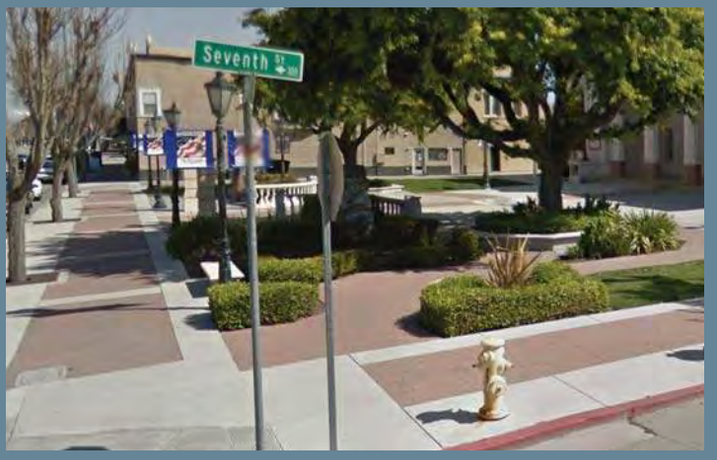


City of Hollister
Final Water Distribution System Master Plan
August 2018

Prepared by

WALLACE GROUP®

CITY OF HOLLISTER

WATER DISTRIBUTION SYSTEM MASTER PLAN

AUGUST 2018

City Council

Mayor Ignacio Velazquez

Mayor Pro Tempore Mickie Solorio Luna

Councilman Raymond Friend

Councilman Jim Gillio

Councilman Karson Klauer

Adopted by the City of Hollister:

Resolution No. 2018-207

August 20, 2018

REGISTERED PROFESSIONAL ENGINEER
DANNY L HILLSTOCK
No. C70647
Exp. 6-30-19
CIVIL
STATE OF CALIFORNIA

Reviewed By:

Danny Hillstock, P.E. 70647, exp. 6-30-19
City Engineer

WALLACE GROUP®

RESOLUTION NO. 2018-207

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF HOLLISTER ADOPTING THE CITY OF HOLLISTER WATER DISTRIBUTION SYSTEM MASTER PLAN

WHEREAS, the City of Hollister City Council adopted Resolution No. 2017-207 approving a professional services agreement with the Wallace Group to prepared the Water Distribution System Master Plan; and

WHEREAS, the Water Distribution System Master Plan is now complete.

NOW THEREFORE BE IT RESOLVED, that the City Council of the City of Hollister adopts the Water Distribution System Master Plan.

PASSED AND ADOPTED, by the City Council of the City of Hollister at a regular meeting held this 20th day of August, 2018, by the following vote:

AYES: Council Members Gillio, Luna, Klauer, and Mayor Velazquez
NOES: None
ABSTAINED: None
ABSENT: None

Ignacio Velazquez, Mayor

ATTEST:

Christine Black, MMC, City Clerk

APPROVED AS TO FORM:

Prentice, Long & Epperson, Attorneys at Law

Jason S. Epperson, City Attorney

CERTIFICATION

In accordance with the provisions of Section 6735 of the Business and Professions Code of the State of California, this report was prepared by or under the direction of the following Civil Engineer, licensed in the State of California:

ENGINEER IN RESPONSIBLE CHARGE:

Kari Wagner, PE 66026 expiration: 6/2020 **Date** 8/20/18

Table of Contents

List of Tables

List of Figures

LIST OF APPENDICES

List of Acronyms

ADD	Average Day Demand
AMBAG	Association of Monterey Bay Area Government
AWWA	American Water Works Association
CCR	Consumer Confidence Report
CEQA	California Environmental Quality Act
CIP	Capital Improvement Projects
City	City of Hollister
Compliance Plan	Hexavalent Chromium Compliance Plan for Groundwater Supply
County	San Benito County
CVP	Central Valley Project
D/DBP	Disinfection Byproducts
DI	Ductile Iron
DDW	Division of Drinking Water
E.I.T.	Engineering In Training
EIR	Environmental Impact Reports
ENR	Engineering New Record
EPA	Environmental Protection Agency
ESRI	Environmental Systems Research Institute
FPS	Feet per Second
Ft	Feet
GAC	Granular Activated Carbon
GIS	Geographic Information System
GPD	Gallons Per Day
GPCD	Gallons Per Capita Per Day
GPM	Gallons Per Minute
HAA5	Haloacetic Acids
LF	Linear Feet
MCL	Maximum Contaminant Level
MDD	Maximum Day Demand
MG	Million Gallons
MGD	Million Gallons Per Day
MF	Multi-Family
N/A	Not Available
ND	Negative Declarations
P.E.	Professional Engineer
PHD	Peak Hour Demand
PPB	Parts Per Billion
PRV	Pressure Reducing Valve
PVC	Polyvinyl Chloride
RDWWTP	Regional Domestic Wastewater Treatment Plant
RWQCB	Regional Water Quality Control Board
SBCWD	San Benito County Water District
SCADA	Supervisory Control and Data Acquisition

SDWIS	Safe Drinking Water Information System
SFD	Single Family Development
SSCSMPU	Sanitary Sewer Collection System Master Plan Update
SSCWD	Sunnyslope County Water District
SWRCB	State Water Resources Control Board
TTHM	Total Trihalomethane
UAW	Unaccounted-for-Water
UFC	Uniform Fire Code
WDSMP	Water Distribution System Master Plan

List of References

1. Association of Monterey Bay Area Governments Regional Growth Forecast, 2014
2. California Code of Regulations, Title 22.
3. California State Board Safe Drinking Water Information System, 2018.
4. City of Hollister, annual and monthly water consumption data. 2015-2017.
5. City of Hollister, Consumer Confidence Reports, 2009-2017
6. City of Hollister, Engineering Standards, 1992.
7. City of Hollister, Engineering Standard Details, 2013.
8. City of Hollister, General Plan, 2005.
9. City of Hollister, Sanitary Sewer Collection System Master Plan Update, 2018.
10. County of San Benito, GIS Data, 2017.
11. Fire Hydrant Testing conducted April 2018.
12. Hollister Urban Area Water and Wastewater Master Plan, 2008.
13. Hollister Urban Area Water and Wastewater Master Plan Update, 2017.
14. McGraw Hill ENR Construction Cost Index of 11069, June 2018.
15. Metcalf & Eddy design handbook "Wastewater Engineering, Treatment and Reuse, Fifth Addition", 2014.
16. Personal Communication with Danny Hillstock, City Engineer and Henry Gonzalez, Utilities Supervisor.
17. Personal Communication with Don Ridenhour, SSCWD General Manager and Rob Hillebrecht, SSCWD Assistant Engineer.
18. Pump Curve provided by City of Hollister.
19. San Benito County 2035 General Plan, 2015.
20. SSCWD-Hollister Intertie Description, 2011.
21. United States Bureau of the Census, 2017.

EXECUTIVE SUMMARY

This report presents the Water Distribution System Master Plan (WDSMP) for the City of Hollister (City). The City is located in San Benito County (County), 40 miles east of the City of Monterey and 30 miles north of Salinas. The City is intersected by State Highways 156 and 25. The City is governed by a City Council made up of a Mayor, Mayor Pro Tempore, and three council members. The City is currently responsible for the maintenance and operation of the City's water distribution system. The City owns and operates approximately 90 miles of water mains for transmission and distribution within the City's water service area boundary.

INTRODUCTION

The City supplies water service and fire suppression to approximately half of the City residents on the western half of the City. The rest of the City is served by Sunnyslope County Water District (SSCWD). The City owns and operates the water transmission and distribution system within the City's water service area boundary.

Preparation of the WDSMP will assist the City in prioritizing both current and future water system needs and set forth a mechanism for addressing those needs. The WDSMP does the following:

1. Addresses existing deficiencies within the water distribution system based on today's standards and requirements;
2. Addresses deficiencies within the water distribution system to meet future build-out needs; and
3. Provides a prioritized capital improvement program and list of recommended projects to address existing deficiencies and future needs.

On August 21, 2017, the City authorized Wallace Group to prepare a comprehensive Water Distribution System Master Plan. The Water Distribution System Master Plan was prepared in accordance with Wallace Group's proposal dated May 12, 2017, and includes analyses of the City's current and projected water demands, evaluation of the water distribution system and storage facilities, and a prioritized capital improvement program.

This Water Distribution System Master Plan is presented in ten chapters, summarized as follows:

Chapter 1: Introduction. This chapter presents an overview of the goals of this report, authorization and scope of work, and acknowledgement of the various staff and personnel involved in the preparation of this document.

Chapter 2: Water Distribution System. This chapter presents an overview of the City's existing water distribution system, which consists of approximately 90 miles of water mains ranging in diameter from 4-inch to 18-inch. This chapter also includes a discussion of the five pressure zones within City limits—three pressure zones within the City's service area and two pressure zones within SSCWD's service area. Both the City system and SSCWD system are interconnected through multiple PRVs and interties.

Chapter 3: Land Use and Population. This chapter focuses on the City's General Plan, service and study area boundaries, land uses, existing and future population projections and other considerations pertinent to projecting the City's existing and future water demands. The existing population within the City's water service area is estimated at 22,940 persons using the population density factors presented in the City's Sanitary Sewer

Collection System Master Plan Update (SSCSMPU). The total estimated future population for the study area is 42,133 persons. This future projection is based on future developments identified by the City and SSCSMPU population density factors. This population will likely not occur by the City's 2023 planning horizon; however, it does represent a conservative estimate if all potential future development that the City has identified were to occur.

Chapter 4: Water Demand. This chapter provides an analysis and summary of the City's existing and future water demands, based on planning/demographic information presented in Chapter 3 and metered consumption and production records provided by the City. These water demands form the basis of the recommendations for recommended capital improvements within the distribution system. The City's existing average day demand (ADD) is 1,752 gallons per minute (gpm), with an estimated future average day demand of 2,893 gpm.

Chapter 5: Water Supply Overview. This chapter presents an overview of the City's water supply portfolio. An analysis of the reliability and adequacy of the City's water supply was not a part of the scope for this report. The City obtains its water supply from both groundwater and surface water. Three groundwater wells operate within City limits and two groundwater wells feed the Cienega Valley. Additionally, surface water is imported from the Central Valley Project via the Hollister Conduit and treated at either the Lessalt Water Treatment Plant or West Hill Water Treatment Plant, both owned by San Benito County Water District (SBCWD) and operated by SSCWD. The Crosstown Pipeline Project currently transports West Hills treated water to blend with the groundwater at City Wells No. 4 and No.5. The second phase of the project, anticipated to be brought online in 2019, will distribute West Hills treated water to blend with the groundwater at City Well No. 2, and two other locations in SSCWD's service area.

Chapter 6: Water Storage. This chapter describes the existing and projected water storage requirements for the City. The City owns and operates two (2) water storage tanks at Park Hill. The older Park Hill tank (Park) has a capacity of 2.0 million gallons (MG) and the newer Park Hill tank (Vista) has a capacity of 3.5 MG. The City also owns and operates the 0.5 MG Sally Flats Reservoir, which is located south of the City's boundary and only serves Riverview Estates (Cienega Water System). These storage facilities were evaluated for emergency, fire, and operational needs. It was determined that in existing conditions, the City has a storage surplus of approximately 539,480 gallons; however, in future conditions, the City has a storage deficit of approximately 2.9 million gallons. It is recommended that the City evaluate future storage from a regional perspective, including SSCWD's storage facilities.

Chapter 7: Water Pump Stations. This chapter provides an overview of Memorial Booster Station. This booster station transfers water from the City Low Zone to the City and SSCWD Middle Zone. With the completion of the Crosstown Pipeline Project, Memorial Booster Station will be used for emergency operations only. This chapter is for the City's informational purposes as there are no pump station recommendations or improvements.

Chapter 8: Water Distribution System Analysis. This chapter presents the hydraulic model that was developed and calibrated to analyze the City's water distribution system under existing and future conditions. The design requirements used to determine any deficiencies in the water distribution system relate to the fire flow and pressure delivered by the system to the customers. The flow requirements examined in the hydraulic model include average day demand, peak hour demand, and fire flow plus maximum day demand. This chapter identifies the water systems that did not meet design standards and the recommended upgrades to bring the system into compliance.

Chapter 9: Cienega Valley Water System. This chapter describes the Cienega Valley Water System, which is owned and operated by the City, but separate from the City's existing distribution system. The City's Cienega

zone is served by the Sally Flats Reservoir and feeds directly into a small-housing development just south of City limits, Riverview Estates. In the model, it was determined that the separate Cienega water system has no existing or future deficiencies; and therefore, no improvement projects were identified for the area.

Chapter 10: Summary of Recommendations. This chapter presents the capital improvement program (CIP), which identifies required Near Term and Long Term water distribution system improvements, including capital costs. This CIP will be used by the City as a strategic planning tool to forecast needed capital budgets for anticipated water distribution system improvements.

WATER SYSTEM DESIGN CRITERIA

The State Water Resources Control Board's (SWRCB) Division of Drinking Water regulates the requirements for minimum system pressures within a water distribution system. Per the existing Waterworks Standards, Chapter 16, Section 64602, last updated on April 10, 2017:

a) Each distribution system shall be operated in a manner to assure that the minimum operating pressure in the water main at the user service line connection throughout the distribution system is not less than 20 pounds per square inch (psi) at all times.

b) Each new distribution system that expands the existing system service connections by more than 20 percent or that may otherwise adversely affect the distribution system pressure shall be designed to provide a minimum operating pressure throughout the new distribution system of not less than 40 pounds per square inch (psi) at all times excluding fire flow.

Ideally, normal operating (static) pressures should be within the range of 40 to 80 psi. This is the range that most people find comfortable and will serve most fire sprinkler systems. For the existing system, the design criteria for this WDSMP is to recommend average day, maximum day, and peak hour pressures to be no less than 40 psi. This falls in line with SWRCB's intention for all new water distribution systems or systems that are still expanding.

Per the 1992 City Standards, the required fire flow rates are to be determined with a minimum of 20 psi residual pressure within all portions of the water distribution system. To analyze the system for its ability to meet this requirement, the maximum fire flow at each hydrant (based on the structure type) is modeled to verify that the minimum pressure at all nodes in the system does not drop below 20 psi while the hydrant is flowing.

WATER SYSTEM MODEL DEVELOPMENT

A computer based hydraulic model was developed using computer program WaterCAD V8i by Bentley Systems Inc. Elevation, pipe diameter, and material data for the distribution system were obtained using the City's contour data, existing water model created by HDR, data from the City's InfraMap, and input from City staff. The hydraulic model was calibrated using field hydrant testing that was conducted on April 19, 2018. Different areas of the city were broken up into zones and analyzed in the model by simulating the field fire flow tests and comparing the resulting modeled pressures with those observed in the field. Adjustments to pipe friction factors (Hazen-Williams coefficient) were made in to calibrate each zone. Each zone was calibrated to within +/- 5 psi of the fire hydrant tests conducted.

EXISTING SYSTEM PERFORMANCE

The performance of the City's water distribution system was evaluated under existing conditions based on the current pressure zone configuration. The model was evaluated under Average Day Demand (ADD), Peak Hour Demand (PHD), and Fire Flow plus Max Day Demand (MDD) to identify where the deficiencies are within each zone. The following provides a description of the water systems that did not meet design standards and the recommended upgrades to bring the system into compliance.

The City has two distinct areas that were identified to have pressures under 40 psi during either ADD or PHD conditions. These locations are as follows:

Park Hill: The houses on Hill Court and Hill Street have pressures between 30-40 psi during ADD, MDD, and PHD. Additionally, the existing water main on Park Hill is unable to provide between 25-50% of the required fire flow.

DeNova Homes/Allendale development is currently under construction immediately north at the base of Park Hill. This development requires a new booster station to deliver potable water from the existing City Low Zone to high point in the Allendale Development. To increase pressure and fire flow at Park Hill it is recommended to construct a new 12-inch PVC water main that begins at the discharge of the Allendale booster station and extends approximately 2,500 feet to connect to the existing water mains supplying the houses on Hill Court and Hill Street.

Low Pressure Area: Under PHD, the southerly portion of City limits experiences system pressures that are less than 40 psi. It is recommended that the City modify the Middle Zone Boundary via closed valves or PRV to increase the pressures in the deficient area of the City. The new City Middle Zone would extend from Cienega Road to Memorial Drive, and be bounded by Bundeson Drive, Cushman Street, Tres Pinos Road, a portion of McCray Street, and Hillcrest Road.

The water system upgrades provided below are based on the proposed zone modification. If the City chooses not to modify the distribution zones, additional CIPs may be required and some of the proposed CIPs may no longer be necessary. Additional analysis should be completed to quantify the impacts of not modifying the zones. The following projects are recommended for the City's existing system.

The following upgrades proposed were a result of existing fire flows that were less than 50% of the required fire flow:

East Street: Replace approximately 700-feet of 6-inch cast iron to 8-inch PVC on East Street from South Street to Hawkins Street.

Walnut Lane: Replace approximately 850-feet of 6-inch cast iron to 8-inch PVC on Walnut Lane from Powell Street to the end of the cul-de-sac.

The following upgrades proposed were a result of existing fire flow's that were between 50% and 75% of the required fire flow:

Airport-Industrial: The industrial buildings near the Hollister Municipal Airport are currently served by one 12-inch water main along San Felipe Road. This results in several issues for the industrial area.

First, this long, single water main is unable to provide between 50-75% of required fire flow for industrial areas. Second, if this water main were to break, the entire industrial area would be without water until the water main is repaired. Last, the City experiences water quality issues in the industrial area because there are several long dead-end water mains and no looping back to the main part of the City.

To increase fire flows and reliability in the industrial area, it is recommended to construct two projects in the airport area:

- The first project would be to construct approximately 5,350 feet of 16-inch DI water main parallel to the existing water main on San Felipe Road. The new pipe would start at the intersection of Chappell Road and San Felipe Road and connect to the existing water main on McCloskey Road. From there the existing water main extends North approximately 700-feet, then the new pipe connects at this location and continues along San Felipe Road to connect and end to the crossing water main at Flynn Road. This new pipe will offer additional supply and redundancy to the airport-industrial area.

  It is recognized that the Airport-Industrial area has routinely experienced high Total Trihalomethane (TTHM) and Haloacetic Acids (HAA5). With the addition of the 16-inch main along San Felipe Road, a regular flushing program will be required to address the water quality issue in this area. Additionally, the 2017 *Hollister Urban Area Water and Wastewater Master Plan Update* identifies a potential new well and treatment facility in this northern airport area, which will provide high quality water for this area. This proposed water supply source is supported as a long-term water system improvement to help support future growth, improve water quality and reliability in the Airport Area. This source of water should be brought into the water distribution system at the same hydraulic grade as the existing City Low Zone.

- The second project would be to construct approximately 2,250 feet of 12-inch PVC to loop the west side of the City's existing system in the airport/industrial area. This new water main would begin at the intersection of Flynn Road and Highway 25, continue northwest along APN 019-020-015, continue along APN 053-420-034 boundary, and connect to the existing 12-inch pipe on Airway Drive.

Note: There are additional routing alternatives that can be explored based on future development and looping alternatives; however, it is unknown when future development will occur, and this is a high priority deficiency within the City's water system. Adding a parallel 16-inch water main along San Felipe Road will impact water quality negatively but will provide significant benefit for reliability and fire protection. The City should continue to pursue with SBCWD an alternative water supply source to the north of the City that can also supply the airport area more effectively. Additionally, the City should continue to pursue ways to loop the Airport system to eliminate all long dead-end water mains.

East Airport-Industrial: Construct new approximately 3,370 feet of 8-inch PVC parallel to the private water line on Park Center Drive and the adjacent west and north easements of the adjacent agriculture lots (APN 019-050-005 and APN 019-050-003) to connect to the existing 12-inch water main on Shelton Drive. Note: It is recommended that the City acquire the private water main along Park Center Drive to reduce construct costs. The fire flows identified at the end of Park Center Drive (50%-75%) are with both the Airport-Industrial Upgrade completed. Completion of this project will loop the west side of the City's existing system in the Airport/Industrial area.

Suiter Street: Construct new approximately 290 feet of 8-inch PVC at North Suiter Street Alley from Suiter Street to Powell Street.

South Street: Replace approximately 1,040 feet of 6-inch cast iron to 8-inch PVC on South Street from Line Street to College Street.

Monterey Street: Replace approximately 1,250 feet of 4-inch cast iron to 8-inch PVC on Monterey Street from Hawkins Street to B Street.

Powell Street: Replace approximately 670 feet of 6-inch cast iron to 8-inch PVC on Powell Street from C Street to Nash Road.

Hazel Street: Complete the following projects:

- Replace approximately 945 feet of 8-inch cast iron to 8-inch PVC on Hazel Street from Prospect Avenue to Sally Street
- Replace approximately 710 feet of 8-inch cast iron to 8-inch PVC on Railroad Avenue
- Construct new approximately 380 feet of 8-inch PVC and connect to new 8-inch main on Railroad Avenue; extend new main to the intersection of Hazel Street and Sally Street

North Airport-Industrial: To further address the water quality issue in the Airport-Industrial area, it is recommended that the City construct the following projects:

- Construct approximately 2,630 feet of 12-inch PVC to connect at the existing water main on Bert Drive, follow the southern boundary of APN 014-120-015, down San Felipe Road, and connect to the existing water main on Armory Drive.
- Construct approximately 1,920 feet of 12-inch PVC to connect at the existing water main along the western service road at the airport, follow APN 053-420-003 and APN 053-420-002 western boundaries to connect to the proposed 12-inch water main identified in the second project of Airport-Industrial.

The following upgrades proposed were a result of existing fire flows that were between 75% and 100% of the required fire flow:

West Street: Replace approximately 1,200 feet of 8-inch cast iron to 8-inch PVC on West Street from B Street to Nash Road

Park Street: Replace approximately 380 feet of 4-inch cast iron to 8-inch PVC on Park Street from Sally Street to Prune Street.

Locust Avenue: Replace approximately 880 feet of 4-inch PVC to 8-inch PVC on Locust Avenue from Central Avenue to College Street.

Hamilton Court: Replace approximately 480 feet of 8-inch PVC to 12-inch on Hamilton Court at Shelton Drive. Note: the fire flow identified (75%-100%) is with the Airport-Industrial Upgrade completed.

Quail Run: Replace approximately 720 feet of 6-inch PVC to 8-inch PVC on Quail Run at Nash Road.

Ball Court: Replace the existing water main on Ball Court serving the East side of Felice Drive. To accommodate potential future growth on the vacant lot on the west side of Felice Drive at Piane Crate, it is also recommended that this existing water main be upgraded. The overall recommendation includes upgrading approximately 510 feet of 6-inch PVC to 8-inch PVC on Ball Court at Felice Drive.

Brandy Court: Replace approximately 220 feet of 4-inch PVC to 8-inch PVC on Brandy Court at Buena Vista Road.

MASTER PLAN IMPROVEMENT PROJECT RANKING AND COSTS

First, Second, and Third Priority Master Plan Improvement Projects were ranked to determine what priority the recommended projects should be constructed. The ranking was based on severity of the deficiency and the size of the community the deficiency impacts. Exhibit 1 in Appendix D illustrates the location of each of the proposed Maser Plan Improvement Projects. These tables also provide estimates of the construction and "soft" costs for each project. The project costs are based on engineering judgment, confirmed bid prices for similar work in the San Benito County area, consultation with vendors and contractors, established budgetary unit prices for the work, and other reliable sources. All CIP costs are expressed in Year 2018 dollars, using McGraw-Hill ENR Construction Cost Index of **11069** (June 2018).

Operations and Maintenance Improvement Projects

Additional to the Capital Improvement Program, there are multiple recommended operations and maintenance improvement projects. The recommendations will optimize the City's water distribution system and storage facilities. The operations and maintenance improvement projects identified in the report are as follows:

Water Meter Calibration: City to routinely calibrate and replace water meters.

Park Hill Tanks: City to add a mixing system to Park Hill Tank #2 (Vista) and perform a dive-inspection of both tanks to determine the next interior coating project. Every 5 years, the City should complete an external tank coating inspection, and every 10-15 years, the City should complete an external tank coating.

Hydrant Spacing: It is highly recommended that the City update their standards for fire hydrant spacing and conduct a fire hydrant spacing study within 2 years.

Valve Spacing: It is highly recommended that the City update their standards for valve spacing and conduct a valve spacing study within 2 years. Additionally, every year the City should implement or maintain a valve exercise program.

CHAPTER 1
INTRODUCTION

This report presents the Water Distribution System Master Plan (WDSMP) for the City of Hollister (City). The City supplies water service and fire suppression to approximately half of the City residents on the western half of the City. The rest of the City is served by Sunnyslope County Water District (SSCWD). As new development projects are constructed, it is the City's goal to construct water improvements to meet the current and ultimate needs within the City's service boundary. In order to facilitate this goal, and to adequately plan for the capital resources needed, the City commissioned this comprehensive Water Distribution System Master Plan that evaluates all aspects of the City's water distribution system and its ability to meet the current and long-term needs of the portion of the City that it serves.

Preparation of the WDSMP will assist the City in prioritizing both current and future water system needs and set forth a mechanism for addressing those needs. The WDSMP does the following:

4. Addresses existing deficiencies within the water distribution system based on today's standards and requirements;
5. Addresses deficiencies within the water distribution system to meet future build-out needs; and
6. Provides a prioritized capital improvement program and list of recommended projects to address existing deficiencies and future needs.

BACKGROUND

The City is located in San Benito County (County), 40 miles east of the City of Monterey and 30 miles north of Salinas. The City is intersected by State Highways 156 and 25. The City's residents are provided water service by both the City of Hollister and the SSCWD. The City is governed by a City Council made up of a Mayor, Mayor Pro Tempore, and three council members. The City is currently responsible for the maintenance and operation of the City's water distribution system.

ENVIRONMENTAL REVIEW

In accordance with Title 14, California Code of Regulations, Chapter 3, Article 18 (Statutory Exemptions), this WDSMP is considered a planning study and therefore adoption of this document is exempt from the requirements to prepare Environmental Impact Reports (EIR) or Negative Declarations (ND). However, on a project-specific basis, the California Environmental Quality Act (CEQA) must be satisfied for any major capital improvement projects described in this report that will be implemented by the City in the future, through the preparation of an appropriate EIR or ND.

AUTHORIZATION AND SCOPE OF WORK

On August 21, 2017, the City authorized Wallace Group to prepare a comprehensive Water Distribution System Master Plan. The Water Distribution System Master Plan was prepared in accordance with Wallace Group's proposal dated May 12, 2017. A summarized scope of work is as follows:

1. **Kick-Off Meeting, Project Review Meetings, Field Reviews and Operation Staff Interviews:** Coordinate and attend a kick-off meeting with key Team members and City staff. Immediately following the meeting, conduct an interview with the City's operations staff and an initial field investigation of the City's water tanks and pump stations to understand layouts and system operations.
2. **Existing Data Collection:** Obtain and review documents that will provide an understanding of the City's current water operations. City staff will provide the needed population projections based on City land use and zoning, General Plan and other planning information including water usage and land use data.
3. **GIS Atlas Map:** Create a water distributions system GIS database and prepare atlas maps using a grid system. GIS dataset developed in an Environmental Systems Research Institute (ESRI) compatible Geometric Network.
4. **Preliminary Findings Memorandum:** Prepare a description and general inventory of the water, storage and distribution system based on review of plans, reports, and studies and other City records, visits with staff, and field inspections. We will document all parts of the existing water supply, storage and distribution system, including facilities, condition of equipment and system components, processes, and hydraulic requirements for existing water sources (water supply wells), reservoirs/storage tanks, booster pump stations, pressure zones, and distribution/transmission pipelines; document capital improvements and system expansions completed over the past 10-20 years, based on record drawings and other detailed information provided by City staff; and document compliance requirements for the City's operating permit issued by the State Division of Drinking Water (formerly Department of Health Services).
5. **Water Model Development and Calibration:** Utilize present and future water demand information to model and determine water distribution system improvements including upsizing pipe sizes, addition of new water mains to transport flows through the system within appropriate pressure levels to all areas within the system.
6. **Water Storage and Supply Evaluation:** Identify current and future water reservoir storage requirements for operational (peak demand), emergency, and fire storage. Wallace Group will coordinate with the City, the City Fire Department (if required), and use the current Uniform Fire Code to ascertain, update and confirm fire flow requirements throughout the service area.
7. **Develop Capital Improvement Program:** Evaluate the existing Water Distribution System and identify hydraulic deficiencies with maintenance and mitigation recommendations and identify the discrete system improvements needed to correct the deficiencies based upon Master Plan projected growth, and system design criteria. We will identify capital improvements to water supply, including potential need and timing for any additional reservoirs, pump stations, expanded waterline capacity, and recommendations for improvements to the existing SCADA systems. We will prepare a map of the water system and summary tables indicating the locations, functional data (size, material, etc.), estimated costs and implementation timeframes of the

improvements proposed for inclusion in the capital improvement plan. We will prepare a Capital Improvement Program (CIP), phased in Priority 1, 2, and 3 categories for recommended improvements, which can be used by the City to fiscally plan over the next 15 to 20 years. The projects will be ranked. The cost for these improvements will be prepared based on Engineer's Estimates of Probable Costs, referencing the current ENR Indices. This will allow the City to project future CIP costs from the date of the report to the current fiscal year the capital improvement will be implemented.

8. **Prepare Water Distribution System Master Plan Report:** Prepare the Water Distribution System Master Plan. Wallace Group will prepare a Draft, Draft-Final for City Council approval and a Final Report.

