1265.00	1542.87	120.16
15746	1.65	900.00	1212.32	135.06
15768	4.51	1115.00	1211.61	41.78
15772	0.45	590.00	778.80	81.64
15780	2.85	1110.00	1211.73	43.99
15784	5.43	1365.00	1529.94	71.33
15788	5.60	960.00	1208.92	107.64
15790	2.45	1195.00	1422.21	98.25
15800	5.80	1090.00	1211.81	52.68
15802	4.39	830.00	1007.83	76.90

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
15812	3.08	845.00	1008.16	70.56
15814	7.02	605.00	778.75	75.14
15816	6.55	575.00	778.71	88.09
15826	2.65	580.00	778.68	85.92
15828	2.33	605.00	778.68	75.11
15830	6.59	550.00	778.76	98.92
15836	4.78	510.00	778.77	116.23
15838	3.17	550.00	778.72	98.91
15840	1.26	1245.00	1551.49	132.54
15856	3.13	1135.00	1422.96	124.52
15872	6.92	730.00	1007.46	119.98
15874	1.17	1000.00	1208.92	90.34
15878	5.81	765.00	1007.54	104.88
15882	0.30	490.00	778.82	124.89
15886	4.71	800.00	1007.66	89.80
15900	10.84	845.00	1008.16	70.56
15906	3.64	805.00	1007.66	87.64
15924	0.28	765.00	1007.53	104.88
15930	1.57	885.00	1008.69	53.49
15936	2.70	1305.00	1537.51	100.55
15942	3.83	770.00	1007.56	102.73
15948	7.18	1310.00	1536.94	98.13
15956	0.00	1000.00	1016.21	7.01
15960	7.90	1060.00	1212.05	65.75
15976	5.46	530.00	778.70	107.55
15992	10.94	919.00	1212.32	126.84
16018	1.35	1105.00	1211.83	46.20
16030	0.63	605.00	778.67	75.10
16034	1.06	1005.00	1212.69	89.81
16036	5.34	1130.00	1421.61	126.10
16042	0.57	565.00	778.72	92.42
16054	0.00	730.00	1007.46	119.98
16058	2.15	605.00	778.64	75.09
16062	2.94	615.00	778.66	70.77
16100	2.67	775.00	1007.57	100.57
16112	2.30	875.00	1008.72	57.82
16114	2.45	875.00	1008.72	57.83
16118	4.23	888.49	1008.70	51.98
16120	4.53	1330.00	1534.51	88.44
16128	5.65	635.00	780.48	62.91
16134	3.13	575.00	778.64	88.06
16144	1.27	1335.00	1532.05	85.21
16156	1.27	1345.00	1531.25	80.54
16158	2.63	1030.00	1212.69	79.00
16162	2.88	1400.00	1532.04	57.10
16168	1.05	1380.00	1531.25	65.40

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
16172	3.35	1310.00	1551.13	104.27
16174	4.92	1110.00	1212.13	44.16
16176	1.65	1230.00	1422.20	83.11
16192	3.64	545.00	778.68	101.05
16194	1.73	1115.00	1423.26	133.30
16196	3.20	550.00	778.64	98.87
16204	2.21	570.00	778.67	90.24
16208	1.40	1010.00	1212.72	87.66
16216	14.27	975.00	1212.27	102.60
16220	9.40	805.00	1007.66	87.64
16222	4.35	1080.00	1212.49	57.29
16234	3.32	1110.00	1212.49	44.32
16238	2.64	805.00	1007.65	87.63
16242	2.88	775.00	1007.57	100.57
16250	2.70	770.00	1007.58	102.74
16268	4.82	655.00	780.07	54.08
16270	3.37	1150.00	1422.82	117.97
16276	2.42	1165.00	1422.81	111.49
16280	1.85	620.00	778.56	68.57
16282	3.47	575.00	778.61	88.05
16290	0.52	600.00	778.61	77.24
16292	6.28	605.00	778.59	75.06
16294	3.60	1125.00	1423.22	128.96
16296	46.30	683.00	777.60	40.91
16306	3.27	1150.00	1422.81	117.97
16312	4.55	745.00	1007.55	113.53
16320	7.00	1355.00	1536.07	78.30
16330	4.18	525.00	778.62	109.67
16334	1.29	565.00	778.64	92.39
16338	7.11	1055.00	1213.05	68.35
16360	2.70	990.00	1212.48	96.21
16376	0.77	965.00	1212.38	106.97
16380	5.43	685.00	780.04	41.10
16384	6.49	1180.00	1422.20	104.74
16388	3.65	1205.00	1421.83	93.76
16390	1.81	945.00	1212.37	115.62
16402	3.37	930.00	1212.36	122.10
16406	6.07	1350.00	1553.23	87.89
16412	1.05	885.00	1009.04	53.64
16420	3.70	910.00	1017.44	46.46
16422	3.88	522.50	778.66	110.77
16424	4.72	895.00	1008.70	49.17
16428	0.00	910.00	1212.36	130.75
16434	2.25	815.00	1007.73	83.34
16438	3.94	575.00	778.58	88.03
16440	1.42	1060.00	1212.71	66.04

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
16446	1.77	1200.00	1422.00	96.00
16450	0.25	1220.00	1422.00	87.35
16454	1.25	1295.00	1551.31	110.84
16456	4.05	1305.00	1552.42	106.99
16458	10.29	1190.00	1420.82	99.81
16468	2.47	760.00	1007.45	107.01
16470	3.57	620.00	778.56	68.57
16474	8.20	840.00	1008.11	72.70
16478	2.32	1170.00	1422.46	109.17
16490	4.90	680.00	780.06	43.27
16494	4.30	1180.00	1422.56	104.89
16500	2.62	540.00	778.61	103.18
16512	3.13	1105.00	1423.66	137.80
16514	1.77	1105.00	1212.88	46.65
16520	0.00	695.00	776.05	35.05
16530	0.05	1065.00	1213.16	64.07
16550	1.07	770.00	1007.59	102.74
16566	2.53	1070.00	1212.89	61.79
16568	0.28	790.00	1007.65	94.12
16572	0.00	689.00	770.40	35.20
16576	3.80	515.00	778.48	113.94
16580	1.27	800.00	1007.73	89.83
16602	4.65	555.00	778.53	96.66
16604	203.58	702.00	1009.45	132.95
16606	0.43	1065.00	1213.39	64.17
16614	14.37	570.00	778.52	90.17
16630	4.54	715.00	1007.57	126.52
16652	10.47	995.00	1212.29	93.96
16678	7.80	620.00	778.54	68.56
16686	4.42	965.00	1210.87	106.32
16692	6.92	930.00	1210.86	121.45
16696	0.08	895.00	1008.70	49.17
16698	0.00	688.00	1010.60	139.50
16702	3.72	895.00	1009.06	49.32
16706	0.00	885.00	1009.22	53.72
16708	0.33	880.00	1008.56	55.59
16718	1.71	530.00	778.53	107.47
16720	2.63	530.00	778.48	107.45
16724	2.18	555.00	778.53	96.66
16730	1.40	1100.00	1424.15	140.17
16736	0.95	1115.00	1424.25	133.73
16738	10.65	1390.00	1556.40	71.96
16740	0.00	1270.00	1570.45	129.93
16742	2.70	1230.00	1570.45	147.22
16750	1.05	1070.00	1213.53	62.07
16756	4.28	1170.00	1423.43	109.59

