RESOLUTION NO. 2018-46
RESOLUTION NO. PFA-03
ORDINANCE NO. 2018–02

AGENDA

MISSION STATEMENT

"Our team is dedicated to protecting, enhancing, and developing our rich water resources to the highest beneficial use for Calaveras County, while maintaining cost-conscious, reliable service, and our quality of life, through responsible management."

Regular Board Meeting
Wednesday, August 22, 2018
1:00 p.m.

Calaveras County Water District
120 Toma Court, (PO Box 846)
San Andreas, California 95249

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the Administration Office at 209-754-3028. Notification in advance of the meeting will enable CCWD to make reasonable arrangements to ensure accessibility to this meeting. Any documents that are made available to the Board before or at the meeting, not privileged or otherwise protected from disclosure, and related to agenda items, will be made available at CCWD for review by the public.

ORDER OF BUSINESS

CALL TO ORDER / PLEDGE OF ALLEGIANCE

1. ROLL CALL

2. PUBLIC COMMENT

At this time, members of the public may address the Board on any non-agendized item. The public is encouraged to work through staff to place items on the agenda for Board consideration. No action can be taken on matters not listed on the agenda. Comments are limited to three minutes per person.

3. CONSENT AGENDA

The following items are expected to be routine / non-controversial. Items will be acted upon by the Board at one time without discussion. Any Board member may request that any item be removed for later discussion.

3a Approval of Minutes for the Board Meeting of July 25, 2018.

4. NEW BUSINESS

4a Discussion / Direction regarding Comparator Agencies for Compensation Study by Koff & Associates (Stacey Lollar, Director of HR and Customer Service / Georg Krammer, Koff & Associates)

4b Discussion / Action regarding KASL Consulting Engineers Contract Amendment for Engineering and Design Services for the Ebbetts Pass Reach 1 Water Pipeline Replacement Project, CIP# 11085 (Charles Palmer, District Engineer) **RES 2018-_____**

4c Presentation of the Draft Copper Cove Water System Master Plan, CIP 11064C-120 (Bob Godwin, Sr. Civil Engineer)

4d Discussion Regarding Implementation of Phase 1 of State Water Resources Control Board's Bay-Delta Water Quality Control Plan Update (Peter Martin, Manager of Water Resources)

4e Discussion / Action regarding Approval of Agreement with the Management and Confidential Employees Bargaining Unit (Dave Eggerton, General Manager) **RES 2018-_____**

5. OLD BUSINESS

Nothing to Report

6.* GENERAL MANAGER REPORT

7.* BOARD REPORTS / INFORMATION / FUTURE AGENDA ITEMS

8. NEXT BOARD MEETINGS

- Wednesday, September 12, 2018, 1:00 p.m., Regular Board Meeting
- Wednesday, September 26, 2018, 1:00 p.m., Regular Board Meeting

9. CLOSED SESSION

9a Conference with Legal Counsel – Existing Litigation
Government Code § 54956.9(a)
La Contenta Investors, LTD vs. CCWD (Calaveras County Superior Court #11CV37713)

9b Conference with legal counsel – anticipated litigation. Significant exposure to litigation pursuant to subdivision (d)(2) of section Government Code section 54956.9.
One potential case.

10. REPORTABLE ACTION FROM CLOSED SESSION

11. ADJOURNMENT

CALAVERAS COUNTY WATER DISTRICT

Board of Directors

District 1	Scott Ratterman
District 2	Terry Strange
District 3	Bertha Underhill
District 4	Russ Thomas
District 5	Jeff Davidson

Legal Counsel

Matthew Weber, Esq.
Downey Brand, LLP

Financial Services

Umpqua Bank
US Bank
Wells Fargo Bank

Auditor

Richardson & Company, LLP

CCWD Committees	Membership**
*Engineering Committee	Davidson / Thomas (alt. Underhill)
*Finance Committee	Underhill / Ratterman (alt. Thomas)
*Legal Affairs Committee	Ratterman / Davidson (alt. Underhill)
Executive Committee *(ad hoc)*	Ratterman / Thomas
Cost of Service Study Committee *(ad hoc)*	Strange / Ratterman

Joint Power Authorities

ACWA / JPIA	Ratterman (alt. Dave Eggerton)
CCWD Public Financing Authority	All Board Members
Calaveras-Amador Mokelumne River Authority (CAMRA)	Ratterman / Underhill (alt. Strange)
Calaveras Public Power Agency (CPPA)	Peter Martin (alt. Dave Eggerton)
Eastern San Joaquin Groundwater Authority	Russ Thomas
Tuolumne-Stanislaus Integrated Regional Water Management Joint Powers Authority (T-Stan JPA)	Strange (alt. Thomas)
Upper Mokelumne River Watershed Authority (UMRWA)	Davidson (alt. Ratterman)

Other Regional Organizations of Note

Calaveras LAFCO	Ratterman / Strange
Calaveras County Parks and Recreation Committee	Thomas (alt. Underhill)
Highway 4 Corridor Working Group	Thomas / Underhill
Mountain Counties Water Resources Association (MCWRA)	All Board Members
Mokelumne River Association (MRA)	All Board Members
Tuolumne-Stanislaus Integrated Regional Water Mgt. JPA Watershed Advisory Committee (WAC)	Peter Martin (alt. Metzger)

* Standing committees, meetings of which require agendas & public notice 72 hours in advance of meeting.
** The 1st name listed is the committee chairperson.

RESOLUTION NO. 2018-38
RESOLUTION NO. PFA-03
ORDINANCE NO. 2018–02

MINUTES

CALAVERAS COUNTY WATER DISTRICT
REGULAR BOARD MEETING

JULY 25, 2018

Directors Present:	Russ Thomas, Vice President Bertha Underhill, Director Jeff Davidson, Director
Directors(s) Absent:	Scott Ratterman, President Terry Strange, Director
Staff Present:	Dave Eggerton, General Manager Rebecca Hitchcock, Clerk to the Board Jeffrey Meyer, Director of Administrative Services Charles Palmer, District Engineer Peter Martin, Manager of Water Resources Stacey Lollar, Director of Human Resources and Customer Service Robert Creamer, Engineering Analyst
Others Present:	Elaine St. John Dick Underhill

ORDER OF BUSINESS

CALL TO ORDER / PLEDGE OF ALLEGIANCE

1. ROLL CALL

Vice President Thomas called the Regular Board Meeting to order at approximately 1:05 p.m. and led the pledge of allegiance. Director Ratterman and Director Strange were absent.

2. PUBLIC COMMENT

There was no public comment.

3. CONSENT AGENDA

MOTION: **Directors Davidson / Underhill – Approved Consent Agenda Items:**

3a, Minutes for the Board Meetings of May 23, June 13, June 19, and June 27, 2018; 3b, Review of the Board of Directors Monthly Time Sheets for June, 2018; 3d, Action Regarding Annual Resolution to Submit Delinquencies to County Tax Rolls; 3e, Approve designation of authorized District agents to sign pertaining to state disaster assistance program grants, required assurances and agreements; and 3f, Information / Quarterly Projects Report

3a Approval of Minutes for the Board Meeting of May 23, June 13, June 19, and June 27, 2018

3b Review Board of Directors Monthly Time Sheets for June 2018

Director Underhill pulled Item 3c from the Consent Agenda

3c Approve to Ratify Claim Summary #556 Secretarial Fund in the Amount of $1,959,299.11 for June, 2018
(Jeffrey Meyer, Director of Administrative Services) **RES 2018-_____**

3d Discussion / Action Regarding Annual Resolution to Submit Delinquencies to County Tax Rolls
(Jeffrey Meyer, Director of Administrative Services) **RES 2018-39**

3e Approve designation of authorized District agents to sign pertaining to state disaster assistance program grants, required assurances and agreements
(Joel Metzger, Manager of External Affairs, Conservation and Grants)
RES 2018-40

3f Information / Quarterly Projects Report, (April-June 2018)
(Charles Palmer, District Engineer)

AYES: Directors Davidson, Underhill, and Thomas
NOES: None
ABSTAIN: None
ABSENT: Directors Ratterman and Strange

OFF CONSENT AGENDA

Director Underhill pulled Item 3c from the Consent Agenda

3c Approve to Ratify Claim Summary #556 Secretarial Fund in the Amount of $1,959,299.11 for June, 2018
(Jeffrey Meyer, Director of Administrative Services) **RES 2018-38**

MOTION: Directors Underhill / Davidson – Adopted Resolution No. 2018-38 Approving to Ratify Claim Summary #556 Secretarial Fund in the Amount of $1,959,299.11 for June, 2018

DISCUSSION: Director Underhill asked about the Liebert Cassidy Whitmore item on page 5 of the Claim Summary. Mr. Eggerton advised that they are legal counsel assisting CCWD with Labor Laws and Union negotiations. Director Thomas asked about the cost of the New Hogan Dam. Mr. Meyer responded that the cost has gone up significantly since last year when the Army Corp of Engineers updated it.

PUBLIC COMMENT: There was no public comment.

AYES: Directors Underhill, Davidson, and Thomas
NOES: None
ABSTAIN: None
ABSENT: Directors Ratterman and Strange

4. NEW BUSINESS

4a Discussion / Direction of the FY 2017-18 Fourth Quarter Investment Report (Jeffrey Meyer, Director of Administrative Services)

DISCUSSION: Mr. Meyer reviewed CCWD's cash and investment report for the FY 2017-18 Fourth Quarter and the change in respective balances. There was significant discussion between the Board and staff about the details of the report.

PUBLIC COMMENT: There was no public comment.

There was no action taken by the Board on this item.

4b Discussion / Action Regarding Contract for Archeological Services (Charles Palmer, District Engineer) **RES 2018-41**

MOTION: Directors Davidson / Underhill – Approved Contract for Archeological Services

DISCUSSION: Mr. Palmer reviewed the history of the Jenny Lind Water Treatment Plant Project. He explained the ongoing project delays due to the discovery of cultural resources during construction. There has been involvement by Cal OES, FEMA, and SHPO causing further delays to the project. District staff have worked diligently to limit all associated costs and expedite construction of the project. However, the project budget must be increased to include these additional costs. There was further discussion between staff and the Board on the subject.

5. OLD BUSINESS

Nothing to Report

6. GENERAL MANAGER REPORT

Mr. Eggerton reported on the following activities: 1) the tour with the Deputy Assistant Secretary of the Interior, Austin Ewell the week prior. He mentioned that Cal Fire Dept. did a brilliant job with the tour of their Air Attack Base. He also said that Peter Martin and Joel Metzger did a great job in the planning of the tour; 2) the visit by Secretary Zinke where he spoke about the flow setting procedures of the State Water Board. The State Water Board will be considering adopting the supplement environmental document on the Phase 1 update to its Water Quality Control Plan for the Delta. It is of enormous interest to CCWD because State Water Board staff are proposing requirements of 30-50% unimpaired flows between February and June on the San Joaquin Tributaries including the Stanislaus River. They also released a framework environmental document for Phase 2, which included tributaries North of Phase 1 including the Mokelumne, and Calaveras Rivers in a range of 45-65% of unimpaired flows. CCWD will register its serious concerns by submitting additional formal written comments to the State Water Board.

7. BOARD REPORTS / INFORMATION / FUTURE AGENDA ITEMS

Director Underhill reported on the Arnold Car Show at White Pines Park, which was a wonderful event. She also mentioned that she met with Conifer Communications who is eager to work with CCWD and possibly make use of CCWD's water tanks. In addition, she reported there is an event for the Young Farmers & Ranchers on August 8 at the Utica House in Angels Camp.

Director Davidson reported on the Austin Ewell tour. He stated that staff did a great job with the presentations and the Cal Fire Tour was very well planned. He felt that the tour was beneficial and CCWD made significant progress with possible WIIN Act support. The tour was a great example of the District's long-term advocacy in Washington D.C. In addition, he wanted to give thanks to Jesse Hampton and Bill Cardinal for their work on the tour and the very educational presentation done on location. Director Davidson requested a future agenda item on what development projects are active.

Director Thomas reported that there is a groundbreaking ceremony in Copperopolis on August 8 for the La Cobra Mina development.

8. NEXT BOARD MEETINGS

- Wednesday, Aug 8, 2018, 1:00 p.m., Regular Board Meeting
- Wednesday, Aug 22, 2018, 1:00 p.m., Regular Board Meeting

The Open Session ended at 1:58 p.m.

The meeting adjourned into Closed Session at approximately 2:00 p.m. Those present were Board Members: Russ Thomas, Bertha Underhill and Jeff Davidson (Directors Ratterman and Strange were absent), staff members Dave Eggerton, General Manager, Stacey Lollar, Director of Human Resources and Customer Service (for item 9b), Robert Creamer, Engineering Analyst (for item 9d), and Matt Weber, General Counsel (by teleconference).

9. CLOSED SESSION

9a Conference with Legal Counsel – Existing Litigation
Government Code § 54956.9(a)
La Contenta Investors, LTD vs. CCWD (Calaveras County Superior Court #11CV37713)

9b Conference with Labor Negotiators, Management and Confidential Unit
Government Code §54957.6 Negotiators: Dave Eggerton and Stacey Lollar

9c Conference with Legal Counsel – Threatened Litigation
Government Code § 54956.9(b)(3) – 1 case

9d Conference with Real Property Negotiators
Government Code §54956.8
Property: APNs 046-019-051, 073-042-127 and 073-042-129, Valley Springs
District negotiators: Dave Eggerton and Robbie Creamer
Under negotiation: price and other terms

10. REPORTABLE ACTION FROM CLOSED SESSION

The Board reconvened into Open Session at approximately 3:00 p.m. There was no reportable action.

11. ADJOURNMENT

With no further business, the meeting adjourned at approximately 3:02 p.m.

By:	ATTEST:
_____	_____
Dave Eggerton General Manager	Rebecca Hitchcock Clerk to the Board

Agenda Item

DATE: August 22, 2018

TO: Dave Eggerton, General Manager

FROM: Stacey Lollar, Director of HR and Customer Service

SUBJECT: Discussion/ Direction regarding Comparator Agencies for Compensation Study by Koff & Associates

---

RECOMMENDED ACTION:

Direction only. No action requested.

SUMMARY:

The District recently contracted with Koff & Associates (Koff) to conduct a comprehensive compensation (salaries and benefits) study as one has not been conducted in 15 years and the District agreed to conduct a study as part of the most recent SEIU Local 1021 Memorandum of Understanding.

Management staff has met with Koff along with members of both bargaining units over the last several months to discuss key information (comparing agencies and benchmarks) in order for Koff to conduct their study. It was decided that a total of eleven comparator agencies would be used for the survey. Koff, District management, and the bargaining units used criteria such as similarity of systems and infrastructure, number of employees, regional proximity, and other factors when choosing the recommended list of comparator agencies. The benchmarks (i.e. job classifications) were chosen based on the following criteria – journey level, supervisor, or single-classification. With this agenda item staff will review the list of recommended comparator agencies and benchmark classifications with the Board for direction.

The next step will occur later this month, where employees will have a chance to meet with Koff to point out work tasks within their job which may differ from other jobs. For instance, the District does not have separate water and wastewater divisions. Therefore, many of our employees must be certified in both areas, which is unique. Once Koff has this information they will survey the agreed upon comparators. This process will take approximately 6 to 8 weeks. Once the data is gathered, Koff will analyze the data and bring the information back to the District with recommendations on salary ranges. We anticipate receiving this initial compensation information during the first half of November.

FINANCIAL CONSIDERATIONS:

None at this time.

Attachments:

Proposed Comparators
Proposed Benchmarks

Finalized 8/13/18

Classification Title	Employee Group	Revised Benchmarks 07 20 18
Accountant III	SEIU Local 1021	x
Accounting Technician, Senior	SEIU Local 1021	x
Administrative Technician, Senior	SEIU Local 1021	x
Collection System Worker III	SEIU Local 1021	x
Collection System Worker, Senior	SEIU Local 1021	x
Construction Inspector II	SEIU Local 1021	x
Construction Worker III	SEIU Local 1021	x
Controls/Communication Technician, Senior	SEIU Local 1021	x
Controls/Communication, Senior Supervisor	SEIU Local 1021	x
Customer Service Representative III	SEIU Local 1021	x
Distribution Worker III	SEIU Local 1021	x
Distribution Worker, Senior	SEIU Local 1021	x
Electrician, Senior	SEIU Local 1021	x
Engineer - Civil Associate	SEIU Local 1021	x
Engineering Analyst	SEIU Local 1021	x
Engineering Technician, Senior	SEIU Local 1021	x
Facilities Maintenance Technician	SEIU Local 1021	x
Information Systems Administrator	SEIU Local 1021	x
Mechanic II	SEIU Local 1021	x
Meter Reader II	SEIU Local 1021	x
W/WW Treatment Plant Operator III	SEIU Local 1021	x
W/WW Treatment Plant Operator, Senior	SEIU Local 1021	x
Director of Administrative Services	Management and Confidential	x
Director of Human Resources and Customer Service	Management and Confidential	x
Director of Operations	Management and Confidential	x
Distribution/Collections Manager	Management and Confidential	x
District Engineer	Management and Confidential	x
Executive Assistant	Management and Confidential	x
Human Resources Technician	Management and Confidential	x

Maintenance Manager	Management and Confidential	x
Manager of External Affairs, Conservation, and Grants I	Management and Confidential	x
Plant Operations Manager	Management and Confidential	x
Manager of Water Resources	Management and Confidential	x
General Manager	Executive	x
Total Number of Benchmarks		**34**

Finalized 8/13/18

	Comparator Agency List
1	Amador Water Agency
2	City of Lodi
3	City of Roseville
4	City of Tracy
5	El Dorado Irrigation Distric
6	Nevada Irrigation District
7	Placer County Water Agency
8	Sacramento Regional County Sanitation District
9	Sacramento Suburban Water District
10	South Tahoe Public Utility District
11	Tuolumne Utilities District

Agenda Item

DATE: August 22, 2018

TO: Dave Eggerton, General Manager

FROM: Charles Palmer, P.E., District Engineer

RE: Discussion / Action Regarding KASL Consulting Engineers Contract Amendment for Engineering and Design Services for the Ebbetts Pass Reach 1 Water Pipeline Replacement Project, CIP #11085

RECOMMENDED ACTION

Motion: _____/_____ adopting Resolution 2018-____ authorizing a contract amendment with KASL Consulting Engineers for additional work for engineering and other professional services for the design of the Ebbetts Pass Reach 1 Water Pipeline Replacement Project, CIP #11085.

BACKGROUND

On April 12, 2017, KASL Consulting Engineers was selected from nine competing proposals and awarded a design contract by the Board (Res. 2017-19) in the amount of $451,659 to perform engineering and other professional services for the Ebbetts Pass Reach 1 Water Pipeline Replacement Project. In furtherance of this effort, it has been necessary for KASL to perform additional work outside of the initial scope of its contract including additional topographical surveying, environmental and permitting (ECORP), storm water pollution prevention planning, and geotechnical field investigations. KASL is requesting a fee adjustment of $79,536 for these additional services. For a description of said extra work and costs, please refer to attached request for fee adjustment prepared and submitted by KASL. The District Engineer has verified the extra costs are necessary to successfully complete a thorough and accurate design of this complex project to ensure its successful construction and thus requests authorization from the Board for the contract amendment.

FINANCIAL CONSIDERATIONS

No budget adjustment is required at this time. The extra costs totaling $79,536 are covered under the Water Capital “R&R” Fund (Fund 125).

Attachments:
KASL / Request for Fee Adjustment
ECORP / Amendment One and Two

CONSULTING
KASL
ENGINEERS

7777 Greenback Lane
Suite 104
Citrus Heights, CA
95610

Tel. 916/ 722-1800
Fax 916/ 722-4595

Principal:
John C. Scroggs

August 7, 2018

Mr. Charles Palmer
District Engineer
Calaveras County Water District
120 Toma Court
San Andreas, CA 95249

Subject: (Second, Revised) Request for Fee Adjustment, Ebbetts Pass Reach 1

Charles:

Thank you for reviewing our July 23 and July 30, 2018 requests for fee adjustment, submitted for Ebbetts Pass Reach 1. In reply:

1. Topographic Survey Services

You are correct, approximately 25% of the field points collected by our survey crews were to locate Project area trees tagged and identified by our arborists. We estimate that the survey time required to locate these trees represented approximately 20% of our survey crew time. The extra cost for topographic surveys (not including trees) is, therefore, estimated at

.80 ($56,816.80) = $45,453.44

Per our meeting of August 2, we will deduct an additional $2000 from the above fee in recognition of the fact that our potholing costs were slightly less than the $40,000 included in our March 10, 2017 proposal.

2. Additional Environmental and Permitted Costs, ECORP

a. We are advised and reminded by ECORP that their scope was previously adjusted by Amendment No. 1, attached which included:

Task 13:	Recording, Testing and Evaluation of Prehistoric Site EP-003	
	Cost =	$6650
Task 14:	Site Recording and Mapping for Historic-Period Resources P-05-2966, P-05-1802, WP-001, EP-002 and P-05-261	
	Cost =	$3300
Task 15:	Special Use Permit Application (USFS)	
	Cost =	$3000
	Total Amendment No. 1	**$12,950**

After reviewing this Amendment with you in June / July 2017 we approved ECORP's Amendment No. 1 and Tasks 13, 14 and 15. We should have been reflecting this additional fee in our invoice accounting of "Total Authorized Fees".

CONSULTING KASL ENGINEERS

b. California Fish and Wildlife, 1602 Notification.
ECORP's cost proposal, (attached), included in our March 10, 2017 proposal to CCWD included California Fish and Wildlife 1602 Notification. As you know, it has been determined that interception of occasional drainage ditches and "side water" located along the south side of State Route 4, in the vicinity of the proposed Ebbetts Pass Reach 1 Water Transmission Main, required 1602 Notification. ECORP's additional fee of $8555 should, therefore, be included in the scope of work and approved fee.

c. ECORP's Amendment Two (June 26, 2018), attached, includes a request for up to $15,000 additional permit support costs. After reviewing this request with you, you have suggested that the total permitting costs, including the $8555 in ECORP's proposal of March 10, 2017, should not exceed $15,000. The additional permit support cost will, therefore, be adjusted to a not to exceed fee of $6445.

3. Additional SWPPP Preparation Costs

Per our letter of July 23, 2018, an additional $4000 was requested for the costs TME has incurred in the preparation of the Ebbetts Pass Reach 1 SWPPP. You suggested that $2500, as an additional cost, that you could support for the SWPPP.

4. Additional Geotechnical Costs

Attached please find Phase 2 updated geotechnical proposal from Condor Technologies. This was received from Condor after we met with Ron Skaggs at Ebbetts Pass on July 20, 2018. When the now proposed Phase 2 fee of $21,143 is added to the previously invoiced Phase 1 fee of $7125.50, the total geotechnical subconsultant cost is $28,268.50. This total is $5633.50 more than the $22,635 fees included in our March 10, 2017 letter. If Condor's Phase 2 fees are acceptable to the District we request a fee adjustment of $5633 to cover the additional geotechnical subconsultant cost without markup.

Final Design, Technical Specifications and Bid Schedule.

The above itemized request, if approved, would cover additional costs to date and subconsultant costs. Looking ahead, we will respond to Caltrans 90% review comments, submit 100% plans to you and to Caltrans, complete the Technical Specifications and Bid Schedule and then assemble the final approved set of Contract Documents for bidding. As you know, we do not have much in the

way of budget to complete this work. If the District can approve the additional fees as outlined herein we believe that we can complete our Ebbetts Pass Phase 1 Design contract with CCWD without significant write-down.

A summary of the adjusted fee request is as follows:

1.	Additional Survey Costs	$43,453
2.	ECORP Environmental Permitting Costs	
	1. Amendment 1, previously approved	$12,950
	2. 1602 Notification, Included as Optional Cost in March 10, 2017 Proposal	$8555
	3. Request for Additional Permitting costs	Not to Exceed $6445
3.	Additional SWPPP Preparation Costs	$2500
4.	Additional Condor Geotechnical Costs	$5633
	Proposed Fee Adjustment (Includes ECORP Amendment No. 1 and 1602 Notification)	**Not to Exceed $79,536**

Thank you for your consideration. We hope that this second, adjusted fee request is acceptable to CCWD.

Very Truly Yours,

KASL Consulting Engineers

John C. Scroggs

22 June 2017
(P17-064.01, Revised)

Amendment One
(Service Agreement finalized 3 May 2017)

Scope of Work and Cost Estimate[1] for
Environmental Services
Regarding
CCWD Ebbetts Pass Reach 1 Water Transmission Pipeline Capitol Improvements Project
(Calaveras County, California)
For
KASL

PROPOSED NEW TASK:

Task 13: Recording, Testing and Evaluation of Prehistoric Site EP-003

ECORP identified prehistoric archaeological site EP-003 within the APE of the Calaveras County Water District (CCWD) Ebbetts Pass Reach 1 Water Transmission Pipeline Capital Improvements Project (Project) during the pedestrian survey.

ECORP will record the site on DPR site forms and conduct subsurface testing at site EP-003. The purpose of the testing is to determine the presence or absence of subsurface deposits to assist in an evaluation using eligibility criteria for the National Register of Historic Places and California Register of Historical Resources. ECORP will hand-excavate up to 20 shovel test units, to be placed using professional judgement by the principal investigator.

All artifacts will be identified and cataloged in the field, and returned to the ground. At this time, based on current information, it does not appear necessary to collect artifacts or carry out laboratory analysis.

In accordance with CDC 4216.2, ECORP will contact USA North to mark the locations of any buried utility lines or to provide clearance for buried utilities.

The result of the evaluation of eligibility based on test excavations will be incorporated into the inventory and evaluation report, and the DPR site record.

The inventory and evaluation report will be submitted in electronic format within 60 days of a signed contract and notice to proceed. In compliance with the terms of agreement between ECORP and the California Office of Historic Preservation, one unbound copy of the final report will be submitted to the appropriate confidential OHP Information Center, where it will be archived and remain confidential (accessible only by qualified archaeologists; note that this is required, regardless of project status and does not affect project approval).

[1] *The cost estimate is based on time and materials and is valid for 90 days.*

2525 Warren Drive • Rocklin, CA 95677 • Tel: (916) 782-9100 • Fax: (916) 782-9134 • www.ecorpconsulting.com

This cost proposal:

- *does not include preparation of a Finding of Effect; or assisting USACE with consultation with the State Historic Preservation Officer (SHPO) or Advisory Council of Historic Preservation (ACHP) on a Memorandum of Agreement.*
- *does not include artifact collection, laboratory analysis, or curation; if such are determined to be necessary in order to evaluate the site, then a contract change order would be required.*
- *does not include tribal monitoring or assistance facilitating consultation between interested Native American Tribal governments and the USACE or CCWD.*
- *does not include project meetings and other tasks not specified above.*
- *assumes that the Client will ensure proper access to the project area for field studies and will notify ECORP of any hazards in the project area. Adverse weather conditions in the project area may delay field survey until ground conditions are suitable for fieldwork.*

Cost Estimate for Task 13: $6,650

Task 14: Site Recording and Mapping for Historic-period Resources P-05-2966; P-05-1802, WP-001, EP-002, and P-05-261

ECORP identified historic-period resources P-05-2966; P-05-1802, EP-001, EP-002, and P-05-261 within the Project APE during the pedestrian survey. ECORP will fully record these resources on Department of Parks and Recreation (DPR) 523 forms and fully map all site boundaries with a mapping-grade GPS receiver. All DPR records will be provided as an attachment to the technical report prepared for Task 1.

ECORP will provide CCWD and KASL Engineering Consultants with a detailed map and GIS shapefiles depicting the locations and extents of each resource, including site EP-003 mentioned in Task 1. The purpose of the resource location map is to assist the re-design of the Project APE to avoid the resources.

This scope and cost assumes:

- *The locations of all cultural resources will remain confidential. The map or information provided on the map will not be shared with third parties or disseminated to the public.*
- *This scope does not include resource evaluation.*

Cost Estimate for Task 14: $3,300

Task 15: Special Use Permit Application

Prior to the initiation of Tasks 2 and 3, ECORP will coordinate the United States National Forest (USFS) and prepare an application for a Special Use Permit pursuant to regulations of the Archaeological Resources Protection Act (ARPA; 43 CFR 7). ECORP will prepare the application and coordinate with USFS to obtain the permit.

This scope and cost assumes:

- *No more than two rounds of edits on the permit application will be requested by the Forest Service before approval*
- *The Forest Service will not require additional permits or require submission for a retroactive permit for any survey work already completed in the Project Area.*

Cost Estimate for Task 15: $3,000

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TOTAL COST ESTIMATE FOR TASK 13, 14 and 15: $12,950

Expense Reimbursement/Other:

1. Computer, facsimile, and telephone are included in the billing rates, and there is no additional charge.
2. Copies (color and black and white), equipment and other direct expenses are reimbursed with a 14% administrative handling charge (excluding per diem).
3. Subcontractor expenses are reimbursed with a 12% administrative handling charge.
4. Mileage is reimbursed at current IRS rate with a 14% administrative handling charge.
5. Per Diem, depending upon location, may be charged where overnight stays are required.
6. Expert Witness Testimony, including Depositions, is billed at time and a half.
7. When non-standard billing is requested, time spent by office administrative personnel in invoice preparation is a cost to the project and charged as technical labor.

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26 June 2018
(P17-064.02)

Amendment Two
(Service Agreement finalized 3 May 2017)

Scope of Work and Cost Estimate[1] for
Environmental Services
Regarding
CCWD Ebbetts Pass Reach 1 Water Transmission Pipeline Capital Improvements Project
(Calaveras County, California)
For
KASL Consulting Engineers, Inc.

COST ESTIMATE

PROPOSED NEW TASK:

Task Sixteen: Ongoing Permit Support

ECORP will coordinate and consult with agency personnel, as required to resolve regulatory issues pertinent to the regulatory permit applications. This task is based on time and materials required to respond to agency requests and meet with agencies, as needed. If time and materials required to consult with agencies exceed the maximum amount in this task, due to unanticipated requests from the agencies, a change order would be requested for further correspondence with the agencies.

Assumptions:
Services will be based on time and materials for the services described above will not exceed $15,000.

TOTAL COST ESTIMATE FOR AMENDMENT TWO: $15,000

Expense Reimbursement/Other:

1. Computer, facsimile, and telephone are included in the billing rates, and there is no additional charge.
2. Copies (color and black and white), equipment and other direct expenses are reimbursed with a 14% administrative handling charge (excluding mileage and per diem).
3. Subcontractor expenses are reimbursed with a 12% administrative handling charge.
4. Mileage is reimbursed at current IRS rate.
5. Per Diem, depending upon location, may be charged where overnight stays are required.
6. Expert Witness Testimony, including Depositions, is billed at time and a half.
7. When non-standard billing is requested, time spent by office administrative personnel in invoice preparation is a cost to the project and charged as technical labor.

---

[1] *The cost estimate is based on time and materials and is valid for 90 days.*

• *2525 Warren Drive* • *Rocklin, California 95677* • *Phone: (916) 782-9100* • *Fax: (916) 782-9134* • *Web:* www.ecorpconsulting.com

RESOLUTION NO. 2018- ____

**A RESOLUTION OF THE BOARD OF DIRECTORS
OF THE CALAVERAS COUNTY WATER DISTRICT**

**AUTHORIZING CONTRACT AMENDMENT WITH KASL CONSULTING ENGINEERS
FOR EXTRA WORK FOR ENGINEERING AND PROFESSIONAL SERVICES
FOR DESIGN OF THE EBBETTS PASS REACH 1 WATER PIPELINE
REPLACEMENT PROJECT, CIP #11085.**

WHEREAS, on April 12, 2017, KASL Consulting Engineers was previously selected among nine competing proposals and awarded a design contract by the Board (Res. 2017-19) in the amount of $451,659 to complete engineering and provide other professional services for the design of the Ebbetts Pass Reach 1 Water Pipeline Replacement Project; and

WHEREAS, in carrying out its contract, KASL incurred extra work outside the original scope and fee including added costs for topographic survey, environmental permits, storm water pollution prevention plan preparation, and geotechnical investigation; and

WHEREAS, for said extra work, KASL has prepared and submitted a request for fee adjustment not to exceed $79,536 which the District Engineer has verified that the costs are valid and necessary to the success of the project; and

BE IT RESOLVED, the Calaveras County Water District Board of Directors approves the fee adjustment of $79,536 requested by KASL Consulting Engineers and authorizes the General Manager to execute a contract amendment with KASL for said extra work for the Ebbetts Pass Reach 1 Water Pipeline Replacement Project, CIP #11085 with costs paid from the Water Capital "R&R" Fund (Fund 125).

PASSED AND ADOPTED this 22nd day of August, 2018 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

CALAVERAS COUNTY WATER DISTRICT

_____
Scott Ratterman
President, Board of Directors

ATTEST:

_____
Rebecca Hitchcock
Clerk to the Board

Agenda Item

DATE: August 22 2018

TO: Dave Eggerton, General Manager

FROM: Bob Godwin, P.E., Senior Civil Engineer
Charles Palmer, District Engineer

SUBJECT: Presentation of the Draft Copper Cove Water System Master Plan, CIP 11064C-120

RECOMMENDED ACTION:

None at this time. Staff will address both today's comments and public comments received prior to September 5, 2018, before finalizing the Master Plan. Once finalized, staff will return to a future Board meeting with a request for adoption of the Copper Cove Water System Master Plan, CIP 11064C-120.

SUMMARY:

Development of the Copper Cove Water System Master Plan was authorized by Resolution 2016-44. This Master Plan is the last of four plans prepared for communities of Copper Cove and La Contenta/Jenny Lind. The three other master plans are completed and have been adopted by the Board.

A presentation of the draft Master Plan will be made by Mr. Karl Brustad, P.E. of Peterson Brustad Inc. Mr. Brustad's presentation will provide an overview of the contents of the draft Master Plan including the Geographic Information System (GIS) hydraulic model used, current and projected future community water demands, and recommended facility improvements. Near term capital improvement costs will be developed for the final Master Plan. These costs will then be used by staff in the development of future capital improvement plans.

A copy of the draft Master Plan is enclosed with each Board member's agenda packet and a limited number of printed copies will be available at the Board meeting. An electronic version in Adobe Acrobat Reader® format is included with the agenda packet posted on the District's website.

FINANCIAL CONSIDERATIONS:

None at this time. Implementation of the Master Plan capital improvement recommendations will lead to a future separate financial analysis and evaluation of associated capacity fees.

Attachments: *Draft Copper Cove Water System Master Plan, July 2018*

Copper Cover Water System Master Plan
D R A F T

Calaveras County Water District

PRELIMINARY
FOR REVIEW ONLY

JULY 2018

Prepared under the responsible charge of

Karl Brustad
C 57869

PETERSON . BRUSTAD . INC
ENGINEERING . CONSULTING

80 Blue Ravine Road, Suite 280
Folsom, CA 95630

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Appendices

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Introduction

The Calaveras County Water District (District) is updating the Copper Cove Water Master Plan (WMP). The most recent WMP was published in 2005.

This master plan report presents a summary of the results and findings for the 2018 Copper Cove Water System Master Plan update. The intent of this report is to provide a basis for managed upgrade of the water supply, treatment, storage, and distribution systems and to develop a capital improvement plan.

Purpose and Specific Objectives

The purpose of this master plan report is to describe water supply, treatment, storage, and distribution system improvements required to meet current and future service area needs. In particular, this master plan report provides the following information:

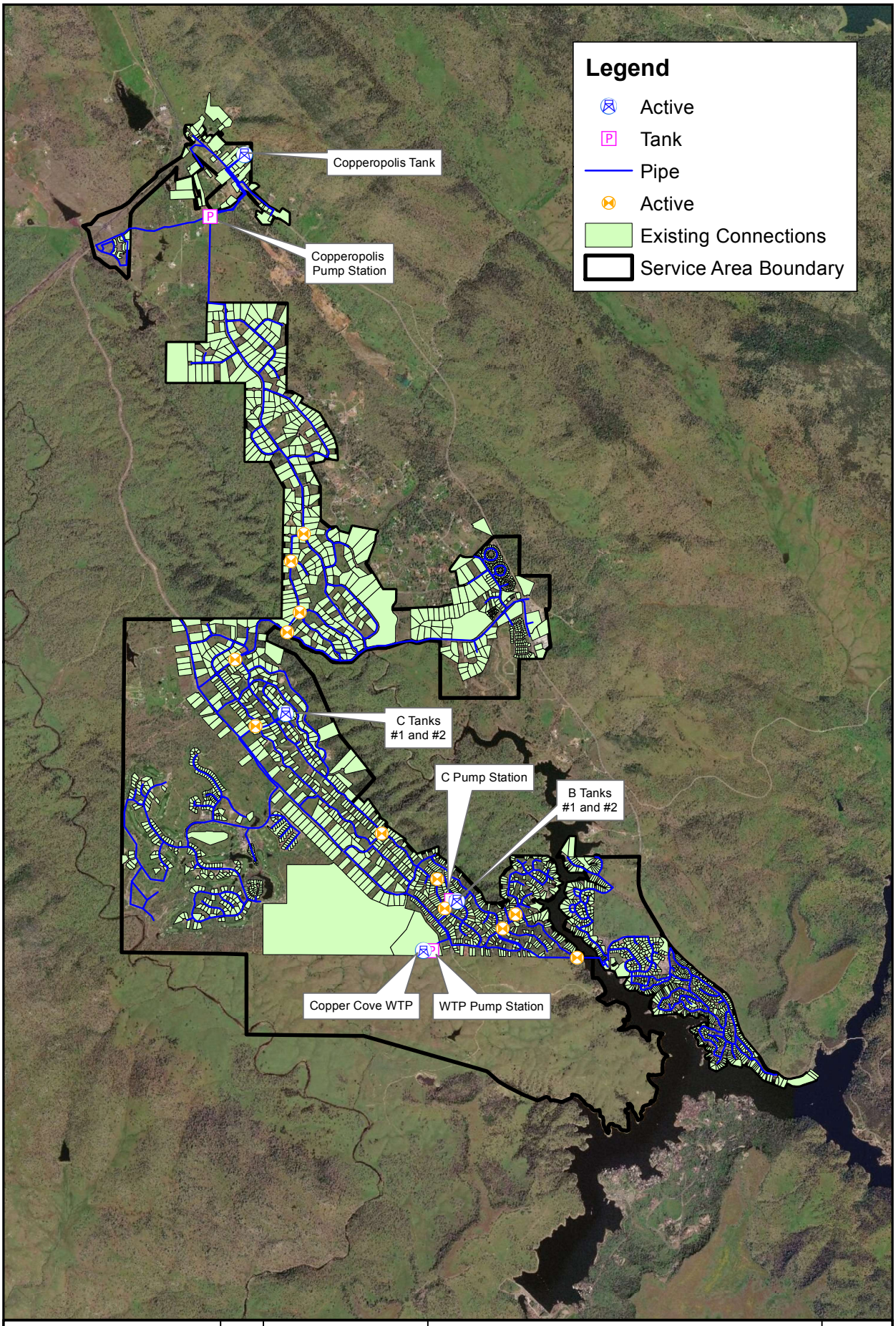
- Delineation of the service area.
- Characterization of historic water demands, including existing and projected average day, maximum day, and peak hourly demands.
- Description and evaluation of the existing facilities.
- Identification of the improvements needed to meet growth, improve operations, comply with current and known future regulations, and correct deficiencies.
- Recommendations for system improvements needed to serve buildout conditions.
- Timelines and cost information for constructing the recommended improvements.

Existing System

Existing Service Area

The service area encompasses the communities of Copper Cove, Copperopolis, Saddle Creek, Lake Tulloch Shores, Calypso Beach, Connor Estates, Copper Meadows, and Peninsula Estates. The service area is defined by the 2017 Calaveras County Water District Sphere of Influence Report. The topography ranges from approximately 1,150 feet to approximately 550 feet. Hot summers and cool winters characterize the region, with temperatures ranging from the low 40's to the mid 100's.

These communities include a total of 2,562 existing connections spread out across the 5,152-acre service area according to records provided in 2017. The current facilities include one raw water pump station diverting water from the North Fork Stanislaus River, one water treatment plant (Copper Cove WTP), three treated water pump stations, five treated water storage tanks, and the associated distribution system. A general map of the existing facilities is presented in Figure 1.



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0 0.75 Miles

1" = 0.75 mi

2018 COPPER COVE WATER MASTER PLAN

Existing System Map

FIGURE

1

Water Supply

Raw water is supplied to the Copper Cove WTP from Lake Tulloch. A two-stage 4.75-mgd capacity pumping system conveys water from the lake to the WTP through the existing 24-inch raw water main. The first stage consists of two 1,650-gpm pumps (2-duty, 1-spare) and the second stage consists of three 1,750-gpm pumps (2-duty, 1-spare). In addition to the WTP, raw water is also seasonally supplied to Saddle Creek Golf Couse.

Lake Tulloch is owned and operated by the Tri-Dam Project and has a max capacity of approximately 65,000 AF. Lake Tulloch is fed by the surrounding 980 square mile drainage area and the New Melones Reservoir. The New Melones Reservoir has 2,420,000 AF and is immediately upstream of Lake Tulloch.

Raw water is drawn through an intake on the Black Creek arm of the Late Tulloch Reservoir. The 2013/2014 drought conditions led to poor surface water quality and prompted the District to relocate the intake. In 2015 the District completed construction extending the existing intake 110-feet. The extension relocated the intake from approximately 10 feet below the low lake level to approximately 68 feet below the low lake level.

The District maintains Pre-1914 and Post-1914 water rights that allow the District to Divert up to 6,000 AF/yr to supply treated and raw water demands. These water rights can be increased if the District were to file a change petition with the SWRCB and demonstrates a need for an increased supply to the Copper Cove service area. Pursuant to contractual arrangements with NCPA and the Utica Power Authority, the District can also access pre-1914 water supplies from the North Fork Stanislaus stem after it is used for power purposes.

Water Treatment Facilities

The Copper Cove WTP was constructed in 1998 to supply treated water to the Copper Cove and Copperopolis communities. The WTP has a rated capacity of 4-mgd and has room to expand the capacity to 10-mgd. For consideration of treated water availability, this master plan uses 92.5 percent of the ultimate capacity of the WTP to account for production losses during backwash events. This equates to a firm capacity of approximately 3.7-mgd for planning purposes

Treatment consists of pre-ozonation, micro-filtration, and disinfection with sodium hypochlorite. Pre-ozonation provides taste and odor control, as well as TOC and disinfection by-product reduction. A 300,000-gallon clearwell provides contact time prior to delivering water to the distribution system.

Treated Water Distribution System

The distribution system is operationally divided into ten pressure zones. The pressure zones allow water to be delivered at acceptable pressures to customers over a large range of elevations. The pressure zones are supplied by one of the five existing storage tanks: B Tanks (#1 and #2), C Tanks (#1 and #2) or Copperopolis Tanks. All the pressure zones

are gravity fed from their respective storage tank. The pressure zones are summarized in Table 1, which presents the elevation ranges and the pressure ranges throughout each zone. The low-pressure conditions are given for the peak hour demand scenario and the high-pressure conditions are given for static pressure. The low pressure condition assumes all storage tanks are half full tank and the high pressure condition assumes all storage tanks are full.

Table 1. Copper Cove Pressure Zones

Pressure Zone	Storage Supply	Elevation Range		Low Pressure (psi) – PHD Condition	High Pressure (psi) – Static Condition
		Low (ft)	High (ft)		
B1	B Tanks	567	986	31[1]	110
B2	B Tanks	673	735	80	107
B3	B Tanks	525	673	42	106
B4	B Tanks	499	645	41	105
C1	C Tanks	651	1138	32[1]	160[2]
C2	C Tanks	811	951	46	108
C3	C Tanks	566	813	64	137
C4	C Tanks	618	949	67	150
C5	C Tanks	735	901	39	108
Copperopolis	Copperopolis Tank	883	1006	51[1]	110

[1] Low pressure for zones served by tanks is based on the lowest pressure at a distribution node.
[2]High pressure is given for highest pressure at a distribution node and not the force main connecting Zone C1 to Zones C3 and C4.

Treated Water Pumping Stations & Control Valves

The boundaries between pressure zones are defined by booster pumping stations, pressure regulating valves (PRVs), and isolation valves. Information about the booster pumping stations is summarized in Table 2. Information about the PRVs is summarized in Table 3. PRVs used to serve individual homes and cul-de-sacs have been omitted from this report.

Table 2. Copper Cove Pump Stations.

Station	Description	Model ID	Design Head (ft)	Design Flow (gpm)
WTP Pump Station	Clearwell to B Tank	PMP-1	244	2,600
		PMP-10	244	2,600
C Pump Station	WTP Pump Station to C Tank	TANKC_1	215	900
		TANKC_2	215	450
		TANKC_3	215	450
Copperopolis Pump Station	Zone C5 to Copperopolis	U7008	150	90
		U7000	150	90

Table 3. Copper Cove PRVs.

CCWD ID	Model ID	Location	From Zone	To Zone	Dia. (in)	Elev. (ft)	HGL (ft)	Setting (psi)
#11	PRV-11	Sawmill Road & Fox Court	C1	C5	6	776	1030	110
#5	PRV-131	Kiva Court	B1	B4	6	567	740	75
#3	PRV-19	Arrowhead Street & Signal Hill Trail	C1	B1	6	912	1143	100
#12	PRV-32	Copper Cove Drive & Sawmill Road	C1	C4	8	654	885	100
#1	PRV-60	Kiva Drive & Bay View Drive	B1	B2	4	735	920	80
#2	PRV-71	Kiva Drive & Tewa Court	B2	B3	4	644	725	42
#13	PRV-90	Arrowhead Street & Signal Hill Trail	C1	B1	4	947	1143	85
#6	SADDLE_CRK	Wail Hill Road & Little John Road	C1	C3	10	935	1051	50
#9	V8012	Copper Cove Drive & Arrowhead Street	C1	C2	4	869	1061	83
#4	V8006	Flint Trail & Arrowhead Street	C1	C2	6	860	1045	80
#8	V8010	Bearclaw Way & Cheyenne Road	C5	C4	4	741	903	70
#10	V8016	Acorn St & Sawmill Road	C1	C4	4	750	912	70

[1] Elevations and settings from InfoWater model, unless updated values were provided by the District.

Treated Water Storage Facilities

The existing water system includes five storage tanks and one clearwell that provide water storage for fire flow, emergency, and operational needs. These tanks are summarized in Table 4.

Table 4. Copper Cove Water Storage Tanks.

Name	Model ID	Type	Nominal Volume (gallons)	Ground Elevation (ft)	Diameter (ft)	Maximum Water Depth (ft)	Overflow Elevation (ft)
TWP Clearwell	WTP	Concrete	300,000	NA	NA	NA	NA
B1 Tank #1	B	Redwood	300,000	980	55	17	997
B1 Tank #2	B2	Welded Steel	750,000	980	65	30	1010
C1 Tank #1	C	Welded Steel	543,000	1140	60	26	1166
C1 Tank #2	C2	Welded Steel	543,000	1140	60	26	1166
Copperopolis Tank	COPPER	Welded Steel	500,000	1111	57	26.5	1137.5

Treated Water Pipelines

The distribution system model includes approximately 54 miles of distribution pipe ranging from 4-inches to 30-inches in diameter as shown in Figure 1. The Copper Cove system is composed mainly of six-inch and eight-inch diameter mains. The smallest distribution pipe diameter found in the model is four inches. Figure 3 does not show some distribution lines in many of the cul-de-sacs, which in many cases are two inches in diameter. Table 5 summarizes the distribution system characteristics from the distribution system model.

Table 5. Distribution System Characteristics.

Pipe Diameter (in)	Total Length of Pipe (mi)
4	1.15
6	23.65
8	17.83
10	9.60
12	3.37
16	0.10
18	0.37
20	2.22
24	0.06
30	0.02
Total Length	***54.38***

Existing and Projected (Buildout) Demands

Existing System Demand

The existing system demands are presented in Table 6. The average daily demand (ADD) has been adopted from the 2015 Urban Water Management Plan (2015 UWMP), while the maximum daily demand (MDD) is equal to the maximum daily production on record between 2008 and 2016. For comparison, the historic water records are presented in Table 7. The historic records present an ADD less than that adopted from the UWMP. The UWMP ADD was selected to represent the existing system to provide consistency between planning documents and to be conservative. The existing ADD is 1.58-mgd and the existing MDD is 2.69-mgd. The peak hour demand (PHD) is 4.04-mgd. The PHD was calculated using CCWD's MDD:PHD peaking factor of 1.5.

Table 6: Existing System Demands

User Type	Existing ADD (MGD)	Existing MDD (MGD)	Existing PHD (MGD)
Residential	0.764	1.299	1.95
Landscape	0.009	0.015	0.02
Public Service	0.008	0.014	0.02
Commercial	0.144	0.244	0.37
Losses	0.659	1.120	1.68
Total	***1.58***	***2.69***	***4.04***

Table 7: Historic Water Demands

Year	ADD (MGD)	MDD (MGD)	ADD: MDD Peaking Factor
2008	1.41	2.62	1.86
2009	1.24	2.69	2.17
2010	1.14	2.54	2.22
2011	1.19	2.40	2.01
2012	1.28	2.47	1.93
2013	1.37	2.53	1.84
2014	1.10	2.36	2.15
2015	0.96	1.79	1.87
2016	1.11	2.41	2.17
Maximum	***1.41***	***2.69***	***2.22***

Peaking Factors

Peaking factors define the relationship between ADD and MDD and the relationship between MDD and PHD. These peaking factors will be used to model both the existing system and the buildout system. The maximum day and peak hour peaking factors proposed for the 2018 Master Plan are as follows:

- Existing ADD:MDD Peaking Factor – 1.70 (per Table 6)
- Buildout ADD:MDD Peaking Factor – 2.22 (per Table 7)
- MDD:PHD Peaking Factor – 1.5 (per the District's *Design and Construction Standards)*

Existing and buildout peaking factors are unique due to the use of the 2015 UWMP ADD which distorts the historic relationship between ADD and MDD. Using a single peaking factor would result in an erroneous buildout MDD; therefore, unique peaking factors are defined.

Buildout System Demand

The average daily water demand at buildout was determined by calculating and summing the demand for each user type. Residential demands were calculated by multiplying the buildout population (16,513 people) by the mean residential per capita user demand (173 gallons per person-day/0.1938 AF/yr). The mean residential per capita user demand derived from the 2015 UWMP. Using this metric to project future water demands is consistent with SB 20x2020 water conservation goals. See Table 8 for how the mean residential per capita demand was derived.

Table 8: Residential per Capita Water Demand

Year	Existing	2020	2025	2030	2035	2040
Copper Cove Population	4,416	4,708	4,944	5,127	5,280	5,373
Single Family Demand (AF/yr)	856	912	958	994	1023	1041
Residential Demand (AF/yr-person)	0.1938	0.1937	0.1938	0.1939	0.1938	0.1937
Mean Residential Demand (AF/person-yr)	0.1938					

Mean Residential-GPCD (gal/person-day)	173.0

The average daily water demand at build out is projected to be 5.4-mgd. The buildout ADD was determined by summing residential, commercial, public service, landscape and water loss demands. The buildout MDD and PHD were calculated based on the buildout ADD:MDD peaking factor (2.22) and MDD:PHD peaking factor (1.5) defined in the previous section. The buildout system demands are summarized in Table 9.

Table 9: Buildout System Demands

User Type	Buildout ADD (MGD)	Buildout MDD (MGD)	Buildout PHD (MGD)
Residential	2.86	6.34	9.51
Commercial	0.09	0.20	0.31
Public Service	0.11	0.25	0.37
Landscape	0.06	0.14	0.21
Losses	2.23	4.94	7.41
Total	***5.4***	***11.9***	***17.8***

The commercial, landscape, and public service buildout demand factors were adopted directly from Appendix F of the 2015 UWMP and used to calculate the buildout water demand.

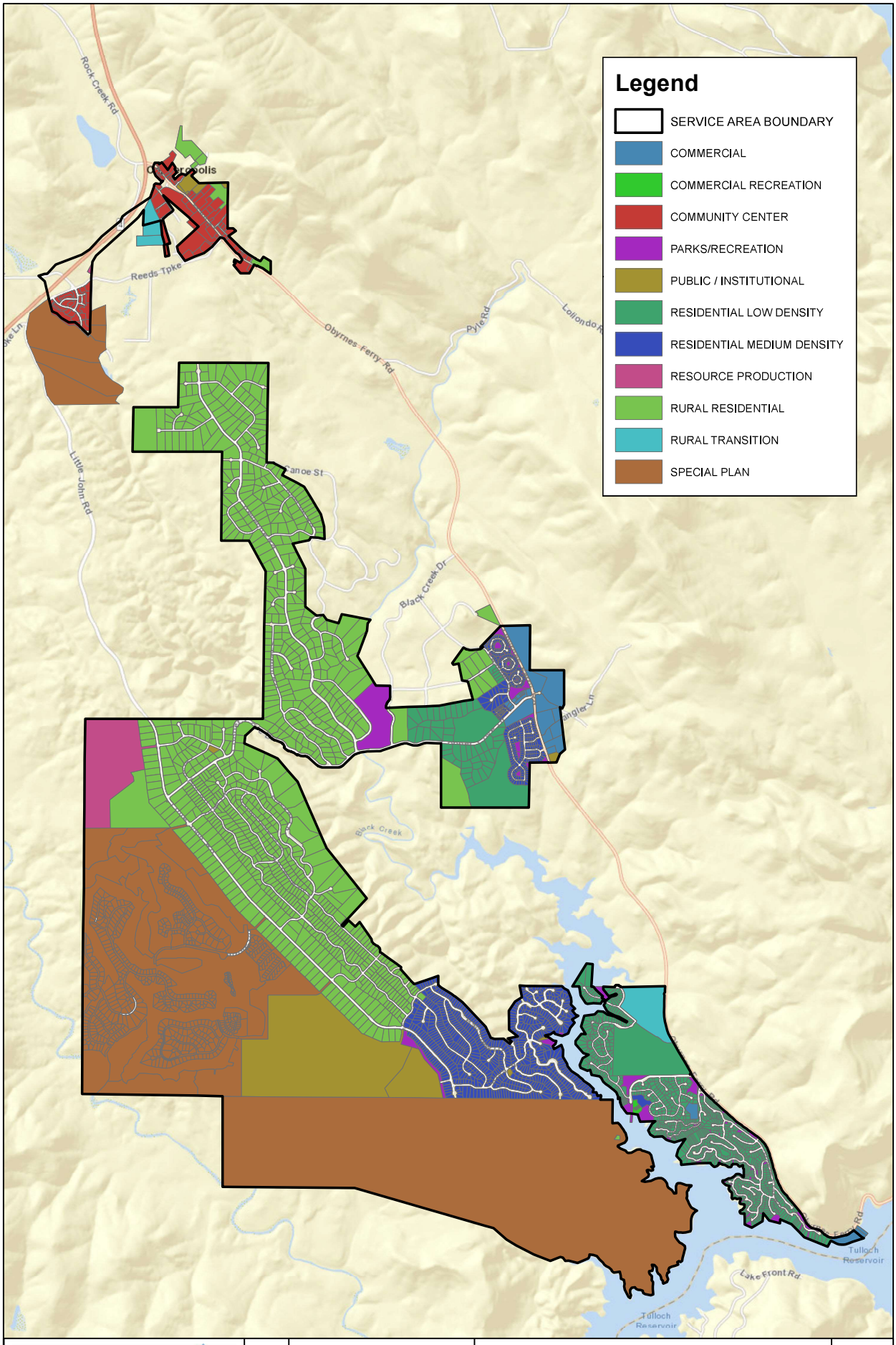
Losses at buildout were projected by deriving the percentage of water losses presented in the 2015 UWMP. Similar to the residential GPCD, losses are consistently 42 percent of the residential and non-residential (commercial, irrigation, and landscape) demands for all future demand projections. To be consistent with the 2015 UWMP, this relationship was used to calculate the average daily loss demand at buildout. Table 10 presents demand data from the 2015 UWMP to support the water loss evaluation.