ACKNOWLEDGEMENTS

Wallace Group thanks and gratefully acknowledges the City of Hollister, Sunnyslope County Water District, and San Benito County Water District staff for their efforts, involvement, input and assistance in preparing the WDSMP:

City of Hollister

Bryan Swanson, Development Services Director
Danny Hillstock, P.E., City Engineer
Abraham Prado, Development Services
Henry Gonzales, Utility Supervisor
Michael Grzan, Utility Technician

Sunnyslope County Water District

Don Ridenhour, P.E., General Manager
Jim Filice, Water/Wastewater Superintendent
Rob Hillebrecht, P.E., Assistant Engineer

San Benito County Water District

Garrett Haertel, P.E., Deputy District Engineer

The WDSMP was completed with the efforts of many team members. They include:

Wallace Group

Kari Wagner, P.E., Director of Water Resources
Steve Tanaka, P.E., Principal Civil Engineer
Valerie Huff, P.E., Senior Civil Engineer
Kyle Anderson, P.E., Civil Engineer
Andrea Kingsbury, E.I.T., Associate Engineer
Jeff LeNay, GIS Specialist

CHAPTER 2
WATER DISTRIBUTION SYSTEM OVERVIEW

Chapter 2 describes the features of the City's water distribution system as a general overview. All figures are located at the end of this chapter.

INTRODUCTION

Water service to the residents of the City of Hollister is provided by two water agencies, the City and Sunnyslope County Water District (SSCWD). Figure 2-1 illustrates the City's boundary and outlines the current water service areas for both the City and SSCWD. The City serves the western portion of the City of Hollister, which is split into three (3) zones: the City's Low Pressure Zone, the City's Middle Pressure Zone, and the City's Cienega Pressure Zone. SSCWD serves the eastern portion of the City which is split into two (2) zones: SSCWD's Middle Pressure Zone, which has the same hydraulic grade as the City's Middle Pressure Zone, and SSCWD's High Pressure Zone. Figure 2-2 displays each of the five pressure zones.

WATER DISTRIBUTION SYSTEM

The City's water distribution system is comprised of three (3) distribution zones, three (3) potable water storage tanks, one (1) booster station, five (5) pressure reducing valves (PRV) that serve the three distribution zones, and one (1) additional PRV that serves Riverview Estates south of the City boundary. Figure 2-3 provides an overview of the City's existing distribution system and its major facilities.

The City owns and operates approximately 90 miles of water mains for transmission and distribution within the City's water service area boundary. Tables 2-1 and 2-2 summarize the existing water mains by diameter and material, respectively. Water main sizes and material were assumed based on existing data provided by the City. Figures 2-4 and 2-5 display the City's existing system by pipe size and material, respectively.

Table 2-1 Existing Water Main Inventory by Diameter

Diameter (inches)	Length	
	Feet	Miles
4	21,620	4.09
6	50,341	9.53
8	263,872	50.0
10	5,096	0.97
12	116,724	22.1
14	5,035	0.95
16	3,434	0.65
18	101	0.02
Total	**466,223**	**88.3**

Table 2-2 Existing Water Main Inventory by Material

Material	Length	
	Feet	Miles
Cast Iron	86,349	16.4
PVC	379,874	71.9
Total	**466,223**	**88.3**

City Distribution System Pressure Zones

The analysis for this WDSMP does not include the SSCWD distribution system; however, both systems are interconnected through multiple PRVs and interties. The City and SSCWD share six distribution system interties. Historically, the main exchange has included the transfer of surface water from SSCWD's Lessalt WTP to the City; however, with the West Hills WTP becoming operational in 2017, the City has needed less surface and groundwater from SSCWD. Additional flows to and from SSCWD are based on seasonal water supply demands. Further discussion of the City's water supply can be found in Chapter 5 of this report. The following is a discussion of each intertie location, based on information provided from the City and SSCWD.

Santa Ana PRV Intertie

The Santa Ana PRV is located at the intersection of Santa Ana Road and La Baig Drive. At this location, water flows from the SSCWD Middle Zone to the City Low Zone. The metered flow can be controlled through a Pressure Reducing/Pressure Sustaining Valve Mode that monitors both the pressure in the City Low Zone to maintain a set downstream pressure, and the pressure in SSCWD Middle Zone to maintain a minimum upstream pressure. The valve also has a flow control mode where the supervisory control and data acquisition (SCADA) can control the valve at a set flow while maintaining a minimum upstream pressure in the SSCWD Middle Zone. The upstream pressure and downstream pressure at Santa Ana PRV is 113 psi and 71 psi, respectively.

Hillcrest and Memorial Booster Station, Intertie, and PRV

At the intersection of Hillcrest Road and Memorial Drive, there is a two (2) pump booster station that allows the City to pump from the City Low Zone to the City Middle Zone. The City Middle Zone is fed by this boosted water. Any surplus water from the City Middle Zone flows to the SSCWD Middle Zone through the Sunset, Sunnyslope, or Hillcrest interties. The intertie at Hillcrest and Memorial is an above ground metered intertie that allows water to move in either direction between the City Middle Zone and SSCWD Middle Zone.

Memorial Booster Station is currently providing West Hills treated water to SSCWD's Middle Zone. Once completed, the Crosstown Pipeline Project will allow West Hills treated water to connect directly into SSCWD's Middle Zone without having to be pumped by Memorial Booster Station and transferred to the SSCWD Middle Zone via Hillcrest/Memorial, Sunnyslope/Memorial or Sunset/Memorial water metering stations. See Chapter 5 for further discussion of the West Hills WTP and the Crosstown Pipeline Project.

In 2011, SCADA control of the Hillcrest PRV was installed and allows water to flow from the City Middle Zone to the City Low Zone. The SCADA allows for maximum flow to be maintained and controls the flow based on maintaining a minimum upstream pressure in City Middle Zone and a maximum pressure in the City Low Zone. The upstream pressure and downstream pressure at Hillcrest PRV is 106 psi and 52 psi, respectively.

Sunnyslope and Memorial Intertie

This metered intertie, located in an underground vault at the intersection of Sunnyslope Road and Memorial Drive, allows water to flow in either direction between the City Middle Zone and SSCWD Middle Zone.

Sunset and Memorial Intertie

Similar to Sunnyslope and Memorial Intertie, this metered intertie, located in an underground vault at the intersection of Sunset Drive and Memorial Drive, allows water to flow in either direction between the City Middle Zone and SSCWD Middle Zone.

Sunset PRV at Talbot and Hillock

The Sunset PRV is located on Sunset Drive between Hillock Drive and Talbot Drive. At this location, the City's Middle Zone water flows to the City Low Zone, west of Ladd Lane. The upstream pressure and downstream pressure at Sunset PRV is 97 psi and 72 psi, respectively.

San Benito County Yard PRV

The City's Cienega Zone is served by the City's Sally Flats Reservoir, which has groundwater pumped from the City's Cullum Wells No. 1 and No. 2 approximately 15 miles away from the reservoir. If Sally Flats Reservoir is unable to serve the Cienega Zone, then the San Benito County Yard PRV, located at the San Benito County Public Works Yard south of City limits, feeds water from the SSCWD High Zone to the City's Cienega Zone. The metered flow can be controlled through a Pressure Reducing Pressure Sustaining Valve Mode that monitors both the pressure in the City Cienega Zone, to maintain a set downstream pressure, and the pressure in the SSCWD High Zone, to maintain a minimum upstream pressure. The upstream pressure and downstream pressure at San Benito County Yard PRV is 103 psi and 65 psi, respectively.

Although the City owns and operates the Cienega Zone, the water system is not directly connected to the City's existing distribution system. Further discussion of the Cienega water system can be found in Chapter 9 of this report.

West Hills WTP to City Low Zone Connection

West Hills WTP currently ties into the City's distribution system at City Wells No. 4 and No. 5. At these connection points, there are Pressure Reducing/Pressure Sustaining valves which maintain a minimum pressure on the WTP transmission main and a maximum pressure in the City Low Zone. Flow entering the City's system is regulated by these valves in order to meet set points from West Hills WTP. This same set-up will be configured at City Well No. 2 as part of the Crosstown Pipeline Project. The upstream pressure and downstream pressure at City Well No. 4 PRV is 85 psi and 62 psi, respectively. Likewise, the upstream pressure and downstream pressure at City Well No. 5 PRV are 81 psi and 55 psi, respectively.

Table 2-3 summarizes the description of each intertie location. The GPM Range column shows the full flow potential at each intertie; however, the interties do not operate at full capacity. The actual range of each intertie is shown in the GPM Operational column. Figure 2-6 depicts each intertie, PRV, and closed valve at the pressure boundaries. It should be noted that at the pressure zone boundary at La Baig Drive and Meridian Street, there is no physical connection between the SSCWD Middle Zone water main and the City Low Zone water main. Table 2-4 summarizes the individual PRV hydraulic parameters.

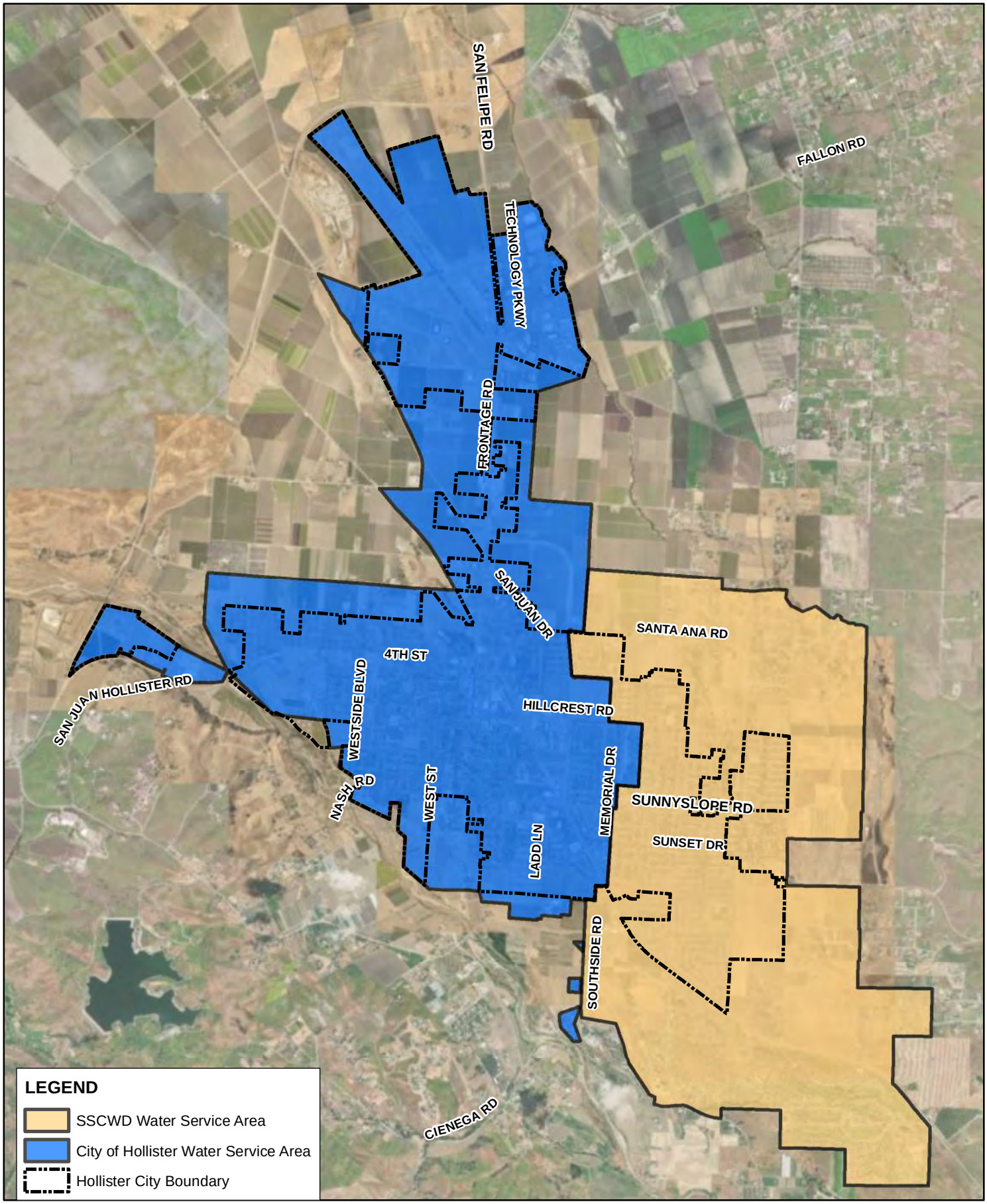
Table 2-3 Intertie Description Summary					
City/SSCWD Intertie	**Description**	**Flow From**	**Flow To**	**GPM Range**	**GPM Operational**
Santa Ana & La Baig	PRV 2" & 8" Meter	SSCWD Middle Zone	City Low Zone	0-1,200	300-1,000
Hillcrest & Memorial	Booster Station	City Low Zone	1) City Middle Zone 2) SSCWD Middle Zone via interties	0-1,000	0-200
	8" Mag Meter	City Middle Zone	SSCWD Middle Zone		
	PRV	City Middle Zone	City Low Zone		
Sunnyslope & Memorial	8" Mag Meter	Flows in either direction between SSCWD Middle Zone & City Middle Zone		0-1,000	0-700
Sunset & Memorial	8" Mag Meter	Flows in either direction between SSCWD Middle Zone & City Middle Zone		0-1,000	0-300
Sunset between Talbot and Hillock	PRV	City Middle Zone	City Low Zone	N/A[1]	N/A[1]
San Benito County Public Works Yard	PRV 2" & 6" Meters	SSCWD High Zone	City Cienega Zone	0-1,000	0-200

[1]City unable to provide requested information.

Table 2-4 PRV Hydraulic Parameters				
PRV Name	**Upstream Pressure (psi)**	**Downstream Pressure (psi)**	**Elevation (ft)**	**HGL[1] (ft)**
Santa Ana & La Baig	113	71	283	447
Hillcrest & Memorial	106	52	304	424
Sunset at Talbot & Hillock	97	72	337	503
San Benito County Public Works Yard	103	65	376	526
West Hills PRV @ Well #4	85	62	279	423
West Hills PRV @ Well #5	81	55	292	419

[1]HGL- Hydraulic Grade Line

Figure 2-7 provides a graphic representation of the hydraulic profile of the water distribution system. This figure illustrates how each tank, booster station, PRV and intertie hydraulically interact and their relationship with the distribution zones they serve. The hydraulic profile was developed based on information contained within the 2008 *Hollister Urban Area Water and Wastewater Master Plan* and the 2017 *Hollister Urban Area Water and Wastewater Master Plan Update*, as well as discussion with the City and SSCWD.



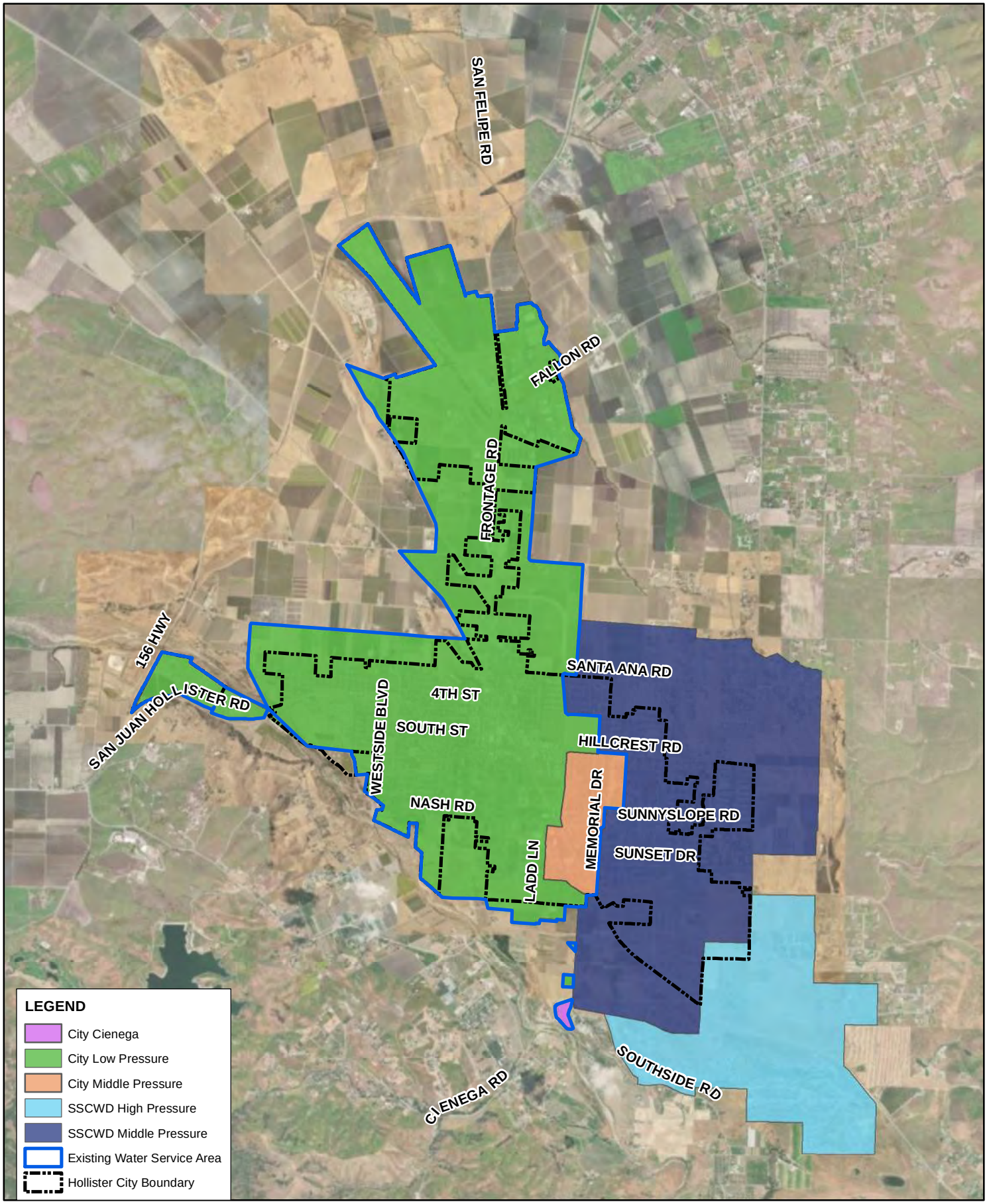
WALLACE GROUP
CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

CITY OF HOLLISTER
WATER DISTRIBUTION MASTER PLAN

FIGURE 2-1: CITY AND SSCWD SERVICE AREAS

NOTES:
BASEMAP COMPILED FROM GIS DATA PROVIDED BY SAN BENITO COUNTY AND THE CITY OF HOLLISTER.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT.
MAP PRODUCED AUGUST 2018.



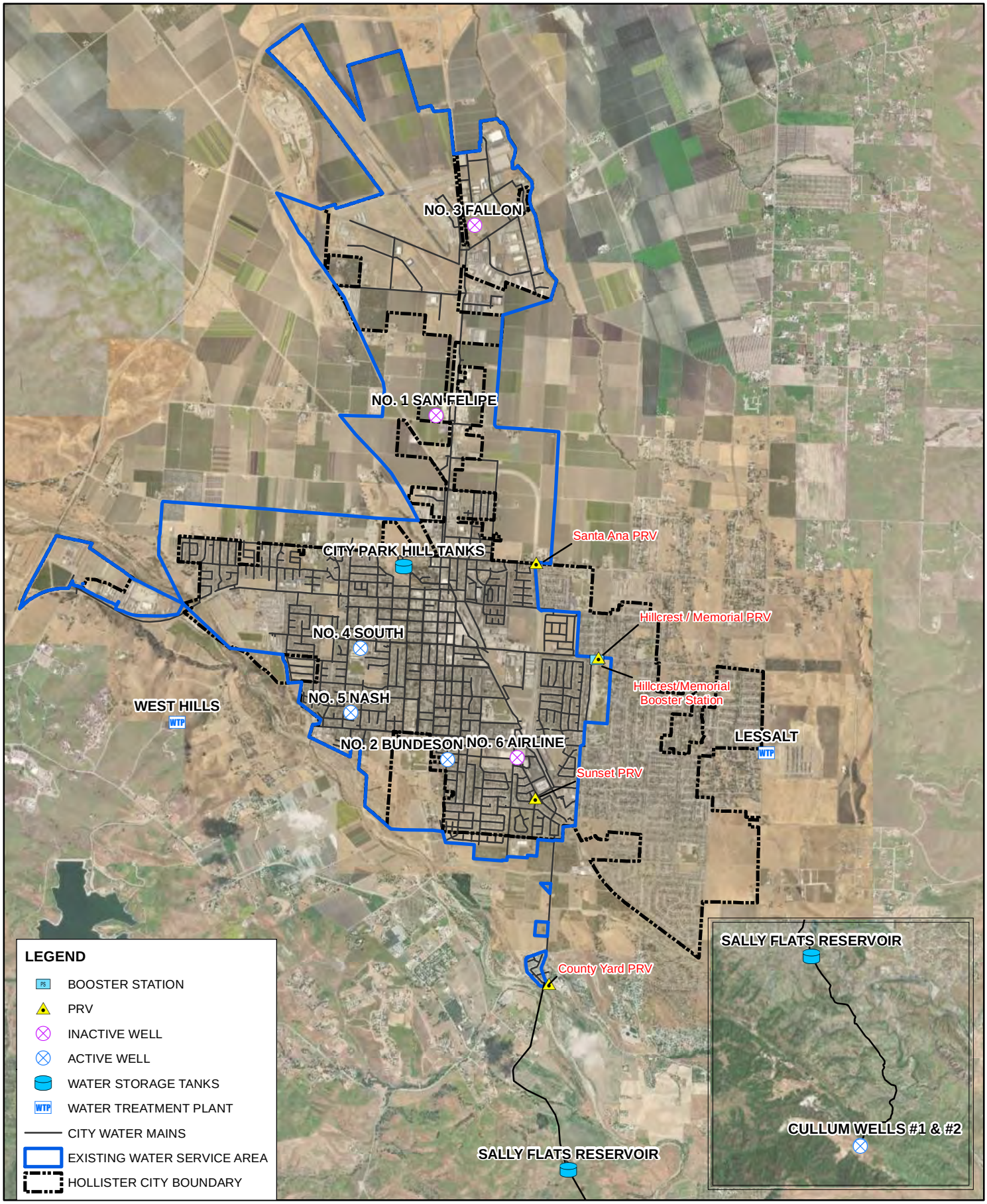
WALLACE GROUP
CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

CITY OF HOLLISTER
WATER DISTRIBUTION MASTER PLAN

FIGURE 2-2: CITY OF HOLLISTER PRESSURE ZONES

NOTES:
BASEMAP COMPILED FROM GIS DATA PROVIDED BY SAN BENITO COUNTY AND THE CITY OF HOLLISTER.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT.
MAP PRODUCED AUGUST 2018.



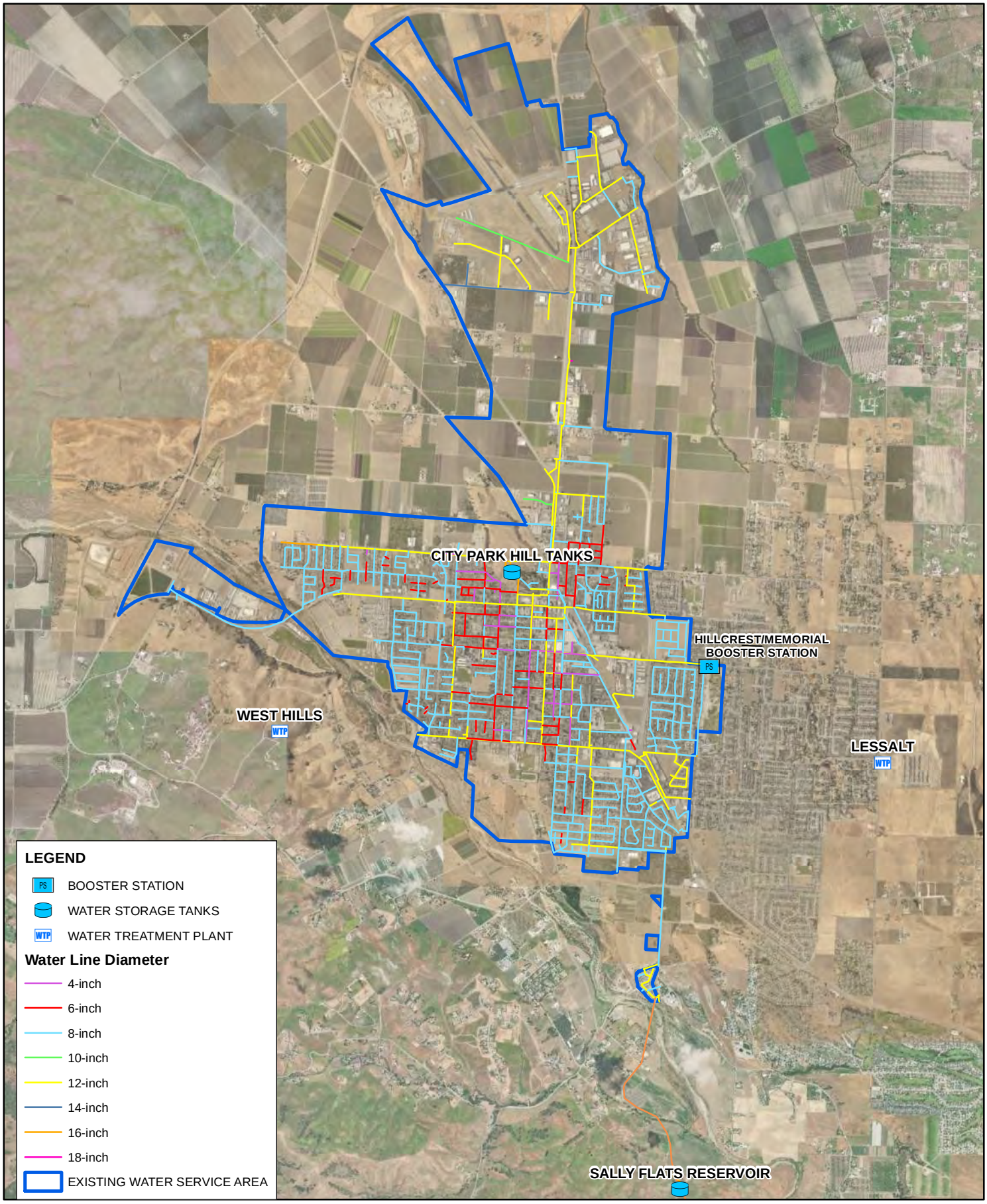
WALLACE GROUP
CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

CITY OF HOLLISTER
WATER DISTRIBUTION MASTER PLAN

FIGURE 2-3: EXISTING DISTRIBUTION SYSTEM MAJOR FACILITIES

NOTES:
BASEMAP COMPILED FROM GIS DATA PROVIDED BY SAN BENITO COUNTY AND THE CITY OF HOLLISTER.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT.
MAP PRODUCED AUGUST 2018.



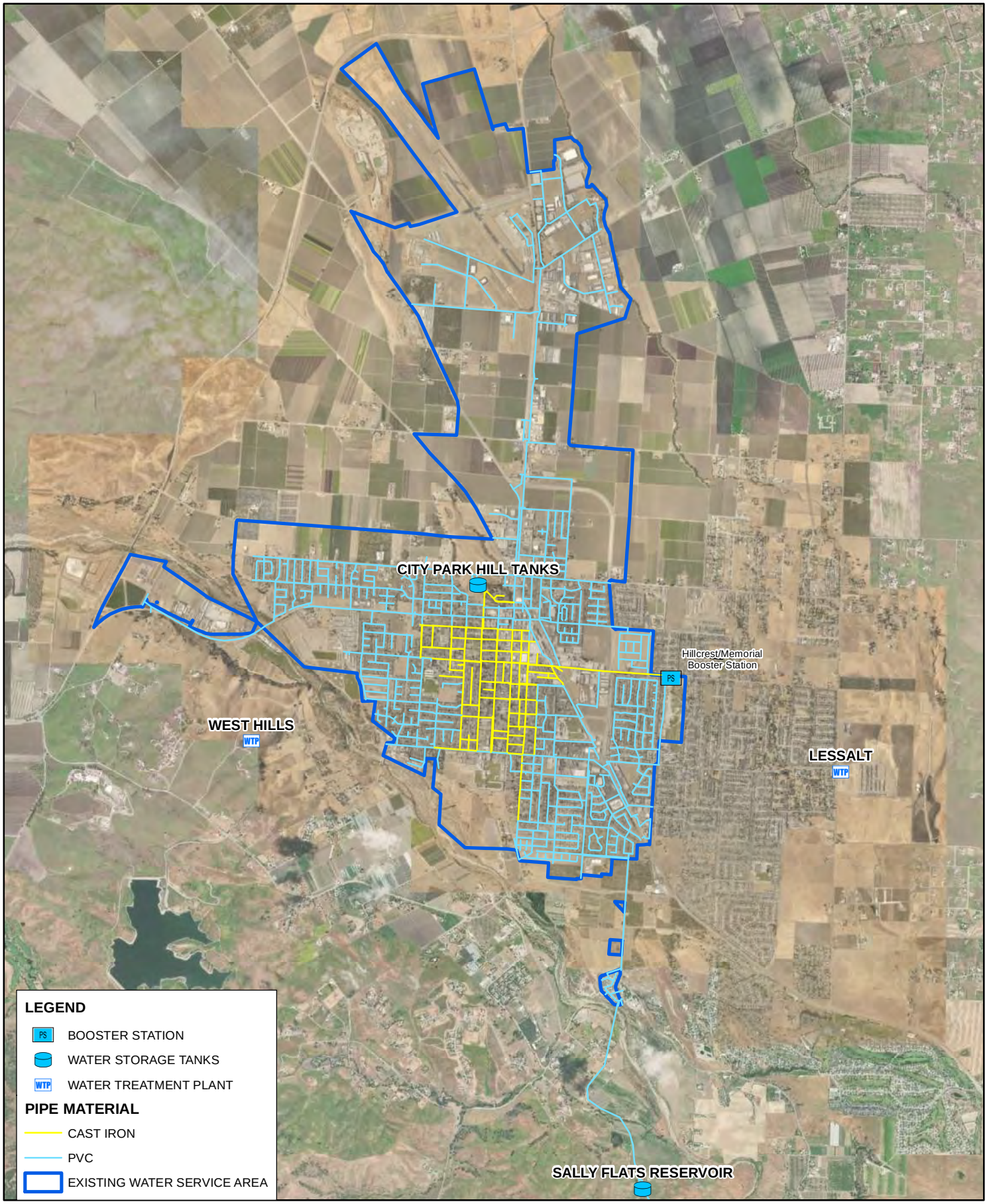
WALLACE GROUP
CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

CITY OF HOLLISTER
WATER DISTRIBUTION MASTER PLAN

FIGURE 2-4: EXISTING DISTRIBUTION SYSTEM PIPE DIAMETER

NOTES:
BASEMAP COMPILED FROM GIS DATA PROVIDED BY SAN BENITO COUNTY AND THE CITY OF HOLLISTER.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT.
MAP PRODUCED AUGUST 2018.