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
16760	4.60	715.00	1007.58	126.52
16774	6.30	665.00	779.75	49.62
16778	8.93	645.00	779.71	58.25
16780	8.02	1120.00	1424.24	131.56
16804	2.17	1095.00	1213.44	51.22
16810	5.40	690.00	779.74	38.81
16814	0.22	1090.00	1213.90	53.58
16816	0.00	701.00	766.18	28.19
16818	21.40	785.00	1007.60	96.26
16828	3.60	1055.00	1213.29	68.45
16834	9.45	690.00	1007.58	137.33
16850	3.95	815.00	1008.26	83.57
16858	2.47	550.00	778.48	98.80
16866	4.28	735.00	1007.59	117.88
16872	23.89	704.00	1014.38	134.22
16886	2.28	740.00	1007.58	115.71
16892	7.13	1000.00	1211.39	91.41
16898	6.68	1215.00	1421.83	89.44
16916	3.13	1120.00	1424.67	131.75
16922	3.58	990.00	1211.00	95.57
16928	4.40	845.00	1008.52	70.71
16934	0.00	706.00	764.89	25.47
16936	5.28	970.00	1210.76	104.11
16948	4.03	1045.00	1212.74	72.54
16954	1.95	605.00	778.52	75.03
16964	3.42	1045.00	1212.74	72.54
16966	4.13	950.00	1210.52	112.66
16972	3.42	925.00	1210.24	123.35
16978	1.97	970.00	1210.52	104.01
16980	2.88	515.00	778.44	113.92
16984	2.80	1140.00	1424.95	123.22
16988	1.27	1255.00	1570.44	136.41
16994	7.52	1435.00	1551.64	50.44
17000	6.90	745.00	1007.62	113.56
17012	4.53	1200.00	1423.39	96.60
17028	14.80	1270.00	1416.90	63.52
17030	0.43	880.00	1008.55	55.59
17032	3.92	895.00	1008.51	49.09
17034	1.88	635.00	778.52	62.06
17036	5.15	1270.00	1570.45	129.93
17038	4.32	1420.00	1556.40	58.98
17048	1.83	1090.00	1213.95	53.60
17052	6.00	1090.00	1213.56	53.43
17058	3.72	845.00	1008.28	70.61
17060	2.42	1260.00	1570.44	134.24
17062	4.78	1180.00	1424.44	105.70

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
17068	0.00	706.00	1015.66	133.91
17078	4.00	1225.00	1423.11	85.67
17080	2.05	1045.00	1212.53	72.45
17082	4.42	1040.00	1211.98	74.37
17092	4.16	825.00	1008.22	79.23
17096	7.52	725.00	1007.58	122.20
17100	9.12	750.00	1007.64	111.41
17114	1.90	1025.00	1211.35	80.58
17116	2.53	680.00	1007.58	141.66
17120	3.37	895.00	1210.14	136.28
17124	9.57	1160.00	1424.67	114.45
17132	0.00	1130.00	1425.25	127.68
17134	6.95	1340.00	1569.61	99.29
17144	1.95	1400.00	1561.21	69.71
17148	0.00	1230.00	1423.71	83.77
17150	0.55	1230.00	1423.71	83.77
17164	0.35	700.00	1006.49	132.54
17166	1.13	695.00	1006.47	134.69
17174	0.25	885.00	996.84	48.36
17176	0.30	850.00	996.90	63.52
17186	0.00	640.00	781.65	61.25
17188	0.67	641.31	781.65	60.69
17192	1.15	1105.00	1423.32	137.65
17194	2.20	1120.00	1421.29	130.29
17196	2.92	1125.00	1420.52	127.79
17218	2.85	1250.00	1417.19	72.30
17220	1.25	1255.00	1648.60	170.20
17222	2.88	1270.00	1648.60	163.72
17250	0.55	620.00	795.04	75.70
17254	20.97	575.00	778.11	87.83
17260	12.57	540.00	779.48	103.56
17262	1.63	675.00	1001.12	141.03
17270	5.60	490.00	777.07	124.14
17288	1.22	685.00	1005.01	138.39
17312	0.52	765.00	1004.02	103.36
17316	7.72	765.00	1004.02	103.36
17318	0.00	475.00	776.97	130.58
17320	0.00	475.00	776.96	130.58
17330	2.88	925.00	1008.70	36.20
17332	1.10	1295.00	1570.38	119.08
17334	1.67	1295.00	1570.38	119.08
17346	2.73	725.00	998.33	118.20
17348	4.90	895.00	1211.60	136.91
17350	2.38	950.00	1211.60	113.12
17352	0.03	675.00	781.33	45.98
17358	0.00	1203.00	1403.82	86.84

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
17366	0.00	1203.00	1404.01	86.92
17370	5.32	1205.00	1403.39	85.79
17372	13.07	1340.00	1402.38	26.98
17374	6.00	1170.00	1403.20	100.84
17378	6.40	1330.00	1402.34	31.28
17380	11.18	1145.00	1403.12	111.62
17382	2.85	1325.00	1402.30	33.43
17384	3.97	1270.00	1549.86	121.02
17386	0.55	1295.00	1551.29	110.83
17408	2.28	1280.00	1569.09	125.01
17410	0.63	1320.00	1569.09	107.71
17414	3.55	515.00	779.29	114.29
17416	3.92	560.00	779.55	94.94
17438	0.65	905.00	1210.24	131.99
17440	1.75	710.00	1006.23	128.10
17442	1.73	710.00	1006.28	128.12
17444	1.20	680.00	1006.28	141.10
17448	0.52	1070.00	1391.27	138.93
17452	0.00	515.00	779.29	114.29
17454	0.00	515.00	779.30	114.29
17490	1.92	900.00	1211.79	134.83
17492	1.92	920.00	1211.79	126.18
17502	5.30	765.00	1004.31	103.49
17508	0.00	510.00	784.96	118.90
17516	1.22	1504.38	1702.21	85.55
17518	2.17	1505.00	1698.16	83.53
17556	0.55	920.00	1208.93	124.94
17562	0.00	480.00	779.99	129.73
17564	0.03	480.00	780.00	129.73
17574	1.60	900.00	1005.26	45.52
17580	0.50	895.00	1004.16	47.20
17582	7.20	890.00	1004.16	49.37
17584	0.17	710.00	1005.55	127.81
17602	0.07	710.00	1005.65	127.85
17610	8.78	660.00	781.34	52.47
17612	0.03	650.00	1006.47	154.15
17614	2.16	665.00	1006.47	147.66
17620	0.00	925.00	1211.86	124.05
17622	2.00	925.00	1211.70	123.98
17624	1.25	925.00	1211.70	123.98
17628	0.72	895.00	1211.75	136.97
17638	13.25	1270.00	1648.79	163.80
17646	3.47	1145.00	1423.48	120.42
17676	0.00	645.00	781.65	59.09
17694	14.80	690.00	779.40	38.66
17696	0.00	740.00	817.30	33.43

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
17698	2.53	690.00	1004.10	135.83
17702	2.28	690.00	1004.10	135.83
17754	4.07	710.00	1001.15	125.90
17764	6.09	715.00	781.95	28.95
17770	0.00	710.00	782.22	31.23
17780	3.55	785.00	1000.93	93.38
17782	3.10	1120.00	1211.19	39.44
17784	0.92	1095.00	1211.42	50.34
17804	4.78	895.00	1211.33	136.79
17806	2.47	925.00	1211.32	123.82
17812	0.31	775.00	781.34	2.74
17816	0.00	775.00	778.29	1.42
17832	2.91	620.00	776.85	67.83
17834	2.56	630.00	776.85	63.50
17836	33.65	615.00	777.21	70.15
17840	1.88	585.00	780.01	84.33
17842	0.00	585.00	780.01	84.33
17844	1.08	610.00	780.02	73.52
17850	0.00	585.00	779.61	84.16
17862	2.95	900.00	1022.80	53.10
17876	1.25	915.00	1015.24	43.35
17878	0.00	1000.00	1024.50	10.59
17886	0.75	725.00	1004.93	121.05
17892	2.75	740.00	1004.93	114.56
17924	0.29	855.00	1211.16	154.02
17930	8.38	665.00	1005.54	147.26
17932	32.11	830.00	1003.94	75.22
17934	2.46	840.00	1003.94	70.89
17942	3.74	610.00	780.02	73.52
17946	0.00	1000.00	1237.29	102.61
17948	0.00	1203.00	1236.01	14.27
17950	6.07	1155.00	1424.63	116.60
17952	2.03	1115.00	1424.62	133.89
17968	1.22	1110.00	1212.95	44.52
17970	2.63	1115.00	1417.71	130.90
17974	3.02	925.00	1211.71	123.98
17976	3.05	900.00	1211.70	134.79
17980	5.47	855.00	1026.12	74.00
18004	1.25	720.00	1003.94	122.79
18006	1.08	710.00	1003.94	127.11
18008	1.45	705.00	1003.94	129.27
18010	3.00	755.00	1003.93	107.65
18026	4.90	640.00	778.14	59.74
18046	19.70	750.00	795.10	19.50
18048	0.00	775.00	795.10	8.69
18054	0.47	780.00	1004.37	97.02