Table 10: Water Loss Evaluation

Water User Type	Existing ADD (MGD)	2020 ADD (MGD)	2025 ADD (MGD)	2030 ADD (MGD)	2035 ADD (MGD)	2040 ADD (MGD)
Residential	0.764	0.814	0.855	0.888	0.913	0.929
Commercial	0.009	0.009	0.010	0.010	0.011	0.011
Public Service	0.008	0.008	0.009	0.009	0.009	0.010
Landscape	0.144	0.153	0.161	0.167	0.171	0.175
Losses	0.659	0.700	0.735	0.762	0.785	0.798
Total	1.58	1.68	1.77	1.83	1.89	1.92
Percent Losses	***0.42***	***0.42***	***0.42***	***0.42***	***0.42***	***0.42***

Infill Evaluation

The Copper Cove service area has yet to reach buildout and has considerable room to support future developments. Of the 7.5 square miles within the service area, only 3.2 square miles have been developed. The remaining 4.3 square miles provides room for future connections to be served by the WTP. A map presenting complete infill by land use type consistent with the Draft Calaveras County General Plan Update is presented in Figure 2.



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0 0.25 0.5 Miles

1" = 0.5 mi

2018 Copper Cove Water Master Plan

Infill Map

FIGURE

2

Approximately 6,852 total residential connections are anticipated at buildout. The total number of residential connections represents the sum of existing connections, existing connection subdivisions, planned connections and unplanned connections. A summary of infill connections is presented in Table 11. Existing connections larger than three times the average land use parcel size were assumed to be subdivided at buildout, these connections represent the existing connection subdivisions. Planned connections include the 300 connections planned for the Tuscany Hills development and the 300 connections planned for the Copper Mill development. Unplanned infill connections include those anticipated in unplanned and undeveloped areas. Unplanned connections were calculated by dividing the total unplanned undeveloped area for each land use type by the respective land use density.

Table 11: Residential Connections at Buildout

Residential Land User Type	Existing Parcel Density (Ac/conn.)	Unplanned Buildout Area (Ac)	Existing Residential Connections	Existing Connection Subdivisions	Planned Connections	Unplanned Infill Connections
Low Density	2.72	413	718	214	300	403
Medium	3.97	293	629	15	0	532
Rural	0.71	1,402	632	55	0	358
Transition	0.20	51	2	0	0	8
Special	2.72	1,980	338	35	300	2,060
Community Center	2.72	100	48	72	0	133
Total Residential Connections			***6,852***			

Buildout Population

The District is projected to serve approximately 16,513 people at buildout. The buildout population was determined based on the 6,852 buildout connections and the District's planning standard of 2.41 residents per residential connection.

Buildout Year

Copper Cove is assumed to grow at the same rate as the County; therefore, growth rates have been adopted from the 2017 Department of Finance (DOF) population growth rates for Calaveras County. Growth rates are projected until year 2060. Projections beyond 2060 were assumed to equal the 2055-2060 growth rate, which is the highest incremental growth rate. Table 12 presents the DOF population growth rates in 5-year increments. Buildout is project to occur in year 2300 when the District reaches 6,852 connections based on the growth rates presented.

Table 12: Calaveras County Growth Rates per California Department of Finance, 2017

5-year Period	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060
5-year Incremental Growth Rate	0.59%	2.17%	2.14%	1.53%	0.82%	0.46%	0.64%	1.28%	2.17%

Model Demand Factors

Water demands have been modeled according to user type and were distributed on a demand per acre basis. Demand factors used to distribute water throughout the existing and buildout systems are provided in Table 13. The aforementioned peaking factors were used to scale the demand factors and model MDD and PHD.

Table 13: Existing and Buildout Demand Factors

	Existing			Buildout		
User Type	Area (ac)	ADD (MGD)	Demand Factor[1] (gpm/ac)	Buildout Area (ac)	ADD (MGD)	Demand Factor[2] (gpm/ac)
Residential	1,503	1.53	0.35	4,366	2.86	0.77
Landscape	52	0.14	1.91	78	0.06	0.87
Public Service	260	0.01	0.02	299	0.11	0.57
Commercial	86	0.01	0.07	178	0.09	0.67
Losses[3]	1,937	0.66	0.24	4,922	2.22	0.31

[1]Existing demand factors were all calculated based on the demands presented in the 2015 UWMP and the area associated with the respective user type
[2]The buildout demand factor for the residential user type was calculated based on the residential buildout demand and the associated area. The buildout demand factors for landscape, public service, commercial user types were adopted for the 2015 UWMP.
[3]Water losses are distributed evenly throughout the existing and buildout system models across the total area of all user types.

Demand Distribution

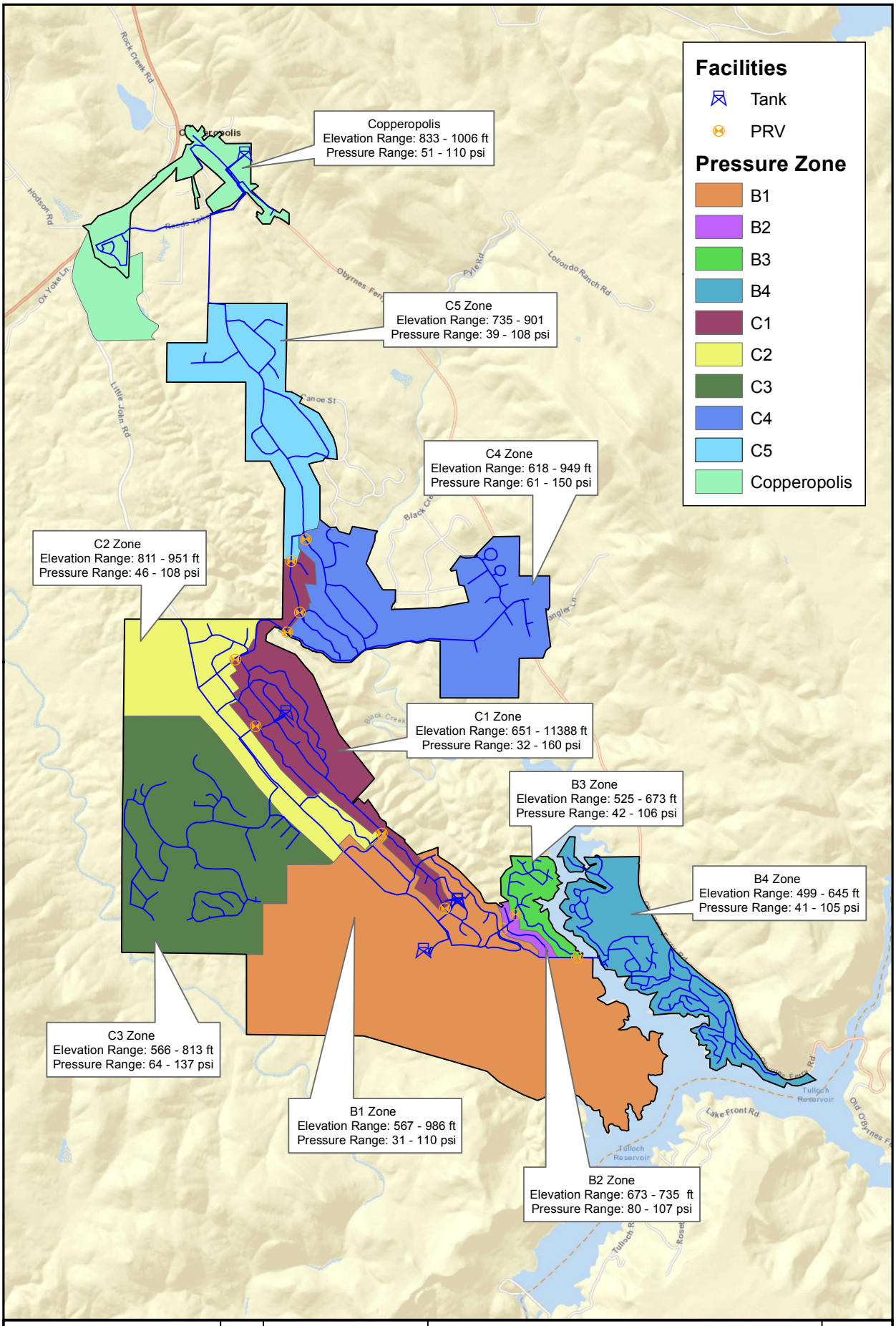
Existing and buildout demands were allocated throughout the model and summed to estimate the demand within each pressure zone. This process was repeated to estimate the demand by tank zone. The allocations of demands by pressure zone are shown in Table 14 and by tank zone in Table 15. Figure 3 presents a map of the system pressure zones.

Table 14. System Demand by Pressure Zone.

Pressure Zone	Baseline MDD (mgd)	Buildout MDD (mgd)
B1	0.28	3.13
B2	0.01	0.05
B3	0.07	0.22
B4	0.33	0.96
C1	0.29	0.92
C2	0.22	0.96
C3	0.26	1.24
C4	0.65	1.51
C5	0.46	2.34
Copperopolis	0.11	0.66

Table 15. System Demand by Tank Zone.

Tank Zone	Baseline MDD (mgd)	Buildout MDD (mgd)
B Tank	0.68	4.36
C Tank	1.89	6.96
Copperopolis Tank	0.11	0.66



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2018 COPPER COVE WATER MASTER PLAN

System Pressure Zones

FIGURE

3

Existing and Future Regulations

Drinking Water Regulations

The quality of the water provided by existing and any future facilities must meet all existing and proposed regulatory requirements. A summary of the existing and proposed drinking water quality regulations covering surface water and groundwater sources is below.

Background

The Safe Drinking Water Act (SDWA) of 1974 gave the United States Environmental Protection Agency (EPA) the authority to set standards for contaminants in drinking water supplies. The EPA established primary regulations for the control of contaminants that affect public health and secondary regulations for compounds that affect the taste, odor or aesthetics of drinking water. Under the provisions of the SDWA, the California Department of Drinking Water (DDW) has the primary enforcement responsibility. Title 22 of the California Administrative Code establishes DDW authority and stipulates State drinking water quality and monitoring standards.

Existing and Proposed Federal Regulations

The EPA has recently finalized and is in the process of finalizing several new regulations since the 1986 and 1996 Amendments to the SDWA. These regulations address both surface water and groundwater. Significant final and proposed regulations are shown in Table 16. The schedule for promulgation of the Safe Water Drinking Act Regulations (Current as of 2015) is shown in Table 17.

Table 16. Recently Adopted and Proposed Federal Regulations.

Regulations	Year Rule Finalized	Targeted Contaminants
National Interim Primary Drinking Water Regulations	1975	Set maximum levels for a wide variety of contaminants
Total Trihalomethanes	1979	Trihalomethanes
Fluoride Rule	1986	Fluoride limits
Surface Water Treatment Rule	1989	Giardia lamblia, viruses, Legionella and heterotrophic plate count
Total Coliform Rule	1989	Representative sampling of the distribution system for total and fecal coliform
Phase II Rule (organics)	1991	VOCs, SOCs and IOCs
Lead and Copper Rule	1991	Lead and copper corrosion products
Phase V Rule (organics)	1992	VOCs, SOCs and IOCs
Source Water Protection	1997	Delineate boundaries and determine origins and susceptibility of water supplies to contamination
Stage 1 Disinfection/Disinfection By-products Rule (D/DBPR)	1998	Disinfection Byproducts (THMs and HAAs); compliance date for systems serving greater than 10,000 was January 2002
Interim Enhanced Surface Water Treatment Rule (IESWTR)	1998	Giardia, Cryptosporidium, Turbidity, DBPR profiling
Variance and Exemptions Rule	1998	Variance and exceptions to help public water systems achieve compliance with MCLs
Arsenic Rule	2001	Arsenic
Filter Backwash Rule	2001	Filter backwash recycle
Long-term 1 Enhanced Surface Water Treatment Rule	2002	Microbiological, Turbidity and control of DBPs
Public Health Security and Bioterrorism Prevention and Response Act	2002	Vulnerability Assessments
Radon Rule	2004	Radon
Contaminant Candidate List 2	2004	CCL1 required no new regulated contaminants, CCL2 may include perchlorate, metolachor and MTBE
Stage 2 Disinfectants/Disinfection Byproducts Rule	2004	Introduces locational running annual average compliance for the 80/60 TTHM/HAA5 requirements
Long-term 2 Enhanced Surface Water Treatment Rule	2006	Introduction of microbial toolbox for control of Cryptosporidium
Groundwater Rule	2004	Microbial protection of groundwater supplies
Reduction of Lead in Drinking Water Act (RLDWA)	2011	Use of lead free pipes, fittings, fixtures, solder and flux for drinking water
Revised Total Coliform Rule	2014	E Coli and Total Coliforms
Drinking Water Protection Act (DWPA)	2015	Algal Toxins[1]

[1] The DWPA is an amendment to the SWDA. It requires Congress to develop a strategic plan to assess and manage the risks associated with algal toxins in public drinking water supplies. No new regulations were imposed with the amendment to the SWDA.

Table 17. Schedule for Promulgation of Safe Water Drinking Act Regulations (Current as of 2015).

Regulation	Proposed	Final	Effective
Fluoride	11/85	4/86	10/87
Trihalomethanes	2/78	11/79	11/83
8 VOCs (Phase I)	11/85	7/87	1/89
Surface Water Treatment Rule (SWTR)	11/87	6/89	6/93
Coliform Rule	11/87	6/89	12/90
Lead and Copper	8/88	6/91	1/92[a]
Minor Revisions to Lead and Copper	4/98	1/00	1/01
26 Synthetic Contaminants[h], Seven Inorganic Contaminants (Phase II)	5/89	1/91[b]	7/92
MCLs for barium, pentachlorophenol (Phase II)	1/91	7/91	1/93
Phase V Organics, Inorganics	7/90	7/92	1/94
Radionuclides (Phase III) Except Radon	4/00	12/00	12/03
Radionuclides (Phase III) Radon	11/99	8/01[c]	8/04[d]
Sulfate	12/94	Decision on whether to regulate due 8/01	
MCLs for aldicarb, aldicarb sulfoxide, aldicarb sulfone	Administrative hold; no current schedule available		
Disinfectants/Disinfection Byproducts, Stage 1 DBPR	7/94	12/98[c]	1/02[f,g]
Disinfectants/Disinfection Byproducts, Stage 2 DBPR	9/01	5/02	5/058
Information Collection Rule	2/94	5/96	Completed
Interim ESWTR	7/94	12/98[c]	1/02[f]
Interim ESWTR, Stage 1 Long Term Enhanced SWTR	4/00	8/01	1/047
Interim ESWTR, Stage 2 Long Term Enhanced SWTR	9/01	5/02	5/05
Filter Backwash Recycle Rule	4/00	6/01	12/0[c]
Consumer Confidence Reports Rule	2/98	8/98	9/98
Ground Water Rule (GWR)	5/00	11/01	6/04
Operator Certification, State Guidance	3/98	2/99	2/01
Unregulated Contaminants, Monitoring Only[i]	2/99	9/99	1/01
Five New Drinking Water Contaminants	8/00	8/01	8/04
Chlorine Gas as Restricted Use	9/00	10/01	10/03
Source Water Protection Program, Guidance[e]	8/97	Completed	Completed
Arsenic Rule	6/00	1/01	1/06
Revised Total Coliform Rule	-	4/14	4/16

Notes:

[a] Start date for tap monitoring in systems of more than 50,000 consumers.
[b] Maximum Contaminant Level (MCL), MCL + Goal (MCLG) for atrazine to be reconsidered.
[c] Dates mandated by district court
[d] Assumes regulation in effect three years after final promulgation.
[e] Program required as part of 1996 amendment.
[f] For Public Water Systems (PWS) serving more than 10,000 consumers
[g] Effective January 2004 for PWS serving more than 10,000 consumers.
[h] MCL for atrazine to be revisited.
[i] Tiered monitoring approach pending availability of analytical methods.

State Regulations

The State of California retains primacy for enforcement of drinking water regulations. In this role, the state must adopt regulations equal to or more stringent than federal regulations. For the most part, state regulations are equal to federal regulations with the following exceptions:

- Cryptosporidium Action Plan - The State set more stringent standards for the recycle of filter backwash and other recycle streams.
- California IESWTR - The State has increased the required level of monitoring for filters and may require additional inspections, monitoring and reporting.
- Source Water Assessment Program - The State has structured its SWAP to allow water utilities to conduct their own assessments to help improve and preserve water quality of the public water supply sources.

Water Age

An extended period simulation water age analysis has been performed on the existing distribution and storage system under average day demands. The WTP is not detailed in the hydraulic model so water coming from the clearwell is considered "new" water (i.e., zero hours old). The hydraulic model water age analysis then calculates the age of the water after leaving the WTP (clearwell).

Based on the analysis, water is oldest in the Copperopolis Zone and Saddle Creek Zone. Figure 5 shows the range of values of water age, in hours, throughout the distribution system.

Disinfection By-Products

Trihalomethane (TTHM) and haloacetic acids (HAA5) monitoring and compliance is required under the Federal Environmental Protection Agency (EPA) regulations for systems with service populations of 500 to 9,999 that use treated surface water supplies. CCWD has not had a single violation in regards to either disinfection by-product over the last 10-years. Figure 4 below summarizes the disinfection by-product records presented in CCWD's Consumer Confidence Reports between 2007 and 2017.

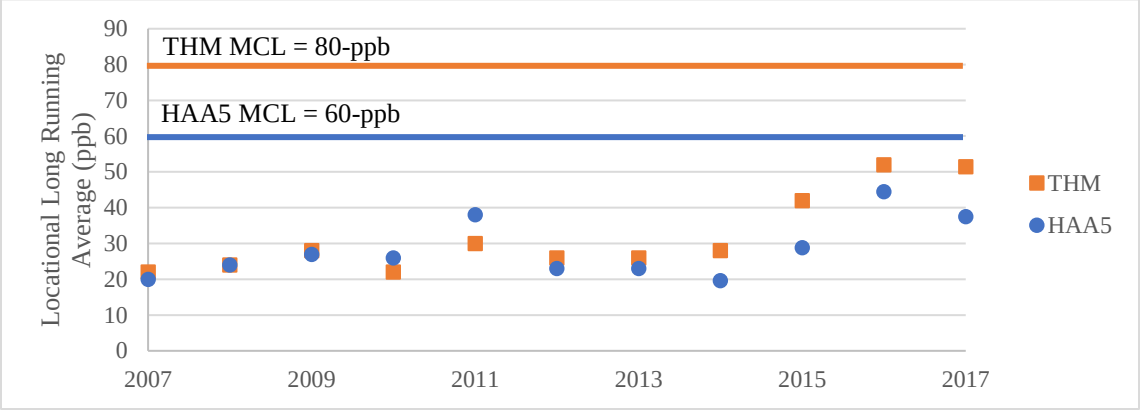
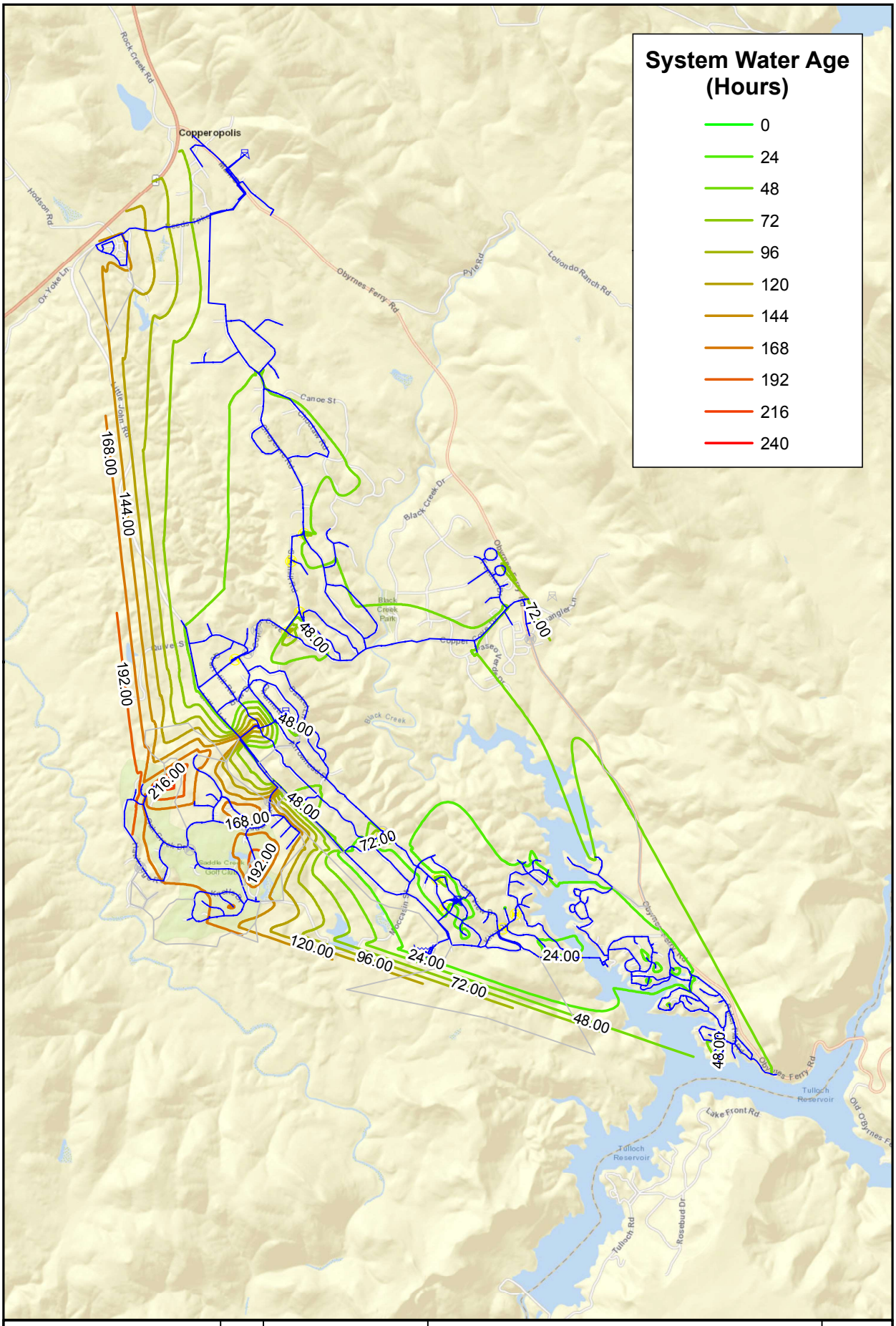


Figure 4. Disinfection By-Product Records.



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System Water Age
Existing ADD

FIGURE

5

System Evaluation

Evaluation Criteria

The Copper Cove water system will be evaluated for its ability to meet existing and future water demands and to comply with the District's Design and Construction Standards. Two different scenarios will be analyzed as part of the 2018 WMP:

1. Existing System
2. Future System at Buildout

The system will be divided into five categories for this evaluation: water supply, water treatment, storage, pumping, and piping. The district provided a system-wide hydraulic model that was updated in 2013 to analyze the system's distribution facilities, including storage, pumping, and piping. The system model has been updated to capture new demand criteria and any new or replacement water mains installed since the last model update. A comprehensive list of model programming is included as Appendix B.

A summary of the system evaluation planning criteria is presented on the following page.

System Model Criteria:

- Existing Demand (ADD) = 1.58-mgd
- Buildout Demand (ADD) = 5.35-mgd
- Existing ADD:MDD Peaking Factor = 1.70
- Buildout ADD:MDD Peaking Factor = 2.22
- MDD:PHD Peaking Factor = 1.5

Water Treatment Design Criteria[1]:

- Treatment Plant Capacity: Hydraulic and treatment capacity sized to meet MDD.

Water Storage Design Criteria[1]:

- Storage tank sizing shall be equal to the sum of the following three components:
  - Fire Storage Reservation: A minimum of four hours times the appropriate fire flow demand.
  - System Peaking Storage: Equal to 20 percent of the maximum day flow.
  - Emergency Storage: Equal to four hours of the MDD.
- Fire Storage may be supplemented by pumps.

Water Pumping Criteria[1]:

- Pump stations shall be able to deliver the MDD with the largest pump out of service. Peak hour demands and fire flows are expected to be supplied by storage without additional pumping. If the uphill zone does not have adequate storage for fire flow, the booster pump station should have the ability to deliver the fire flow to the higher zone.

[1] Per the Construction and Design Standards (January 2009)

Existing System Piping System Design Criteria[1]:

- Transmission Lines: Hydraulic capacity sized to pass PHD at a maximum velocity of five feet per second (ft/s) and/or MDD plus fire demand, while maintaining 20 psi residual pressure in the system.
- Hazen Williams "C" Factor: Pipes shall use a "C" factor of 130 for new pipe and 110 for existing pipe.
- Fire Flow Requirements[3]: A maximum velocity of 12 ft/s shall apply to fire flow conditions and the minimum velocity shall be two ft/s. The existing District minimum fire flow requirements are listed in Table 12.
- System Pressure:
  - System shall maintain a minimum pressure of 40-psi under PHD.
  - System shall maintain a maximum pressure of 120-psi under static conditions for distribution mains.
  - System pressure shall not exceed 200-psi for transmission mains.

Fire Flow Design Criteria[2]:

- Required Fire Flow:
  - Residential Districts and Individual Dwellings < 3,600 Ft = 1,000-gpm
  - Commercial Districts and Individual Dwellings > 3,600 Ft^3 = 1,500-gpm
  - Undeveloped Commercial Districts = 1,500-gpm

Raw Water Supply

The existing water rights have been evaluated for their ability to supply existing and projected demand.

The current water rights provide up to 6,000 AF/yr and can support substantial growth before they will need to be expanded. The total raw water demand is 2,172 AF/yr based on the combined commercial raw water and Copper Cove system demands. The Copper Cove system demand is 1,770 AF/yr based on the existing ADD of Copper Cove. The Saddle Creek Golf Course is the only commercial raw water user and uses 402 AF/yr of raw water.

The water rights will need to be expanded to meet the combined raw water demand at buildout. The annual raw water demand will be approximately 13,615 AF/yr at buildout based on the existing commercial raw water demand and the buildout average daily demand. The raw water rights will need to be expanded before the number of connections reaches 3,997. Based on the growth rates previously presented, this will occur in year 2094. The raw water rights will need to be expanded by 7,615 AF/yr to support the Copper Cove buildout system demand. Raw water rights will need to be further increased to support any additional commercial raw water demands.

The raw water pump station and pipeline can convey up to 4.75-mgd. The pump station and the transmission main to the WTP can support conveyance of both the existing commercial raw water demands and existing system demands. The golf course only uses

[1] Per the Construction and Design Standards (January 2009)
[2] Per Central Calaveras Fire – Building Requirements (April 2010)
[3] All commercial and industrial land uses have been assumed to be greater than 3,600 Sq. Ft.

water half the year including summer peak demand periods. The capacity of the pump station less the allocated golf course demand is 4.25-mgd.

The pump station and pipeline capacity will need to be expanded to support future raw water demands. Plans to expand the raw water intake and pump station are recommended when the MDD becomes 95 percent of the raw water pumping capacity available to the system (4.0-mgd). Based on the DOF growth rates (Table 12), the MDD is expected to reach 4.0-mgd when the number of connections reaches 3,178 or in 2049 as long as the golf course remains the only commercial raw water demand. The raw water intake, pump station and transmission main will need to be reconsidered if the District decides to sell any additional raw water to new commercial customers.

The existing raw water pumps are in satisfactory condition at this time according to district staff. No improvements are recommended to the raw water pump station at this time.

Water Treatment

The Copper Cove WTP has not been upgraded since it was originally constructed in 1998. The existing facilities have been evaluated for their ability to support existing and future demand and remaining useful life.

The current WTP facilities are rated for 4-mgd. For consideration of treated water availability, this master plan uses 92.5 percent of the ultimate capacity of the WTP to account for backwash events. This equates to a firm capacity of approximately 3.7-mgd for planning purposes. The existing MDD is approximately 2.7-mgd. The MDD projected at buildout is approximately 11.80-mgd.

Plans to expand the treatment capacity of the system should begin when the MDD becomes 95-percent of the WTP's firm capacity (3.5-mgd). The MDD is expected to reach 3.5-mgd when the number of connections in the District is approximately 2,943. This is projected to occur in 2035 based on the DOF growth rates.

All of the existing WTP facilities are in good condition with the exception of the clearwell. The clearwell coating is failing, the interior is corroding and the roof is failing according to District Staff. The existing clearwell provides disinfection contact-time which is an irreplaceable component in the WTP process. The existing clearwell must be rehabilitated or replaced to allow the District to continue providing a safe and reliable drinking water supply to Copper Cove.

Treated Water Pumping Evaluation

Each booster pump station is required to have a firm capacity equal to the Zones MDD given that each zone is supported by at least one Tank. Firm capacity assumes the largest pump is out of service. The MDD for each pumping zone under existing and buildout conditions is presented in Table 18. The District provided a condition assessment of the existing pumps at each pump station. Current conditions are described in Table 19.

Table 18. Evaluation of Treated Water Pumping without Improvements.

Station	Description	Design Flow (gpm)	Firm Capacity (gpm)	Existing MDD (gpm)	Buildout MDD (gpm)
WTP Pump Station	Clearwell to B Tanks	2,600	2,600	1,866[1]	8,326[1]
		2,600			
C Pump Station	From B Tanks to C Tanks	900	900	1,390[2]	4,709[2]
		450			
		450			
Copperopolis Pump Station	Zone C5 to Copperopolis	90	90	78	461
		90			

[1]WTP Pump Station supports the demand of the entire system
[2]C Pump Station supports the demands of both the C Zones and Copperopolis

Table 19. Condition Assessment of Existing Pumps per the District.

Pump Station	Existing Pump Conditions
WTP Pump Station	Satisfactory Condition
C Pump Station	Poor Condition
Copperopolis Pump Station	Poor Condition

The WTP pump station is in good condition and has no firm capacity deficiencies. The pump station has more than sufficient firm capacity to meet the existing system demands and sufficient firm capacity to support growth beyond the useful life of the existing pumps. The capacity of the WTP pump station will not need to be improved until the number of connections reaches 3,049. This is projected to occur in 2041.

The C Pump Station pumps are insufficient to meet the existing firm capacity required and create high-pressure deficiencies. The C Pump Station pumps water from the B Tanks to the C Tanks and distributes water to connections along Arrowhead Street. Due to the elevation difference between the B Tanks and C Tanks, the system pressure exceeds the 120-psi design limit at every connection south of the intersection between Flint Trail and Arrowhead Street. The C pump station should be improved or replaced entirely.

While the firm capacity supports existing MDD of Copperopolis, the District's condition assessment reported that the pumps are in poor condition and recommended replacement. Furthermore, the immediate development planned to the south of Copperopolis Town Center will increase the MDD from 78-gpm to 297-gpm when complete. For planning purposes, the Copperopolis Pump Station needs to support a minimum firm capacity of 300-gpm.

Treated Water Storage Evaluation

The treated water storage evaluation considers both the condition of the existing storage facilities and the storage capacity required by those facilities.

The tank zone capacity in each zone was compared to the required storage based on the water storage design criteria. Evaluations are presented for baseline demands and buildout demands in Table 20 and Table 21 respectively. The available storage exceeds

the storage required for the existing conditions in all tank zones but is insufficient to support the buildout demands.

Table 20. Evaluation of Available Storage Capacity under Existing Demand Scenario.

Criteria	B Tank Zone	C Tank Zone	Copperopolis Tank Zone
Total Storage Capacity (gallons)	1,050,000	1,086,000	500,000
Highest FF requirement in zone (gpm)	1,500	1,500	1,500
Required FF storage (gallons)	360,000	144,000[2]	338,000[2]
Existing Tank Zone MDD (gallons)	685,000	1,890,000	112,000
Required emergency storage (gallons)	114,000	315,000	19,000
Required operational storage (gallons)	137,00	378,000	22,000
Total required storage (gallons) [1]	611,000	837,000	379,000
Storage deficit (gallons)	-	-	-

[1] Total Required Storage = Required FF storage (4 hours) + Emergency storage (4 hours of MDD) + Operational storage (20 percent of MDD)

2The required FF for the C Tank and Copperopolis Tank Zone is supplemented by the existing pump capacity

Table 21. Evaluation of Available Storage Capacity at Buildout without Improvements.

Criteria	B Tank Zone	C Tank Zone	Copperopolis Tank Zone
Total Storage Capacity (gallons)	1,050,000	1,086,000	500,000
Highest FF requirement in zone (gpm)	1,500	1,500	1,500
Required FF storage (gallons)	360,000	144,000[2]	338,000[2]
Buildout Tank Zone MDD (gallons)	4,365,000	6,961,000	664,000
Required emergency storage (gallons)	727,000	1,160,000	111,000
Required operational storage (gallons)	873,000	1,392,000	133,000
Total required storage (gallons)	1,960,000	2,696,000	582,000
Storage deficit (gallons)	910,000	1,610,000	82,000

Note: Total Required Storage = Required FF storage (4 hours) + Emergency storage (4 hours of MDD) + Operational storage (20 percent of MDD)

A summary of existing tank conditions is provided in Table 22. The steel tanks were assessed by Aqua-Tech Co. in 2012 and B Tank #1 has been assessed based on feedback from operations staff. B Tanks #1 and #2 are no longer in acceptable condition. B Tank #1 is nearly 50-years old, is a redwood tank, and is leaking at this time. Figure 6 presents the B Tank #1 condition and visible leaks. B Tank #2 has deteriorated significantly and was recommend by Aqua-Tech Co. to be taken out of service for rehabilitation as soon as possible. At minimum, B Tank #2 needs the existing roof and rafters to be replaced and recoating of the interior and exterior surfaces according to Aqua-Tech Co.'s recommendation.

Table 22. Condition Assessment of Existing Tanks.

Tank	Existing Tank Conditions
B Tank #1	Unacceptable Condition
B Tank #2	Unacceptable Condition
C Tank #1	Satisfactory Condition
C Tank #2	Satisfactory Condition
Copperopolis Tank	Satisfactory Condition, Lacks Redundancy

Figure 6. Condition of B Tank #1

B Tank #1 should be replaced with a new welded steel tank sized to support the projected future storage requirement at the end of a 50-year service life. The B Zone system demand is projected to be 925,000-gallon in 2070. B Tank #1 will need to provide at least 175,000 to supplement the existing capacity of B Tank #2.

The District should also consider constructing a second tank at the Copperopolis tank site to support future maintenance of the Copperopolis tank. The Copperopolis tank was constructed in 2008 and will be due for recoating maintenance within the next 15 years. The Copperopolis tank cannot to be taken out of service for maintenance unless a second or temporary tank is installed.

Treated Water Distribution Evaluation

The InfoWater hydraulic model was used to evaluate the existing distribution system. Several model scenarios were developed to identify low system pressure areas, high system pressure areas and available fire flow.

Low System Pressure Areas

Areas of low system pressure were identified using the hydraulic model PHD scenario. Nodes throughout the model were screened to determine if the pressure under PHD fell below the 40-psi minimum system pressure design criteria. Nodes where the pressure is less than 40-psi under PHD demand conditions but maintain adequate pressure under static conditions were labeled in the model as low system pressure.

Under PHD, several areas do not maintain the minimum pressure. Low-pressure areas were identified in Zones B1, C1 and C5. Zones B1 and C1 are directly served by tanks and Zone C5 is served by PRVs. The areas identified as low pressure are presented in

Figure 8. Nodes where low system pressure was the result of insufficient static head were omitted from Figure 8.

High System Pressure Areas

Areas of high system pressure were identified using the existing ADD scenario. Nodes in the hydraulic model were used to identify areas where the system pressure exceeds the District's 120-psi maximum pressure criteria. Some high-pressure areas cannot be avoided due to the ranging elevations within individual pressure zones. Zones C1, C3 (Saddle Creek) and C4 have the highest susceptibility to high pressure due to pockets of low elevations along pipe mains. Figure 9 presents a map of the areas under high pressure.

High Velocity Pipelines

High velocity pipelines were identified using the existing PHD scenario. Pipelines conveying water at a rate exceeding 5 ft/s do not comply with the current District standard and were flagged. The transmission main conveying water from the B Tanks to the C Tanks and the distribution/transmission main connecting C Tanks to Zones C1, C2, C4 and C5 were both identified as deficient based on the PHD model scenario. Figure 10 presents a map of the pipeline deficiencies.

The transmission main along arrowhead street conveys water from C Pump Station to C Tanks. The maximum flow through this main is limited to the output of the pump station. When the pump station operates at full capacity (1800-gpm) a pipeline velocity of 7.3 feet per second will result under existing conditions.

The distribution/transmission main along Arrowhead Street and Copper Cove Drive connects C Tanks to Zones C1, C2, C4 and C5. Under existing PHD demand conditions the velocity of the distribution main segment along Arrowhead Drive was found to range between 5.1 and 6.4 feet per second. The transmission main segment along Copper Cove Drive was found to be 5.4 feet per second.

Fire Flow Deficiencies

The model was used to calculate the available MDD plus fire flow for the baseline conditions. Nodes throughout the system were programmed to support either a 1,000-gpm fire flow, or a 1,500-gpm fire flow depending on the user type. All nodes within 300 feet of medium residential, commercial, or community center parcels were assigned a 1,500-gpm fire flow. All other nodes were assigned 1,000-gpm. Approximately one-third of the nodes throughout the district were found to be deficient. The greatest deficiencies were found in Zones C5 and Copperopolis where fire flows less than 500-gpm were realized, these deficiencies are presented in Figure 11.

High Risk Zones

Zones B4, C4, C5, and Copperopolis are all at risk due to extended outages caused by transmission main failure (see Figure 7). Zones C4, C5, and Copperopolis are served by a single high-pressure transmission main along Copper Cove Drive. The high-pressure increases the potential for failure and increases the difficulty of field repairs. Zone B4 is

served by a single transmission main that crosses beneath the Tulloch Reservoir. An extended outage would be unavoidable if this main were to fail within the reservoir as District field staff would be unable to perform the necessary repairs within the reservoir. It is recommended that the District construct new pipelines to loop these isolated areas to provide a redundant water service and prevent extended system outages in the event of transmission main failures.

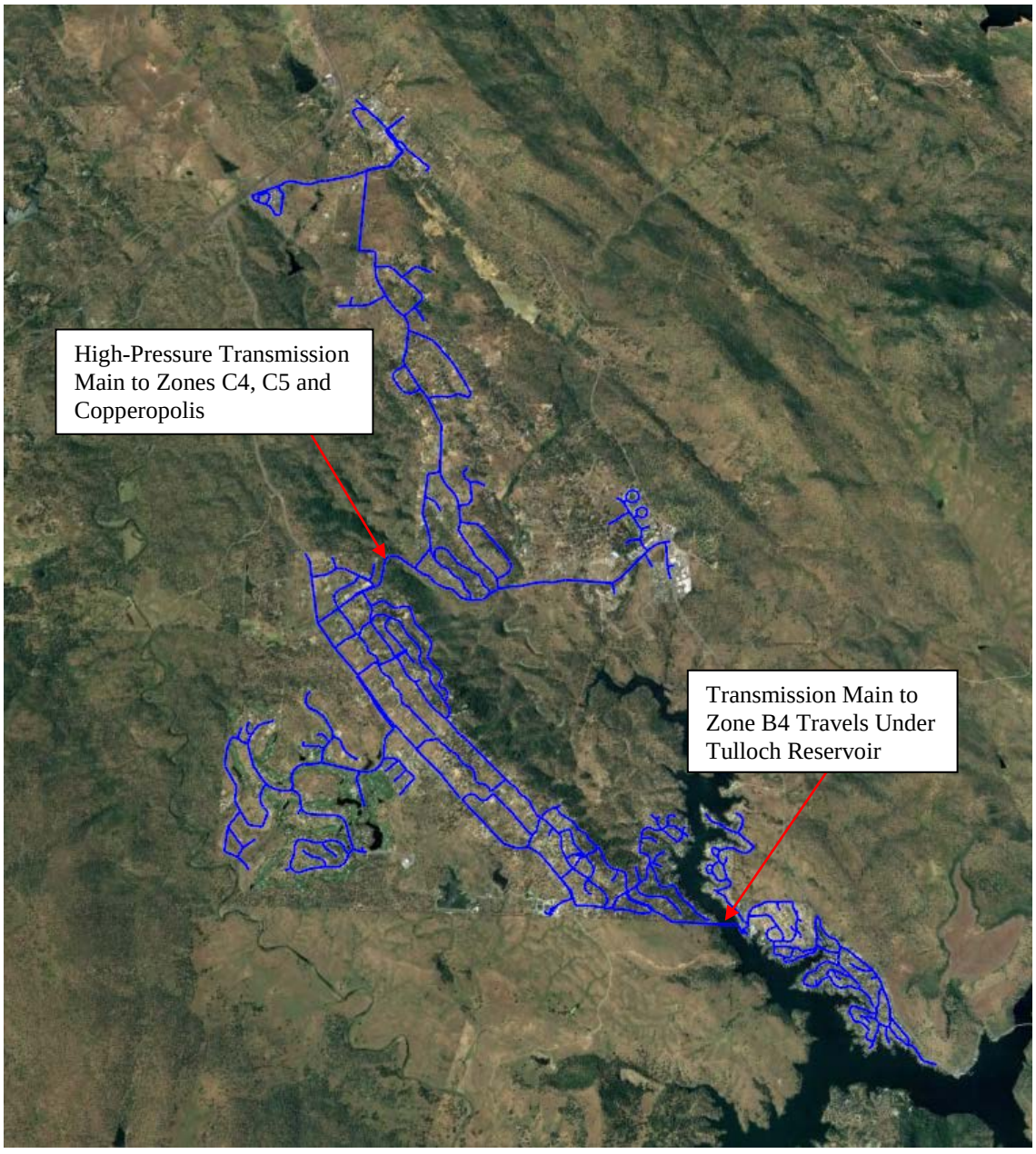
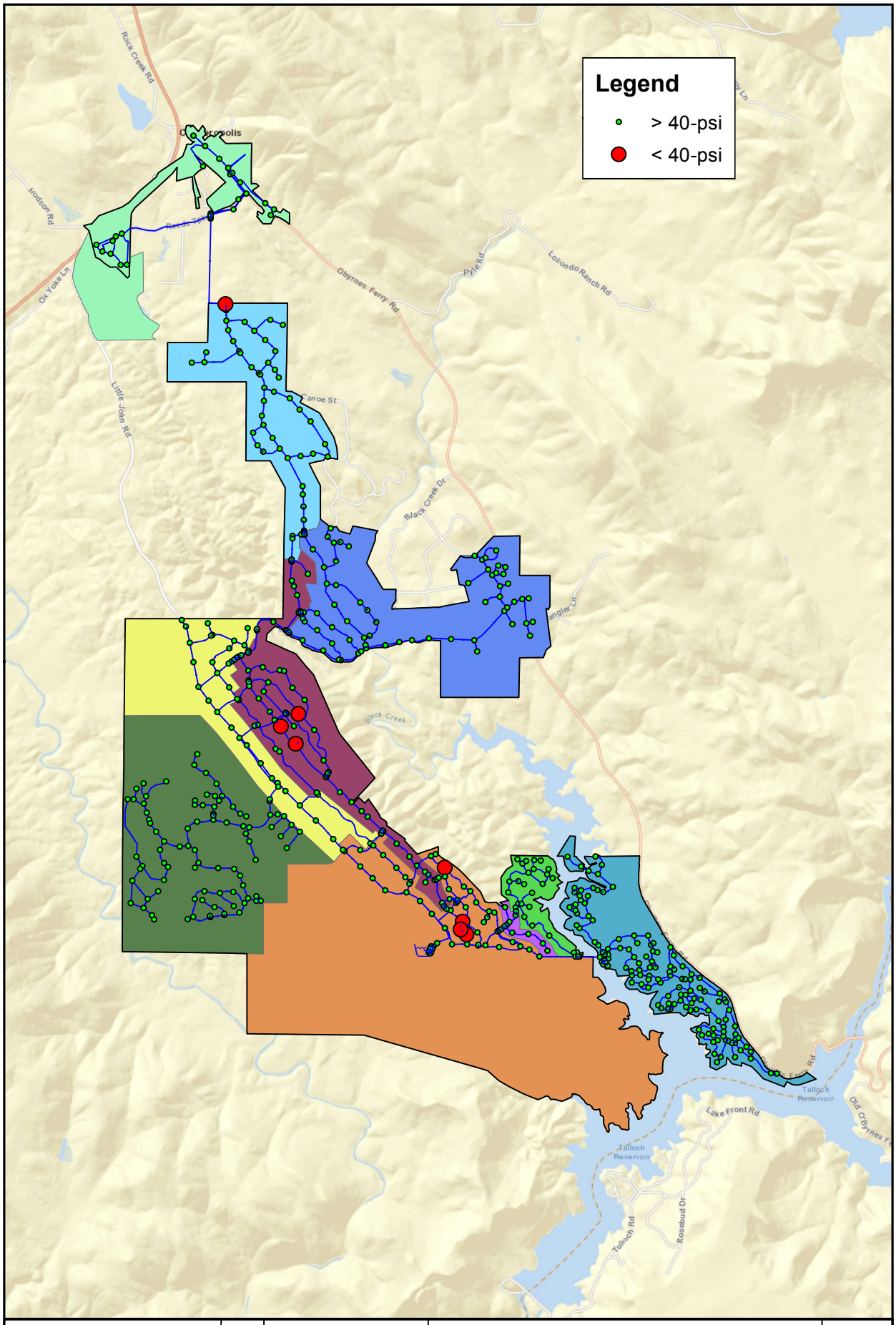


Figure 7. High Risk Zones



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0 0.75 Miles

1" = 0.75 mi

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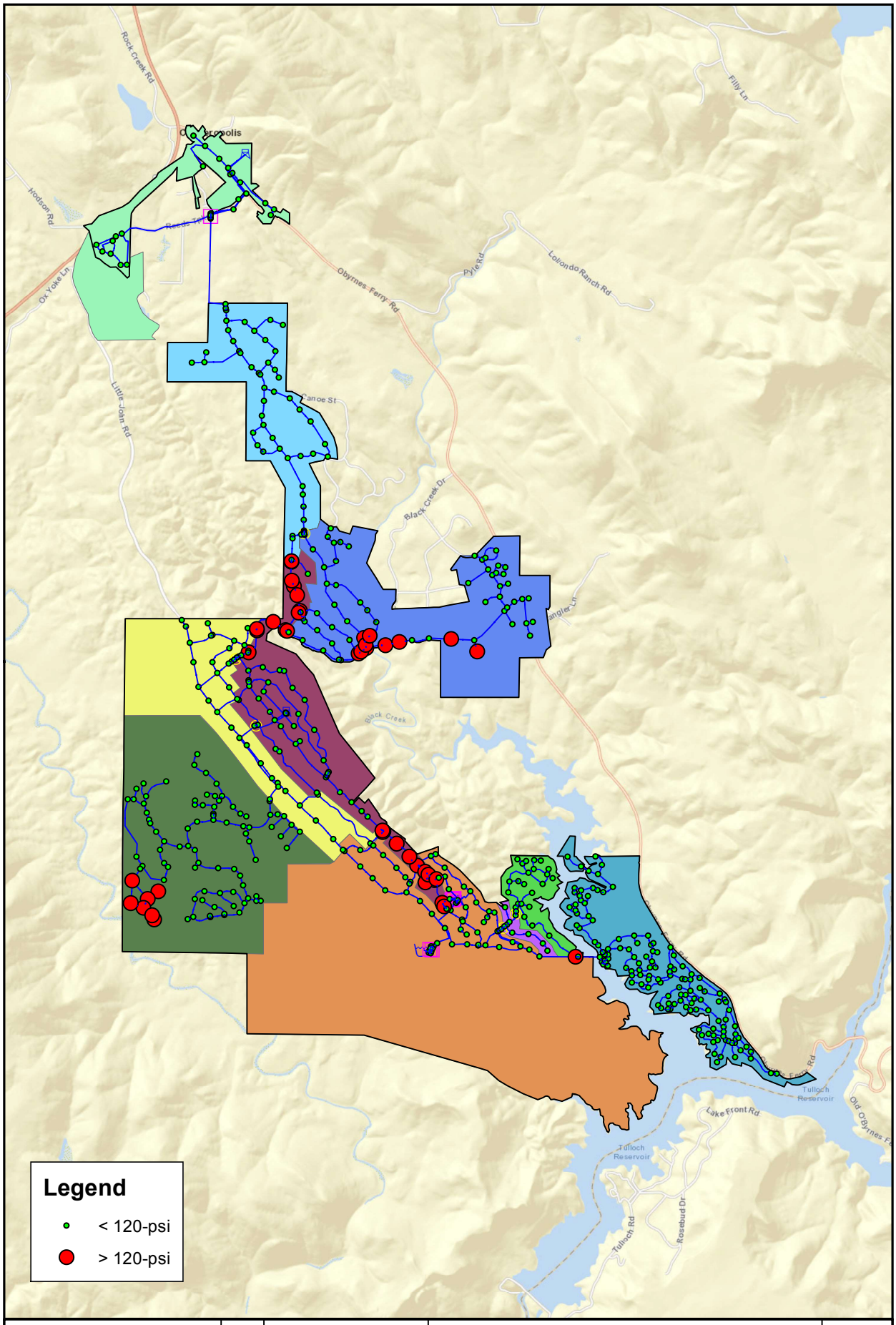
Low Pressure Nodes
Existing PHD

FIGURE

8



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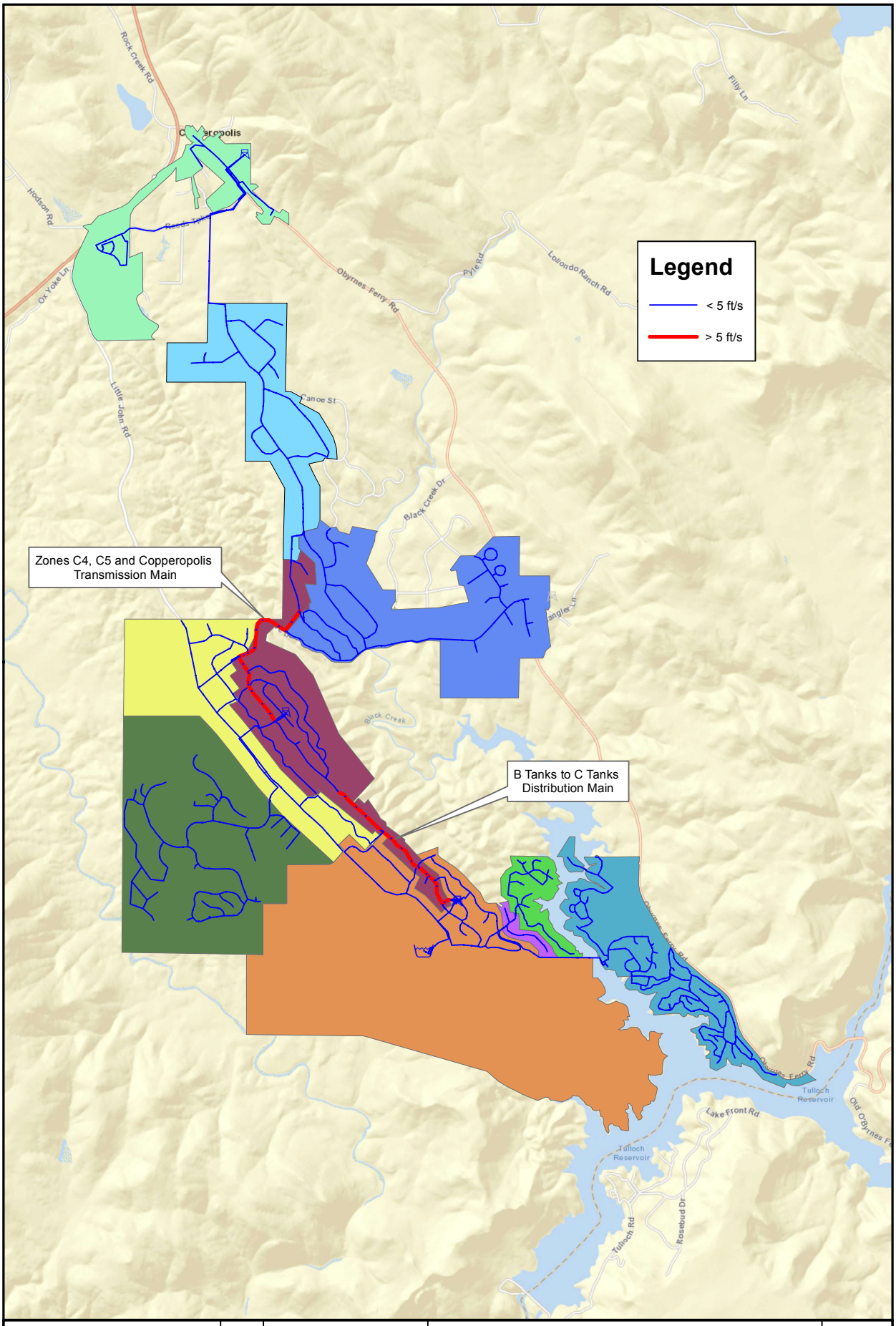
High Pressure Nodes
Existing ADD

FIGURE

9



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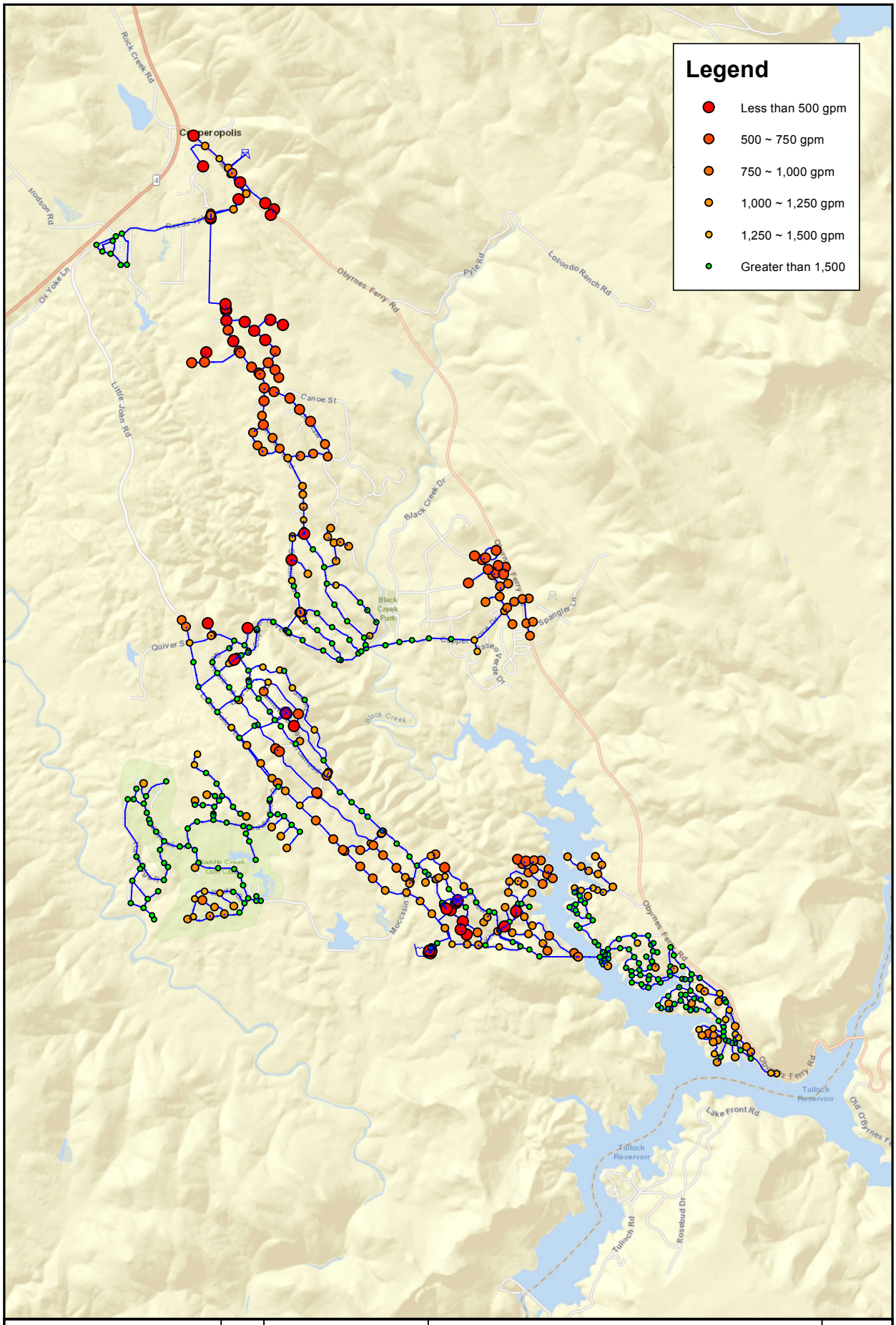
High Velocity Pipes
Existing PHD

FIGURE
10



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Fire Flow Availibility
Existing MDD

FIGURE
11

Recommended Improvements

Based on the system evaluation, the District will need to address a number of existing and near-future system deficiencies to comply with current district standards. The following projects have been identified:

- WTP Clearwell Improvements
- B Tank #1 and #2 Improvements
- C1 and Saddle Creek Transmission Main Project
- Copperopolis Pump Station Improvements
- B4 Loop Main Project
- C4 Loop Main Project
- Annual Pipe Replacement Program
- Annual Infrastructure Repair and Replacement Program

The District will need to replace existing tanks, pumps and pipelines throughout the Coper Cove Water System. For the study area to achieve a sustainable treated water supply and to be assured fire protection meets fire flow requirements, some recommended projects must be in place in the immediate future, and others must be in place before buildout.