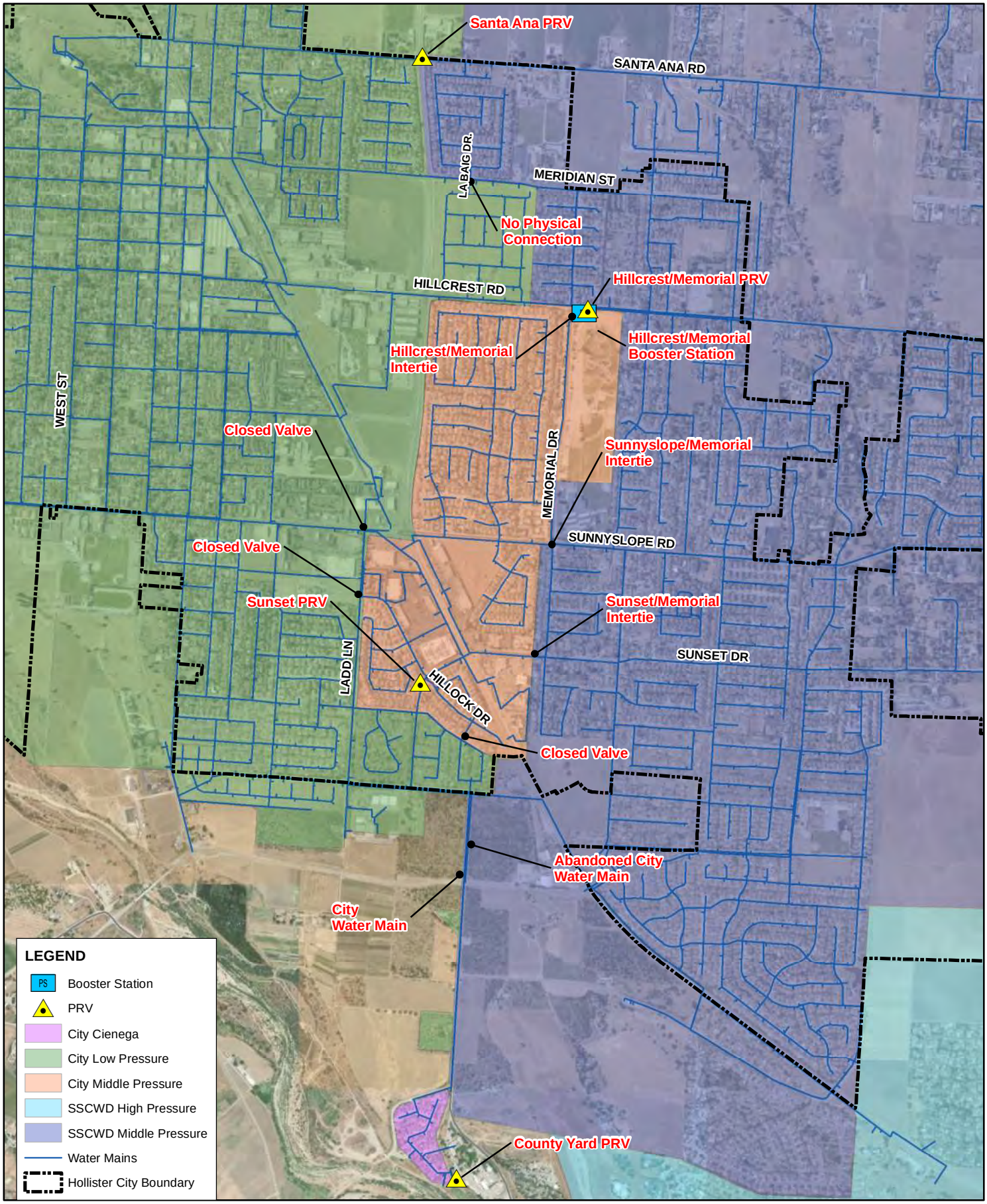
WALLACE GROUP
CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

CITY OF HOLLISTER
WATER DISTRIBUTION MASTER PLAN

FIGURE 2-5: EXISTING DISTRIBUTION SYSTEM PIPE MATERIAL

NOTES:
BASEMAP COMPILED FROM GIS DATA PROVIDED BY SAN BENITO COUNTY AND THE CITY OF HOLLISTER.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT.
MAP PRODUCED AUGUST 2018.



WALLACE GROUP

CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL

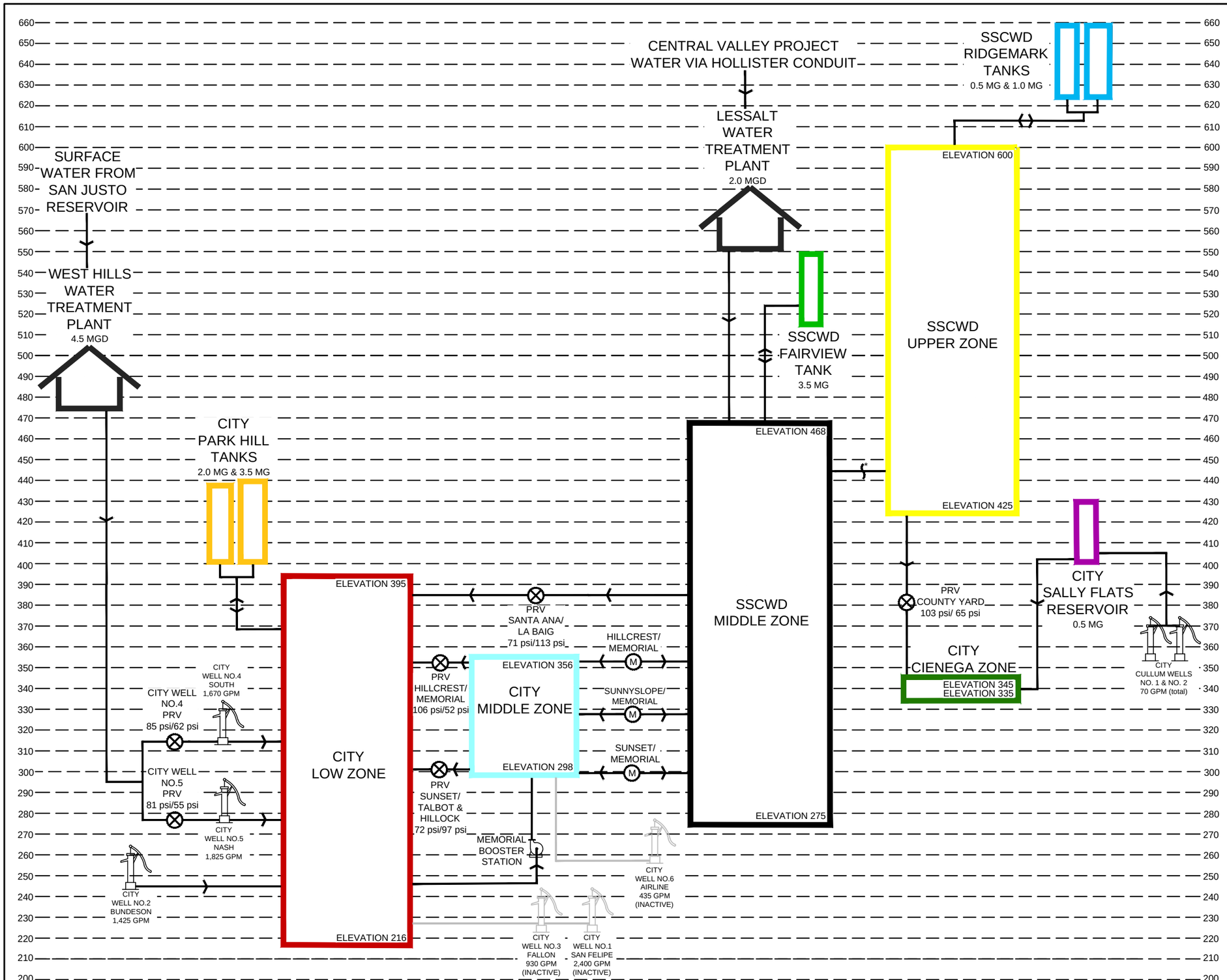
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

CITY OF HOLLISTER
WATER DISTRIBUTION MASTER PLAN

FIGURE 2-6: CITY AND SSCWD
PRESSURE ZONE BOUNDARIES

NOTES:
BASEMAP COMPILED FROM GIS DATA PROVIDED BY SAN BENITO COUNTY AND THE CITY OF HOLLISTER.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT.
MAP PRODUCED AUGUST 2018.



LEGEND:

MG	MILLION GALLONS
PRV	PRESSURE REDUCING VALVE
	ACTIVE WELL
	INACTIVE WELL
	BOOSTER PUMP STATION
M	METERED INTERTIE
	CONNECTION TO TANK OR ZONE
TANK	TANK BOUNDARY REPRESENTS BASE AND MAX. OPERATING WATER LEVELS
ZONE	ZONE BOUNDARY REPRESENTS HIGH AND LOW ELEVATIONS WITHIN EACH ZONE
	FLOW DIRECTION
*	CONNECTIONS BETWEEN SSCWD MIDDLE AND UPPER PRESSURE ZONES NOT SHOWN FOR THE PURPOSE OF THE CITY'S WATER DISTRIBUTION MASTER PLAN

WALLACE GROUP®

CIVIL AND TRANSPORTATION ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING / GIS SOLUTIONS
WATER RESOURCES

612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

FIGURE 2-7
CITY OF HOLLISTER
WATER SYSTEM HYDRAULIC PROFILE

JOB No. :	1011-0006
DRAWING :	Hydraulic Profile.dwg
DRAWN BY:	ASK
DATE :	08/2018
SCALE :	NONE

CHAPTER 3
LAND USE AND POPULATION

This Chapter presents the study area characteristics subject to the WDSMP for the City. Included is a description of the various land uses in the service area, future development projects, and existing and future population projections. The purpose of establishing the existing population and land use is to better understand the existing water demand throughout the City's water distribution system, which then provides a framework to forecast the water demands that may be contributed in the future by vacant or under-utilized land. All tables and figures are located at the end of this chapter.

INTRODUCTION

The primary purpose of this WDSMP is to evaluate the impacts that potential development occurring outside of the current service area will have on the City's water distribution system, and what water system improvements are necessary to serve this future development. The area to be evaluated as part of this study, known as the study area, is significantly larger than the current service area. The study area boundary corresponds to the boundary as presented within the 2008 *Hollister Urban Area Water and Wastewater Master Plan* and the City's 2005 *General Plan*.

It should be noted that this WDSMP is based on the City's 2005 General Plan, which only projects out to the year 2023. An update may be required dependent upon the findings in the City's updated General Plan, anticipated to be completed in the near future.

Existing Service Area Boundary

The City of Hollister is split into multiple pressure zones and is served by both the City and SSCWD. The City currently provides water service to the following:

- The western portion of the City limits (City Low and Middle Pressure Zone);
- Commercial and industrial facilities on Highway 156 near the Regional Domestic Wastewater Treatment Plant (City Low Pressure Zone); and
- A small housing development (Riverview Estates) and two parcels between Hospital Road and Southside Road (City Cienega Pressure Zone)

SSCWD provides water service/fire protection to the eastern portion of Hollister— from Memorial Drive to Fairview Road and other areas outside of the City of Hollister boundary. The two parcels along Southside Road are currently serviced by the City low zone; however, SSCWD has annexed the area, so future development of the annexed properties will become SSCWD customers.

It is important to note that the City provides domestic water to the residential estates outside the City's limits, off San Juan Hollister Road west of the Regional Domestic Wastewater Treatment Plant (RDWWTP). These homes have their own water supply sources and storage tanks. The City only supplies these houses during emergency conditions for domestic use only, not fire flow.

Study Area

The study area boundary represents the City's projected water system distribution service area. The study area boundary is larger than the existing service area boundary because it includes land planned for future development that will require water supply from the City. The study area, as shown in Figure 3-1, also includes the City limits and the 2005 *General Plan* boundary.

LAND USE

The following sections discuss the existing and future land uses within the study area. The existing land uses are based on San Benito County's GIS database.

Existing Water Service Area Land Use

The City is comprised of primarily residential development, with commercial development in and around the downtown area, and a heavy concentration of industrial development near the Hollister Municipal Airport at the northern end of the City. The City's current water service area is comprised of 6,984 parcels (5,264 acres). Figure 3-2 illustrates the land use designation for the existing water service area. Existing land uses within the service area are summarized in Table 3-1.

Within the existing water service area, 32.9% of the parcel acreage is agriculture. Approximately 19.4% of the land use is residential, with low density residential accounting for 17.1%. The next largest existing land use category is industrial, comprising of 9.6% the service area. Vacant parcels account for 19.5% of the total existing land use. The breakdown of vacant land is shown in Table 3-1, and includes 292 un-developed residential parcels.

Future Developments

In December 2008, the Regional Water Quality Control Board (RWQCB) lifted the six-year building moratorium from the City, allowing for housing and commercial developments. For the purposes of this WDSMP, developments approved in 2016 or later, or have approved Tentative Maps, are considered future developments as they have not yet contributed to the existing water demands used to develop the water model. Table 3-2 provides a summary of the future residential projects and Table 3-3 provides a summary of the future non-residential projects within the City's projected water distribution area.

This list is not inclusive of all potential development within the study area and only includes those projects currently identified by the City. Additional potential future development was accounted for in this analysis based on projected density in accordance with the City General Plan. Locations of these approved and potential future development projects are depicted on Figure 3-3. Figure 3-4 represents the future land use identified for the entire study area.

POPULATION

Population for the WDSMP is comprised of the City population and unincorporated land of the County within the study area. Since the existing water service area includes only the western portion of the City, the following section describes the methods used to obtain the existing service area population.

Existing Service Area Population

According to the U.S. Census Bureau, in July 2017 the total population for San Benito County was estimated to be 60,310 persons, of which the City of Hollister was estimated to have a population of 38,404 persons (within City of Hollister and SSCWD water service areas). The existing service area population for the WDSMP does not include the entire population of the City of Hollister, but rather the number of people being serviced by the City's water distribution system (which excludes the SSCWD water system).

The population of the area served by the City outside of the City limits includes the unincorporated 56-unit subdivision (Riverview Estates, served by City Cienega distribution zone) south of the City on Southside Road. Population for this area outside of City limits is estimated to be 182 persons, based on the Association of Monterey Bay Area Governments (AMBAG) population density for the County of 3.25 persons per household.

The following sources of information were utilized to evaluate and estimate the existing population for the existing water service area:

1. City of Hollister 2018 Sanitary Sewer Collection System Master Plan Update (SSCSMPU)
2. MetCalf and Eddy Design Handbook, "Wastewater Engineering, Treatment, and Resource Recovery, Fifth Edition", 2014
3. California State Board Safe Drinking Water Information System (SDWIS)

City of Hollister 2018 SSCSMPU

Wallace Group prepared the 2018 Sanitary Sewer Collection System Master Plan Update (SSCSMPU), which identified the density of persons per residential unit based on the number of residential units per wastewater tributary area, service area population, and total gallons per day. Although the service area boundary for the SSCSMPU is larger than the service area boundary for the WDSMP, the density of persons per residential unit from the SSCSMPU can be used to estimate the population within the WDSMP service area boundary. Table 3-4 summarizes the estimated service area population based on the wastewater tributary area densities found in the 2018 SSCSMPU.

MetCalf and Eddy Domestic Water Demands

An industry standard reference for domestic water usage is the Metcalf and Eddy Design Handbook, "Wastewater Engineering, Treatment, and Resource Recovery, Fifth Edition", 2014. This engineering reference recommends a total domestic water demand of 100 gallons per capita per day (gpcd)—65 gpcd coming from indoor water use and 35 gpcd coming from outdoor water use. Based on the annual total metered consumption provided by the City for single and multiple dwelling units, Table 3-5 summarizes the estimate population for the service area.

Using the MetCalf and Eddy demand factor of 100 gpcd, the population for 2017 was estimated to be 16,440 persons. Due to state mandates in water conservation during the most recent California drought, it is reasonable to assume that the demand factor for the City's service area is lower than the assumed 100 gpcd. Therefore, the MetCalf and Eddy domestic water demand method was not considered in estimating the City's existing service area population.

EPA Safe Drinking Water Information System

The Safe Drinking Water Information System (SDWIS) is a database that contains information about public water systems, as reported by the States to the Environmental Protection Agency (EPA). According to California State

Board's SDWIS, the City of Hollister (Water System No. CA3510001) currently provides water service to a total population of 22,940 persons.

Existing Population Summary and Conclusion

Based on a review of the three different methodologies used to arrive at an existing population for the City's service area, the 2018 SSCSMPU population estimate of 22,877 persons verifies the EPA's SDWIS population estimate of 22,940 persons. For the purposes of this WDSMP, it is assumed that the existing service area population is **22,940 persons**.

Future Population

The study area for this master plan lies within both the City and the County. In order to identify the future development potential for the study area, future land use designations per the City and County's General Plan and SSCSMPU population density factors were utilized to estimate the future population within the study area.

Future Development Projects

Future developments include those projects identified in Table 3-2, as well as all potential future developments on vacant parcels. Vacant parcel projections are based on maximum permitted density per the designated land use category. For parcels included in a tentative map or approved development project, the proposed project density was used for analysis. The total number of future residential developments within the study area on both the identified and vacant parcels is 7,006 units.

The total estimated future population for the study area is **42,133 persons**. This population will likely not occur by the year 2023, which is the City's 2005 *General Plan* planning horizon, but rather, the population represents full build-out. It is the intention of this report to anticipate the potential future impact that water demands from the various customers may have on the distribution system without knowing where the development may occur first. Therefore, the conservative approach is to assume that all development potential will occur. Decisions on completion of upgrades to the distribution system should be based on the most current General Plan and on development as it occurs and not based on this theoretical population projection from this report.

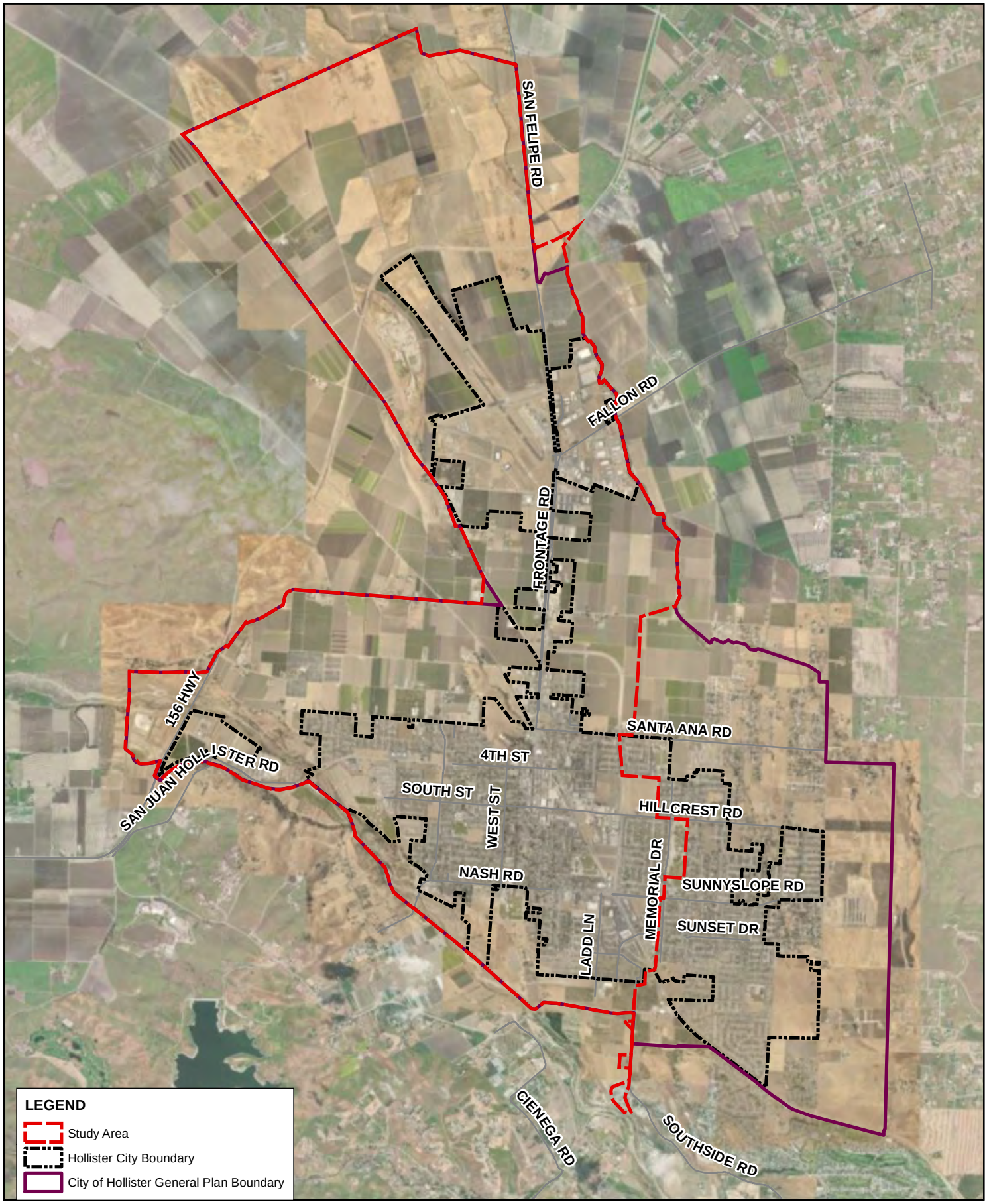
Table 3-1 City of Hollister Existing Water Service Area Land Use			
Land Use Category	**Number of Parcels**	**Sum of Parcel Areas (Acres)**	**Percent of Service Area**
Agriculture	78	1,680	31.9%
Airport	9	362	6.9%
Commercial	398	342	6.5%
Industrial	139	505	9.6%
Jail	1	21	0.4%
Low Density Residential	5,363	900	17.1%
Medium/High Density Residential	446	107	2.0%
Motel	5	6	0.1%
Open Space	30	60	1.1%
Residential Estate	24	15	0.3%
Roads	17	11	0.2%
School	12	136	2.6%
Unknown	15	92	1.7%
Vacant (no zoning designation)	31	75	1.4%
Vacant Commercial	38	68	1.3%
Vacant Industrial	86	257	4.9%
Vacant Low Density Residential	277	595	11.3%
Vacant Medium/High Density Residential	3	4	0.1%
Vacant Residential Estate	12	28	0.5%
Grand Total	**6,984**	**5,264**	**100.0%**

Table 3-2 City of Hollister Future Residential Developments			
Development	**Planning Dept. Status**	**Units**	**Unit Type**
Alarcon Family	Approved	1	MF
Braer	Approved	6	MF
Borelli North of Buena Vista Road	Approved	170	144 SFD 26 Duet Units
Buena Vista	Future	4,007	SFD/MF
Cerrato Estates/Benchmark	Under Construction	241	SFD
CHISPA	Approved	49	Affordable/ MF Seniors
CHISPA North of Buena Vista	Approved	54	41 MF 13 SFD
Cross Subdivision	Future	3	SFD
DeNova Homes/Allendale	Approved	339	279 SFD, 60 MF
J. Coria	Approved	7	MF
Jim Matthews 1650 Cienega Road	Under Review	8	SFD Smaller Lots
Ladd Lane/Itravia/Bella Serra	Approved	101	13 SFD, 63 MF, 25 Courtyard
Ladd Ranch	Under Construction	82	SFD
Lynn Lake 220 Fourth Street	Under Review	5	MF
Maple Park	Approved	49	SFD Smaller Lots
McDonald Investment (Falconi Way)	Approved	3	SFD
Nektarios Matheou 1051 Monterey St.	Under Construction	2	MF
Orchard Park	Under Construction	91	SFD Smaller Lots
Orchard Ranch	Under Construction	53	SFD
Pine Drive	Approved	3	MF
Ray Mariotini	Approved	13	MF
Sywak	Under Review	13	SFD Smaller Lots
The Cottages/ Dike	Under Construction	39	SFD Smaller Lots
Thorning/Fahmy	Approved	79	39 MF 40 SFD
Valles	Under Review	83	15 SFD, 42 MF, 26 Townhomes
Vista de Oro/Saroyan & Howard	Under Construction	80	MF
1040 South Street (Fahmy)	Approved	38	26 SFD, 12 MF

Table 3-3 City of Hollister Future Non-Residential Developments		
Non-Residential Development	**Planning Dept. Status**	**Area (ft^2)**
Commercial		
Lab & RV Storage	Approved	43,560
Multi-Tenant Shopping Center	Approved	83,559 of the 165,533 was approved
Industrial		
Clearist Park Industrial Building	Approved	151,200
Industrial	Future	152,460
Warehouse	Approved	68,550
Warehouse/Industrial	Approved	146,648

Table 3-4 Water Service Population Estimate per 2018 SSCSMPU			
Description of Tributary Area	**Density**	**Number of Residential Units**	**Population**
Central Avenue Tributary Area			
Central Avenue	2.6	995	2,586
Line Street Tributary Area			
Line Street	2.2	1,167	2,567
Tres Pinos	3.8	84	319
7th Street Tributary Area			
7th Street	4.1	2,723	11,164
Ladd Lane	3.3	221	729
RDWWTP Area			
RDWWTP	2.7	2,041	5,511
Total Water Service Area Population		**7,233**	**22,877**

Table 3-5 Water Service Population Estimate per MetCalf & Eddy			
Year	**Total Metered Residential Consumption (gpd)**	**Demand Factor (gpcd)**	**Population**
2015	1,487,962	100	14,880
2016	1,516,122		15,161
2017	1,644,006		16,440



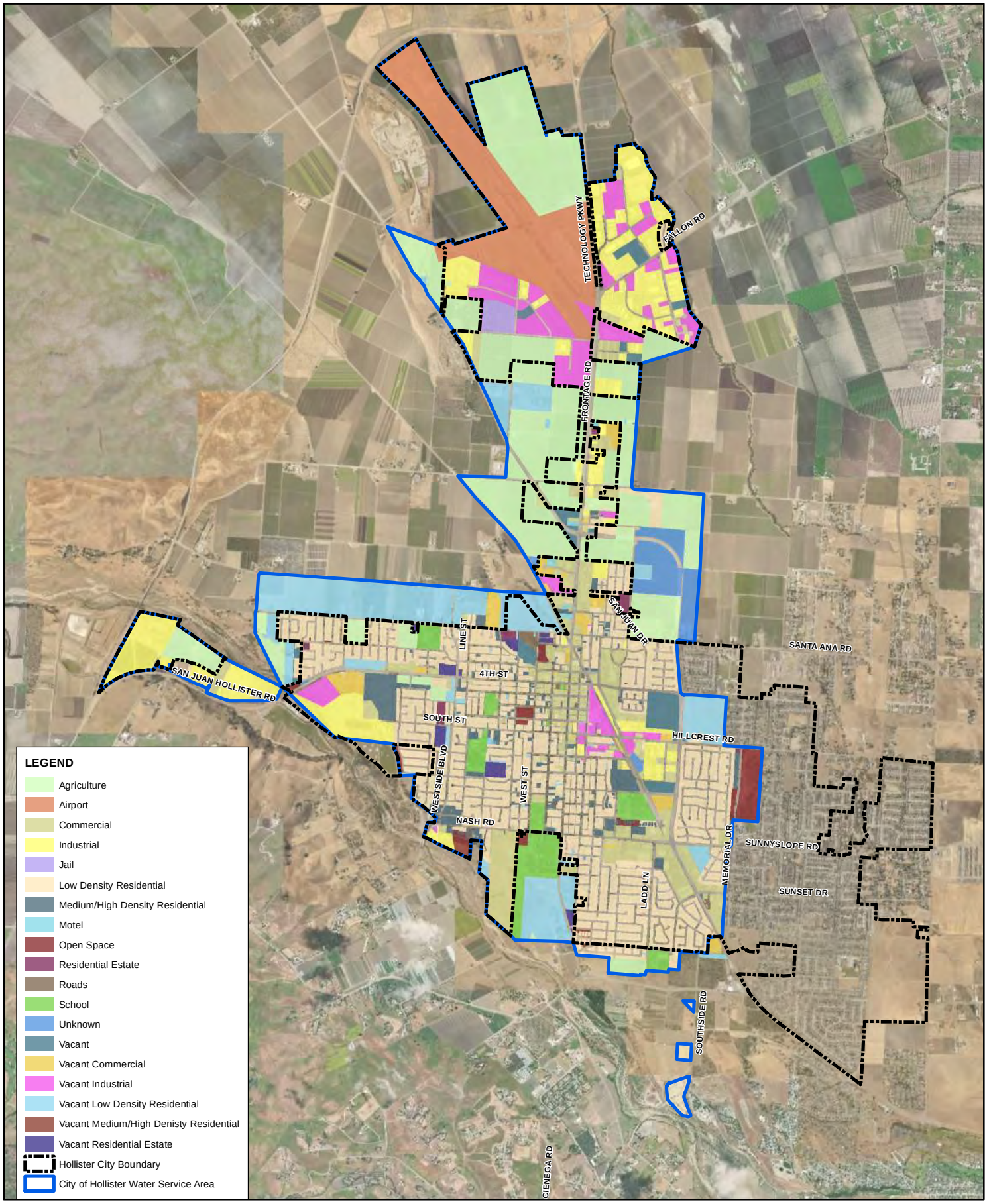
WALLACE GROUP
CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

CITY OF HOLLISTER
WATER DISTRIBUTION MASTER PLAN

FIGURE 3-1: STUDY AREA

NOTES:
BASEMAP COMPILED FROM GIS DATA PROVIDED BY SAN BENITO COUNTY AND THE CITY OF HOLLISTER.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT.
MAP PRODUCED AUGUST 2018.