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
18056	1.88	760.00	1004.37	105.67
18062	0.87	685.00	778.39	40.39
18064	4.71	685.00	796.05	48.02
18080	2.88	550.00	778.85	98.96
18082	0.00	555.00	778.47	96.64
18092	9.64	520.00	779.58	112.25
18094	0.00	505.00	779.70	118.79
18106	0.17	530.00	779.62	107.94
18128	5.07	600.00	778.15	77.04
18136	5.35	605.00	778.16	74.88
18142	6.58	485.00	780.40	127.74
18176	2.90	490.00	780.10	125.45
18178	2.47	480.00	780.19	129.81
18200	0.00	480.00	682.19	87.43
18208	0.00	480.00	682.13	87.41
18214	24.64	485.00	785.54	129.97
18216	0.00	490.00	785.62	127.84
18228	7.04	505.00	785.73	121.40
18234	0.00	485.00	801.92	137.05
18340	15.50	485.00	801.32	136.79
18354	4.31	605.00	776.88	74.33
18400	0.00	485.00	681.82	85.11
18412	0.00	465.00	681.81	93.76
18470	2.17	1000.00	1231.48	100.10
18472	0.00	1200.00	1221.21	9.17
18476	4.80	1340.00	1530.30	82.29
18480	3.92	1270.00	1530.80	112.78
18488	3.92	1100.00	1210.47	47.77
18566	1.67	920.00	1211.92	126.24
18568	2.06	975.00	1013.52	16.66
18572	0.00	1000.00	1016.22	7.01
18594	0.00	770.00	1019.81	108.02
18600	4.01	935.00	1210.14	118.98
18602	2.42	895.00	1210.14	136.28
18624	0.55	685.00	785.26	43.35
18628	5.25	535.00	789.33	109.98
18656	0.00	1210.00	1220.90	4.71
18658	0.00	1210.00	1431.81	95.92
18660	0.33	1220.00	1422.63	87.63
18682	5.32	730.00	782.95	22.90
18688	9.35	459.84	823.00	157.04
18692	0.75	515.00	790.91	119.31
18732	0.77	1270.00	1423.69	66.46
18734	0.00	1270.00	1648.79	163.80
18736	0.00	1275.00	1648.79	161.64
18744	0.00	1280.00	1648.79	159.48

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
18746	3.08	1310.00	1514.91	88.61
18748	1.52	1380.00	1425.48	19.67
18750	0.00	1203.00	1430.54	98.39
18758	0.00	1380.00	1411.60	13.67
18764	0.00	1390.00	1647.06	111.16
18776	2.38	1295.00	1569.37	118.65
18790	4.47	1215.00	1425.49	91.02
18792	8.70	1175.00	1425.40	108.28
18806	4.15	1570.00	1566.03	-1.72
18810	5.60	1515.00	1567.78	22.82
18816	0.87	525.00	778.94	109.81
18818	2.84	525.00	778.93	109.81
18820	0.00	480.00	778.82	129.22
18834	0.08	510.00	779.11	116.37
18836	3.44	480.00	778.98	129.29
18838	4.00	1460.00	1675.42	93.16
18844	3.46	495.00	778.92	122.78
18846	3.42	515.00	778.92	114.13
18848	1.50	515.00	778.93	114.13
18850	1.92	500.00	778.92	120.62
18852	0.00	505.00	778.92	118.45
18856	0.22	480.00	778.40	129.04
18858	0.43	510.00	778.42	116.07
18860	27.15	495.00	778.39	122.55
18868	1.05	480.00	778.39	129.03
18870	7.66	465.00	778.36	135.51
18876	0.00	465.00	778.36	135.51
18882	3.60	535.00	778.30	105.21
18884	4.89	520.00	778.30	111.70
18886	12.43	510.00	778.29	116.02
18926	0.57	745.00	1007.47	113.50
18928	5.67	750.00	1007.48	111.34
18934	2.45	835.00	996.88	70.00
18936	1.94	860.00	996.86	59.18
18938	2.10	860.00	996.86	59.18
18950	3.35	750.00	1000.93	108.51
18956	1.48	715.00	1001.06	123.70
18958	34.07	745.00	1000.93	110.67
18962	6.16	765.00	1000.93	102.02
18978	6.20	705.00	778.29	31.69
18980	2.75	705.00	778.29	31.69
18996	6.52	810.00	1004.60	84.15
19022	0.80	920.00	1007.59	37.88
19026	7.78	635.00	778.11	61.89
19028	0.17	1145.00	1216.23	30.80
19030	1.20	1145.00	1215.94	30.68

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
19032	7.63	1100.00	1213.92	49.26
19040	3.00	630.00	780.01	64.87
19042	0.03	515.00	790.21	119.01
19044	0.00	458.26	793.22	144.85
19046	0.00	1203.00	1221.98	8.21
19048	0.00	1000.00	1231.05	99.92
19050	14.65	1110.00	1222.80	48.78
19052	3.47	1000.00	1024.50	10.59
19056	0.00	722.00	1030.61	133.45
19058	0.60	1040.00	1210.90	73.90
19060	5.88	960.00	1212.31	109.11
19064	17.20	640.00	796.63	67.73
19066	5.03	515.00	780.20	114.68
19068	0.55	515.00	780.29	114.72
19070	2.30	480.00	681.37	87.08
19072	0.35	465.00	681.81	93.75
19076	2.55	685.00	1005.01	138.38
19078	3.52	710.00	1005.02	127.57
19080	6.32	710.00	1005.55	127.80
19082	0.57	710.00	1005.55	127.81
19084	5.65	720.00	1007.43	124.30
19086	2.22	700.00	1007.72	133.07
19088	4.65	627.75	778.51	65.19
19092	4.82	1425.00	1784.47	155.45
19094	0.00	1205.00	1403.74	85.94
19096	0.00	770.00	775.27	2.28
19098	0.00	770.00	1008.37	103.08
19100	0.00	770.00	819.44	21.38
19102	0.25	1000.00	1024.48	10.59
19104	0.00	1203.00	1235.85	14.21
19106	0.00	1203.00	1430.93	98.57
19108	0.00	1380.00	1403.96	10.36
19110	0.00	1380.00	1716.31	145.43
19112	0.00	775.00	803.10	12.15
19114	0.00	770.00	781.85	5.13
19116	0.00	1000.00	1016.19	7.00
19118	0.45	1000.00	1231.73	100.21
19120	0.00	1210.00	1220.53	4.55
19122	0.00	1380.00	1574.94	84.30
19124	0.00	1384.00	1575.95	83.01
19126	0.00	1384.00	1400.30	7.05
19128	0.00	1560.00	1565.78	2.50
19132	22.17	595.00	778.05	79.16
19134	2.76	740.00	1004.16	114.23
19136	2.51	730.00	777.77	20.66
19138	0.00	730.00	777.77	20.66