WTP Clearwell Improvements

The system evaluation identified an immediate need to rehabilitate and/or replace the existing clearwell. The clearwell is a critical WTP process and the WTP cannot be operated without it. The District can either install temporary facilities to supplement the existing clearwell and facilitate rehabilitation of the existing clearwell or construct a new clearwell. Installing a new clearwell would replace the existing clearwell and allow the District to either rehabilitate or abandon the existing clearwell.

Rehabilitation of the existing clearwell is recommended in lieu of installing a new clearwell. Efforts to install a new/secondary clearwell would be better spent at a later date when the WTP requires a capacity expansion. The existing capacity is projected to be sufficient until the District reaches 2,943 connections (projected to occur in 2033). Recoating and repairing the roof of the existing clearwell will allow the District to utilize the remaining useful life of the existing clearwell.

B Tank #1 and #2 Improvements

The system evaluation identified an immediate need to replace B Tank #1 and rehabilitate B Tank #2. These tanks are in an unacceptable condition and need to be replaced/rehabilitated to meet the zone storage capacity requirement. B Tank #1 should be replaced prior to rehabilitating B Tank #2.

B Tank #1 needs be replaced with a tank with a capacity of at least 175,000-gallon; however, a 500,00-gallon tank is recommended. A 500,000-gallon tank will exceed the emergency and operational storage volume required to allow operations staff to take B Tank #2 offline. Once B Tank #1 has been replaced, the District should immediately

rehabilitate B Tank #2. Rehabilitation efforts include replacing the roof and recoating the interior and exterior of the tank.

C1 and Saddle Creek Transmission Main Project

The C1 and Saddle Creek Transmission Main Project is recommended to address multiple distribution system deficiencies and reduce system pumping requirements identified in the system evaluation. The project consists of constructing a new transmission main to convey water to Saddle Creek and Zone C1 (C Tank); constructing a new 1,900-gpm pump station and decommissioning existing C Pump station; installing new PRV at the Flint Trail and Arrowhead Street intersection; installing four new PRV's to split Saddle Creek into two pressure zones; and constructing four new "loop pipes" to support splitting Saddle Creek into two pressure zones. The C1 and Saddle Creek Transmission Main Project is presented in Figure 12. The project addresses and resolves multiple system deficiencies identified in the system evaluation:

- High-pressure deficiencies in Zone C1
- High-pressure deficiencies in Zone C3 (Saddle Creek)
- High-velocity deficiencies of the B Tank to C Tank Distribution Main
- C Pump Station Firm Capacity Deficiency

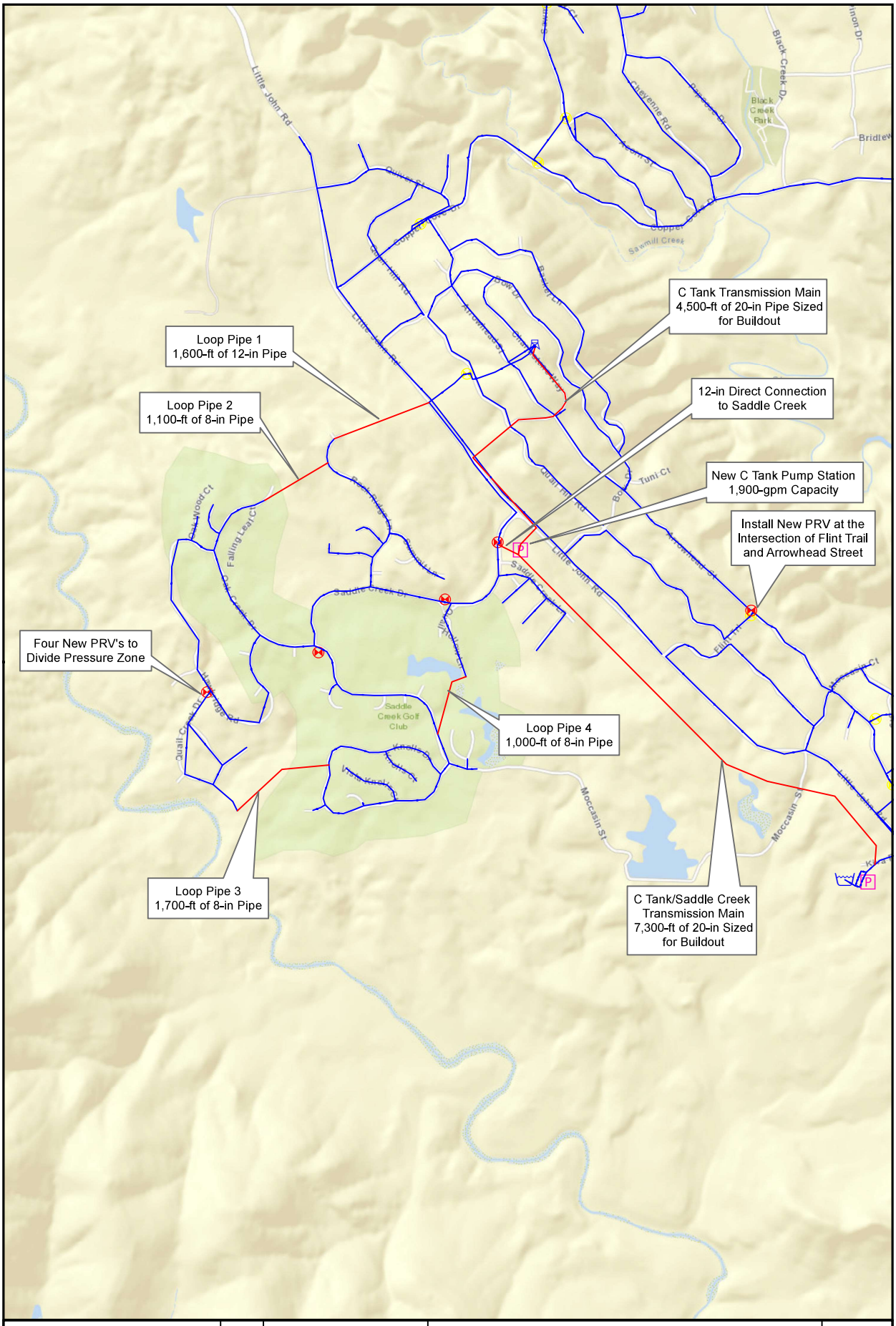
High pressure deficiencies in Zone C1 are addressed by decommissioning the C Pump Station and installing a new PRV at the intersection of Flint Trail and Arrowhead Street.

The project will also relieve Zone C3 high-pressure deficiency while reducing the system pumping requirements by serving the southern half of Saddle Creek from the WTP/B Tanks rather than C Tank. The lower portion of Saddle Creek does not require the head provided by C Tank and is better served from B Tanks. Serving the southern half of Saddle Creek via the WTP/B Tanks will relieve the high-pressure deficiency along Quail Creek Drive. PRVs would otherwise need to be installed along Quail Creek Drive to address the high system pressure deficiencies.

High-velocity deficiencies in the distribution main will be addressed by directly distributing water to C Tanks via a new 20-inch main. Directly distributing water to C Tank using a new pipeline will reduce the velocity in the deficient main from B Tanks to C Tank during peak periods and eliminate the need to improve the entire distribution main from B Tanks to C Tanks.

The C Tank Pump Station firm capacity deficiency will be resolved by installing three new 950-gpm pumps designed to support the projected system demand through the next 30-years.

The project will also reduce the water age in the system by nearly 24-hours by bypassing the B Tanks and distributing water directly to the lower half of Saddle Creek and C Tank.



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0 0.25 Miles

1" = 0.25 mi.

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C1 and Saddle Creek Transmission Main Project

FIGURE

12

B4 Loop Main Project

The B4 Loop Main Project is recommended to loop Zones C4 and B4. The loop provides a redundant water source and will eliminate fire flow deficiencies in Zone B4. The redundant water supply eliminates the risk of an extended outage if the transmission main supplying B4 fails within the segment under Lake Tulloch Reservoir. The Project consists of constructing approximately 10,000-feet of 12-inch pipe and 2,950-feet of 8-inch pipe and installing a PRV. The proposed pipeline alignment is presented in Figure 14.

C4 Loop Main Project

The C4 Loop Main Project is recommended to loop Zones B1 and C4. The loop provides a redundant water source and will eliminate fire flow deficiencies in Zone C4. The redundant water supply eliminates the risk of an extended outage if the high-pressure transmission main supplying C4 fails. The Project consists of constructing approximately 8,500-feet of 12-inch pipe parallel to the District's existing force main and installing a PRV. The proposed pipeline alignment is presented in Figure 14.

Copperopolis Pump Station Project

The Copperopolis Pump Station Project is recommended to replace the existing pumps and upsize the pump station capacity. The improved pump station is recommended to provide sufficient capacity to address near future developments discussed in the system evaluation and address the poor condition of existing pumps. Three 150-gpm pumps are recommended to provide a firm capacity of 300-gpm. The pump station will also help offset fire flow deficiencies in Copperopolis Zone.

Annual Pipe Replacement Program

The District currently maintains approximately 54 miles of distribution lines 4-inches and greater. The average useful life of pipe is approximately 100-years. To prevent deferring maintenance, the District should plan to replace approximately 0.5 miles of pipeline each year once the Zone C1 Main Improvements are complete. The District should begin by replacing asbestos-concrete pipes as they are likely the oldest and most likely to fail.

Pipe mains are recommended to be replaced with new pipe sized to meet the District Standards under buildout conditions. Appendix A lists all of the distribution system pipe segments that need to be upsized to meet buildout conditions. Pipe segments not listed in Appendix A are recommended to be replaced in kind. The pipes listed in Appendix A have been sized to meet the District's design criteria under both buildout PHD and MMD plus Fire Flow conditions.

Annual Infrastructure Repair and Replacement Program

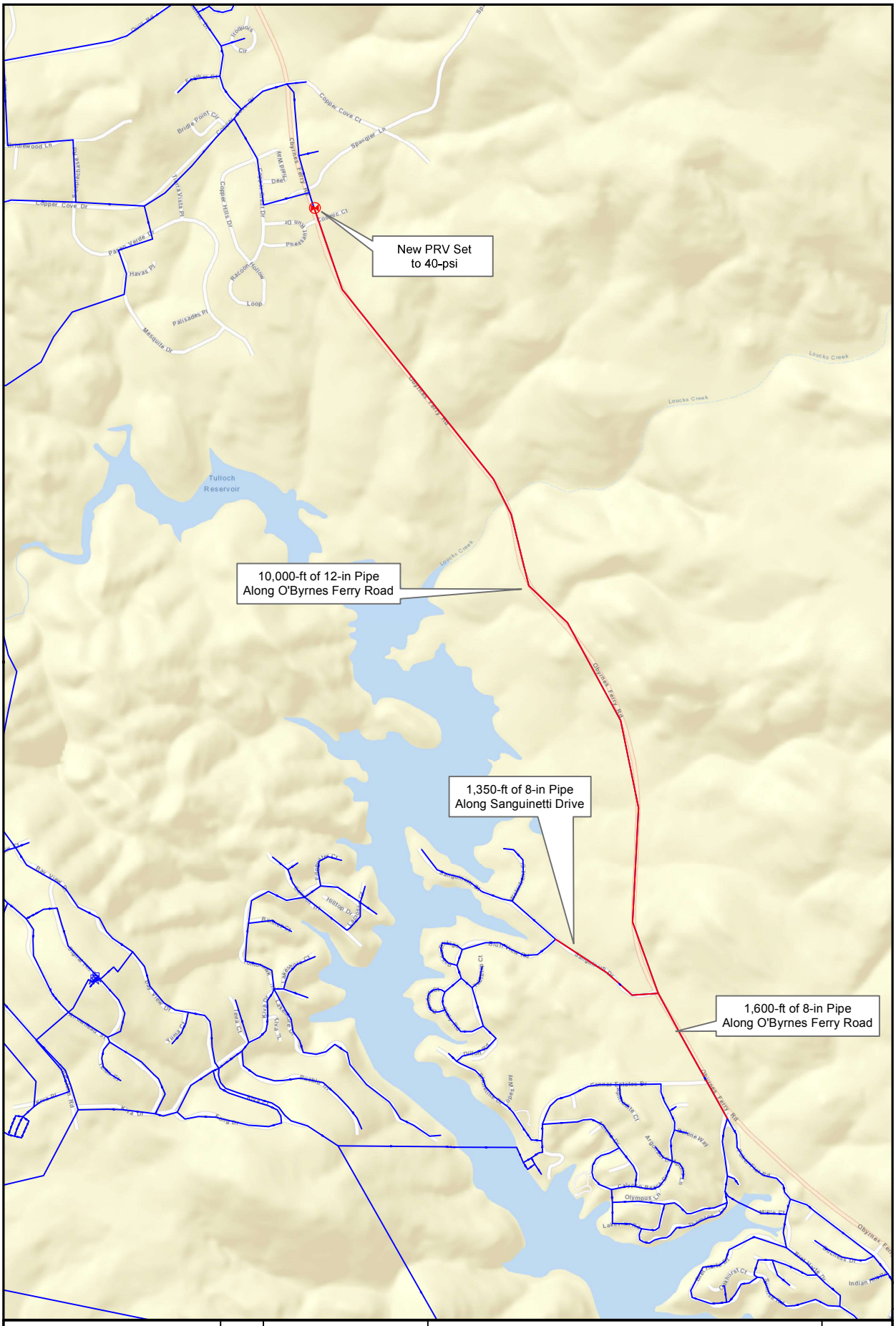
A life cycle assessment was prepared to update the annual budget required by the District's Repair and Replacement Program (R&R) required to maintain the existing facilities. Based on the value of District assets, the District should allocate at least

$464,000 annually for R&R. Table 23 presents a summary of District Assets, their value, their lifetime, and the annual cost of R&R.

Table 23. Annual Rehabilitation and Replacement Program Cost Assessment

Asset	Present Value	Lifetime (years)	Annual R&R Cost ($/year)
Copper Cove WTP & WTP Pump Station	$8,000,000[1]	30	$267,000
Raw Water Pump Station & Pipeline	$1,500,000[1]	30	$50,000
C Tank and Copperopolis Pump Stations	$750,000[1]	30	$25,000
B Tank # 1	$450,000[2]	50	$9,000
B Tank # 2	$937,000[3]	50	$19,000
C Tank # 1	$815,000[2]	50	$16,000
C Tank # 2	$815,000[2]	50	$16,000
Copperopolis Tank	$815,000[2]	50	$16,000
Annual Cost of R&R Program			***$418,000***

[1]Per 2014 Capacity Charge Update Escalated to 2018 dollars
[2]Cost based on $1.50 per gallon for new storage tank
[3]Cost based on $1.25 per gallon for new storage tank



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N

0 1,000 Feet

1" = 1000 ft.

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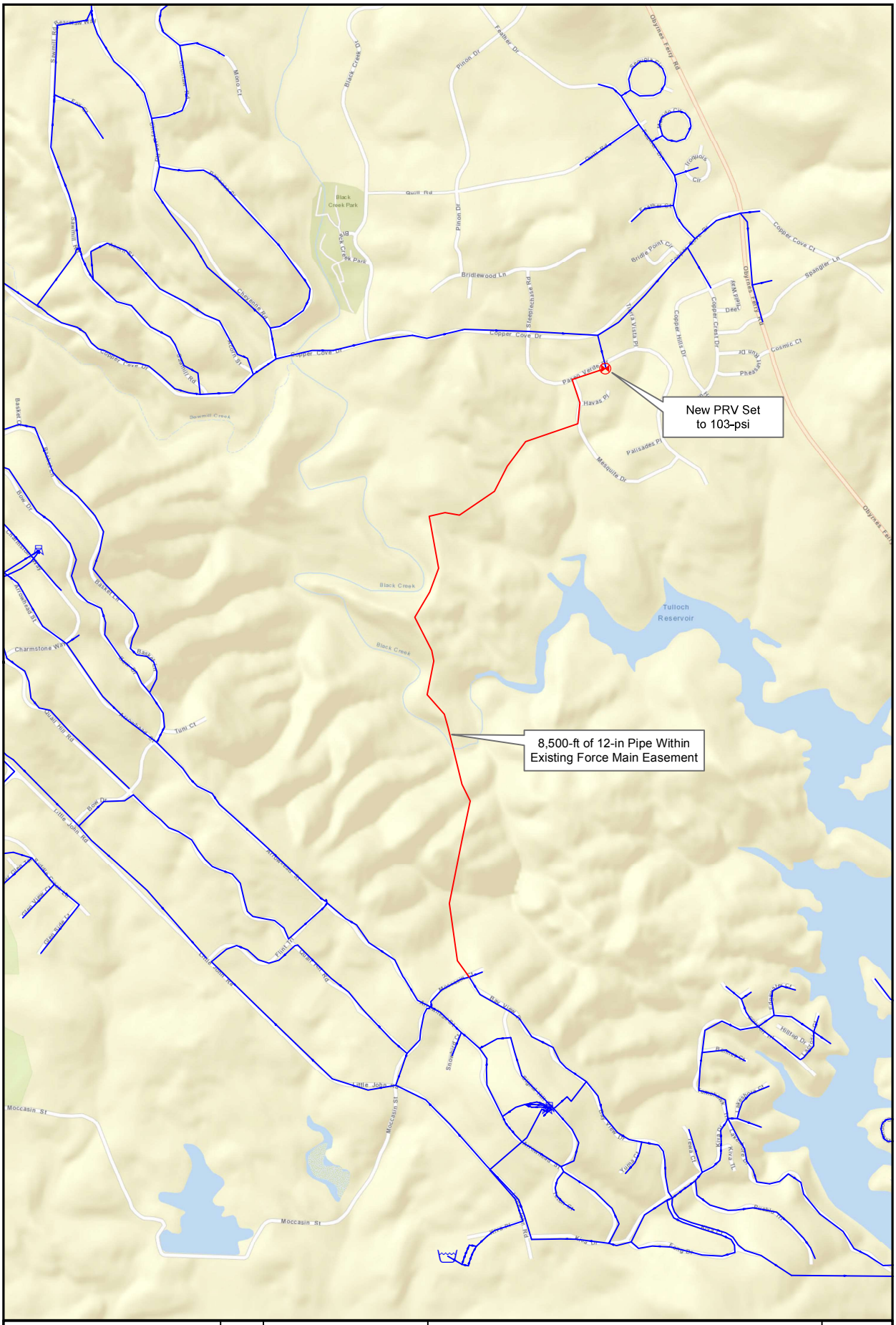
Zone B4 Loop Project

FIGURE

13



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0 1,000 Feet

1" = 1000 ft.

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Zone C4 Loop Project

FIGURE

14

Capital Improvement Plan

Recommendations for a CIP have been developed based on the recommended projects presented in the prior chapters. The following section summarizes project recommendations, estimates the cost of each of the recommended projects and presents a prioritized implementation schedule.

Summary of Recommended Improvements and Implementation Schedule

Seven projects and two repair programs are recommended in response to the current conditions of the Copper Cove water system. The Projects have been listed in order of highest priority to lowest; 1 being the highest priority. Priority has been given to the clearwell and B Tanks improvements as they are essential to providing water to the entire system. The remaining projects were prioritized in order of the number of system deficiencies addressed. The Copperopolis Pump Station Project was given the lowest project priority given the dependence on future development in Copperopolis and can be deferred until development progresses or until the existing pumps begin to fail.

Table 24: Recommended Improvements

Priority	Project/ Program	Project Description	Project Goals
1	WTP Clearwell Improvements	Rehabilitate WTP clearwell	Maintain safe and reliable drinking water supply
2	B Tanks #1 and #2 Improvements	Replace B Tank #1 with 500,000-gallon welded steel tank & rehabilitate B Tank #2	Replace/Replace existing B Tanks to meet system storage requirement
3	C1 and Saddle Creek Transmission Main Project	Construct new transmission main and pump station to supply Zones C1 and C3 (Saddle Creek)	Replace C Pump Station, relieve high-pressure deficiencies in C1 and C3, relieve high-velocity deficiencies, reduce pump energy and reduce system water age
4	B4 Loop Main Project	Loops Zone C4 and B4	Provides redundant water supply to Zone C4 and relieves fire flow deficiency
5	C4 Loop Main Project	Loops Zone B1 and C4	Provides redundant water supply to Zones B4 and relieves fire flow deficiency
6	Copperopolis Pump Station Project	Replacement of Existing Pumps	Increase pump station capacity
7	Annual Pipe Replacement Program	Pipe Replacement	Replace 1% of Pipe Annually
8	Annual Infrastructure Repair and Replacement Program	Replace or Rehabilitate District Assets	Maintain District Assets

The Projects have been broken into three phases such that all of the projects are addressed within the next 10 years and that the replacement programs are implemented following completion of the first two phases. Phases are intended to be implemented over 5-year periods according to the following schedule:

- Phase I – (2019-2023)
    - WTP Clearwell Improvements
    - B Tank #1 and #2 Improvements
    - C1 and Saddle Creek Transmission Main Project
- Phase II – (2024-2028)
    - B4 Loop Main Project
    - C4 Loop Main Project
    - Copperopolis Pump Station Project
- Phase III – Annual Pipe Replacement Program (2029-2033)
    - Annual Pipe Replacement Program
    - Annual Infrastructure Repair and Replacement Program

Estimated Costs

Planning-level cost estimates are present in Table 25 for each of the recommended capital improvement projects.

The recommended projects, estimated costs, and proposed schedule were developed through a planning-level analysis that was appropriate for the WMP update and should be revaluated in further detail prior to implementation.

Table 25: Estimated Cost of Capital Improvement Projects

Phase I: 2019-2023

Project	Recommened Imrovements	Quantity	Unit	Unit Cost	Component Cost	Project Cost
WTP Clearwell Improvements	Aluminum Dome Roof	1	LS	$ 500,000	$ 500,000	$750,000
	Recoat Clearwell	1	LS	$ 250,000	$ 250,000	
B Tank #1 and #2 Improvements	New 500,000-gallon Tank	1	LS	$ 750,000	$ 750,000	$1,150,000
	B Tank #2 Roof Replacement	1	LS	$ 400,000	$ 400,000	
C1 and Saddle Creek Transmission Main Project	20-in Pipe	11800	FT	$ 690	$ 8,142,000	$10,403,200
	12-in Pipe	1600	FT	$ 414	$ 662,400	
	8-in Pipe	3800	FT	$ 276	$ 1,048,800	
	C Tank Pump Station	1	LS	$ 500,000	$ 500,000	
	PRV Stations	5	EA	$ 10,000	$ 50,000	
					Phase I Total	***$12,303,200***

Phase II: 2024-2028

Project	Recommened Imrovements	Quantity	Unit	Unit Cost	Component Cost	Project Cost
B4 Loop Project	12-in Pipe	10000	FT	$ 414	$ 4,140,000	$4,964,200
	8-in Pipe	2950	FT	$ 276	$ 814,200	
	PRV Station	1	EA	$ 10,000	$ 10,000	
C4 Loop Project	12-in Pipe	8500	FT	$ 414	$ 3,519,000	$3,529,000
	PRV Station	1	EA	$ 10,000	$ 10,000	
Copperopolis Pump Station	Replace Pumps and Upgrade Electrical	1	LS	$ 400,000	$ 400,000	$400,000
					Phase II Total	***$8,893,200***

Phase III: 2029-2034

Project	Recommened Imrovements				Component Cost	Project Cost
Annual Pipe Replacement Program	1% of Pipe per Year	5	EA	$ 418,000	$ 2,090,000	$6,465,000
Annual R&R Program	Miscellaneous R&R	5	EA	$ 875,000	$ 4,375,000	
					Phase III Total	***$6,465,000***

TOTAL COST OF CIP IMPLEMENTATION	**$27,661,400**

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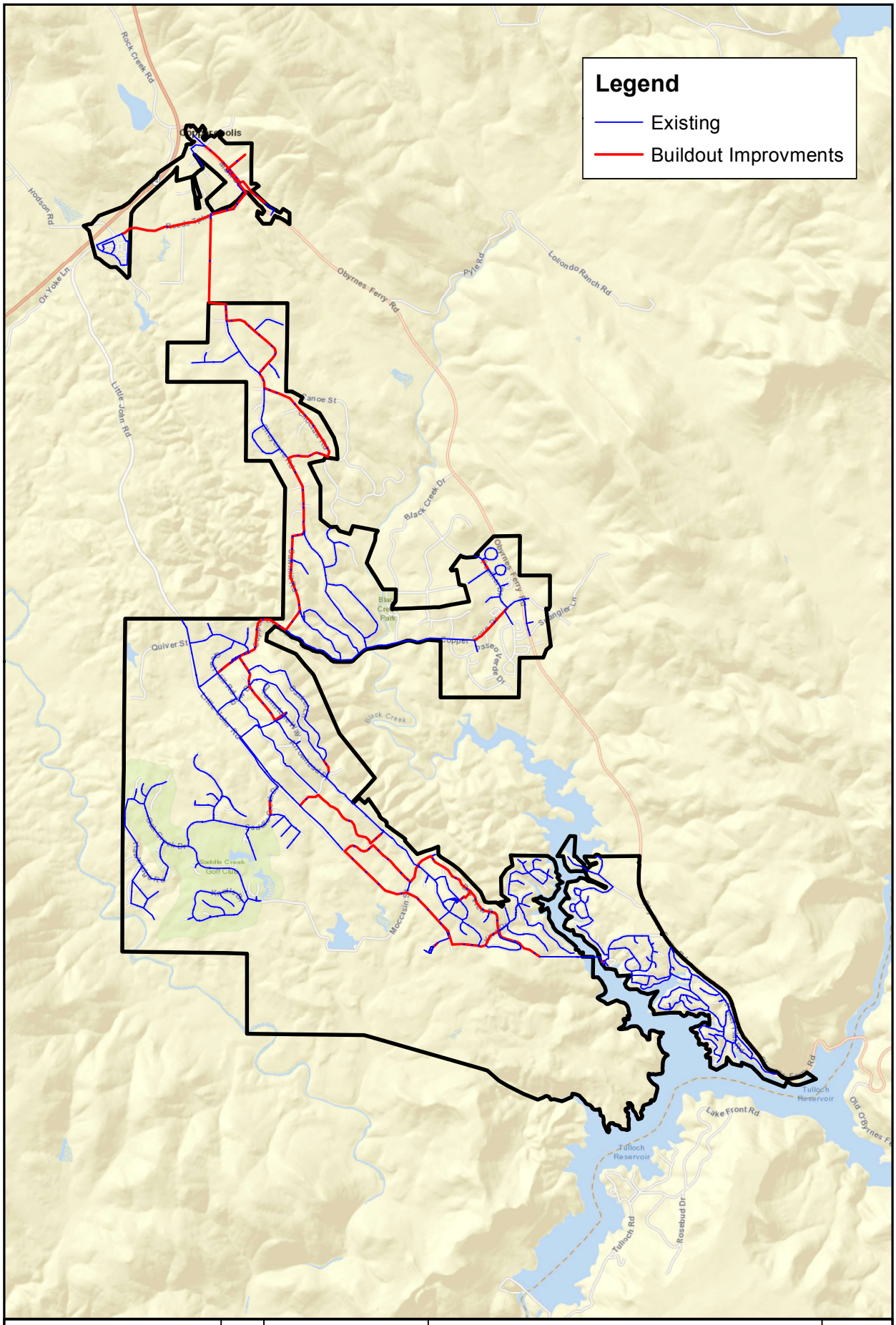
APPENDIX A

BUILDOUT PIPE DIAMETERS



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N

0 0.75 Miles

1" = 0.75 mi

2018 COPPER COVE WATER MASTER PLAN

Distribution System Buildout Improvements

FIGURE

A-1

Pipe ID	Location	Length (ft)	Existing Diameter (in)	Buildout Diameter (in)
12	Kiva Court	411	10	16
28	Arrowhead Street	443	10	20
29	Arrowhead Street	586	10	20
38	Copper Cove Drive	1420	8	12
42	Copper Cove Drive	132	8	12
54	Feather Drive	380	6	12
67	Kiva Drive	68	6	10
70	Kiva Court	1285	10	16
92	Kiva Drive	258	6	10
94	Kiva Drive	501	6	10
100	Bay View Drive	924	6	10
109	Bow Drive	432	6	8
112	Arrowhead Street	142	10	20
113	Arrowhead Street	338	10	20
114	Arrowhead Street	572	10	20
118	Copper Cove Drive	499	6	8
140	Sawmill Road	540	8	16
151	Lake Tulloch Drive	106	6	10
414	Saddle Creek Drive	468	12	16
477	Cheyenne Road	404	8	12
509	Sawmill Road	292	8	16
514	Cheyenne Road	1062	8	12
515	Canoe Street	517	6	8
520	Choctaw Road	907	6	8
521	Choctaw Road	540	6	8
522	Choctaw Road	568	6	8
525	Salmon Road	456	6	8
526	Salmon Road	522	6	8
527	Salmon Road	434	6	8
P-13	Kiva Place	168	18	26
P-32	Antelope Street	1146	4	10
P33	Main Street	422	4	10
P35	Main Street	644	4	10
P39	Main Street	218	4	10
P-41	Cheyenne Road	346	6	12
P43	Main Street	411	4	10
P-44	Quail-Hill Road	616	6	8
P-46	Flint Trail	475	6	8
P-47	Flint Trail	635	6	8
P-48	Quail-Hill Road	2525	6	8
P49	Reeds Turnpike	6359	12	16
P-49	Bow Drive	746	6	8
P-53	Little John Road	578	6	8

Pipe ID	Location	Length (ft)	Existing Diameter (in)	Buildout Diameter (in)
P69	Sawmill Road	194	6	8
P-73	Bay View Drive	618	6	10
P-75	Moccasin Street	1211	6	8
P-76	Quail-Hill Road	215	6	8
P-78	Copper Cove Drive	88	10	16
P-79	Copper Cove Drive	851	10	16
P-101	Bay View Drive	548	10	20
P-102	Bay View Drive	637	10	20
P133	Bay View Drive	273	6	10
P-133	Cheyenne Road	485	8	12
P135	Bay View Drive	645	10	20
P141	Kiva Drive	639	6	10
P143	Little John Road	650	6	8
P-150	Cheyenne Road	452	8	12
P193	Copper Cove Drive	134	6	10
P195	Copper Cove Drive	162	6	10
P199	Sawmill Road	45	8	16
P211	Copper Cove Drive	239	10	16
P231	Sawmill Road	154	6	8
P233	Copper Cove Drive	768	10	16
P239	Copper Cove Drive	56	10	16
P241	Sawmill Road	80	8	16
P243	Sawmill Road	70	6	8
P307	Copperopolis Transmission Main	3372	6	12
P339	Sawmill Road	640	8	16
P341	Sawmill Road	732	8	16
P353	Copperopolis Transmission Main	140	6	12
P359	Copperopolis Transmission Main	70	6	12
P373	Salmon Road	627	6	8
P377	Salmon Road	471	6	8
P379	Salmon Road	473	6	8
P391	Choctaw Road	348	6	8
P401	Canoe Street	435	6	8
P403	Canoe Street	452	6	8
P405	Choctaw Road	459	6	8
P407	Choctaw Road	497	6	8
P409	Cheyenne Road	281	8	12
P411	Cheyenne Road	355	8	12
P413	Sawmill Road	174	8	16
P415	Sawmill Road	85	8	16
P417	Sawmill Road	207	8	16
P419	Sawmill Road	309	8	16

Pipe ID	Location	Length (ft)	Existing Diameter (in)	Buildout Diameter (in)
P481	Quail-Hill Road	441	6	8
P483	Quail-Hill Road	461	6	8
P485	Flint Trail	519	6	8
P499	Arrowhead Street	311	10	20
P501	Arrowhead Street	523	10	20
P503	Arrowhead Street	59	10	20
P509	Copper Cove Drive	122	6	8
P535	Little John Road	738	6	8
P537	Little John Road	740	6	8
P539	Little John Road	575	6	8
P541	Little John Road	551	6	8
P543	Little John Road	572	6	8
P545	Little John Road	605	6	8
P547	Kiva Drive	373	6	10
P553	Bay View Drive	435	10	20
P555	Bay View Drive	177	10	20
PRV-11_D	Sawmill Road	39	8	16
PRV-11_U	Sawmill Road	696	8	16
PRV-32_U	Copper Cove Drive	509	10	16

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APPENDIX B

JUNCTION REPORTS

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
1	538.04	87.57	86.93	740.55	739.07	0.74	0.71
2	786.43	99.53	95.72	1016.59	1007.79	0.8	2.84
3	681.44	95.35	76.86	901.92	859.17	3.13	10.56
4	567	75.18	74.9	740.85	740.2	0	19.98
6	705.65	84.87	66.38	901.91	859.16	1.11	2.48
8	721.66	77.95	59.46	901.91	859.16	2.34	8.92
9	621.35	121.41	102.89	902.11	859.28	10.83	61.29
10	779.87	2.03	1.58	784.56	783.51	4.53	43.39
12	951.9	82.97	75.81	1143.77	1127.21	1.28	2.97
13	877.39	51.17	51.13	995.72	995.64	0.85	3.68
15	774.07	95.59	95.62	995.11	995.19	1.09	2.15
16	834.78	69.24	69.2	994.9	994.79	0.95	6.67
17	806.44	81.47	81.39	994.83	994.65	0.26	16.41
18	964.64	77.46	70.3	1143.77	1127.22	2.14	3.52
19	887.94	143.09	103.47	1218.85	1127.22	0.57	1.36
20	938.74	124.85	81.5	1227.44	1127.22	0	0.38
21	865.15	149.57	113.33	1211.02	1127.23	0.83	2.72
22	859.02	144.88	115.99	1194.07	1127.25	1.57	2.58
23	945.35	96.03	89.16	1167.42	1151.54	1.5	4.55
24	1063.28	41.31	38.22	1158.8	1151.67	1.45	6.13
25	1046.39	45.97	45.59	1152.7	1151.82	0.81	2.71
26	945.86	88.51	88.87	1150.55	1151.37	1.19	2.41
27	871.38	119.25	120.94	1147.15	1151.05	0.6	1.22
28	867.87	83.59	83.59	1061.17	1061.18	0.76	0.99
29	650.94	212.16	162.22	1141.56	1026.06	1.05	2.8
31	653.69	108.39	90.27	904.35	862.44	1.01	1.86
32	662.57	104.55	86.16	904.35	861.81	0.85	1.42
33	603.35	130.01	111.72	904	861.69	1.01	1.3
34	566.28	145.84	127.74	903.52	861.68	0.15	0.07
35	618.37	122.77	104.18	902.28	859.28	14.05	26.67
36	644.16	111.55	93.02	902.11	859.26	9.63	13.1
37	680.06	95.94	77.46	901.93	859.19	1.98	4.64
38	714.38	81.09	62.61	901.91	859.16	0.9	17.83
39	692.27	90.64	72.17	901.88	859.16	4.41	2.74
40	703.92	85.61	67.13	901.88	859.15	9.18	14.92
41	698.26	88.05	69.57	901.87	859.15	1.73	2.57
43	703.23	85.87	67.41	901.82	859.13	2.05	2.68
44	725.91	76.07	57.6	901.82	859.12	0.54	5.66
45	713.22	81.54	63.09	901.79	859.13	0.96	1.72
46	722.26	77.64	59.18	901.79	859.12	3.37	13.18
47	723.42	77.13	58.68	901.79	859.12	3.24	5.26
48	685.3	93.67	75.19	901.91	859.18	0.52	1.79
49	696.69	88.75	70.26	901.91	859.17	1.67	3.17
50	707.55	84.05	65.56	901.91	859.16	0.79	2.33

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
51	706.24	84.6	66.12	901.87	859.15	2.35	4.43
52	709.45	83.19	64.73	901.82	859.13	0.51	0.74
53	718.43	79.29	60.84	901.79	859.12	1.16	1.87
54	817.93	76.54	76.14	994.93	994	1.28	7.84
56	845.57	64.63	64.43	995.02	994.56	0.74	9.21
57	816.3	77.3	77.17	995.06	994.76	0.98	5.84
58	720.04	86.35	86.35	919.73	919.71	0.14	0.59
59	708.04	91.54	91.53	919.73	919.71	0.39	1.38
60	619.99	64.92	62.91	770.12	765.48	0.58	0.9
61	608.19	70.03	68.02	770.12	765.48	0.28	1.02
62	577.27	83.38	81.34	770.1	765.36	1.2	3.01
63	591.33	77.3	75.23	770.08	765.3	0.53	1.45
64	543.68	97.92	95.91	770.12	765.48	1.74	3.38
65	563.81	89.22	87.21	770.12	765.48	4.57	4.13
66	533.89	102.15	100.06	770.11	765.28	1.85	15.89
67	727.29	83.22	83.21	919.73	919.7	0.44	1.83
69	576.73	83.61	81.55	770.08	765.3	1.72	4.18
70	555.13	92.95	90.88	770.08	765.3	0.57	0.9
71	525.23	105.88	103.81	770.08	765.3	1.8	3.09
72	535.4	101.49	99.42	770.08	765.3	1.47	2.39
73	552.95	93.89	91.83	770.08	765.3	0.84	1.96
74	579.81	82.28	80.21	770.08	765.3	0.61	1.35
75	629.92	60.61	58.54	770.08	765.3	0.45	1.17
76	633.33	59.14	57.07	770.08	765.3	0.76	1.69
77	623.62	63.34	61.27	770.08	765.3	0.32	1.1
78	721.81	85.59	85.58	919.73	919.71	0.78	2.18
79	861.51	57.91	57.94	995.44	995.49	1.86	3.18
80	903.62	39.68	39.59	995.39	995.16	1.54	3.25
81	752.55	119.32	115.05	1028.47	1018.62	1.94	2.93
82	912.19	35.82	35.61	995.02	994.55	0.81	2.05
83	922.49	95.69	88.53	1143.77	1127.22	0.69	2.08
84	843.44	65.62	65.48	995.18	994.85	0.84	1.43
85	815.33	77.6	77.35	994.77	994.21	1.47	3.3
87	807.41	81.03	80.79	994.79	994.23	0.88	1.16
88	792.98	87.26	86.93	994.76	994.01	3.94	7.91
90	764.21	99.86	99.91	995.13	995.25	0	0.39
92	924.4	89.52	89	1131.41	1130.21	0.9	1.78
93	639.56	56.46	54.45	770.12	765.49	0.3	0.67
94	545.88	96.96	94.91	770.1	765.36	0.91	2.52
95	811.57	79.16	78.89	994.63	993.99	3.61	7.26
96	834.88	97.4	95.16	1060.12	1054.94	2.96	8.11
97	892.13	72.7	70.68	1060.24	1055.58	0.48	4.07
98	848.81	87.35	47.18	1050.81	957.92	0.18	5.72
99	934.32	99.76	93.88	1165.01	1151.4	6.18	9.54
100	951.89	90.41	86.26	1160.96	1151.36	3.75	17.22

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
101	1002.17	64.94	64.51	1152.33	1151.35	1.86	4.08
102	962.06	82.03	81.75	1151.75	1151.11	2.75	5.25
103	1056.45	44.26	41.18	1158.8	1151.67	2.89	4.46
104	1103.59	21.07	20.65	1152.33	1151.35	1.92	3.31
105	899.28	108.08	108.94	1149.22	1151.21	2.37	3.57
106	934.44	93.24	93.78	1150.05	1151.31	0.86	1.86
107	849.95	91.24	91.02	1060.94	1060.43	2.52	4.67
108	827.59	100.88	100.26	1060.87	1059.44	1.65	19.08
109	852.47	90.08	89.34	1060.78	1059.07	4.11	7.35
110	878.91	78.69	78.02	1060.88	1059.34	3.9	27
111	905	67.41	66.69	1060.87	1059.22	1.55	28.04
112	925.66	58.48	57.99	1060.91	1059.77	0.57	3.59
113	888.5	74.58	74.31	1060.96	1060.33	2.01	4.73
114	810.84	108.09	107.68	1060.8	1059.85	3.07	5.89
115	983.37	72.28	72.59	1150.52	1151.23	2.37	5.53
117	735.52	74.85	54.56	908.61	861.69	1.27	2.69
118	600.36	131.04	113.06	903.38	861.8	1.54	2.06
119	742.64	69.41	51.83	903.14	862.5	1.18	5.63
120	776.41	152.59	107.5	1129.28	1025	1.36	2.62
121	745.33	68.23	50.74	903.13	862.66	3.2	4.54
122	776.99	109.56	104.59	1030.34	1018.85	4.63	6.84
123	499.12	104.48	104.02	740.74	739.67	0.3	1.46
124	510.2	99.68	99.17	740.71	739.53	0.25	1.53
125	508.72	100.32	99.81	740.7	739.52	0.5	13.16
126	527.63	92.11	91.57	740.63	739.38	1.86	0.96
128	536.37	88.32	87.75	740.61	739.3	0.04	0.51
129	533.92	89.38	88.81	740.61	739.29	0.2	0.27
130	523.21	94.03	93.52	740.65	739.48	0.38	0.28
131	520.75	95.11	94.6	740.7	739.52	0.74	0.2
132	516.66	96.88	96.37	740.69	739.52	3.49	4.72
134	556.33	79.68	79.08	740.59	739.21	0.62	1.64
135	550.95	82	81.34	740.56	739.03	1.69	2.45
136	543.94	85.03	84.37	740.56	739.03	1.26	2.83
137	556.73	79.49	78.8	740.54	738.95	0.89	8.39
138	562.09	77.17	76.47	740.54	738.92	1.37	2.53
139	541.87	85.91	85.21	740.54	738.91	1.13	1.63
140	544.26	84.88	84.17	740.54	738.9	0.61	1.04
141	541.79	85.94	85.24	740.53	738.9	0.24	0.48
142	550.01	82.39	81.69	740.54	738.9	1.04	1.87
143	575.52	71.36	70.65	740.54	738.9	1.16	1.97
144	540.87	86.34	85.63	740.53	738.89	0.24	0.59
145	544.5	84.77	84.06	740.53	738.88	0.99	1.58
146	553.75	80.77	80.04	740.52	738.84	0.55	1.27
147	550.04	82.37	81.63	740.52	738.8	0.48	23.45
148	534.94	88.9	88.15	740.51	738.79	1.23	2.87

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
149	528.39	91.73	90.98	740.51	738.79	0.98	1.5
150	523.71	93.75	93.01	740.51	738.78	4.09	6.4
151	544.26	84.87	84.17	740.54	738.91	0.48	0.73
152	533.46	89.54	88.83	740.53	738.88	1.56	2.24
349	840	91.15	50.96	1050.79	957.85	0.28	7.43
350	834	93.75	53.44	1050.79	957.59	0.74	11.07
352	813.88	102.43	62.18	1050.76	957.68	0	12.95
353	819.05	100.2	116.05	1050.76	1087.43	0.12	6.15
354	822.97	98.49	114.36	1050.73	1087.43	1.51	5.33
355	827.23	96.65	112.55	1050.72	1087.5	0.41	1.46
356	836.65	92.57	108.51	1050.72	1087.58	0.94	1.94
357	850.55	86.56	102.54	1050.72	1087.69	0.22	1.51
358	859.81	82.56	98.58	1050.72	1087.77	0.5	3.56
359	866.91	79.49	95.51	1050.72	1087.77	0.07	5.12
361	832.32	94.44	110.3	1050.71	1087.4	1.33	8.32
366	883.75	72.21	88.72	1050.72	1088.9	1.13	6.27
377	843.86	89.44	105.3	1050.69	1087.37	0.26	7.41
384	887.47	70.58	86.43	1050.69	1087.33	1.02	4.74
385	885.82	71.3	87.14	1050.69	1087.33	1.17	2.73
386	884.7	71.78	87.62	1050.69	1087.33	0.19	5.79
387	882.56	72.71	88.55	1050.69	1087.33	0.3	4.88
388	884.75	71.76	87.6	1050.69	1087.33	1.18	6.1
390	801.4	107.8	123.64	1050.69	1087.31	2.36	12.91
391	783.52	115.53	131.37	1050.69	1087.31	0.27	6.7
392	858.98	82.9	98.75	1050.69	1087.34	1.28	4.61
393	849.18	87.14	103	1050.69	1087.35	0.71	5.54
394	845.84	88.59	104.45	1050.7	1087.39	0.48	3.23
395	861.44	81.84	97.68	1050.69	1087.33	1.12	5.59
396	858.51	83.1	98.94	1050.69	1087.32	0.55	5.1
397	803.9	106.72	122.56	1050.69	1087.32	0.06	6.79
398	768.6	121.98	80.07	1050.69	953.76	0	5.23
399	837.59	92.13	50.57	1050.64	954.54	1.19	4.33
401	780.13	116.91	75.29	1050.5	954.24	22.27	4.05
402	785.79	114.47	72.85	1050.5	954.25	0.05	1.11
403	785.12	114.76	73.14	1050.5	954.25	2.53	5.88
404	782.25	116	74.38	1050.51	954.26	0.96	2.63
405	798.23	109.11	67.61	1050.55	954.58	0.57	10.39
406	813.21	102.64	61.13	1050.57	954.57	1.52	11.73
407	827.84	96.33	54.8	1050.6	954.55	2.46	11.53
408	784.09	115.21	73.55	1050.5	954.18	0.83	2.25
409	817.14	100.91	59.21	1050.5	954.06	1.69	5.48
410	807.55	105.06	63.33	1050.5	954.01	1.62	4.62
411	824.98	97.52	55.81	1050.5	954.05	0.14	4.13
412	825.36	97.36	55.66	1050.5	954.08	0.44	2.83
425	747.27	131.21	89.3	1050.69	953.78	0	4.25

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
429	841.08	90.56	48.83	1050.5	953.99	0.44	6.14
430	743.74	132.73	90.82	1050.69	953.76	0	4.88
431	735.14	136.45	94.54	1050.69	953.76	0	5.35
432	740.6	134.09	92.19	1050.69	953.78	0	2.79
433	766.64	122.83	80.92	1050.69	953.76	0	8.75
434	747.3	131.19	89.28	1050.69	953.76	0	9.38
435	737.78	125.23	121.38	1027.38	1018.47	1.61	2.06
438	756.17	116.49	113.25	1025.55	1018.05	5.4	7.67
439	759.9	114.24	111.49	1024.09	1017.72	4.66	10.3
440	688.95	92.59	75.04	903.05	862.47	1.7	2.51
441	738.18	122.7	120.68	1021.91	1017.24	4.46	7.7
442	771.23	108.04	106.06	1021.08	1016.48	1.25	2.27
443	765.43	110.71	108.68	1021.44	1016.75	1.87	5.66
444	839.79	78.29	76.27	1020.85	1016.16	1.54	4.38
445	799.99	95.62	93.59	1021.11	1016.4	3.78	4.85
446	833.9	80.66	78.69	1020.43	1015.87	6.06	10.83
447	849.17	73.97	72	1020.23	1015.67	5.12	7.14
448	884.1	58.7	56.72	1019.84	1015.26	2.86	3.93
449	874.1	62.73	60.95	1019.15	1015.04	0.89	1.35
450	873.19	62.86	61.12	1018.54	1014.52	2.26	3.32
451	824.25	84.18	82.43	1018.91	1014.87	2.84	3.66
453	880.41	59.65	57.97	1018.35	1014.46	3.87	5.07
458	508.05	100.54	99.89	740.54	739.04	0.95	0.94
459	519.21	95.71	95.05	740.53	739.01	1.21	10.22
460	589.95	65.12	64.46	740.53	739.01	0.58	0.95
461	565.26	75.79	75.12	740.53	738.98	0.45	0.77
462	549.97	82.4	81.73	740.53	738.98	0.71	1.31
463	519.26	95.67	94.98	740.5	738.89	0.96	1.5
464	550.67	82.09	81.38	740.5	738.87	0.04	1.73
465	549.25	82.69	81.96	740.48	738.79	1.35	2.11
466	564.63	76.04	75.3	740.47	738.77	0.85	1.25
467	567.13	74.96	74.22	740.47	738.77	0.87	1.38
468	603.31	59.31	58.57	740.46	738.75	0.61	1.32
469	513.51	98.15	97.41	740.47	738.78	0.99	1.28
470	531.16	90.51	89.77	740.47	738.76	0.55	1
471	556.62	79.5	78.76	740.47	738.75	0.81	1.43
472	562.66	76.89	76.14	740.46	738.74	0.47	0.51
473	554.73	80.32	79.58	740.47	738.75	1.22	4.18
474	548.54	82.99	82.25	740.46	738.74	0.53	0.65
475	561.88	77.22	76.48	740.46	738.75	0.55	0.89
476	593.58	63.52	62.77	740.46	738.75	0.76	1.02
477	590.2	64.98	64.23	740.46	738.74	0.39	0.51
478	612.66	55.27	54.52	740.46	738.74	1.26	1.62
479	538.73	87.24	86.49	740.46	738.74	1.49	2.37
480	562.63	76.9	76.16	740.46	738.75	0.33	0.77

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
481	547.46	83.46	82.72	740.46	738.74	0.59	0.68
482	592.31	64.06	63.31	740.45	738.72	0.38	0.88
483	550.42	82.18	81.43	740.46	738.73	0.35	0.76
484	544.48	84.75	84	740.45	738.72	0.45	0.73
485	538.5	87.33	86.58	740.45	738.71	1.21	1.3
486	536.65	88.13	87.38	740.45	738.71	0.29	0.43
487	506.85	101.02	100.27	740.45	738.71	2.26	2.64
488	545.87	84.14	83.39	740.45	738.71	0.31	0.52
489	525.29	93.04	92.29	740.45	738.71	0.3	0.62
490	525.38	93	92.25	740.45	738.71	0.35	0.7
491	567.3	74.88	74.13	740.45	738.72	0.16	0.3
492	526.77	92.4	91.65	740.45	738.71	2.11	3.39
493	555.42	80.01	79.26	740.45	738.71	3.44	7.78
494	704.27	85.46	66.98	901.91	859.16	6.88	19.68
496	884.45	57.53	56.15	1017.5	1014.31	2.6	3.33
497	781.61	1.26	0.69	784.51	783.2	0.04	4.74
500	792	97.82	93.71	1018.21	1008.7	0.56	0.2
780	882.24	58.78	57.12	1018.18	1014.33	3.05	4.54
J10	837	78.42	76.61	1018.36	1014.17	17.42	22.36
J12	852.42	72	70.14	1018.91	1014.19	1.58	9.16
J14	881.62	77.19	78.21	1060.12	1014.2	1.74	11.42
J16	602.8	59.53	66.87	740.46	1014.43	1.26	5.95
J-17	841.69	66.48	72.28	995.44	1128.06	0.46	1.55
J18	951.42	47.3	70.25	1060.8	1014.86	2.67	3.52
J-18	886.74	56.48	74.17	1017.36	1128.05	1.45	2.22
J-19	750.42	165.71	78.31	1133.63	1128.04	2.9	3.54
J20	1137.96	6.07	82.94	1152	1014.86	2.07	3.5
J-21	815.88	105.58	71.77	1060.04	1129.28	5.01	2.47
J22	551.88	81.55	59.9	740.47	1128.06	0.56	7.9
J-22	526.5	92.54	11.94	740.5	998.45	0.06	1.36
J-23	776.09	109.95	4.47	1030.34	996.06	2.15	1.23
J24	901	98.16	65.65	1128	1128.21	0.12	4.32
J-24	883	105.95	94.25	1128	1054.94	0.12	3.21
J-25	840	91.15	74.95	1050.78	1054.94	2.17	4.97
J26	791.1	147.17	52.53	1131.42	1127.96	1.82	11.49
J-26	808	104.98	62.6	1050.76	738.71	0.49	0.87
J-27	834.89	79.49	100.44	1018.71	738.71	3.72	2.58
J28	876.5	61.72	54.61	1019.23	1128.04	1.24	9.35
J-28	882.82	59.29	88.64	1019.93	738.71	2.26	0.6
J-29	734.55	124.02	66.21	1021.36	738.71	2.04	0.98
J30	754.84	118.42	58.18	1028.68	1128.05	1.82	8.62
J-30	813.49	137.26	69.65	1130.9	738.71	1.13	0.93
J-31	706.36	86.26	68.98	905.84	738.71	1.86	0.48
J32	613.07	125.51	62.68	903.31	1128.06	4.76	4.69
J-32	631.99	117.25	58.79	903.12	738.74	25.05	2.13

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
J-33	667.18	102	76	903.05	738.74	1.69	1.49
J34	949.37	101.46	64.22	1184	1128.06	3.66	5.25
J-34	931.22	110.51	60.84	1186.78	738.74	2.42	0.49
J-35	813.8	78.24	89.11	994.73	738.87	2.77	0.97
J36	887.49	74.72	76.42	1060.27	1128.05	1.55	3.93
J-36	882.41	76.95	66.51	1060.36	995.49	1.91	1.62
J-38	840.22	95.39	33.43	1060.82	994.55	3.39	1.51
J-39	924.79	99.51	65.25	1154.9	994.85	1.3	2.52
J40	803.07	82.9	65.32	994.78	1127.65	4.45	16.72
J-40	833.16	69.9	71.45	994.81	1026.83	3.6	3
J-41	824.58	73.85	86.02	995.37	1060.54	0.6	2.32
J-42	588.37	78.6	46.69	770.12	1059.39	0.89	5.27
J-43	532.45	89.97	55.16	740.51	1014.3	0.83	1.87
J44	527.61	92.07	83.19	740.52	862.44	0.92	18.8
J-44	512.8	98.47	78.82	740.51	1131.3	1.22	7.41
J-45	581.97	68.53	56.24	740.46	995.79	0.64	2.47
J46	554.96	80.22	80.48	740.47	862.47	0.89	2.94
J48	616.74	53.5	158.75	740.45	1025.83	0.59	2.1
J50	851.31	62.32	118.98	995.44	1025.56	0.92	3.72
J-50	788.24	89.45	80.98	995.1	1127.22	0.58	2.5
J-51	607.58	57.51	114.39	740.56	1151.33	0.71	4.29
J52	565.22	75.83	90.43	740.58	1089.96	1.3	1.9
J-52	569.79	73.84	93.91	740.56	1009.17	0.85	5.92
J60	826.7	96.88	7.08	1050.72	1152	0.85	3.04
J62	854.43	84.88	6.07	1050.72	1152.01	1.01	1.37
J64	857.71	83.46	6.56	1050.72	1152	0.43	0.15
J66	875.84	75.61	113.32	1050.69	1151.22	0.54	5.29
J68	854.24	84.97	76.17	1050.72	1059.6	1.02	2.96
J70	614.4	54.56	87.28	740.56	1060.7	0.75	1.66
J72	537.63	87.75	67.28	740.55	994.06	7.1	2.42
J74	880	115.42	103.24	1146.91	1054.61	0	9.86
J76	870	119.46	117.41	1146.24	1127.22	0	3.36
J78	745	168.33	112.87	1134.27	1127.22	0	1.12
J82	776.8	158.65	4.76	1143.67	996.06	0	1.69
J84	750	69.93	87.31	911.71	1127.22	0	2.21
J86	859	144.7	83.91	1193.63	994.94	0	5.79
J88	803	107.04	80.82	1050.53	738.77	0	0.76
J90	980	108.3	91.84	1230.43	738.88	0	0.96
J92	980	6.85	96.2	995.85	738.71	0	1.63
J94	884	72.18	65.24	1050.92	859.13	0	2.45
J96	849	87.27	58.5	1050.81	859.17	0	11.19
J98	783	115.76	120.76	1050.69	1018.41	0	0.11
J100	851.99	71.95	52.75	1018.38	863.23	5.51	1.77
J102	833.34	80.02	104.98	1018.38	1018.86	7.1	3.59
J104	859.8	68.56	28.47	1018.34	1014.11	2.81	0