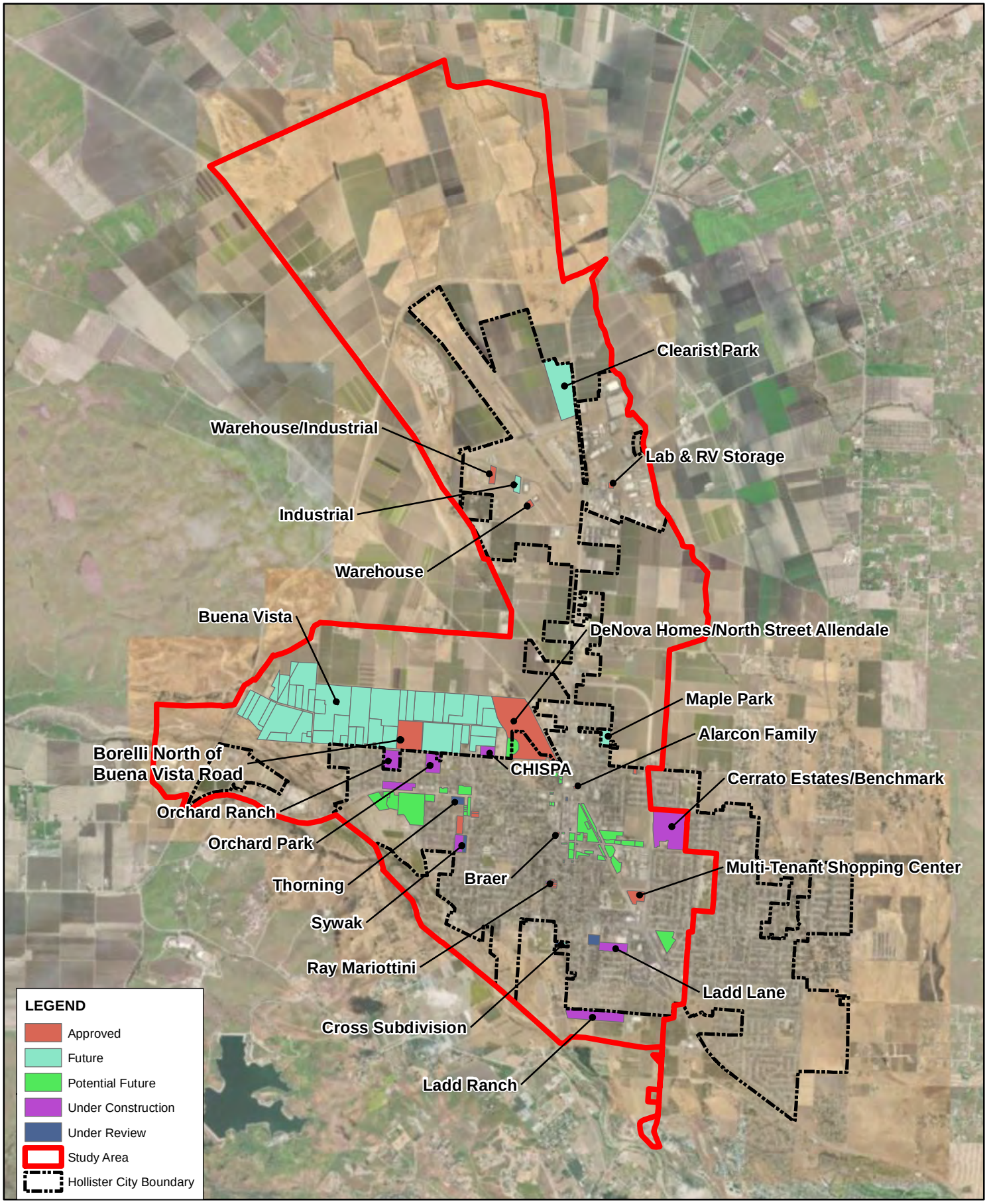
WALLACE GROUP
CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

CITY OF HOLLISTER
WATER DISTRIBUTION MASTER PLAN

FIGURE 3-2: EXISTING SERVICE AREA LAND USE

NOTES:
BASEMAP COMPILED FROM GIS DATA PROVIDED BY SAN BENITO COUNTY AND THE CITY OF HOLLISTER.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT.
MAP PRODUCED AUGUST 2018.



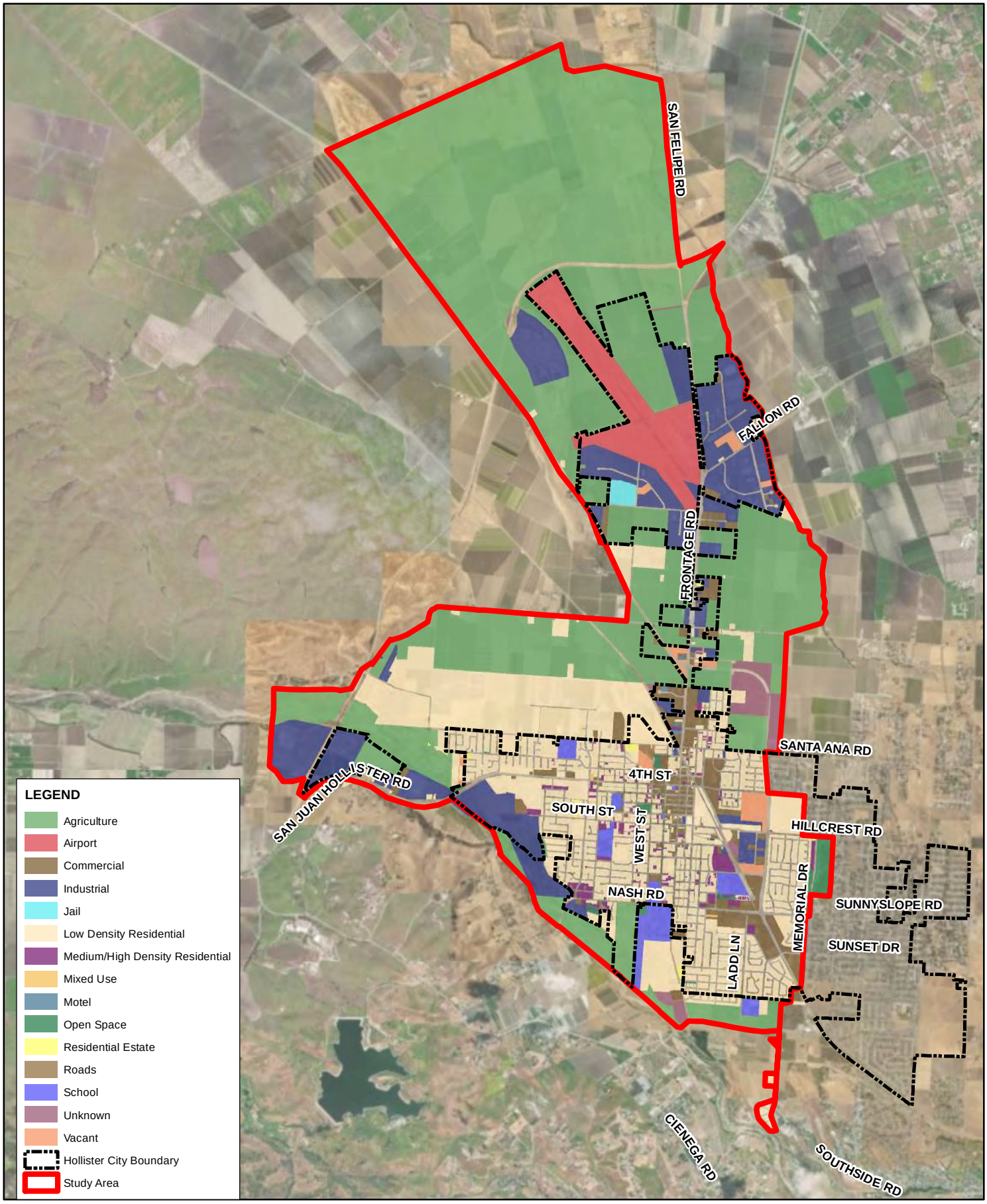
WALLACE GROUP
CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

CITY OF HOLLISTER
WATER DISTRIBUTION MASTER PLAN

FIGURE 3-3: FUTURE DEVELOPMENTS

NOTES:
BASEMAP COMPILED FROM GIS DATA PROVIDED BY SAN BENITO COUNTY AND THE CITY OF HOLLISTER.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT.
MAP PRODUCED AUGUST 2018.



WALLACE GROUP
CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

CITY OF HOLLISTER
WATER DISTRIBUTION MASTER PLAN

FIGURE 3-4: FUTURE STUDY AREA LAND USE

NOTES:
BASEMAP COMPILED FROM GIS DATA PROVIDED BY SAN BENITO COUNTY AND THE CITY OF HOLLISTER.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT.
MAP PRODUCED AUGUST 2018.

CHAPTER 4
WATER DEMAND

This Chapter describes the existing and projected water demands for the City. The water demand forecasts will form the basis for identifying existing and future system needs and analyzing deficiencies.

INTRODUCTION

Water system demands are used to size pumping, storage, and distribution system facilities. General water demand and production definitions used in this report are defined as follows:

- **Water Consumption:** the amount of water consumed as measured directly through customer meters
- **Water Production**: the amount of water produced by the City's water supply sources
- **Unaccounted-for-Water (UAW)**: the difference between the quantity of water produced and the amount of water consumed as measured directly through customer meters

HISTORICAL WATER DEMANDS

Metered consumption data was provided by the City for the years 2015, 2016, and 2017. Water Production records were identified through the City's Consumer Confidence Reports (CCRs) and Well Production Data. The historical demands are summarized in Table 4-1. The City's Total Well Production accounts for the City's flow that was metered to SSCWD. Total SSCWD flow to City refers to the SSCWD Well Production and Lessalt Water Treatment Plant flow into the City's water distribution system via the interties.

Table 4-1 Summary of Historical Water Demands (ac-ft)

Year	Total City Well Production	West Hills WTP to City	Total SSCWD Flow to City	Total Production Entering City System	City Total Metered Consumption	UAW	UAW (%)
2015	1,738	N/A[1]	961	2,699	2,400	299	11.1
2016	1,812	N/A[1]	955	2,767	2,488	279	10.1
2017	1,417	407	1,187	3,011	2,664	347	11.5

[1]West Hills WTP came online in 2017.

As noted in Table 4-1, the City's UAW ranges between 10.1% and 11.5%, averaging at approximately 10.9%. The American Water Works Association (AWWA) Manual 32 states that municipal ranges for UAW are typically between 10-15%. UAW is typically generated from several sources including leaking pipes, water used for fires, water main flushing, and faulty/un-calibrated meters. UAW should be minimized where possible since it requires the City's resources to produce water. Since the water is unaccounted for, revenue for the production is not being collected. **It is recommended that the City calibrate their water meters every 5 to 10 years and**

replace all water meters every 20 to 25 years. This meter replacement should be budgeted in the City's Operation and Maintenance Budget annually.

HYDRAULIC DEMAND PARAMETERS

The water system hydraulic characteristics are used to identify existing and future water distribution system requirements. The data used to calculate existing average water demands is based on annual production from 2015-2017. Peaking factors for maximum day demand and peak hour demand were found using the California Code of Regulations Title 22, Division 4, Chapter 16, Article 2, Section 64554 for monthly water data. The hydraulic demand parameters used to evaluate the City's water distribution system are described in the following sections and summarized in Table 4-3.

Average Day Demand (ADD)

The average day demand (ADD) is the average water production needed to meet the daily demand calculated over the year and generally determined by production records. The ADD is used to also determine the average per capita demand, which is used to project future water system demands based on population growth. Table 4-2 provides a summary of the ADD for 2015-2017, which averages 1,752 gpm or 2.52 million gallons per day (mgd).

Maximum Day Demand (MDD)

The maximum day demand (MDD) is the daily usage of water needed to meet the peak day demand of the year. This is generally during the summer as a result of increased irrigation demand and heightened outdoor activities. A public water system's water source shall have the capacity to meet the system's MDD.

According to California Code of Regulations Title 22, if daily production data is not available, the maximum day demand should be found using the maximum month during the highest annual use and multiplying the average daily usage for that month by a factor of 1.5. The maximum month between 2015 and 2017 for the City was September 2017, with an average daily use of 2,667 gpm. Using this methodology, the MDD for the City's service area is 4,000 gpm or 5.76 mgd. This equates to a peaking factor of 2.28 for MDD.

Peak Hour Demand (PHD)

Peak hour demand (PHD) is used to size water mains and pumping facilities. The PHD is generally determined by calculating the specific demand within the day by monitoring tank levels and pumping records; however, in many municipal systems, the exact calculation can be difficult to ascertain.

The City does not maintain hourly usage records, which would be used to determine PHD. Per the California Code of Regulations Title 22 for monthly water usage data, if hourly production data is not available, PHD can be calculated by multiplying a peaking factor of at least 1.5 to the average hourly flow during the MDD. Using this method, the PHD for the City's service area is 6,000 gpm or 8.64 mgd. This equates to a peaking factor of 3.43 for PHD.

Table 4-2 Average Day Demand			
Year	**Total Production (ac-ft)**	**Average Day Demand (mgd)**	**Average Day Demand (gpm)**
2015	2,699	2.41	1,673
2016	2,767	2.47	1,715
2017	3,011	2.69	1,867
Average	**2,826**	**2.52**	**1,752**

Table 4-3 Hydraulic Demand Parameters				
ADD (gpm)	**MDD (gpm)**	**MDD Peaking Factor**	**PHD (gpm)**	**PHD Peaking Factor**
1,752	4,000	2.28	6,000	3.43

Water Demand Categories

The consumption noted in Table 4-1 includes all customers within the City. The City has substantial commercial and residential growth anticipated for the future. In order to gain a better understanding of the water demands for future growth, the total production has been further broken down into the following categories:

1. Residential: Includes single family residential, multi-family residential, apartments, duplexes and mobile home parks
2. Commercial: Includes commercial, restaurants, Government facilities, and churches. Landscape irrigation is included in this category
3. Hospital
4. Industrial
5. Hotels/Motels
6. Institutions

Table 4-4 provides a summary of the average daily consumption broken into the categories listed above from metered records for calendar years 2015-2017 and the estimated quantity or unit for each category.

Table 4-4 Existing Average (2015-2017) Water Demand Factors					
Use Category	**Quantity or Units**		**Demand Factor**		**Consumption[1] (gpd)**
Residential	22,940	Persons	76	gpcd	1,739,347
Commercial	342	Acres	1,455	gpd/acre	497,714
Hospital	Hazel Hawkins Memorial		15,555	gpd	15,555
Industrial	505	Acres	369	gpd/acre	186,351
Hotels/Motels	145	Rooms	115	gpd/room	16,625
Institutions	7,276	Students	9	gpd/student	67,287
				Total	**2,522,880 (1,752 gpm)**

[1]Consumption values include 10.9% for unaccounted-for-water.

FUTURE WATER DEMANDS

The water demand factors found in Table 4-4 were used to estimate future needs based on the future developments provided by the City. In addition, the peaking factors identified in Table 4-3 were also used for future needs. Table 4-5 provides the estimated future demands for the City based on the existing water demand factors and the projected population growth, as discussed in Chapter 3. For the purpose of locating and assigning future water demands for this water distribution system analysis, the parcels illustrated in Figure 3-4 were considered as future demands to the City's system through build-out. Table 4-6 provides a summary of the future ADD, MDD, and PHD.

Table 4-5 Future Water Demand Factors

Use Category	Quantity or Units		Demand Factor		Consumption (gpd)
Residential	42,133	Persons	76	gpcd	3,194,591
Commercial	332	Acres	1,455	gpd/acre	483,161
Hospital	Hazel Hawkins Memorial		15,555	gpd	15,555
Industrial	998	Acres	369	gpd/acre	368,274
Hotels/Motels	196	Rooms	115	gpd/room	22,524
Institutions	8,907	Students	9	gpd/student	82,370
				Total	**4,166,476 (2,893 gpm)**

[1]Residential population identified in Chapter 3. Institution quantity based on 2.6% population growth per the City General Plan. Commercial and Industrial quantities based on number of parcels in each category in the Future growth areas. Hospital and Hotel/Motel quantities remained the same due to no future developments identified by the City.

Table 4-6 Future Water System Demands

ADD (gpm)	MDD Peaking Factor	MDD (gpm)	PHD Peaking Factor	PHD (gpm)
2,893	2.28	6,597	3.43	9,924

CHAPTER 5
WATER SUPPLY OVERVIEW

Chapter 5 provides an overview of the City's water supply portfolio. A water supply analysis was not included as part of the scope of this WDSMP; however, it is important to understand the City's water supplies as they pertain to overall water service to the City's residents. More detailed information about the City's water supply and the redundancy and reliability of the water supplies is located in the *2008 Hollister Urban Area Water and Wastewater Master Plan* and the *2017 Hollister Urban Area Master Plan Update.*

INTRODUCTION

The City obtains its water supply from both groundwater and surface water. Three (3) groundwater wells operate within City limits and two groundwater wells feed the Cienega Valley. Additionally, surface water is imported from the Central Valley Project via the Hollister Conduit to augment the City's water supply.

Groundwater

The City maintains eight (8) groundwater wells that extract water from the underlying groundwater basin for their municipal supply. Within City limits, the City currently operates three (3) wells, City Well No. 2 Bundeson, No. 4 South, and No. 5 Nash, which feed into two storage tanks. City Wells No. 1 San Felipe and No. 3 Fallon are inactive due to a presence of high nitrate levels. A change to the source status of City Well No. 6 Airline from emergency standby to inactive was recently approved by the State Water Resources Control Board (SWRCB) due to excessive sand and consistently high lab results for aluminum.

As discussed in Chapter 2, the City also maintains two groundwater wells, Cullum Wells No. 1 and No. 2, that feed into Sally Flats Reservoir in the Cienega Valley, south of City limits. Table 5-1 shows the City's annual well production and the percent of total water production based on the City's Consumer Confidence Reports.

Per the *2017 Hollister Urban Area Master Plan Update*, the Division of Drinking Water (DDW) adopted a new Maximum Contaminant Level (MCL) in 2014 of Hexavelent Chromium to 10 parts per billion (ppb) in drinking water. Results from water quality sampling showed that all of the City's active water supply wells exceeded the new MCL. In 2015, the City prepared the Hexavalent Chromium Compliance Plan for Groundwater Supply (Compliance Plan), which recommended blending at the existing wells with treated surface water. The DDW is currently working on a new regulation for Hexavalent Chromium. It should be noted that the recommendations made in the Compliance Plan are conservative.

Table 5-1 Annual City Well Production		
Year	Total City Well Production (ac-ft)	City Water Demand (%)
2009	2,728	82%
2010	2,056	64%
2011	1,601	49%
2012	2,120	64%
2013	2,952	82%
2014	2,755	82%
2015	1,738	63%
2016	1,812	75%
2017	1,417	47%

The recent decrease in City's annual well production is due to the increase of treated surface water blended into the City's supply, per the Compliance Plan.

Imported Surface Water

The San Benito County Water District (SBCWD) purchases Central Valley Project (CVP) surface water from the United States Bureau of Reclamation, which is imported through the Sacramento River-San Joaquin River Delta to San Luis Reservoir and conveyed through the Hollister Conduit. The Hollister Conduit extends approximately 19.5 miles from the Santa Clara Conduit to the terminus at San Justo Reservoir, located southwest of the City of Hollister. The imported surface water is delivered to agricultural, municipal, and industrial customers in the Pacheco, Bolsa Southeast, San Juan, Hollister East, Hollister West, and Tres Pinos Subbasins. Releases for groundwater recharge have diminished due to the widespread recovery of groundwater levels.

Lessalt Water Treatment Plant

The Lessalt Water Treatment Plant is owned by SBCWD and operated under contract by SSCWD. The plant was placed into operation in January 2003 and was upgraded in 2014 in compliance with the Disinfectants and Disinfection Byproducts (D/DBP) Rule. The imported CVP water undergoes greensand, membrane filtration, granular activated carbon (GAC) filtration, and disinfection. The plant has a rated capacity of 2.0 mgd and a short-term production capacity of up to 2.5 mgd. The Lessalt WTP treats imported CVP water via the Hollister Conduit for both the City and SSCWD customers.

West Hills Water Treatment Plant

Construction of the West Hills WTP, also owned by SBCWD and operated under contract by SSCWD, was completed at the end of 2017. CVP surface water is delivered from the San Justo Reservoir to the West Hills WTP, where it undergoes treatment using ballasted flocculation, dual media gravity filtration, and disinfection. The treated water is stored and distributed by gravity into the City's water distribution system. The plant has a current capacity of 4.5 mgd, with associated transmission facilities designed for an ultimate capacity of 9.0 mgd. The West Hills treated surface water blends into the City's distribution system at City Well No. 4 South and City Well No. 5 Nash. The City projects that the future water supply for the service area will be a blend of 60/40 surface water-to-groundwater ratio.

Crosstown Pipeline Project

As discussed, West Hills treated water currently serves the City Low Zone via connections at City Well No. 4 and City Well No. 5. According to the 2017 *Hollister Urban Area Water and Wastewater Master Plan Update*, the

Crosstown Pipeline was planned as a future pipeline to extend delivery of treated surface water from the West Hills WTP to SSCWD's Middle Zone. The project was accelerated in order to comply with the California Hexavalent Chromium regulations for the groundwater supplies. The Crosstown Pipeline will add an additional City connection at City Well No. 2 and will connect to SSCWD's Middle Zone at SSCWD's Well No. 2 and No. 11. Both the City and SSCWD's water systems will benefit in the distribution of high quality surface water, lowering both TDS and hardness. The Crosstown Pipeline will also enhance reliability for seasonal demand and emergency operations. The Crosstown Pipeline is anticipated to be brought on line in 2019.

CHAPTER 6
WATER STORAGE

This chapter describes the existing and projected water storage requirements for the City. Adequate water storage is critical to deliver water reliably to customers and to provide fire storage for life safety.

EXISTING WATER STORAGE FACILITIES

The City owns and operates two (2) water storage tanks at Park Hill. The older Park Hill tank (Park) has a capacity of 2.0 million gallons (MG) and the newer Park Hill tank (Vista) has a capacity of 3.5 MG. It should be noted that the City will complete a re-coating of the exterior for both tanks in 2018. The City should evaluate the condition of the exterior of the tanks every 5 years and complete a re-coat every 10 to 15 years depending on need.

The City also owns and operates the 0.5 MG Sally Flats Reservoir, which is located south of the City's boundary and only serves Riverview Estates. There is also a 0.5 MG clearwell at West Hills WTP that provides additional storage to the City's system. Table 6-1 summarizes each of the water storage facilities.

Table 6-1 Water Storage Facility Summary

Water Storage Facility	Year Installed	Material	Diameter (ft)	Base Elevation (ft)	Top Elevation (ft)	Approximate Overflow Elevation (ft)	Nominal Capacity (MG)
Park Hill Tank #1 (Park)	1964	Steel	95	400	436	434	2.0
Park Hill Tank #2 (Vista)	1998	Steel	129	400	439	436	3.5
Sally Flat Reservoir	N/A[1]	Reinforced Concrete	37.7	N/A[1]	~437[2]	Level- 10 feet	0.5
West Hills WTP Clearwell	2017	Reinforced Concrete	60.5	464	491	487	0.5

[1]City unable to provide requested information.

[2]Based on static pressure readings during the fire flow test, the approximate water surface elevation is 437 ft. City was unable to provide specific data on the Sally Flat Reservoir as requested.

EXISTING AND FUTURE STORAGE ANALYSIS

It is recommended that sufficient useable storage volume be maintained for emergency, fire, and operational needs within the City's tanks. For the purpose of this report, groundwater wells and the water treatment plants will not be considered in the storage analysis.

Operational Storage

Operational storage is the amount of water needed to equalize the daily supply and demand. Water is typically withdrawn from storage during peak demand hours and is restored during low demand hours. With adequate operational storage, booster stations can operate at the daily average rate, while storage facilities meet the

hourly peaks. AWWA M-32 recommends operational storage of 20-25% of ADD, or up to 15% of the MDD. Based on the more stringent criteria for the City being 15% of MDD, the recommended operational storage for existing and future conditions is summarized in Table 6-2.

Table 6-2 Operational Storage Recommendations		
	MDD (gpm)	**Storage (gal)**
Existing	4,000	864,000
Future	6,597	1,424,950

Fire Protection Storage

Fire protection storage is the volume of water needed to control an anticipated fire in a building or group of buildings. The determination of this storage is based upon the most stringent zoning within a distribution zone, and the required fire flow and duration in the zone while maintaining 20 psi pressure throughout the system. These fire flow requirements are per the Uniform Fire Code (UFC). The required fire flow for the City based on the most stringent land use is provided in Table 6-3.

Table 6-3 Fire Protection Storage Recommendations			
	Fire Flow (gpm)	**Duration (hrs)**	**Storage (gal)**
Existing	4,000	4	960,000
Future	4,000	4	960,000

Emergency Storage

Emergency storage is intended to provide water supply during extended power outages, pump failures, and other similar problems. Most water planners accept that during emergencies, supply per capita may be reduced to minimum levels. Typically, on that basis, an emergency storage volume of 50 gpcd for three days is accepted as a reasonable value. Table 6-4 provides a summary of the emergency storage recommendations for the existing and future population for the City.

Table 6-4 Emergency Storage Recommendations			
	Population	**Gallons/Capita Per Day**	**Storage (gal)**
Existing	22,940	50	3,441,000
Future	42,133	50	6,319,950

Un-useable Storage

Un-useable storage is the volume of water that is below the top of the outlet pipe to the bottom of the tank. This water cannot be used without the use of a sump pump and therefore is not included in the overall volume of the tank.

Park Hill Tanks fill and draw from the bottom of the tanks, so there is no un-usable volume at the bottom of the tanks. Park Hill Tank #2 (Vista) does have an un-usable volume of 195,520 gallons due to the 2-foot differential in the overflow elevation at Park Hill Tanks #1 (Park).

Storage Summary

The usable storage recommended as noted previously is based on a summation of the emergency, fire, and operational storage recommendations as shown in the adjacent figure. Table 6-5 provides a summary of the City's overall storage recommendations.

Table 6-5 Required Storage Summary

	Operational (gal)	Fire (gal)	Emergency (gal)	Recommended Storage (gal)	Total Available[1] (gal)	Storage Surplus/(Deficit) (gal)
Existing	864,000	960,000	3,441,000	5,265,000	5,804,480	539,480
Future	1,424,950	960,000	6,319,950	8,704,900	5,804,480	(2,900,420)

[1] Available storage = 2.0MG + 3.5MG + 0.5MG – 195,520 gal = 5,804,480 gallons. Sally Flats Reservoir is not considered as a storage supply for the City since it only feeds Riverview Estates. A storage supply analysis for Sally Flats Reservoir is provided in Chapter 9 of this report.

OVERALL STORAGE RECOMMENDATIONS

Review of the City of Hollister's existing water storage facilities indicates that the City has a storage surplus under existing conditions, and a significant storage deficit under future conditions. Typically, additional tanks would be needed to meet the recommended storage capacity set forth in Table 6-5; however, since the City and SSCWD water systems are interconnected via six intertie locations, there may be adequate water supply from SSCWD should the City need it under emergency conditions.

A full storage analysis for both SSCWD and the City was not completed to determine the adequacy of SSCWD's water storage facilities under existing or future conditions. It is recommended this analysis be completed before identifying additional new storage facilities. It is recommended to evaluate water storage from a regional perspective. A significant amount of growth is occurring to the north and west ends of the City. The Airport Area is a vulnerable area and known to have water quality issues. A hillside north of the City, at the same elevation as the Park Hill Tanks would help improve water quality, fire flow and reliability to the Airport Area.

Seismic and Mixing System Upgrades

Both Park Hill Tanks have single bottom penetration for fill and draw. Park Hill Tank #1 (Park) has an internal mixing system; however, Park Hill Tank #2 (Vista) does not. It is recommended that the inlet/outlet for Vista Tank either be re-configured to meet current Division of Drinking Water (DDW) regulations or install a Tide flex© Red Valve Mixing System or similar unit inside the tank to promote mixing and eliminate stagnation within zones of the tank. These upgrades will bring the tanks into compliance with current DDW requirements.

It is also recommended that the City perform a dive-inspection on the tank interiors, which will help the City plan for the next interior coating project.

CHAPTER 7
WATER PUMP STATIONS

Chapter 7 describes the existing pump station in the City of Hollister water distribution system. This chapter is for the City's informational purposes as there are no pump station recommendations or improvements. Pump curves can be found in Appendix A.

PUMP STATIONS

The City owns and operates Memorial Booster Station which transfers water from the City Low Zone to the City and SSCWD Middle Zone. As discussed in Chapter 2, Memorial Booster Station allows the City to pump from the City Low Zone to the City Middle Zone. Currently, Memorial Booster Station is providing West Hills treated water to SSCWD's Middle Zone. With the completion of the Crosstown Pipeline Project, Memorial Booster Station will be used for emergency operations only. Table 7-1 summarizes the function of Memorial Booster Station and Table 7-2 summarizes its design characteristics.

Table 7-1 Pump Station Function Summary

Booster Station	Number of Pumps	Discharge HGL[1] (ft)	TDH[2] at Design Capacity (ft)	Pumping Capacity (gpm)
Memorial Booster Station	2	N/A[3]	N/A[3]	200 each

[1]HGL- Hydraulic Grade Line
[2]TDH- Total Dynamic Head
[3]City unable to provide requested information.