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
19140	0.00	730.00	1004.13	118.54
19142	1.27	705.00	1002.26	128.54
19144	0.00	451.35	467.51	6.99
19146	0.00	464.55	823.24	155.11
19148	0.08	451.35	467.58	7.02
19150	0.00	464.55	793.47	142.23
19152	0.00	723.00	1030.62	133.02
19154	0.00	730.00	1030.62	130.00
19156	0.00	730.00	1030.62	130.00
19158	0.00	470.00	776.97	132.75
19166	2.63	1160.00	1217.46	24.85
19168	5.17	620.00	778.04	68.34
19170	3.25	630.00	778.01	64.00
19172	9.95	615.00	777.99	70.48
19174	0.00	630.00	778.05	64.02
19176	2.75	940.00	1211.72	117.50
19180	14.33	1519.00	1743.80	97.21
19182	11.83	1530.00	1742.01	91.68
19184	10.33	1549.00	1741.92	83.42
19186	9.02	1549.00	1741.79	83.37
19188	0.00	1570.00	1741.77	74.28
19190	12.87	1508.00	1741.88	101.14
19192	4.79	1469.00	1741.77	117.96
19194	6.42	1536.00	1741.73	88.97
19196	5.72	1582.00	1741.93	69.16
19198	2.38	1605.00	1741.92	59.21
19200	4.03	1606.00	1741.87	58.75
19202	2.02	1558.00	1741.80	79.48
19204	21.95	1598.00	1741.87	62.22
19206	2.55	1614.00	1741.85	55.29
19208	24.33	1560.00	1742.37	78.86
19210	13.09	1517.00	1741.87	97.24
19212	13.48	1494.00	1741.76	107.14
19214	17.39	1538.00	1741.72	88.10
19216	10.55	1539.00	1741.73	87.67
19218	18.90	1583.00	1741.85	68.69
19220	4.76	1553.00	1741.80	81.64
19222	19.73	1583.00	1741.91	68.72
19224	7.75	1565.00	1741.91	76.50
19226	1.50	1607.00	1741.83	58.31
19228	15.23	1579.00	1741.83	70.41
19230	19.10	1629.00	1741.81	48.78
19232	15.95	1648.00	1741.80	40.56
19238	5.22	1643.00	1742.03	42.82
19240	7.92	1644.00	1742.01	42.38
19242	5.95	1637.00	1741.99	45.40

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
19264	6.04	1629.00	1741.95	48.84
19266	4.42	1611.00	1741.92	56.62
19268	4.08	1626.00	1741.95	50.14
19274	9.28	1629.00	1742.04	48.88
19276	3.35	1602.00	1742.04	60.56
19284	6.47	1615.00	1742.09	54.96
19286	8.48	1605.00	1742.09	59.28
19292	5.20	1607.00	1741.82	58.30
19308	4.07	1541.00	1741.84	86.85
19310	6.07	1533.00	1741.83	90.31
19316	46.17	1475.00	1741.73	115.34
19318	23.55	1593.00	1741.84	64.36
19352	7.57	1517.00	1742.83	97.66
19368	47.28	1505.00	1741.76	102.38
19372	3.68	720.00	1007.13	124.17
19374	2.85	680.00	1007.25	141.51
19376	3.60	895.00	1008.67	49.16
19378	1.57	990.00	1212.65	96.28
19380	3.19	535.00	776.94	104.62
19382	8.82	640.00	777.24	59.35
19384	2.35	1090.00	1211.17	52.40
19386	1.45	865.00	996.84	57.01
19388	23.08	880.00	996.83	50.52
19390	1.73	1225.00	1428.02	87.79
19392	0.87	1280.00	1647.86	159.08
19394	1.67	1150.00	1395.33	106.09
19396	7.74	745.00	1000.94	110.68
19398	4.13	750.00	1000.93	108.51
19400	40.88	515.00	776.86	113.24
19402	4.09	570.00	777.45	89.71
19404	0.00	480.00	682.19	87.43
19406	0.00	480.00	689.69	90.68
19408	1.55	1205.00	1403.71	85.93
19410	0.60	1205.00	1403.76	85.95
19412	9.50	678.00	783.83	45.76
19414	3.17	568.02	778.26	90.91
19416	3.59	682.00	1007.60	140.80
19420	7.45	692.00	778.10	37.23
19422	0.87	648.00	781.09	57.55
19424	100.20	695.00	781.99	37.62
19426	0.63	695.00	1007.46	135.12
19428	0.00	710.00	781.63	30.98
19430	4.72	873.00	998.56	54.30
19432	5.95	1110.00	1209.26	42.92
19434	3.80	1105.00	1212.95	46.68
19436	10.60	1265.00	1569.16	131.53

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
19438	5.53	1450.00	1784.47	144.64
19440	0.00	770.00	781.90	5.15
19450	0.00	730.00	743.54	5.86
19466	0.00	770.00	775.37	2.32
19468	19.66	710.00	782.32	31.27
19470	12.78	900.00	1003.83	44.90
19472	0.38	900.00	1003.83	44.90
19474	1.27	705.00	778.29	31.69
19476	0.77	785.00	998.88	92.49
19478	7.80	790.00	1007.91	94.23
19484	1.35	1256.47	1417.99	69.85
19486	0.00	1580.00	1784.61	88.48
19488	21.73	490.00	776.99	124.10
19492	31.52	710.00	782.36	31.29
19494	0.00	710.00	782.20	31.22
19496	0.00	710.00	782.11	31.18
19498	0.95	805.00	1007.62	87.62
19500	2.88	905.00	1001.26	41.62
19502	3.22	797.00	1001.77	88.55
19508	0.00	632.50	777.96	62.90
19510	0.00	785.00	1004.37	94.86
19512	6.35	740.00	814.46	32.20
19514	0.00	1060.00	1212.15	65.79
19516	1.02	1142.97	1423.46	121.29
19518	0.94	1142.97	1423.45	121.29
19520	1.88	1095.00	1210.87	50.11
19522	7.98	994.00	1210.92	93.80
19524	1.63	926.00	1208.93	122.35
19526	0.70	1068.00	1209.11	61.02
19528	0.20	1028.00	1211.19	79.22
19530	2.03	1195.00	1411.35	93.56
19534	9.50	1279.00	1648.58	159.82
19536	6.60	720.00	1004.24	122.92
19538	1.05	1152.00	1395.33	105.22
19540	5.07	1282.20	1646.98	157.74
19542	2.86	1400.00	1711.03	134.50
19544	0.25	1510.00	1702.21	83.12
19546	0.00	1380.00	1716.22	145.39
19548	1.50	1275.00	1648.60	161.56
19550	0.00	710.00	1003.93	127.11
19552	0.00	710.00	998.33	124.68
19554	1.05	719.00	778.17	25.59
19556	0.00	1165.00	1403.21	103.01
19558	5.22	915.00	1015.05	43.26
19560	8.70	895.00	1024.81	56.14
19562	1.57	955.00	1212.08	111.17

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
19564	1.45	965.00	1212.09	106.85
19566	1.79	575.00	779.63	88.49
19568	0.00	715.00	998.33	122.52
19570	3.02	1203.00	1430.41	98.34
19572	1.05	515.00	779.70	114.47
19576	0.28	795.00	1007.62	91.94
19578	0.00	795.00	1007.62	91.94
19580	1.30	1140.00	1426.77	124.01
19582	0.00	995.00	1212.65	94.12
19584	10.75	995.00	1016.36	9.24
19586	0.00	1000.00	1016.23	7.02
19588	0.00	1000.00	1016.23	7.02
19590	23.57	695.00	1004.08	133.66
19592	2.20	1344.00	1649.01	131.90
19600	0.61	1285.00	1648.74	157.30
19602	2.20	1285.00	1648.73	157.29
19604	2.20	1280.00	1648.22	159.23
19606	4.00	1285.00	1647.53	156.77
19610	2.10	1275.00	1530.37	110.43
19612	11.85	565.00	777.00	91.68
19614	11.55	595.00	777.06	78.73
19618	3.18	900.00	1014.56	49.54
19620	0.00	770.00	781.90	5.14
19622	4.47	1400.00	1569.16	73.15
19624	2.11	1228.00	1425.60	85.45
19626	8.65	1240.00	1408.64	72.92
19628	5.60	1295.00	1648.82	153.01
19630	0.55	1480.00	1784.47	131.66
19632	3.92	1252.00	1569.18	137.16
19634	0.75	1390.00	1647.06	111.16
19636	5.43	1303.00	1402.30	42.94
19638	0.84	1110.00	1214.37	45.13
19640	2.77	605.00	778.10	74.85
19642	4.18	577.39	779.92	87.58
19644	4.35	1060.00	1236.78	76.44
19646	1.25	1089.00	1213.13	53.68
19648	4.45	695.00	776.74	35.35
19650	7.05	905.00	1211.13	132.38
19652	5.70	919.00	1211.26	126.38
19654	4.59	536.00	779.14	105.14
19656	8.91	691.00	780.43	38.67
19658	0.80	906.00	1007.58	43.93
19660	0.00	675.00	781.56	46.08
19668	4.50	1241.00	1411.41	73.69
19670	0.00	474.50	467.59	-2.99
19672	0.00	410.00	467.59	24.90