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
J108	960.9	72.54	94.23	1128.66	1127.91	0.67	13.32
J120	956.52	74.43	96.12	1128.65	859.72	1.73	13.28
J124	946.95	78.57	74.31	1128.65	738.82	2.76	1.23
J126	823.07	84.69	93.8	1018.91	1127.91	2.31	0
J128	963.31	72.19	98.12	1130.25	1127.9	0.79	0
J130	989.53	60.14	105.9	1128.6	1127.9	3.18	0
J132	970.83	12.77	100.71	1000.36	1127.9	0.65	0
J134	985.72	4.53	95.09	996.2	1127.9	0.22	0
J136	976.39	65.93	96.39	1128.85	1127.9	1.83	0
J138	836.98	96.49	95.09	1060.11	1127.9	0.52	0
J140	1006.48	52.58	50.33	1128.07	957.38	7.88	0
J142	593.95	63.35	50.6	740.45	957.01	0.6	0
J144	506.45	101.19	52.61	740.45	956.67	3.84	0
J146	1001.76	54.64	54.78	1128.11	956.67	3.78	0
J148	533.72	89.4	55.79	740.45	957.01	0.25	0
J150	585.61	66.96	57.68	740.45	957.38	0.62	0
J152	993.52	58.32	62.55	1128.38	957.64	2.51	0
J154	577.66	70.4	101.26	740.45	1025.27	0.52	3.07
J156	579.21	69.73	64.69	740.45	957.59	0.3	0
J158	983.11	62.97	52.32	1128.74	1014.29	2.75	2.1
J160	563.01	76.74	46.82	740.46	1151.35	1.3	3.6
J162	979.56	64.49	64.36	1128.7	994.56	2.52	0.77
J164	598.04	61.59	55.88	740.46	1014.4	0.34	8.61
J166	532.8	89.81	66.9	740.5	1014.43	0.52	10.21
J168	951.33	76.7	77.76	1128.7	1014.72	0.76	6.39
J170	917.25	33.63	59.7	995.02	1014.58	0.78	6.42
J172	843.97	65.39	60.04	995.18	1014.37	0.89	5.84
J174	976.6	65.48	58.38	1128.02	1014.44	7.57	5.59
J176	861.6	123.06	62.05	1146.17	1014.55	1.84	6.83
J178	861.62	86.22	62.61	1061.01	1014.86	0.62	9.31
J180	670.07	100.74	59.95	903.03	1015.14	13.05	2.79
J182	949.02	79.46	57.31	1132.76	1015.35	2.91	3.81
J184	865.72	56.26	65	995.82	1015.54	0.28	6.62
J186	676.37	98.03	85.68	903.05	1015.91	1.24	6.66
J188	658.73	208.19	88.6	1140.17	1016.26	1.63	4.31
J190	939.95	124.32	100.24	1227.44	1016.5	1.45	4.78
J192	886.8	114.05	118.33	1150.54	1016.98	2.25	7.91
J194	880.85	73.51	122.03	1050.84	1016.74	0.14	5.38
J196	792	97.99	98.98	1018.59	1016.26	2.3	6.97
J198	1135.63	7.08	59.82	1152	1015.51	1.51	5.66
J200	1136.83	6.56	105.66	1152	1017.85	0.09	6.7
J202	889.17	113.01	119.04	1150.51	1018.29	2.36	6.58
J204	883.46	76.7	118.49	1060.84	1018.53	0.77	1.23
J206	858.87	87.43	114.08	1061.05	1018.64	0.22	3.25
J208	838.49	67.54	91.55	994.67	1025.2	1.36	3.45

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
J210	855.7	155.82	112.32	1216.03	1025.37	1.89	7.04
J212	866.2	151.28	51.69	1216.03	861.69	0.5	1.7
J214	985.05	4.82	72.84	996.2	861.68	0.85	6.07
J216	925.32	94.47	95.32	1143.77	861.68	0.97	4.75
J218	800.9	83.97	93.68	995.09	861.68	0.61	4.85
J220	516.26	96.95	67.19	740.45	861.75	0.83	4.08
J222	708.26	83.69	81.78	901.8	862.26	1.53	3.57
J224	723.89	76.93	89.4	901.78	862.01	12.14	2.72
J226	739.15	124.64	85.01	1027.38	861.82	0.08	1.04
J228	741.24	70	116.47	903.12	861.69	1.25	0.51
J230	948.29	27.12	127.32	1011	861.72	0	0.96
J232	910	94.27	107.56	1128	861.81	0.21	2.65
J234	637.45	114.61	99.4	902.5	861.84	10.35	9.42
J236	566.99	75.03	84.81	740.49	861.9	3.57	8.78
J238	911	93.84	83.16	1128	861.96	1.84	15.29
J240	895	100.76	51.66	1128	862.35	0.63	9.64
J242	908	95.14	70.19	1128	862.23	0.43	7.37
J244	905	96.43	58.16	1128	862.55	0	8.88
J246	908	95.14	84.45	1128	862.47	0	3.32
J248	841	90.72	75.05	1050.78	862.46	1.79	2.93
J250	835	93.31	51.07	1050.78	862.97	2.78	6.79
J252	830	95.47	120.41	1050.78	861.15	5.49	2.26
J254	828	96.34	89.75	1050.78	1151.49	1.56	13.39
J256	824	98.07	90.11	1050.78	1151.47	0.98	11.48
J258	813	102.82	87.39	1050.76	1151.45	0	5.82
J260	893.31	53.53	95.23	1017.1	1151.45	1.63	6.77
J262	1043.08	47.24	83.92	1152.33	1054.94	2.07	2.65
J264	845.73	64.56	118.59	995.02	1127.24	0.44	5.03
J266	885.18	57.55	117.27	1018.27	1127.23	5	4.07
J268	859.73	68.59	116.69	1018.34	1127.22	6.48	2.07
J270	876.53	61.39	83.01	1018.51	994.19	4.02	1.51
J272	875.53	61.73	77.99	1018.28	994.16	4.01	5.88
J274	879.44	60.09	76.93	1018.41	994.1	3.28	6.05
J276	871.06	63.8	80.48	1018.59	994.03	3.98	5.38
J278	870.08	64.38	96.41	1018.95	1054.62	6.97	18.27
J280	865.23	67	99.07	1020.17	1054.72	5.16	19.05
J282	817.78	87.7	78.09	1020.58	1055.33	5.12	6.54
J284	811.39	90.63	72.77	1020.97	1055.77	2.43	5.95
J286	784.69	102.28	75.2	1021.21	1056.3	3.49	8.64
J288	743.35	120.33	70.31	1021.62	1151.23	5.85	6.12
J290	787.38	100.96	52.91	1020.84	1151.72	4.81	4.5
J292	877.17	61.8	75.77	1020.08	1151.53	3.8	4.71
J294	773.52	108.61	91.59	1024.68	1151.33	3.83	0.8
J296	743.01	122.62	85.9	1026.56	1059.93	4.69	6.58
J298	744.53	122.49	85.03	1027.79	1060.39	0.83	6.07

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
J300	765.64	158.52	86.03	1132.21	1061.03	4.04	3.18
J302	742.17	71.75	77.52	908.09	1060.35	0.7	3.72
J304	693.25	92.51	60.46	907.19	1059.74	2.17	4.44
J306	641.25	114.5	92.12	906.02	1059.34	3.26	29.38
J308	645.05	112.34	94.7	904.84	1059.22	3.68	7.76
J310	673.16	99.97	81.36	904.35	1058.06	1.42	8.97
J312	655.27	107.71	69.8	904.35	1057.09	1.57	9.6
J314	665.25	103.39	103.49	904.35	1151.15	0.65	7.2
J316	592.35	134.7	88.79	903.84	1151.11	0.39	8.85
J318	567.29	145.38	91.48	903.48	1151.1	2.14	10.59
J320	665.77	102.62	97.87	903.08	1151.11	24.36	12.41
J322	669.66	100.94	83.29	903.08	1151.16	14.64	15.73
J324	742.87	69.3	33.55	903.12	1151.35	5.26	3.74
J326	699.92	87.91	83.84	903.22	993.97	2.53	18.34
J328	728.06	75.69	83.13	903.09	993.96	4.06	36.71
J330	688.91	92.6	89.18	903.04	993.96	1.56	19.98
J332	744.87	68.43	82.57	903.12	994	3.82	10.34
J334	582.71	138.6	69.55	903.22	994	8.47	8.85
J336	943.95	99.56	68.72	1174.18	994	4.92	4.98
J338	943.08	102.24	63.15	1179.52	994.31	3.65	8.98
J340	860.87	86.16	56.58	1060.11	994.56	1.33	2.93
J342	853	150.23	36.22	1200.4	994.55	2.84	2.35
J344	856.05	151.66	58.18	1206.77	995.66	2.2	3.41
J346	857.38	154.43	73.88	1214.51	995.44	1.12	2.05
J348	802.22	83.27	88.03	994.78	919.71	0.81	2.25
J350	816.2	77.19	89.73	994.7	919.7	2.55	3.04
J352	807.92	80.75	84.17	994.65	919.7	3.75	2.36
J354	831.67	98.76	77.91	1060.04	765.32	8.43	5.44
J356	825.61	101.39	78.44	1060.07	765.38	7.36	4.11
J358	874.75	80.19	76.57	1060.19	765.42	2.24	2.11
J360	988.65	70	77.4	1150.51	765.4	2.86	2.73
J362	1029.35	53.13	83.65	1152.22	765.36	1.86	1.91
J364	976.31	75.69	84.36	1151.33	765.3	1.1	0.89
J366	939.52	91.1	95.81	1150.2	738.78	0.24	3.19
J368	861.29	86.31	95.53	1060.88	738.79	4.36	1.99
J370	863.76	85.27	89.23	1060.94	738.79	4.46	9.76
J372	862.09	86.07	83.91	1061.13	738.82	2	6.43
J374	881.09	77.78	83.13	1060.95	738.85	2.56	1.74
J376	919.91	60.97	88.8	1060.9	738.88	2.51	1.54
J378	846.31	92.78	69.96	1060.87	956.78	6.02	0
J380	869.93	82.47	75.95	1060.63	738.98	2.68	0.88
J382	895.67	71.27	91.39	1060.49	738.95	2.9	1.84
J384	911.84	103.14	97.78	1150.35	738.92	4.33	2.28
J386	945.77	89.23	74.15	1152.11	738.94	0	1.26
J388	939.55	92.55	90.2	1153.57	738.78	1.37	0.79

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
J390	958.55	86.11	82.63	1157.67	738.81	5.83	1.76
J392	1073.77	35.6	70.75	1156.1	738.74	1.4	2.16
J394	800.1	84.12	64.05	994.62	738.74	10.22	0.88
J396	801.72	83.42	67.79	994.64	738.73	21.51	1.43
J398	787.73	89.47	85.99	994.62	738.73	11.12	1.71
J400	835.1	69.09	79.11	994.87	738.74	2.14	1.33
J402	848.27	63.44	77.36	994.98	738.74	1.52	1.36
J404	863.72	56.78	83.27	995.02	738.74	1.1	0.95
J406	910.79	36.42	81.62	995.02	738.74	1	1.02
J408	861.11	58.18	79.47	995.65	738.74	1.49	12.53
J410	716.13	88.04	73.43	919.73	738.75	0.6	2.38
J412	712.2	89.74	92.96	919.73	738.76	0.63	1.81
J414	725.07	84.18	77.56	919.73	738.75	1.05	0.68
J416	585.17	79.98	99.67	770.11	738.71	1.77	1.28
J418	583.99	80.49	73.07	770.12	738.71	1.47	4.77
J420	586.41	79.44	78.38	770.11	738.71	1.1	1.28
J422	571.92	85.7	88.2	770.1	738.71	0.39	1.7
J424	570.21	86.43	84.77	770.08	738.71	0.28	1.31
J426	517.22	96.56	64.51	740.51	738.71	5.06	0.97
J428	517.87	96.28	67.86	740.51	738.72	1.57	0.74
J430	544.79	84.64	52.75	740.52	738.72	0.55	1.26
J432	546.62	83.85	88.35	740.53	738.71	1.17	2.6
J434	533.54	89.51	85.99	740.53	739.27	0.87	0.59
J436	795	110.6	75.35	1050.76	739.17	0.6	3.63
J438	563.35	76.61	84.64	740.53	862.01	0.46	6.28
J440	567.46	74.84	90.93	740.52	1016.47	0.4	7.15
J442	530.18	90.94	107.95	740.47	1026.44	0.41	5.5
J444	547.74	83.35	69.8	740.48	1059.25	0.55	6.85
J446	575.13	71.49	60.91	740.46	859.12	1.45	1.64
J448	590.62	64.8	62.92	740.46	859.12	0.55	1.53
J450	539.87	86.74	91.15	740.46	738.9	1.25	2.77
J452	555.81	79.85	62.35	740.46	995.49	0.6	1.68
J454	559.84	78.11	89.42	740.46	995.01	0.64	2.25
J456	546.18	84.01	57.99	740.46	994.79	0.42	15.67
J458	549.99	82.37	34.26	740.46	1151.74	0.39	4.27
J460	568.95	74.17	69.26	740.47	861.71	1.24	4.64
J462	523.79	93.7	69.73	740.47	739.15	0.83	1.86
J464	559.4	78.3	77.78	740.47	739.12	0.4	1.87
J466	508.23	100.42	56.88	740.45	739.12	0.39	0.93
J468	569.73	73.82	54.31	740.45	739.13	0.79	0.76
J470	557.45	79.13	55.6	740.45	739.15	1.03	1.02
J472	534.74	88.95	59.91	740.45	739.17	0.75	8.85
J474	542.69	85.52	48.83	740.45	739.18	0.95	10.09
J476	589.53	65.26	81.15	740.45	739.09	0.75	0.7
J478	581.78	68.62	75.23	740.45	739.19	0.48	2.34

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
J480	534.39	89.11	73.22	740.45	739.1	1.38	1.1
J482	540.41	86.57	47.23	740.6	739.12	0.44	1.69
J484	564.93	75.96	54.91	740.59	739.15	1.6	1.88
J486	666.28	102.49	40.69	903.29	739.18	4.07	2.12
J488	806.19	92.96	80.18	1021.18	739.23	3.03	1.19
J490	776.8	158.71	59.03	1143.82	739.13	2.12	2
J492	897.84	70.5	63.02	1060.87	739.11	1.88	0.97
J494	718.27	79.37	59.39	901.82	739.21	1.03	7.54
J496	713.62	81.38	91.65	901.82	1088.33	0.72	6.02
J498	528.12	91.86	94.05	740.54	1088.03	2.08	4.6
J500	860.68	58.12	112.97	995.07	1087.48	1.26	1.03
J502	1072.52	35.41	102.54	1154.41	1087.77	2.06	4.55
J504	701.55	89	91.22	907.36	1088.64	2.6	4.2
J506	577.91	70.34	110.71	740.57	1087.43	1.42	9.12
J508	559.24	78.41	112.14	740.56	1087.58	1.38	2.49
J510	613.55	54.93	111.49	740.57	1087.58	0.59	3.5
J512	610.58	56.21	116.88	740.57	1087.41	0.79	5.94
J514	600.62	60.52	96.3	740.58	1087.32	0.54	4.18
J516	626.27	49.43	96.27	740.58	1087.32	0.62	4.72
J518	551.42	81.79	65.97	740.55	954.11	0.51	4.86
J520	629.89	47.86	47.87	740.56	954.02	1.31	6.04
J522	612.16	55.53	67.57	740.57	954.01	1.72	6.93
J524	645.08	41.3	45.02	740.58	954.08	1.65	3.24
J526	553.83	80.76	37.23	740.59	954.08	0.44	2.8
J528	602.63	59.65	54.5	740.57	954.04	2.18	1.94
J530	593.37	63.65	55.02	740.56	954.08	0.3	1.64
J532	601.87	59.98	65.01	740.59	954.13	0.48	3.97
J534	876.39	75.39	61.74	1050.72	954.06	1.66	2.92
J536	870.53	77.92	48.04	1050.72	954.54	1.65	7.9
J538	826.23	97.08	50.03	1050.73	954.54	0.32	8.35
J540	850.66	86.52	91.86	1050.72	1087.32	0.78	5.7
J542	877.69	74.83	80.67	1050.72	1087.33	1.03	9.54
J544	831.41	94.85	93.18	1050.74	1087.33	1.93	7.28
J546	828.25	96.21	112.81	1050.72	1087.58	0.71	3.28
J548	829.77	95.55	100.87	1050.72	1087.68	0.91	1.51
J550	817.13	101.01	99.48	1050.72	1087.77	0.99	3.13
J552	864.62	80.46	91.45	1050.69	1087.32	0.97	2.47
J554	864.71	80.43	100.95	1050.69	1087.68	0.17	3.81
J556	801.55	107.66	53.93	1050.5	739.12	1.61	1.93
J558	843.33	89.59	87.11	1050.5	739.08	1.03	2.82
J560	797.75	109.3	117.19	1050.5	1151.01	1.78	0
J564	849.97	86.72	121.47	1050.5	1150.9	1.11	0
J566	867.99	78.92	121.33	1050.5	1025.58	1.11	0
J568	828.01	96.21	107.94	1050.5	1026.41	0.82	0
J570	826.84	96.72	48.3	1050.5	861.69	0.63	0

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
J572	803.81	106.68	126.46	1050.5	1151.43	2.21	0
J574	811.29	103.44	65.56	1050.5	954.61	1.71	0
J578	838.84	91.59	6.92	1050.64	996	1.53	0
J580	874.9	76.02	89.07	1050.69	1089.97	1.33	0
J582	900.77	64.83	104.2	1050.69	1089.96	2.65	0
J586	871.85	77.34	73.84	1050.69	953.76	1.26	0
PMP-1_ND	792	97.82	93.71	1018.21	1008.7	0.04	0.1
PMP-1_NU	780.51	1.73	1.16	784.51	783.2	0.04	0.1
PMP-10_ND	792	97.99	93.91	1018.59	1009.17	0.92	2.37
PMP-10_NU	777.5	3.05	2.6	784.56	783.51	1	2.58
PRV-108_ND	941.08	97.24	90.97	1165.96	1151.45	0.53	0.75
PRV-108_NU	946.02	95.33	88.85	1166.47	1151.48	0.45	0.61
PRV-11_ND	776.09	110	104.99	1030.45	1018.87	0.14	0.25
PRV-11_NU	776.15	152.67	107.61	1129.19	1024.99	0.08	0.18
PRV-131_ND	567	75.18	74.91	740.86	740.24	0	6.61
PRV-131_NU	567	184.92	184.44	994.63	993.51	0.21	6.05
PRV-19_ND	911.55	100.42	93.26	1143.77	1127.22	0.79	1.31
PRV-19_NU	898.78	138.41	98.78	1218.85	1127.22	0.34	0.66
PRV-32_ND	654.31	108.12	90	904.35	862.44	0	0.41
PRV-32_NU	657.83	208.58	159.13	1140.17	1025.83	0.14	0.44
PRV-6_ND	629	118.38	99.98	902.74	860.19	3.71	8.96
PRV-6_NU	615.55	124.26	105.93	902.9	860.52	4.92	3.88
PRV-60_ND	734.73	80	80	919.73	919.73	0.07	0.72
PRV-60_NU	755.25	103.73	103.78	995.13	995.24	0	0.67
PRV-71_ND	673	42	40	770.12	765.5	0.41	0.65
PRV-71_NU	673	106.69	106.68	919.72	919.69	0.69	1.18
PRV-90_ND	947.22	85	77.84	1143.78	1127.22	1.09	2.56
PRV-90_NU	941.01	123.86	80.52	1227.44	1127.22	0.21	0.46
SADDLE_CRK_ND	935.32	50	67	1050.95	1090.26	2.41	5.56
SADDLE_CRK_NU	949.61	87.5	87.29	1151.95	1151.46	2.38	4.29
U7008_ND	949.64	79.26	78.62	1132.94	1131.45	0	0
U7008_NU	949.03	26.75	28.1	1010.88	1014.01	0	0
V8002_ND	735.82	75.34	54.43	910.05	861.69	0.14	1.14
V8002_NU	743.06	72.7	51.3	911.19	861.69	0.82	1.11
V8006_ND	859.57	86.72	84.48	1060.11	1054.94	0.14	0.4
V8006_NU	858.55	145.09	116.2	1194.07	1127.25	0.11	0.21
V8010_ND	740.75	70.21	52.99	903.12	863.29	0.11	0.14
V8010_NU	739.89	124.32	120.42	1027.38	1018.35	0.12	0.16
V8012_ND	869.41	83	82.98	1061.34	1061.3	0.65	0.84

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
1	538.04	87.32	84.93	739.96	734.44	1.26	1.58
2	786.43	99.52	95.1	1016.57	1006.36	1.36	6.3
3	681.44	93.36	76.33	897.33	857.96	5.33	23.44
4	567	75.15	74.55	740.78	739.4	0	44.36
6	705.65	82.86	65.84	897.28	857.91	1.89	5.5
8	721.66	75.95	58.92	897.28	857.9	3.98	19.81
9	621.35	119.56	102.86	897.82	859.21	18.41	136.06
10	779.87	2.03	1.56	784.56	783.46	7.7	96.33
12	951.9	82.97	75.76	1143.76	1127.1	2.18	6.6
13	877.39	50.81	50.27	994.9	993.65	1.44	8.16
15	774.07	94.8	94.2	993.28	991.92	1.85	4.77
16	834.78	68.3	67.19	992.72	990.15	1.62	14.8
17	806.44	80.48	79.16	992.53	989.5	0.44	36.43
18	964.64	77.45	70.25	1143.75	1127.1	3.64	7.81
19	887.94	142.42	103.43	1217.29	1127.12	0.97	3.02
20	938.74	124.27	81.46	1226.11	1127.11	0.03	0.85
21	865.15	148.81	113.3	1209.27	1127.14	1.41	6.03
22	859.02	144	115.99	1192.02	1127.25	2.68	5.73
23	945.35	95.08	88.47	1165.21	1149.95	2.56	10.11
24	1063.28	40.72	37.76	1157.45	1150.61	2.47	13.61
25	1046.39	45.67	45.4	1152	1151.37	1.38	6.01
26	945.86	86.16	88.24	1145.1	1149.9	2.02	5.34
27	871.38	114.83	120.01	1136.93	1148.9	1.01	2.71
28	867.87	83.47	83.41	1060.89	1060.76	1.29	2.21
29	650.94	204.76	161.56	1124.44	1024.54	1.78	6.22
31	653.69	107.61	90.27	902.55	862.43	1.73	4.13
32	662.57	103.78	85.72	902.55	860.79	1.45	3.14
33	603.35	129.21	111.21	902.15	860.52	1.72	2.89
34	566.28	145	127.24	901.6	860.51	0.26	0.16
35	618.37	121.04	103.78	898.28	858.36	23.89	59.22
36	644.16	109.7	92.63	897.83	858.36	16.37	29.08
37	680.06	93.95	76.96	897.33	858.03	3.36	10.29
38	714.38	79.09	62.07	897.28	857.91	1.53	39.59
39	692.27	88.62	71.62	897.21	857.89	7.49	6.09
40	703.92	83.58	66.57	897.2	857.87	15.61	33.12
41	698.26	86.02	69.01	897.18	857.85	2.95	5.71
43	703.23	83.81	66.82	897.04	857.75	3.49	5.96
44	725.91	74	57	897.04	857.73	0.91	12.57
45	713.22	79.46	62.49	896.98	857.73	1.63	3.82
46	722.26	75.55	58.57	896.98	857.69	5.73	29.25
47	723.42	75.05	58.08	896.98	857.73	5.51	11.69
48	685.3	91.67	74.69	897.29	858.01	0.88	3.98
49	696.69	86.75	69.74	897.28	857.95	2.84	7.04
50	707.55	82.04	65.02	897.28	857.91	1.35	5.17

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
51	706.24	82.57	65.56	897.18	857.85	3.99	9.83
52	709.45	81.12	64.12	897.04	857.74	0.86	1.65
53	718.43	77.21	60.23	896.98	857.71	1.97	4.14
54	817.93	75.61	72.7	992.78	986.05	2.18	17.41
56	845.57	63.77	61.95	993.03	988.84	1.26	20.46
57	816.3	76.47	75.02	993.14	989.79	1.67	12.95
58	720.04	86.35	86.32	919.72	919.66	0.24	1.32
59	708.04	91.54	91.5	919.72	919.63	0.66	3.06
60	619.99	64.92	62.88	770.12	765.41	0.98	2
61	608.19	70.02	67.99	770.12	765.41	0.47	2.26
62	577.27	83.36	81.13	770.05	764.89	2.05	6.69
63	591.33	77.27	74.94	770.01	764.64	0.9	3.21
64	543.68	97.92	95.88	770.11	765.4	2.96	7.51
65	563.81	89.21	87.18	770.11	765.41	7.77	9.17
66	533.89	102.14	99.74	770.09	764.54	3.15	35.28
67	727.29	83.21	83.16	919.72	919.6	0.74	4.07
69	576.73	83.58	81.25	770.01	764.62	2.92	9.28
70	555.13	92.92	90.59	770.01	764.62	0.96	2
71	525.23	105.85	103.52	770.01	764.62	3.06	6.86
72	535.4	101.45	99.12	770.01	764.62	2.5	5.31
73	552.95	93.86	91.53	770.01	764.62	1.43	4.34
74	579.81	82.25	79.92	770.01	764.63	1.03	3
75	629.92	60.58	58.25	770.01	764.63	0.76	2.6
76	633.33	59.11	56.78	770.01	764.63	1.28	3.75
77	623.62	63.31	60.98	770.01	764.63	0.54	2.45
78	721.81	85.58	85.54	919.72	919.62	1.33	4.84
79	861.51	57.35	56.99	994.14	993.31	3.16	7.05
80	903.62	39.09	37.51	994.01	990.35	2.63	7.21
81	752.55	117.39	114.83	1024.03	1018.1	3.29	6.51
82	912.19	34.96	33.12	993.03	988.78	1.37	4.55
83	922.49	95.69	88.48	1143.76	1127.1	1.17	4.63
84	843.44	64.87	62.6	993.45	988.19	1.42	3.18
85	815.33	76.55	73.93	992.36	986.29	2.51	7.34
87	807.41	80	77.4	992.41	986.39	1.5	2.58
88	792.98	86.21	83.39	992.33	985.83	6.7	17.57
90	764.21	99.07	98.6	993.32	992.22	0	0.87
92	924.4	89.16	88.38	1130.58	1128.78	1.54	3.94
93	639.56	56.46	54.43	770.12	765.44	0.52	1.48
94	545.88	96.94	94.7	770.05	764.88	1.56	5.6
95	811.57	78.03	75.26	992	985.62	6.13	16.11
96	834.88	96.52	90.55	1058.07	1044.28	5.03	17.99
97	892.13	71.9	66.27	1058.4	1045.38	0.81	9.04
98	848.81	87.25	44.28	1050.57	951.2	0.3	12.7
99	934.32	98.5	93.09	1162.1	1149.59	10.51	21.18
100	951.89	88.68	85.45	1156.96	1149.5	6.38	38.22

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
101	1002.17	62.65	63.79	1147.05	1149.67	3.17	9.06
102	962.06	79.03	80.75	1144.83	1148.8	4.68	11.66
103	1056.45	43.68	40.72	1157.45	1150.6	4.92	9.9
104	1103.59	18.79	19.91	1147.04	1149.64	3.27	7.35
105	899.28	104.82	108.16	1141.67	1149.4	4.03	7.93
106	934.44	90.54	93.09	1143.82	1149.71	1.46	4.13
107	849.95	90.95	89.99	1060.28	1058.04	4.29	10.36
108	827.59	100.53	98.12	1060.08	1054.5	2.8	42.35
109	852.47	89.68	87.01	1059.85	1053.67	6.98	16.32
110	878.91	78.35	75.66	1060.1	1053.87	6.64	59.95
111	905	67.07	64.14	1060.09	1053.32	2.64	62.26
112	925.66	58.17	56.13	1060.18	1055.46	0.97	7.98
113	888.5	74.3	73.13	1060.31	1057.6	3.41	10.49
114	810.84	107.7	105.72	1059.9	1055.31	5.22	13.09
115	983.37	69.9	71.75	1145.02	1149.3	4.03	12.27
117	735.52	74.48	54.02	907.77	860.46	2.15	5.98
118	600.36	130.25	112.53	901.57	860.59	2.62	4.56
119	742.64	68.76	51.43	901.66	861.58	2.01	12.49
120	776.41	136.8	105.98	1092.77	1021.48	2.3	5.82
121	745.33	67.67	50.39	901.81	861.85	5.44	10.08
122	776.99	109.44	104.55	1030.07	1018.76	7.88	15.19
123	499.12	104.37	102.9	740.47	737.08	0.51	3.23
124	510.2	99.54	97.84	740.38	736.45	0.43	3.4
125	508.72	100.17	98.47	740.37	736.43	0.85	29.21
126	527.63	91.91	90.03	740.18	735.82	3.16	2.13
128	536.37	88.11	86.09	740.13	735.45	0.06	1.13
129	533.92	89.17	87.13	740.12	735.41	0.34	0.61
130	523.21	93.85	92.13	740.24	736.25	0.65	0.62
131	520.75	94.96	93.26	740.36	736.41	1.25	0.45
132	516.66	96.74	95.03	740.36	736.41	5.93	10.49
134	556.33	79.46	77.28	740.08	735.05	1.05	3.65
135	550.95	81.75	79.29	740	734.29	2.87	5.43
136	543.94	84.78	82.32	740	734.29	2.15	6.27
137	556.73	79.23	76.62	739.95	733.9	1.51	18.63
138	562.09	76.91	74.25	739.94	733.8	2.33	5.61
139	541.87	85.65	82.97	739.93	733.75	1.92	3.61
140	544.26	84.61	81.93	739.93	733.72	1.03	2.3
141	541.79	85.68	82.99	739.93	733.7	0.41	1.08
142	550.01	82.13	79.45	739.93	733.72	1.78	4.16
143	575.52	71.1	68.41	739.93	733.72	1.97	4.36
144	540.87	86.08	83.36	739.92	733.64	0.41	1.31
145	544.5	84.51	81.77	739.92	733.6	1.68	3.51
146	553.75	80.5	77.69	739.9	733.42	0.94	2.82
147	550.04	82.1	79.24	739.89	733.28	0.82	52.05
148	534.94	88.62	85.74	739.88	733.21	2.09	6.37

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
149	528.39	91.46	88.57	739.88	733.21	1.66	3.34
150	523.71	93.47	90.59	739.87	733.2	6.95	14.2
151	544.26	84.61	81.93	739.93	733.74	0.81	1.62
152	533.46	89.28	86.55	739.92	733.61	2.66	4.97
349	840	91.04	47.96	1050.52	950.91	0.47	16.49
350	834	93.63	50.1	1050.52	949.85	1.26	24.58
352	813.88	102.3	58.97	1050.45	950.24	0	28.74
353	819.05	100.06	111.2	1050.43	1076.21	0.2	13.66
354	822.97	98.33	109.51	1050.35	1076.21	2.56	11.82
355	827.23	96.49	107.82	1050.35	1076.57	0.7	3.24
356	836.65	92.41	103.94	1050.35	1077	1.6	4.31
357	850.55	86.4	98.16	1050.35	1077.54	0.38	3.36
358	859.81	82.39	94.34	1050.34	1077.97	0.85	7.9
359	866.91	79.32	91.27	1050.34	1077.97	0.12	11.37
361	832.32	94.26	105.4	1050.3	1076.05	2.27	18.47
366	883.75	72.04	86.43	1050.34	1083.61	1.92	13.91
377	843.86	89.25	100.37	1050.26	1075.97	0.44	16.46
384	887.47	70.39	81.43	1050.26	1075.78	1.74	10.52
385	885.82	71.11	82.13	1050.26	1075.75	1.99	6.06
386	884.7	71.59	82.62	1050.26	1075.75	0.32	12.85
387	882.56	72.52	83.54	1050.26	1075.75	0.51	10.84
388	884.75	71.57	82.6	1050.26	1075.75	2	13.54
390	801.4	107.61	118.6	1050.26	1075.67	4.01	28.67
391	783.52	115.35	126.34	1050.26	1075.67	0.46	14.87
392	858.98	82.72	93.76	1050.27	1075.8	2.18	10.24
393	849.18	86.96	98.01	1050.27	1075.83	1.21	12.29
394	845.84	88.4	99.52	1050.27	1075.98	0.82	7.17
395	861.44	81.65	92.68	1050.26	1075.76	1.9	12.41
396	858.51	82.92	93.92	1050.26	1075.71	0.94	11.32
397	803.9	106.53	117.53	1050.26	1075.69	0.1	15.08
398	768.6	121.8	71.67	1050.26	934.35	0	11.6
399	837.59	91.91	43.49	1050.13	938.16	2.03	9.62
401	780.13	116.59	67.59	1049.74	936.44	37.85	9
402	785.79	114.14	65.16	1049.75	936.48	0.08	2.46
403	785.12	114.43	65.45	1049.75	936.48	4.3	13.06
404	782.25	115.68	66.73	1049.77	936.57	1.63	5.85
405	798.23	108.82	60.52	1049.88	938.19	0.98	23.06
406	813.21	102.37	54.04	1049.92	938.17	2.58	26.03
407	827.84	96.08	47.71	1050.01	938.16	4.17	25.59
408	784.09	114.88	65.77	1049.76	936.18	1.4	5
409	817.14	100.59	51.26	1049.75	935.68	2.88	12.17
410	807.55	104.74	55.3	1049.75	935.45	2.75	10.26
411	824.98	97.2	47.84	1049.75	935.61	0.23	9.17
412	825.36	97.04	47.74	1049.76	935.76	0.75	6.28
425	747.27	131.02	80.94	1050.26	934.45	0	9.43

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
429	841.08	90.24	40.77	1049.75	935.36	0.75	13.63
430	743.74	132.55	82.43	1050.26	934.35	0	10.84
431	735.14	136.27	86.15	1050.26	934.36	0	11.88
432	740.6	133.91	83.82	1050.26	934.42	0	6.2
433	766.64	122.65	72.52	1050.26	934.35	0	19.43
434	747.3	131.01	80.89	1050.26	934.35	0	20.83
435	737.78	122.25	121.05	1020.49	1017.7	2.73	4.58
438	756.17	112.85	112.53	1017.14	1016.39	9.18	17.02
439	759.9	110.09	110.47	1014.48	1015.36	7.92	22.87
440	688.95	91.96	74.42	901.61	861.03	2.89	5.56
441	738.18	117.8	119.23	1010.59	1013.9	7.58	17.1
442	771.23	102.85	103.96	1009.08	1011.65	2.12	5.04
443	765.43	105.66	106.81	1009.78	1012.43	3.18	12.57
444	839.79	73.07	73.93	1008.76	1010.75	2.63	9.73
445	799.99	90.47	91.42	1009.19	1011.4	6.42	10.76
446	833.9	75.27	76.11	1007.96	1009.89	10.3	24.03
447	849.17	68.53	69.27	1007.65	1009.36	8.7	15.86
448	884.1	53.19	53.71	1007.1	1008.3	4.87	8.71
449	874.1	57.05	57.79	1006.03	1007.75	1.52	2.99
450	873.19	57.05	57.64	1005.11	1006.47	3.84	7.38
451	824.25	78.44	79.17	1005.64	1007.32	4.83	8.12
453	880.41	53.81	54.49	1004.85	1006.42	6.58	11.25
458	508.05	100.28	97.85	739.95	734.33	1.61	2.09
459	519.21	95.45	92.95	739.93	734.17	2.05	22.7
460	589.95	64.85	62.37	739.93	734.19	0.98	2.11
461	565.26	75.52	72.99	739.91	734.04	0.77	1.72
462	549.97	82.13	79.6	739.91	734.04	1.21	2.92
463	519.26	95.39	92.72	739.85	733.68	1.64	3.33
464	550.67	81.8	79.08	739.83	733.55	0.06	3.84
465	549.25	82.39	79.56	739.77	733.22	2.3	4.68
466	564.63	75.73	72.87	739.76	733.15	1.45	2.78
467	567.13	74.65	71.78	739.75	733.12	1.48	3.06
468	603.31	58.99	56.1	739.73	733.03	1.04	2.93
469	513.51	97.84	94.99	739.76	733.17	1.68	2.83
470	531.16	90.2	87.33	739.75	733.1	0.94	2.21
471	556.62	79.19	76.29	739.74	733.05	1.38	3.17
472	562.66	76.57	73.67	739.74	733.02	0.8	1.12
473	554.73	80.01	77.1	739.75	733.03	2.07	9.28
474	548.54	82.68	79.77	739.74	733.02	0.9	1.43
475	561.88	76.91	74.01	739.74	733.03	0.93	1.99
476	593.58	63.21	60.31	739.74	733.04	1.3	2.27
477	590.2	64.66	61.76	739.73	733.01	0.67	1.12
478	612.66	54.95	52.03	739.72	732.98	2.14	3.61
479	538.73	86.92	84.02	739.74	733.02	2.53	5.25
480	562.63	76.59	73.69	739.74	733.04	0.56	1.7

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
481	547.46	83.15	80.24	739.74	733.02	1	1.52
482	592.31	63.74	60.8	739.71	732.9	0.64	1.96
483	550.42	81.86	78.93	739.72	732.94	0.6	1.68
484	544.48	84.42	81.48	739.71	732.91	0.77	1.62
485	538.5	87.01	84.05	739.7	732.87	2.05	2.89
486	536.65	87.81	84.86	739.7	732.89	0.5	0.96
487	506.85	100.69	97.74	739.7	732.87	3.84	5.87
488	545.87	83.82	80.88	739.7	732.89	0.53	1.16
489	525.29	92.72	89.77	739.7	732.89	0.51	1.38
490	525.38	92.68	89.73	739.7	732.89	0.59	1.55
491	567.3	74.55	71.61	739.7	732.9	0.27	0.66
492	526.77	92.08	89.13	739.7	732.88	3.59	7.53
493	555.42	79.69	76.73	739.7	732.86	5.85	17.27
494	704.27	83.46	66.44	897.28	857.91	11.69	43.69
496	884.45	51.72	52.65	1004.05	1006.21	4.42	7.4
497	781.61	1.25	0.66	784.51	783.14	0.07	10.53
500	792	97.81	93.09	1018.19	1007.28	0.13	0.45
780	882.24	52.96	53.62	1004.7	1006.23	5.18	10.08
J10	837	72.48	72.62	1004.62	1004.94	29.61	49.64
J12	852.42	66.02	66.19	1004.67	1005.06	9.37	20.34
J14	881.62	74.09	74.27	1004.67	1005.08	12.08	25.34
J16	602.8	62.71	63.34	1004.82	1006.28	4.78	13.21
J-17	841.69	72.29	71.94	1128.06	1127.26	1.14	3.43
J18	951.42	66.26	66.98	1005.64	1007.31	2.69	7.81
J-18	886.74	74.17	73.8	1128.04	1127.18	2.94	4.93
J-19	750.42	78.31	77.93	1128.03	1127.17	4.69	7.86
J20	1137.96	78.95	79.67	1005.64	1007.31	3.92	7.78
J-21	815.88	71.9	71.26	1129.58	1128.1	1.34	5.49
J22	551.88	59.96	59.56	1128.2	1127.27	5.4	17.54
J-22	526.5	12.76	11.8	1000.34	998.11	1.11	3.03
J-23	776.09	4.53	4.45	996.19	996	0.38	2.73
J24	901	65.73	65.28	1128.39	1127.35	3.11	9.59
J-24	883	95.6	89.74	1058.06	1044.49	0.88	7.12
J-25	840	76.3	70.35	1058.06	1044.31	2.95	11.02
J26	791.1	52.03	52.04	1126.8	1126.82	13.39	25.51
J-26	808	63.03	60.08	739.7	732.88	1.01	1.93
J-27	834.89	100.87	97.92	739.7	732.89	6.53	5.72
J28	876.5	54.12	54.23	1126.91	1127.18	6.43	20.76
J-28	882.82	89.07	86.13	739.7	732.89	0.43	1.34
J-29	734.55	66.64	63.69	739.7	732.89	1.05	2.17
J30	754.84	57.99	57.82	1127.62	1127.22	4.27	19.13
J-30	813.49	70.07	67.13	739.7	732.89	0.89	2.06
J-31	706.36	69.4	66.46	739.7	732.89	0.51	1.07
J32	613.07	62.77	62.34	1128.27	1127.27	4.67	10.42
J-32	631.99	59.21	56.31	739.73	733.01	2.14	4.73

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
J-33	667.18	76.42	73.52	739.73	733.03	2.22	3.32
J34	949.37	64.26	63.87	1128.17	1127.26	4.29	11.65
J-34	931.22	61.28	58.37	739.74	733.02	0.58	1.09
J-35	813.8	89.52	86.81	739.83	733.55	0.88	2.16
J36	887.49	76.47	76.05	1128.17	1127.18	1.29	8.72
J-36	882.41	65.92	65.56	994.14	993.31	0.79	3.61
J-38	840.22	32.77	30.93	993.03	988.79	1.32	3.35
J-39	924.79	64.64	62.37	993.45	988.19	1.51	5.6
J40	803.07	64.89	64.37	1126.67	1125.45	12.87	37.12
J-40	833.16	118.11	71.41	1134.74	1026.74	3.13	6.66
J-41	824.58	85.98	85.07	1060.45	1058.35	1.06	5.15
J-42	588.37	46.9	44.26	1059.88	1053.77	4.55	11.7
J-43	532.45	50.67	51.66	1003.92	1006.21	2.47	4.14
J44	527.61	100.11	82.52	901.57	860.89	22.18	41.73
J-44	512.8	79.02	78.1	1131.76	1129.63	4.95	16.45
J-45	581.97	55.98	55.75	995.17	994.64	0.47	5.48
J46	554.96	97.4	79.85	901.61	861.02	2.11	6.52
J48	616.74	200.05	157.9	1121.34	1023.88	2.78	4.66
J50	851.31	154.09	117.91	1106.75	1023.08	4.93	8.26
J-50	788.24	123.74	80.94	1226.11	1127.12	2.46	5.56
J-51	607.58	111.69	113.7	1145.07	1149.72	3.83	9.53
J52	565.22	73.43	89.92	1050.65	1088.8	0.24	4.22
J-52	569.79	97.97	93.3	1018.57	1007.76	3.91	13.14
J60	826.7	7.08	7.08	1152	1152	2.57	6.75
J62	854.43	6.07	6.07	1152	1152.01	1.26	3.04
J64	857.71	6.56	6.56	1152	1152	0.16	0.34
J66	875.84	110.63	112.46	1145.01	1149.24	4.02	11.74
J68	854.24	76.34	74.33	1060	1055.35	1.31	6.56
J70	614.4	87.22	86.52	1060.56	1058.93	0.38	3.69
J72	537.63	66.43	63.71	992.1	985.83	2.31	5.37
J74	880	104.64	98.14	1057.87	1042.83	8.51	21.89
J76	870	155.11	117.37	1214.4	1127.12	3.22	7.47
J78	745	150.57	112.83	1214.4	1127.13	0.85	2.49
J82	776.8	4.82	4.73	996.19	996	1.45	3.75
J84	750	94.46	87.26	1143.75	1127.1	1.65	4.91
J86	859	83.16	82.07	993.21	990.69	1.04	12.85
J88	803	81.24	78.39	739.76	733.15	0.96	1.69
J90	980	92.26	89.56	739.84	733.6	0.11	2.13
J92	980	96.62	93.67	739.7	732.87	1.42	3.63
J94	884	81.62	64.64	896.99	857.74	2.6	5.44
J96	849	74.84	57.96	896.94	857.92	20.64	24.83
J98	783	121.64	120.39	1020.46	1017.55	0.14	0.24
J100	851.99	69.77	52.71	902.59	863.13	2.13	3.94
J102	833.34	109.84	104.95	1030.08	1018.79	3.66	7.98
J104	859.8	21.58	24.97	998.18	1006.03	0	0

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
J108	960.9	94.27	94.1	1128	1127.61	0.36	29.57
J120	956.52	113.04	95.65	898.86	858.63	17.59	29.47
J124	946.95	74.73	71.95	739.8	733.37	6.07	2.73
J126	823.07	93.84	93.68	1128	1127.62	3.12	0
J128	963.31	98.16	97.98	1128	1127.57	0.2	0
J130	989.53	105.95	105.76	1128	1127.57	0.2	0
J132	970.83	100.76	100.57	1128	1127.57	1.07	0
J134	985.72	95.13	94.95	1128	1127.57	0.74	0
J136	976.39	96.43	96.25	1128	1127.57	0	0
J138	836.98	95.13	94.95	1128	1127.57	0	0
J140	1006.48	90.6	46.71	1050.51	949.01	3.04	0
J142	593.95	91.03	46.49	1050.51	947.52	3.69	0
J144	506.45	93.19	48.06	1050.5	946.14	4.72	0
J146	1001.76	95.35	50.22	1050.49	946.14	9.34	0
J148	533.72	96.22	51.68	1050.51	947.52	2.65	0
J150	585.61	97.95	54.06	1050.51	949.01	1.66	0
J152	993.52	102.68	59.28	1050.45	950.09	0	0
J154	577.66	133.43	99.96	1099.65	1022.27	3.09	6.81
J156	579.21	104.84	61.37	1050.45	949.91	0.84	0
J158	983.11	47.73	48.82	1003.68	1006.2	2.78	4.65
J160	563.01	44.96	46.09	1147.05	1149.66	3.52	7.98
J162	979.56	63.7	61.88	993.03	988.83	0.75	1.7
J164	598.04	51.72	52.39	1004.77	1006.32	8.51	19.11
J166	532.8	62.74	63.38	1004.82	1006.3	11.01	22.66
J168	951.33	73.71	74.42	1005.34	1006.98	6.33	14.19
J170	917.25	55.58	56.27	1005.05	1006.66	6.83	14.24
J172	843.97	55.91	56.54	1004.81	1006.28	6.81	12.96
J174	976.6	54.28	54.89	1004.96	1006.37	5.57	12.41
J176	861.6	58	58.59	1005.17	1006.55	6.77	15.16
J178	861.62	58.65	59.34	1005.72	1007.3	11.85	20.68
J180	670.07	56.06	56.87	1006.14	1008.01	2.11	6.19
J182	949.02	53.79	54.36	1007.21	1008.53	3.84	8.47
J184	865.72	61.58	62.2	1007.63	1009.06	8.77	14.69
J186	676.37	82.39	83.15	1008.3	1010.06	8.7	14.8
J188	658.73	85.43	86.33	1008.95	1011.02	4.13	9.57
J190	939.95	97.15	98.16	1009.36	1011.69	5.93	10.61
J192	886.8	115.33	116.65	1010.05	1013.12	9.94	17.56
J194	880.85	118.93	120.15	1009.58	1012.4	3.47	11.95
J196	792	95.69	96.71	1008.66	1011.01	8.18	15.48
J198	1135.63	56.32	56.99	1007.42	1008.95	6.46	12.58
J200	1136.83	104.66	104.76	1015.55	1015.78	6.51	14.88
J202	889.17	119.34	118.53	1018.98	1017.11	7.98	14.6
J204	883.46	119.9	118.19	1021.8	1017.85	1.41	2.72
J206	858.87	116.69	113.88	1024.68	1018.18	3.1	7.22
J208	838.49	123.01	90.2	1097.96	1022.07	1.92	7.67

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
J210	855.7	145.54	111.1	1102.2	1022.56	6.88	15.62
J212	866.2	71.33	51.15	907.11	860.45	1.18	3.78
J214	985.05	91.99	72.3	905.98	860.44	3.69	13.48
J216	925.32	113.86	94.79	904.54	860.44	5.54	10.54
J218	800.9	111.6	93.15	903.13	860.47	6.25	10.78
J220	516.26	85.62	66.7	904.35	860.62	3.16	9.05
J222	708.26	99.2	81.65	902.55	861.98	2.42	7.93
J224	723.89	106.93	89.1	902.55	861.31	2.67	6.05
J226	739.15	102.62	84.58	902.55	860.83	1.11	2.31
J228	741.24	133.89	115.97	901.96	860.52	0.67	1.12
J230	948.29	144.56	126.81	901.59	860.53	3.64	2.14
J232	910	124.7	107.03	901.45	860.59	8.1	5.87
J234	637.45	116.41	98.85	901.18	860.58	42.58	20.92
J236	566.99	101.79	84.25	901.15	860.6	41.42	19.49
J238	911	100.12	82.59	901.18	860.65	24.89	33.95
J240	895	68.6	51.2	901.52	861.27	8.94	21.41
J242	908	87.22	69.72	901.62	861.15	4.31	16.36
J244	905	75.09	57.66	901.71	861.4	6.91	19.71
J246	908	101.37	83.82	901.61	861.02	2.88	7.36
J248	841	91.97	74.4	901.59	860.96	2.65	6.5
J250	835	68.05	50.88	902.23	862.54	6.5	15.08
J252	830	137.55	119.89	900.79	859.96	14.39	5.01
J254	828	98.6	88.94	1171.95	1149.61	8.36	29.72
J256	824	101.29	89.22	1177.32	1149.41	6.2	25.48
J258	813	100.52	86.45	1181.82	1149.28	6.23	12.92
J260	893.31	109.59	94.26	1184.64	1149.21	4.12	15.04
J262	1043.08	85.27	79.42	1058.06	1044.54	2.26	5.89
J264	845.73	149.38	118.57	1198.45	1127.2	4.83	11.16
J266	885.18	150.87	117.24	1204.94	1127.16	3.74	9.04
J268	859.73	153.71	116.65	1212.84	1127.13	1.91	4.59
J270	876.53	82.24	79.59	992.4	986.28	1.37	3.36
J272	875.53	77.18	74.52	992.27	986.13	4.7	13.05
J274	879.44	76.09	73.4	992.16	985.94	4.33	13.44
J276	871.06	79.62	76.89	992.05	985.72	6.38	11.94
J278	870.08	97.82	91.33	1057.87	1042.87	14.33	40.57
J280	865.23	100.47	94.14	1057.94	1043.3	12.51	42.29
J282	817.78	79.36	73.59	1058.27	1044.92	3.8	14.51
J284	811.39	73.94	68.43	1058.48	1045.74	2.64	13.21
J286	784.69	76.24	71.11	1058.72	1046.86	3.25	19.19
J288	743.35	67.62	69.46	1145.01	1149.28	4.86	13.58
J290	787.38	52.38	52.62	1150.48	1151.04	3.16	9.99
J292	877.17	74.09	75.3	1147.63	1150.44	1.86	10.46
J294	773.52	88.51	90.92	1144.19	1149.77	0.4	1.77
J296	743.01	85.97	84.37	1060.1	1056.39	7.42	14.6
J298	744.53	84.98	83.93	1060.28	1057.86	7.58	13.48

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
J300	765.64	85.91	85.67	1060.76	1060.21	3.4	7.06
J302	742.17	77.49	76.35	1060.29	1057.66	4.36	8.25
J304	693.25	60.65	58.56	1060.17	1055.33	4.26	9.85
J306	641.25	92.44	89.76	1060.08	1053.89	10.23	65.23
J308	645.05	95.01	92.43	1059.94	1053.97	5.77	17.23
J310	673.16	81.95	78.32	1059.45	1051.05	4.56	19.91
J312	655.27	70.65	66.16	1059.05	1048.66	4.92	21.31
J314	665.25	99.99	102.58	1143.06	1149.05	7.36	15.98
J316	592.35	86.28	87.78	1145.28	1148.76	0	19.65
J318	567.29	89.78	90.45	1147.17	1148.71	2.33	23.5
J320	665.77	96.91	96.83	1148.89	1148.71	2.21	27.55
J322	669.66	83.88	82.29	1152.52	1148.84	9.9	34.91
J324	742.87	33.55	32.77	1151.36	1149.56	2.39	8.3
J326	699.92	82.97	80.19	991.97	985.54	17.37	40.72
J328	728.06	82.29	79.5	992.01	985.56	36.57	81.49
J330	688.91	88.32	85.54	991.97	985.54	18.9	44.36
J332	744.87	81.87	79.04	992.39	985.84	7.57	22.95
J334	582.71	68.89	66.04	992.48	985.87	6.11	19.65
J336	943.95	68.12	65.23	992.62	985.95	3.64	11.07
J338	943.08	62.55	60.25	992.92	987.61	2.59	19.94
J340	860.87	55.92	54.09	993.03	988.81	1.87	6.5
J342	853	35.56	33.73	993.03	988.78	1.71	5.21
J344	856.05	57.77	57.49	994.71	994.05	2.53	7.56
J346	857.38	73.25	72.86	993.97	993.08	1.02	4.56
J348	802.22	88.04	88	919.72	919.63	1.01	4.99
J350	816.2	89.74	89.69	919.72	919.61	1.08	6.75
J352	807.92	84.18	84.12	919.72	919.6	1.79	5.23
J354	831.67	79.97	77.65	770.09	764.73	3.01	12.08
J356	825.61	80.48	78.27	770.1	764.98	2.49	9.13
J358	874.75	78.59	76.46	770.11	765.17	1.51	4.69
J360	988.65	79.42	77.26	770.07	765.07	1.88	6.05
J362	1029.35	85.68	83.44	770.05	764.88	0.66	4.24
J364	976.31	86.4	84.07	770.01	764.62	0.47	1.99
J366	939.52	96.28	93.4	739.87	733.2	8.61	7.08
J368	861.29	96	93.12	739.87	733.21	2.67	4.41
J370	863.76	89.7	86.81	739.88	733.21	1.41	21.66
J372	862.09	84.37	81.55	739.9	733.36	0.93	14.27
J374	881.09	83.58	80.8	739.91	733.47	1.99	3.86
J376	919.91	89.25	86.52	739.92	733.62	1.49	3.43
J378	846.31	110.46	65.62	1050.45	946.74	1.02	0
J380	869.93	76.35	73.81	739.91	734.04	0.78	1.95
J382	895.67	91.8	89.21	739.88	733.91	1.56	4.08
J384	911.84	98.19	95.56	739.86	733.78	2.08	5.06
J386	945.77	74.56	71.97	739.88	733.88	0.67	2.79
J388	939.55	90.63	87.77	739.76	733.16	0.7	1.76