Table 7-2 Memorial Booster Station Summary

Date of Installation/Upgrades	N/A[1]
Pump Type	Pump #1 & Pump #2
RPM	3550
Phase	3
HP	100
Voltage	460
Pump Make & Model	Peerless Pump Horizontal Split Case Type 4AE10
Impeller Diameter (Inches)	N/A[1]
Suction/Discharge Dia. (Inches)	N/A[1]
Design Flow (gpm)	200 each
Head (ft)	N/A[1]

[1]City unable to provide requested information

CHAPTER 8
WATER DISTRIBUTION SYSTEM ANALYSIS

Chapter 8 describes the water system design criteria, water model development and calibration, and overall system performances. All figures can be found at the end of this chapter.

WATER SYSTEM DESIGN CRITERIA

A hydraulic model was developed and calibrated to analyze the City's water distribution system under existing and future conditions. The design requirements used to determine any deficiencies in the water distribution system relate to the flow and pressure delivered by the system to the customers.

Overall Water System Pressures

The State Water Resources Control Board's (SWRCB) Division of Drinking Water regulates the requirements for minimum system pressures within a water distribution system. Per the existing Waterworks Standards, Chapter 16, Section 64602, last updated on April 10, 2017:

a) Each distribution system shall be operated in a manner to assure that the minimum operating pressure in the water main at the user service line connection throughout the distribution system is not less than 20 pounds per square inch (psi) at all times.

b) Each new distribution system that expands the existing system service connections by more than 20 percent or that may otherwise adversely affect the distribution system pressure shall be designed to provide a minimum operating pressure throughout the new distribution system of not less than 40 pounds per square inch (psi) at all times excluding fire flow.

Ideally, normal operating (static) pressures should be within the range of 40 to 80 psi. This is the range that most people find comfortable and will serve most fire sprinkler systems. For the existing system, the design criteria for this WDSMP is to recommend average day, maximum day, and peak hour pressures to be no less than 40 psi. This falls in line with SWRCB's intention for all new water distribution systems or systems that are still expanding.

It should be noted that prior to this SWRCB update, the required system pressure under all conditions, except fire flow, was 30 psi. As noted in b) above, unless the City expands the system, the system pressure is "grand-fathered in" to a service pressure of 30 psi. However, the City is expected to expand more than 20%; therefore, when completing the water model analysis, the water system will be analyzed to maintain 40 psi throughout the entire distribution system.

Pressures higher than 80 psi are acceptable within the distribution system but should be reduced to 80 psi or lower at the service connection with an individual home pressure reducing valve to prevent water hammer effects or leakage through washers and seats.

Water Demand Requirements

The flow requirements examined in the hydraulic model include average day demand, peak hour demand, and fire flow plus maximum day demand. The various flow scenarios are summarized as follows:

Average Day Demand (ADD)

This flow condition is used to evaluate the system subject to the most common conditions. The existing demands were assigned throughout the distribution system based on the demands noted in Chapter 4. The tanks were modeled full (two feet below overflow) during this scenario to identify the highest system pressure conditions the City's customers will experience on a daily basis. In addition, all wells and booster stations are turned off.

Peak Hour Demand (PHD)

This demand condition is used to identify system deficiencies at the maximum domestic use. A peaking factor per Table 4-3 of this report was applied to average day demand to obtain peak hour demand. The tanks were modeled at ½ full during this scenario to identify the lowest system pressure conditions the City's customers will experience on a daily basis. In addition, all wells and booster stations are turned off.

Fire Flow (FF) Plus Maximum Day Demand (MDD)

This demand condition is used to identify system deficiencies under fire flow conditions. A peaking factor per Table 4-3 of this report was applied to average day demand to obtain maximum day demand. The tanks were modeled at ¾ full during this scenario. This tank level is most common throughout the day. In addition, all wells and booster stations are turned off, and only one fire flow City-wide is modeled at any one time.

Fire Flow Requirements

Per the 1992 City Standards, the required fire flow rates are to be determined with a minimum of 20 psi residual pressure within all portions of the water distribution system. To analyze the system for its ability to meet this requirement, the maximum fire flow at each hydrant (based on the structure type) is modeled to verify that the minimum pressure at all nodes in the system does not drop below 20 psi while the hydrant is flowing. Capital improvement projects will be identified if the water distribution system does not meet this requirement.

Table 8-1 summarizes the recommended fire flow requirements for each type of zoning. The fire flow requirements identified are only a guide to assist in developing capital improvement projects and are based typically on the most stringent fire flow requirements for the zoning noted. The City Fire Department is responsible for determining exact fire flow requirements, higher or lower, for all buildings throughout the City. If it is determined that a facility or residential structure requires higher fire flow demands than what is identified in Table 8-1, additional water modeling should be completed to determine if the water distribution system can meet the increased fire flow requirements. In addition, if the highest fire flow requirement in the City increases above 4,000 gpm, this will impact the storage requirement noted in Chapter 6.

Table 8-1 Fire Flow Requirements			
Zoning	**Fire Flow (gpm)**	**Duration (hours)**	**Notes**
Residential (low and medium density)	1,500	2	
Residential (high density)	2,000	2	
Neighborhood Commercial	1,500	2	Commercial businesses within residential neighborhoods
Commercial	2,500	2	All other commercial not identified in Neighborhood or Big Box
Big Box Commercial	4,000	4	Large square footage commercial buildings
Industrial	4,000	4	
Hotels	4,000	4	Large hotels
Hospital	2,375	4	Hazel Hawkins Memorial (sprinklered)
Churches	2,500	2	
Schools	2,500	2	

Hydrant Spacing

According to the 1992 City Standards, fire hydrants on streets without fronting residential lots shall have a maximum spacing of 600 feet, and the minimum size water main serving a fire hydrant shall be 8-inches with no more than three hydrants allowed on any 8-inch line between intersecting lines. The City of Hollister 2013 Standard Detail for Fire Hydrant Location and Notes (B-1-2) states that fire hydrant installation is not to exceed 250-foot spacing.

It is recommended that the City update their City standards for fire hydrant spacing to ensure that the City is meeting State Health Standards. In addition, the City's GIS database has incorporated fire hydrants into the database based on old record maps. It is recommended that the City conduct a fire hydrant spacing study to determine the accuracy of the fire hydrant placement and confirm that the spacing of fire hydrants throughout the City meets City standards.

Valve Spacing

Per the 1992 City Standards, the number of valves shall be sufficient so that no single shutdown will result in service removal from the length of a pipe greater than 250 feet in high density and 600 feet in other districts. Additionally, no more than two fire hydrants shall be removed from service. Per the California Code of Regulations Title 22, Division 4, Chapter 16, Article 4, Section 64577, isolation valves shall be installed on all new water mains within the distribution system as follows:

a) No farther than 1,320 linear feet apart on all mains having a diameter of 12 inches or less.
b) At each tee or crossing connection between mains that have a diameter of 12 inches or less, within 100 feet of the tee or crossing connection with the primary main.

c) Between the water main and each fire hydrant served by the main.

It is recommended that the City update their City standards for valve spacing to ensure that the City is meeting State Health Standards. In addition, the City's GIS database has incorporated valves into the database base on old record maps. It is recommended that the City conduct a valving spacing study to determine the accuracy of the valve placement and confirm that the spacing of the valves throughout the City meets City standards. It is also recommended that the City implement or maintain a valve exercise program. All valves should be fully opened and closed every year to ensure that the valves are properly functioning and will fully close in the event of an emergency shutoff. All ceased valves should be replaced.

Pipe Sizes and Material

According to the 1992 City Standards, the minimum size water main shall have a diameter of 8-inches and be PVC. The installation of 6-inch PVC water mains are permitted in cul-de-sacs less than 250-feet where there are no fire hydrants served by the 6-inch main. Any cul-de-sac longer than 250 feet should have a fire hydrant at the end of the street and therefore should be served by an 8-inch PVC water main. All dead-end mains are to be provided with a City standard blow-off or other acceptable means of flushing, such as a fire hydrant.

The following parameters were employed to identify deficiencies within the water distribution system for each run of the model:

1. Domestic pressures below 40 psi for ADD, MDD, and PHD
2. Pipeline velocities exceeding five feet per second (fps) at ADD, MDD, and PHD are identified. In general, velocities higher than five fps create excessive pressure losses.
3. Pipeline velocities exceeding 10 fps during the fire flow conditions plus MDD are identified. Pipelines near the source of the fire are identified if velocities exceeded 15 fps.
4. During fire flow model runs, service pressures below 20 psi at any node within the distributions system were identified.

The hydraulic parameters and design criteria for the evaluation of the City's water system are summarized in Table 8-2.

Table 8-2 Summary of Hydraulic Parameters and Design Criteria		
Hydraulic Parameters and Design Criteria	**Value**	**Standard**
Fire Flow Requirements	See Table 8-1	Uniform Fire Code
Maximum Day Demand Factor	1.5 times max month ADD 2.25 times ADD	Title 22
Peak Hour Demand Factor	2.25 times max month ADD 3.375 times ADD	Title 22
	4.0 times ADD	Metcalf & Eddy design handbook "Wastewater Engineering, Treatment, and Resource Recovery, Fifth Edition", 2014
Minimum System Pressure at ADD, MDD, and PHD	40 psi	State Water Resources Control Board Division of Drinking Water
Maximum System Pressure at ADD, MDD, and PHD	150 psi (80 psi at water service recommended. Install service PRV if above 80psi)	
Minimum System Pressure at FF	20 psi	
Maximum Pipeline Velocity at ADD, MDD, and PHD	<5 fps	
Maximum Pipeline Velocity at FF	< 10 fps (<15 fps near source of fire)	
Fire Hydrant Spacing	Maximum of 250 feet	2013 City Standard Details
Pipe Diameter	All new water mains must be 8-inch or greater.	1992 City Standards
Valving	No shut down of greater than 250 feet in high density districts or greater than 600 feet in other districts	1992 City Standards

WATER MODEL DEVELOPMENT

In order to evaluate the performance of the existing water system, identify deficiencies in the network, and recommend improvements, a computer based hydraulic model was developed using computer program WaterCAD V8i by Bentley Systems Inc. Elevation, pipe diameter, and material data for the distribution system were obtained using the City's contour data, existing water model created by HDR, data from the City's InfraMap, and input from City staff.

Since the City's water system is connected to SSCWD's water system via the interties discussed in Chapter 2, the City's Middle Zone was based on SSCWD's Fairview Tanks hydraulic grade line. Hillcrest, Sunnyslope, and Sunset interties were modeled with the appropriate line losses from Fairview Tanks in order to represent the water supply from SSCWD's Middle Zone to the City's Middle Zone.

Model Calibration

The hydraulic model was calibrated using field hydrant testing that was conducted on April 19, 2018. The results of the fire hydrant testing are provided in Appendix B. For fire hydrant tests #6, #7, #8, and #9, the difference between the observed hydraulic grade and the one simulated in the model increased with each subsequent test. This unexpected trend may have been caused by the pressure gauge becoming uncalibrated as the day went on and the gauge continued to see multiple high flows. It should be noted that the gauge failed during fire flow test #10 for the Cienega water system at the end of the day. A later field hydrant test was performed by the City on August 6, 2018. Based on the tests made earlier in the day, it was assumed that the gauge reading the static and residual pressures was off by approximately 3.5 psi. The fire hydrant testing results reflect this assumption.

Different areas of the city were broken up into zones and analyzed in the model by simulating the field fire flow tests and comparing the resulting modeled pressures with those observed in the field. Adjustments to pipe friction factors (Hazen-Williams coefficient) were made in order to calibrate each zone. Each zone was calibrated to within +/- 5 psi of the fire hydrant tests conducted.

Table 8-3 provides a summary of the Hazen-Williams roughness coefficients ("C" factor) for the water mains used in the hydraulic model. The table provides a low and high "C" Factor. The low value represents older water mains, while the higher value represents newer water mains.

Table 8-3 Recommended Hazen-William's "C" Factor

Material	"C" Factor	
	Low (old water main)	High (new water main)
PVC	140	150
Cast Iron	63	103

EXISTING SYSTEM PERFORMANCE

The performance of the City's water distribution system was evaluated under existing conditions based on the current pressure zone configuration. The model was evaluated under ADD, PHD, and Fire Flow plus MDD to identify where the deficiencies are within each zone. The following provides a description of the water systems that did not meet design standards and the recommended upgrades to bring the system into compliance.

The City has two distinct areas that were identified to have pressures under 40 psi during either ADD or PHD conditions. These locations are as follows:

Park Hill: The houses on Hill Court and Hill Street have pressures between 30-40 psi during ADD, MDD, and PHD. Additionally, the existing water main on Park Hill is unable to provide between 25-50% of the required fire flow.

DeNova Homes/Allendale development is currently under construction immediately north at the base of Park Hill. This development requires a new booster station to deliver potable water from the existing City Low Zone to high point in the Allendale Development. To increase pressure and fire flow at Park Hill it is recommended to construct a new 12-inch PVC water main that begins at the discharge of the

Allendale booster station and extends approximately 2,500 feet to connect to the existing water mains supplying the houses on Hill Court and Hill Street.

Low Pressure Area: Under PHD, the southerly portion of City limits experiences system pressures that are less than 40 psi. It is recommended that the City modify the Middle Zone Boundary via closed valves or PRVs to increase the pressures in the deficient area of the City. The new City Middle Zone would extend from Cienega Road to Memorial Drive, and be bounded by Bundeson Drive, Cushman Street, Tres Pinos Road, a portion of McCray Street, and Hillcrest Road. Figure 8-1 provides an overview of the proposed Middle Zone modification with its new boundary presented in Figure 8-2.

The water system upgrades provided below are based on the proposed zone modification. If the City chooses not to modify the distribution zones, additional CIPs may be required and some of the proposed CIPs may no longer be necessary. Additional analysis should be completed to quantify the impacts of not modifying the zones. The following projects are recommended for the City's existing system.

The following upgrades proposed were a result of existing fire flows that were less than 50% of the required fire flow:

East Street: Replace approximately 700-feet of 6-inch cast iron to 8-inch PVC on East Street from South Street to Hawkins Street.

Walnut Lane: Replace approximately 850-feet of 6-inch cast iron to 8-inch PVC on Walnut Lane from Powell Street to the end of the cul-de-sac.

The following upgrades proposed were a result of existing fire flow's that were between 50% and 75% of the required fire flow:

Airport-Industrial: The industrial buildings near the Hollister Municipal Airport are currently served by one 12-inch water main along San Felipe Road. This results in several issues for the industrial area. First, this long, single water main is unable to provide between 50-75% of required fire flow for industrial areas. Second, if this water main were to break, the entire industrial area would be without water until the water main is repaired. Last, the City experiences water quality issues in the industrial area because there are several long dead-end water mains and no looping back to the main part of the City.

To increase fire flows and reliability in the industrial area, it is recommended to construct two projects in the airport area:

- The first project would be to construct approximately 5,350 feet of 16-inch DI water main parallel to the existing water main on San Felipe Road. The new pipe would start at the intersection of Chappell Road and San Felipe Road and connect to the existing water main on McCloskey Road. From there the existing water main extends North approximately 700-feet, then the new pipe connects at this location and continues along San Felipe Road to connect and end to the crossing water main at Flynn Road. This new pipe will offer additional supply and redundancy to the airport-industrial area.

  It is recognized that the Airport-Industrial area has routinely experienced high Total Trihalomethane (TTHM) and Haloacetic Acids (HAA5). With the addition of the 16-inch main

along San Felipe Road, a regular flushing program will be required to address the water quality issue in this area. Additionally, the 2017 *Hollister Urban Area Water and Wastewater Master Plan Update* identifies a potential new well and treatment facility in this northern airport area, which will provide high quality water for this area. This proposed water supply source is supported as a long-term water system improvement to help support future growth, improve water quality and reliability in the Airport Area. This source of water should be brought into the water distribution system at the same hydraulic grade as the existing City Low Zone.

- The second project would be to construct approximately 2,250 feet of 12-inch PVC to loop the west side of the City's existing system in the airport/industrial area. This new water main would begin at the intersection of Flynn Road and Highway 25, continue northwest along APN 019-020-015, continue along APN 053-420-034 boundary, and connect to the existing 12-inch pipe on Airway Drive.

Note: There are additional routing alternatives that can be explored based on future development and looping alternatives; however, it is unknown when future development will occur, and this is a high priority deficiency within the City's water system. Adding a parallel 16-inch water main along San Felipe Road will impact water quality negatively but will provide significant benefit for reliability and fire protection. The City should continue to pursue with SBCWD an alternative water supply source to the north of the City that can also supply the airport area more effectively. Additionally, the City should continue to pursue ways to loop the Airport system to eliminate all long dead-end water mains.

East Airport-Industrial: Construct new approximately 3,370 feet of 8-inch PVC parallel to the private water line on Park Center Drive and the adjacent west and north easements of the adjacent agriculture lots (APN 019-050-005 and APN 019-050-003) to connect to the existing 12-inch water main on Shelton Drive. Note: It is recommended that the City acquire the private water main along Park Center Drive to reduce construct costs. The fire flows identified at the end of Park Center Drive (50%-75%) are with both the Airport-Industrial Upgrade completed. Completion of this project will loop the west side of the City's existing system in the Airport/Industrial area.

Suiter Street: Construct new approximately 290 feet of 8-inch PVC at North Suiter Street Alley from Suiter Street to Powell Street.

South Street: Replace approximately 1,040 feet of 6-inch cast iron to 8-inch PVC on South Street from Line Street to College Street.

Monterey Street: Replace approximately 1,250 feet of 4-inch cast iron to 8-inch PVC on Monterey Street from Hawkins Street to B Street.

Powell Street: Replace approximately 670 feet of 6-inch cast iron to 8-inch PVC on Powell Street from C Street to Nash Road.

Hazel Street: Complete the following projects:

- Replace approximately 945 feet of 8-inch cast iron to 8-inch PVC on Hazel Street from Prospect Avenue to Sally Street
- Replace approximately 710 feet of 8-inch cast iron to 8-inch PVC on Railroad Avenue

- Construct new approximately 380 feet of 8-inch PVC and connect to new 8-inch main on Railroad Avenue; extend new main to the intersection of Hazel Street and Sally Street

North Airport-Industrial: To further address the water quality issue in the Airport-Industrial area, it is recommended that the City construct the following projects:

- Construct approximately 2,630 feet of 12-inch PVC to connect at the existing water main on Bert Drive, follow the southern boundary of APN 014-120-015, down San Felipe Road, and connect to the existing water main on Armory Drive.
- Construct approximately 1,920 feet of 12-inch PVC to connect at the existing water main along the western service road at the airport, follow APN 053-420-003 and APN 053-420-002 western boundaries to connect to the proposed 12-inch water main identified in the second project of Airport-Industrial.

The following upgrades proposed were a result of existing fire flows that were between 75% and 100% of the required fire flow:

West Street: Replace approximately 1,200 feet of 8-inch cast iron to 8-inch PVC on West Street from B Street to Nash Road

Park Street: Replace approximately 380 feet of 4-inch cast iron to 8-inch PVC on Park Street from Sally Street to Prune Street.

Locust Avenue: Replace approximately 880 feet of 4-inch PVC to 8-inch PVC on Locust Avenue from Central Avenue to College Street.

Hamilton Court: Replace approximately 480 feet of 8-inch PVC to 12-inch on Hamilton Court at Shelton Drive. Note: the fire flow identified (75%-100%) is with the Airport-Industrial Upgrade completed.

Quail Run: Replace approximately 720 feet of 6-inch PVC to 8-inch PVC on Quail Run at Nash Road.

Ball Court: Replace the existing water main on Ball Court serving the East side of Felice Drive. To accommodate potential future growth on the vacant lot on the west side of Felice Drive at Piane Crate, it is also recommended that this existing water main be upgraded. The overall recommendation includes upgrading approximately 510 feet of 6-inch PVC to 8-inch PVC on Ball Court at Felice Drive.

Brandy Court: Replace approximately 220 feet of 4-inch PVC to 8-inch PVC on Brandy Court at Buena Vista Road.

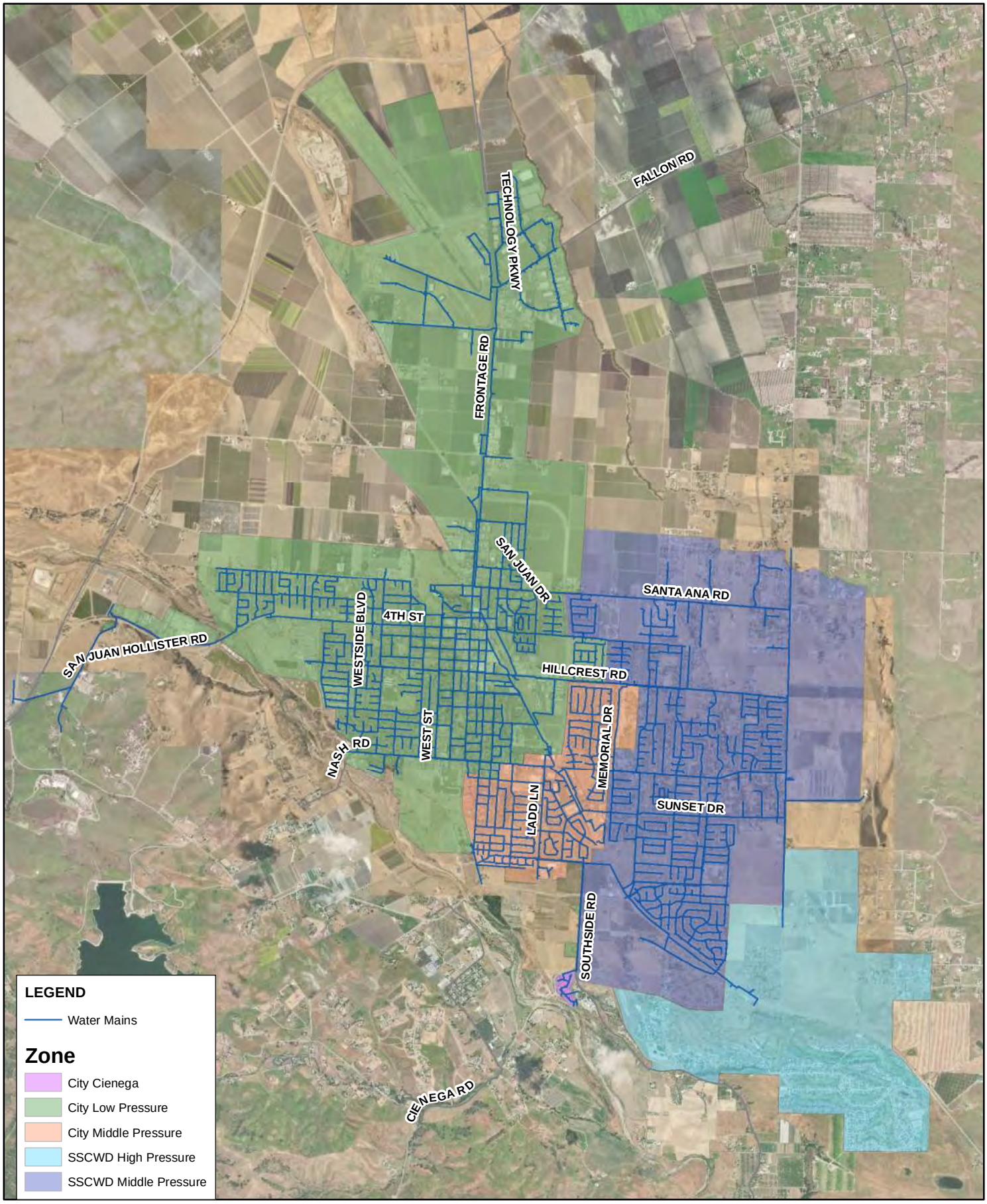
FUTURE SYSTEM PERFORMANCE

To evaluate the City's water system under future conditions, all developments after 2016 were included in the water model and demand projections as identified in Chapter 2 were input into the water model. For any future developments that are identified, but no water system layout is provided, or properties that do not have tentative maps, only demands were placed on nodes in the region of the proposed development. For these developments, it is recommended that the water model be updated once these projects become "real" to confirm any water system upgrades that may be required.

The performance of the City's water distribution system was evaluated under future demand conditions, which included ADD, PHD, and Fire Flow plus MDD. The water distribution system was modeled with all the proposed projects completed that were identified as existing deficiencies. With the proposed upgrades complete and in place to correct existing deficiencies, the City's water distribution system did not have any additional projects that were required to meet future distribution system needs, except Ball Court and the looping of the Airport/Industrial area, both of which have been previously identified.

It should be noted that future development does require existing capital improvement projects to be completed to serve the project adequately. Since the timeframe for the construction of future development is unknown, it is recommended that as development is proposed in the Planning Stage, an evaluation be completed to identify which of the proposed existing recommended capital improvement projects be completed to adequately serve the proposed development. This may dictate the priority and timing of a recommended capital improvement project in the future. In addition, it should be noted the improvements to the existing water distribution system provide significant benefit to future development, ensuring that the water distribution system can provide the required fire flow and system pressures to future development.

Figure 8-3 provides a graphical representation of the future hydraulic profile due to the Middle Zone Boundary Modification and Allendale Booster Station.



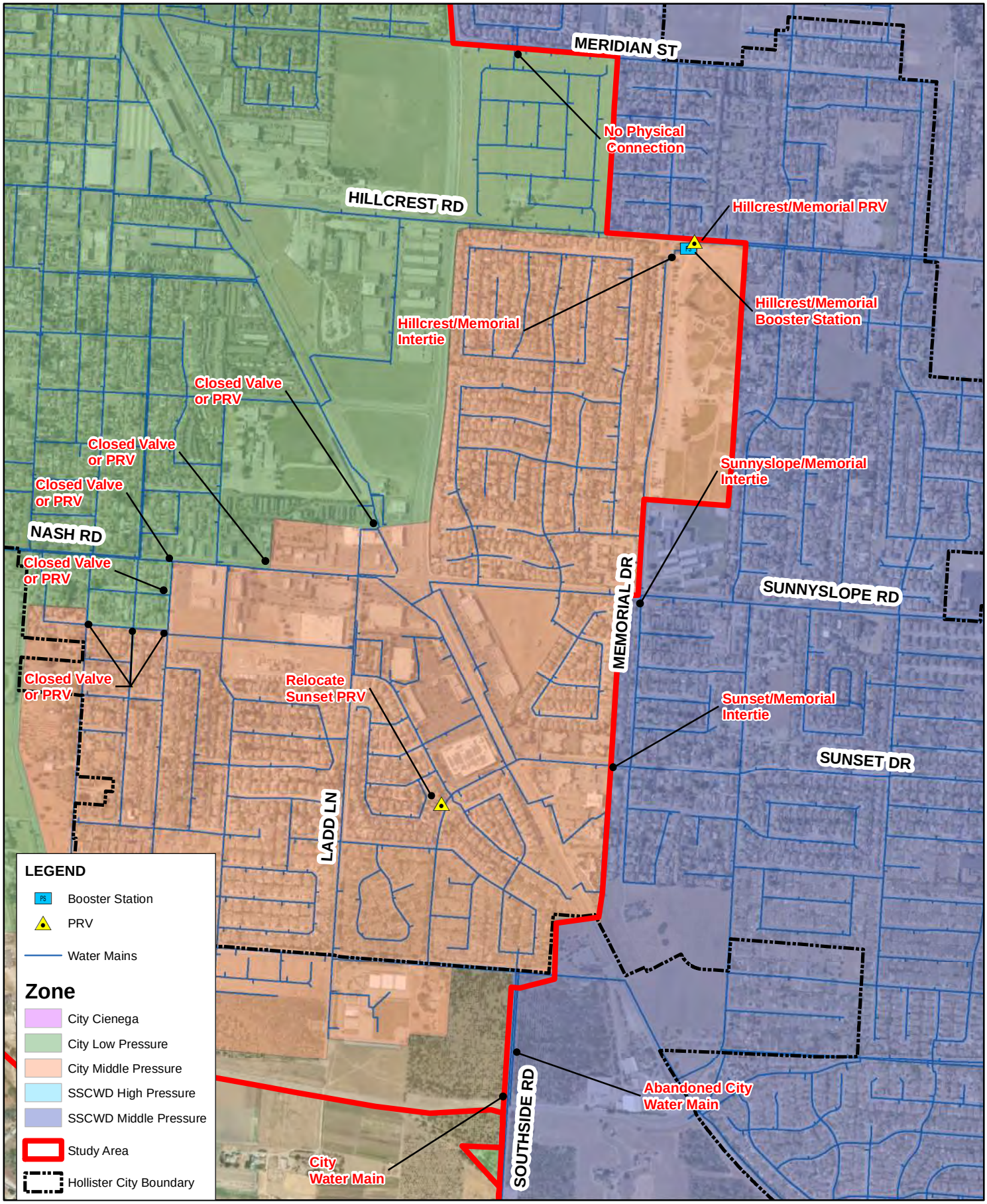
WALLACE GROUP
CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

CITY OF HOLLISTER
WATER DISTRIBUTION MASTER PLAN

FIGURE 8-1: PROPOSED ZONE MODIFICATION

NOTES:
BASEMAP COMPILED FROM GIS DATA PROVIDED BY SAN BENITO COUNTY AND THE CITY OF HOLLISTER.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT.
MAP PRODUCED JUNE 2018.



WALLACE GROUP
CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

CITY OF HOLLISTER
WATER DISTRIBUTION MASTER PLAN

FIGURE 8-2: PROPOSED ZONE MODIFICATION BOUNDARY

NOTES:
BASEMAP COMPILED FROM GIS DATA PROVIDED BY SAN BENITO COUNTY AND THE CITY OF HOLLISTER.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT.
MAP PRODUCED JUNE 2018.