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
19676	5.28	460.00	467.59	3.28
19678	7.19	515.00	779.95	114.57
19680	11.32	495.00	806.95	134.90
19682	0.00	485.00	785.68	130.03
19684	0.00	485.00	778.92	127.10
19686	0.30	525.00	779.52	110.06
19688	5.20	530.00	779.53	107.91
19690	4.61	565.00	778.33	92.25
19692	0.00	465.00	681.81	93.75
19694	4.67	720.00	777.70	24.95
19696	15.93	593.87	786.68	83.38
19710	1.22	520.00	779.14	112.06
19712	2.70	950.00	1024.50	32.22
19714	0.50	950.00	1015.24	28.21
19722	0.00	475.00	467.59	-3.20
19724	0.00	410.00	410.00	0.00
19726	3.80	655.00	778.12	53.24
19728	0.80	730.00	1002.96	118.04
19730	1.05	625.00	778.10	66.20
19732	0.31	925.00	1212.51	124.33
19734	2.45	500.00	779.52	120.87
19736	2.71	690.00	997.30	132.88
19738	2.78	955.00	1212.10	111.18
19740	1.83	1025.00	1212.79	81.21
19742	1.85	1060.00	1210.87	65.24
19744	0.52	565.00	777.57	91.92
19746	0.08	930.00	1211.96	121.93
19748	0.38	930.00	1211.97	121.93
19750	0.00	410.00	467.59	24.90
19752	5.85	1255.00	1402.37	63.73
19754	10.73	1250.00	1403.35	66.31
19756	1.20	1250.00	1402.34	65.87
19758	11.42	1250.00	1403.13	66.22
19760	3.10	1245.00	1402.30	68.02
19762	4.63	1245.00	1403.09	68.36
19764	1.77	1250.00	1402.30	65.86
19766	7.05	1250.00	1403.07	66.19
19768	0.00	555.00	776.54	95.80
19770	0.00	550.00	776.54	97.96
19772	0.00	555.00	776.54	95.80
19778	0.00	480.00	793.24	135.46
19800	0.00	485.00	793.24	133.29
19802	0.00	480.00	793.24	135.46
19806	0.00	485.00	793.24	133.29
19810	0.00	485.00	793.24	133.29
19822	0.00	480.00	681.10	86.96

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
19846	0.00	475.00	681.15	89.15
19848	0.00	480.00	681.14	86.98
19860	0.00	475.00	681.17	89.16
19862	0.00	480.00	681.15	86.98
19864	0.00	480.00	681.15	86.99
19866	0.00	480.00	681.15	86.99
19872	0.03	480.00	681.10	86.96
19874	0.00	480.00	681.20	87.01
19886	0.00	480.00	681.17	86.99
19888	0.00	480.00	681.10	86.96
19894	0.00	480.00	681.11	86.97
19896	0.00	480.00	681.21	87.01
19902	0.00	480.00	681.12	86.97
19918	0.00	520.00	776.73	111.02
19922	0.00	535.00	776.60	104.48
19926	0.00	530.00	776.66	106.66
19930	0.00	545.00	776.54	100.13
19932	0.00	535.00	776.60	104.48
19936	0.00	540.00	776.54	102.29
19940	0.00	550.00	776.54	97.96
19946	96.28	550.00	773.55	96.67
19954	0.00	560.00	776.54	93.64
19966	0.69	560.00	776.54	93.64
19968	0.00	1072.00	1367.57	127.82
19970	1.15	1040.00	1385.19	149.27
19976	0.00	693.00	898.70	88.95
19978	0.00	682.00	898.67	93.70
19980	0.00	692.00	898.69	89.38
19982	0.09	679.00	898.66	94.99
19984	1.73	685.00	898.65	92.39
19986	0.16	673.00	898.66	97.58
19990	0.85	691.00	898.65	89.79
19992	1.13	670.00	898.64	98.87
19994	11.71	668.00	898.64	99.74
19996	2.02	670.00	898.64	98.87
19998	15.71	664.00	898.63	101.46
20002	3.02	656.00	898.64	104.93
20028	0.35	671.00	898.66	98.45
20030	1.40	671.00	898.66	98.45
20056	0.00	696.90	898.71	87.27
20062	0.08	743.00	898.70	67.33
20066	0.00	706.10	898.59	83.24
20068	20.85	694.00	898.59	88.47
20070	1.53	733.00	898.59	71.61
20080	0.00	698.00	898.71	86.79
20086	0.04	745.00	898.70	66.46

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
20094	0.00	731.00	898.59	72.47
20096	24.28	713.00	898.59	80.25
20098	0.00	734.60	898.59	70.92
20100	0.00	749.00	898.59	64.69
20106	0.69	734.00	898.59	71.17
20110	0.35	733.00	898.59	71.61
20112	13.81	720.00	898.59	77.23
20122	0.47	714.00	898.70	79.87
20124	0.00	735.00	898.70	70.79
20126	3.12	720.40	898.59	77.06
20128	0.00	727.00	898.60	74.20
20132	0.00	737.00	898.60	69.88
20152	0.00	729.00	898.60	73.34
20154	0.00	730.00	898.60	72.91
20156	0.00	729.00	898.60	73.34
20162	0.00	709.00	898.70	82.03
20164	0.00	709.00	898.70	82.03
20174	0.00	716.00	898.70	79.00
20176	0.00	711.00	898.70	81.17
20178	0.00	718.00	898.70	78.14
20180	0.00	712.00	898.70	80.73
20190	0.00	711.00	898.70	81.17
20222	0.12	748.00	898.70	65.17
20254	52.09	465.00	681.29	93.53
20256	34.65	465.00	681.27	93.52
20258	0.00	480.00	681.10	86.96
20260	0.00	480.00	681.11	86.97
20262	58.65	480.00	680.96	86.90
20264	0.00	480.00	681.13	86.97
20266	0.00	480.00	681.22	87.02
20268	1.03	480.00	681.21	87.01
20270	0.00	475.00	681.17	89.16
20272	0.00	475.00	681.15	89.14
20274	9.28	480.00	681.26	87.03
20276	6.84	480.00	681.36	87.08
20278	0.00	485.00	776.90	126.23
20280	19.22	470.00	681.30	91.38
20282	0.00	530.00	776.66	106.66
20284	0.00	520.00	776.73	111.02
20332	0.00	732.00	1030.61	129.13
20342	3.83	1049.00	1211.16	70.12
20344	1.70	1250.00	1648.66	172.39
20346	0.92	490.00	779.49	125.18
20348	1.34	480.00	779.45	129.49
20350	1.13	484.00	778.82	127.49
20352	1.66	488.00	778.82	125.76