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
J390	958.55	83.05	80.25	739.79	733.31	0.93	3.91
J392	1073.77	71.18	68.28	739.73	733.03	2.47	4.8
J394	800.1	64.48	61.57	739.73	733	0.93	1.95
J396	801.72	68.21	65.29	739.72	732.96	1.08	3.17
J398	787.73	86.42	83.5	739.72	732.97	2.13	3.81
J400	835.1	79.54	76.63	739.74	733.02	1.02	2.94
J402	848.27	77.8	74.89	739.74	733.02	1.08	3.03
J404	863.72	83.7	80.79	739.74	733.02	0.71	2.12
J406	910.79	82.06	79.15	739.74	733.02	0.67	2.27
J408	861.11	79.91	77	739.74	733.02	1.51	27.82
J410	716.13	73.86	70.96	739.75	733.05	2.11	5.29
J412	712.2	93.39	90.5	739.75	733.08	1.41	4.01
J414	725.07	77.99	75.09	739.74	733.04	0.68	1.51
J416	585.17	100.1	97.15	739.7	732.89	0.67	2.85
J418	583.99	73.5	70.55	739.7	732.87	1.35	10.59
J420	586.41	78.81	75.85	739.7	732.87	1.76	2.83
J422	571.92	88.63	85.68	739.7	732.87	1.27	3.78
J424	570.21	85.2	82.25	739.7	732.88	1.62	2.91
J426	517.22	64.94	61.99	739.7	732.88	1.27	2.16
J428	517.87	68.29	65.35	739.7	732.9	0.81	1.64
J430	544.79	53.18	50.24	739.71	732.93	1	2.79
J432	546.62	88.78	85.82	739.7	732.86	2.35	5.78
J434	533.54	86.36	84.28	740.11	735.31	0.75	1.3
J436	795	75.73	73.5	740.07	734.9	2.72	8.05
J438	563.35	101.76	84.14	901.59	860.85	6.91	13.95
J440	567.46	87.83	88.84	1009.31	1011.64	5.15	15.86
J442	530.18	152.52	107.6	1129.49	1025.61	3.6	12.21
J444	547.74	70.16	67.29	1060.09	1053.45	3.2	15.2
J446	575.13	77.31	60.31	897.04	857.73	1.74	3.63
J448	590.62	79.32	62.32	897.04	857.73	1.22	3.39
J450	539.87	91.59	88.91	739.93	733.73	3.54	6.16
J452	555.81	61.76	61.4	994.14	993.31	1.57	3.73
J454	559.84	88.65	87.71	993.24	991.06	0.99	4.99
J456	546.18	57.29	55.91	993.17	989.96	2.14	34.78
J458	549.99	35.03	33.93	1153.52	1150.99	3.5	9.48
J460	568.95	88.51	68.74	906.21	860.5	4.42	10.31
J462	523.79	70.1	67.85	740.03	734.82	2.41	4.13
J464	559.4	78.17	75.86	740	734.67	2.34	4.15
J466	508.23	57.26	54.95	740	734.65	1.21	2.06
J468	569.73	54.69	52.4	740.02	734.73	1.01	1.69
J470	557.45	55.98	53.71	740.03	734.79	1.35	2.26
J472	534.74	60.29	58.06	740.05	734.88	0.92	19.65
J474	542.69	49.21	46.99	740.06	734.94	1.05	22.4
J476	589.53	81.54	79.19	739.98	734.54	0.86	1.56
J478	581.78	75.6	73.4	740.05	734.96	2.21	5.19

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
J480	534.39	73.6	71.27	739.99	734.6	1.45	2.43
J482	540.41	47.62	45.3	740	734.65	2.23	3.74
J484	564.93	55.29	53.03	740.03	734.79	2.93	4.18
J486	666.28	41.07	38.86	740.06	734.94	2.81	4.71
J488	806.19	80.54	78.42	740.09	735.17	0.75	2.65
J490	776.8	59.41	57.12	740.02	734.73	3.71	4.44
J492	897.84	63.4	61.08	739.99	734.61	0.51	2.16
J494	718.27	59.76	57.59	740.07	735.04	0.81	16.73
J496	713.62	75.22	88.38	1050.34	1080.78	2.82	13.36
J498	528.12	77.76	90.27	1050.34	1079.27	2.81	10.2
J500	860.68	96.92	108.21	1050.35	1076.47	0.55	2.28
J502	1072.52	86.35	98.3	1050.34	1077.96	1.33	10.1
J504	701.55	74.66	88.49	1050.34	1082.32	1.75	9.33
J506	577.91	94.69	105.86	1050.39	1076.21	3.29	20.24
J508	559.24	96.04	107.57	1050.35	1077	1.21	5.52
J510	613.55	95.39	106.91	1050.35	1076.99	1.54	7.77
J512	610.58	100.84	111.99	1050.33	1076.12	1.67	13.19
J514	600.62	80.28	91.28	1050.26	1075.72	1.66	9.29
J516	626.27	80.24	91.25	1050.26	1075.72	0.29	10.48
J518	551.42	107.33	58.1	1049.76	935.89	2.73	10.79
J520	629.89	89.27	39.86	1049.75	935.5	1.74	13.42
J522	612.16	108.97	59.54	1049.75	935.44	3.02	15.38
J524	645.08	86.39	37.09	1049.75	935.74	1.89	7.19
J526	553.83	78.6	29.3	1049.75	935.74	1.89	6.21
J528	602.63	95.89	46.53	1049.75	935.61	1.39	4.31
J530	593.37	96.4	47.1	1049.75	935.75	1.07	3.65
J532	601.87	106.36	57.16	1049.76	936	3.76	8.8
J534	876.39	103.12	53.79	1049.75	935.68	2.9	6.47
J536	870.53	89.41	40.96	1050.22	938.17	4.08	17.53
J538	826.23	91.37	42.95	1050.13	938.15	2.61	18.53
J540	850.66	75.83	86.84	1050.26	1075.72	2.27	12.66
J542	877.69	64.64	75.67	1050.26	1075.75	4.5	21.17
J544	831.41	77.15	88.18	1050.26	1075.77	2.15	16.17
J546	828.25	96.71	108.24	1050.35	1076.99	1.45	7.28
J548	829.77	84.72	96.48	1050.35	1077.54	1.71	3.36
J550	817.13	83.3	95.24	1050.34	1077.97	0.73	6.96
J552	864.62	75.42	86.43	1050.26	1075.72	0.91	5.48
J554	864.71	84.8	96.56	1050.34	1077.53	1.73	8.45
J556	801.55	54.32	52	740	734.65	1.27	4.28
J558	843.33	87.5	85.13	739.97	734.5	12.07	6.26
J560	797.75	110.87	116.23	1136.38	1148.78	0	0
J564	849.97	114.55	120.42	1134.9	1148.46	0	0
J566	867.99	157.05	120.29	1108.19	1023.16	0	0
J568	828.01	152.36	107.56	1129.14	1025.54	0	0
J570	826.84	69.91	47.76	911.67	860.46	0	0

Node ID	Elevation	Pressure (psi)		Head (ft)		Demand (gpm)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout
J572	803.81	143.82	125.43	1191.58	1149.06	0	0
J574	811.29	106.74	58.48	1049.83	938.23	0	0
J578	838.84	6.85	6.92	995.85	996	0	0
J580	874.9	72.16	88.58	1050.88	1088.85	0	0
J582	900.77	87.17	103.69	1050.59	1088.79	0	0
J586	871.85	115.57	65.45	1050.26	934.35	0	0
PMP-1_ND	792	97.81	93.09	1018.19	1007.28	0.07	0.23
PMP-1_NU	780.51	1.73	1.14	784.51	783.14	0.06	0.22
PMP-10_ND	792	97.97	93.3	1018.57	1007.76	1.56	5.26
PMP-10_NU	777.5	3.05	2.58	784.56	783.46	1.7	5.72
PRV-108_ND	941.08	96.1	90.22	1163.33	1149.73	0.91	1.67
PRV-108_NU	946.02	94.25	88.12	1163.98	1149.8	0.76	1.36
PRV-11_ND	776.09	109.99	104.97	1030.44	1018.83	0.24	0.56
PRV-11_NU	776.15	136.78	106.08	1092.45	1021.45	0.14	0.39
PRV-131_ND	567	75.16	74.62	740.8	739.55	0	14.66
PRV-131_NU	567	183.78	180.55	991.98	984.53	0.36	13.42
PRV-19_ND	911.55	100.41	93.22	1143.75	1127.11	1.34	2.9
PRV-19_NU	898.78	137.73	98.74	1217.29	1127.11	0.59	1.47
PRV-32_ND	654.31	107.34	90	902.55	862.44	0	0.91
PRV-32_NU	657.83	200.43	158.28	1121.34	1023.86	0.25	0.98
PRV-6_ND	629	116.98	99.47	899.51	859.02	6.31	19.89
PRV-6_NU	615.55	122.98	105.42	899.93	859.33	8.36	8.61
PRV-60_ND	734.73	80	79.99	919.73	919.71	0.12	1.59
PRV-60_NU	755.25	102.95	102.45	993.32	992.17	0	1.5
PRV-71_ND	673	42	39.99	770.12	765.49	0.7	1.44
PRV-71_NU	673	106.69	106.61	919.71	919.54	1.16	2.61
PRV-90_ND	947.22	85	77.79	1143.78	1127.11	1.86	5.69
PRV-90_NU	941.01	123.29	80.48	1226.11	1127.11	0.35	1.03
SADDLE_CRK_ND	935.32	50	67	1050.95	1090.26	4.09	12.34
SADDLE_CRK_NU	949.61	87.46	86.38	1151.85	1149.37	4.05	9.52
U7008_ND	949.64	78.82	77.9	1131.91	1129.77	0	0
U7008_NU	949.03	21.21	24.61	998.08	1005.93	0	0
V8002_ND	735.82	75.13	53.9	909.57	860.46	0.24	2.53
V8002_NU	743.06	72.63	50.77	911.01	860.46	1.39	2.46
V8006_ND	859.57	85.83	80	1058.06	1044.57	0.24	0.9
V8006_NU	858.55	144.2	116.19	1192.02	1127.23	0.18	0.47
V8010_ND	740.75	69.99	52.97	902.62	863.26	0.19	0.32
V8010_NU	739.89	121.32	120.01	1020.43	1017.42	0.21	0.35
V8012_ND	869.41	82.99	82.93	1061.33	1061.19	1.11	1.86

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APPENDIX C

PIPELINE REPORTS

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
2	224.83	8	8	2	9	0.01	0.06	0	0	0	0
12	410.58	10	16	133	681	0.55	1.09	0.07	0.15	0.17	0.35
16	184.11	24	24	5520	10703	3.91	7.59	0.44	1.49	2.38	8.1
22	340.19	10	10	1216	-27	4.97	0.11	3.49	0	10.26	0.01
23	623.73	10	10	1213	-33	4.96	0.14	6.37	0.01	10.22	0.01
24	674.63	10	10	-1209	41	4.94	0.17	6.85	0.01	10.15	0.02
26	1,519.42	10	10	883	-132	3.61	0.54	8.62	0.26	5.67	0.17
27	782.42	10	10	878	-143	3.59	0.58	4.4	0.15	5.62	0.19
28	443.41	10	20	441	-1308	1.8	1.34	0.7	0.18	1.57	0.4
29	585.58	10	20	433	1153	1.77	1.18	0.89	0.19	1.51	0.32
33	814.38	8	8	-2	124	0.02	0.79	0	0.36	0	0.44
34	678.2	8	8	-133	-92	0.85	0.59	0.34	0.17	0.51	0.26
35	203.53	8	8	244	86	1.55	0.55	0.32	0.05	1.55	0.23
37	771.46	8	8	85	65	0.54	0.41	0.17	0.1	0.22	0.13
38	1,419.79	8	12	64	109	0.41	0.31	0.19	0.07	0.13	0.05
40	222.73	12	12	1	18	0	0.05	0	0	0	0
41	279.83	8	8	-12	-32	0.08	0.21	0	0.01	0.01	0.04
42	132.13	8	12	59	75	0.38	0.21	0.01	0	0.11	0.02
43	315.88	8	8	14	36	0.09	0.23	0	0.01	0.01	0.04
44	453.84	8	8	-45	-37	0.29	0.24	0.03	0.02	0.07	0.05
45	531.53	8	8	-9	-15	0.06	0.1	0	0	0	0.01
46	345.85	8	8	31	20	0.2	0.12	0.01	0.01	0.03	0.01
47	280.51	6	6	2	4	0.03	0.05	0	0	0	0
50	459.24	6	6	27	13	0.31	0.14	0.05	0.01	0.11	0.03
51	141.01	6	6	3	10	0.03	0.11	0	0	0	0.02
52	277.17	6	6	1	5	0.01	0.05	0	0	0	0
54	379.88	6	12	9	22	0.1	0.06	0.01	0	0.01	0
55	123.91	6	6	5	15	0.05	0.17	0	0	0	0.04
57	645.63	6	6	2	7	0.02	0.08	0	0.01	0	0.01
58	290.12	6	6	-3	-5	0.04	0.06	0	0	0	0.01
61	122.39	10	10	29	73	0.12	0.3	0	0.01	0.01	0.06
62	503.57	6	6	1	2	0.01	0.02	0	0	0	0

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
64	602.87	6	6	1	4	0.02	0.05	0	0	0	0
67	67.92	6	10	-38	-331	0.43	1.35	0.01	0.06	0.2	0.92
70	1,285.19	10	16	134	687	0.55	1.1	0.22	0.46	0.17	0.36
72	452.42	8	8	50	-8	0.32	0.05	0.03	0	0.07	0
73	106.88	10	10	7	9	0.03	0.03	0	0	0	0
74	288.1	10	10	5	4	0.02	0.02	0	0	0	0
75	547.29	6	6	2	3	0.02	0.04	0	0	0	0
76	585.11	6	6	13	30	0.15	0.34	0.02	0.08	0.03	0.13
77	303.75	6	6	1	4	0.01	0.05	0	0	0	0
78	906.1	6	6	9	20	0.11	0.23	0.01	0.06	0.01	0.06
80	134.25	6	6	0	1	0	0.01	0	0	0	0
81	222.66	6	6	1	2	0.01	0.02	0	0	0	0
82	218.49	6	6	4	9	0.05	0.1	0	0	0	0.01
83	316.1	6	6	1	3	0.01	0.03	0	0	0	0
84	498.77	6	6	2	4	0.03	0.05	0	0	0	0
85	189.59	6	6	1	2	0.02	0.03	0	0	0	0
86	227.67	6	6	2	3	0.02	0.04	0	0	0	0
87	370.31	6	6	-1	-2	0.02	0.02	0	0	0	0
88	603.03	6	6	3	6	0.04	0.07	0	0	0	0.01
89	489.43	6	6	6	28	0.07	0.31	0	0.05	0.01	0.11
91	532.39	6	6	5	2	0.06	0.02	0	0	0.01	0
92	258.26	6	10	33	300	0.38	1.22	0.04	0.2	0.16	0.77
94	500.94	6	10	-27	-272	0.3	1.11	0.05	0.32	0.11	0.64
99	312.64	6	6	23	65	0.26	0.74	0.02	0.17	0.08	0.54
100	924.37	6	10	52	255	0.59	1.04	0.33	0.52	0.36	0.57
105	857.96	6	6	13	28	0.15	0.32	0.03	0.1	0.03	0.12
106	500.01	12	12	107	31	0.3	0.09	0.02	0	0.05	0
107	1,910.43	6	6	149	-8	1.69	0.09	4.85	0.02	2.54	0.01
109	431.79	6	8	302	38	3.43	0.24	4.05	0.02	9.39	0.05
110	1,291.62	6	6	149	29	1.7	0.33	3.29	0.16	2.54	0.12
111	1,547.27	6	6	2	3	0.02	0.04	0	0	0	0
112	142.02	10	20	563	1102	2.3	1.13	0.35	0.04	2.46	0.29

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
113	337.83	10	20	561	1100	2.29	1.12	0.83	0.1	2.45	0.29
114	571.88	10	20	693	1065	2.83	1.09	2.07	0.16	3.62	0.27
115	636.4	6	6	138	-24	1.57	0.27	1.4	0.05	2.2	0.09
116	173.04	6	6	3	4	0.03	0.05	0	0	0	0
118	498.71	6	8	52	213	0.59	1.36	0.18	0.6	0.37	1.21
119	779.33	6	6	25	102	0.29	1.16	0.07	0.99	0.1	1.26
120	573.19	6	6	25	55	0.28	0.62	0.05	0.23	0.09	0.4
122	784.61	6	6	-37	-101	0.41	1.15	0.15	0.97	0.19	1.24
123	846.79	6	6	-1	29	0.02	0.32	0	0.1	0	0.12
124	562.93	6	6	3	35	0.04	0.4	0	0.1	0	0.17
125	772	6	6	-15	-63	0.17	0.71	0.03	0.39	0.03	0.51
126	770.74	6	6	-20	-76	0.23	0.86	0.05	0.56	0.06	0.73
129	764.75	6	6	7	-19	0.08	0.22	0.01	0.04	0.01	0.06
134	672.98	6	6	-140	23	1.59	0.26	1.53	0.05	2.27	0.08
135	744.13	6	6	-116	-1	1.31	0.01	1.18	0	1.58	0
136	246.29	8	8	115	-70	0.73	0.45	0.1	0.04	0.39	0.15
137	793.29	8	8	60	-68	0.38	0.43	0.09	0.12	0.12	0.15
138	1,059.86	6	6	15	40	0.18	0.46	0.04	0.24	0.04	0.23
139	549.85	8	8	-32	137	0.2	0.88	0.02	0.29	0.04	0.54
140	539.99	8	16	324	623	2.07	0.99	1.42	0.16	2.62	0.3
141	763.37	6	6	-5	-7	0.05	0.08	0	0.01	0	0.01
143	184.73	10	10	133	301	0.54	1.23	0.03	0.14	0.17	0.77
144	90.31	10	10	70	77	0.29	0.32	0	0.01	0.05	0.06
145	102.44	10	10	69	64	0.28	0.26	0.01	0	0.05	0.04
146	144.07	10	10	-127	-281	0.52	1.15	0.02	0.1	0.16	0.68
148	126.93	10	10	126	280	0.51	1.14	0.02	0.09	0.15	0.68
149	121.76	10	10	35	85	0.14	0.35	0	0.01	0.01	0.07
151	105.65	6	10	-63	-222	0.71	0.91	0.05	0.05	0.51	0.44
152	79.62	6	6	-65	-59	0.74	0.67	0.04	0.04	0.55	0.46
153	135.84	6	6	-3	-5	0.04	0.05	0	0	0	0
154	186.32	10	10	90	194	0.37	0.79	0.02	0.06	0.08	0.34
156	716.61	8	8	-32	-79	0.21	0.5	0.03	0.14	0.04	0.19

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
157	123.59	8	8	1	3	0.01	0.02	0	0	0	0
158	525.36	8	8	29	74	0.19	0.47	0.02	0.09	0.03	0.17
159	198.8	8	8	28	65	0.18	0.42	0	0.02	0.02	0.12
160	462.05	8	8	-13	-29	0.08	0.19	0	0.01	0.01	0.03
161	111.61	8	8	12	28	0.07	0.18	0	0	0	0.02
162	210.94	8	8	8	20	0.05	0.13	0	0	0	0.01
163	238.85	8	8	9	23	0.05	0.15	0	0	0	0.02
164	451.3	8	8	14	34	0.09	0.21	0	0.02	0.01	0.04
165	275.81	6	6	1	2	0.01	0.02	0	0	0	0
166	158.97	8	8	12	30	0.08	0.19	0	0.01	0.01	0.03
167	155.16	8	8	20	52	0.13	0.33	0	0.01	0.02	0.09
168	211.29	6	6	-5	-12	0.06	0.13	0	0	0	0.02
169	241.42	6	6	2	8	0.03	0.09	0	0	0	0.01
170	187.69	8	8	15	40	0.1	0.26	0	0.01	0.01	0.05
171	404.93	8	8	17	46	0.11	0.3	0	0.03	0.01	0.07
172	379.81	8	8	14	37	0.09	0.24	0	0.02	0.01	0.05
173	650.2	8	8	14	26	0.09	0.16	0	0.02	0.01	0.02
174	334.74	8	8	2	11	0.01	0.07	0	0	0	0.01
175	339.54	8	8	11	12	0.07	0.07	0	0	0	0.01
268	154.11	8	8	3	6	0.02	0.04	0	0	0	0
301	265.03	8	8	-4	23	0.03	0.15	0	0	0	0.02
330	319.7	8	8	-6	-3	0.04	0.02	0	0	0	0
349	244.09	8	8	-6	-8	0.04	0.05	0	0	0	0
414	467.91	12	16	107	466	0.3	0.74	0.02	0.07	0.04	0.15
415	250.58	8	8	16	213	0.1	1.36	0	0.26	0.01	1.05
417	907.76	12	12	91	245	0.26	0.69	0.03	0.17	0.03	0.19
419	566.35	12	12	90	-6	0.26	0.02	0.02	0	0.03	0
442	878.64	8	8	0	37	0	0.24	0	0.04	0	0.04
445	145.51	8	8	14	-115	0.09	0.74	0	0.05	0.01	0.34
446	238.62	8	8	13	-118	0.08	0.75	0	0.08	0.01	0.35
447	252.9	8	8	10	-129	0.06	0.82	0	0.1	0	0.41
448	189.1	8	8	7	-136	0.05	0.87	0	0.09	0	0.45

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
449	555.78	8	8	1	6	0	0.04	0	0	0	0
450	462.75	8	8	5	-152	0.03	0.97	0	0.26	0	0.56
452	550.4	12	12	-73	-95	0.21	0.27	0.01	0.02	0.02	0.03
453	596.81	12	12	71	71	0.2	0.2	0.01	0.01	0.02	0.02
454	420.77	8	8	9	27	0.06	0.17	0	0.01	0	0.02
455	552.26	12	12	-17	-63	0.05	0.18	0	0.01	0	0.02
456	290.15	8	8	-17	-68	0.11	0.43	0	0.04	0.01	0.13
457	320.23	8	8	-7	-31	0.04	0.2	0	0.01	0	0.03
459	380.78	8	8	-4	-3	0.02	0.02	0	0	0	0
460	493.78	8	8	-6	-26	0.04	0.16	0	0.01	0	0.02
461	462.68	8	8	4	16	0.03	0.11	0	0	0	0.01
465	708.24	8	8	48	-21	0.3	0.13	0.05	0.01	0.06	0.01
466	544.16	8	8	45	-32	0.29	0.2	0.03	0.02	0.06	0.03
467	298.85	8	8	44	-44	0.28	0.28	0.02	0.02	0.06	0.06
468	336.34	8	8	43	-54	0.27	0.35	0.02	0.03	0.05	0.08
469	283.19	8	8	25	42	0.16	0.27	0.01	0.01	0.02	0.05
470	147.56	8	8	22	35	0.14	0.22	0	0.01	0.02	0.04
473	200.46	8	8	17	133	0.11	0.85	0	0.09	0.01	0.44
474	461.94	8	8	6	61	0.04	0.39	0	0.05	0	0.1
475	532.42	8	8	-6	-61	0.04	0.39	0	0.05	0	0.1
476	474.29	8	8	3	50	0.02	0.32	0	0.03	0	0.07
477	404.49	8	12	-292	-382	1.86	1.08	0.88	0.2	2.16	0.49
478	642.28	8	8	2	44	0.01	0.28	0	0.04	0	0.06
479	511.3	8	8	-2	-47	0.01	0.3	0	0.03	0	0.06
480	613.66	8	8	1	-33	0.01	0.21	0	0.02	0	0.03
499	443.99	8	8	0	-5	0	0.03	0	0	0	0
500	321.15	8	8	0	-15	0	0.09	0	0	0	0.01
501	384.28	8	8	0	-34	0	0.21	0	0.01	0	0.03
502	447.98	8	8	0	13	0	0.09	0	0	0	0.01
504	753.39	8	8	0	-4	0	0.03	0	0	0	0
505	155.34	8	8	0	36	0	0.23	0	0.01	0	0.04
509	292.19	8	16	-304	-590	1.94	0.94	0.68	0.08	2.34	0.27

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
513	621.7	6	6	19	30	0.22	0.35	0.04	0.08	0.06	0.13
514	1,061.68	8	12	283	365	1.81	1.03	2.17	0.48	2.05	0.45
515	516.68	6	8	65	132	0.74	0.84	0.28	0.26	0.54	0.5
517	609.24	6	6	-54	-55	0.61	0.63	0.24	0.25	0.39	0.4
518	488.2	6	6	-47	-46	0.53	0.52	0.14	0.14	0.3	0.28
520	907.11	6	8	59	122	0.67	0.78	0.41	0.39	0.45	0.43
521	539.67	6	8	53	112	0.6	0.71	0.2	0.2	0.37	0.36
522	567.67	6	8	44	99	0.5	0.63	0.15	0.17	0.26	0.29
525	456.49	6	8	64	113	0.73	0.72	0.24	0.17	0.53	0.37
526	521.54	6	8	54	96	0.61	0.61	0.2	0.14	0.38	0.28
527	434.09	6	8	37	68	0.42	0.44	0.08	0.06	0.19	0.15
528	398.59	8	8	-105	-74	0.67	0.47	0.13	0.07	0.33	0.17
535	237.74	6	6	14	34	0.16	0.38	0.01	0.04	0.03	0.16
536	287.31	10	10	50	107	0.21	0.44	0.01	0.03	0.03	0.11
537	300.6	10	10	50	106	0.2	0.43	0.01	0.03	0.03	0.11
538	435.26	10	10	49	103	0.2	0.42	0.01	0.05	0.03	0.11
539	338.05	6	6	13	24	0.14	0.27	0.01	0.03	0.03	0.08
540	359.5	6	6	-1	0	0.01	0	0	0	0	0
541	459.25	6	6	10	21	0.11	0.23	0.01	0.03	0.02	0.06
542	175.7	10	10	38	80	0.15	0.33	0	0.01	0.02	0.07
543	490.66	10	10	33	62	0.14	0.26	0.01	0.02	0.01	0.04
544	438.18	10	10	32	60	0.13	0.25	0.01	0.02	0.01	0.04
545	297.13	10	10	27	46	0.11	0.19	0	0.01	0.01	0.02
546	850.12	10	10	26	45	0.11	0.18	0.01	0.02	0.01	0.02
547	177.03	10	10	4	13	0.02	0.05	0	0	0	0
548	382.95	10	10	-22	-48	0.09	0.2	0	0.01	0.01	0.03
549	497.35	8	8	7	18	0.04	0.11	0	0.01	0	0.01
551	237.6	6	6	3	-1	0.04	0.02	0	0	0	0
552	249.98	6	6	2	-4	0.02	0.05	0	0	0	0
553	461.21	8	8	13	28	0.09	0.18	0	0.01	0.01	0.03
555	255.81	10	10	23	40	0.09	0.16	0	0	0.01	0.02
556	291.31	10	10	20	36	0.08	0.15	0	0	0.01	0.02

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
557	315.59	8	8	-4	-9	0.03	0.06	0	0	0	0
558	359.36	6	6	1	1	0.01	0.01	0	0	0	0
559	157.88	6	6	3	7	0.03	0.08	0	0	0	0.01
560	473.53	8	8	8	17	0.05	0.11	0	0.01	0	0.01
561	306.77	8	8	-4	-1	0.02	0.01	0	0	0	0
562	436.91	8	8	2	-2	0.01	0.01	0	0	0	0
563	504.73	6	6	8	12	0.1	0.14	0.01	0.01	0.01	0.03
564	393.49	6	6	5	10	0.06	0.11	0	0.01	0	0.02
565	582.99	8	8	14	25	0.09	0.16	0	0.01	0.01	0.02
566	156.18	6	6	11	18	0.13	0.21	0	0.01	0.02	0.05
567	558.62	6	6	-4	-7	0.04	0.07	0	0	0	0.01
568	480.11	6	6	1	-1	0.01	0.01	0	0	0	0
569	163.27	6	6	7	10	0.07	0.11	0	0	0.01	0.02
570	159.16	6	6	5	7	0.06	0.08	0	0	0	0.01
571	584.08	6	6	3	7	0.04	0.08	0	0	0	0.01
572	94.84	6	6	1	0	0.02	0	0	0	0	0
574	164.52	8	8	9	16	0.06	0.1	0	0	0	0.01
575	126.53	8	8	9	16	0.06	0.1	0	0	0	0.01
577	912.36	8	8	5	10	0.03	0.07	0	0	0	0
583	73.55	24	24	2760	7557	1.96	5.36	0.05	0.31	0.66	4.25
1091	805.29	8	8	0	-5	0	0.03	0	0	0	0
1093	936.94	8	8	4	10	0.03	0.06	0	0	0	0
1095	2,061.45	8	8	1	-10	0.01	0.06	0	0.01	0	0
1099	63.33	6	6	0	0	0	0	0	0	0	0
P-3	143.73	10	10	-65	-142	0.27	0.58	0.01	0.02	0.04	0.16
P-4	522.79	8	8	3	29	0.02	0.19	0	0.02	0	0.03
P-6	428.6	12	12	7	1	0.02	0	0	0	0	0
P-8	381.89	8	8	11	-57	0.07	0.36	0	0.04	0	0.11
P13	153.48	10	10	-26	-67	0.11	0.28	0	0.01	0.01	0.05
P-13	168.06	18	26	5511	10615	6.95	6.41	1.62	0.91	9.62	5.4
P15	1,262.65	6	6	30	43	0.34	0.49	0.16	0.32	0.13	0.25
P17	332.22	6	6	6	9	0.06	0.1	0	0	0.01	0.01

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P-18	1,688.11	18	18	5510	4088	6.95	5.15	16.24	9.34	9.62	5.53
P19	428.57	6	6	17	22	0.2	0.25	0.02	0.03	0.05	0.08
P-19	431.84	18	18	5509	4087	6.95	5.15	4.15	2.39	9.62	5.53
P21	684.31	6	6	9	16	0.11	0.18	0.01	0.03	0.01	0.04
P23	329.93	6	6	4	7	0.04	0.08	0	0	0	0.01
P25	291.98	6	6	2	4	0.02	0.04	0	0	0	0
P27	829.17	6	6	-120	-104	1.36	1.18	1.4	1.08	1.69	1.3
P29	715.47	6	6	-82	-24	0.93	0.28	0.6	0.06	0.83	0.09
P31	304.39	6	6	-82	-60	0.93	0.68	0.26	0.14	0.84	0.47
P-32	1,146.30	4	10	5	7	0.13	0.03	0.04	0	0.04	0
P33	422.34	4	10	22	46	0.55	0.19	0.22	0.01	0.52	0.02
P-33	369.85	4	4	4	6	0.11	0.15	0.01	0.02	0.03	0.04
P-34	209.15	4	4	3	4	0.07	0.09	0	0	0.01	0.02
P35	643.76	4	10	19	38	0.49	0.15	0.26	0.01	0.41	0.02
P37	516.97	4	4	8	11	0.2	0.29	0.04	0.08	0.08	0.16
P-37	681.23	6	6	-120	-106	1.37	1.21	1.16	0.93	1.71	1.36
P39	218.03	4	10	-24	-19	0.63	0.08	0.14	0	0.64	0
P-39	58.36	12	12	0	-1	0	0	0	0	0	0
P41	89.47	4	4	-36	-40	0.91	1.02	0.12	0.14	1.29	1.58
P-41	345.63	6	12	130	123	1.48	0.35	0.68	0.02	1.97	0.06
P-42	614.87	8	8	-145	-132	0.93	0.84	0.36	0.31	0.59	0.5
P43	411.29	4	10	8	16	0.22	0.07	0.04	0	0.09	0
P-44	616.43	6	8	20	52	0.23	0.33	0.04	0.06	0.06	0.09
P45	790.84	4	4	1	4	0.02	0.1	0	0.02	0	0.02
P-46	474.72	6	8	-1	-3	0.02	0.02	0	0	0	0
P47	1,243.31	4	4	8	17	0.19	0.43	0.09	0.39	0.07	0.32
P-47	635.15	6	8	-13	-38	0.14	0.25	0.02	0.03	0.03	0.05
P-48	2,524.69	6	8	2	6	0.02	0.04	0	0	0	0
P49	6,359.31	12	16	3	116	0.01	0.19	0	0.09	0	0.01
P-49	745.78	6	8	-4	-11	0.04	0.07	0	0	0	0.01
P-50	1,924.75	6	6	2	5	0.03	0.06	0	0.01	0	0.01
P-52	680.58	6	6	27	67	0.31	0.75	0.08	0.39	0.11	0.57

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P-53	578.12	6	8	-12	-7	0.14	0.05	0.01	0	0.03	0
P-54	404.19	6	6	3	6	0.04	0.07	0	0	0	0.01
P-55	446.36	8	8	5	9	0.03	0.06	0	0	0	0
P-56	132.09	6	6	1	-1	0.01	0.01	0	0	0	0
P-57	89.83	6	6	-3	-4	0.04	0.05	0	0	0	0
P-58	495.11	6	6	-4	-3	0.04	0.03	0	0	0	0
P59	48.79	8	8	0	190	0	1.21	0	0.05	0	0.98
P-59	175.59	6	6	-1	-1	0.01	0.01	0	0	0	0
P-60	205.58	6	6	1	1	0.01	0.01	0	0	0	0
P61	730.94	8	8	5	-181	0.03	1.16	0	0.65	0	0.9
P-61	344.87	6	6	-1	-2	0.02	0.03	0	0	0	0
P-62	204.38	6	6	-1	-2	0.01	0.02	0	0	0	0
P63	343.81	6	6	1	3	0.01	0.03	0	0	0	0
P-63	536.74	6	6	-3	-4	0.03	0.04	0	0	0	0
P-64	205.93	6	6	0	0	0	0.01	0	0	0	0
P65	310.55	6	6	13	19	0.15	0.21	0.01	0.02	0.03	0.05
P-65	163.57	6	6	1	1	0.01	0.01	0	0	0	0
P67	88.32	12	12	0	130	0	0.37	0	0.01	0	0.07
P-68	202.95	6	6	3	5	0.03	0.06	0	0	0	0
P69	193.67	6	10	266	-2	3.02	0.01	1.43	0	7.41	0
P-69	620.52	6	6	3	6	0.03	0.07	0	0	0	0.01
P-70	295.15	6	6	2	4	0.02	0.05	0	0	0	0
P71	25.48	6	6	267	0	3.03	0	0.19	0	7.45	0
P-71	59.08	6	6	0	0	0	0	0	0	0	0
P-73	617.69	6	10	50	251	0.57	1.03	0.21	0.34	0.34	0.55
P-74	157.58	6	6	1	1	0.01	0.02	0	0	0	0
P75	1,239.97	12	12	2	1	0	0	0	0	0	0
P-75	1,211.21	6	8	-49	-129	0.55	0.82	0.39	0.58	0.32	0.48
P-76	214.99	6	8	-25	-62	0.28	0.39	0.02	0.03	0.09	0.12
P77	658.65	12	12	107	389	0.3	1.1	0.03	0.29	0.04	0.44
P-77	769.97	6	6	-142	23	1.61	0.26	1.78	0.06	2.32	0.08
P-78	88.36	10	16	600	770	2.45	1.23	0.25	0.04	2.78	0.45

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P-79	851.35	10	16	598	767	2.44	1.22	2.35	0.38	2.76	0.44
P-80	379.13	6	6	-32	-65	0.36	0.74	0.05	0.21	0.14	0.55
P-81	598.3	2	2	3	6	0.31	0.6	0.21	0.7	0.35	1.16
P-82	227.83	6	6	35	73	0.4	0.83	0.04	0.15	0.18	0.68
P-83	407.85	2	2	-3	-5	0.27	0.54	0.11	0.39	0.27	0.94
P-84	839.31	12	12	10	12	0.03	0.03	0	0	0	0
P-88	778.65	6	6	121	108	1.38	1.23	1.35	1.09	1.73	1.4
P97	80.8	16	16	2752	3091	4.39	4.93	0.38	0.47	4.72	5.85
P-101	548.47	10	20	208	1112	0.85	1.14	0.21	0.16	0.39	0.3
P-102	636.9	10	20	-262	-1377	1.07	1.41	0.38	0.28	0.6	0.44
P103	15.16	30	30	440	-1311	0.2	0.59	0	0	0.01	0.05
P-103	832.11	6	6	-4	1	0.04	0.01	0	0	0	0
P105	16.24	30	30	181	-3241	0.08	1.47	0	0	0	0.26
P107	25.46	30	30	259	1930	0.12	0.88	0	0	0	0.1
P109	33.96	30	30	179	2805	0.08	1.27	0	0.01	0	0.2
P111	218.67	12	12	0	65	0	0.19	0	0	0	0.02
P113	1,143.28	12	12	1	51	0	0.15	0	0.01	0	0.01
P115	208.63	12	12	1	-5	0	0.01	0	0	0	0
P117	534.1	12	12	1	-5	0	0.01	0	0	0	0
P119	477.85	8	8	1	-1	0.01	0.01	0	0	0	0
P121	273.19	10	10	1220	-20	4.98	0.08	2.82	0	10.32	0.01
P123	276.09	6	6	2	3	0.02	0.04	0	0	0	0
P125	614.89	8	8	0	-1	0	0.01	0	0	0	0
P-126	831.84	10	10	1221	-10	4.99	0.04	8.6	0	10.33	0
P127	29.96	18	18	4932	2545	6.22	3.21	0.2	0.06	6.75	1.98
P129	85.02	6	6	7	7	0.08	0.08	0	0	0.01	0.01
P-130	623.02	6	6	-27	-80	0.3	0.91	0.07	0.5	0.11	0.8
P131	115.43	6	6	0	9	0	0.1	0	0	0	0.01
P-131	604.28	6	6	10	21	0.11	0.24	0.01	0.04	0.02	0.07
P-132	2,143.51	6	6	8	17	0.09	0.19	0.02	0.1	0.01	0.05
P133	272.89	6	10	-53	-258	0.6	1.06	0.1	0.16	0.37	0.58
P-133	485.31	8	12	218	259	1.39	0.73	0.61	0.12	1.26	0.24

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P-134	835.04	6	6	-22	-71	0.25	0.8	0.06	0.53	0.07	0.64
P135	645.38	10	20	204	1104	0.83	1.13	0.24	0.19	0.38	0.29
P137	807.76	6	6	-12	-37	0.13	0.42	0.02	0.15	0.02	0.19
P139	668.72	6	6	13	45	0.15	0.51	0.02	0.18	0.03	0.27
P141	638.87	6	10	-24	-284	0.27	1.16	0.05	0.44	0.08	0.7
P143	649.57	6	8	-23	-6	0.26	0.04	0.05	0	0.08	0
P145	141.2	10	10	32	85	0.13	0.35	0	0.01	0.01	0.07
P147	183.18	10	10	32	83	0.13	0.34	0	0.01	0.01	0.07
P149	171.47	10	10	-18	-36	0.07	0.15	0	0	0	0.02
P-150	451.65	8	12	297	390	1.9	1.1	1.01	0.23	2.24	0.51
P151	485.57	6	6	19	38	0.22	0.44	0.03	0.1	0.06	0.21
P153	127.01	10	10	57	120	0.23	0.49	0	0.02	0.04	0.14
P155	221.85	6	6	-2	-6	0.03	0.07	0	0	0	0.01
P157	290.82	12	12	0	-3	0	0.01	0	0	0	0
P159	216.46	6	6	2	3	0.03	0.03	0	0	0	0
P161	247.94	6	6	-2	-4	0.02	0.05	0	0	0	0
P163	654.81	6	6	2	7	0.02	0.07	0	0.01	0	0.01
P165	304.11	6	6	1	4	0.01	0.05	0	0	0	0
P167	238.41	6	6	22	0	0.25	0	0.02	0	0.08	0
P169	803.1	6	6	12	-24	0.14	0.27	0.02	0.07	0.02	0.09
P171	681.07	10	10	133	302	0.54	1.23	0.12	0.53	0.17	0.78
P173	274.62	8	8	-34	-84	0.22	0.54	0.01	0.06	0.04	0.22
P175	302.5	12	12	0	-5	0	0.01	0	0	0	0
P177	710.73	12	12	0	52	0	0.15	0	0.01	0	0.01
P179	220.2	8	8	15	202	0.09	1.29	0	0.21	0.01	0.95
P181	548.18	6	6	1	0	0.01	0	0	0	0	0
P183	389.04	8	8	12	202	0.08	1.29	0	0.37	0.01	0.95
P185	520.72	6	6	2	0	0.02	0	0	0	0	0
P187	360.11	8	8	8	202	0.05	1.29	0	0.34	0	0.95
P189	43.19	8	8	0	190	0	1.21	0	0.04	0	0.98
P191	41.92	8	8	0	190	0	1.21	0	0.04	0	0.98
P193	134.11	6	10	92	293	1.04	1.2	0.14	0.1	1.04	0.74

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P195	161.9	6	10	91	292	1.03	1.19	0.16	0.12	1.01	0.73
P197	95.39	6	6	124	116	1.41	1.31	0.17	0.15	1.81	1.58
P199	44.68	8	16	315	606	2.01	0.97	0.11	0.01	2.49	0.29
P201	65.11	6	6	124	116	1.41	1.31	0.12	0.1	1.81	1.58
P203	699.54	6	6	5	0	0.06	0	0	0	0	0
P205	233.59	12	12	1	232	0	0.66	0	0.04	0	0.17
P207	274.68	12	12	1	232	0	0.66	0	0.05	0	0.17
P209	662.87	8	8	1	232	0	1.48	0	0.81	0	1.22
P211	238.79	10	16	600	770	2.45	1.23	0.66	0.11	2.78	0.45
P221	690.29	8	8	109	140	0.7	0.89	0.24	0.38	0.35	0.56
P231	154.46	6	10	266	-1	3.02	0	1.14	0	7.41	0
P233	768.43	10	16	596	762	2.44	1.22	2.11	0.34	2.74	0.44
P237	659.24	10	10	37	78	0.15	0.32	0.01	0.04	0.02	0.06
P239	56.43	10	16	596	762	2.44	1.22	0.15	0.02	2.74	0.44
P241	80.04	8	16	593	626	3.79	1	0.65	0.02	8.06	0.31
P243	69.58	6	8	267	0	3.03	0	0.52	0	7.45	0
P247	22.25	6	6	267	0	3.03	0	0.17	0	7.46	0
P255	469.12	8	8	43	178	0.27	1.13	0.03	0.35	0.05	0.74
P273	81.42	8	8	314	162	2.01	1.04	0.2	0.06	2.48	0.73
P275	18.41	8	8	594	0	3.79	0	0.15	0	8.06	0
P277	16.23	8	8	636	0	4.06	0	0.15	0	9.15	0
P279	2,090.35	12	12	107	33	0.3	0.09	0.08	0.01	0.04	0
P307	3,371.98	6	12	124	116	1.41	0.33	6.1	0.18	1.81	0.05
P309	536.25	8	8	147	144	0.94	0.92	0.33	0.31	0.61	0.59
P311	475.13	8	8	0	0	0	0	0	0	0	0
P317	410.64	8	8	206	212	1.31	1.35	0.47	0.49	1.14	1.2
P321	510.62	8	8	185	174	1.18	1.11	0.41	0.37	0.8	0.72
P331	423.61	8	8	113	149	0.72	0.95	0.16	0.26	0.37	0.62
P339	640.34	8	16	317	609	2.02	0.97	1.61	0.19	2.52	0.29
P341	731.61	8	16	593	626	3.79	1	5.9	0.22	8.06	0.3
P353	140.2	6	12	126	118	1.43	0.33	0.26	0.01	1.85	0.06
P359	70.46	6	12	127	120	1.45	0.34	0.13	0	1.89	0.06

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P367	354.92	6	6	4	7	0.05	0.08	0	0	0	0.01
P369	32.63	6	6	4	10	0.05	0.11	0	0	0	0.01
P371	369.03	6	6	2	4	0.02	0.04	0	0	0	0
P373	627.01	6	8	32	60	0.36	0.38	0.09	0.07	0.14	0.11
P375	457.24	6	6	3	6	0.03	0.07	0	0	0	0.01
P377	470.82	6	8	58	102	0.65	0.65	0.2	0.15	0.43	0.31
P379	472.5	6	8	50	90	0.56	0.57	0.16	0.11	0.33	0.24
P381	327.75	8	8	-101	-68	0.65	0.43	0.1	0.05	0.31	0.15
P383	390.5	8	8	-109	-79	0.69	0.51	0.14	0.08	0.35	0.19
P385	75.99	8	8	-141	-126	0.9	0.8	0.04	0.03	0.56	0.45
P387	313.15	8	8	-152	-142	0.97	0.9	0.2	0.18	0.65	0.57
P389	59.8	8	8	217	256	1.39	1.63	0.07	0.1	1.25	1.7
P391	347.76	6	8	42	95	0.47	0.61	0.08	0.09	0.24	0.27
P393	428.6	8	8	180	168	1.15	1.07	0.33	0.29	0.76	0.67
P395	322.27	8	8	190	181	1.21	1.16	0.27	0.25	0.84	0.77
P397	441.54	6	6	-44	-41	0.5	0.47	0.12	0.1	0.27	0.24
P399	285.67	6	6	-51	-51	0.57	0.57	0.1	0.1	0.34	0.34
P401	434.56	6	8	73	145	0.83	0.92	0.29	0.26	0.67	0.59
P403	452.38	6	8	67	137	0.76	0.87	0.26	0.24	0.58	0.53
P405	459.09	6	8	64	129	0.72	0.83	0.24	0.22	0.52	0.48
P407	497.09	6	8	48	104	0.54	0.67	0.15	0.16	0.31	0.32
P409	280.91	8	12	-288	-375	1.84	1.06	0.59	0.13	2.11	0.48
P411	355.34	8	12	302	396	1.93	1.12	0.82	0.19	2.3	0.53
P413	174.07	8	16	-304	-588	1.94	0.94	0.41	0.05	2.33	0.27
P415	85.36	8	16	-306	-592	1.96	0.95	0.2	0.02	2.37	0.27
P417	207	8	16	318	613	2.03	0.98	0.52	0.06	2.53	0.29
P419	309.42	8	16	320	616	2.04	0.98	0.79	0.09	2.56	0.29
P421	296.72	6	6	-122	-13	1.38	0.15	0.52	0.01	1.74	0.03
P423	524.38	6	6	-121	-11	1.37	0.13	0.9	0.01	1.72	0.02
P425	700.57	6	6	-119	-5	1.35	0.06	1.17	0	1.67	0.01
P427	563.01	6	6	-112	4	1.27	0.05	0.84	0	1.49	0
P429	675.06	6	6	-139	27	1.57	0.3	1.49	0.07	2.21	0.11

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P431	509.72	8	8	-1	128	0.01	0.81	0	0.24	0	0.47
P433	621.54	8	8	-4	121	0.03	0.77	0	0.26	0	0.43
P435	57.83	8	8	-5	120	0.03	0.77	0	0.02	0	0.42
P437	107.17	8	8	244	87	1.56	0.55	0.17	0.02	1.55	0.23
P439	104.54	8	8	117	-69	0.75	0.44	0.04	0.02	0.4	0.15
P441	200.8	6	6	-53	4	0.61	0.05	0.08	0	0.38	0
P443	578.78	6	6	-49	7	0.55	0.08	0.18	0	0.32	0.01
P445	492.82	6	6	-24	16	0.27	0.18	0.04	0.02	0.08	0.04
P447	350.04	6	6	1	25	0.01	0.28	0	0.03	0	0.09
P449	313.82	6	6	21	50	0.23	0.57	0.02	0.11	0.07	0.33
P451	809.72	8	8	54	-82	0.34	0.52	0.08	0.17	0.09	0.2
P453	482.32	6	6	23	39	0.26	0.45	0.04	0.1	0.08	0.22
P455	291.6	6	6	3	6	0.03	0.07	0	0	0	0.01
P457	222.96	6	6	15	22	0.17	0.25	0.01	0.02	0.03	0.07
P459	571.54	8	8	1	-188	0.01	1.2	0	0.55	0	0.96
P461	654.56	8	8	126	155	0.81	0.99	0.3	0.44	0.46	0.67
P463	680.97	10	10	-1194	79	4.88	0.32	6.76	0.04	9.92	0.06
P465	535.05	10	10	-1199	65	4.9	0.27	5.35	0.02	10	0.05
P467	445.03	10	10	-1202	54	4.91	0.22	4.47	0.01	10.05	0.03
P469	275.41	10	10	-1206	48	4.93	0.2	2.78	0.01	10.11	0.03
P471	56.16	6	6	0	0	0	0	0	0	0	0
P473	622.25	10	10	1210	-38	4.94	0.16	6.33	0.01	10.17	0.02
P475	414.42	10	10	1215	-29	4.96	0.12	4.25	0	10.25	0.01
P477	147.93	10	10	1217	-25	4.97	0.1	1.52	0	10.28	0.01
P479	68.46	6	6	23	66	0.26	0.75	0.01	0.04	0.08	0.57
P481	440.79	6	8	23	58	0.26	0.37	0.04	0.05	0.08	0.11
P483	461	6	8	18	46	0.2	0.3	0.02	0.03	0.05	0.07
P485	518.75	6	8	-16	-44	0.19	0.28	0.02	0.03	0.04	0.06
P487	470.37	6	6	5	10	0.06	0.11	0	0.01	0	0.02
P489	742.31	6	6	21	47	0.24	0.54	0.05	0.22	0.07	0.3
P491	366.78	6	6	30	73	0.34	0.83	0.05	0.25	0.13	0.68
P493	248.87	6	6	-30	-77	0.34	0.88	0.03	0.19	0.13	0.75

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P495	619.69	6	6	-32	-83	0.36	0.94	0.09	0.53	0.14	0.86
P497	153.87	6	6	5	11	0.06	0.13	0	0	0.01	0.02
P499	310.85	10	20	435	1158	1.78	1.18	0.47	0.1	1.53	0.32
P501	522.72	10	20	432	1149	1.76	1.17	0.79	0.16	1.51	0.32
P503	58.51	10	20	562	1101	2.3	1.12	0.14	0.02	2.46	0.29
P505	473.93	6	6	-22	-74	0.25	0.84	0.04	0.32	0.08	0.69
P507	412.45	6	6	2	-25	0.03	0.29	0	0.04	0	0.1
P509	121.77	6	8	54	216	0.62	1.38	0.05	0.15	0.39	1.24
P511	307.63	6	6	9	-16	0.11	0.18	0	0.01	0.02	0.04
P513	63.32	6	6	-17	-67	0.2	0.76	0	0.04	0.05	0.58
P515	656.92	6	6	-7	-1	0.08	0.01	0.01	0	0.01	0
P517	477.42	6	6	22	47	0.25	0.53	0.03	0.14	0.07	0.3
P519	699.22	6	6	-39	-110	0.45	1.25	0.15	1.01	0.21	1.45
P521	767.68	6	6	-34	-92	0.38	1.04	0.12	0.79	0.16	1.03
P523	542.7	6	6	134	-31	1.52	0.35	1.13	0.08	2.07	0.14
P525	156.6	6	6	141	-19	1.6	0.21	0.36	0.01	2.28	0.05
P527	642.53	6	6	141	-10	1.6	0.11	1.47	0.01	2.28	0.02
P529	571.15	6	6	142	1	1.61	0.01	1.33	0	2.32	0
P531	1,171.92	6	6	144	13	1.63	0.15	2.77	0.03	2.36	0.03
P533	1,512.49	6	6	148	-12	1.68	0.13	3.77	0.04	2.5	0.02
P535	738.15	6	8	9	31	0.1	0.2	0.01	0.03	0.01	0.03
P537	739.76	6	8	-34	-44	0.38	0.28	0.12	0.05	0.16	0.06
P539	575.45	6	8	-1	13	0.01	0.08	0	0	0	0.01
P541	550.77	6	8	-15	13	0.17	0.08	0.02	0	0.04	0.01
P543	571.86	6	8	-20	3	0.22	0.02	0.03	0	0.06	0
P545	605.48	6	8	-25	-11	0.29	0.07	0.06	0	0.1	0
P547	373.14	6	10	-28	-281	0.32	1.15	0.04	0.25	0.12	0.68
P549	471.13	6	6	4	9	0.04	0.1	0	0.01	0	0.01
P551	264.16	6	6	1	2	0.01	0.02	0	0	0	0
P553	434.68	10	20	209	1116	0.85	1.14	0.17	0.13	0.39	0.3
P555	177.28	10	20	204	1106	0.83	1.13	0.07	0.05	0.38	0.29
P557	352.6	6	6	3	9	0.03	0.11	0	0.01	0	0.02

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P559	554.06	6	6	2	7	0.02	0.08	0	0.01	0	0.01
P561	292.08	6	6	0	2	0	0.02	0	0	0	0
P563	1,056.54	6	6	2	16	0.02	0.18	0	0.04	0	0.04
P565	837.75	6	6	4	21	0.04	0.24	0	0.06	0	0.07
P567	453	6	6	5	25	0.06	0.29	0	0.04	0	0.1
P569	373.03	6	6	12	28	0.13	0.31	0.01	0.04	0.02	0.11
P571	213.33	6	6	1	3	0.01	0.03	0	0	0	0
P573	237.17	6	6	1	2	0.01	0.02	0	0	0	0
P575	584.14	8	8	4	6	0.03	0.04	0	0	0	0
P577	288.94	8	8	9	10	0.06	0.06	0	0	0	0
P579	419.93	8	8	1	2	0.01	0.01	0	0	0	0
P581	213.44	8	8	15	43	0.09	0.28	0	0.01	0.01	0.06
P583	161.27	8	8	15	45	0.1	0.29	0	0.01	0.01	0.07
P585	144.51	6	6	-4	-10	0.05	0.12	0	0	0	0.02
P589	119.84	6	6	-1	1	0.01	0.01	0	0	0	0
P591	394.38	6	6	11	22	0.12	0.25	0.01	0.03	0.02	0.08
P593	431.65	6	6	9	18	0.1	0.21	0.01	0.02	0.01	0.05
P595	336.4	10	10	50	104	0.2	0.43	0.01	0.04	0.03	0.11
P597	104.97	10	10	-18	-37	0.08	0.15	0	0	0	0.02
P599	299.01	10	10	-34	-64	0.14	0.26	0	0.01	0.01	0.04
P601	189.84	6	6	-1	-1	0.01	0.02	0	0	0	0
P603	95.74	10	10	21	37	0.09	0.15	0	0	0.01	0.02
P605	264.65	6	6	4	8	0.05	0.1	0	0	0	0.01
P607	287.84	6	6	7	11	0.08	0.12	0	0.01	0.01	0.02
P609	191.95	8	8	2	-1	0.02	0	0	0	0	0
P611	184.16	8	8	-3	0	0.02	0	0	0	0	0
P613	222.37	6	6	2	-4	0.02	0.04	0	0	0	0
P615	76.61	6	6	3	-2	0.03	0.03	0	0	0	0
P617	163.22	6	6	4	11	0.05	0.13	0	0	0	0.02
P619	502.21	8	8	5	15	0.03	0.1	0	0	0	0.01
P621	399.83	8	8	8	20	0.05	0.12	0	0.01	0	0.01
P623	222.7	8	8	-4	-10	0.03	0.06	0	0	0	0