660 650 640 630 620 610 600 590 580 570 560 550 540 530 520 510 500 490 480 470 460 450 440 430 420 410 400 390 380 370 360 350 340 330 320 310 300 290 280 270 260 250 240 230 220 210 200

SURFACE WATER FROM SAN JUSTO RESERVOIR

WEST HILLS WATER TREATMENT PLANT
4.5 MGD

WEST HILLS CLEARWELL
0.5 MG

CITY PARK HILL TANKS
2.0 MG & 3.5 MG

CENTRAL VALLEY PROJECT WATER VIA HOLLISTER CONDUIT

LESSALT WATER TREATMENT PLANT
2.0 MGD

SSCWD RIDGEMARK TANKS
0.5 MG & 1.0 MG

ELEVATION 600

SSCWD UPPER ZONE

ELEVATION 425

SSCWD FAIRVIEW TANK
3.5 MG

ELEVATION 468

SSCWD MIDDLE ZONE

ELEVATION 275

CITY SALLY FLATS RESERVOIR
0.5 MG

PRV COUNTY YARD
103 psi/ 65 psi

CITY CIENEGA ZONE
ELEVATION 345
ELEVATION 335

CITY CULLUM WELLS NO. 1 & NO. 2
70 GPM (total)

PRV SANTA ANA/ LA BAIG
71 psi/113 psi

HILLCREST/ MEMORIAL

SUNNYSLOPE/ MEMORIAL

SUNSET/ MEMORIAL

ELEVATION 357
ELEVATION 266
ALLENDALE BOOSTED ZONE

ELEVATION 356
ELEVATION 298
MODIFIED CITY MIDDLE ZONE

ALLENDALE BOOSTER STATION

ELEVATION 304
ELEVATION 216
MODIFIED CITY LOW ZONE

PRV #1

PRV #2

PRV HILLCREST/ MEMORIAL
106 psi/52 psi

MEMORIAL BOOSTER STATION

CITY WELL NO.4 PRV
85 psi/62 psi

CITY WELL NO.4 SOUTH
1,670 GPM

CITY WELL NO.5 PRV
81 psi/55 psi

CITY WELL NO.5 NASH
1,825 GPM

CITY WELL NO.2 PRV

CITY WELL NO.2 BUNDESON
1,425 GPM

CITY WELL NO.3 FALLON
930 GPM
(INACTIVE)

CITY WELL NO.1 SAN FELIPE
2,400 GPM
(INACTIVE)

CITY WELL NO.6 AIRLINE
435 GPM
(INACTIVE)

LEGEND:

MG	MILLION GALLONS
PRV	PRESSURE REDUCING VALVE
	ACTIVE WELL
	INACTIVE WELL
	BOOSTER PUMP STATION
M	METERED INTERTIE
	CONNECTION TO TANK OR ZONE
TANK	TANK BOUNDARY REPRESENTS BASE AND MAX. OPERATING WATER LEVELS
ZONE	ZONE BOUNDARY REPRESENTS HIGH AND LOW ELEVATIONS WITHIN EACH ZONE
	FLOW DIRECTION
*	CONNECTIONS BETWEEN SSCWD MIDDLE AND UPPER PRESSURE ZONES NOT SHOWN FOR THE PURPOSE OF THE CITY'S WATER DISTRIBUTION MASTER PLAN

WALLACE GROUP®
CIVIL AND TRANSPORTATION ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING / GIS SOLUTIONS
WATER RESOURCES
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

FIGURE 8-3
CITY OF HOLLISTER
FUTURE WATER SYSTEM
HYDRAULIC PROFILE

JOB No. :	1011-0006
DRAWING :	Hydraulic Profile.dwg
DRAWN BY:	ASK
DATE :	08/2018
SCALE :	NONE

CHAPTER 9
CIENEGA VALLEY WATER SYSTEM

Chapter 9 describes the Cienega Valley Water System, which is owned and operated by the City, but separate from the City's existing distribution system.

WATER DISTRIBUTION SYSTEM OVERVIEW

As discussed in previous chapters, the City's Cienega zone is served by the City's Sally Flats Reservoir, which has groundwater pumped from the City's Cienega Wells No. 1 and No. 2 approximately 15 miles away from the reservoir. This water system directly feeds Riverview Estates, a small-housing development just south of City limits on Southside Road. If Sally Flats Reservoir is unable to serve the Cienega Zone, then the San Benito County Yard PRV, located at the San Benito County Public Works Yard south of City limits, feeds water from the SSCWD High Zone to the City's Cienega Zone.

WATER MODEL DEVELOPMENT

Since Riverview Estates is not supplied by the City's main distribution system, a separate WaterCAD V8i model was created in order to evaluate the system's performance, identify deficiencies in the network, and recommend improvements.

Water Demand

The total average day demand in the Cienega zone, based on consumption records provided by the City, is approximately 12 gpm. It should be noted that this demand is included in the total water demands calculated for the City's service area, as discussed in Chapter 4.

Model Calibration

A fire hydrant test was done at Riverview Estates on April 19, 2018; however, City and Wallace Group staff noticed the flow gauge was not taking a correct reading at the flowing hydrant. On August 6, 2018, City staff re-ran the fire hydrant test in the Cienega zone. These results can be found in Appendix B.

The Cienega system was calibrated in the model by simulating the field fire flow test and comparing the resulting modeled pressures with those observed in the field. Adjustments to pipe friction factors (Hazen-Williams coefficient) were made in order to calibrate within +/- 5 psi of the fire hydrant test conducted by City staff.

It is important to note that the City was unable to provide specific data on the Sally Flat Reservoir and its supply line. The approximate water surface elevation was calculated based on the static pressure reading during the fire flow test.

EXISTING SYSTEM PERFORMANCE

The performance of the City's Cienega system was evaluated under existing conditions at ADD, PHD, and Fire Flow plus MDD to identify any deficiencies within Cienega's system. The water system model met the minimum system pressure of 40 psi during ADD and PHD and satisfied the fire flow requirements for low-density residential areas. Therefore, no existing deficiencies were found in the Cienega water system.

FUTURE SYSTEM PERFORMANCE

The City did not identify future development past the southern City boundary within Cienega's water system; therefore, no future projects are required to meet future distribution needs. It should be noted that should future development occur in Cienega's water system, further evaluation should be completed to identify any future deficiencies.

STORAGE ANALYSIS

A storage analysis of Sally Flats Reservoir was performed to determine emergency, fire, and operational storage needs for the Cienega Valley water system. Existing and future storage recommendation values are equivalent due to no future development identified by the City for the area.

Operational Storage

Based on the MDD peaking factor of 2.28 identified in Table 4-3, the recommended operational storage for existing and future conditions is summarized in Table 9-1.

Table 9-1 Sally Flats Operational Storage Recommendations

	MDD (gpm)	Storage (gal)
Existing & Future	28	40,320

Fire Protection Storage

The determination of the fire protection storage is based upon the residential zoning within a distribution zone, and the required fire flow and duration in the zone while maintaining 20 psi pressure throughout the system. The required fire flow for the City based on residential land use is provided in Table 9-2.

Table 9-2 Sally Flats Fire Protection Storage Recommendations

	Fire Flow (gpm)	Duration (hrs)	Storage (gal)
Existing & Future	1,500	2	180,000

Emergency Storage

An emergency storage volume of 50 gpcd for three days was used for this analysis. Based on the existing population discussion in Chapter 3 of this report, it was assumed that the population is estimated to be 182 persons, based on the Association of Monterey Bay Area Governments (AMBAG) population density for the

County of 3.25 persons per household. Table 9-3 provides a summary of the emergency storage recommendations for the existing and future population for the City.

Table 9-3 Sally Flats Emergency Storage Recommendations			
	Population	**Gallons/Capita Per Day**	**Storage (gal)**
Existing & Future	182	50	27,300

Un-useable Storage

Since information regarding the Sally Flats Reservoir was not provided by the City, it was assumed that there was no un-useable storage for this analysis.

Storage Summary

The usable storage recommended as noted previously is based on a summation of the emergency, fire, and operational storage. Table 9-4 provides a summary of the Cienega Valley's overall storage recommendations. Review of the Sally Flats Reservoir indicates that the City has a storage surplus under both existing and future conditions.

Table 9-4 Sally Flats Required Storage Summary						
	Operational (gal)	**Fire (gal)**	**Emergency (gal)**	**Recommended Storage (gal)**	**Total Available (gal)**	**Storage Surplus/(Deficit) (gal)**
Existing & Future	40,320	180,000	27,300	247,620	500,000	252,380

CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

CITY OF HOLLISTER
WATER DISTRIBUTION MASTER PLAN

FIGURE 9-1: CIENEGA VALLEY
WATER SYSTEM

NOTES:
BASEMAP COMPILED FROM GIS DATA PROVIDED BY SAN BENITO COUNTY AND THE CITY OF HOLLISTER.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT.
MAP PRODUCED AUGUST 2018.

CHAPTER 10
SUMMARY OF RECOMMENDATIONS

This chapter summarizes the City's recommended master plan improvement projects to meet existing and future needs, and the master plan improvement program to assist in the financial planning aspects of implementing the recommended improvements. The improvements are described as first, second, and third priorities. Additionally, there is a summary of the recommended operations and maintenance improvement projects that have been discussed throughout the report. All tables and figures are located at the end of this chapter.

RECOMMENDED MASTER PLAN IMPROVEMENT PROJECTS

Based on the hydraulic model, a series of master plan improvement projects have been identified within the water distribution system. The projects have been classified into three categories: First, Second, and Third Priority. First priority projects are a result of significant health and safety concerns, including substandard pressures and fire flows during any demand situation. These projects are recommended to be completed within five years. Second priority projects address sections of the City's water system that are experiencing slightly substandard pressures and/or fire flows but are not as critical as first priority projects. These projects are recommended to be completed within 10 years. Third priority projects include upgrades that are not critical in nature but are recommended during routine future replacements. These projects are recommended to be completed within 15 years.

As development projects occur throughout the City, any proposed First, Second or Third priority projects should be identified and completed to address these deficiencies prior to the proposed development being constructed. Also, the proposed land uses, distribution system layout, demands and fire flow requirements should be re-evaluated for each project in the planning stage to confirm assumptions made for the purpose of this Water Distribution System Master Plan are accurate and confirm that no additional upgrades will be required.

FIRST PRIORITY MASTER PLAN IMPROVEMENT PROJECTS

First Priority Projects have the highest health and safety deficiencies within the distribution system. Typically, these deficiencies are identified due to fire flow capacities that are less than 50% of the required fire flow. First Priority projects were determined using the following criteria:

- Pressures below 30 psi during ADD, MDD, PHD
- Velocities greater than 5 fps during ADD, MDD, PHD
- Fire flows that cannot meet a minimum of 50% of the required fire flow:
    - Residential single and multi-family areas - 750 GPM
    - Commercial, Office Professional, and Schools - 1,250 GPM
    - Hospitals: Sprinklered - 1,190 gpm
    - Big Box Commercial, Industrial, and Hotel - 2,000 gpm
- Operational and maintenance projects that were identified by the City due to continuous maintenance repairs for line breaks
- Water mains that were greater than 75 years old

SECOND PRIORITY MASTER PLAN IMPROVEMENT PROJECTS

Second Priority Projects have the second highest health and safety deficiencies within the distribution system. Typically, these deficiencies are identified due to fire flow capacities that are between 50% and 75% of the required fire flow. Second priority projects were determined using the following criteria:

- Pressures below 40 psi during ADD, MDD, PHD
- Fire flows that cannot meet between 50% and 75% of the required fire flow:
    - Residential single and multi-family - 1,125 GPM
    - Commercial, Office Professional, and School - 1,875 GPM
    - Hospitals: Sprinklered - 1,785 gpm
    - Big Box Commercial, Industrial, and Hotel - 3,000 gpm
- Operational and maintenance projects identified by the City where water mains are between 50 and 75 years old

THIRD PRIORITY MASTER PLAN IMPROVEMENT PROJECTS

Third Priority Projects have minor deficiencies within the distribution system. Typically, these deficiencies are identified due to fire flow capacities that are between 75% and 100% of the required fire flow. In addition, third priority projects are those projects that are recommended because the water main doesn't meet current day standards such as minimum pipe diameter or material. Third priority projects were determined using the following criteria:

- Fire flows that cannot meet between 75% and 100% of the required fire flow:
    - Residential single and multi-family - 1,500 GPM
    - Commercial, Office Professional, and School - 2,500 GPM
    - Hospitals: Sprinklered - 2,375 gpm
    - Big Box Commercial, Industrial, and Hotel - 4,000 gpm
- Operational and maintenance projects that were identified by the City that were less than 50 years old
- All remaining cast iron pipe that were not identified as hydraulic deficiencies
- PVC water mains that do not meet current design standards (i.e. 4-inch water mains) that were not identified as hydraulic deficiencies

MASTER PLAN IMPROVEMENT PROJECT RANKING AND COSTS

First, Second, and Third Priority Master Plan Improvement Projects were ranked to determine what priority the recommended projects should be constructed. The ranking was based on severity of the deficiency and the size of the community the deficiency impacts. Exhibit 1 in Appendix D illustrates the location of each of the proposed Maser Plan Improvement Projects. Tables 10-1, 10-2, and 10-3 provide a summary of all the recommended Master Plan Improvement Projects in order of ranking for first, second, and third priority projects, respectively. These tables also provide estimates of the construction and "soft" costs for each project. The project costs are based on engineering judgment, confirmed bid prices for similar work in the San Benito

County area, consultation with vendors and contractors, established budgetary unit prices for the work, and other reliable sources. All CIP costs are expressed in Year 2018 dollars, using McGraw-Hill ENR Construction Cost Index of **11069** (June 2018). The unit costs for the various pipe diameters are as follows in Table 10-4.

Table 10-4 Unit Cost for Construction of Water Mains

Pipe Diameter (inches)	Replacement Material	Unit Cost ($/LF)
8	PVC	215
10	PVC	260
12	PVC	280
14	PVC	330
16	PVC/DI	365/385

[1] All PVC pipes are DR 25, Pressure Class 165 unless otherwise stated. Pressure Class for DI Pipe is 250.

OPERATIONS AND MAINTENANCE IMPROVEMENT PROJECTS

As discussed previously in this report, there are multiple recommended operations and maintenance improvement projects. The recommendations will optimize the City's water distribution system and storage facilities. Table 10-5 provides an overview of the operations and maintenance improvement projects.

Table 10-5 Operations and Maintenance Improvement Projects

Project	Description	Time Frame
Water Meter Calibration	1. City to routinely calibrate and replace water meters	Calibrate: 5-10 years Replace: 20-25 years
Park Hill Tanks	1. Perform a dive-inspection of both tanks to determine next interior coating project. 2. Add mixing system to Park Hill Tank #2 (Vista) in conjunction with tank interior coating. 3. Complete an external tank coating inspection. 4. Complete external tank coating, last completed in 2018.	Within 5 years Within 5 years Every 5 years Every 10 to 15 years
Hydrant Spacing	1. Update City standards for fire hydrant spacing 2. Conduct a fire hydrant spacing study	Within 2 years Within 2 years
Valve Spacing	1. Update City standards for valve spacing 2. Conduct a valve spacing study 3. Implement or maintain a valve exercise program	Within 2 years Within 2 years Annually

Table 10-1. First Priority Master Plan Improvement Projects

Project #	Title	Description	Pressure Zone	Quantity	Length (ft)	Exist Material	Exist Diameter (in)	Proposed Material (in)	Proposed Diameter (in)	Street	Location	Construction Cost ($)		Subtotal ($)	Total Project Cost ($)*
1-1	**Park Hill Boosted Zone**	Increase pressure and fire flows by connecting houses on Hill Court and Hill Street to Allendale Booster Station	Low	--	2,500	--	--	PVC	12	Connect at Allendale Booster Station. Run new line up Park Hill, Connect to existing main on Hill Court and Hill Street.		$280	LS	$700,000	**$980,000**
1-2	**San Felipe Road Pipeline/ Airport-Industrial Area**	Increase fire flows, improve water quality, and establish redundancy by constructing a new 16-inch water main to allow more flow to the Airport-Industrial Area	Low	--	5,350	--	--	DI	16	San Felipe Road	Parallel to 12-inch main on San Felipe Road. Construct 16-inch main at intersection of Bolsa Road and San Felipe Road and connect to water line on Wright Road. The existing water main extends North approx. 700 ft. Connect to this existing water main and continue new water main along San Felipe Road to connect to crossing water main at Flynn Road.	$385	LF	$2,059,750	**$2,883,650**
		Increase fire flows, improve water quality, and establish redundancy by constructing a new 12-inch water main to allow for looping in the Airport-Industrial Area			2,250	--	--	PVC	12	Highway 25	Construct 12-inch main at inersection of Flynn Road and Highway 25. Continue northwest along APN 019-020-015 boundary. Continue along APN 053-420-034 boundary and connect to existing 12-inch pipe on Airway Drive.	$280	LF	$630,000	**$882,000**
													Project Total	$2,689,750	**$3,765,650**
1-3	**Middle Zone Boundary Modification**	Increase pressures in southern portion of the City by modifying middle zone boundary	Low	1	--	--	--	--	--	Southerly portion of City from Cienega Road to Memorial Drive, bounded by Bundeson Drive, north on Cushman Street to Tres Pinos Road, encompassing a portion of the commercial facilities north of Tres Pinos Road to McCray Street, North on Highway 25 to Hillcrest Road, and bounded by Memorial Drive.		$25,000	LS	$25,000	**$35,000**
1-4	**East Street**	Increase fire flows by replacing 6-inch cast iron with 8-inch PVC	Low	--	700	Cast Iron	6	PVC	8	East Street	From South Street to Hawkins Street	$215	LF	$150,500	**$210,700**
1-5	**Walnut Lane**	Increase fire flows by replacing 6-inch cast iron with 8-inch PVC	Low	--	850	Cast Iron	6	PVC	8	Walnut Lane	From Powell Street to end of cul-de-sac	$215	LF	$182,750	**$255,850**
1-6	**Park Hill Tanks Operations & Maintenance**	1) Perform a dive-inspection of both tanks to determine next interior coating project 2) Add new mixing system to Park Hill Tank #2 (Vista) in conjunction with tank interior coating	Low	1	--	--	--	--	--	Park Hill Tanks		$30,000	LS	$30,000	**$42,000**
														TOTAL FIRST PRIORITY PROJECT COSTS	**$5,289,200**

*** Total includes construction cost plus preliminary engineering, design engineering, administration construction management and inspection costs. Construction costs were developed based on engineering judgment, confirmed bid prices for similar work in the Monterey area, consultation with vendors and contractors, established budgetary unit prices for the work, and other reliable sources.**

All CIP costs are expressed in June 2018 dollars, using McGraw-Hill ENR Construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

Table 10-2. Second Priority Master Plan Improvement Projects

Project #	Title	Description	Pressure Zone	Quantity	Length (ft)	Exist Material	Exist Diameter (in)	Proposed Material (in)	Proposed Diameter (in)	Street	Location	Construction Cost ($)		Subtotal ($)	Total Project Cost ($)*
2-1	**East Airport-Industrial**	Increase fire flows and improve water quality by adding new 8-inch PVC main to create looped system on the east side of the Airport-Industrial area	Low Zone	--	3,370	--	--	PVC	8	City to construct new water main parallel to the private water main along Park Center Dr and extend along west and north easement of APN 019-050-005 and APN 019-050-003. The new line will connect to the existing water main on Shelton Drive.		$215	LF	$724,550	**$1,014,370**
2-2	**Suiter Street**	Increase fire flows by adding new 8-inch PVC main to create looped system	Low Zone	--	290	--	--	PVC	8	Suiter Street Alley	From Suiter Street to Powell Street	$215	LF	$62,350	**$87,290**
2-3	**South Street**	Increase fire flows by replacing 6-inch cast iron with 8-inch PVC	Low Zone	---	1,040	Cast Iron	6	PVC	8	South Street	From Line Street to College Street	$215	LF	$223,600	**$313,040**
2-4	**Monterey Street**	Increase fire flows by replacing 4-inch cast iron with 8-inch PVC	Low Zone	--	1,250	Cast Iron	4	PVC	8	Monterey Street	From Hawkins Street to B Street	$215	LF	$268,750	**$376,250**
2-5	**Powell Street**	Increase fire flows by replacing 6-inch cast iron with 8-inch PVC	Low Zone	--	670	Cast Iron	6	PVC	8	Powell Street	From C Street to Nash Road	$215	LF	$144,050	**$201,670**
2-6	**Hazel Street**	Increase fire flows by replacing 8-inch cast iron with 8-inch PVC and adding new 8-inch PVC main to create looped system	Low Zone	--	945	Cast Iron	8	PVC	8	Hazel Street	From Prospect Avenue to Sally Street	$215	LF	$203,175	**$284,445**
				--	710	Cast Iron	8	PVC	8	Railroad Avenue	Connect new main to newly upsized main on Railroad Avenue and extend to the intersection of Hazel Street and Sally Street	$215	LF	$152,650	**$213,710**
				--	380	--	--	PVC	8	--		$215	LF	$81,700	**$114,380**
													Project Total	$437,525	**$612,535**
2-7	**North Airport-Industrial**	Increase fire flows and improve water quality by adding new 12-inch PVC main to create looped system on the north side of the Airport Industrial area	Low Zone	--	2,630	--	--	PVC	12	Connect to existing 12" water main on Bert Drive, follow the southern boundary of APN 014-120-015, construct down San Felipe Road to connect to existing 12" water main on Armory Drive.		$280	LF	$736,400	**$1,030,960**
					1,920					Connect to existing 10" water main along the western service road at the airport, follow APN 053-420-003 and APN 053-420-002 western boundaries to connect to the proposed CIP 1-2 water main.				$537,600	**$752,640**
													Project Total	$1,274,000	**$1,783,600**
													TOTAL SECOND PRIORITY PROJECT COSTS		**$4,388,755**

*** Total includes construction cost plus preliminary engineering, design engineering, administration construction management and inspection costs. Construction costs were developed based on engineering judgment, confirmed bid prices for similar work in the Monterey area, consultation with vendors and contractors, established budgetary unit prices for the work, and other reliable sources.**

All CIP costs are expressed in June 2018 dollars, using McGraw-Hill ENR Construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

Table 10-3. Third Priority Master Plan Improvement Projects

Project #	Title	Description	Pressure Zone	Quantity	Length (Ft)	Exist Material	Exist Diameter (in)	Proposed Material (in)	Proposed Diameter (in)	Street	Location	Construction Cost ($)		Subtotal ($)	Total Project Cost ($)*
3-1	**West Street**	Increase fire flows by replacing 6-inch cast iron with 8-inch PVC	Low	---	1,200	Cast Iron	8	PVC	8	West Street	From B Street to Nash Road	$215	LF	$258,000	**$361,200**
3-2	**Park Street**	Increase fire flows by replacing 4-inch cast iron with 8-inch PVC	Low	---	380	Cast Iron	4	PVC	8	Park Street	From Sally Street to Prune Street	$215	LF	$81,700	**$114,380**
3-3	**Locust Avenue**	Increase fire flows by upsizing 4-inch PVC with 8-inch PVC	Low	---	880	PVC	4	PVC	8	Locust Avenue	From Central Avenue to College Street	$215	LF	$189,200	**$264,880**
3-4	**Hamilton Court**	Increase fire flows by upsizing 8-inch PVC to 10-inch PVC	Low	---	480	PVC	8	PVC	12	Hamilton Court	At Shelton Drive	$280	LF	$134,400	**$188,160**
3-5	**Quail Run**	Increase fire flows by upsizing 6-inch PVC to 8-inch PVC	Low	---	720	PVC	6	PVC	8	Quail Run	At Nash Road	$215	LF	$154,800	**$216,720**
3-6	**Ball Court**	Increase fire flows by upsizing 6-inch PVC to 8-inch PVC	Low	---	510	PVC	6	PVC	8	Piane Crati	At Felice Drive	$215	LF	$109,650	**$153,510**
3-7	**Brandy Court**	Increase fire flows by upsizing 4-inch PVC to 8-inch PVC	Low	---	220	PVC	4	PVC	8	Brandy Court	At Buena Vista Road	$215	LF	$47,300	**$66,220**
3-8	**Replace all 4-8" Cast Iron**	Replace all 4-inch, 6-inch, and 8-inch cast iron with 8-inch PVC	Varies	---	60,500	Cast Iron	Varies	PVC	8	Varies		$215	LF	$13,007,500	**$18,210,500**
3-9	**Replace all 10" and 12" Cast Iron**	Replace all 10-inch and 12-inch cast iron with 12-inch PVC	Low	---	17,400	Cast Iron	Varies	PVC	12	Varies		$280	LF	$4,872,000	**$6,820,800**
3-10	**Replace all 16" Cast Iron**	Replace all 16-inch cast iron with 16-inch PVC or Ductile Iron	Low	---	880	Cast Iron	16	PVC or DI	16	Varies	Discharge pipe at Park Hill Tank #1	$385	LF	$338,800	**$474,320**
3-11	**Replace all 4" PVC**	Upsize all 4-inch PVC with 8-inch PVC	Low	---	5,870	PVC	4	PVC	8	Varies		$215	LF	$1,262,050	**$1,766,870**
														TOTAL THIRD PRIORITY PROJECT COSTS	**$28,637,560**

*** Total includes construction cost plus preliminary engineering, design engineering, administration construction management and inspection costs. Construction costs were developed based on engineering judgment, confirmed bid prices for similar work in the Monterey area, consultation with vendors and contractors, established budgetary unit prices for the work, and other reliable sources.**

All CIP costs are expressed in June 2018 dollars, using McGraw-Hill ENR Construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

First Priority Project No. 1: Park Hill Boosted Zone

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Project Components

- [ ] Upgrade Water Main
- [x] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [x] New Fire Hydrant
- [x] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 9 weeks

Project Need

- [x] Low pressures
- [ ] Velocities greater than 5 fps
- [x] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$700,000
Planning, Engineering, CM, Legal/Admin (40%)	$280,000
Total Project Cost	**$980,000**

Project Description

The Park Hill Boosted Zone project proposes to construct approximately 2,500 feet of new 12-inch PVC pipe from the new Allendale Booster Station to Hill Court and Hill Street. The houses on Hill Court and Hill Street currently experience water pressures below 40 psi and provide less than 50% of the required fire flow. The proposed 12-inch main will begin at the discharge of the Allendale Booster Station and connect to the existing water mains that supply the houses on Hill Court and Hill Street. A closed valve or PRV will need to be placed on the water main on Hill Street, since it is currently connected to the City's Low Zone at San Benito Street. Additionally, the main supplying Hill Court and Hill Street from Park Hill Tanks will either need to have a closed valve or be abandoned.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

PREPARED BY:
Wallace Group
www.wallacegroup.us
San Luis Obispo, CA

First Priority Project No. 2: San Felipe Road Pipeline/Airport-Industrial Area

City of Hollister Capital Improvement Project Information Sheet

2018 Water Distribution Master Plan

Project Trigger

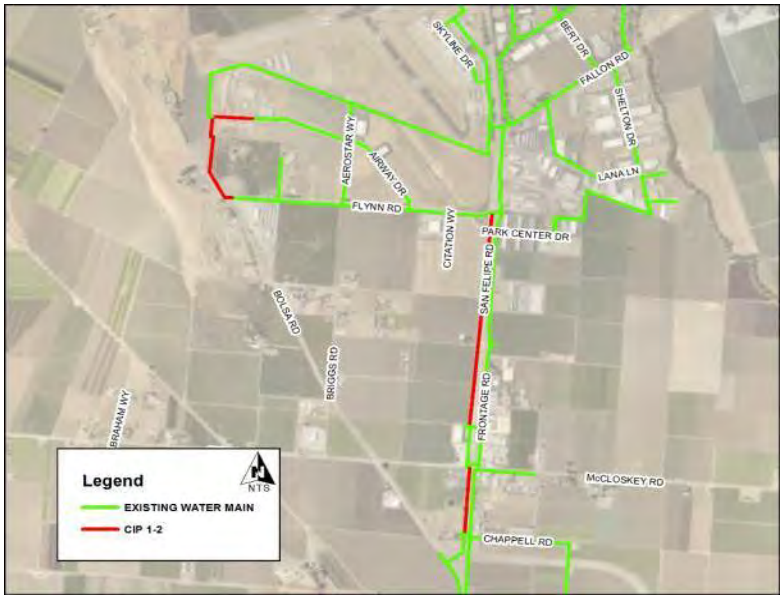
- [x] Existing Condition
- [ ] Future Condition

Project Components

- [ ] Upgrade Water Main
- [x] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [ ] New Fire Hydrant
- [ ] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 17 weeks



Project Need

- [ ] Low pressures
- [ ] Velocities greater than 5 fps
- [x] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$2,689,750
Planning, Engineering, CM, Legal/Admin (40%)	$1,075,900
Total Project Cost	**$3,765,650**

Project Description

The San Felipe Road Pipeline/Airport-Industrial Area project proposes to construct approximately 5,350 feet of new 16-inch DI pipe along San Felipe Road. Currently, there is a single 12-inch line along San Felipe Road that is unable to provide the recommended fire flow for the Airport/Industrial area. This upgrade will increase fire flows and provide the area with additional supply and redundancy if the 12-inch existing main were to break.

The new main will start at the intersection of Chappell Road and San Felipe Road and connect to the existing 12-inch main at McCloskey Road. This existing main extends approximately 700-feet, where the new 16-inch main will re-connnect and continue to the existing 12-inch water main crossing at Flynn Road.