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
20354	0.64	510.00	779.50	116.54
20358	0.52	750.00	1007.50	111.35
20360	2.40	750.00	1007.49	111.35
20362	1.17	893.00	1211.65	137.80
20364	1.80	893.00	996.80	44.89
20366	1.15	1601.00	1741.85	60.91
20532	0.00	1205.00	1403.73	85.94
20534	5.35	1205.00	1403.71	85.93
20536	0.00	775.00	781.34	2.74
20538	0.00	775.00	803.10	12.15
20540	0.00	770.00	795.10	10.85
20542	0.00	770.00	819.50	21.41
20544	0.00	770.00	781.90	5.15
20546	0.00	770.00	775.34	2.31
20548	1.50	1520.00	1566.03	19.91
20550	0.00	1203.00	1235.26	13.95
20552	2.42	1145.00	1236.33	39.50
20714	0.00	740.00	819.48	34.37
20716	0.00	775.00	803.10	12.15
20724	0.00	704.00	1014.73	134.37
20742	0.17	1365.00	1746.97	165.17
20744	0.00	1380.00	1425.36	19.61
20746	0.00	1380.00	1747.69	159.00
20758	0.00	1400.00	1745.37	149.35
20772	14.76	485.00	793.24	133.29
20776	0.00	1570.00	1741.77	74.28
20780	0.00	485.00	793.24	133.29
20782	2.43	720.00	778.17	25.16
20784	0.85	730.00	778.15	20.82
20786	4.26	735.00	778.14	18.66
20790	0.13	685.00	778.39	40.39
20794	2.95	670.00	778.10	46.75
20796	0.50	705.00	778.14	31.63
20798	0.30	705.00	778.14	31.63
20802	2.25	1090.00	1211.17	52.40
20804	3.45	1085.00	1211.19	54.57
20808	1.90	1090.00	1211.26	52.44
20810	1.63	1080.00	1211.45	56.84
20812	0.17	1080.00	1211.61	56.91
20814	0.08	1090.00	1211.17	52.40
20816	0.28	1080.00	1211.61	56.91
20818	0.00	485.00	776.97	126.26
20820	0.00	485.00	793.24	133.29
20836	0.00	485.00	682.52	85.41
20846	1.15	1435.00	1652.42	94.02
20858	0.45	1245.00	1430.41	80.18

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
20868	0.22	1090.00	1213.90	53.58
20872	8.40	1090.00	1225.99	58.81
20876	0.15	730.00	747.06	7.38
20878	0.00	1435.00	1741.76	132.65
20884	6.35	1025.00	1229.07	88.25
20886	2.50	1140.00	1236.35	41.66
20888	2.68	615.00	776.87	70.00
20890	0.40	1325.00	1402.31	33.43
20892	4.97	1183.00	1403.10	95.18
20894	4.45	1085.00	1210.70	54.36
20896	5.25	1320.00	1647.04	141.42
20898	2.67	1135.00	1396.61	113.13
20900	0.57	602.00	778.18	76.19
20902	1.70	874.00	1004.94	56.62
20906	1.70	605.00	777.26	74.49
20908	0.92	620.50	777.22	67.77
20910	1.08	624.50	777.30	66.08
20912	0.82	489.50	779.49	125.40
20914	2.65	532.50	779.57	106.84
20916	1.25	592.00	778.34	80.58
20918	3.89	608.50	778.33	73.44
20920	4.15	585.00	778.41	83.64
20922	2.80	788.00	998.12	90.86
20924	0.00	777.00	998.51	95.79
20926	2.80	782.00	997.79	93.32
20928	3.63	887.00	1007.72	52.20
20930	0.57	887.00	1010.32	53.33
20932	1.75	871.00	1006.29	58.50
20934	1.77	723.00	1007.11	122.86
20936	3.29	730.00	1006.86	119.72
20938	1.00	699.00	1007.23	133.29
20940	0.29	718.00	898.59	78.09
20942	0.00	722.00	898.59	76.36
20944	0.00	730.00	1030.62	130.00
20946	0.35	865.00	1007.68	61.70
20948	3.63	1035.00	1211.15	76.17
20950	3.15	945.00	1209.34	114.31
20952	4.78	1235.00	1414.56	77.65
20954	4.05	1263.00	1414.92	65.70
20956	0.95	1217.00	1416.23	86.15
20958	6.60	1389.00	1569.15	77.90
20960	1.35	1345.00	1569.17	96.94
20962	4.67	1365.00	1647.05	121.97
20964	8.25	1347.00	1647.04	129.75
20966	2.45	1447.00	1784.47	145.93
20968	0.00	1476.00	1784.48	133.40

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
20970	0.00	666.42	898.61	100.41
20972	12.10	668.60	898.61	99.46
20974	0.00	684.30	898.59	92.67
20976	12.45	683.10	898.59	93.18
20978	0.00	703.00	898.59	84.58
20980	17.24	710.00	898.59	81.55
20982	1.68	645.00	898.61	109.67
20988	54.65	904.00	1030.06	54.51
20992	0.44	754.00	1030.13	119.41
20994	0.00	740.00	898.59	68.58
20998	2.55	1392.00	1711.16	138.02
21000	7.08	690.50	898.59	89.98
21002	0.00	476.00	684.71	90.26
21004	0.00	730.00	1030.62	130.00
21006	0.00	730.00	743.50	5.84
21008	0.00	730.00	743.50	5.84
21010	0.00	730.00	1030.62	130.00
21012	0.00	730.00	1030.62	130.00
21014	0.00	730.00	1030.62	130.00
21016	0.00	730.00	743.50	5.84
21018	0.00	730.00	743.50	5.84
21020	0.00	730.00	1030.62	130.00
21022	0.00	730.00	743.50	5.84
21024	0.00	730.00	1030.62	130.00
21026	0.00	730.00	743.50	5.84
21028	0.00	730.00	743.50	5.84
21030	0.00	730.00	1030.62	130.00
21032	0.00	730.00	1030.62	130.00
21034	0.00	730.00	1030.62	130.00
21036	0.00	730.00	1030.62	130.00
21038	0.00	730.00	743.50	5.84
21040	0.00	730.00	743.50	5.84
21042	0.00	730.00	743.50	5.84
21044	0.00	730.00	743.50	5.84
21046	2.65	578.00	779.46	87.12
21048	7.66	533.00	778.99	106.37
21050	1.75	1000.00	1212.55	91.91
21066	0.17	925.95	1211.79	123.61
21072	2.16	1130.00	1422.56	126.51
21074	1.75	1178.11	1422.30	105.60
21076	1.76	1150.00	1422.30	117.75
21078	1.35	1182.21	1422.24	103.79
21080	1.32	1205.59	1422.20	93.67
21082	1.57	1212.02	1422.20	90.89
21084	1.57	1173.15	1422.30	107.74
21086	1.05	1185.54	1422.24	102.36

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
21088	0.57	1199.25	1422.20	96.41
21090	2.88	1213.70	1422.20	90.16
21092	3.85	1325.00	1553.28	98.72
21094	1.15	1330.00	1553.28	96.55
21096	1.10	1277.44	1646.98	159.80
21098	1.08	1270.72	1646.98	162.71
21100	1.85	1262.43	1646.98	166.29
21102	0.77	1286.29	1646.98	155.97
21104	0.00	1131.86	1213.59	35.34
21106	0.00	1128.66	1215.43	37.52
21108	1.15	943.87	1211.64	115.79
21110	4.45	946.68	1211.64	114.58
21112	16.36	500.00	779.38	120.81
21114	0.80	486.67	779.37	126.57
21116	0.00	500.00	779.38	120.81
21118	0.00	500.00	779.38	120.82
21120	0.00	500.00	779.38	120.82
21122	0.00	500.00	779.40	120.82
21124	32.71	500.00	779.40	120.82
21126	0.00	500.00	779.68	120.94
21128	5.45	1274.50	1433.14	68.60
21130	0.80	1224.17	1431.83	89.80
21132	7.85	1250.00	1430.41	78.02
21134	0.13	1250.00	1429.83	77.76
21136	0.00	730.00	1430.40	302.88
21138	0.00	1250.00	1429.83	77.77
21140	0.00	1300.00	1429.83	56.14
21142	0.00	1046.92	1236.54	82.00
21148	0.00	730.00	1212.56	208.67
21150	0.00	900.00	1213.77	135.69
21152	0.00	1052.84	1359.54	132.62
21154	0.00	1053.52	1359.54	132.33
21158	0.00	900.00	1220.32	138.52
21160	0.00	1029.87	1235.28	88.83
21162	0.00	1027.43	1235.35	89.91
21164	0.00	1026.97	1235.39	90.12
21168	0.00	1027.20	1235.57	90.11
21170	0.00	1012.63	1235.71	96.47
21172	0.00	900.00	1215.93	136.62
21174	0.00	900.00	1217.74	137.40
21176	0.00	900.00	1214.48	135.99
21178	0.00	850.00	1221.19	160.52
21180	0.00	887.22	1218.93	143.44
21182	0.00	842.39	1221.87	164.10
21184	0.00	850.00	1222.15	160.93
21186	0.00	850.00	1223.07	161.33