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P625	363.11	6	6	-4	-8	0.05	0.09	0	0	0	0.01
P627	207.7	6	6	2	5	0.03	0.06	0	0	0	0.01
P629	486.06	6	6	2	0	0.02	0.01	0	0	0	0
P631	233.12	6	6	0	-3	0	0.03	0	0	0	0
P633	312.68	8	8	6	11	0.04	0.07	0	0	0	0
P635	219.31	6	6	3	5	0.03	0.06	0	0	0	0
P637	150.57	6	6	4	7	0.04	0.08	0	0	0	0.01
P639	270.69	8	8	14	24	0.09	0.15	0	0.01	0.01	0.02
P641	193.25	8	8	3	8	0.02	0.05	0	0	0	0
P643	94.15	8	8	-35	-85	0.22	0.54	0	0.02	0.04	0.22
P645	165.73	8	8	-34	-83	0.22	0.53	0.01	0.03	0.04	0.21
P647	705.71	8	8	56	-74	0.36	0.47	0.07	0.12	0.1	0.17
P649	426.28	8	8	150	151	0.96	0.97	0.27	0.27	0.63	0.64
P653	259.44	6	6	2	28	0.02	0.32	0	0.03	0	0.11
P655	274.02	6	6	0	3	0	0.03	0	0	0	0
P657	243.43	6	6	0	3	0	0.03	0	0	0	0
P659	201.94	6	6	2	3	0.02	0.04	0	0	0	0
P661	308.76	6	6	12	42	0.14	0.48	0.01	0.08	0.03	0.25
P663	490.07	6	6	-10	-21	0.12	0.24	0.01	0.03	0.02	0.07
P665	305.78	10	10	876	-147	3.58	0.6	1.71	0.06	5.6	0.2
P667	531.92	6	6	-143	18	1.62	0.21	1.25	0.03	2.34	0.05
P669	270.57	6	6	-1	-4	0.01	0.05	0	0	0	0
P671	289.47	6	6	3	7	0.04	0.08	0	0	0	0.01
P673	452.2	12	12	88	-15	0.25	0.04	0.01	0	0.03	0
P675	403.68	12	12	-72	-89	0.2	0.25	0.01	0.01	0.02	0.03
P677	180.17	8	8	-5	-22	0.03	0.14	0	0	0	0.01
P679	541.38	8	8	-8	-66	0.05	0.42	0	0.06	0	0.12
P681	524.43	8	8	3	53	0.02	0.34	0	0.04	0	0.08
P683	364.98	8	8	-9	-65	0.05	0.41	0	0.04	0	0.11
P687	128.63	12	12	6	13	0.02	0.04	0	0	0	0
P689	341.48	8	8	7	19	0.05	0.12	0	0	0	0.01
P691	202.53	6	6	2	8	0.02	0.09	0	0	0	0.01

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P693	448.12	6	6	2	6	0.03	0.07	0	0	0	0.01
P695	469.5	6	6	1	3	0.01	0.03	0	0	0	0
P697	42.02	6	6	-1	-2	0.01	0.02	0	0	0	0
P699	202.41	6	6	2	7	0.02	0.08	0	0	0	0.01
P701	652.85	6	6	2	3	0.02	0.03	0	0	0	0
P703	395.74	8	8	2	9	0.02	0.06	0	0	0	0
P705	57.09	8	8	13	-116	0.09	0.74	0	0.02	0.01	0.34
P707	270.57	8	8	2	7	0.01	0.04	0	0	0	0
P709	132.57	6	6	1	4	0.01	0.04	0	0	0	0
P711	211.09	8	8	2	5	0.01	0.03	0	0	0	0
P713	555.62	8	8	1	6	0	0.04	0	0	0	0
P715	337.22	8	8	1	8	0.01	0.05	0	0	0	0
P717	219.91	6	6	1	5	0.01	0.05	0	0	0	0
P719	508.72	6	6	3	10	0.03	0.11	0	0.01	0	0.01
P721	378.61	8	8	1	23	0	0.15	0	0.01	0	0.02
P723	363.18	8	8	1	6	0.01	0.04	0	0	0	0
P725	195.87	8	8	-1	15	0.01	0.09	0	0	0	0.01
P727	305.85	6	6	1	4	0.01	0.04	0	0	0	0
P729	509.32	8	8	4	-157	0.02	1	0	0.3	0	0.59
P731	488.88	8	8	2	-163	0.01	1.04	0	0.31	0	0.63
P733	392.23	8	8	1	-167	0.01	1.07	0	0.26	0	0.66
P735	303.07	10	10	58	114	0.24	0.47	0.01	0.03	0.03	0.11
P737	315.07	10	10	56	112	0.23	0.46	0.01	0.03	0.03	0.11
P739	260.42	6	6	10	21	0.12	0.24	0	0.02	0.02	0.06
P741	238.5	6	6	9	20	0.11	0.23	0	0.01	0.01	0.05
P743	392.07	8	8	-19	-37	0.12	0.23	0	0.02	0.01	0.04
P745	206.86	8	8	-20	-38	0.12	0.24	0	0.01	0.01	0.04
P747	258.11	8	8	1	2	0.01	0.01	0	0	0	0
P749	358.41	8	8	-22	-42	0.14	0.27	0.01	0.02	0.02	0.05
P751	151.5	8	8	2	2	0.01	0.01	0	0	0	0
P753	223.98	8	8	-25	-45	0.16	0.29	0	0.01	0.02	0.06
P755	88.75	8	8	2	2	0.01	0.01	0	0	0	0

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P757	327.32	8	8	-28	-48	0.18	0.3	0.01	0.02	0.02	0.07
P759	464.96	10	10	-28	-57	0.11	0.23	0	0.01	0.01	0.03
P761	289.56	8	8	2	2	0.01	0.01	0	0	0	0
P763	544.7	10	10	-30	-69	0.12	0.28	0.01	0.02	0.01	0.04
P765	402.67	10	10	-59	-116	0.24	0.48	0.01	0.05	0.03	0.11
P767	269.63	8	8	-28	-56	0.18	0.36	0.01	0.02	0.02	0.09
P769	552.74	10	10	-45	-89	0.18	0.36	0.01	0.04	0.02	0.07
P771	266.52	6	6	1	2	0.01	0.02	0	0	0	0
P773	212.76	10	10	-38	-86	0.15	0.35	0	0.01	0.01	0.07
P775	523.98	10	10	31	76	0.13	0.31	0.01	0.03	0.01	0.05
P777	37.64	6	6	3	8	0.03	0.09	0	0	0	0.01
PMP-1_D	126.01	99	99	2760	4431	0.12	0.18	0	0	0	0
PMP-1_U	115.37	99	99	2760	4432	0.12	0.18	0	0	0	0
PMP-10_D	109.11	99	99	2754	3097	0.11	0.13	0	0	0	0
PMP-10_U	121.4	99	99	2756	3102	0.11	0.13	0	0	0	0
PMP-101	1	99	99	2755	3100	0.11	0.13	0	0	0	0
PMP-102	1	99	99	2755	3100	0.11	0.13	0	0	0	0
PMP-11	1	99	99	2760	4432	0.12	0.18	0	0	0	0
PMP-12	1	99	99	2760	4432	0.12	0.18	0	0	0	0
PRV-108_D	97.46	6	6	309	47	3.5	0.54	0.95	0.03	9.75	0.3
PRV-108_U	97.46	6	6	310	49	3.51	0.55	0.96	0.03	9.81	0.32
PRV-1081	77.96	6	6	309	48	3.51	0.55	0.5	0.02	6.47	0.21
PRV-11_D	38.82	8	16	315	607	2.01	0.97	0.1	0.01	2.5	0.29
PRV-11_U	695.84	8	16	-308	-596	1.97	0.95	1.67	0.19	2.4	0.28
PRV-111	1	6	6	315	606	3.58	6.88	0.01	0.02	6.71	22.46
PRV-112	1	6	6	315	606	3.58	6.88	0.01	0.02	6.71	22.52
PRV-131_D	40.29	10	10	133	322	0.54	1.32	0.01	0.04	0.17	0.88
PRV-131_U	1,206.44	10	10	133	335	0.54	1.37	0.21	1.14	0.17	0.94
PRV-1311	56.36	6	6	133	329	1.51	3.73	0.08	0.41	1.36	7.25
PRV-1312	27.86	6	6	133	329	1.51	3.73	0.04	0.2	1.36	7.25
PRV-18_U	687.83	6	6	-36	-75	0.4	0.85	0.12	0.49	0.18	0.71
PRV-19_D	443.43	6	6	2	-5	0.02	0.05	0	0	0	0

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
PRV-19_U	259.77	6	6	-1	7	0.01	0.08	0	0	0	0.01
PRV-191	1	6	6	0	8	0	0.09	0	0	0	0
PRV-192	1	6	6	0	8	0	0.09	0	0	0	0
PRV-32_D	63.65	12	12	0	129	0	0.37	0	0	0	0.07
PRV-32_U	508.66	10	16	595	759	2.43	1.21	1.39	0.22	2.73	0.43
PRV-321	1	8	8	0	130	0	0.83	0	0	0	0.37
PRV-322	1	8	8	0	130	0	0.83	0	0	0	0.37
PRV-6_D	751.32	8	8	99	127	0.63	0.81	0.22	0.35	0.29	0.46
PRV-6_U	802.97	8	8	118	153	0.75	0.98	0.32	0.52	0.4	0.65
PRV-601	1	4	4	32	84	0.81	2.15	0	0	0.67	4.15
PRV-602	1	4	4	32	84	0.81	2.15	0	0	0.67	4.15
PRV-71_D	210.78	10	10	26	68	0.11	0.28	0	0.01	0.01	0.05
PRV-71_U	367.93	10	10	27	70	0.11	0.29	0	0.02	0.01	0.05
PRV-711	1	4	4	27	69	0.68	1.75	0	0	0.49	2.87
PRV-712	1	4	4	27	69	0.68	1.75	0	0	0.49	2.87
PRV-90_D	726.55	6	6	6	4	0.07	0.05	0	0	0.01	0
PRV-90_U	76.29	6	6	7	7	0.08	0.08	0	0	0.01	0.01
PRV-901	1	4	4	7	7	0.18	0.17	0	0	0	0
PRV-902	1	4	4	7	7	0.18	0.17	0	0	0	0
SADDLE_CRK1	1	10	10	110	394	0.45	1.61	0	0	0.12	0.85
SADDLE_CRK2	1	10	10	110	394	0.45	1.61	0	0	0	0.85
U70081	1	99	99	124	116	0.01	0	0	0	0	0
U70082	1	99	99	124	116	0.01	0	0	0	0	0
V80061	1	6	6	0	0	0	0	0	0	0	0
V80062	1	6	6	0	0	0	0	0	0	0	0
V80101	1	4	4	0	190	0	4.85	0	0.02	0	18.92

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
2	224.83	8	8	3.98	19.81	0.03	0.13	0	0	0	0.01
12	410.58	10	16	226.93	1526.36	0.93	2.44	0.19	0.65	0.46	1.58
16	184.11	24	24	5524.81	10871.31	3.92	7.71	0.44	1.54	2.38	8.34
22	340.19	10	10	1230.2	-59.03	5.03	0.24	3.57	0.01	10.49	0.04
23	623.73	10	10	1225.05	-74.1	5	0.3	6.49	0.04	10.4	0.06
24	674.63	10	10	-1217.37	151.9	4.97	0.62	6.94	0.15	10.28	0.22
26	1,519.42	10	10	834.15	-321.06	3.41	1.31	7.76	1.32	5.11	0.87
27	782.42	10	10	826.76	-344.57	3.38	1.41	3.93	0.78	5.02	0.99
28	443.41	10	20	6.4	-2558.78	0.03	2.61	0	0.62	0	1.39
29	585.58	10	20	812.33	2188.74	3.32	2.24	2.85	0.61	4.86	1.04
33	814.38	8	8	-4.14	205.35	0.03	1.31	0	0.92	0	1.13
34	678.2	8	8	-143.94	-145.53	0.92	0.93	0.4	0.4	0.58	0.6
35	203.53	8	8	262.92	120.93	1.68	0.77	0.36	0.09	1.78	0.42
37	771.46	8	8	143.97	-39.93	0.92	0.25	0.45	0.04	0.59	0.05
38	1,419.79	8	12	109.2	255.76	0.7	0.73	0.5	0.33	0.35	0.24
40	222.73	12	12	1.53	39.59	0	0.11	0	0	0	0.01
41	279.83	8	8	-20.44	-71.8	0.13	0.46	0	0.05	0.02	0.16
42	132.13	8	12	100.51	180.07	0.64	0.51	0.04	0.02	0.3	0.12
43	315.88	8	8	23.28	78.84	0.15	0.5	0.01	0.06	0.02	0.19
44	453.84	8	8	-76.35	-97.25	0.49	0.62	0.08	0.13	0.18	0.28
45	531.53	8	8	-15.61	-33.12	0.1	0.21	0.01	0.02	0.01	0.04
46	345.85	8	8	53.25	58.04	0.34	0.37	0.03	0.04	0.09	0.11
47	280.51	6	6	3.99	9.83	0.05	0.11	0	0	0	0.02
50	459.24	6	6	46.32	42.5	0.53	0.48	0.13	0.11	0.29	0.25
51	141.01	6	6	4.74	21.25	0.05	0.24	0	0.01	0	0.07
52	277.17	6	6	1.93	9.98	0.02	0.11	0	0	0	0.02
54	379.88	6	12	14.85	48.9	0.17	0.14	0.01	0	0.04	0.01
55	123.91	6	6	7.7	33.4	0.09	0.38	0	0.02	0.01	0.16
57	645.63	6	6	2.88	14.68	0.03	0.17	0	0.02	0	0.03
58	290.12	6	6	-5.51	-11.69	0.06	0.13	0	0.01	0.01	0.02
61	122.39	10	10	48.71	162.92	0.2	0.67	0	0.03	0.03	0.25
62	503.57	6	6	1.33	4.84	0.02	0.05	0	0	0	0

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
64	602.87	6	6	2.53	9.31	0.03	0.11	0	0.01	0	0.01
67	67.92	6	10	-63.97	-776.63	0.73	3.17	0.04	0.3	0.53	4.47
70	1,285.19	10	16	228.55	1541.16	0.93	2.46	0.6	2.07	0.46	1.61
72	452.42	8	8	85.4	31.62	0.55	0.2	0.09	0.01	0.19	0.03
73	106.88	10	10	11.2	18.94	0.05	0.08	0	0	0	0.01
74	288.1	10	10	7.77	9.17	0.03	0.04	0	0	0	0
75	547.29	6	6	2.96	7.51	0.03	0.09	0	0.01	0	0.01
76	585.11	6	6	21.99	67.38	0.25	0.76	0.04	0.34	0.07	0.58
77	303.75	6	6	2.21	9.84	0.03	0.11	0	0.01	0	0.02
78	906.1	6	6	15.85	44.8	0.18	0.51	0.04	0.25	0.04	0.27
80	134.25	6	6	0.54	2.45	0.01	0.03	0	0	0	0
81	222.66	6	6	1.28	3.75	0.01	0.04	0	0	0	0
82	218.49	6	6	7.07	18.98	0.08	0.22	0	0.01	0.01	0.06
83	316.1	6	6	1.9	6.33	0.02	0.07	0	0	0	0.01
84	498.77	6	6	4.14	9.65	0.05	0.11	0	0.01	0	0.02
85	189.59	6	6	2.5	5.31	0.03	0.06	0	0	0	0.01
86	227.67	6	6	3.06	6.86	0.03	0.08	0	0	0	0.01
87	370.31	6	6	-2.38	-4.54	0.03	0.05	0	0	0	0
88	603.03	6	6	5.3	13.82	0.06	0.16	0	0.02	0.01	0.03
89	489.43	6	6	10.17	61.17	0.12	0.69	0.01	0.24	0.02	0.49
91	532.39	6	6	8.81	4.4	0.1	0.05	0.01	0	0.01	0
92	258.26	6	10	56.29	706.28	0.64	2.89	0.11	0.97	0.42	3.75
94	500.94	6	10	-45.42	-644.58	0.52	2.63	0.14	1.59	0.28	3.17
99	312.64	6	6	38.32	104.38	0.43	1.18	0.06	0.41	0.2	1.31
100	924.37	6	10	88.42	706.99	1	2.89	0.89	3.47	0.96	3.76
105	857.96	6	6	22.84	62.45	0.26	0.71	0.07	0.43	0.08	0.51
106	500.01	12	12	182.07	72.49	0.52	0.21	0.06	0.01	0.13	0.02
107	1,910.43	6	6	161.3	-34.64	1.83	0.39	5.6	0.32	2.93	0.17
109	431.79	6	8	343.58	51.69	3.9	0.33	5.14	0.04	11.89	0.09
110	1,291.62	6	6	175.9	48.11	2	0.55	4.45	0.4	3.44	0.31
111	1,547.27	6	6	3.27	7.35	0.04	0.08	0	0.01	0	0.01
112	142.02	10	20	940.67	2058.49	3.84	2.1	0.91	0.13	6.38	0.93

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
113	337.83	10	20	938.8	2052.58	3.83	2.1	2.15	0.31	6.36	0.92
114	571.88	10	20	1084.18	1959.5	4.43	2	4.75	0.49	8.3	0.85
115	636.4	6	6	156.77	-69.17	1.78	0.78	1.77	0.39	2.78	0.61
116	173.04	6	6	4.92	9.9	0.06	0.11	0	0	0	0.02
118	498.71	6	8	89.1	425.32	1.01	2.71	0.49	2.17	0.98	4.35
119	779.33	6	6	43.11	204.49	0.49	2.32	0.2	3.55	0.25	4.55
120	573.19	6	6	42.57	86.47	0.48	0.98	0.14	0.53	0.25	0.92
122	784.61	6	6	-62.14	-164.49	0.71	1.87	0.39	2.39	0.5	3.04
123	846.79	6	6	-2.26	75.67	0.03	0.86	0	0.61	0	0.72
124	562.93	6	6	5.84	77.46	0.07	0.88	0	0.42	0.01	0.75
125	772	6	6	-24.97	-126.97	0.28	1.44	0.07	1.45	0.09	1.88
126	770.74	6	6	-34.75	-156.5	0.39	1.78	0.13	2.14	0.17	2.77
129	764.75	6	6	11.49	-44.34	0.13	0.5	0.02	0.21	0.02	0.27
134	672.98	6	6	-156.46	39.27	1.78	0.45	1.86	0.14	2.77	0.21
135	744.13	6	6	-127.62	9.81	1.45	0.11	1.41	0.01	1.9	0.02
136	246.29	8	8	44.5	-27.51	0.28	0.18	0.02	0.01	0.07	0.03
137	793.29	8	8	-26.42	-63.92	0.17	0.41	0.02	0.1	0.03	0.13
138	1,059.86	6	6	48.69	48.38	0.55	0.55	0.34	0.33	0.32	0.32
139	549.85	8	8	97.28	176.51	0.62	1.13	0.16	0.47	0.28	0.85
140	539.99	8	16	607.46	1108.63	3.88	1.77	4.54	0.47	8.42	0.88
141	763.37	6	6	-7.88	-15.19	0.09	0.17	0.01	0.03	0.01	0.04
143	184.73	10	10	225.61	667.38	0.92	2.73	0.08	0.62	0.45	3.38
144	90.31	10	10	118.9	171.31	0.49	0.7	0.01	0.02	0.14	0.27
145	102.44	10	10	118.05	142.1	0.48	0.58	0.01	0.02	0.14	0.19
146	144.07	10	10	-216.5	-623.21	0.88	2.55	0.06	0.43	0.42	2.98
148	126.93	10	10	213.34	621.08	0.87	2.54	0.05	0.38	0.41	2.96
149	121.76	10	10	59.47	189.24	0.24	0.77	0	0.04	0.04	0.33
151	105.65	6	10	-106.29	-492.67	1.21	2.01	0.14	0.2	1.35	1.93
152	79.62	6	6	-110.86	-131.16	1.26	1.49	0.12	0.16	1.46	2
153	135.84	6	6	-5.93	-10.49	0.07	0.12	0	0	0.01	0.02
154	186.32	10	10	153.81	430.71	0.63	1.76	0.04	0.28	0.22	1.5
156	716.61	8	8	-54.61	-175.64	0.35	1.12	0.07	0.61	0.1	0.85

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
157	123.59	8	8	2.15	6.27	0.01	0.04	0	0	0	0
158	525.36	8	8	49.6	163.94	0.32	1.05	0.04	0.39	0.08	0.74
159	198.8	8	8	48.09	145.3	0.31	0.93	0.01	0.1	0.07	0.51
160	462.05	8	8	-21.77	-65.17	0.14	0.42	0.01	0.05	0.02	0.12
161	111.61	8	8	19.85	61.56	0.13	0.39	0	0.01	0.01	0.1
162	210.94	8	8	13.59	44.05	0.09	0.28	0	0.01	0.01	0.07
163	238.85	8	8	14.46	51.48	0.09	0.33	0	0.02	0.01	0.09
164	451.3	8	8	23.99	74.53	0.15	0.48	0.01	0.08	0.02	0.17
165	275.81	6	6	1.97	4.36	0.02	0.05	0	0	0	0
166	158.97	8	8	20.25	66.01	0.13	0.42	0	0.02	0.02	0.14
167	155.16	8	8	34.31	116.41	0.22	0.74	0.01	0.06	0.04	0.39
168	211.29	6	6	-8.25	-26.27	0.09	0.3	0	0.02	0.01	0.1
169	241.42	6	6	4.11	17.88	0.05	0.2	0	0.01	0	0.05
170	187.69	8	8	25.65	88.83	0.16	0.57	0	0.04	0.02	0.24
171	404.93	8	8	28.08	103.2	0.18	0.66	0.01	0.13	0.03	0.32
172	379.81	8	8	24.22	82.24	0.15	0.52	0.01	0.08	0.02	0.21
173	650.2	8	8	23.4	57.05	0.15	0.36	0.01	0.07	0.02	0.11
174	334.74	8	8	3.07	25	0.02	0.16	0	0.01	0	0.02
175	339.54	8	8	18.23	25.68	0.12	0.16	0	0.01	0.01	0.02
268	154.11	8	8	4.3	13.06	0.03	0.08	0	0	0	0.01
301	265.03	8	8	-6.68	59.01	0.04	0.38	0	0.03	0	0.1
330	319.7	8	8	-9.91	0.79	0.06	0.01	0	0	0	0
349	244.09	8	8	-10.23	-12.06	0.07	0.08	0	0	0	0.01
414	467.91	12	16	181.76	984.7	0.52	1.57	0.05	0.28	0.11	0.61
415	250.58	8	8	26.36	454.83	0.17	2.9	0.01	1.06	0.02	4.25
417	907.76	12	12	154.93	513.37	0.44	1.46	0.07	0.67	0.08	0.74
419	566.35	12	12	152.87	-13.66	0.43	0.04	0.04	0	0.08	0
442	878.64	8	8	-0.44	90.7	0	0.58	0	0.19	0	0.21
445	145.51	8	8	23.2	-281.78	0.15	1.8	0	0.25	0.02	1.75
446	238.62	8	8	21.94	-287.3	0.14	1.83	0	0.43	0.02	1.81
447	252.9	8	8	16.14	-312.18	0.1	1.99	0	0.53	0.01	2.12
448	189.1	8	8	12.32	-327.36	0.08	2.09	0	0.44	0.01	2.31

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
449	555.78	8	8	1.09	14.21	0.01	0.09	0	0	0	0.01
450	462.75	8	8	9.29	-363.69	0.06	2.32	0	1.3	0	2.81
452	550.4	12	12	-123.82	-236.06	0.35	0.67	0.03	0.1	0.05	0.17
453	596.81	12	12	119.88	199.59	0.34	0.57	0.03	0.08	0.05	0.13
454	420.77	8	8	14.89	52.61	0.1	0.34	0	0.03	0.01	0.08
455	552.26	12	12	-28.36	-130.95	0.08	0.37	0	0.03	0	0.06
456	290.15	8	8	-29.57	-143.24	0.19	0.91	0.01	0.15	0.03	0.5
457	320.23	8	8	-11.29	-68.1	0.07	0.43	0	0.04	0	0.13
459	380.78	8	8	-6.23	-5.13	0.04	0.03	0	0	0	0
460	493.78	8	8	-9.39	-55.69	0.06	0.36	0	0.04	0	0.09
461	462.68	8	8	6.79	35.08	0.04	0.22	0	0.02	0	0.04
465	708.24	8	8	80.76	3.48	0.52	0.02	0.12	0	0.17	0
466	544.16	8	8	76.58	-22.12	0.49	0.14	0.09	0.01	0.16	0.02
467	298.85	8	8	74.01	-48.15	0.47	0.31	0.04	0.02	0.15	0.07
468	336.34	8	8	73.03	-71.21	0.47	0.45	0.05	0.05	0.14	0.14
469	283.19	8	8	42.24	111.08	0.27	0.71	0.01	0.09	0.05	0.31
470	147.56	8	8	37.85	95.56	0.24	0.61	0.01	0.03	0.04	0.24
473	200.46	8	8	29.16	296.5	0.19	1.89	0.01	0.39	0.03	1.92
474	461.94	8	8	10.4	136.6	0.07	0.87	0	0.21	0	0.46
475	532.42	8	8	-10.87	-135.31	0.07	0.86	0	0.24	0	0.45
476	474.29	8	8	5.27	111.97	0.03	0.71	0	0.15	0	0.32
477	404.49	8	12	-402.16	-702.01	2.57	1.99	1.59	0.62	3.92	1.53
478	642.28	8	8	3.65	98.49	0.02	0.63	0	0.16	0	0.25
479	511.3	8	8	-2.88	-104.54	0.02	0.67	0	0.14	0	0.28
480	613.66	8	8	2.12	-72.85	0.01	0.46	0	0.09	0	0.14
499	443.99	8	8	0	-11.6	0	0.07	0	0	0	0
500	321.15	8	8	0.26	-33	0	0.21	0	0.01	0	0.03
501	384.28	8	8	0	-74.58	0	0.48	0	0.06	0	0.15
502	447.98	8	8	0.26	29.69	0	0.19	0	0.01	0	0.03
504	753.39	8	8	-0.26	-8.86	0	0.06	0	0	0	0
505	155.34	8	8	0	80.78	0	0.52	0	0.03	0	0.17
509	292.19	8	16	-574.97	-1034.85	3.67	1.65	2.22	0.23	7.6	0.77

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
513	621.7	6	6	32.72	67.68	0.37	0.77	0.09	0.36	0.15	0.59
514	1,061.68	8	12	387.73	664.26	2.47	1.88	3.89	1.46	3.66	1.38
515	516.68	6	8	88.43	235.16	1	1.5	0.5	0.75	0.96	1.45
517	609.24	6	6	-73.85	-100.67	0.84	1.14	0.42	0.75	0.69	1.22
518	488.2	6	6	-61.5	-79.3	0.7	0.9	0.24	0.38	0.49	0.79
520	907.11	6	8	78.13	214.64	0.89	1.37	0.69	1.11	0.77	1.23
521	539.67	6	8	67.83	190.61	0.77	1.22	0.32	0.53	0.59	0.98
522	567.67	6	8	52.67	162.17	0.6	1.04	0.21	0.41	0.37	0.73
525	456.49	6	8	82.53	185.64	0.94	1.18	0.39	0.43	0.85	0.94
526	521.54	6	8	64.76	147.74	0.73	0.94	0.28	0.32	0.54	0.61
527	434.09	6	8	35.56	86.37	0.4	0.55	0.08	0.1	0.18	0.23
528	398.59	8	8	-112.15	-83.14	0.72	0.53	0.15	0.08	0.37	0.21
535	237.74	6	6	23.54	74.87	0.27	0.85	0.02	0.17	0.08	0.71
536	287.31	10	10	85.5	237.47	0.35	0.97	0.02	0.14	0.08	0.5
537	300.6	10	10	84.52	235.36	0.35	0.96	0.02	0.15	0.07	0.49
538	435.26	10	10	84.09	228.3	0.34	0.93	0.03	0.2	0.07	0.46
539	338.05	6	6	21.48	52.17	0.24	0.59	0.02	0.12	0.07	0.36
540	359.5	6	6	-1.79	0.6	0.02	0.01	0	0	0	0
541	459.25	6	6	16.93	45.77	0.19	0.52	0.02	0.13	0.05	0.28
542	175.7	10	10	64.28	178.11	0.26	0.73	0.01	0.05	0.04	0.29
543	490.66	10	10	56.33	138.61	0.23	0.57	0.02	0.09	0.03	0.18
544	438.18	10	10	54.02	133.93	0.22	0.55	0.01	0.08	0.03	0.17
545	297.13	10	10	45.57	102.67	0.19	0.42	0.01	0.03	0.02	0.11
546	850.12	10	10	44.08	99.61	0.18	0.41	0.02	0.08	0.02	0.1
547	177.03	10	10	7.01	28.48	0.03	0.12	0	0	0	0.01
548	382.95	10	10	-36.58	-107.64	0.15	0.44	0.01	0.04	0.02	0.12
549	497.35	8	8	11.43	39.36	0.07	0.25	0	0.03	0.01	0.05
551	237.6	6	6	5.74	-3.03	0.07	0.03	0	0	0.01	0
552	249.98	6	6	2.88	-9.94	0.03	0.11	0	0	0	0.02
553	461.21	8	8	22.81	62.05	0.15	0.4	0.01	0.06	0.02	0.12
555	255.81	10	10	38.36	88.57	0.16	0.36	0	0.02	0.02	0.08
556	291.31	10	10	34.62	80.76	0.14	0.33	0	0.02	0.01	0.07

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
557	315.59	8	8	-6.79	-20.25	0.04	0.13	0	0	0	0.02
558	359.36	6	6	1.3	2.27	0.01	0.03	0	0	0	0
559	157.88	6	6	4.94	16.28	0.06	0.18	0	0.01	0	0.04
560	473.53	8	8	13.96	37.13	0.09	0.24	0	0.02	0.01	0.05
561	306.77	8	8	-6.09	-3.23	0.04	0.02	0	0	0	0
562	436.91	8	8	2.98	-4.26	0.02	0.03	0	0	0	0
563	504.73	6	6	14.41	27.62	0.16	0.31	0.02	0.06	0.03	0.11
564	393.49	6	6	8.26	21.84	0.09	0.25	0	0.03	0.01	0.07
565	582.99	8	8	24.22	55.32	0.15	0.35	0.01	0.06	0.02	0.1
566	156.18	6	6	18.86	40.79	0.21	0.46	0.01	0.04	0.06	0.23
567	558.62	6	6	-6.2	-14.51	0.07	0.16	0	0.02	0.01	0.03
568	480.11	6	6	1.05	-1.81	0.01	0.02	0	0	0	0
569	163.27	6	6	11.22	21.81	0.13	0.25	0	0.01	0.02	0.07
570	159.16	6	6	8.27	15.54	0.09	0.18	0	0.01	0.01	0.04
571	584.08	6	6	5.49	15.09	0.06	0.17	0	0.02	0.01	0.04
572	94.84	6	6	2.27	-0.93	0.03	0.01	0	0	0	0
574	164.52	8	8	15.86	35.31	0.1	0.23	0	0.01	0.01	0.04
575	126.53	8	8	15.59	34.65	0.1	0.22	0	0.01	0.01	0.04
577	912.36	8	8	8.19	23.05	0.05	0.15	0	0.02	0	0.02
583	73.55	24	24	2760.27	7648.4	1.96	5.42	0.05	0.32	0.66	4.35
1091	805.29	8	8	0.26	-10.56	0	0.07	0	0	0	0
1093	936.94	8	8	6.7	20	0.04	0.13	0	0.01	0	0.02
1095	2,061.45	8	8	2.22	-23.54	0.01	0.15	0	0.04	0	0.02
1099	63.33	6	6	0.18	60.9	0	0.69	0	0.02	0	0.48
P-3	143.73	10	10	-110.64	-314.43	0.45	1.28	0.02	0.1	0.1	0.72
P-4	522.79	8	8	5.33	65.4	0.03	0.42	0	0.07	0	0.14
P-6	428.6	12	12	11.69	1.73	0.03	0	0	0	0	0
P-8	381.89	8	8	18.41	-324.77	0.12	2.07	0	1.01	0.01	2.64
P13	153.48	10	10	-44.34	-149.49	0.18	0.61	0	0.03	0.02	0.21
P-13	168.06	18	26	5509.61	10675.45	6.95	6.45	1.62	0.92	9.62	5.46
P15	1,262.65	6	6	51.06	95.32	0.58	1.08	0.44	1.4	0.35	1.11
P17	332.22	6	6	9.37	20.34	0.11	0.23	0.01	0.02	0.02	0.06

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P-18	1,688.11	18	18	5508.25	3822.69	6.94	4.82	16.23	8.25	9.61	4.89
P19	428.57	6	6	29.61	49.64	0.34	0.56	0.05	0.14	0.13	0.33
P-19	431.84	18	18	5507.14	3819.66	6.94	4.82	4.15	2.11	9.61	4.88
P21	684.31	6	6	15.79	35.88	0.18	0.41	0.03	0.12	0.04	0.18
P23	329.93	6	6	6.61	15.59	0.08	0.18	0	0.01	0.01	0.04
P25	291.98	6	6	2.69	7.81	0.03	0.09	0	0	0	0.01
P27	829.17	6	6	-109.71	-85.27	1.24	0.97	1.19	0.75	1.44	0.9
P29	715.47	6	6	-45.23	91.38	0.51	1.04	0.2	0.73	0.28	1.02
P31	304.39	6	6	-70.37	-45.31	0.8	0.51	0.19	0.08	0.63	0.28
P-32	1,146.30	4	10	8.77	16.22	0.22	0.07	0.11	0	0.1	0
P33	422.34	4	10	36.95	102.51	0.94	0.42	0.58	0.04	1.38	0.11
P-33	369.85	4	4	7.63	12.79	0.19	0.33	0.03	0.07	0.07	0.19
P-34	209.15	4	4	4.69	7.86	0.12	0.2	0.01	0.02	0.03	0.08
P35	643.76	4	10	32.68	83.38	0.83	0.34	0.71	0.05	1.1	0.07
P37	516.97	4	4	13.39	25.51	0.34	0.65	0.11	0.36	0.21	0.69
P-37	681.23	6	6	-111.05	-90.76	1.26	1.03	1	0.69	1.47	1.01
P39	218.03	4	10	-17.22	16.64	0.44	0.07	0.07	0	0.34	0
P-39	58.36	12	12	-0.38	-2.73	0	0.01	0	0	0	0
P41	89.47	4	4	-36.23	-30.37	0.92	0.78	0.12	0.09	1.33	0.96
P-41	345.63	6	12	127.21	127.36	1.44	0.36	0.65	0.02	1.89	0.06
P-42	614.87	8	8	-179.38	-213.41	1.14	1.36	0.54	0.75	0.88	1.21
P43	411.29	4	10	14.34	36.59	0.37	0.15	0.1	0.01	0.24	0.02
P-44	616.43	6	8	34.45	99.45	0.39	0.63	0.1	0.18	0.17	0.29
P45	790.84	4	4	1.29	8.72	0.03	0.22	0	0.08	0	0.1
P-46	474.72	6	8	-2.5	53.64	0.03	0.34	0	0.04	0	0.09
P47	1,243.31	4	4	12.87	37.12	0.33	0.95	0.24	1.73	0.2	1.39
P-47	635.15	6	8	-21.43	-68.69	0.24	0.44	0.04	0.09	0.07	0.15
P-48	2,524.69	6	8	3.38	-46.53	0.04	0.3	0.01	0.18	0	0.07
P49	6,359.31	12	16	5.7	258.42	0.02	0.41	0	0.38	0	0.06
P-49	745.78	6	8	-6.33	35.5	0.07	0.23	0.01	0.03	0.01	0.04
P-50	1,924.75	6	6	4.02	11.74	0.05	0.13	0.01	0.04	0	0.02
P-52	680.58	6	6	46.71	87.23	0.53	0.99	0.2	0.64	0.3	0.94

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P-53	578.12	6	8	-20.97	-32.5	0.24	0.21	0.04	0.02	0.07	0.04
P-54	404.19	6	6	5.91	13.62	0.07	0.15	0	0.01	0.01	0.03
P-55	446.36	8	8	8.15	21.04	0.05	0.13	0	0.01	0	0.02
P-56	132.09	6	6	1.69	-2.48	0.02	0.03	0	0	0	0
P-57	89.83	6	6	-5.28	-9.54	0.06	0.11	0	0	0.01	0.01
P-58	495.11	6	6	-6.53	-5.72	0.07	0.06	0	0	0.01	0.01
P59	48.79	8	8	151.5	293.9	0.97	1.88	0.03	0.11	0.64	2.19
P-59	175.59	6	6	-1.05	-2.17	0.01	0.02	0	0	0	0
P-60	205.58	6	6	0.89	2.06	0.01	0.02	0	0	0	0
P61	730.94	8	8	-142.34	-273.98	0.91	1.75	0.42	1.41	0.57	1.93
P-61	344.87	6	6	-2.45	-5.31	0.03	0.06	0	0	0	0.01
P-62	204.38	6	6	-2.14	-4.73	0.02	0.05	0	0	0	0
P63	343.81	6	6	2.11	6.52	0.02	0.07	0	0	0	0.01
P-63	536.74	6	6	-4.69	-8.11	0.05	0.09	0	0.01	0	0.01
P-64	205.93	6	6	0.58	1.09	0.01	0.01	0	0	0	0
P65	310.55	6	6	22.18	41.73	0.25	0.47	0.02	0.07	0.07	0.24
P-65	163.57	6	6	0.88	2.16	0.01	0.02	0	0	0	0
P67	88.32	12	12	0.25	219.3	0	0.62	0	0.02	0	0.18
P-68	202.95	6	6	4.72	10.78	0.05	0.12	0	0	0	0.02
P69	193.67	6	10	301.08	-4.99	3.42	0.02	1.8	0	9.31	0
P-69	620.52	6	6	4.4	13.11	0.05	0.15	0	0.02	0	0.03
P-70	295.15	6	6	3.08	9.76	0.03	0.11	0	0	0	0.02
P71	25.48	6	6	302.71	0	3.43	0	0.24	0	9.41	0
P-71	59.08	6	6	0	0	0	0	0	0	0	0
P-73	617.69	6	10	85.79	699.78	0.97	2.86	0.56	2.28	0.91	3.69
P-74	157.58	6	6	1.42	3.18	0.02	0.04	0	0	0	0
P75	1,239.97	12	12	1.54	0.71	0	0	0	0	0	0
P-75	1,211.21	6	8	-82.86	-230.16	0.94	1.47	1.03	1.69	0.85	1.39
P-76	214.99	6	8	-41.66	-119.84	0.47	0.76	0.05	0.09	0.24	0.42
P77	658.65	12	12	182.3	912.52	0.52	2.59	0.07	1.41	0.11	2.14
P-77	769.97	6	6	-148.96	67.34	1.69	0.76	1.95	0.45	2.53	0.58
P-78	88.36	10	16	926.64	1365.93	3.79	2.18	0.55	0.11	6.2	1.29

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P-79	851.35	10	16	923.52	1359.28	3.77	2.17	5.25	1.09	6.17	1.28
P-80	379.13	6	6	-54.01	-130.9	0.61	1.49	0.15	0.76	0.39	1.99
P-81	598.3	2	2	5.22	13.09	0.53	1.34	0.56	3.04	0.93	5.09
P-82	227.83	6	6	60.29	149.13	0.68	1.69	0.11	0.58	0.47	2.54
P-83	407.85	2	2	-4.55	-11.7	0.46	1.2	0.29	1.69	0.72	4.14
P-84	839.31	12	12	17.56	27.04	0.05	0.08	0	0	0	0
P-88	778.65	6	6	112.59	94.71	1.28	1.07	1.17	0.85	1.51	1.09
P97	80.8	16	16	2749.67	3102.47	4.39	4.95	0.38	0.48	4.71	5.89
P-101	548.47	10	20	352.76	2525.98	1.44	2.58	0.57	0.74	1.04	1.36
P-102	636.9	10	20	-445.62	-3254.17	1.82	3.32	1.02	1.38	1.6	2.17
P103	15.16	30	30	3.83	-2565.53	0	1.16	0	0	0	0.16
P-103	832.11	6	6	-6.63	2.2	0.08	0.02	0.01	0	0.01	0
P105	16.24	30	30	7.32	-3406.83	0	1.55	0	0	0	0.29
P107	25.46	30	30	-3.65	840.97	0	0.38	0	0	0	0.02
P109	33.96	30	30	6.06	2428.91	0	1.1	0	0.01	0	0.15
P111	218.67	12	12	1.26	144.87	0	0.41	0	0.02	0	0.08
P113	1,143.28	12	12	1.31	113.54	0	0.32	0	0.05	0	0.05
P115	208.63	12	12	1.11	-10.05	0	0.03	0	0	0	0
P117	534.1	12	12	0.91	-10.05	0	0.03	0	0	0	0
P119	477.85	8	8	0.91	-1.99	0.01	0.01	0	0	0	0
P121	273.19	10	10	1236.18	-44.48	5.05	0.18	2.89	0.01	10.58	0.02
P123	276.09	6	6	3.22	7.47	0.04	0.08	0	0	0	0.01
P125	614.89	8	8	0.18	-1.99	0	0.01	0	0	0	0
P-126	831.84	10	10	1237.73	-22.17	5.06	0.09	8.82	0.01	10.61	0.01
P127	29.96	18	18	4756.45	525.51	6	0.66	0.19	0	6.32	0.11
P129	85.02	6	6	12.22	16.61	0.14	0.19	0	0	0.02	0.04
P-130	623.02	6	6	-45.61	-152.65	0.52	1.73	0.18	1.65	0.28	2.65
P131	115.43	6	6	0.59	19.29	0.01	0.22	0	0.01	0	0.06
P-131	604.28	6	6	16.73	47.12	0.19	0.53	0.03	0.18	0.04	0.3
P-132	2,143.51	6	6	12.9	37.59	0.15	0.43	0.06	0.42	0.03	0.2
P133	272.89	6	10	-89.86	-715.15	1.02	2.92	0.27	1.05	0.99	3.84
P-133	485.31	8	12	277.38	428.9	1.77	1.22	0.96	0.3	1.97	0.61

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P-134	835.04	6	6	-36.88	-131.49	0.42	1.49	0.16	1.68	0.19	2.01
P135	645.38	10	20	346.23	2507.04	1.41	2.56	0.65	0.86	1	1.34
P137	807.76	6	6	-19.92	-86.37	0.23	0.98	0.05	0.74	0.06	0.92
P139	668.72	6	6	21.94	104.21	0.25	1.18	0.05	0.87	0.07	1.31
P141	638.87	6	10	-40.18	-667.64	0.46	2.73	0.14	2.16	0.22	3.38
P143	649.57	6	8	-39.61	-69.79	0.45	0.45	0.14	0.1	0.22	0.15
P145	141.2	10	10	53.7	188.38	0.22	0.77	0	0.05	0.03	0.32
P147	183.18	10	10	53.58	185.29	0.22	0.76	0.01	0.06	0.03	0.31
P149	171.47	10	10	-30.53	-80.85	0.12	0.33	0	0.01	0.01	0.07
P-150	451.65	8	12	411.34	719.04	2.63	2.04	1.85	0.72	4.09	1.6
P151	485.57	6	6	32.91	85.45	0.37	0.97	0.08	0.44	0.15	0.9
P153	127.01	10	10	97.29	265.68	0.4	1.09	0.01	0.08	0.1	0.61
P155	221.85	6	6	-4.01	-14.29	0.05	0.16	0	0.01	0	0.03
P157	290.82	12	12	-1.07	-8.07	0	0.02	0	0	0	0
P159	216.46	6	6	3.84	5.87	0.04	0.07	0	0	0	0.01
P161	247.94	6	6	-3.63	-9.53	0.04	0.11	0	0	0	0.02
P163	654.81	6	6	2.85	14.57	0.03	0.17	0	0.02	0	0.03
P165	304.11	6	6	1.95	9.62	0.02	0.11	0	0	0	0.02
P167	238.41	6	6	38.09	15.29	0.43	0.17	0.05	0.01	0.2	0.04
P169	803.1	6	6	20.64	-39.04	0.23	0.44	0.05	0.17	0.07	0.21
P171	681.07	10	10	226.13	670.61	0.92	2.74	0.31	2.32	0.46	3.41
P173	274.62	8	8	-58.38	-187.34	0.37	1.2	0.03	0.26	0.11	0.95
P175	302.5	12	12	-0.9	-10.05	0	0.03	0	0	0	0
P177	710.73	12	12	0.9	115.3	0	0.33	0	0.03	0	0.05
P179	220.2	8	8	25.1	430.25	0.16	2.75	0	0.84	0.02	3.83
P181	548.18	6	6	1.66	0	0.02	0	0	0	0	0
P183	389.04	8	8	20.4	430.25	0.13	2.75	0.01	1.49	0.01	3.83
P185	520.72	6	6	2.65	0	0.03	0	0	0	0	0
P187	360.11	8	8	14.06	430.24	0.09	2.75	0	1.38	0.01	3.83
P189	43.19	8	8	151.36	293.67	0.97	1.87	0.03	0.09	0.64	2.19
P191	41.92	8	8	150.97	293	0.96	1.87	0.03	0.09	0.64	2.18
P193	134.11	6	10	156.52	590.85	1.78	2.41	0.37	0.36	2.77	2.7

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P195	161.9	6	10	154.47	587.41	1.75	2.4	0.44	0.43	2.71	2.67
P197	95.39	6	6	117.54	111.16	1.33	1.26	0.16	0.14	1.63	1.47
P199	44.68	8	16	592.9	1071.75	3.78	1.71	0.36	0.04	8.05	0.82
P201	65.11	6	6	117.54	111.16	1.33	1.26	0.11	0.1	1.63	1.47
P203	699.54	6	6	9.34	0	0.11	0	0.01	0	0.01	0
P205	233.59	12	12	1.86	484.64	0.01	1.37	0	0.15	0	0.66
P207	274.68	12	12	1.86	484.64	0.01	1.37	0	0.18	0	0.66
P209	662.87	8	8	1.02	484.64	0.01	3.09	0	3.17	0	4.78
P211	238.79	10	16	926.64	1365.93	3.79	2.18	1.48	0.31	6.2	1.29
P219	26.14	10	#N/A	926.64	#N/A	3.79	#N/A	0.16	#N/A	6.2	#N/A
P221	690.29	8	8	185.45	112.63	1.18	0.72	0.65	0.26	0.93	0.37
P231	154.46	6	10	301.32	-2.46	3.42	0.01	1.44	0	9.33	0
P233	768.43	10	16	919.91	1347.07	3.76	2.15	4.7	0.97	6.12	1.26
P237	659.24	10	10	63.33	172.11	0.26	0.7	0.03	0.18	0.04	0.27
P239	56.43	10	16	919.91	1347.07	3.76	2.15	0.35	0.07	6.12	1.26
P241	80.04	8	16	915.11	1116.89	5.84	1.78	1.44	0.07	17.98	0.89
P243	69.58	6	8	302.71	0	3.43	0	0.65	0	9.41	0
P247	22.25	6	6	302.71	0	3.43	0	0.21	0	9.41	0
P255	469.12	8	8	73.03	413.43	0.47	2.64	0.07	1.67	0.14	3.56
P273	81.42	8	8	303.24	33.5	1.94	0.21	0.19	0	2.32	0.04
P275	18.41	8	8	604.86	0	3.86	0	0.15	0	8.35	0
P277	16.23	8	8	647.55	0	4.13	0	0.15	0	9.47	0
P279	2,090.35	12	12	182.3	76.7	0.52	0.22	0.23	0.05	0.11	0.02
P307	3,371.98	6	12	117.54	111.16	1.33	0.32	5.5	0.17	1.63	0.05
P309	536.25	8	8	196.14	253.4	1.25	1.62	0.56	0.89	1.04	1.67
P311	475.13	8	8	0	0	0	0	0	0	0	0
P317	410.64	8	8	278.31	382.5	1.78	2.44	0.81	1.47	1.98	3.57
P321	510.62	8	8	242.19	298.6	1.55	1.91	0.67	0.99	1.32	1.95
P331	423.61	8	8	191.76	132.52	1.22	0.85	0.42	0.21	0.99	0.5
P339	640.34	8	16	595.58	1078.52	3.8	1.72	5.2	0.53	8.11	0.83
P341	731.61	8	16	915.11	1116.89	5.84	1.78	13.15	0.65	17.98	0.89
P353	140.2	6	12	120.32	115.81	1.37	0.33	0.24	0.01	1.7	0.05

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P359	70.46	6	12	122.79	119.95	1.39	0.34	0.12	0	1.77	0.06
P367	354.92	6	6	6.79	15.33	0.08	0.17	0	0.01	0.01	0.04
P369	32.63	6	6	7.03	21.31	0.08	0.24	0	0	0.01	0.07
P371	369.03	6	6	2.59	8.8	0.03	0.1	0	0	0	0.01
P373	627.01	6	8	27.05	67.26	0.31	0.43	0.07	0.09	0.11	0.14
P375	457.24	6	6	4.78	13.21	0.05	0.15	0	0.01	0	0.03
P377	470.82	6	8	71.09	161.93	0.81	1.03	0.3	0.34	0.64	0.73
P379	472.5	6	8	57.93	133.5	0.66	0.85	0.21	0.24	0.44	0.51
P381	327.75	8	8	-105.34	-70.18	0.67	0.45	0.11	0.05	0.33	0.15
P383	390.5	8	8	-117.72	-95.55	0.75	0.61	0.16	0.11	0.4	0.27
P385	75.99	8	8	-172.62	-198.24	1.1	1.27	0.06	0.08	0.82	1.06
P387	313.15	8	8	-191.23	-234.08	1.22	1.49	0.31	0.45	0.99	1.44
P389	59.8	8	8	275.27	422.72	1.76	2.7	0.12	0.26	1.94	4.3
P391	347.76	6	8	48.83	153.71	0.55	0.98	0.11	0.23	0.32	0.66
P393	428.6	8	8	233.42	283.91	1.49	1.81	0.53	0.76	1.23	1.77
P395	322.27	8	8	250.89	313.4	1.6	2	0.45	0.69	1.41	2.13
P397	441.54	6	6	-57.38	-69.73	0.65	0.79	0.19	0.27	0.43	0.62
P399	285.67	6	6	-67.92	-90.06	0.77	1.02	0.17	0.28	0.59	1
P401	434.56	6	8	101.84	264.67	1.16	1.69	0.54	0.79	1.25	1.81
P403	452.38	6	8	91.9	247.11	1.04	1.58	0.47	0.72	1.03	1.59
P405	459.09	6	8	86.31	230.12	0.98	1.47	0.42	0.64	0.92	1.39
P407	497.09	6	8	59.13	174.75	0.67	1.12	0.23	0.42	0.46	0.84
P409	280.91	8	12	-395.65	-687.13	2.53	1.95	1.07	0.41	3.8	1.47
P411	355.34	8	12	419.32	733.64	2.68	2.08	1.51	0.59	4.24	1.66
P413	174.07	8	16	-573.56	-1032.12	3.66	1.65	1.32	0.13	7.57	0.77
P415	85.36	8	16	-578.26	-1041.36	3.69	1.66	0.66	0.07	7.68	0.78
P417	207	8	16	597.5	1086.19	3.81	1.73	1.69	0.17	8.16	0.84
P419	309.42	8	16	600.59	1093	3.83	1.74	2.55	0.26	8.24	0.85
P421	296.72	6	6	-138.04	-17.99	1.57	0.2	0.65	0.02	2.2	0.05
P423	524.38	6	6	-136.86	-14.21	1.55	0.16	1.13	0.02	2.16	0.03
P425	700.57	6	6	-133.17	-0.73	1.51	0.01	1.44	0	2.06	0
P427	563.01	6	6	-121.37	20.59	1.38	0.23	0.97	0.04	1.73	0.06

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P429	675.06	6	6	-153.31	48.32	1.74	0.55	1.8	0.21	2.67	0.31
P431	509.72	8	8	-1.73	213.28	0.01	1.36	0	0.62	0	1.21
P433	621.54	8	8	-6.81	199.3	0.04	1.27	0	0.66	0	1.07
P435	57.83	8	8	-7.93	196.99	0.05	1.26	0	0.06	0	1.05
P437	107.17	8	8	263.59	122.05	1.68	0.78	0.19	0.05	1.79	0.43
P439	104.54	8	8	48.14	-25.37	0.31	0.16	0.01	0	0.08	0.02
P441	200.8	6	6	-68.3	-31.85	0.78	0.36	0.12	0.03	0.6	0.15
P443	578.78	6	6	-60.21	-25.98	0.68	0.29	0.27	0.06	0.47	0.1
P445	492.82	6	6	-17.63	-5.06	0.2	0.06	0.02	0	0.05	0
P447	350.04	6	6	23.79	14.43	0.27	0.16	0.03	0.01	0.08	0.03
P449	313.82	6	6	57.63	69.78	0.65	0.79	0.14	0.19	0.44	0.62
P451	809.72	8	8	-37.64	-94.23	0.24	0.6	0.04	0.22	0.05	0.27
P453	482.32	6	6	39.62	87.39	0.45	0.99	0.11	0.45	0.22	0.94
P455	291.6	6	6	4.99	13.88	0.06	0.16	0	0.01	0	0.03
P457	222.96	6	6	24.84	48.24	0.28	0.55	0.02	0.07	0.09	0.31
P459	571.54	8	8	-148.83	-289.06	0.95	1.85	0.36	1.22	0.62	2.13
P461	654.56	8	8	214.52	146.14	1.37	0.93	0.8	0.39	1.22	0.6
P463	680.97	10	10	-1192.46	235.05	4.87	0.96	6.74	0.33	9.9	0.49
P465	535.05	10	10	-1200.83	205.34	4.91	0.84	5.36	0.2	10.03	0.38
P467	445.03	10	10	-1207.02	179.86	4.93	0.73	4.51	0.13	10.12	0.3
P469	275.41	10	10	-1213.25	166.93	4.96	0.68	2.81	0.07	10.22	0.26
P471	56.16	6	6	-0.24	59.53	0	0.68	0	0.03	0	0.46
P473	622.25	10	10	1220.23	-85.26	4.98	0.35	6.43	0.05	10.33	0.07
P475	414.42	10	10	1228.79	-65.06	5.02	0.27	4.34	0.02	10.46	0.05
P477	147.93	10	10	1232.11	-54.44	5.03	0.22	1.56	0	10.52	0.03
P479	68.46	6	6	39.7	107.74	0.45	1.22	0.01	0.1	0.22	1.39
P481	440.79	6	8	39.15	112.5	0.44	0.72	0.09	0.16	0.21	0.37
P483	461	6	8	30.12	86.01	0.34	0.55	0.06	0.1	0.13	0.23
P485	518.75	6	8	-27.81	-80.64	0.32	0.51	0.06	0.1	0.11	0.2
P487	470.37	6	6	8.51	21.89	0.1	0.25	0.01	0.03	0.01	0.07
P489	742.31	6	6	35.35	104.74	0.4	1.19	0.13	0.98	0.18	1.32
P491	366.78	6	6	50.52	101.74	0.57	1.15	0.13	0.46	0.34	1.25