Additionally, approximately 2,250 feet of new 12-inch PVC is recommended to loop the west side of the City's existing system. This new 12-inch main would begin at the intersection of Flynn Road, continue north along APN 019-020-015 and APN 053-420-034 boundaries, and re-connect to the existing 12-inch at Airway Drive.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

First Priority Project No. 3: Middle Zone Boundary Modification

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

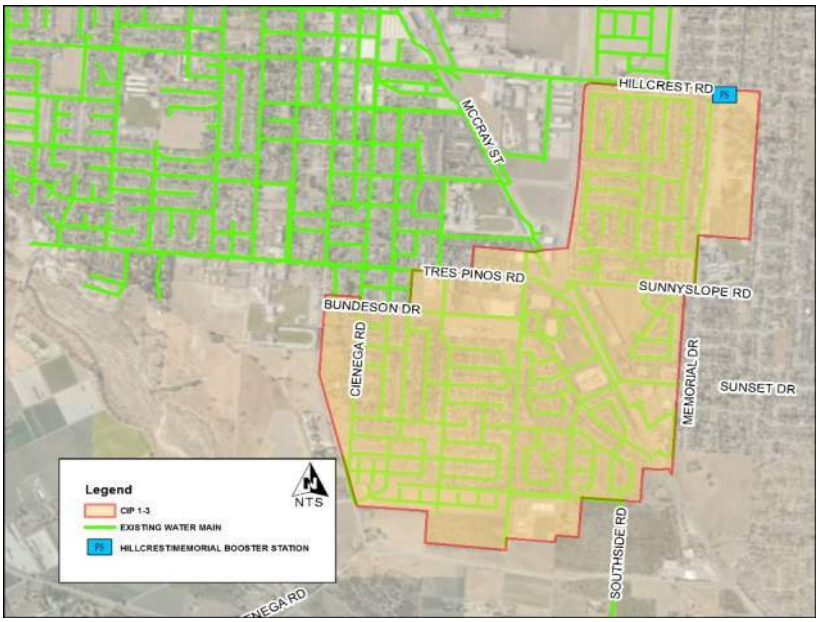
- [x] Existing Condition
- [ ] Future Condition

Project Components

- [ ] Upgrade Water Main
- [ ] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [ ] New Fire Hydrant
- [x] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 4 weeks



Project Need

- [x] Low pressures
- [ ] Velocities greater than 5 fps
- [ ] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$25,000
Planning, Engineering, CM, Legal/Admin (40%)	$10,000
Total Project Cost	**$35,000**

Project Description

The Middle Zone Boundary Modification project proposes rearrangement of the current City Middle Zone boundary. This project will increase the pressures in the southern portion of the City, which currently experiences pressures below 40 psi. In order to increase the pressures in the deficient area, the project would use closed valves or PRVs to extend the boundary from Cienega Road to Memorial Drive, bounded by Bundeson Drive, Cushman Street, Tres Pinos Road, to a portion of McCray Street, and Hillcrest Road. Additionally, the Sunset PRV at Talbot and Hillock would need to be relocated. **The City to identify the final boundary during engineering design.**

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

First Priority Project No. 4: East Street

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

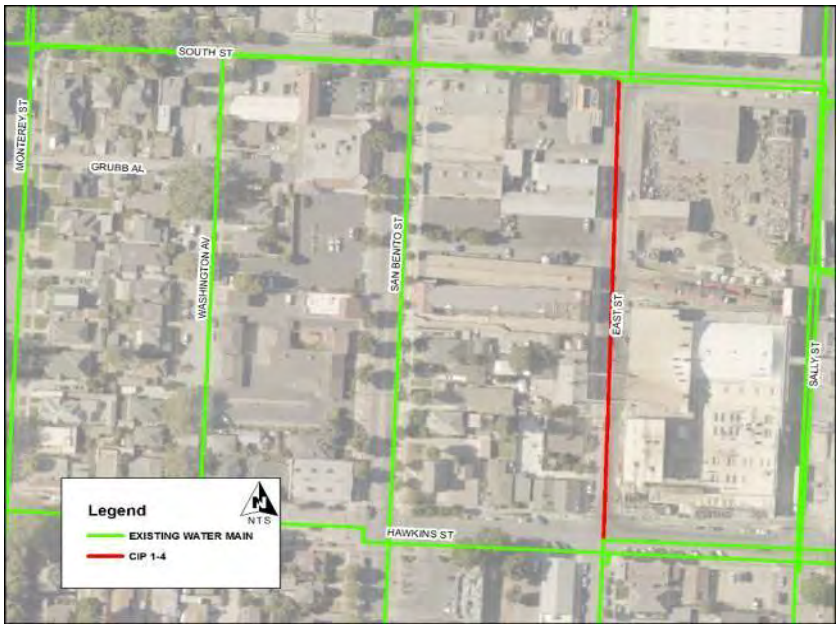
- [x] Existing Condition
- [ ] Future Condition

Project Components

- [x] Upgrade Water Main
- [ ] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [x] New Fire Hydrant
- [ ] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 6 weeks



Project Need

- [ ] Low pressures
- [ ] Velocities greater than 5 fps
- [x] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$150,500
Planning, Engineering, CM, Legal/Admin (40%)	$60,200
Total Project Cost	**$210,700**

Project Description

The East Street project proposes to replace approximately 700 feet of 6-inch cast iron with 8-inch PVC on East Street from South Street to Hawkins Street. The existing 6-inch water main provides less than 50% of the required fire flow. This project will require a new fire hydrant and re-connection to water services from the proposed water main.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

First Priority Project No. 5: Walnut Lane

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Project Components

- [x] Upgrade Water Main
- [ ] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [x] New Fire Hydrant
- [ ] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 6 weeks

Project Need

- [ ] Low pressures
- [ ] Velocities greater than 5 fps
- [x] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$182,750
Planning, Engineering, CM, Legal/Admin (40%)	$73,100
Total Project Cost	**$255,850**

Project Description

The Walnut Lane project proposes to replace approximately 850 feet of 6-inch cast iron with 8-inch PVC on Walnut Lane from Powell Street to the end of the cul-de-sac. The existing 6-inch water main provides less than 50% of the required fire flow. This project will require new fire hydrants and re-connection to water services from the proposed water main.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

First Priority Project No. 6: Park Hill Tanks Operations & Maintenance

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Project Components

- [ ] Upgrade Water Main
- [ ] New Water Main
- [x] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [ ] New Fire Hydrant
- [ ] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 6 weeks

Project Need

- [ ] Low pressures
- [ ] Velocities greater than 5 fps
- [ ] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC
- [x] Does not meet State Water Board requirements

Project Cost Breakdown

Construction Cost[1]	$30,000
Planning, Engineering, CM, Legal/Admin (40%)	$12,000
Total Project Cost	**$42,000**

Project Description

Both Park Hill Tanks require operations and maintenance improvements to meet State Water Board requirements. The City shall perform a dive-inspection of both tanks to determine the next interior coating project. At the time of the next interior coating project, the City shall add a mixing system to Park Hill Tank #2 (Vista) and upgrade the piping in both tanks to have separate inlet and outlet pipes.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

Second Priority Project No. 1: East Airport Industrial

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Project Components

- [ ] Upgrade Water Main
- [x] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [x] New Fire Hydrant
- [ ] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 8 weeks

Project Need

- [ ] Low pressures
- [ ] Velocities greater than 5 fps
- [x] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC
- [x] Improve water quality

Project Cost Breakdown

Construction Cost[1]	$724,550
Planning, Engineering, CM, Legal/Admin (40%)	$289,820
Total Project Cost	**$1,014,370**

Project Description

The Airport-Industrial East project proposes to construct approximately 3,370 feet of new 8-inch PVC. It should be noted that the water main on Park Center Drive is a prive water line metered through one master meter. It will be a beneficial cost savings if the City were to aquire this private line. If the City is unable to aquire, it is recommended that the City run a parallel line with the private water main along Park Center drive and continue along the west and north easement of APN 019-050-005 and APN 019-050-003. The line will then connect to the existing 12-inch water main on Shelton Drive.

Note that the private water service will remain on the existing line; however, all fire hydrants will need to connect to the proposed water line in order to satisfy fire flow requirements.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

Second Priority Project No. 2: Suiter Street

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Project Components

- [ ] Upgrade Water Main
- [x] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [ ] New Fire Hydrant
- [ ] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 5 weeks

Project Need

- [ ] Low pressures
- [ ] Velocities greater than 5 fps
- [x] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$62,350
Planning, Engineering, CM, Legal/Admin (40%)	$24,940
Total Project Cost	**$87,290**

Project Description

The Suiter Street project proposes to construct approximately 290 feet of new 8-inch PVC at North Suiter Street Alley from Suiter Street to Powell Street. The existing 8-inch cast iron main on Suiter Street is a dead-end main and provides less than 75% of the require fire flow.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

PREPARED BY:
Wallace Group
www.wallacegroup.us
San Luis Obispo, CA

Second Priority Project No. 3: South Street

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Project Components

- [x] Upgrade Water Main
- [ ] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [x] New Fire Hydrant
- [ ] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 7 weeks

Project Need

- [ ] Low pressures
- [ ] Velocities greater than 5 fps
- [x] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$223,600
Planning, Engineering, CM, Legal/Admin (40%)	$89,440
Total Project Cost	**$313,040**

Project Description

The South Street project proposes to replace approximately 1,040 feet of 6-inch cast iron with 8-inch PVC on South Street from Line Street to College Street. The existing 6-inch main provides less than 75% of the required fire flow. This project will require new fire hydrants and re-connection to water services from the proposed water main.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

PREPARED BY:
Wallace Group
www.wallacegroup.us
San Luis Obispo, CA

Second Priority Project No. 4: Monterey Street

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Project Components

- [x] Upgrade Water Main
- [ ] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [x] New Fire Hydrant
- [ ] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 7 weeks

Project Need

- [ ] Low pressures
- [ ] Velocities greater than 5 fps
- [x] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$268,750
Planning, Engineering, CM, Legal/Admin (40%)	$107,500
Total Project Cost	**$376,250**

Project Description

The Monterey Street project proposes to replace approximately 1,250 feet of 4-inch cast iron with 8-inch PVC on Monterey Street from Hawkins Street to B Street. The existing 4-inch main provides less than 75% of the required fire flow. This project will require new fire hydrants and re-connection to water services from the proposed water main.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

PREPARED BY:
Wallace Group
www.wallacegroup.us
San Luis Obispo, CA

Second Priority Project No. 5: Powell Street

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Project Components

- [x] Upgrade Water Main
- [ ] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [x] New Fire Hydrant
- [ ] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 6 weeks

Project Need

- [ ] Low pressures
- [ ] Velocities greater than 5 fps
- [x] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$144,050
Planning, Engineering, CM, Legal/Admin (40%)	$57,620
Total Project Cost	**$201,670**

Project Description

The Powell Street project proposes to replace approximately 670 feet of 6-inch cast iron with 8-inch PVC on Powell Street from C Street to Nash Road. The existing 6-inch main provides less than 75% of the required fire flow. This project will require new fire hydrants and re-connection to water services from the proposed water main.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

PREPARED BY:
Wallace Group
www.wallacegroup.us
San Luis Obispo, CA

Second Priority Project No. 6: Hazel Street

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Project Components

- [x] Upgrade Water Main
- [x] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [x] New Fire Hydrant
- [ ] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 9 weeks

Project Need

- [ ] Low pressures
- [ ] Velocities greater than 5 fps
- [x] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$437,525
Planning, Engineering, CM, Legal/Admin (40%)	$175,010
Total Project Cost	**$612,535**

Project Description

The Hazel Street project requires the completion of three separate projects. The existing 8-inch cast iron is a dead-end main on Railroad Avenue and the existing 8-inch cast iron on Hazel Street provides less than 75% of the required fire flow. The first project proposes to replace approximately 945 feet of 8-inch cast with 8-inch PVC on Hazel Street from Prospect Avenue to Sally Street. The second project proposes to replace approximately 710 feet of 8-inch cast iron with 8-inch PVC on Railroad Avenue. Lastly, the third project proposes to construct approximately 380 feet of 8-inch PVC from the new 8-inch main on Railroad Avenue to the intersection of Hazel Street and Sally Street. This project will require a new fire hydrant and re-connection to water services from the proposed water main.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

PREPARED BY:
Wallace Group
www.wallacegroup.us
San Luis Obispo, CA

Second Priority Project No. 7: North Airport-Industrial

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

- [x] Existing Condition
- [x] Future Condition

Project Components

- [ ] Upgrade Water Main
- [x] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [x] New Fire Hydrant
- [ ] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 13 weeks

Project Need

- [ ] Low pressures
- [ ] Velocities greater than 5 fps
- [ ] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC
- [x] Improve water quality

Project Cost Breakdown

Construction Cost[1]	$1,274,000
Planning, Engineering, CM, Legal/Admin (40%)	$509,600
Total Project Cost	**$1,783,600**

Project Description

The Airport-Industrial North project proposes to construct a totla of approximately 4,550 feet of new 12-inch PVC. This project will benefit the nothern Airport-Industrial area by satisfying fire flow requirements, improving the water quality in the area, and establishing redundancy. Note that the alignment shown is preliminary and will require further input from the City in engineering design.

Approximately 2,630 feet of 12-inch PVC will connect at the existing water main on Bert Drive, follow the southern boundary of APN 014-120-015, down San Felipe Road, and connect to the existing water main on Armory Drive. Additionally, approximately 1,920 feet of 12-inch PVC will connect at the existing water main along the western service road at the airport, follow APN 053-420-003 and APN 053-420-002 western boundaries to connect to the proposed 12-inch water main identified in the CIP 1-2.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

Third Priority Project No. 1: West Street

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Project Components

- [x] Upgrade Water Main
- [ ] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [x] New Fire Hydrant
- [ ] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 7 weeks

Project Need

- [ ] Low pressures
- [ ] Velocities greater than 5 fps
- [x] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$258,000
Planning, Engineering, CM, Legal/Admin (40%)	$103,200
Total Project Cost	**$361,200**

Project Description

The West Street project proposes to replace approximately 1,200 feet of 8-inch cast iron with 8-inch PVC on West Street from B Street to Nash Road. The existing 8-inch main provides less than 80% of the required fire flow. This project will require new fire hydrants and re-connection to water services from the proposed water main.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

Third Priority Project No. 2: Park Street

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Project Components

- [x] Upgrade Water Main
- [ ] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [x] New Fire Hydrant
- [ ] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 5 weeks

Project Need

- [ ] Low pressures
- [ ] Velocities greater than 5 fps
- [x] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$81,700
Planning, Engineering, CM, Legal/Admin (40%)	$32,680
Total Project Cost	**$114,380**

Project Description

The Park Street project proposes to replace approximately 380 feet of 4-inch cast iron with 8-inch PVC on Park Street from Sally Street to Prune Street. The existing 4-inch provides less than 85% of the required fire flow. This project will require new fire hydrants and re-connection to water services from the proposed water main.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

PREPARED BY:
Wallace Group
www.wallacegroup.us
San Luis Obispo, CA

Third Priority Project No. 3: Locust Avenue

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

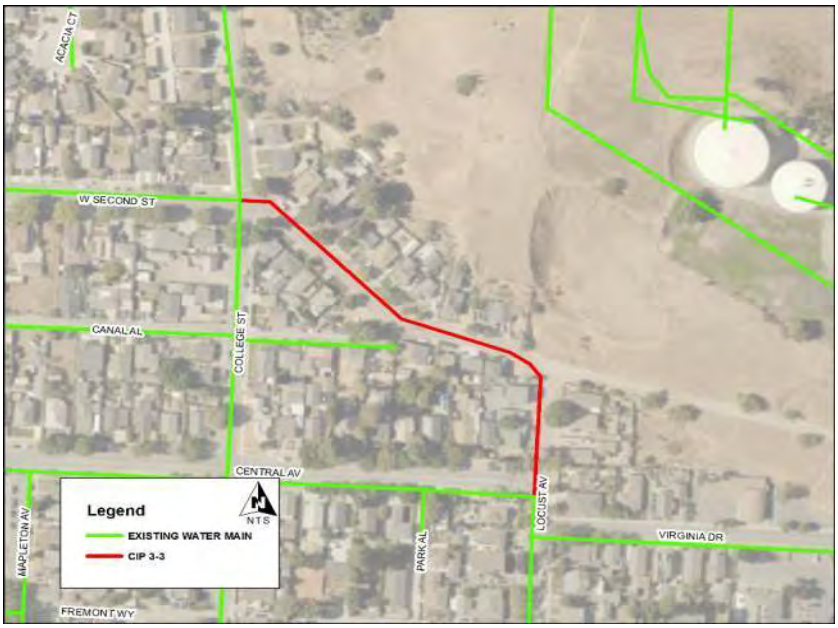
- [x] Existing Condition
- [ ] Future Condition

Project Components

- [x] Upgrade Water Main
- [ ] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [x] New Fire Hydrant
- [ ] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 6 weeks



Project Need

- [ ] Low pressures
- [ ] Velocities greater than 5 fps
- [x] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$189,200
Planning, Engineering, CM, Legal/Admin (40%)	$75,680
Total Project Cost	**$264,880**

Project Description

The Locust Avenue project proposes to replace approximately 880 feet of 4-inch PVC with 8-inch of PVC on Locust Avenue from Central Avenue to College Street. The existing 4-inch provides less than 85% of the required fire flow. This project will require new fire hydrants and re-connection to water services from the proposed water main.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

Third Priority Project No. 4: Hamilton Court

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Project Components

- [x] Upgrade Water Main
- [ ] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [x] New Fire Hydrant
- [ ] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 5 weeks

Project Need

- [ ] Low pressures
- [ ] Velocities greater than 5 fps
- [x] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$134,400
Planning, Engineering, CM, Legal/Admin (40%)	$53,760
Total Project Cost	**$188,160**

Project Description

The Locust Avenue project proposes to replace approximately 480 feet of 8-inch PVC with 12-inch PVC on Hamilton Court at Shelton Drive. With the Airport-Industrial updgrades complete (CIP 1-2 & CIP 2-1) the existing 8-inch provides less than 85% of the required fire flow. This project will require new fire hydrants and re-connection to water services from the proposed water main.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

Third Priority Project No. 5: Quail Run

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Project Components

- [x] Upgrade Water Main
- [ ] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [x] New Fire Hydrant
- [ ] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 6 weeks

Project Need

- [ ] Low pressures
- [ ] Velocities greater than 5 fps
- [x] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$154,800
Planning, Engineering, CM, Legal/Admin (40%)	$61,920
Total Project Cost	**$216,720**

Project Description

The Quail Run project proposes to replace approximately 720 feet of 6-inch PVC with 8-inch PVC on Quail Run at Nash Road. The existing 6-inch provides less than 90% of the required fire flow. This project will require new fire hydrants and re-connection to water services from the proposed water main.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

PREPARED BY:
Wallace Group
www.wallacegroup.us
San Luis Obispo, CA

Third Priority Project No. 6: Ball Court

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

- [x] Existing Condition
- [x] Future Condition

Project Components

- [x] Upgrade Water Main
- [ ] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [x] New Fire Hydrant
- [ ] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 5 weeks

Project Need

- [ ] Low pressures
- [ ] Velocities greater than 5 fps
- [x] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$109,650
Planning, Engineering, CM, Legal/Admin (40%)	$43,860
Total Project Cost	**$153,510**

Project Description

The Ball Court project proposes to replace approximately a total of 510 feet of 6-inch PVC with 8-inch PVC on Ball Court and Piane Crati at Felice Drive. The existing 6-inch PVC provides less than 95% of the required fire flow on Ball Court. To accommodate potential future growth on the vacant lot at Piane Crati, it is also recommended to replace the existing 6-inch PVC with 8-inch PVC on Piane Crati. This project will require new fire hydrants and re-connection to water services from the proposed water main.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

PREPARED BY:
Wallace Group
www.wallacegroup.us
San Luis Obispo, CA

Third Priority Project No. 7: Brandy Court

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

- [x] Existing Condition
- [ ] Future Condition

Project Components

- [x] Upgrade Water Main
- [ ] New Water Main
- [ ] Rehabilitation/Repair
- [ ] Inspection and/or analysis
- [x] New Fire Hydrant
- [ ] New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: 5 weeks

Project Need

- [ ] Low pressures
- [ ] Velocities greater than 5 fps
- [x] Does not satisfy fire flow requirements
- [ ] Replace cast iron pipe
- [ ] Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$47,300
Planning, Engineering, CM, Legal/Admin (40%)	$18,920
Total Project Cost	**$66,220**

Project Description

The Brandy Court project proposes to replace approximately a total of 220 feet of 4-inch PVC with 8-inch PVC on Brandy Court at Buena Vista Road.The existing 4-inch PVC provides less than 95% of the required fire flow. This project will require new fire hydrants and re-connection to water services from the proposed water main.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

PREPARED BY:
Wallace Group
www.wallacegroup.us
San Luis Obispo, CA

Third Priority Project No. 8: Replace 4-, 6-, and 8-inch Cast Iron

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

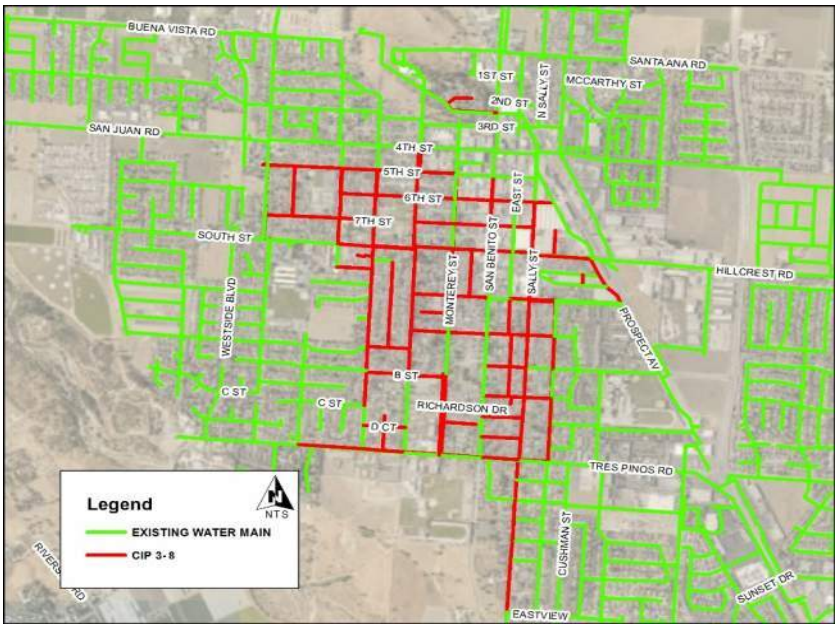
- ☐ Existing Condition
- ☐ Future Condition

Project Components

- ☑ Upgrade Water Main
- ☐ New Water Main
- ☐ Rehabilitation/Repair
- ☐ Inspection and/or analysis
- ☑ New Fire Hydrant
- ☐ New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: Varies



Project Need

- ☐ Low pressures
- ☐ Velocities greater than 5 fps
- ☐ Does not satisfy fire flow requirements
- ☑ Replace cast iron pipe
- ☐ Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$13,007,500
Planning, Engineering, CM, Legal/Admin (40%)	$5,203,000
Total Project Cost	**$18,210,500**

Project Description

This project proposes to replace approximately 60,500 total feet of 4-, 6-, and 8-inch cast iron with 8-inch PVC at various locations within the City. These existing mains do not meet the City's standards and will be need to be upgraded by the City on a case-by-case basis when funds become available or during construction of surrounding projects. The upgrades will require new fire hydrants and re-connection to water services from the new water mains.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

PREPARED BY:
Wallace Group
www.wallacegroup.us
San Luis Obispo, CA

Third Priority Project No. 9: Replace 10-inch and 12-inch Cast Iron

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

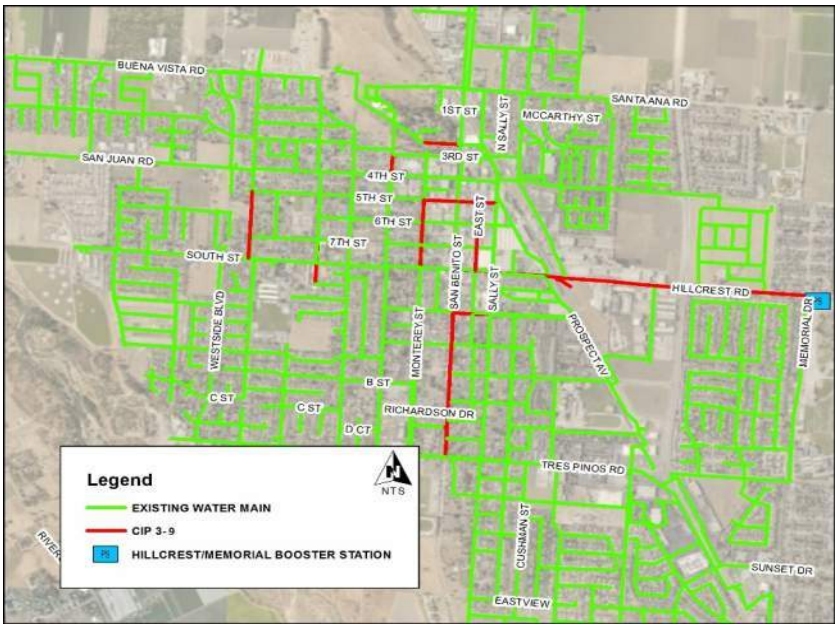
- ☐ Existing Condition
- ☐ Future Condition

Project Components

- ☑ Upgrade Water Main
- ☐ New Water Main
- ☐ Rehabilitation/Repair
- ☐ Inspection and/or analysis
- ☑ New Fire Hydrant
- ☐ New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: Varies



Project Need

- ☐ Low pressures
- ☐ Velocities greater than 5 fps
- ☐ Does not satisfy fire flow requirements
- ☑ Replace cast iron pipe
- ☐ Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$4,872,000
Planning, Engineering, CM, Legal/Admin (40%)	$1,948,800
Total Project Cost	**$6,820,800**

Project Description

This project proposes to replace approximately 17,400 total feet of 10-inch and 12-inch cast iron with 12-inch PVC at various locations within the City. These existing mains will be need to be upgraded by the City on a case-by-case basis when funds become available or during construction of surrounding projects. The upgrades will require new fire hydrants and re-connection to water services from the new water main.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

Third Priority Project No. 10: Replace 16-inch Cast Iron

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

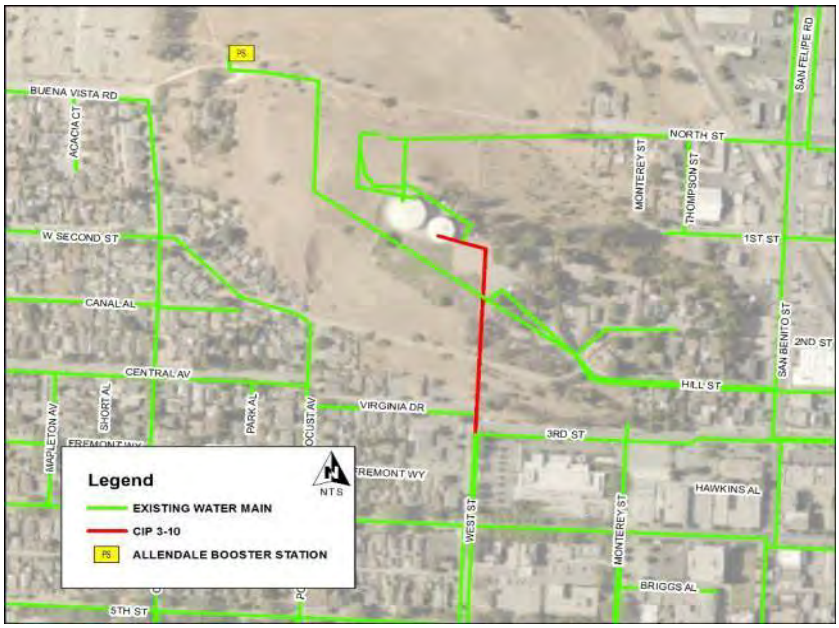
- ☐ Existing Condition
- ☐ Future Condition

Project Components

- ☑ Upgrade Water Main
- ☐ New Water Main
- ☐ Rehabilitation/Repair
- ☐ Inspection and/or analysis
- ☑ New Fire Hydrant
- ☐ New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: Varies



Project Need

- ☐ Low pressures
- ☐ Velocities greater than 5 fps
- ☐ Does not satisfy fire flow requirements
- ☑ Replace cast iron pipe
- ☐ Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$338,800
Planning, Engineering, CM, Legal/Admin (40%)	$135,520
Total Project Cost	**$474,320**

Project Description

This project proposes to replace approximately 880 feet of 16-inch cast iron to 16-inch Ductile Iron or PVC at the discharge of Park Hill Tank #1 (Park). This water main will need to be updgraded when funds become available or during construction of surrounding projects. This project will require a new fire hydrant at the Park Hill Tank site.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

PREPARED BY:
Wallace Group
www.wallacegroup.us
San Luis Obispo, CA

Third Priority Project No. 11: Replace 4-inch PVC

City of Hollister Capital Improvement Project Information Sheet
2018 Water Distribution Master Plan

Project Trigger

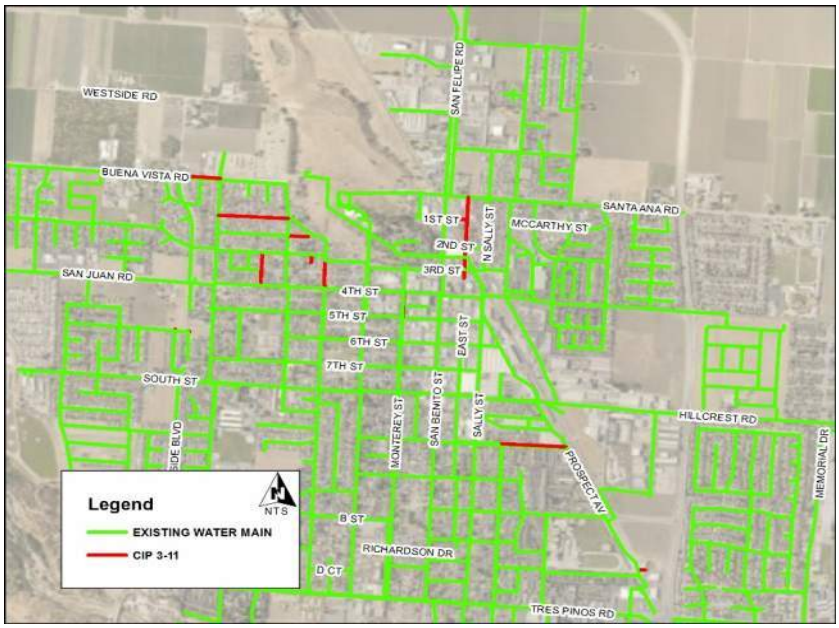
- ☐ Existing Condition
- ☐ Future Condition

Project Components

- ☑ Upgrade Water Main
- ☐ New Water Main
- ☐ Rehabilitation/Repair
- ☐ Inspection and/or analysis
- ☑ New Fire Hydrant
- ☐ New PRVs or Closed Valves

Project Scheduling

Est. Construction Duration: Varies



Project Need

- ☐ Low pressures
- ☐ Velocities greater than 5 fps
- ☐ Does not satisfy fire flow requirements
- ☐ Replace cast iron pipe
- ☑ Upsize PVC

Project Cost Breakdown

Construction Cost[1]	$1,262,050
Planning, Engineering, CM, Legal/Admin (40%)	$504,820
Total Project Cost	**$1,766,870**

Project Description

This project proposes to replace approximately 5,870 total feet of 4-inch PVC with 8-inch PVC at various location within the City. These existing mains do not meet the City's standards and will be need to be upgraded by the City on a case-by-case basis when funds become available or during construction of surrounding projects. The upgrades will require new fire hydrants and re-connection to water services from the new water main.