NODE ID	DEMAND	ELEVATION	HEAD	PRESSURE
21188	0.00	850.00	1223.38	161.46
21190	0.00	850.00	1224.05	161.75
21192	0.00	850.00	1224.55	161.97
21194	0.00	874.53	1225.28	151.67
21196	0.00	900.00	1227.00	141.40
21198	0.00	900.00	1228.69	142.13
21200	0.00	957.33	1230.53	118.14
21202	0.00	985.19	1232.22	106.82
21204	0.00	1000.00	1233.61	101.02
21206	0.00	1026.53	1235.42	90.33
21208	0.00	900.00	1220.32	138.52
21210	0.00	900.00	1220.32	138.52
21216	0.00	923.79	1220.32	128.23
21218	0.00	1041.36	1236.25	84.28
21220	0.00	1034.78	1235.91	86.97
21222	0.00	1041.04	1236.27	84.43
21224	0.00	1033.83	1235.95	87.40
21226	0.00	1033.37	1235.95	87.60
21228	0.00	1000.00	1235.71	101.93
21230	0.00	850.00	1224.60	161.99
21232	0.00	850.00	1223.78	161.64
21234	0.00	730.00	1220.32	212.03
21236	0.00	1122.31	1213.16	39.28
21238	0.40	1122.67	1411.19	124.77
21240	1.42	1109.95	1213.16	44.63
21242	2.03	1127.03	1411.19	122.88
21244	3.77	1005.00	1211.53	89.31
21246	8.43	960.00	1211.49	108.75
21248	0.00	922.31	1211.89	125.22
21250	2.13	1350.00	1429.83	34.52
21252	0.35	1273.08	1429.83	67.79
21254	0.00	723.00	1030.61	133.02
21256	0.00	723.00	898.75	76.00
21258	0.00	730.00	1030.61	129.99
21260	0.00	730.00	1030.61	129.99
21262	0.00	730.00	898.81	73.00
21264	0.00	730.00	898.81	73.00
21266	0.00	1040.00	1385.63	149.46
21268	0.00	980.00	1212.70	100.63
21272	0.00	695.90	1029.42	144.23

Appendix B. Fire Flow Projects

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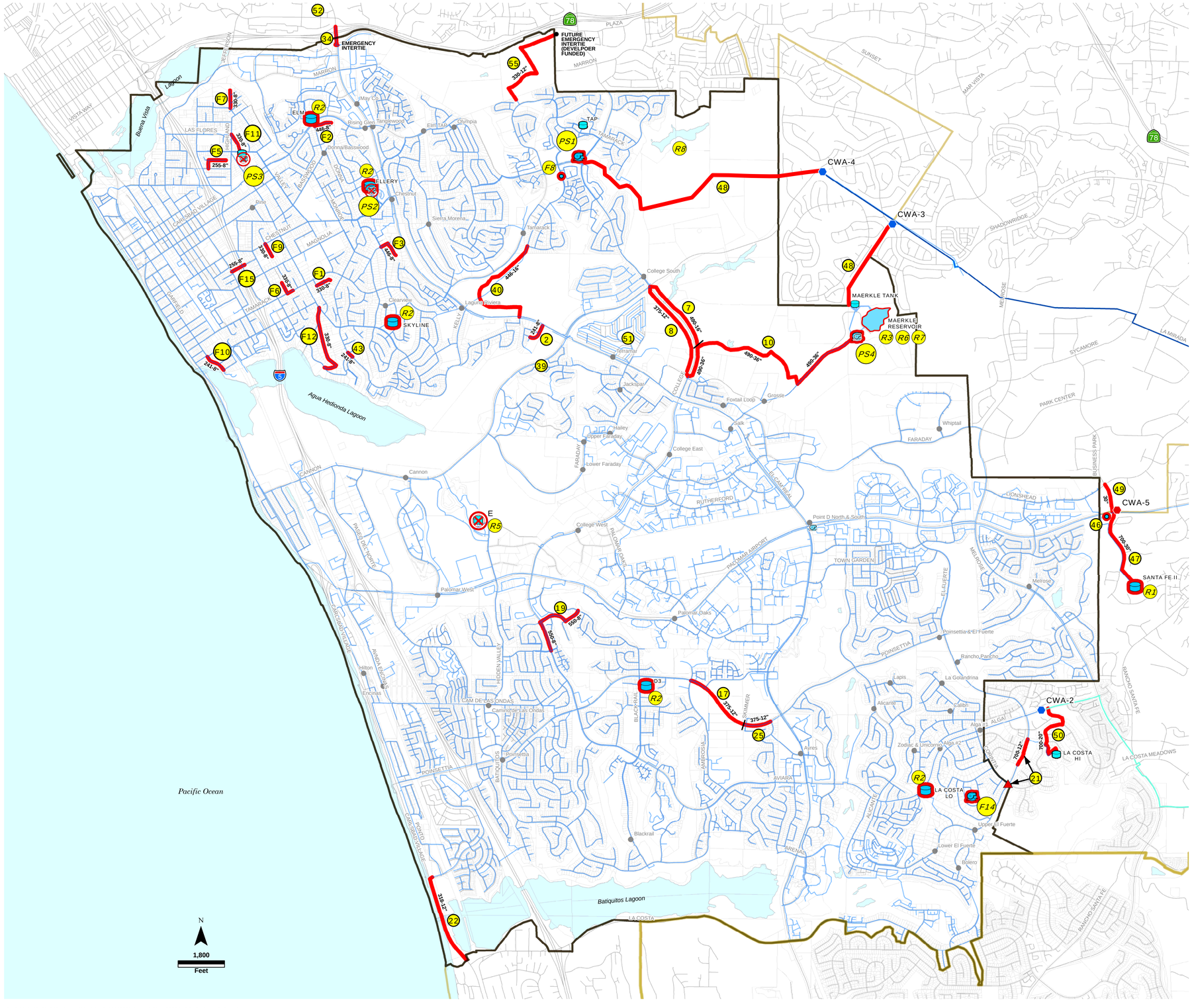
Table 8-2 Recommended CMWD Capital Improvements

ID No.	Zone	Project Type	Description/Location	Units	Base Unit Cost	Scale factor	CIP Cost	Phased Cost			
								2012	2012-2015	2016-2020	2021-2030
F1	330	Pipeline Replacement	Replace 6" & 4" PL in Jeanne Pl. to end of cul-de-sac with 8" PL	600 LF	$200/LF	1	$120,000				
F2	446	Pipeline Replacement	Replace 6" PL in Nob Hill Dr. to end of cul-de-sac with 8" PL	650 LF	$200/LF	1	$130,000				
F3	446	Pipeline Replacement	Replace 6" PL in Holly Brae Ln & Alder Ave east of Skyline Dr. with 8" PL	890 LF	$200/LF	1	$178,000				
F5	255	Pipeline Replacement	Replace 6" PL in Cynthia Ln & Gregory Dr from Knowles Av to cul-de-sac with 8" PL	710 LF	$200/LF	1	$142,000				
F6	330	Pipeline Replacement	Replace 6" PL in Tamarack Av from Highland Dr west to Adair St, and in Adair St to cul-de-sac with 8" PL	1250 LF	$200/LF	1	$250,000				
F7	330	Pipeline Replacement	Replace 6" PL in Highland Dr. from Yourell Av to Ratcliff with 8" PL	700 LF	$200/LF	1	$140,000				
F8	580	New Fire Hydrant Connection	Switch supply for Calavera Rec. Center hydrants from 580 to 446 Zone to obtain storage for increased reliability	--	LS	--	$38,000			$1,225,000	$1,224,000
F9	330	Pipeline Replacement	Replace 6" in Chestnut Av at Woodland Wy to end of Woodland with 8" PL	560 LF	$200/LF	1	$112,000				
F10	241	Pipeline Replacement	Replace 6" PL in Garfield from Chinquapin Ave to end with 8" PL	850 LF	$200/LF	1	$170,000				
F11	330	Pipeline Replacement	Replace 6" in Arland Rd from Highland to Buena Vista Wy with 8" PL	780 LF	$200/LF	1	$156,000				
F12	330	Additional Watermain	Install parallel pipeline in Highland Dr from Hillside Dr south to Adams street for fire flow & redundancy	3000 LF	$200/LF	1	$600,000				
F14	680	Emergency Pump	New emergency PS at Obelisco Pl/Cir to provide fire flow at 20 psi	--	LS	--	$113,000				
F15	255	Pipeline Replacement	Replace 4" PL in Palm Av from Harding St. to Pio Pico Dr (jack pipe across I-5)	500 LF	$200/LF	3	$300,000				