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P493	248.87	6	6	-51.33	-110.78	0.58	1.26	0.09	0.36	0.35	1.46
P495	619.69	6	6	-53.97	-123.99	0.61	1.41	0.24	1.12	0.39	1.8
P497	153.87	6	6	8.87	25.33	0.1	0.29	0	0.01	0.01	0.1
P499	310.85	10	20	815.49	2198.73	3.33	2.25	1.52	0.33	4.9	1.05
P501	522.72	10	20	810.46	2178.28	3.31	2.22	2.53	0.54	4.84	1.03
P503	58.51	10	20	940.26	2056.71	3.84	2.1	0.37	0.05	6.38	0.93
P505	473.93	6	6	-38.19	-138.05	0.43	1.57	0.1	1.04	0.2	2.2
P507	412.45	6	6	3.91	-57.82	0.04	0.66	0	0.18	0	0.44
P509	121.77	6	8	92.5	432.38	1.05	2.76	0.13	0.55	1.05	4.48
P511	307.63	6	6	15.85	-36.09	0.18	0.41	0.01	0.06	0.04	0.18
P513	63.32	6	6	-29.23	-136.82	0.33	1.55	0.01	0.14	0.12	2.16
P515	656.92	6	6	-12.49	10.44	0.14	0.12	0.02	0.01	0.03	0.02
P517	477.42	6	6	36.8	69.24	0.42	0.79	0.09	0.29	0.19	0.61
P519	699.22	6	6	-66.7	-184.4	0.76	2.09	0.4	2.63	0.57	3.76
P521	767.68	6	6	-57.21	-143.18	0.65	1.62	0.33	1.81	0.43	2.35
P523	542.7	6	6	149.41	-85.16	1.7	0.97	1.38	0.49	2.54	0.9
P525	156.6	6	6	161.45	-57.51	1.83	0.65	0.46	0.07	2.94	0.43
P527	642.53	6	6	161.45	-37.86	1.83	0.43	1.89	0.13	2.94	0.2
P529	571.15	6	6	163.78	-14.36	1.86	0.16	1.72	0.02	3.02	0.03
P531	1,171.92	6	6	165.99	13.2	1.88	0.15	3.62	0.03	3.09	0.03
P533	1,512.49	6	6	158.92	-42.95	1.8	0.49	4.31	0.38	2.85	0.25
P535	738.15	6	8	15.29	52.58	0.17	0.34	0.03	0.07	0.04	0.09
P537	739.76	6	8	-57.54	-113.99	0.65	0.73	0.32	0.28	0.43	0.38
P539	575.45	6	8	-2.07	11.86	0.02	0.08	0	0	0	0.01
P541	550.77	6	8	-25.92	-27.19	0.29	0.17	0.05	0.01	0.1	0.03
P543	571.86	6	8	-33.49	-50.14	0.38	0.32	0.09	0.05	0.16	0.08
P545	605.48	6	8	-43.24	-80.86	0.49	0.52	0.16	0.12	0.26	0.2
P547	373.14	6	10	-48.01	-664.52	0.54	2.71	0.12	1.25	0.31	3.35
P549	471.13	6	6	6.27	19.61	0.07	0.22	0	0.03	0.01	0.06
P551	264.16	6	6	1.37	4.55	0.02	0.05	0	0	0	0
P553	434.68	10	20	355.29	2533.55	1.45	2.59	0.46	0.59	1.05	1.37
P555	177.28	10	20	347.25	2511.6	1.42	2.56	0.18	0.24	1.01	1.34

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P557	352.6	6	6	4.62	21.05	0.05	0.24	0	0.02	0	0.07
P559	554.06	6	6	3.61	16.06	0.04	0.18	0	0.02	0	0.04
P561	292.08	6	6	0.74	4.07	0.01	0.05	0	0	0	0
P563	1,056.54	6	6	3.15	35.28	0.04	0.4	0	0.19	0	0.18
P565	837.75	6	6	6.16	47.35	0.07	0.54	0.01	0.25	0.01	0.3
P567	453	6	6	8.65	56.48	0.1	0.64	0.01	0.19	0.01	0.42
P569	373.03	6	6	20.11	61.33	0.23	0.7	0.02	0.18	0.06	0.49
P571	213.33	6	6	1.56	5.6	0.02	0.06	0	0	0	0.01
P573	237.17	6	6	1.43	4.34	0.02	0.05	0	0	0	0
P575	584.14	8	8	6.95	14.2	0.04	0.09	0	0	0	0.01
P577	288.94	8	8	15.56	21.28	0.1	0.14	0	0	0.01	0.02
P579	419.93	8	8	1.66	3.34	0.01	0.02	0	0	0	0
P581	213.44	8	8	25.15	96.51	0.16	0.62	0	0.06	0.02	0.28
P583	161.27	8	8	26.09	99.33	0.17	0.63	0	0.05	0.02	0.29
P585	144.51	6	6	-6.77	-22.85	0.08	0.26	0	0.01	0.01	0.08
P589	119.84	6	6	-1.01	2.56	0.01	0.03	0	0	0	0
P591	394.38	6	6	18.48	49.85	0.21	0.57	0.02	0.13	0.05	0.33
P593	431.65	6	6	14.85	40.71	0.17	0.46	0.02	0.1	0.04	0.23
P595	336.4	10	10	84.76	231.09	0.35	0.94	0.02	0.16	0.07	0.47
P597	104.97	10	10	-31.23	-82.61	0.13	0.34	0	0.01	0.01	0.07
P599	299.01	10	10	-57.26	-142.52	0.23	0.58	0.01	0.06	0.04	0.19
P601	189.84	6	6	-2.22	-3.32	0.03	0.04	0	0	0	0
P603	95.74	10	10	35.55	82.71	0.15	0.34	0	0.01	0.02	0.07
P605	264.65	6	6	7.18	18.66	0.08	0.21	0	0.01	0.01	0.05
P607	287.84	6	6	12.27	23.81	0.14	0.27	0.01	0.02	0.03	0.08
P609	191.95	8	8	4	-1.31	0.03	0.01	0	0	0	0
P611	184.16	8	8	-5.01	-0.2	0.03	0	0	0	0	0
P613	222.37	6	6	3.59	-7.82	0.04	0.09	0	0	0	0.01
P615	76.61	6	6	5.07	-5.3	0.06	0.06	0	0	0	0
P617	163.22	6	6	7.24	24.79	0.08	0.28	0	0.01	0.01	0.09
P619	502.21	8	8	9.32	34.07	0.06	0.22	0	0.02	0	0.04
P621	399.83	8	8	12.84	43.37	0.08	0.28	0	0.03	0.01	0.06

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P623	222.7	8	8	-7.47	-21.76	0.05	0.14	0	0	0	0.02
P625	363.11	6	6	-6.87	-17.36	0.08	0.2	0	0.02	0.01	0.05
P627	207.7	6	6	4.15	11.62	0.05	0.13	0	0	0	0.02
P629	486.06	6	6	2.8	1.02	0.03	0.01	0	0	0	0
P631	233.12	6	6	-0.23	-5.59	0	0.06	0	0	0	0.01
P633	312.68	8	8	9.77	23.95	0.06	0.15	0	0.01	0	0.02
P635	219.31	6	6	4.64	11.46	0.05	0.13	0	0	0	0.02
P637	150.57	6	6	6.72	15.26	0.08	0.17	0	0.01	0.01	0.04
P639	270.69	8	8	23.22	52.53	0.15	0.34	0.01	0.02	0.02	0.09
P641	193.25	8	8	5.85	17.27	0.04	0.11	0	0	0	0.01
P643	94.15	8	8	-59.14	-188.64	0.38	1.2	0.01	0.09	0.11	0.96
P645	165.73	8	8	-57.33	-183.69	0.37	1.17	0.02	0.15	0.11	0.92
P647	705.71	8	8	-33.33	-77.87	0.21	0.5	0.03	0.13	0.04	0.19
P649	426.28	8	8	201.28	269.26	1.28	1.72	0.46	0.8	1.09	1.87
P653	259.44	6	6	2.64	62.26	0.03	0.71	0	0.13	0	0.5
P655	274.02	6	6	0.21	5.98	0	0.07	0	0	0	0.01
P657	243.43	6	6	0.71	6.59	0.01	0.07	0	0	0	0.01
P659	201.94	6	6	3.16	7.05	0.04	0.08	0	0	0	0.01
P661	308.76	6	6	20.95	99.22	0.24	1.13	0.02	0.37	0.07	1.19
P663	490.07	6	6	-17.77	-51.59	0.2	0.59	0.02	0.17	0.05	0.36
P665	305.78	10	10	823.27	-354.04	3.36	1.45	1.52	0.32	4.98	1.04
P667	531.92	6	6	-160.88	28.96	1.83	0.33	1.55	0.06	2.92	0.12
P669	270.57	6	6	-1.9	-9.73	0.02	0.11	0	0	0	0.01
P671	289.47	6	6	5.44	15.88	0.06	0.18	0	0.01	0	0.03
P673	452.2	12	12	149.58	-33.9	0.42	0.1	0.03	0	0.08	0
P675	403.68	12	12	-122.15	-222.87	0.35	0.63	0.02	0.06	0.05	0.16
P677	180.17	8	8	-7.74	-46.4	0.05	0.3	0	0.01	0	0.06
P679	541.38	8	8	-13.13	-147.39	0.08	0.94	0	0.29	0.01	0.53
P681	524.43	8	8	4.62	117.96	0.03	0.75	0	0.18	0	0.35
P683	364.98	8	8	-14.63	-144.11	0.09	0.92	0	0.18	0.01	0.51
P687	128.63	12	12	10.74	22.9	0.03	0.06	0	0	0	0
P689	341.48	8	8	12.74	36.44	0.08	0.23	0	0.01	0.01	0.04

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P691	202.53	6	6	2.61	18.53	0.03	0.21	0	0.01	0	0.05
P693	448.12	6	6	3.78	13.41	0.04	0.15	0	0.01	0	0.03
P695	469.5	6	6	1.89	6.21	0.02	0.07	0	0	0	0.01
P697	42.02	6	6	-1.39	-4.31	0.02	0.05	0	0	0	0
P699	202.41	6	6	3.02	15.38	0.03	0.17	0	0.01	0	0.03
P701	652.85	6	6	2.9	6.47	0.03	0.07	0	0	0	0.01
P703	395.74	8	8	4.2	20.57	0.03	0.13	0	0.01	0	0.01
P705	57.09	8	8	22.65	-284.06	0.14	1.81	0	0.1	0.02	1.77
P707	270.57	8	8	2.99	15.06	0.02	0.1	0	0	0	0.01
P709	132.57	6	6	1.54	7.77	0.02	0.09	0	0	0	0.01
P711	211.09	8	8	3.44	11.82	0.02	0.08	0	0	0	0.01
P713	555.62	8	8	1.09	14.22	0.01	0.09	0	0	0	0.01
P715	337.22	8	8	2.06	17.06	0.01	0.11	0	0	0	0.01
P717	219.91	6	6	1.33	10.1	0.02	0.11	0	0	0	0.01
P719	508.72	6	6	4.5	21.17	0.05	0.24	0	0.03	0	0.06
P721	378.61	8	8	1.24	52.16	0.01	0.33	0	0.03	0	0.08
P723	363.18	8	8	2.27	12.66	0.01	0.08	0	0	0	0.01
P725	195.87	8	8	-1.94	34.02	0.01	0.22	0	0.01	0	0.03
P727	305.85	6	6	1.73	8.45	0.02	0.1	0	0	0	0.01
P729	509.32	8	8	6.49	-373.9	0.04	2.39	0	1.5	0	2.95
P731	488.88	8	8	3.67	-387.25	0.02	2.47	0	1.54	0	3.15
P733	392.23	8	8	1.92	-396.58	0.01	2.53	0	1.29	0	3.29
P735	303.07	10	10	98.38	253.39	0.4	1.04	0.03	0.15	0.08	0.48
P737	315.07	10	10	95.97	249.26	0.39	1.02	0.03	0.15	0.08	0.47
P739	260.42	6	6	17.53	47.61	0.2	0.54	0.01	0.07	0.04	0.26
P741	238.5	6	6	16.08	45.17	0.18	0.51	0.01	0.06	0.04	0.24
P743	392.07	8	8	-32.66	-81.16	0.21	0.52	0.01	0.07	0.03	0.17
P745	206.86	8	8	-33.17	-83.31	0.21	0.53	0.01	0.04	0.03	0.18
P747	258.11	8	8	2.23	3.74	0.01	0.02	0	0	0	0
P749	358.41	8	8	-37.88	-93.4	0.24	0.6	0.02	0.08	0.04	0.23
P751	151.5	8	8	3.71	4.44	0.02	0.03	0	0	0	0
P753	223.98	8	8	-42.61	-99.53	0.27	0.64	0.01	0.06	0.05	0.25

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P755	88.75	8	8	2.93	4.18	0.02	0.03	0	0	0	0
P757	327.32	8	8	-46.88	-105.97	0.3	0.68	0.02	0.09	0.06	0.29
P759	464.96	10	10	-47.81	-125.62	0.2	0.51	0.01	0.06	0.02	0.13
P761	289.56	8	8	2.81	4.71	0.02	0.03	0	0	0	0
P763	544.7	10	10	-51.67	-152.74	0.21	0.62	0.01	0.1	0.03	0.19
P765	402.67	10	10	-100.58	-258.59	0.41	1.06	0.04	0.2	0.09	0.5
P767	269.63	8	8	-47.88	-124.76	0.31	0.8	0.02	0.1	0.07	0.39
P769	552.74	10	10	-76.09	-197.51	0.31	0.81	0.03	0.17	0.05	0.31
P771	266.52	6	6	1.27	4.28	0.01	0.05	0	0	0	0
P773	212.76	10	10	-64.02	-191.25	0.26	0.78	0.01	0.06	0.04	0.29
P775	523.98	10	10	52.48	169.47	0.21	0.69	0.01	0.12	0.03	0.23
P777	37.64	6	6	4.85	17.06	0.06	0.19	0	0	0	0.04
PMP-1_D	126.01	99	99	2760.07	4461.6	0.12	0.19	0	0	0	0
PMP-1_U	115.37	99	99	2760.21	4462.04	0.12	0.19	0	0	0	0
PMP-10_D	109.11	99	99	2753.57	3115.61	0.11	0.13	0	0	0	0
PMP-10_U	121.4	99	99	2756.83	3126.59	0.11	0.13	0	0	0	0
PMP-101	1	99	99	2755.13	3120.87	0.11	0.13	0	0	0	0
PMP-102	1	99	99	2755.14	3120.87	0.11	0.13	0	0	0	0
PMP-11	1	99	99	2760.14	4461.82	0.12	0.19	0	0	0	0
PMP-12	1	99	99	2760.14	4461.82	0.12	0.19	0	0	0	0
PRV-108_D	97.46	6	6	354.09	72.87	4.02	0.83	1.23	0.07	12.58	0.67
PRV-108_U	97.46	6	6	355.75	75.9	4.04	0.86	1.24	0.07	12.69	0.73
PRV-1081	77.96	6	6	354.99	74.54	4.03	0.85	0.65	0.04	8.36	0.47
PRV-11_D	38.82	8	16	593.27	1072.7	3.79	1.71	0.31	0.03	8.06	0.82
PRV-11_U	695.84	8	16	-581.36	-1048.58	3.71	1.67	5.4	0.55	7.76	0.79
PRV-111	1	6	6	593.13	1072.31	6.73	12.17	0.02	0.06	21.61	64.76
PRV-112	1	6	6	593.13	1072.31	6.73	12.17	0.02	0.06	21.61	64.7
PRV-131_D	40.29	10	10	226.13	714.97	0.92	2.92	0.02	0.15	0.46	3.84
PRV-131_U	1,206.44	10	10	226.48	743.06	0.93	3.04	0.55	4.97	0.46	4.12
PRV-1311	56.36	6	6	226.13	729.63	2.57	8.28	0.2	1.79	3.63	31.74
PRV-1312	27.86	6	6	226.13	729.63	2.57	8.28	0.1	0.88	3.62	31.74
PRV-18_U	687.83	6	6	-60.67	-152.82	0.69	1.73	0.33	1.82	0.48	2.65

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
PRV-19_D	443.43	6	6	2.99	-10.01	0.03	0.11	0	0.01	0	0.02
PRV-19_U	259.77	6	6	-1.34	14.92	0.02	0.17	0	0.01	0	0.04
PRV-191	1	6	6	0	17.82	0	0.2	0	0	0	0.12
PRV-192	1	6	6	0	17.82	0	0.2	0	0	0	0
PRV-32_D	63.65	12	12	0	217.41	0	0.62	0	0.01	0	0.17
PRV-32_U	508.66	10	16	918.13	1340.85	3.75	2.14	3.1	0.63	6.1	1.25
PRV-321	1	8	8	0	218.32	0	1.39	0	0	0	0.85
PRV-322	1	8	8	0	218.32	0	1.39	0	0	0	0.85
PRV-6_D	751.32	8	8	167.86	83.16	1.07	0.53	0.58	0.16	0.78	0.21
PRV-6_U	802.97	8	8	200.12	141.13	1.28	0.9	0.86	0.45	1.08	0.56
PRV-601	1	4	4	53.69	186.88	1.37	4.77	0	0.02	1.83	18.37
PRV-602	1	4	4	53.69	186.88	1.37	4.77	0	0.02	1.83	18.37
PRV-71_D	210.78	10	10	44.86	150.97	0.18	0.62	0	0.05	0.02	0.22
PRV-71_U	367.93	10	10	46.72	155.02	0.19	0.63	0.01	0.08	0.02	0.23
PRV-711	1	4	4	45.55	152.41	1.16	3.89	0	0.01	1.34	12.57
PRV-712	1	4	4	45.55	152.41	1.16	3.89	0	0.01	1.34	12.63
PRV-90_D	726.55	6	6	9.98	9.03	0.11	0.1	0.01	0.01	0.02	0.01
PRV-90_U	76.29	6	6	12.19	15.75	0.14	0.18	0	0	0.02	0.04
PRV-901	1	4	4	11.84	14.72	0.3	0.38	0	0	0.12	0.12
PRV-902	1	4	4	11.84	14.72	0.3	0.38	0	0	0.12	0.24
SADDLE_CRK1	1	10	10	186.4	928.36	0.76	3.79	0	0	0.24	4.15
SADDLE_CRK2	1	10	10	186.4	924.86	0.76	3.78	0	0	0.12	4.15
U70081	1	99	99	117.54	111.16	0	0	0	0	0	0
U70082	1	99	99	117.54	111.16	0	0	0	0	0	0
V80061	1	6	6	0	60.43	0	0.69	0	0	0	0.37
V80062	1	6	6	0	60.43	0	0.69	0	0	0	0.37
V80101	1	4	4	151.16	293.32	3.86	7.49	0.01	0.04	12.39	42.3

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
2	224.83	8	8	5.97	29.71	0.04	0.19	0	0.01	0	0.03
12	410.58	10	16	340.39	2295.31	1.39	3.66	0.4	1.38	0.97	3.37
16	184.11	24	24	5530.59	10996.65	3.92	7.8	0.44	1.57	2.39	8.52
22	340.19	10	10	1249.62	-88.54	5.1	0.36	3.67	0.03	10.79	0.08
23	623.73	10	10	1241.9	-111.15	5.07	0.45	6.66	0.08	10.67	0.12
24	674.63	10	10	-1230.37	318.3	5.03	1.3	7.08	0.58	10.49	0.86
26	1,519.42	10	10	760.37	-537.33	3.11	2.19	6.54	3.44	4.3	2.26
27	782.42	10	10	749.28	-572.59	3.06	2.34	3.28	1.99	4.19	2.54
28	443.41	10	20	-516.45	-3706.66	2.11	3.79	0.93	1.23	2.1	2.76
29	585.58	10	20	1253.68	3095.86	5.12	3.16	6.36	1.16	10.86	1.98
33	814.38	8	8	80.96	284.14	0.52	1.81	0.16	1.68	0.2	2.06
34	678.2	8	8	-232.41	-197.96	1.48	1.26	0.96	0.72	1.42	1.06
35	203.53	8	8	358.14	157.5	2.29	1.01	0.64	0.14	3.16	0.69
37	771.46	8	8	215.96	-123.73	1.38	0.79	0.96	0.34	1.24	0.44
38	1,419.79	8	12	163.79	389.13	1.05	1.1	1.05	0.73	0.74	0.51
40	222.73	12	12	2.29	59.39	0.01	0.17	0	0	0	0.02
41	279.83	8	8	-30.66	-107.57	0.2	0.69	0.01	0.1	0.03	0.34
42	132.13	8	12	150.76	275.48	0.96	0.78	0.08	0.04	0.64	0.27
43	315.88	8	8	34.91	118.14	0.22	0.75	0.01	0.13	0.04	0.41
44	453.84	8	8	-114.53	-151.37	0.73	0.97	0.17	0.29	0.38	0.64
45	531.53	8	8	-23.41	-49.68	0.15	0.32	0.01	0.04	0.02	0.08
46	345.85	8	8	79.88	92.56	0.51	0.59	0.07	0.09	0.2	0.26
47	280.51	6	6	5.98	14.75	0.07	0.17	0	0.01	0.01	0.04
50	459.24	6	6	69.47	69.24	0.79	0.79	0.28	0.28	0.62	0.61
51	141.01	6	6	7.11	31.87	0.08	0.36	0	0.02	0.01	0.15
52	277.17	6	6	2.89	14.97	0.03	0.17	0	0.01	0	0.04
54	379.88	6	12	22.27	73.35	0.25	0.21	0.03	0.01	0.08	0.02
55	123.91	6	6	11.56	50.09	0.13	0.57	0	0.04	0.02	0.34
57	645.63	6	6	4.31	22.02	0.05	0.25	0	0.05	0	0.07
58	290.12	6	6	-8.27	-17.53	0.09	0.2	0	0.01	0.01	0.05
61	122.39	10	10	73.07	244.39	0.3	1	0.01	0.06	0.06	0.53
62	503.57	6	6	1.99	7.26	0.02	0.08	0	0	0	0.01

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
64	602.87	6	6	3.8	13.96	0.04	0.16	0	0.02	0	0.03
67	67.92	6	10	-95.96	-1180	1.09	4.82	0.08	0.66	1.12	9.71
70	1,285.19	10	16	342.82	2317.51	1.4	3.7	1.26	4.41	0.98	3.43
72	452.42	8	8	128.1	255.84	0.82	1.63	0.18	0.66	0.41	1.46
73	106.88	10	10	16.8	28.41	0.07	0.12	0	0	0	0.01
74	288.1	10	10	11.65	13.76	0.05	0.06	0	0	0	0
75	547.29	6	6	4.44	11.26	0.05	0.13	0	0.01	0	0.02
76	585.11	6	6	32.98	101.08	0.37	1.15	0.09	0.72	0.16	1.23
77	303.75	6	6	3.32	14.76	0.04	0.17	0	0.01	0	0.03
78	906.1	6	6	23.78	67.21	0.27	0.76	0.08	0.52	0.08	0.58
80	134.25	6	6	0.81	3.67	0.01	0.04	0	0	0	0
81	222.66	6	6	1.93	5.62	0.02	0.06	0	0	0	0.01
82	218.49	6	6	10.6	28.47	0.12	0.32	0	0.03	0.02	0.12
83	316.1	6	6	2.85	9.5	0.03	0.11	0	0	0	0.02
84	498.77	6	6	6.21	14.47	0.07	0.16	0	0.02	0.01	0.03
85	189.59	6	6	3.74	7.97	0.04	0.09	0	0	0	0.01
86	227.67	6	6	4.6	10.3	0.05	0.12	0	0	0	0.02
87	370.31	6	6	-3.58	-6.8	0.04	0.08	0	0	0	0.01
88	603.03	6	6	7.95	20.72	0.09	0.24	0.01	0.04	0.01	0.07
89	489.43	6	6	15.25	91.76	0.17	1.04	0.02	0.5	0.04	1.03
91	532.39	6	6	13.21	6.6	0.15	0.07	0.02	0	0.03	0.01
92	258.26	6	10	84.43	1074.48	0.96	4.39	0.23	2.11	0.88	8.16
94	500.94	6	10	-68.13	-981.93	0.77	4.01	0.3	3.46	0.59	6.91
99	312.64	6	6	57.49	141.37	0.65	1.6	0.14	0.72	0.43	2.3
100	924.37	6	10	132.62	1108.97	1.5	4.53	1.89	8	2.04	8.65
105	857.96	6	6	34.25	93.68	0.39	1.06	0.14	0.92	0.17	1.07
106	500.01	12	12	273.1	124.97	0.77	0.35	0.13	0.03	0.27	0.06
107	1,910.43	6	6	183.85	-68.57	2.09	0.78	7.14	1.15	3.74	0.6
109	431.79	6	8	410.55	42.82	4.66	0.27	7.14	0.03	16.54	0.06
110	1,291.62	6	6	217.13	54.05	2.46	0.61	6.57	0.5	5.08	0.39
111	1,547.27	6	6	4.91	11.02	0.06	0.13	0.01	0.03	0	0.02
112	142.02	10	20	1388.08	2883.87	5.67	2.95	1.86	0.25	13.11	1.74

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
113	337.83	10	20	1385.29	2875.02	5.66	2.94	4.41	0.58	13.06	1.73
114	571.88	10	20	1556.64	2717.28	6.36	2.78	9.27	0.89	16.21	1.55
115	636.4	6	6	188.44	-121.87	2.14	1.38	2.49	1.11	3.91	1.74
116	173.04	6	6	7.38	14.85	0.08	0.17	0	0.01	0.01	0.04
118	498.71	6	8	133.65	567.22	1.52	3.62	1.03	3.7	2.07	7.41
119	779.33	6	6	64.67	270.21	0.73	3.07	0.42	5.94	0.54	7.62
120	573.19	6	6	63.86	75.65	0.72	0.86	0.3	0.41	0.53	0.72
122	784.61	6	6	-93.21	-156.28	1.06	1.77	0.83	2.17	1.06	2.77
123	846.79	6	6	-3.39	131.03	0.04	1.49	0	1.69	0	2
124	562.93	6	6	8.76	116.19	0.1	1.32	0.01	0.9	0.01	1.6
125	772	6	6	-37.46	-172.93	0.43	1.96	0.15	2.57	0.2	3.34
126	770.74	6	6	-52.13	-217.23	0.59	2.46	0.28	3.92	0.36	5.09
129	764.75	6	6	17.24	-68.68	0.2	0.78	0.04	0.46	0.05	0.6
134	672.98	6	6	-164.03	55.35	1.86	0.63	2.04	0.27	3.02	0.4
135	744.13	6	6	-138.69	18.27	1.57	0.21	1.65	0.04	2.22	0.05
136	246.29	8	8	30.51	4.18	0.19	0.03	0.01	0	0.03	0
137	793.29	8	8	-70.3	-62.26	0.45	0.4	0.12	0.1	0.16	0.12
138	1,059.86	6	6	78.6	60.75	0.89	0.69	0.82	0.51	0.77	0.48
139	549.85	8	8	182.15	219.32	1.16	1.4	0.5	0.7	0.9	1.28
140	539.99	8	16	877.8	1555.31	5.6	2.48	8.99	0.89	16.64	1.64
141	763.37	6	6	-11.82	-22.78	0.13	0.26	0.02	0.06	0.02	0.08
143	184.73	10	10	338.42	1001.07	1.38	4.09	0.18	1.32	0.96	7.16
144	90.31	10	10	178.35	256.96	0.73	1.05	0.03	0.05	0.29	0.58
145	102.44	10	10	177.07	213.15	0.72	0.87	0.03	0.04	0.29	0.41
146	144.07	10	10	-324.76	-934.81	1.33	3.82	0.13	0.91	0.89	6.31
148	126.93	10	10	320.02	931.62	1.31	3.81	0.11	0.8	0.87	6.27
149	121.76	10	10	89.21	283.86	0.36	1.16	0.01	0.08	0.08	0.69
151	105.65	6	10	-159.43	-739.01	1.81	3.02	0.3	0.43	2.87	4.08
152	79.62	6	6	-166.3	-196.74	1.89	2.23	0.25	0.34	3.1	4.23
153	135.84	6	6	-8.89	-15.73	0.1	0.18	0	0.01	0.01	0.04
154	186.32	10	10	230.72	646.06	0.94	2.64	0.09	0.59	0.47	3.18
156	716.61	8	8	-81.91	-263.46	0.52	1.68	0.15	1.28	0.21	1.79

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
157	123.59	8	8	3.22	9.41	0.02	0.06	0	0	0	0
158	525.36	8	8	74.39	245.91	0.47	1.57	0.09	0.83	0.17	1.58
159	198.8	8	8	72.13	217.96	0.46	1.39	0.03	0.22	0.14	1.09
160	462.05	8	8	-32.65	-97.75	0.21	0.62	0.01	0.11	0.03	0.25
161	111.61	8	8	29.77	92.33	0.19	0.59	0	0.02	0.03	0.22
162	210.94	8	8	20.39	66.08	0.13	0.42	0	0.03	0.02	0.14
163	238.85	8	8	21.69	77.22	0.14	0.49	0	0.04	0.02	0.18
164	451.3	8	8	35.99	111.79	0.23	0.71	0.02	0.17	0.04	0.37
165	275.81	6	6	2.95	6.55	0.03	0.07	0	0	0	0.01
166	158.97	8	8	30.38	99.01	0.19	0.63	0.01	0.05	0.03	0.29
167	155.16	8	8	51.47	174.62	0.33	1.11	0.01	0.13	0.09	0.84
168	211.29	6	6	-12.38	-39.41	0.14	0.45	0.01	0.05	0.03	0.22
169	241.42	6	6	6.16	26.82	0.07	0.3	0	0.03	0.01	0.11
170	187.69	8	8	38.47	133.25	0.25	0.85	0.01	0.1	0.05	0.51
171	404.93	8	8	42.11	154.8	0.27	0.99	0.02	0.27	0.06	0.67
172	379.81	8	8	36.33	123.36	0.23	0.79	0.02	0.17	0.05	0.44
173	650.2	8	8	35.1	85.58	0.22	0.55	0.03	0.15	0.04	0.22
174	334.74	8	8	4.61	37.5	0.03	0.24	0	0.02	0	0.05
175	339.54	8	8	27.35	38.53	0.17	0.25	0.01	0.02	0.03	0.05
268	154.11	8	8	6.45	19.6	0.04	0.13	0	0	0	0.01
301	265.03	8	8	-10.02	130.97	0.06	0.84	0	0.11	0	0.42
330	319.7	8	8	-14.86	37.23	0.09	0.24	0	0.01	0.01	0.04
349	244.09	8	8	-15.35	17.96	0.1	0.11	0	0	0.01	0.01
414	467.91	12	16	272.64	1268.63	0.77	2.02	0.11	0.45	0.23	0.97
415	250.58	8	8	39.54	604.2	0.25	3.86	0.01	1.8	0.05	7.18
417	907.76	12	12	232.39	639.69	0.66	1.81	0.15	1.01	0.17	1.11
419	566.35	12	12	229.3	-20.49	0.65	0.06	0.09	0	0.17	0
442	878.64	8	8	-0.66	178.51	0	1.14	0	0.66	0	0.75
445	145.51	8	8	34.8	-531.35	0.22	3.39	0.01	0.82	0.04	5.66
446	238.62	8	8	32.92	-539.64	0.21	3.44	0.01	1.39	0.03	5.83
447	252.9	8	8	24.22	-576.95	0.15	3.68	0	1.67	0.02	6.6
448	189.1	8	8	18.48	-599.72	0.12	3.83	0	1.34	0.01	7.09

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
449	555.78	8	8	1.63	21.32	0.01	0.14	0	0.01	0	0.01
450	462.75	8	8	13.94	-654.22	0.09	4.18	0	3.85	0.01	8.32
452	550.4	12	12	-185.73	-462.76	0.53	1.31	0.06	0.33	0.11	0.61
453	596.81	12	12	179.82	465.31	0.51	1.32	0.06	0.37	0.11	0.61
454	420.77	8	8	22.33	42.87	0.14	0.27	0.01	0.02	0.02	0.05
455	552.26	12	12	-42.54	-153.96	0.12	0.44	0	0.04	0.01	0.08
456	290.15	8	8	-44.36	-172.4	0.28	1.1	0.02	0.2	0.06	0.7
457	320.23	8	8	-16.94	-95.74	0.11	0.61	0	0.08	0.01	0.24
459	380.78	8	8	-9.35	-1.28	0.06	0.01	0	0	0	0
460	493.78	8	8	-14.09	-77.12	0.09	0.49	0	0.08	0.01	0.16
461	462.68	8	8	10.19	46.2	0.07	0.29	0	0.03	0	0.06
465	708.24	8	8	121.14	213.63	0.77	1.36	0.26	0.74	0.37	1.05
466	544.16	8	8	114.88	175.24	0.73	1.12	0.18	0.39	0.33	0.73
467	298.85	8	8	111.01	136.19	0.71	0.87	0.09	0.14	0.31	0.46
468	336.34	8	8	109.54	101.6	0.7	0.65	0.1	0.09	0.3	0.26
469	283.19	8	8	63.35	239.85	0.4	1.53	0.03	0.37	0.11	1.3
470	147.56	8	8	56.78	216.57	0.36	1.38	0.01	0.16	0.09	1.07
473	200.46	8	8	43.75	449.56	0.28	2.87	0.01	0.83	0.06	4.16
474	461.94	8	8	15.6	207.44	0.1	1.32	0	0.46	0.01	0.99
475	532.42	8	8	-16.31	-205.22	0.1	1.31	0	0.52	0.01	0.97
476	474.29	8	8	7.91	170.22	0.05	1.09	0	0.33	0	0.69
477	404.49	8	12	-533.61	-990.83	3.41	2.81	2.68	1.17	6.62	2.89
478	642.28	8	8	5.48	149.99	0.03	0.96	0	0.35	0	0.54
479	511.3	8	8	-4.31	-159.36	0.03	1.02	0	0.31	0	0.61
480	613.66	8	8	3.18	-111.53	0.02	0.71	0	0.19	0	0.31
499	443.99	8	8	0	-17.4	0	0.11	0	0	0	0.01
500	321.15	8	8	0.57	-49.51	0	0.32	0	0.02	0	0.07
501	384.28	8	8	0	-111.87	0	0.71	0	0.12	0	0.32
502	447.98	8	8	0.57	44.54	0	0.28	0	0.03	0	0.06
504	753.39	8	8	-0.57	-13.3	0	0.08	0	0	0	0.01
505	155.34	8	8	0	121.17	0	0.77	0	0.06	0	0.37
509	292.19	8	16	-829.06	-1444.64	5.29	2.31	4.37	0.42	14.97	1.43

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
513	621.7	6	6	49.07	101.52	0.56	1.15	0.2	0.77	0.32	1.24
514	1,061.68	8	12	511.96	934.21	3.27	2.65	6.51	2.75	6.13	2.59
515	516.68	6	8	116.3	328.38	1.32	2.1	0.83	1.39	1.6	2.69
517	609.24	6	6	-97.44	-141.51	1.11	1.61	0.7	1.4	1.15	2.3
518	488.2	6	6	-78.92	-109.46	0.9	1.24	0.38	0.7	0.78	1.43
520	907.11	6	8	100.85	297.61	1.14	1.9	1.11	2.04	1.23	2.24
521	539.67	6	8	85.41	261.56	0.97	1.67	0.49	0.95	0.9	1.77
522	567.67	6	8	62.66	218.9	0.71	1.4	0.29	0.72	0.51	1.27
525	456.49	6	8	103.7	250.95	1.18	1.6	0.59	0.75	1.29	1.64
526	521.54	6	8	77.05	194.09	0.87	1.24	0.39	0.53	0.75	1.02
527	434.09	6	8	33.24	102.03	0.38	0.65	0.07	0.13	0.16	0.31
528	398.59	8	8	-118.68	-90.04	0.76	0.57	0.16	0.1	0.41	0.25
535	237.74	6	6	35.3	112.31	0.4	1.27	0.04	0.36	0.18	1.5
536	287.31	10	10	128.25	356.2	0.52	1.46	0.05	0.3	0.16	1.06
537	300.6	10	10	126.77	353.04	0.52	1.44	0.05	0.31	0.16	1.04
538	435.26	10	10	126.13	342.45	0.52	1.4	0.07	0.43	0.15	0.98
539	338.05	6	6	32.22	78.26	0.37	0.89	0.05	0.26	0.15	0.77
540	359.5	6	6	-2.69	0.9	0.03	0.01	0	0	0	0
541	459.25	6	6	25.39	68.66	0.29	0.78	0.04	0.28	0.1	0.6
542	175.7	10	10	96.41	267.16	0.39	1.09	0.02	0.11	0.09	0.62
543	490.66	10	10	84.49	207.91	0.35	0.85	0.04	0.19	0.07	0.39
544	438.18	10	10	81.03	200.9	0.33	0.82	0.03	0.16	0.07	0.37
545	297.13	10	10	68.35	154.01	0.28	0.63	0.01	0.07	0.05	0.22
546	850.12	10	10	66.13	149.42	0.27	0.61	0.04	0.18	0.05	0.21
547	177.03	10	10	10.52	42.72	0.04	0.17	0	0	0	0.02
548	382.95	10	10	-54.88	-161.46	0.22	0.66	0.01	0.09	0.03	0.24
549	497.35	8	8	17.15	59.04	0.11	0.38	0.01	0.06	0.01	0.11
551	237.6	6	6	8.6	-4.54	0.1	0.05	0	0	0.01	0
552	249.98	6	6	4.32	-14.91	0.05	0.17	0	0.01	0	0.04
553	461.21	8	8	34.22	93.08	0.22	0.59	0.02	0.12	0.04	0.26
555	255.81	10	10	57.54	132.86	0.24	0.54	0.01	0.04	0.04	0.17
556	291.31	10	10	51.93	121.14	0.21	0.49	0.01	0.04	0.03	0.14

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
557	315.59	8	8	-10.19	-30.37	0.07	0.19	0	0.01	0	0.03
558	359.36	6	6	1.94	3.4	0.02	0.04	0	0	0	0
559	157.88	6	6	7.41	24.42	0.08	0.28	0	0.01	0.01	0.09
560	473.53	8	8	20.94	55.69	0.13	0.36	0.01	0.05	0.02	0.1
561	306.77	8	8	-9.14	-4.84	0.06	0.03	0	0	0	0
562	436.91	8	8	4.47	-6.39	0.03	0.04	0	0	0	0
563	504.73	6	6	21.61	41.42	0.25	0.47	0.04	0.12	0.07	0.24
564	393.49	6	6	12.39	32.75	0.14	0.37	0.01	0.06	0.03	0.15
565	582.99	8	8	36.33	82.98	0.23	0.53	0.03	0.12	0.05	0.21
566	156.18	6	6	28.28	61.19	0.32	0.69	0.02	0.08	0.12	0.49
567	558.62	6	6	-9.3	-21.77	0.11	0.25	0.01	0.04	0.01	0.07
568	480.11	6	6	1.57	-2.72	0.02	0.03	0	0	0	0
569	163.27	6	6	16.82	32.71	0.19	0.37	0.01	0.02	0.04	0.15
570	159.16	6	6	12.4	23.31	0.14	0.26	0	0.01	0.03	0.08
571	584.08	6	6	8.23	22.64	0.09	0.26	0.01	0.05	0.01	0.08
572	94.84	6	6	3.41	-1.4	0.04	0.02	0	0	0	0
574	164.52	8	8	23.79	52.97	0.15	0.34	0	0.02	0.02	0.09
575	126.53	8	8	23.38	51.98	0.15	0.33	0	0.01	0.02	0.09
577	912.36	8	8	12.29	34.57	0.08	0.22	0.01	0.04	0.01	0.04
583	73.55	24	24	2760.84	7711.49	1.96	5.47	0.05	0.32	0.66	4.41
1091	805.29	8	8	0.57	-15.84	0	0.1	0	0.01	0	0.01
1093	936.94	8	8	10.04	23.58	0.06	0.15	0	0.02	0	0.02
1095	2,061.45	8	8	3.34	-41.72	0.02	0.27	0	0.12	0	0.06
1099	63.33	6	6	0.27	181.8	0	2.06	0	0.14	0	3.66
P-3	143.73	10	10	-165.96	-471.64	0.68	1.93	0.03	0.22	0.22	1.53
P-4	522.79	8	8	7.99	98.22	0.05	0.63	0	0.15	0	0.29
P-6	428.6	12	12	17.54	2.47	0.05	0.01	0	0	0	0
P-8	381.89	8	8	27.61	-556.48	0.18	3.55	0.01	2.73	0.03	7.15
P13	153.48	10	10	-66.51	-224.24	0.27	0.92	0.01	0.07	0.05	0.45
P-13	168.06	18	26	5507.79	10702.86	6.94	6.47	1.62	0.92	9.61	5.49
P15	1,262.65	6	6	76.59	142.97	0.87	1.62	0.93	2.96	0.74	2.34
P17	332.22	6	6	14.06	30.51	0.16	0.35	0.01	0.04	0.03	0.13

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P-18	1,688.11	18	18	5505.75	3671.4	6.94	4.63	16.22	7.66	9.61	4.54
P19	428.57	6	6	44.41	74.45	0.5	0.84	0.12	0.3	0.27	0.7
P-19	431.84	18	18	5504.08	3666.86	6.94	4.62	4.15	1.95	9.6	4.53
P21	684.31	6	6	23.69	53.82	0.27	0.61	0.06	0.26	0.08	0.38
P23	329.93	6	6	9.92	23.39	0.11	0.27	0.01	0.03	0.02	0.08
P25	291.98	6	6	4.03	11.72	0.05	0.13	0	0.01	0	0.02
P27	829.17	6	6	-94.93	-65.72	1.08	0.75	0.91	0.46	1.1	0.56
P29	715.47	6	6	1.78	199.26	0.02	2.26	0	3.1	0	4.34
P31	304.39	6	6	-55.33	-29.87	0.63	0.34	0.12	0.04	0.4	0.13
P-32	1,146.30	4	10	13.15	24.33	0.34	0.1	0.23	0.01	0.2	0.01
P33	422.34	4	10	55.43	153.77	1.42	0.63	1.23	0.09	2.92	0.22
P-33	369.85	4	4	11.45	19.18	0.29	0.49	0.06	0.15	0.16	0.41
P-34	209.15	4	4	7.04	11.79	0.18	0.3	0.01	0.03	0.06	0.17
P35	643.76	4	10	49.02	125.07	1.25	0.51	1.5	0.1	2.33	0.15
P37	516.97	4	4	20.08	38.26	0.51	0.98	0.23	0.76	0.45	1.47
P-37	681.23	6	6	-96.94	-73.96	1.1	0.84	0.78	0.47	1.14	0.69
P39	218.03	4	10	-6.42	49.05	0.16	0.2	0.01	0.01	0.05	0.03
P-39	58.36	12	12	-0.57	-4.09	0	0.01	0	0	0	0
P41	89.47	4	4	-34.94	-21.47	0.89	0.55	0.11	0.05	1.24	0.5
P-41	345.63	6	12	121.18	128.85	1.38	0.37	0.6	0.02	1.73	0.07
P-42	614.87	8	8	-219.54	-285.44	1.4	1.82	0.79	1.28	1.28	2.08
P43	411.29	4	10	21.51	54.89	0.55	0.22	0.21	0.01	0.51	0.03
P-44	616.43	6	8	51.68	143.54	0.59	0.92	0.22	0.36	0.36	0.58
P45	790.84	4	4	1.93	13.08	0.05	0.33	0	0.16	0.01	0.2
P-46	474.72	6	8	-3.75	170.92	0.04	1.09	0	0.38	0	0.8
P47	1,243.31	4	4	19.3	55.67	0.49	1.42	0.52	3.66	0.41	2.95
P-47	635.15	6	8	-32.14	-97.4	0.36	0.62	0.09	0.18	0.15	0.28
P-48	2,524.69	6	8	5.07	-160.25	0.06	1.02	0.01	1.8	0	0.71
P49	6,359.31	12	16	8.54	387.62	0.02	0.62	0	0.8	0	0.13
P-49	745.78	6	8	-9.5	143.71	0.11	0.92	0.01	0.43	0.02	0.58
P-50	1,924.75	6	6	6.02	17.61	0.07	0.2	0.01	0.09	0.01	0.05
P-52	680.58	6	6	70.07	40.4	0.8	0.46	0.43	0.15	0.63	0.23

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P-53	578.12	6	8	-31.46	-54.39	0.36	0.35	0.08	0.06	0.14	0.1
P-54	404.19	6	6	8.86	20.43	0.1	0.23	0.01	0.03	0.01	0.06
P-55	446.36	8	8	12.23	31.56	0.08	0.2	0	0.02	0.01	0.04
P-56	132.09	6	6	2.53	-3.72	0.03	0.04	0	0	0	0
P-57	89.83	6	6	-7.92	-14.32	0.09	0.16	0	0	0.01	0.03
P-58	495.11	6	6	-9.8	-8.59	0.11	0.1	0.01	0.01	0.02	0.01
P59	48.79	8	8	263.49	395.42	1.68	2.52	0.09	0.19	1.79	3.8
P-59	175.59	6	6	-1.58	-3.25	0.02	0.04	0	0	0	0
P-60	205.58	6	6	1.34	3.1	0.02	0.04	0	0	0	0
P61	730.94	8	8	-249.74	-365.53	1.59	2.33	1.19	2.4	1.62	3.29
P-61	344.87	6	6	-3.68	-7.96	0.04	0.09	0	0	0	0.01
P-62	204.38	6	6	-3.21	-7.1	0.04	0.08	0	0	0	0.01
P63	343.81	6	6	3.16	9.78	0.04	0.11	0	0.01	0	0.02
P-63	536.74	6	6	-7.03	-12.17	0.08	0.14	0	0.01	0.01	0.02
P-64	205.93	6	6	0.87	1.64	0.01	0.02	0	0	0	0
P65	310.55	6	6	33.28	62.6	0.38	0.71	0.05	0.16	0.16	0.51
P-65	163.57	6	6	1.33	3.24	0.02	0.04	0	0	0	0
P67	88.32	12	12	87.54	305.06	0.25	0.87	0	0.03	0.03	0.33
P-68	202.95	6	6	7.08	16.17	0.08	0.18	0	0.01	0.01	0.04
P69	193.67	6	10	328.21	-7.48	3.72	0.03	2.12	0	10.93	0
P-69	620.52	6	6	6.6	19.66	0.07	0.22	0	0.04	0.01	0.06
P-70	295.15	6	6	4.62	14.64	0.05	0.17	0	0.01	0	0.03
P71	25.48	6	6	330.66	0	3.75	0	0.28	0	11.08	0
P-71	59.08	6	6	0	0	0	0	0	0	0	0
P-73	617.69	6	10	128.68	1098.16	1.46	4.49	1.19	5.25	1.93	8.5
P-74	157.58	6	6	2.13	4.77	0.02	0.05	0	0	0	0
P75	1,239.97	12	12	3.34	0.71	0.01	0	0	0	0	0
P-75	1,211.21	6	8	-124.28	-324.41	1.41	2.07	2.19	3.19	1.81	2.63
P-76	214.99	6	8	-62.49	-174.13	0.71	1.11	0.11	0.18	0.51	0.83
P77	658.65	12	12	273.45	1577.17	0.78	4.47	0.15	3.88	0.23	5.89
P-77	769.97	6	6	-165.33	117.61	1.88	1.33	2.36	1.26	3.07	1.63
P-78	88.36	10	16	1320.34	1917.39	5.39	3.06	1.06	0.21	11.95	2.42

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P-79	851.35	10	16	1315.64	1907.4	5.37	3.04	10.11	2.04	11.87	2.39
P-80	379.13	6	6	-81.02	-176.67	0.92	2	0.31	1.32	0.82	3.47
P-81	598.3	2	2	7.83	19.63	0.8	2	1.18	6.45	1.97	10.78
P-82	227.83	6	6	90.44	204.01	1.03	2.31	0.23	1.03	1	4.53
P-83	407.85	2	2	-6.82	-17.56	0.7	1.79	0.62	3.58	1.52	8.77
P-84	839.31	12	12	26.35	40.44	0.07	0.11	0	0.01	0	0.01
P-88	778.65	6	6	99.25	79.87	1.13	0.91	0.93	0.62	1.19	0.8
P97	80.8	16	16	2747.45	3104.5	4.38	4.95	0.38	0.48	4.71	5.9
P-101	548.47	10	20	529.14	3809.81	2.16	3.89	1.21	1.59	2.2	2.91
P-102	636.9	10	20	-668.43	-4950.59	2.73	5.06	2.16	3.01	3.39	4.72
P103	15.16	30	30	-520.31	-3716.78	0.24	1.69	0	0.01	0.01	0.33
P-103	832.11	6	6	-9.95	3.3	0.11	0.04	0.01	0	0.02	0
P105	16.24	30	30	-212.34	-3430.61	0.1	1.56	0	0	0.01	0.29
P107	25.46	30	30	-308.21	-286.67	0.14	0.13	0	0	0	0
P109	33.96	30	30	-214.23	2283.72	0.1	1.04	0	0	0	0.14
P111	218.67	12	12	1.18	217.29	0	0.62	0	0.04	0	0.17
P113	1,143.28	12	12	2.69	170.33	0.01	0.48	0	0.11	0	0.1
P115	208.63	12	12	2.38	-15.06	0.01	0.04	0	0	0	0
P117	534.1	12	12	2.09	-15.06	0.01	0.04	0	0	0	0
P119	477.85	8	8	1.81	-2.18	0.01	0.01	0	0	0	0
P121	273.19	10	10	1258.59	-66.72	5.14	0.27	2.99	0.01	10.94	0.05
P123	276.09	6	6	4.83	11.2	0.05	0.13	0	0.01	0	0.02
P125	614.89	8	8	0.7	-2.18	0	0.01	0	0	0	0
P-126	831.84	10	10	1260.91	-33.25	5.15	0.14	9.13	0.01	10.98	0.01
P127	29.96	18	18	4543.26	-1215.92	5.73	1.53	0.17	0.02	5.8	0.51
P129	85.02	6	6	18.33	24.91	0.21	0.28	0	0.01	0.05	0.09
P-130	623.02	6	6	-68.41	-192.56	0.78	2.19	0.37	2.54	0.6	4.07
P131	115.43	6	6	0.88	28.94	0.01	0.33	0	0.01	0	0.12
P-131	604.28	6	6	25.1	70.68	0.28	0.8	0.06	0.38	0.09	0.64
P-132	2,143.51	6	6	19.35	56.39	0.22	0.64	0.12	0.9	0.06	0.42
P133	272.89	6	10	-134.79	-1121.22	1.53	4.58	0.57	2.41	2.1	8.83
P-133	485.31	8	12	346.44	581.16	2.21	1.65	1.44	0.52	2.97	1.08

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P-134	835.04	6	6	-55.32	-160.82	0.63	1.82	0.34	2.43	0.4	2.92
P135	645.38	10	20	519.35	3781.39	2.12	3.86	1.37	1.85	2.12	2.87
P137	807.76	6	6	-29.88	-131.34	0.34	1.49	0.1	1.62	0.13	2
P139	668.72	6	6	32.91	158.11	0.37	1.79	0.1	1.89	0.15	2.83
P141	638.87	6	10	-60.28	-1014.74	0.68	4.15	0.3	4.69	0.47	7.34
P143	649.57	6	8	-59.41	-125.52	0.67	0.8	0.3	0.29	0.46	0.45
P145	141.2	10	10	80.55	282.57	0.33	1.15	0.01	0.1	0.07	0.69
P147	183.18	10	10	80.36	277.93	0.33	1.14	0.01	0.12	0.07	0.67
P149	171.47	10	10	-45.8	-121.28	0.19	0.5	0	0.02	0.02	0.14
P-150	451.65	8	12	547.38	1016.37	3.49	2.88	3.13	1.37	6.94	3.03
P151	485.57	6	6	49.37	128.17	0.56	1.45	0.16	0.93	0.33	1.92
P153	127.01	10	10	145.94	398.52	0.6	1.63	0.03	0.17	0.2	1.3
P155	221.85	6	6	-6.02	-21.44	0.07	0.24	0	0.02	0.01	0.07
P157	290.82	12	12	-1.33	-12.89	0	0.04	0	0	0	0
P159	216.46	6	6	5.76	8.8	0.07	0.1	0	0	0.01	0.01
P161	247.94	6	6	-5.44	-14.3	0.06	0.16	0	0.01	0.01	0.03
P163	654.81	6	6	4.28	21.86	0.05	0.25	0	0.05	0	0.07
P165	304.11	6	6	2.92	14.43	0.03	0.16	0	0.01	0	0.03
P167	238.41	6	6	57.13	28.43	0.65	0.32	0.1	0.03	0.43	0.12
P169	803.1	6	6	30.96	-53.07	0.35	0.6	0.11	0.3	0.14	0.37
P171	681.07	10	10	339.19	1005.92	1.39	4.11	0.66	4.92	0.96	7.22
P173	274.62	8	8	-87.57	-281	0.56	1.79	0.06	0.55	0.23	2.02
P175	302.5	12	12	-0.63	-15.06	0	0.04	0	0	0	0
P177	710.73	12	12	0.63	172.94	0	0.49	0	0.07	0	0.1
P179	220.2	8	8	37.66	567.33	0.24	3.62	0.01	1.41	0.04	6.39
P181	548.18	6	6	2.49	0	0.03	0	0	0	0	0
P183	389.04	8	8	30.6	567.33	0.2	3.62	0.01	2.49	0.03	6.39
P185	520.72	6	6	3.98	0	0.05	0	0	0	0	0
P187	360.11	8	8	21.08	567.33	0.13	3.62	0.01	2.3	0.01	6.39
P189	43.19	8	8	263.28	395.06	1.68	2.52	0.08	0.16	1.79	3.79
P191	41.92	8	8	262.68	394.06	1.68	2.52	0.07	0.16	1.78	3.78
P193	134.11	6	10	234.78	795.83	2.66	3.25	0.79	0.63	5.88	4.68

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P195	161.9	6	10	231.7	790.66	2.63	3.23	0.93	0.75	5.73	4.62
P197	95.39	6	6	106.68	104.55	1.21	1.19	0.13	0.13	1.36	1.31
P199	44.68	8	16	855.95	1500	5.46	2.39	0.71	0.07	15.88	1.53
P201	65.11	6	6	106.68	104.55	1.21	1.19	0.09	0.09	1.36	1.31
P203	699.54	6	6	14	0	0.16	0	0.02	0	0.03	0
P205	233.59	12	12	2.79	596.58	0.01	1.69	0	0.23	0	0.97
P207	274.68	12	12	2.79	596.58	0.01	1.69	0	0.27	0	0.97
P209	662.87	8	8	1.53	596.58	0.01	3.81	0	4.65	0	7.02
P211	238.79	10	16	1320.34	1917.39	5.39	3.06	2.85	0.58	11.95	2.42
P221	690.29	8	8	278.17	99.62	1.78	0.64	1.37	0.2	1.98	0.3
P231	154.46	6	10	328.58	-3.69	3.73	0.02	1.69	0	10.95	0
P233	768.43	10	16	1310.24	1889.08	5.35	3.01	9.06	1.81	11.78	2.35
P237	659.24	10	10	95	258.17	0.39	1.05	0.06	0.38	0.09	0.58
P239	56.43	10	16	1310.24	1889.08	5.35	3.01	0.67	0.13	11.79	2.35
P241	80.04	8	16	1215.86	1567.71	7.76	2.5	2.44	0.13	30.42	1.66
P243	69.58	6	8	330.66	0	3.75	0	0.77	0	11.08	0
P247	22.25	6	6	330.66	0	3.75	0	0.25	0	11.08	0
P255	469.12	8	8	109.54	698.18	0.7	4.46	0.14	4.41	0.3	9.39
P273	81.42	8	8	289.65	-77.52	1.85	0.49	0.17	0.02	2.13	0.19
P275	18.41	8	8	619.6	0	3.95	0	0.16	0	8.73	0
P277	16.23	8	8	663.33	0	4.23	0	0.16	0	9.9	0
P279	2,090.35	12	12	273.45	131.3	0.78	0.37	0.48	0.12	0.23	0.06
P307	3,371.98	6	12	106.68	104.55	1.21	0.3	4.6	0.15	1.36	0.04
P309	536.25	8	8	254.25	351.76	1.62	2.25	0.9	1.64	1.68	3.06
P311	475.13	8	8	0	0	0	0	0	0	0	0
P317	410.64	8	8	364.17	535.92	2.32	3.42	1.34	2.74	3.26	6.67
P321	510.62	8	8	309.99	410.07	1.98	2.62	1.07	1.79	2.09	3.5
P331	423.61	8	8	287.64	129.46	1.84	0.83	0.89	0.2	2.11	0.48
P339	640.34	8	16	859.97	1510.16	5.49	2.41	10.26	0.99	16.02	1.55
P341	731.61	8	16	1215.86	1567.71	7.76	2.5	22.26	1.22	30.42	1.66
P353	140.2	6	12	110.85	111.53	1.26	0.32	0.21	0.01	1.46	0.05
P359	70.46	6	12	114.56	117.74	1.3	0.33	0.11	0	1.55	0.06