RECOMMENDED CMWD CAPITAL IMPROVEMENTS

ID No.	Zone	Project Type	Description/Location
F1	330	Pipeline Replacement	Replace 6" & 4" PL in Jeanne Pl. to end of cul-de-sac with 8" PL
F2	446	Pipeline Replacement	Replace 6" PL in Nob Hill Dr. to end of cul-de-sac with 8" PL
F3	446	Pipeline Replacement	Replace 6" PL in Holly Brae Ln & Alder Ave east of Skyline Dr. with 8" PL
F5	255	Pipeline Replacement	Replace 6" PL in Cynthia Ln & Gregory Dr from Knowles Av to cul-de-sac with 8" PL
F6	330	Pipeline Replacement	Replace 6" PL in Tamarack Av from Highland Dr west to Adair St, and in Adair St to cul-de-sac with 8" PL
F7	330	Pipeline Replacement	Replace 6" PL in Highland Dr. from Yourell Av to Ratcliff with 8" PL
F8	580	New Fire Hydrant Connection	Switch supply for Calavera Rec. Center hydrants from 580 to 446 Zone to obtain storage for increased reliability
F9	330	Pipeline Replacement	Replace 6" in Chestnut Av at Woodland Wy to end of Woodland with 8" PL
F10	241	Pipeline Replacement	Replace 6" PL in in Garfield from Chinquapin Ave to end with 8" PL
F11	330	Pipeline Replacement	Replace 6" in Arland Rd from Highland to Buena Vista Wy with 8" PL
F12	330	New Watermain	Install parallel pipeline in Highland Dr from Hillside Dr south to Adams street for fire flow & redundancy
F14	680	Emergency Pump	New emergency PS at Obelisco Pl/Cir to provide fire flow at 20 psi
F15	255	Pipeline Replacement	Replace 4" PL in Palm Av from Harding St. to Pio Pico Dr (jack pipe across I-5)
2	241	New Watermain	Parallel existing 8" PL in Crestview Dr south of El Camino Real for redundancy
7	490	New Watermain	16" PL in College Blvd from intersection with Cannon Rd south to 400' north of El Camino Real; 50% developer funded
8	375	New Watermain	12" PL in future College Blvd, from Cannon Rd south to Badger Ln; 50% developer funded
10	490	New Watermain	36" PL in easement across HMP Preserve from Maerkle Res to College Blvd for supply/redundancy (2003 CIP #s 10 & 11)
17	375	New Watermain	12" PL in Poinsettia Ln from Skimmer Ct to Cassia Rd for looping & D3 Res supply
19	550	New Watermain	8" PL in Aviara Pkwy at Plum Tree north to Mariposa St, then east to Sapphire Dr. for redundancy
21	700	New PRS & Watermain	PRS at El Fuerte/Corintia & 12" PL in El Fuerte north of Corintia for redundant supply to Zones 680, 580S & 510
22	318	New Watermain	12" PL in Carlsbad Blvd from Avenida Encinas south to CMWD boundary for redundancy & SDWD interconnection
25	375	New Watermain	12" PL in Poinsettia Ln, from El Camino Real to Skimmer Ct for supply/redundancy
34	255	Interconnect Upgrade	Replacement of valves, pipe, and meter for the Oceanside Intertie at ECR/SH78
38	--	Corrosion Control	Design & construct PL corrosion control improvements - multiple locations
39	--	New PRS or Watermain	New PRS or 241 Zone pipeline to reduce pressures in Kelly Ranch Village "E"
40	446	New Watermain	16" main through Robertson Ranch to replace the "B" line; CMWD pays for upsizing from 12" to 16"

ID No.	Zone	Project Type	Description/Location
41	--	Misc Valve Replacements	Repair/replace broken valves at various locations
43	241	Pipeline/Road Replacement	Replace failed PL & repair roadway in Park Dr. from Adams to 200' south of Cove Dr.
44	--	PRS Rehab	Assess & repair or upgrade 5 PRSs
45	--	New Interties	Construct 4 new interties with adjacent water agencies for emergency supply
46	--	Hydroelectric Energy	Move CWA #1 PRS downstream near CMWD boundary & Install hydroelectric turbines
47	700	Water Quality	New 30" inlet PL to Santa Fe II Tank (portion of alignment crosses open space)
48	--	Water Supply	Replace or rehab TAP between 1) CWA #3 & Maerkle Res and 2) CWA #4 and 580 Zone at College Blvd
49	--	Water Supply	CWA #5 connection and 30" PL in Business Park Dr. for direct delivery of desalinated seawater
50	--	Water Quality	New 20" inlet PL to La Costa Hi Tank from CWA#2 to create separate tank inlet/outlet
51	--	Groundwater Supply	Rancho Carlsbad well water supply facilities
53	--	Water MP Update	2012 Water Master Plan update
52	--	Groundwater Supply	New facilities to produce, treat, and deliver groundwater to CMWD from the Mission Basin of the San Luis Rey River.
54	--	Watermain Relocations	Remove/replace PLs in easements and relocate meters; multiple locations
55	330	Water Supply	12" PL within Quarry Creek from future intertie with Oceanside to 14" PL in Tamarack Av; CMWD pays for upsizing from 8" to 12"
56	--	Pipeline Replacement	Miscellaneous Pipeline replacement projects
PS1	580	PS Upgrades	Install standby generator, hydropneumatic tank & jockey pump at Calavera PS
PS2	446	PS Decommission	Abandon and remove Ellery PS & construct facilities to accommodate a portable PS
PS3	330	PS Decommission	Abandon and remove Buena Vista PS and 10,000 gallon forebay tank
PS4	490	PS Upgrades	Increase capacity of the Maerkle PS to supply the District's ADD from the reservoir
R1	700	Tank Rehabilitation	Santa Fe II - Drainage system and crib wall repairs
R2	--	Steel Tank Rehabilitation	New exterior/interior coating & misc appurtenance repairs/replacement at Elm, Skyline, La Costa Lo, Ellery & D3 Tanks
R3	--	Reservoir Rehabilitation	Replace floating cover for Maerkle Reservoir
R4	--	Tank Rehabilitation	Miscellaneous concrete reservoir upgrades, multiple locations
R5	264	Tank Decommission	Remove or relocate "E" tank from site
R6	490	Hydroelectric Energy	New hydroelectric PRS at Maerkle Reservoir
R7	490	Reservoir Rehabilitation	Miscellaneous facility improvements at Maerkle Reservoir.
R8	--	Reservoir Rehabilitation	Lake Calavera - replacement of outlet tower valves & piping; re-grade reservoir bottom

Carlsbad MWD
Water District Boundary
Existing Tank
Existing Pump Station
Water Authority 2nd Aqueduct
Tri-Agencies Pipeline (TAP)
Questhaven Potable Pipeline
Existing Pipeline
Existing Water Authority Connection
Future Desal Connection
Pressure Regulating Valve

Recommended Improvement Project
CIP Pipeline Project
New Pump Station
Improvement to Existing Pump Station
Improvement to Existing Reservoir
Miscellaneous Facility
New PRV

CMWD
RECOMMENDED CAPITAL IMPROVEMENT PROJECTS

EXHIBIT B

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