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P367	354.92	6	6	10.19	22.99	0.12	0.26	0.01	0.03	0.02	0.08
P369	32.63	6	6	10.54	31.96	0.12	0.36	0	0	0.02	0.15
P371	369.03	6	6	3.88	13.19	0.04	0.15	0	0.01	0	0.03
P373	627.01	6	8	20.49	73.37	0.23	0.47	0.04	0.11	0.06	0.17
P375	457.24	6	6	7.17	19.82	0.08	0.22	0	0.03	0.01	0.06
P377	470.82	6	8	86.54	215.38	0.98	1.37	0.44	0.58	0.93	1.23
P379	472.5	6	8	66.81	172.73	0.76	1.1	0.27	0.39	0.57	0.82
P381	327.75	8	8	-108.47	-70.59	0.69	0.45	0.11	0.05	0.35	0.16
P383	390.5	8	8	-127.04	-108.65	0.81	0.69	0.18	0.14	0.46	0.35
P385	75.99	8	8	-209.38	-262.69	1.34	1.68	0.09	0.14	1.17	1.78
P387	313.15	8	8	-237.31	-316.45	1.51	2.02	0.46	0.79	1.48	2.52
P389	59.8	8	8	343.28	571.89	2.19	3.65	0.17	0.45	2.92	7.53
P391	347.76	6	8	56.9	206.2	0.65	1.32	0.15	0.4	0.43	1.14
P393	428.6	8	8	296.84	388.04	1.89	2.48	0.83	1.36	1.93	3.16
P395	322.27	8	8	323.04	432.26	2.06	2.76	0.73	1.25	2.25	3.86
P397	441.54	6	6	-72.72	-95.1	0.83	1.08	0.3	0.49	0.67	1.1
P399	285.67	6	6	-88.55	-125.59	1	1.43	0.28	0.53	0.97	1.84
P401	434.56	6	8	136.42	372.64	1.55	2.38	0.93	1.48	2.15	3.4
P403	452.38	6	8	121.51	346.3	1.38	2.21	0.78	1.34	1.74	2.97
P405	459.09	6	8	113.13	320.83	1.28	2.05	0.7	1.18	1.52	2.58
P407	497.09	6	8	72.35	237.77	0.82	1.52	0.33	0.74	0.66	1.48
P409	280.91	8	12	-523.84	-968.51	3.34	2.75	1.8	0.78	6.4	2.77
P411	355.34	8	12	559.35	1038.27	3.57	2.95	2.57	1.12	7.22	3.15
P413	174.07	8	16	-826.95	-1440.56	5.28	2.3	2.59	0.25	14.9	1.42
P415	85.36	8	16	-834	-1454.41	5.32	2.32	1.29	0.12	15.14	1.45
P417	207	8	16	862.85	1521.66	5.51	2.43	3.34	0.33	16.12	1.58
P419	309.42	8	16	867.48	1531.88	5.54	2.44	5.04	0.49	16.28	1.59
P421	296.72	6	6	-154.33	-23.44	1.75	0.27	0.8	0.02	2.7	0.08
P423	524.38	6	6	-152.55	-17.76	1.73	0.2	1.39	0.03	2.64	0.05
P425	700.57	6	6	-147.01	2.45	1.67	0.03	1.73	0	2.47	0
P427	563.01	6	6	-129.32	34.44	1.47	0.39	1.1	0.09	1.95	0.17
P429	675.06	6	6	-159.3	68.93	1.81	0.78	1.93	0.41	2.86	0.61

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P431	509.72	8	8	84.59	296.03	0.54	1.89	0.11	1.13	0.22	2.22
P433	621.54	8	8	76.95	275.07	0.49	1.76	0.11	1.21	0.18	1.94
P435	57.83	8	8	75.29	271.6	0.48	1.73	0.01	0.11	0.18	1.9
P437	107.17	8	8	359.15	159.19	2.29	1.02	0.34	0.08	3.18	0.7
P439	104.54	8	8	35.98	7.39	0.23	0.05	0	0	0.04	0
P441	200.8	6	6	-96.89	-59.6	1.1	0.68	0.23	0.09	1.14	0.46
P443	578.78	6	6	-84.74	-50.79	0.96	0.58	0.52	0.2	0.89	0.34
P445	492.82	6	6	-20.87	-19.41	0.24	0.22	0.03	0.03	0.07	0.06
P447	350.04	6	6	41.25	9.82	0.47	0.11	0.08	0.01	0.23	0.02
P449	313.82	6	6	92.01	92.86	1.04	1.05	0.33	0.33	1.04	1.05
P451	809.72	8	8	-87.13	-107.73	0.56	0.69	0.19	0.28	0.23	0.34
P453	482.32	6	6	59.43	131.09	0.67	1.49	0.22	0.96	0.46	2
P455	291.6	6	6	7.49	20.82	0.08	0.24	0	0.02	0.01	0.07
P457	222.96	6	6	37.26	72.35	0.42	0.82	0.04	0.15	0.19	0.66
P459	571.54	8	8	-259.48	-388.16	1.66	2.48	1	2.1	1.74	3.67
P461	654.56	8	8	321.78	149.88	2.05	0.96	1.7	0.41	2.59	0.63
P463	680.97	10	10	-1193.01	443.04	4.87	1.81	6.75	1.08	9.91	1.58
P465	535.05	10	10	-1205.56	398.46	4.92	1.63	5.4	0.7	10.1	1.3
P467	445.03	10	10	-1214.85	360.24	4.96	1.47	4.56	0.48	10.24	1.08
P469	275.41	10	10	-1224.2	340.86	5	1.39	2.86	0.27	10.39	0.97
P471	56.16	6	6	-0.36	179.76	0	2.04	0	0.2	0	3.58
P473	622.25	10	10	1234.65	-127.9	5.04	0.52	6.57	0.1	10.56	0.16
P475	414.42	10	10	1247.51	-97.59	5.1	0.4	4.46	0.04	10.76	0.1
P477	147.93	10	10	1252.48	-81.66	5.12	0.33	1.6	0.01	10.84	0.07
P479	68.46	6	6	59.54	146.41	0.68	1.66	0.03	0.17	0.46	2.45
P481	440.79	6	8	58.73	163.12	0.67	1.04	0.2	0.32	0.45	0.74
P483	461	6	8	45.18	123.38	0.51	0.79	0.13	0.2	0.28	0.44
P485	518.75	6	8	-41.71	-115.32	0.47	0.74	0.12	0.2	0.24	0.39
P487	470.37	6	6	12.76	32.83	0.14	0.37	0.01	0.07	0.03	0.15
P489	742.31	6	6	53.02	157.12	0.6	1.78	0.28	2.07	0.37	2.79
P491	366.78	6	6	75.78	62.16	0.86	0.71	0.27	0.18	0.72	0.5
P493	248.87	6	6	-76.99	-75.72	0.87	0.86	0.19	0.18	0.75	0.72

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P495	619.69	6	6	-80.96	-95.53	0.92	1.08	0.51	0.69	0.82	1.11
P497	153.87	6	6	13.31	37.99	0.15	0.43	0	0.03	0.03	0.2
P499	310.85	10	20	1258.42	3110.84	5.14	3.18	3.4	0.62	10.94	2
P501	522.72	10	20	1250.88	3080.17	5.11	3.15	5.65	1.03	10.81	1.96
P503	58.51	10	20	1387.48	2881.21	5.67	2.94	0.77	0.1	13.1	1.73
P505	473.93	6	6	-57.28	-170.66	0.65	1.94	0.2	1.54	0.43	3.25
P507	412.45	6	6	5.87	-88.9	0.07	1.01	0	0.4	0.01	0.97
P509	121.77	6	8	138.75	577.81	1.57	3.69	0.27	0.93	2.22	7.67
P511	307.63	6	6	23.78	-56.3	0.27	0.64	0.03	0.13	0.08	0.42
P513	63.32	6	6	-43.85	-187.71	0.5	2.13	0.02	0.25	0.26	3.88
P515	656.92	6	6	-18.74	33.19	0.21	0.38	0.04	0.1	0.05	0.16
P517	477.42	6	6	55.2	49.81	0.63	0.57	0.19	0.16	0.4	0.33
P519	699.22	6	6	-100.04	-186.14	1.14	2.11	0.85	2.67	1.21	3.82
P521	767.68	6	6	-85.82	-124.32	0.97	1.41	0.7	1.39	0.91	1.81
P523	542.7	6	6	177.4	-145.85	2.01	1.65	1.9	1.32	3.5	2.43
P525	156.6	6	6	195.46	-104.38	2.22	1.18	0.66	0.21	4.18	1.31
P527	642.53	6	6	195.46	-74.89	2.22	0.85	2.69	0.45	4.18	0.71
P529	571.15	6	6	198.96	-39.64	2.26	0.45	2.47	0.12	4.32	0.22
P531	1,171.92	6	6	202.27	1.69	2.3	0.02	5.22	0	4.46	0
P533	1,512.49	6	6	180.27	-81.03	2.05	0.92	5.45	1.24	3.6	0.82
P535	738.15	6	8	22.94	73.24	0.26	0.47	0.06	0.12	0.08	0.17
P537	739.76	6	8	-86.31	-176.63	0.98	1.13	0.68	0.63	0.92	0.85
P539	575.45	6	8	-3.11	12.16	0.04	0.08	0	0	0	0.01
P541	550.77	6	8	-38.89	-61.61	0.44	0.39	0.12	0.07	0.21	0.12
P543	571.86	6	8	-50.24	-96.04	0.57	0.61	0.19	0.16	0.34	0.28
P545	605.48	6	8	-64.86	-142.12	0.74	0.91	0.33	0.35	0.54	0.57
P547	373.14	6	10	-72.01	-1011.84	0.82	4.13	0.25	2.72	0.66	7.3
P549	471.13	6	6	9.41	29.42	0.11	0.33	0.01	0.06	0.02	0.13
P551	264.16	6	6	2.06	6.83	0.02	0.08	0	0	0	0.01
P553	434.68	10	20	532.93	3821.15	2.18	3.9	0.97	1.27	2.23	2.92
P555	177.28	10	20	520.88	3788.23	2.13	3.87	0.38	0.51	2.13	2.88
P557	352.6	6	6	6.93	31.57	0.08	0.36	0	0.05	0.01	0.14

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P559	554.06	6	6	5.41	24.09	0.06	0.27	0	0.05	0.01	0.09
P561	292.08	6	6	1.11	6.11	0.01	0.07	0	0	0	0.01
P563	1,056.54	6	6	4.72	52.92	0.05	0.6	0	0.39	0	0.37
P565	837.75	6	6	9.24	71.03	0.1	0.81	0.01	0.54	0.01	0.64
P567	453	6	6	12.98	84.72	0.15	0.96	0.01	0.4	0.03	0.89
P569	373.03	6	6	30.17	92	0.34	1.04	0.05	0.39	0.13	1.04
P571	213.33	6	6	2.33	8.4	0.03	0.1	0	0	0	0.01
P573	237.17	6	6	2.14	6.52	0.02	0.07	0	0	0	0.01
P575	584.14	8	8	10.43	21.3	0.07	0.14	0	0.01	0	0.02
P577	288.94	8	8	23.34	31.91	0.15	0.2	0.01	0.01	0.02	0.04
P579	419.93	8	8	2.49	5.01	0.02	0.03	0	0	0	0
P581	213.44	8	8	37.72	144.77	0.24	0.92	0.01	0.13	0.05	0.59
P583	161.27	8	8	39.14	149	0.25	0.95	0.01	0.1	0.05	0.62
P585	144.51	6	6	-10.15	-34.27	0.12	0.39	0	0.02	0.02	0.17
P589	119.84	6	6	-1.52	3.83	0.02	0.04	0	0	0	0
P591	394.38	6	6	27.72	74.78	0.31	0.85	0.04	0.28	0.11	0.71
P593	431.65	6	6	22.27	61.07	0.25	0.69	0.03	0.21	0.07	0.49
P595	336.4	10	10	127.14	346.64	0.52	1.42	0.05	0.34	0.16	1
P597	104.97	10	10	-46.85	-123.92	0.19	0.51	0	0.02	0.02	0.15
P599	299.01	10	10	-85.88	-213.78	0.35	0.87	0.02	0.12	0.08	0.41
P601	189.84	6	6	-3.33	-4.98	0.04	0.06	0	0	0	0
P603	95.74	10	10	53.32	124.07	0.22	0.51	0	0.01	0.03	0.15
P605	264.65	6	6	10.77	27.99	0.12	0.32	0.01	0.03	0.02	0.11
P607	287.84	6	6	18.41	35.71	0.21	0.41	0.02	0.05	0.05	0.18
P609	191.95	8	8	6.01	-1.97	0.04	0.01	0	0	0	0
P611	184.16	8	8	-7.51	-0.31	0.05	0	0	0	0	0
P613	222.37	6	6	5.39	-11.73	0.06	0.13	0	0.01	0.01	0.02
P615	76.61	6	6	7.6	-7.95	0.09	0.09	0	0	0.01	0.01
P617	163.22	6	6	10.87	37.18	0.12	0.42	0	0.03	0.02	0.19
P619	502.21	8	8	13.98	51.1	0.09	0.33	0	0.04	0.01	0.09
P621	399.83	8	8	19.26	65.06	0.12	0.42	0.01	0.05	0.01	0.13
P623	222.7	8	8	-11.21	-32.64	0.07	0.21	0	0.01	0.01	0.04

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P625	363.11	6	6	-10.31	-26.04	0.12	0.3	0.01	0.04	0.02	0.1
P627	207.7	6	6	6.23	17.43	0.07	0.2	0	0.01	0.01	0.05
P629	486.06	6	6	4.21	1.54	0.05	0.02	0	0	0	0
P631	233.12	6	6	-0.34	-8.39	0	0.1	0	0	0	0.01
P633	312.68	8	8	14.66	35.92	0.09	0.23	0	0.01	0.01	0.04
P635	219.31	6	6	6.96	17.19	0.08	0.2	0	0.01	0.01	0.05
P637	150.57	6	6	10.08	22.89	0.11	0.26	0	0.01	0.02	0.08
P639	270.69	8	8	34.83	78.8	0.22	0.5	0.01	0.05	0.04	0.19
P641	193.25	8	8	8.77	25.9	0.06	0.17	0	0	0	0.02
P643	94.15	8	8	-88.7	-282.95	0.57	1.81	0.02	0.19	0.24	2.04
P645	165.73	8	8	-85.99	-275.53	0.55	1.76	0.04	0.32	0.23	1.95
P647	705.71	8	8	-80.67	-83.18	0.51	0.53	0.14	0.15	0.2	0.21
P649	426.28	8	8	261.97	375.56	1.67	2.4	0.76	1.47	1.77	3.45
P653	259.44	6	6	3.96	93.39	0.04	1.06	0	0.28	0	1.07
P655	274.02	6	6	0.31	8.97	0	0.1	0	0	0	0.01
P657	243.43	6	6	1.06	9.88	0.01	0.11	0	0	0	0.02
P659	201.94	6	6	4.73	10.58	0.05	0.12	0	0	0	0.02
P661	308.76	6	6	31.43	150.61	0.36	1.71	0.04	0.8	0.14	2.58
P663	490.07	6	6	-26.66	-79.17	0.3	0.9	0.05	0.38	0.1	0.78
P665	305.78	10	10	744.04	-586.81	3.04	2.4	1.26	0.81	4.13	2.66
P667	531.92	6	6	-170.66	39.88	1.94	0.45	1.73	0.12	3.25	0.22
P669	270.57	6	6	-2.85	-14.59	0.03	0.17	0	0.01	0	0.03
P671	289.47	6	6	8.17	23.82	0.09	0.27	0	0.02	0.01	0.07
P673	452.2	12	12	224.37	-50.85	0.64	0.14	0.07	0	0.16	0.01
P675	403.68	12	12	-183.22	-442.98	0.52	1.26	0.04	0.23	0.11	0.56
P677	180.17	8	8	-11.6	-63.19	0.07	0.4	0	0.02	0	0.11
P679	541.38	8	8	-19.7	-223.63	0.13	1.43	0.01	0.62	0.01	1.14
P681	524.43	8	8	6.93	179.48	0.04	1.15	0	0.4	0	0.76
P683	364.98	8	8	-21.95	-218.42	0.14	1.39	0.01	0.4	0.02	1.09
P687	128.63	12	12	16.11	-1.7	0.05	0	0	0	0	0
P689	341.48	8	8	19.11	18.62	0.12	0.12	0	0	0.01	0.01
P691	202.53	6	6	3.91	27.79	0.04	0.32	0	0.02	0	0.1

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P693	448.12	6	6	5.67	20.11	0.06	0.23	0	0.02	0	0.05
P695	469.5	6	6	2.84	9.32	0.03	0.11	0	0.01	0	0.01
P697	42.02	6	6	-2.08	-6.47	0.02	0.07	0	0	0	0.01
P699	202.41	6	6	4.54	23.06	0.05	0.26	0	0.01	0	0.07
P701	652.85	6	6	4.35	9.71	0.05	0.11	0	0.01	0	0.01
P703	395.74	8	8	6.3	30.86	0.04	0.2	0	0.01	0	0.03
P705	57.09	8	8	33.97	-534.77	0.22	3.41	0	0.33	0.03	5.73
P707	270.57	8	8	4.49	22.58	0.03	0.14	0	0	0	0.02
P709	132.57	6	6	2.31	11.66	0.03	0.13	0	0	0	0.02
P711	211.09	8	8	5.16	17.72	0.03	0.11	0	0	0	0.01
P713	555.62	8	8	1.63	21.32	0.01	0.14	0	0.01	0	0.01
P715	337.22	8	8	3.09	25.59	0.02	0.16	0	0.01	0	0.02
P717	219.91	6	6	2	15.15	0.02	0.17	0	0.01	0	0.03
P719	508.72	6	6	6.75	31.75	0.08	0.36	0	0.06	0.01	0.12
P721	378.61	8	8	1.86	84.65	0.01	0.54	0	0.07	0	0.19
P723	363.18	8	8	3.4	18.98	0.02	0.12	0	0	0	0.01
P725	195.87	8	8	-2.9	57.44	0.02	0.37	0	0.02	0	0.09
P727	305.85	6	6	2.6	12.68	0.03	0.14	0	0.01	0	0.02
P729	509.32	8	8	9.73	-669.52	0.06	4.27	0	4.43	0	8.69
P731	488.88	8	8	5.51	-689.56	0.04	4.4	0	4.49	0	9.18
P733	392.23	8	8	2.89	-703.55	0.02	4.49	0	3.74	0	9.52
P735	303.07	10	10	147.57	380.09	0.6	1.55	0.05	0.31	0.18	1.03
P737	315.07	10	10	143.95	373.9	0.59	1.53	0.05	0.31	0.17	1
P739	260.42	6	6	26.3	71.41	0.3	0.81	0.02	0.15	0.09	0.56
P741	238.5	6	6	24.12	67.76	0.27	0.77	0.02	0.12	0.07	0.51
P743	392.07	8	8	-48.99	-121.73	0.31	0.78	0.03	0.14	0.07	0.37
P745	206.86	8	8	-49.75	-124.97	0.32	0.8	0.01	0.08	0.07	0.39
P747	258.11	8	8	3.35	5.62	0.02	0.04	0	0	0	0
P749	358.41	8	8	-56.83	-140.09	0.36	0.89	0.03	0.17	0.09	0.48
P751	151.5	8	8	5.57	6.66	0.04	0.04	0	0	0	0
P753	223.98	8	8	-63.91	-149.29	0.41	0.95	0.03	0.12	0.11	0.54
P755	88.75	8	8	4.39	6.27	0.03	0.04	0	0	0	0

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
P757	327.32	8	8	-70.33	-158.96	0.45	1.01	0.04	0.2	0.13	0.61
P759	464.96	10	10	-71.71	-188.43	0.29	0.77	0.02	0.13	0.05	0.28
P761	289.56	8	8	4.22	7.07	0.03	0.05	0	0	0	0
P763	544.7	10	10	-77.51	-229.11	0.32	0.94	0.03	0.22	0.05	0.4
P765	402.67	10	10	-150.87	-387.88	0.62	1.58	0.07	0.43	0.19	1.07
P767	269.63	8	8	-71.82	-187.15	0.46	1.19	0.04	0.22	0.14	0.82
P769	552.74	10	10	-114.14	-296.26	0.47	1.21	0.06	0.36	0.11	0.65
P771	266.52	6	6	1.91	6.42	0.02	0.07	0	0	0	0.01
P773	212.76	10	10	-96.03	-286.87	0.39	1.17	0.02	0.13	0.08	0.61
P775	523.98	10	10	78.72	254.21	0.32	1.04	0.03	0.26	0.06	0.49
P777	37.64	6	6	7.28	25.58	0.08	0.29	0	0	0.01	0.08
PMP-1_D	126.01	99	99	2760.54	4477.42	0.12	0.19	0	0	0	0
PMP-1_U	115.37	99	99	2760.74	4478.08	0.12	0.19	0	0	0	0
PMP-10_D	109.11	99	99	2753.31	3124.21	0.11	0.13	0	0	0	0
PMP-10_U	121.4	99	99	2758.2	3140.68	0.11	0.13	0	0	0	0
PMP-101	1	99	99	2755.65	3132.1	0.11	0.13	0	0	0	0
PMP-102	1	99	99	2755.65	3132.1	0.11	0.13	0	0	0	0
PMP-11	1	99	99	2760.65	4477.76	0.12	0.19	0	0	0	0
PMP-12	1	99	99	2760.65	4477.76	0.12	0.19	0	0	0	0
PRV-108_D	97.46	6	6	426.31	74.59	4.84	0.85	1.73	0.07	17.74	0.7
PRV-108_U	97.46	6	6	428.81	79.14	4.87	0.9	1.75	0.08	17.93	0.79
PRV-1081	77.96	6	6	427.67	77.09	4.85	0.87	0.92	0.04	11.8	0.49
PRV-11_D	38.82	8	16	856.51	1501.43	5.47	2.4	0.62	0.06	15.9	1.54
PRV-11_U	695.84	8	16	-838.64	-1465.25	5.35	2.34	10.64	1.02	15.29	1.47
PRV-111	1	6	6	856.3	1500.84	9.72	17.03	0.04	0.12	42.72	120.67
PRV-112	1	6	6	856.3	1500.84	9.72	17.03	0.04	0.12	42.72	120.73
PRV-131_D	40.29	10	10	339.19	1072.45	1.39	4.38	0.04	0.33	0.97	8.13
PRV-131_U	1,206.44	10	10	339.72	1114.59	1.39	4.55	1.17	10.54	0.97	8.73
PRV-1311	56.36	6	6	339.19	1094.45	3.85	12.42	0.43	3.79	7.68	67.25
PRV-1312	27.86	6	6	339.19	1094.45	3.85	12.42	0.21	1.87	7.68	67.25
PRV-18_U	687.83	6	6	-91.01	-209.54	1.03	2.38	0.7	3.27	1.02	4.76
PRV-19_D	443.43	6	6	4.48	-15.02	0.05	0.17	0	0.02	0	0.04

Node ID	Elevation	Diameter (in)		Flow (gpm)		Velocity (ft/s)		Headloss (ft)		Headloss/1000 (ft/1000-ft)	
		Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout	Existing	Buildout
PRV-19_U	259.77	6	6	-2	22.38	0.02	0.25	0	0.02	0	0.08
PRV-191	1	6	6	0	26.73	0	0.3	0	0	0	0
PRV-192	1	6	6	0	26.73	0	0.3	0	0	0	0.12
PRV-32_D	63.65	12	12	87.17	302.22	0.25	0.86	0	0.02	0.03	0.32
PRV-32_U	508.66	10	16	1307.56	1879.75	5.34	3	5.97	1.19	11.74	2.33
PRV-321	1	8	8	87.17	303.59	0.56	1.94	0	0	0.24	1.59
PRV-322	1	8	8	87.17	303.59	0.56	1.94	0	0	0.12	1.59
PRV-6_D	751.32	8	8	251.79	55.41	1.61	0.35	1.24	0.08	1.65	0.1
PRV-6_U	802.97	8	8	300.18	142.37	1.92	0.91	1.83	0.46	2.28	0.57
PRV-601	1	4	4	80.54	280.33	2.06	7.16	0	0.04	3.91	38.88
PRV-602	1	4	4	80.54	280.33	2.06	7.16	0	0.04	3.85	38.88
PRV-71_D	210.78	10	10	67.28	226.46	0.27	0.93	0.01	0.1	0.05	0.46
PRV-71_U	367.93	10	10	70.08	232.54	0.29	0.95	0.02	0.18	0.05	0.48
PRV-711	1	4	4	68.33	228.61	1.74	5.84	0	0.03	2.87	26.67
PRV-712	1	4	4	68.33	228.61	1.74	5.84	0	0.03	2.81	26.67
PRV-90_D	726.55	6	6	14.97	13.54	0.17	0.15	0.03	0.02	0.04	0.03
PRV-90_U	76.29	6	6	18.28	23.63	0.21	0.27	0	0.01	0.05	0.08
PRV-901	1	4	4	17.76	22.08	0.45	0.56	0	0	0.24	0.37
PRV-902	1	4	4	17.76	22.08	0.45	0.56	0	0	0.24	0.37
SADDLE_CRK1	1	10	10	279.6	1596.76	1.14	6.52	0	0.01	0.49	11.23
SADDLE_CRK2	1	10	10	279.6	1595.68	1.14	6.52	0	0.01	0.37	11.23
U70081	1	99	99	106.68	104.55	0	0	0	0	0	0
U70082	1	99	99	106.68	104.55	0	0	0	0	0	0
V80061	1	6	6	0	181.1	0	2.05	0	0	0	2.44
V80062	1	6	6	0	181.1	0	2.05	0	0	0	2.44
V80101	1	4	4	262.97	394.54	6.71	10.07	0.03	0.07	34.55	73.24

Agenda Item

DATE: August 22, 2018

TO: Dave Eggerton, General Manager

FROM: Peter Martin, Manager of Water Resources

SUBJECT: Discussion Regarding Implementation of Phase 1 of State Water Resources Control Board's Bay-Delta Water Quality Control Plan Update

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RECOMMENDED ACTION:

Informational update only. No action requested at this time.

SUMMARY:

The State Water Resources Control Board ("State Bard" or "SWRCB") is in the process of a phased review and update of the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan). Phase 1 of this work involves updating San Joaquin River flow and southern Delta water quality requirements included in the Bay-Delta Plan, which includes portions of the Merced, Tuolumne and Stanislaus River Watersheds.

The State Water Board previously released a Draft Substitute Environmental Document (SED) for Phase 1 of the Bay Delta Plan in December 2012. The State Water Board released a Draft revised SED on September 15, 2016 significantly revising the 2012 document. The Draft SED, released on September 15, 2016, made substantial changes to the 2012 Draft SED. The State Water Board ultimately provided a 6-month comment period and conducted a public hearing over five days and in four locations. It received over 1,400 unique comment letters from local, state, and federal agencies, including CCWD, the public, and elected officials. On July 6, 2018, the State Water Board released the draft final plan amendments and proposed Final SED, which includes written responses to comments. The Final SED proposal continues to recommend increased flows on the San Joaquin River and its tributaries to a range of between 30 and 50 percent of unimpaired flow for the months of February through June, with a starting point of 40 percent.

The District, both individually and collectively with other local agencies, has provided formal comments to the State Water Board regarding the Final SED and has attached those letters to this memo. The State Water Board will hold a hearing on August 21 and 22 regarding the adoption of the final SED. Oral comments will be heard on August 21 and 22 at their meeting, however, any final action by the State Water Board will be

continued to a future meeting. CCWD staff will provide an update to the Board of Directors on this action by the SWRCB and potential impacts to the District.

FINANCIAL CONSIDERATIONS:

None at this time

Attachments:

- 7/27/2018 CCWD letter to SWRCB: Revisions to Bay-Delta Plan Amendments
- 7/26/2018 San Joaquin River GSA Group Letter to SWRCB: Revisions to Bay-Delta Plan Amendments

CALAVERAS COUNTY WATER DISTRICT

120 Toma Court • P O Box 846 • San Andreas, CA 95249 • (209) 754-3543

July 27, 2018

Via Electronic Mail
LSJR-SD-Comments@waterboards.ca.gov
Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
P.O. Box 100
Sacramento, California 95814-0100

Re: Comment Letter – Revisions to Proposed Bay-Delta Plan Amendments

Dear Ms. Townsend:

Calaveras County Water District ("CCWD" or the "District") appreciates the opportunity to provide these comments on the proposed amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (the "Bay-Delta Plan") and the supporting proposed final Substitute Environmental Document ("Final SED"). The proposed amendments to the Bay-Delta Plan generally include new and revised flow objectives for the Lower San Joaquin River ("LSJR") and its tributaries, as well as a program of implementation for these objectives.

A. Background

CCWD is a county water district whose boundaries encompass approximately 650,000 acres of land that range from the floor of the San Joaquin Valley to the Sierra Nevada Mountains. CCWD holds significant water rights, including but not limited to water rights on the Calaveras, Mokelumne and Stanislaus Rivers. Within the Plan Area as defined in the Final SED, CCWD holds re-diversion rights at Lake Tulloch below New Melones Dam. This service area includes year-round and seasonal residential populations as well as significant recreational use and commercial use.

B. The Unimpaired Flow Requirements are Impermissibly Broad

Unfortunately, the Final SED released on July 6, 2018 does not address the concerns of the District and other water managers in the Stanislaus Watershed. Specifically, the Board

indiscriminately requires an unimpaired flow requirement in the range of 30-50% across the all San Joaquin River tributaries with no consideration for the individual ongoing operations or activities on each watershed. Wide-sweeping actions affecting the economies and large population centers of this magnitude must be addressed with more granularity. The Board is obligated to consider whether the proposed changes would be reasonable "considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible." Water Code § 13000. The proposed unimpaired flow approach adopted in the Bay-Delta Plan does not properly consider impacts on the individual watersheds at issue. Nor does the broadsword approach of unimpaired flow allow for a coordinated approach that utilizes flow and non-flow measures on any individual watershed. As a practical matter, establishing unimpaired flow objectives of 30-50% also greatly diminishes the odds that agencies across the watersheds at issue can effectively proceed with a Joint Settlement Agreement as proposed by the Governor's Principles for Voluntary Agreements, which contemplate both flow and non-flow measures.

C. The Proposed Amendments Improperly Ignore Impacts Outside of the Bay-Delta

The Proposed Final Amendments would amend the Bay-Delta Plan to add new water quality objectives for the tributaries to the San Joaquin River, which are not within the legal Delta and are not within the waters protected by the Bay-Delta Plan. Impacts to upstream locations outside the legal Bay-Delta, including the District's service area, have not been considered in the proposed amendments to the Bay-Delta Plan. Adopting water quality objectives without undertaking the statutorily mandated analysis of the competing uses for this water in these areas is improper. Water Code §§ 13170, 13240-13244.

D. The Board Failed to Consult with Groundwater Sustainability Agencies

The SED has not adequately identified or analyzed impacts to regional Groundwater Sustainability Agencies' (GSA) interests and obligations under the Sustainable Groundwater Management Act (SGMA). CCWD partially overlies the "critically overdrafted" Eastern San Joaquin Groundwater Subbasin, and has a long history of proactive management of groundwater resources in the region. Prior activities include CCWD's groundwater management plans adopted in 2001 and 2007. More recently, the District has formed the Eastside San Joaquin GSA, a multi-agency GSA comprised of Calaveras County, Calaveras County Water District, Rock Creek Water District and Stanislaus County.

CCWD's role in managing groundwater resources within the Stanislaus River watershed and the sub-basin will continue under partnership with the 17 GSAs covering the Eastern San Joaquin Groundwater Subbasin, the northernmost "critically overdrafted" subbasin according to the Department of Water Resources Bulletin 118. As the lead agency in the Bay-Delta Plan

update, the Board has a duty to consult and request comments from the GSAs, as each GSA is a local agency with jurisdiction and authority over groundwater resources potentially affected by the proposed project. The District does not believe the SED adequately addresses the concerns, nor has the Board consulted with these GSAs throughout this process.

If you have any questions or would like more information about our Comments, please contact CCWD's Manager of Water Resources, Peter Martin, at (209) 754-3094 or peterm@ccwd.org.

CALAVERAS COUNTY WATER DISTRICT

Peter Martin

Manager of Water Resources

July 26, 2018

Submitted Electronically

Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

Dear Ms. Townsend:

Re: Comment Letter – Revisions to Proposed Bay-Delta Plan Amendments

The West Turlock Subbasin Groundwater Sustainability Agency (WTS GSA), East Turlock Subbasin Groundwater Sustainability Agency (ETS GSA), Merced Irrigation-Urban Groundwater Sustainability Agency (MIU GSA), Merced Subbasin Groundwater Sustainability Agency (MS GSA), Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency (STRGBA GSA), South San Joaquin Groundwater Sustainability Agency (SSJ GSA), and Oakdale Irrigation District Eastern San Joaquin Sub-basin Groundwater Sustainability Agency (OID ESJS GSA), and Eastside San Joaquin Groundwater Sustainability Agency (ESJ GSA) (collectively referenced in this letter as the "San Joaquin River GSA Group") have reviewed the Notice and final proposal to amend the Bay-Delta Plan (Proposed Final Amendments) and a Final Substitute Environmental Document (SED) released by the State Water Resources Control Board (State Water Board) on July 6, 2018. The San Joaquin River GSA Group includes groundwater sustainability agencies (GSAs) formed in order to sustainably manage groundwater within the Merced, Turlock, Modesto and Eastern San Joaquin subbasins and otherwise comply with the Sustainable Groundwater Management Act (SGMA). The San Joaquin River GSA Group agencies are responsible for sustainably managing groundwater within the Proposed Project's Plan Area. As the lead agency, the State Water Board has a duty to consult and request comments from the GSAs, because each GSA is a local agency which has jurisdiction and may exercise authority over resources potentially affected by the Proposed Project. (Public Resources Code, 21104(a), 21153(a); State CEQA Guidelines Section 15086(a)(3).) The State Water Board has not consulted with the GSAs, and the San Joaquin River GSA Group requests the State Water Board engage in this consultation prior to adopting the SED and Proposed Final Amendments.

In addition, the SED includes significant new information regarding SGMA in the responses to comments. For example, the SED includes the disclosure and analysis of groundwater dependent ecosystems in the response to comments. (Master Response 3.4 Groundwater and the Sustainable Groundwater Management Act, at 23-25.) This section includes significant new information and analyses that were not previously in the SED. Also, the SED includes new information on groundwater recharge that was not previously disclosed and the GSAs have not had the opportunity to comment on such new information. (*Id.*, at 14-15.) Per California Code of Regulations, title 14, section 15088.5, and title 23, section 3779(e), the San Joaquin River GSA Group requests the State Water Board recirculate the SED to allow GSAs to comment on this new information.

Finally, the San Joaquin River GSA Group opposes the State Water Board's policy position to ignore SGMA in the SED. The SED does not analyze the impacts of the Proposed Project on the ability to achieve compliance with SGMA and reach groundwater sustainability. The State Water Board explains this positon by stating the Notice of Preparation for the SED was dated 2009, SGMA was not yet in place, and such analysis would be speculative. This reason is deficient, especially in light of the State Water Board's recirculation of the SED in 2016 and release of the final SED in 2018, both after SGMA was an established law. It is also deficient because the State Water Board is responsible for SGMA enforcement and has been a proponent of sustainable groundwater management. The San Joaquin River GSA Group requests the SED be revised to analyze how the Proposed Project will impact compliance with SGMA and achieving sustainable groundwater management in the Proposed Project's Plan Area.

Sincerely,

John B. Davids, P.E., Coordinator
Stanislaus and Tuolumne Rivers Groundwater Basin Association GSA

Robert Kelley, Chair
Merced Subbasin GSA

Alberto Rossini, Chair
East Turlock Subbasin GSA

Joe Alamo, Chair
West Turlock Subbasin GSA

Eric Thorburn
Eric Thorburn, P.E.
Oakdale Irrigation District Eastern San Joaquin Sub-basin GSA

Russ Thomas
Eastside San Joaquin GSA

Robert Holmes, Chair
South San Joaquin GSA

Hicham Eltal, P.E.
Merced Irrigation-Urban GSA

Agenda Item

DATE: August 22, 2018

TO: Board of Directors

FROM: Dave Eggerton, General Manager

SUBJECT: Discussion / Action regarding Approval of Agreement with Management and Confidential Employees Bargaining Unit

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RECOMMENDED ACTION:

Motion: _____/_____ adopting Resolution 2018-____ approving Agreement with Management and Confidential Employees Bargaining Unit (MCU).

SUMMARY:

Since the beginning of the current calendar year, the District has negotiated with the MCU for a new contract regarding compensation and other terms and conditions of employment. The most recent agreement expired June 30, 2018. With this agenda item the Board is asked to approve the attachment agreement, commencing retroactively from July 1, 2018 and ending June 30, 2020 (Agreement). The end date of this Agreement and cost of living adjustments for 2018 and 2019 mirror the existing Memorandum of Understanding between the District and Employee Organization, SEIU, Local 1021, covering all other represented employees of the District. This allows the District and representatives of each bargaining unit to commit our full attention to successful completion of the ongoing compensation study by Koff & Associates, which covers all positions of the District. It is expected the compensation study will be completed and adopted in the first quarter of next year, thus allowing for commencement of good faith negotiations with each bargaining unit for its implementation. By coordinating the end date of each labor agreement for June 30, 2020, the recommendations of the compensation study will timely inform negotiations for the next contract with each bargaining unit. Those negotiations on successor contracts will likely begin before the end of 2019.

FINANCIAL CONSIDERATIONS:

Additional costs associated with the attached Agreement total $22,913 for the current budget year (which is included in this year's budget) and $34,004 for the 2019/20 budget year.

Attachments:

- Resolution No. 2018-Agreement with the Management and Confidential Employees
- Proposed Agreement with MCU

RESOLUTION NO. 2018 –

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CALAVERAS COUNTY WATER DISTRICT

APPROVING AGREEMENT WITH THE MANAGEMENT AND CONFIDENTIAL EMPLOYEES

BE IT RESOLVED, that the Board of Directors of the Calaveras County Water District does hereby authorize the approval of an Agreement for compensation and other terms and conditions of employment with the Management and Confidential Employees Bargaining Unit (MCU) acting as bargaining representative for all exempt, management and confidential professional, administrative, financial, operational, and technical employees of Calaveras County Water District, for the term of July 1, 2018 through June 30, 2020. Said terms and conditions are particularly set forth in the Management & Confidential Employees Agreement, effective July 1, 2018, attached hereto and made a part hereof.

PASSED AND ADOPTED this 22nd day of August, 2018 by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

CALAVERAS COUNTY WATER DISTRICT

_____
Scott Ratterman
President, Board of Directors

ATTEST:

_____
Rebecca Hitchcock
Clerk of the Board

AGREEMENT BETWEEN

CALAVERAS COUNTY WATER DISTRICT

AND

MANAGEMENT & CONFIDENTIAL UNIT

EFFECTIVE JULY 1, 2018 THRU JUNE 30, 2020

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ARTICLE 1: HOLIDAYS

A. The following days shall be recognized and observed as paid holidays:

1. New Year's Day……January 1st
2. Martin Luther King Jr. Birthday……..(3rd Monday of January)
3. President's Day……..(3rd Monday of February)
4. Memorial Day……..(Last Monday of May)
5. Independence Day……..(July 4th)
6. Labor Day……(1st Monday of September)
7. Columbus Day……..(2nd Monday of October)
8. Veteran's Day……..(November 11th)
9. Thanksgiving Day……..(4th Thursday of November)
10. The Day After Thanksgiving Day……..(4th Friday of November)
11. Christmas Eve Day……(December 24th)
12. Christmas Day……..(December 25th)
13. Personal Holiday (as prescheduled each calendar year with Department Head or General Manager; personal holidays may not be carried over from one year to the next)

An employee is eligible for holiday pay if he/she is in work status or on pre-approved leave on the work day before and the work day after the holiday.

B. Whenever a holiday fails on a Saturday the preceding Friday shall be observed as the holiday. Whenever a holiday falls on a Sunday the following Monday shall be observed as the holiday. Exceptions: When Christmas Day falls on Saturday, the preceding Thursday shall be observed as the holiday. When Christmas Eve Day falls on a Sunday, the following Tuesday shall be observed as the holiday.

C. Every day appointed as a holiday by the President of the United States, or the Governor of the State of California, and approved by the Board of Directors shall be considered a holiday for District employees.

ARTICLE 2: PAID TIME OFF (PTO)

A. Accruals: Paid Time Off (PTO) shall be accrued at the rate defined by time in service and applied to an employee's accrued account each pay period. Accruals are based upon full-time service and will be prorated based on the percentage of hours in paid status when the employee is not in paid status for the full pay period.

Months of continuous service	#'s of hours / days annually
0 to 36	176 hours / 22 days
37 to 120	216 hours / 27 days
121 and more	256 hours / 32 days

B. Maximum Accruals: PTO time may be accumulated up to five hundred twenty (520) hours, after which, accumulation shall be suspended until PTO is taken to reduce the total accumulated below the maximum. Persons with PTO accumulations of more than five hundred twenty (520) hours shall be paid for that overage plus an amount determined by the employee up to eighty (80) hours to allow room for future accrual.

C. Additional PTO Provisions: Management and Confidential employees shall be subject to the same PTO provisions contained in the current Memorandum of Understanding with SEIU Local 1021, Article 10:

Section D. Use and Reporting

Section E. Unauthorized Use

Section F. PTO During Worker's Comp

Section G. Termination Payout

Section H. PTO Use Prior to Unpaid Leave

Section I. Integration with Holidays

Section K. Pay Out Restrictions

Section L. Donation of PTO Hours

Section M. Payout Alternative

D. Management Leave: The intent of this benefit is to provide additional leave, not compensation because compensation is not received for working overtime hours, and therefore MCU members are encouraged to use the time as intended. Management and Confidential employees shall be provided forty (40) hours per fiscal year of management leave. Such management leave must be taken during the fiscal year and may not be carried over from one fiscal year to the next, or paid out.

New employees of the Management & Confidential Unit are eligible to accrue management leave on their first day of employment. If the employee is hired after August 31st or later, the employee shall receive a pro-rated number of leave hours, based upon the hire date as follows:

Hire Date	Hours
July 1 – August 31	40 Hours
September 1 – October 31	32 Hours
November 1 – December 31	24 Hours
January 1 – February 28/29	16 Hours
March 1 – April 30	8 Hours
May 1 – June 30	0 Hours

ARTICLE 3: ADDITIONAL LEAVE PROVISIONS

Management and Confidential employees shall be subject to the same provisions as stated in the current Memorandum of Understanding with SEIU Local 1021 as follows:

Article 11. Disability Leave

Article 12. Bereavement Leave

Article 13. Jury/Witness Duty

Article 14. Authorized Leaves of Absence

Article 15. Unauthorized Leaves of Absence

Article 16. Continuity of Service

ARTICLE 4: DISTRICT APPAREL, TRAVEL & VEHICLE USE

A. District Shirts: The District shall provide Management and Confidential employees with a total of five (5) CCWD shirts and one (1) sweatshirt/sweater on an annual basis for on-the-job-use.

B. Safety Boot Allowance: The District will reimburse an employee up to $200 in total per fiscal year for the replacement or repair of no more than two (2) pairs of safety footwear, that satisfy Cal/OSHA footwear standards as noted in California Code of Regulations, Title 8, § 3385 only for those employees whose work tasks require the need at the discretion of the General Manager. Employees must submit proof of payment in order to obtain reimbursement. Any cost exceeding the amount specified herein will be the obligation of the employee.

C. Travel Cost Reimbursement: Travel costs, reimbursements and procedures shall be in accordance with District Policy as may be amended from time-to-time by the Board of Directors.

D. Use of District Vehicles: Vehicle use policies and procedures shall be in accordance with District Policy as may be amended from time-to-time by the Board of Directors.

ARTICLE 5: COMPENSATION

A. The District shall provide compensation to all Management and Confidential employees as listed in the attached Appendix(es) "Management and Confidential Salary Schedule".

1. The District will provide the following increase effective with the beginning of the first pay period in fiscal year 2018-2019:

   2.5% Cost of Living Adjustment

2. The District will provide the following increase effective with the beginning of the first pay period in fiscal year 2019-2020:

   2.0% Cost of Living Adjustment

B. The District shall match dollar for dollar Management and Confidential employee contributions to District approved deferred compensation plans up to a maximum of $4,000 per calendar year (January through December).

C. The District shall award longevity pay for continuous service as follows:

15 Years 2.5% above employee's current step pay
20 Years 5.0% above employee's current step pay
25 Years 7.5% above employee's current step pay

Under CalPERS California Code of Regulations (CCR Section 571 (a) and (b)) this compensation qualifies as special compensation under the category of Longevity Pay. The District will report this special compensation to CalPERS per pay period, subject to CalPERS rules, regulations, and interpretations regarding special compensation. However, the District does not guarantee or warranty that CalPERS will include any payment in compensation earnable in the future.

D. Overtime and Double-time: *For those employees of the Management and Confidential unit whom are non-exempt,* overtime and double time rates shall apply as defined in the District's Employee policy - Compensation.

PTO and CTO hours taken during regularly scheduled hours do not count towards hours for purposes of determining overtime or double time.

E. Compensatory Time Off: *For those employees of the Management and Confidential unit whom are non-exempt,* will be allowed to request either pay (overtime) or compensatory time off (CTO) as defined in the District's Employee policies.

Employees may be allowed to accrue up to a maximum of sixty (60) hours of compensatory time off.

CTO hours may only be cashed out upon request of the employee in the first payroll day of October, January, and April of each fiscal year.

F. Reopener: The District agrees to promptly notify the MCU in writing upon receiving the 2018/2019 Salary Study Report. For the purposes of not to reduce wages, MCU or the District may elect to reopen Article 5 to negotiate salary increases for the bargaining unit.

ARTICLE 6: MEDICAL, DENTAL, VISION & LIFE INSURANCE PROGRAMS

A. The District will provide medical, dental, vision, life and disability insurance programs during the term of this agreement upon the terms and conditions set forth in this section as follows:

1. Insurance Provided: The plans for insurance in effect on July 1, 2018, or their equivalent, shall remain in effect during the term of this agreement, subject to the allocation of cost of premiums hereinafter set forth.

2. Medical and Dental Plan Participation: For the monthly Health and Dental Insurance coverage offered by the District, the amounts provided by the District will be limited

by the below listed commitment with the remainder of premium to be provided by the covered employee by payroll deduction.

a. The District will contribute toward the cost of medical and dental insurance premiums based on the value of the PERS Choice Health Plan and Delta Dental Plan (or equivalent offering) rates at the following formula:

Employee Only	100% of the monthly cost
Employee Plus 1	85% of the additional dependent cost
Employee Plus 2+	85% of the additional dependent cost

b. Provisions for current medical, dental, vision, and life insurance programs shall extend through June 30, 2020.

3. Visions, Life, and Disability Insurance policy costs shall be provided by the District during the term of this agreement.

B. Cash-in-Lieu Benefits: A $500 per month Cash-in-Lieu benefit is limited to employees who do not elect/enroll in medical care coverage through the District and provide proof of other coverage beginning July 1, 2020 and continue eligibility for this benefit through the term of this agreement, June 30, 2019. The benefit will be paid in two equal payments at $250 during each bi-monthly pay period the employee is eligible to receive the benefit.

Employees are required to recertify on an annual basis, generally around open enrollment time for medical benefits, through the District's Medical Plan Pay-in-Lieu form.

C. At such time as regulations are issued implementing the Affordable Care Act (ACA), the Calaveras County Water District and the Management & Confidential Unit agree to meet and confer to review the impact of such regulations on the benefits plans then in force. If modifications to the benefits, eligibility for coverage, employer or employee contribution to the cost of insurance or any other provisions of the benefit plans covered by this Agreement will be modified by the ACA during the term of this agreement, it is agreed that Calaveras County Water District and the Management & Confidential Unit will reopen the contract to meet and confer and determine how such mandated changes will be implemented.

D. Health Insurance Review Committee: In order to periodically review availability of other health insurance options, a committee of three (3) union members and three (3) management appointees shall meet at least annually to share information and review alternatives for replacement of health insurance.

E. Dental and Vision Care Insurance: Dental and Vision Care Insurance shall be provided through reputable providers according to the District reimbursement schedule as shown above.

F. Life and Disability Insurance: Life and Disability insurance policy costs shall be provided by the District during the term of this Agreement.

G. Medical/Dental Reimbursement: All current employees hired before the effective date of this agreement are eligible for reimbursement monies, provided they have successfully passed probation. New employees hired on or after the effective date of this agreement are eligible for reimbursement monies after successful completion of probation. No reimbursement monies are offered for premium or prescription co-pay payments. During each calendar year of this agreement, eligible employees shall be permitted to turn in claims for unpaid medical and dental costs to the employees as a result of co-payments from District-offered Medical and Dental Plans to a combined maximum reimbursement of:

Calendar Year 2018	$400
Calendar Year 2019	$400
Calendar Year 2020	$400

The stated amounts shall not be cumulative from year to year. The District assumes no liability for reimbursement for otherwise eligible claims not submitted to the District by March 31st the year following the year of service or for claims deemed ineligible by the District. An extension can be approved by the General Manager. The employee assumes any and all liability for any taxes and other costs due on the monies received if determined by the IRS and/or other governmental agency that such reimbursements are subject to such requirements under its rules.

The employee shall submit to Human Resources a copy of the Explanation of Benefit (EOB) form which includes the date of service, patient name, and the employee's cost share. The District reserves the right to require additional information if needed, within the guidelines of federal HIPAA regulations. A single exception is made for orthodontic services, which the District's current dental plan does not cover. Employees may submit the original orthodontist's statement showing payment made in order to receive reimbursement.

H. Retiree Health Re-Opener: During the term of this agreement, the District or the Management and Confidential Unit may elect to re-open this agreement to meet and confer over retiree medical benefits for new employees.

ARTICLE 7: RETIREMENT SYSTEM

A. The District contracts with California Public Employees Retirement System (CalPERS) for a retirement benefit for the District employees as follows:

1. **For employees hired on or before July 30, 2012:** The employee shall be provided a retirement benefit of 2.7% at age 55 formula. The final compensation for the purposes of determining the retirement allowance shall be based on the monthly average of the highest 12-month period, as defined by CalPERS in section 20042.

2. **For employees hired on or after August 1, 2012 and employees hired on or after January 1, 2013 with reciprocity recognized under CalPERS:** The employee shall be provided a retirement benefit of 2% at age 60 formula. The final compensation for the purposes of determining the retirement allowance shall be based on the monthly average of the highest 36-month period, as defined by CalPERS in section 20037.

3. **For employees hired on or after January 1, 2013 without reciprocity recognized under CalPERS:** The employee shall be provided a retirement benefit of 2% at age 62 formula. The final compensation for the purposes of determining the retirement allowance shall be based on the monthly average of the highest 36-month period as set forth in AB 340 – Public Employee's Pension Reform Act (PEPRA).

B. Employees shall pay 100% of their respective employee member contribution as established by CalPERS:

   a. 2.7% @ 55 Formula: 8%
   b. 2.0% @ 60 Formula: 7%
   c. 2.0% @ 62 Formula: 6.25%

C. The District will not treat any employees contributions as "compensation subject to income tax withholding" unless the Internal Revenue Service or Franchise Tax Board determines that such contributions are taxable income subject to withholding, and will adopt CalPERS Resolution to Tax Defer Member Paid Contributions – IRS 414(h)(2), pursuant to California Government Section Code Section 20691. Each employee is solely and personally responsible for a federal, state, and local tax liability of the employee that may arise out of the implementation of this section, or any penalty that may be imposed thereof.

ARTICLE 8: PERFORMANCE EVALUATIONS

Performance evaluations shall be completed annually for regular employees by their immediate supervisor. Probationary employees shall receive a performance evaluation prior to the conclusion of the probationary period, and may receive performance evaluations every three month during the probationary period. Performance evaluations shall be approved by the Employee's immediate supervisor and each succeeding supervisor up to the General Manger.

ARTICLE 9: TERM OF AGREEMENT

The term of this Agreement shall begin on July 1, 2018 and shall expire on June 30, 2020.

MCU Salary Ranges for 2018

with 2.5% COLA

Pay Range	Step 1 Monthly	Step 2 Monthly	Step 3 Monthly	Step 4 Monthly	Step 5 Monthly	Step 6 Monthly	Step 7 Monthly	Step 8 Monthly	Step 9 Monthly
17	$4,825	$5,066	$5,319	$5,585	$5,864	$6,011	$6,161	$6,315	$6,473
18	$5,066	$5,319	$5,585	$5,864	$6,157	$6,311	$6,469	$6,631	$6,796
19	$5,319	$5,585	$5,864	$6,157	$6,465	$6,627	$6,793	$6,962	$7,136
20	$5,585	$5,864	$6,157	$6,465	$6,789	$6,958	$7,132	$7,311	$7,493
21	$5,864	$6,157	$6,465	$6,789	$7,128	$7,307	$7,489	$7,677	$7,868
22	$6,157	$6,465	$6,789	$7,128	$7,485	$7,672	$7,864	$8,060	$8,262
23	$6,465	$6,789	$7,128	$7,485	$7,859	$8,056	$8,257	$8,463	$8,675
24	$6,789	$7,128	$7,485	$7,859	$8,252	$8,458	$8,670	$8,887	$9,109
25	$7,128	$7,484	$7,859	$8,252	$8,665	$8,881	$9,103	$9,331	$9,564
26	$7,484	$7,859	$8,252	$8,665	$9,098	$9,325	$9,558	$9,797	$10,042
27	$7,859	$8,252	$8,665	$9,098	$9,553	$9,792	$10,037	$10,288	$10,545
28	$8,252	$8,665	$9,098	$9,553	$10,030	$10,281	$10,538	$10,802	$11,072
29	$8,665	$9,098	$9,553	$10,030	$10,532	$10,795	$11,065	$11,341	$11,625
30	$9,098	$9,553	$10,030	$10,532	$11,058	$11,335	$11,618	$11,908	$12,206
31	$9,553	$10,030	$10,532	$11,058	$11,611	$11,901	$12,199	$12,504	$12,816
32	$10,030	$10,532	$11,058	$11,611	$12,192	$12,496	$12,809	$13,129	$13,457

MCU Salary Ranges for 2019

with 2% COLA

Pay Range	Step 1 Monthly	Step 2 Monthly	Step 3 Monthly	Step 4 Monthly	Step 5 Monthly	Step 6 Monthly	Step 7 Monthly	Step 8 Monthly	Step 9 Monthly
17	$4,922	$5,168	$5,426	$5,697	$5,982	$6,132	$6,285	$6,442	$6,603
18	$5,168	$5,426	$5,697	$5,982	$6,281	$6,438	$6,599	$6,764	$6,933
19	$5,426	$5,697	$5,982	$6,281	$6,595	$6,760	$6,929	$7,102	$7,280
20	$5,697	$5,982	$6,281	$6,595	$6,924	$7,097	$7,275	$7,457	$7,643
21	$5,982	$6,281	$6,595	$6,924	$7,270	$7,452	$7,638	$7,829	$8,025
22	$6,281	$6,595	$6,924	$7,270	$7,634	$7,825	$8,020	$8,221	$8,426
23	$6,595	$6,924	$7,270	$7,634	$8,015	$8,216	$8,421	$8,632	$8,847
24	$6,924	$7,270	$7,634	$8,015	$8,416	$8,627	$8,842	$9,063	$9,290
25	$7,270	$7,634	$8,015	$8,416	$8,837	$9,058	$9,284	$9,516	$9,754
26	$7,634	$8,015	$8,416	$8,837	$9,279	$9,511	$9,749	$9,992	$10,242
27	$8,015	$8,416	$8,837	$9,279	$9,743	$9,987	$10,236	$10,492	$10,754
28	$8,416	$8,837	$9,279	$9,743	$10,230	$10,485	$10,748	$11,016	$11,292
29	$8,837	$9,279	$9,743	$10,230	$10,741	$11,010	$11,285	$11,567	$11,857
30	$9,279	$9,743	$10,230	$10,741	$11,278	$11,560	$11,849	$12,145	$12,449
31	$9,743	$10,230	$10,741	$11,278	$11,842	$12,138	$12,441	$12,752	$13,071
32	$10,230	$10,741	$11,278	$11,842	$12,434	$12,745	$13,064	$13,390	$13,725