1. Construction costs are expressed in Year 2018 dollars, using an ENR construction Cost Index of 11069, and will need to be escalated to the year or years scheduled for the work.

PREPARED BY:
Wallace Group
www.wallacegroup.us
San Luis Obispo, CA

APPENDIX A

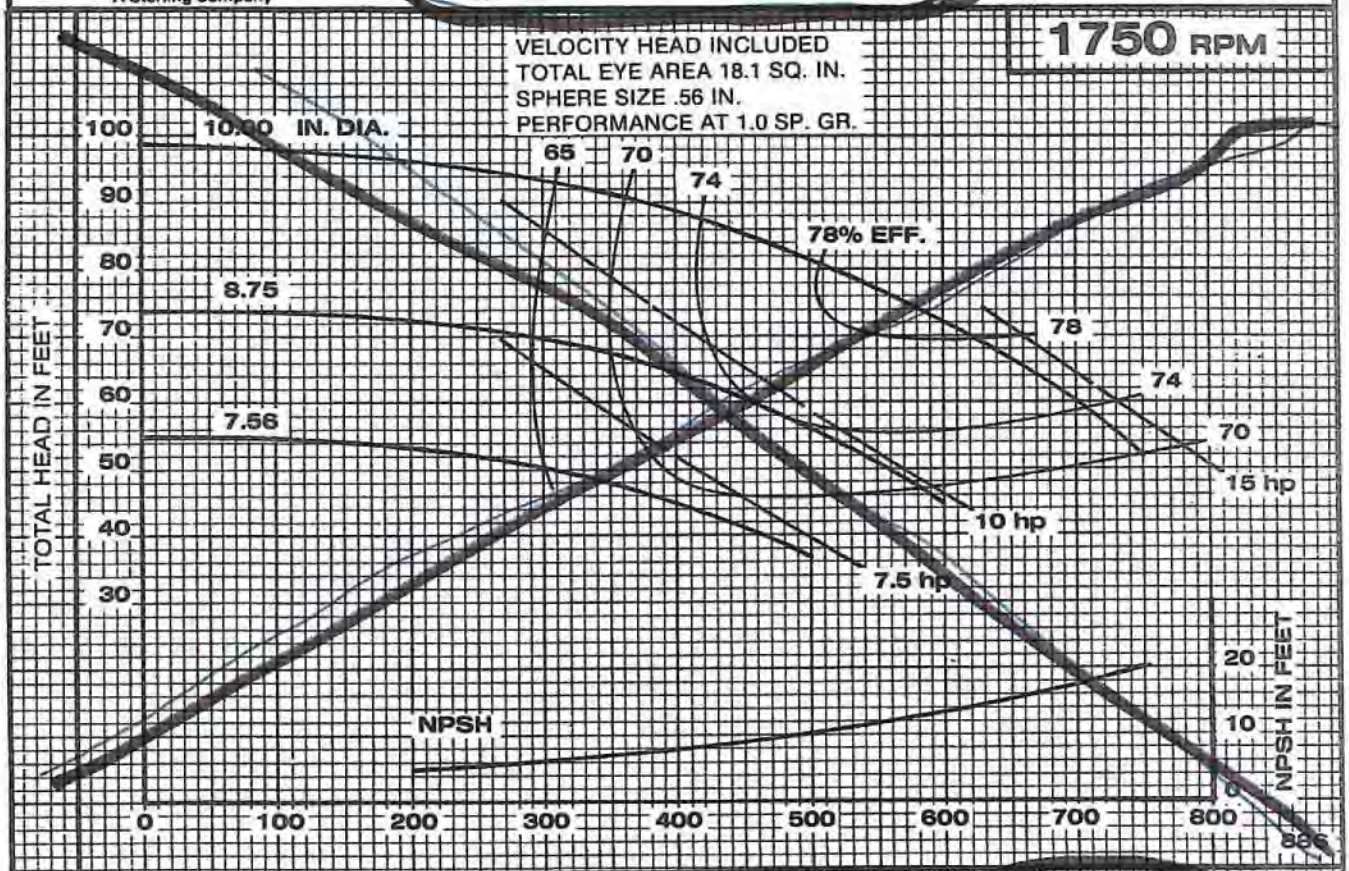
Memorial Booster Station Pump Curve

100 HP

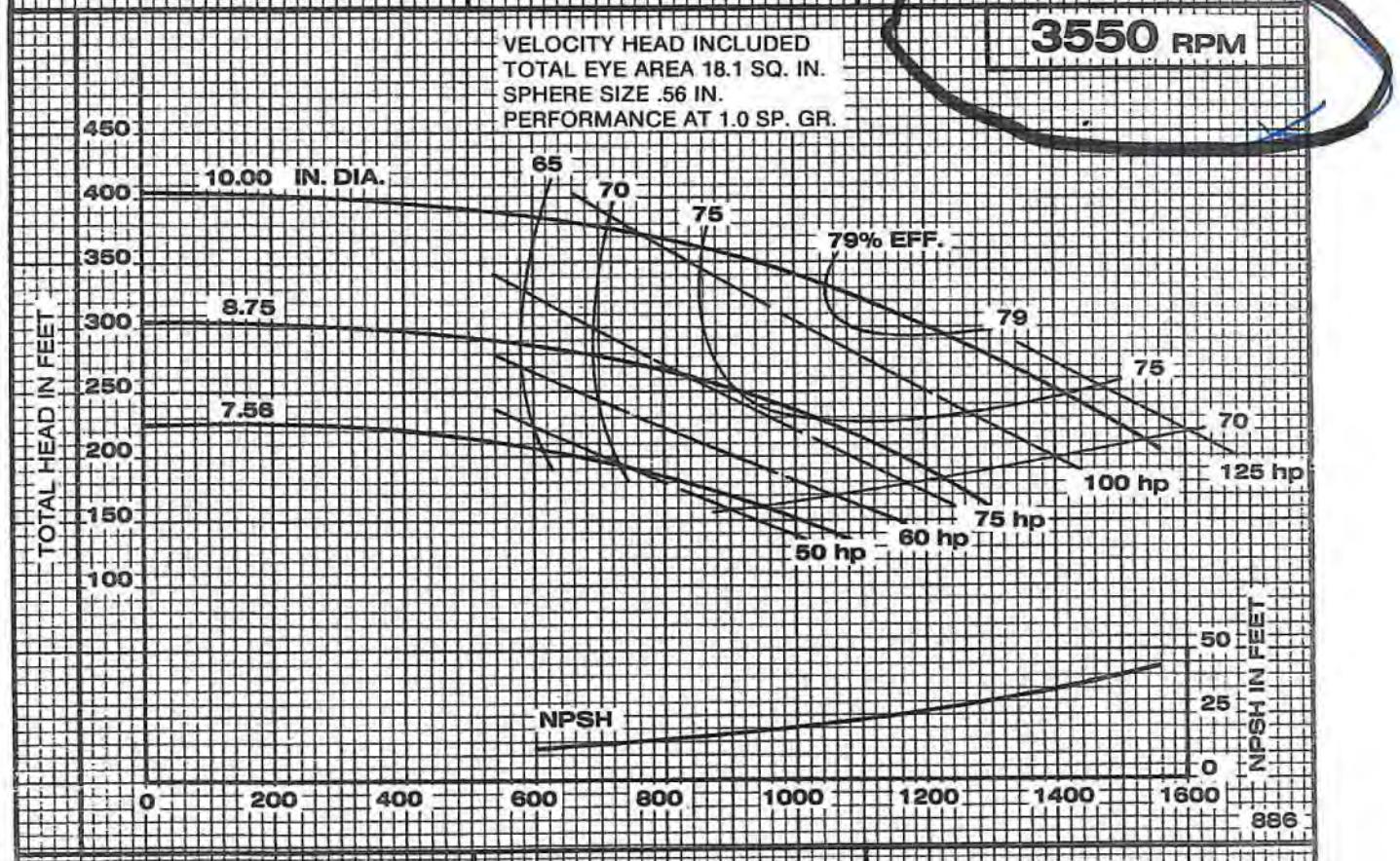
Peerless Pump A Sterling Company

HORIZONTAL SPLIT CASE PUMPS
Type 4AE10 Size 4x5x10.00

SECTION 1240



IMPELLER 2693319 | U.S. GALLONS PER MINUTE | CURVE 3132012



IMPELLER 2693319 | U.S. GALLONS PER MINUTE | CURVE 3132010

APPENDIX B

Fire Hydrant Test Results

City of Hollister
Water Distribution Master Plan
Fire Hydrant Testing

Test Location #	Date	Time	City Pressure Zone	Flowing Hydrant Location	Closest Address	Residual Hydrant Location	Closest Address	West Hills WTP Status	Memorial Booster Station Status	Test Results			
										Static Pressure (PSI)	Pitot Pressure (PSI)	Residual Pressure (PSI)	Flow (GPM)
1	4/19/2018	10:20 AM	Middle	Capitola Dr. at Del Monte Dr.	821 Capitola Dr.	Del Monte at Dr. Capitola Dr.	650 Del Monte Dr.	OFF	OFF	105	47	95	1150
2	4/19/2018	9:55 AM	Middle	Morning Glory Dr.	1921 Morning Glory Dr.	Morning Glory Dr.	1881 Morning Glory Dr.	OFF	OFF	98	50	95	1190
3	4/19/2018	11:00 AM	Low	Cienega Rd. at Eastview Dr.	1841 Cienega Dr.	Eastview Dr. at Cienega Rd.	1851 Cienega Dr.	OFF	OFF	50	33	42	980
4	4/19/2018	11:15 AM	Low	Haydon St. at San Benito St. and East St.	220 Haydon St.	San Benito St. at Haydon St.	997 San Benito St.	OFF	OFF	58	40	52	1060
5	4/19/2018	11:45 AM	Low	Jan Ave. at Summer Dr.	1200 Jan Ave.	Jan Ave. at Summer Dr.	1200 Jan Ave.	OFF	OFF	62	38	60	1030
6[a]	4/19/2018	12:50 PM	Low	Marguerite Dr. at Graf Rd.	90 Marguerite Dr.	Marguerite Dr. at Beresini Ln.	20 Marguerite Dr.	OFF	OFF	67.5	44	65.5	1120
7[a]	4/19/2018	1:15 PM	Low	Hill Ct.	460 Vista Park Hill Ct.	Hill Ct.	460 Vista Park Hill Ct.	OFF	OFF	30.5	13	29.5	580
8[a]	4/19/2018	1:40 PM	Low	Airway Dr. at Flynn Rd.	1851 Airway Dr.	Airway Dr. at Flynn Rd.	1851 Airway Dr.	OFF	OFF	84.5	52	75.5	1150
9[a]	4/19/2018	2:05 PM	Low	Bert Dr. at Apollo Way	2395 Burt Dr.	Bert Dr. at Apollo Way	2395 Burt Dr.	OFF	OFF	92.5	63	83.5	1150
10[b]	8/6/2018	9:50 AM	Cienega	Truckee Ct. at Feather Ct.	3096 Truckee Ct.	Truckee Ct. at Feather Ct.	3084 Truckee Ct.	N/A	N/A	46	34	44	980

[a]Static and Residual pressure readings shown have a 3.5 psi reduction applied to the intial reading seen in the field.

[b]Hydrant testing performed at later date by City staff.

APPENDIX C

Water Model Results

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-1	76.8	66.4	4,500	TRUE
J-8	44.1	32	2,377	TRUE
J-9	43.7	31.7	2,358	TRUE
J-12	104.8	96.5	3,202	TRUE
J-15	105.7	97.4	3,139	TRUE
J-18	92.4	81.5	2,950	FALSE
J-19	48.7	36.7	3,458	TRUE
J-24	63.6	52.1	3,734	TRUE
J-25	61.4	49.4	4,000	TRUE
J-31	87.6	76.7	3,402	FALSE
J-33	92	81.1	3,502	FALSE
J-39	50.8	38.7	3,968	TRUE
J-47	61	49	4,000	TRUE
J-49	56.6	44.7	4,000	TRUE
J-51	89.4	78.5	3,508	FALSE
J-56	59.7	47.7	4,000	TRUE
J-61	67.7	56.4	3,779	TRUE
J-64	104.4	96.1	3,146	TRUE
J-73	61.6	51.8	4,000	TRUE
J-79	66.9	56.7	4,000	TRUE
J-84	61.6	50.7	4,000	TRUE
J-86	62.6	51.8	4,000	TRUE
J-92	62.1	51.3	4,000	TRUE
J-94	62.6	51.8	4,000	TRUE
J-101	61.6	50.8	4,000	TRUE
J-104	62.8	52.8	4,000	TRUE
J-106	56.2	44.2	4,000	TRUE
J-109	56.6	44.6	4,000	TRUE
J-111	103.4	95.2	3,412	TRUE
J-117	62.8	52.8	4,000	TRUE
J-118	69.8	59.7	4,000	TRUE
J-121	56.6	44.7	4,000	TRUE
J-123	48.5	36.5	2,957	TRUE
J-125	66.7	54.9	4,000	TRUE
J-127	89.7	78.7	3,506	FALSE
J-137	57.5	45.5	4,000	TRUE
J-140	56.7	44.8	4,000	TRUE
J-142	62.7	52	4,000	TRUE
J-145	64.9	53.5	4,000	TRUE
J-146	65.4	53.6	2,368	TRUE
J-150	97.7	90.5	4,000	TRUE
J-152	61.7	50.8	4,000	TRUE
J-157	61.3	49.3	4,000	TRUE
J-158	88.4	77.4	3,358	FALSE
J-162	90.3	79.3	3,506	FALSE
J-164	62.8	52.8	4,000	TRUE
J-166	64.4	52.5	1,593	TRUE
J-170	62.6	51.8	4,000	TRUE
J-171	51.7	39.7	3,509	TRUE
J-175	63.6	53.5	4,000	TRUE
J-179	62.8	52.8	4,000	TRUE
J-181	53.9	42	4,000	TRUE
J-182	64.7	54.4	4,000	TRUE
J-185	62.6	51.8	4,000	TRUE
J-188	62	52.1	4,000	TRUE
J-193	58.8	46.9	1,871	TRUE
J-195	62.8	52.8	4,000	TRUE
J-198	45.4	33.3	1,965	TRUE
J-201	61.4	51.9	5,000	TRUE
J-202	54.6	42.6	4,000	TRUE
J-215	67.3	55.9	3,428	TRUE
J-219	53.6	41.6	4,000	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-220	54	42	4,000	TRUE
J-221	68.2	56.3	3,748	TRUE
J-225	61.7	50.8	4,000	TRUE
J-227	62.8	52.9	4,000	TRUE
J-228	65.9	54.3	4,000	TRUE
J-230	61.1	50.9	4,000	TRUE
J-233	64.7	53.6	4,000	TRUE
J-235	62.9	52.9	4,000	TRUE
J-237	53.2	41.2	4,000	TRUE
J-238	60.4	49.8	4,000	TRUE
J-241	63.3	53.3	4,000	TRUE
J-242	61.6	50.8	4,000	TRUE
J-243	61.6	50.7	4,000	TRUE
J-245	62	51.9	4,000	TRUE
J-246	60.3	49.2	3,019	TRUE
J-247	60.3	49.2	4,000	TRUE
J-249	59.2	48.8	2,773	TRUE
J-250	67.2	55.9	1,111	TRUE
J-252	59.9	47.9	4,000	TRUE
J-255	61.3	50.2	4,000	TRUE
J-256	61.3	50.2	4,000	TRUE
J-258	60.3	49.1	4,000	TRUE
J-259	60.3	49.1	4,000	TRUE
J-260	60.3	49.1	4,000	TRUE
J-261	60.3	49.1	4,000	TRUE
J-262	50.6	38.5	4,000	TRUE
J-264	67.6	56.3	1,597	TRUE
J-265	67.6	56.2	1,679	TRUE
J-267	64.1	53.8	4,000	TRUE
J-269	89.4	78.5	3,304	FALSE
J-271	102.4	94.4	4,000	TRUE
J-278	66.5	55.2	3,857	TRUE
J-279	66.4	55.1	4,000	TRUE
J-282	54.7	42.8	4,000	TRUE
J-284	85.1	74.1	3,119	FALSE
J-287	47.4	35.4	2,854	TRUE
J-288	62.8	51.9	4,000	TRUE
J-291	67.9	56	3,637	TRUE
J-298	66.8	55	4,000	TRUE
J-300	105.7	97.4	3,007	TRUE
J-302	66.8	55.5	3,746	TRUE
J-303	48.2	36.1	3,092	TRUE
J-305	65.8	54.1	4,000	TRUE
J-308	62.9	52.2	4,000	TRUE
J-310	62.8	52.2	2,460	TRUE
J-314	59.3	48.5	4,000	TRUE
J-315	66.2	54.5	4,000	TRUE
J-316	66.2	54.5	4,000	TRUE
J-317	59.9	49.4	4,000	TRUE
J-320	65.9	54.7	4,000	TRUE
J-322	48.1	36.1	3,050	TRUE
J-323	48.2	36.1	3,083	TRUE
J-326	64.3	54	4,000	TRUE
J-330	63.2	53	5,000	TRUE
J-333	57.5	45.6	4,000	TRUE
J-334	62.6	51.8	3,248	TRUE
J-335	62.6	51.8	3,211	TRUE
J-341	61.8	49.8	3,047	TRUE
J-343	65.9	54.1	4,000	TRUE
J-345	61.8	49.8	4,000	TRUE
J-347	61.3	52	4,000	TRUE
J-350	54.7	42.7	4,000	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-351	54.7	42.7	4,000	TRUE
J-352	67.9	56	4,000	TRUE
J-354	84.6	73.7	2,708	FALSE
J-356	58.8	48.3	4,000	TRUE
J-359	66.3	54.6	4,000	TRUE
J-361	67.3	55.5	4,000	TRUE
J-363	63.6	51.6	4,000	TRUE
J-372	57	45.1	4,000	TRUE
J-375	65.1	54.9	4,000	TRUE
J-377	64.6	54.4	4,000	TRUE
J-379	63.6	53.3	4,000	TRUE
J-381	68.4	58.3	4,000	TRUE
J-383	65.3	55.1	5,000	TRUE
J-385	83.9	73	3,577	FALSE
J-387	84.2	73.4	3,003	FALSE
J-389	64.5	54.2	4,000	TRUE
J-391	83.6	72.8	3,679	FALSE
J-393	83.9	73	3,631	FALSE
J-395	83.7	72.8	3,089	FALSE
J-397	92.3	81.4	3,504	FALSE
J-399	66.7	56.5	3,649	TRUE
J-401	86.5	75.6	3,474	FALSE
J-403	64.6	53.2	4,000	TRUE
J-405	66.3	56.1	4,000	TRUE
J-407	65	55.2	4,000	TRUE
J-409	65.4	53.8	4,000	TRUE
J-411	82.9	72.1	3,339	FALSE
J-413	64.7	54.4	4,000	TRUE
J-415	69.5	59.3	4,000	TRUE
J-417	64.3	52.6	4,000	TRUE
J-419	67.2	57.1	4,000	TRUE
J-421	69.1	59	4,000	TRUE
J-424	85	74	3,192	FALSE
J-430	64.9	53.2	4,000	TRUE
J-431	69.7	59.6	4,000	TRUE
J-434	62.8	52.6	4,000	TRUE
J-462	67.4	57.3	4,000	TRUE
J-463	103.9	95.7	2,657	TRUE
J-466	44	43.4	3,374	TRUE
J-469	62.9	51.9	4,000	TRUE
J-471	52.4	40.5	3,363	TRUE
J-474	48.4	36.4	3,123	TRUE
J-475	48.4	36.3	3,118	TRUE
J-477	69.9	58	4,000	TRUE
J-478	56.5	44.6	4,000	TRUE
J-479	56.6	44.6	4,000	TRUE
J-483	54.8	43	4,000	TRUE
J-486	63.6	51.6	4,000	TRUE
J-489	65.7	54.1	4,000	TRUE
J-490	56.6	44.6	4,000	TRUE
J-492	65.6	55.6	4,000	TRUE
J-493	65.6	55.5	4,000	TRUE
J-494	58.8	46.9	1,887	FALSE
J-496	59.8	47.8	2,795	TRUE
J-498	62.6	51.8	4,000	TRUE
J-502	67.1	57	4,000	TRUE
J-506	63.5	53.3	4,000	TRUE
J-509	58.6	46.8	4,000	TRUE
J-511	60	49.5	4,000	TRUE
J-515	66.5	55.1	3,899	TRUE
J-519	67.3	55.5	4,000	TRUE
J-521	60.3	49.1	4,000	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-523	62.9	52.8	4,000	TRUE
J-524	62	52.1	4,000	TRUE
J-527	104.4	96.1	2,998	TRUE
J-529	62.6	51.8	2,838	TRUE
J-530	95.1	87.9	4,000	TRUE
J-532	61	50.5	4,000	TRUE
J-534	67.7	56.4	3,696	TRUE
J-536	62.8	52.9	4,000	TRUE
J-539	62.6	51.9	4,000	TRUE
J-541	65.8	54.2	4,000	TRUE
J-542	65.8	54.2	4,000	TRUE
J-544	60.5	48.6	4,000	TRUE
J-546	60.3	49.8	4,000	TRUE
J-548	48.4	36.3	3,109	TRUE
J-549	59.7	47.7	4,000	TRUE
J-553	57.7	45.7	4,000	TRUE
J-560	64.6	54.4	4,000	TRUE
J-562	65.3	53.4	4,000	TRUE
J-563	65.3	53.4	4,000	TRUE
J-564	67.5	55.6	4,000	TRUE
J-566	65	53.5	4,000	TRUE
J-569	56.2	44.2	4,000	TRUE
J-570	56.2	44.2	4,000	TRUE
J-572	61.4	49.4	4,000	TRUE
J-573	49.1	37.1	3,556	TRUE
J-577	65	55.3	4,000	TRUE
J-579	61.9	51.8	4,000	TRUE
J-580	61.8	51.8	4,000	TRUE
J-582	43.6	31.6	2,341	TRUE
J-583	69.7	59.5	4,000	TRUE
J-588	65.7	54.1	4,000	TRUE
J-589	65.8	54.2	4,000	TRUE
J-592	64.1	53.8	4,000	TRUE
J-594	64.7	53.6	4,000	TRUE
J-600	66.7	54.9	4,000	TRUE
J-603	64.9	53	4,000	TRUE
J-604	59.2	47.2	1,780	TRUE
J-606	48.3	36.3	3,013	TRUE
J-609	52.7	40.7	4,000	TRUE
J-610	52.7	40.7	4,000	TRUE
J-612	93.4	86.2	5,000	TRUE
J-615	62.9	51.9	4,000	TRUE
J-621	56	44	4,000	TRUE
J-624	64.8	54.5	4,000	TRUE
J-627	47.5	35.5	2,997	TRUE
J-630	63.1	51.2	4,000	TRUE
J-633	61.6	51.2	4,000	TRUE
J-639	91.1	80.2	3,505	FALSE
J-641	60.9	50.4	4,000	TRUE
J-645	48.4	36.4	3,004	TRUE
J-648	61.5	51.1	4,000	TRUE
J-650	76.7	66.3	4,500	TRUE
J-651	60	48	4,000	TRUE
J-652	64.4	52.5	3,335	TRUE
J-655	63.6	53.4	5,000	TRUE
J-656	63.6	53.4	4,000	TRUE
J-658	62.3	50.3	4,000	TRUE
J-660	66.3	55.1	3,611	TRUE
J-661	66.3	55.1	3,593	TRUE
J-662	67.1	55.3	4,000	TRUE
J-664	63.6	51.6	4,000	TRUE
J-667	56.2	44.2	4,000	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-668	65.1	54.8	4,000	TRUE
J-670	61.9	51.6	4,000	TRUE
J-674	85.9	75	3,088	FALSE
J-678	76.6	66.1	4,500	TRUE
J-680	61.5	51.4	4,000	TRUE
J-681	65.2	53.3	4,000	TRUE
J-683	61.9	51.6	4,000	TRUE
J-689	66.4	55.1	4,000	TRUE
J-701	62.6	51.8	3,232	TRUE
J-706	62.2	50.2	4,000	TRUE
J-708	64.5	52.5	4,000	TRUE
J-710	67.9	56	3,706	TRUE
J-713	98.6	91.4	4,000	TRUE
J-716	107.4	99.1	2,921	TRUE
J-717	65.8	54.7	4,000	TRUE
J-720	59.6	49.1	4,000	TRUE
J-727	65.4	53.6	2,550	TRUE
J-732	65.8	54.1	3,871	TRUE
J-737	62.8	52.6	5,000	TRUE
J-739	63.1	52.9	5,000	TRUE
J-743	61.4	51	4,000	TRUE
J-745	53.9	41.9	4,000	TRUE
J-747	69.3	59.1	4,000	TRUE
J-749	47.4	35.4	3,036	TRUE
J-751	65.3	53.6	4,000	TRUE
J-752	61.5	51.4	4,000	TRUE
J-756	58.9	47.7	3,309	TRUE
J-757	67.7	56.4	3,780	TRUE
J-761	74.4	62.3	2,331	TRUE
J-763	74.4	62.4	2,676	TRUE
J-766	64.1	53.8	3,345	TRUE
J-769	65.4	53.7	4,000	TRUE
J-770	67.1	55.2	4,000	TRUE
J-772	62.2	50.3	4,000	TRUE
J-775	58.2	46.9	3,504	TRUE
J-777	49.8	37.7	3,365	TRUE
J-779	61.4	50.3	2,829	TRUE
J-781	68.4	56.5	4,000	TRUE
J-787	64.7	52.7	4,000	TRUE
J-792	66.8	55.4	4,000	TRUE
J-802	57.6	45.8	4,000	TRUE
J-803	57.5	45.8	4,000	TRUE
J-806	64	52.8	4,000	TRUE
J-807	61.1	50.9	4,000	TRUE
J-808	62.7	52	4,000	TRUE
J-809	60.9	50.9	4,000	TRUE
J-810	60.9	50.9	4,000	TRUE
J-811	47.2	45.9	3,061	TRUE
J-813	61.5	51.1	4,000	TRUE
J-815	54.3	42.3	4,000	TRUE
J-816	67.5	56.2	1,702	TRUE
J-817	67.5	56.2	1,737	TRUE
J-824	61.4	49.4	4,000	TRUE
J-832	62.7	50.7	3,317	TRUE
J-835	89.9	79	3,497	FALSE
J-836	60.5	50.1	4,000	TRUE
J-839	69	57.1	4,000	TRUE
J-841	64.1	52.2	1,837	TRUE
J-845	63.6	52.2	4,000	TRUE
J-846	63.6	52.2	4,000	TRUE
J-850	65.8	54.1	4,000	TRUE
J-852	53.1	41.1	4,000	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-856	73.2	61.4	3,792	TRUE
J-859	59.6	49.1	3,982	TRUE
J-861	62.7	50.7	4,000	TRUE
J-862	66.3	55	3,755	TRUE
J-863	66.8	55.4	4,000	TRUE
J-864	66.8	55.4	3,720	TRUE
J-868	66.3	55.1	3,350	TRUE
J-869	65.3	53.6	4,000	TRUE
J-870	65.2	53.6	4,000	TRUE
J-871	65.8	54.7	4,000	TRUE
J-872	65.4	53.7	4,000	TRUE
J-874	107.4	99.1	2,751	TRUE
J-875	66.7	55.8	2,371	TRUE
J-876	66.7	55.7	2,008	TRUE
J-881	68.1	56.2	4,000	TRUE
J-882	43.3	31.3	2,326	TRUE
J-885	61.9	52.1	4,000	TRUE
J-887	67.1	56.9	4,000	TRUE
J-891	62.6	50.6	4,000	TRUE
J-894	69.2	57.4	4,000	TRUE
J-897	65.2	53.6	4,000	TRUE
J-904	67.9	56.1	4,000	TRUE
J-906	59.4	47.8	3,414	TRUE
J-908	56.6	44.6	3,514	TRUE
J-909	56.8	44.9	3,544	TRUE
J-911	64.7	53.6	4,000	TRUE
J-924	106.1	97.8	3,003	TRUE
J-930	66.8	55.4	3,794	TRUE
J-932	61.9	52.1	4,000	TRUE
J-935	56.2	44.2	4,000	TRUE
J-938	46.3	45	2,800	TRUE
J-940	64.1	53.8	4,000	TRUE
J-946	63.1	52.9	4,000	TRUE
J-951	44.5	32.5	2,356	TRUE
J-955	67.1	55.2	4,000	TRUE
J-958	61.4	51.9	4,000	TRUE
J-961	65	55.3	4,000	TRUE
J-965	61	49	4,000	TRUE
J-967	66.2	54.6	4,000	TRUE
J-968	58.8	46.9	1,857	TRUE
J-970	63.3	52.7	4,000	TRUE
J-976	63	51	4,000	TRUE
J-980	66.1	54.5	4,000	TRUE
J-984	66.1	54.3	4,000	TRUE
J-990	60.5	48.6	4,000	TRUE
J-994	85.4	74.5	3,219	FALSE
J-996	58.8	46.9	1,572	TRUE
J-999	57.5	45.5	3,601	TRUE
J-1000	57.5	45.5	4,000	TRUE
J-1003	62.7	50.7	4,000	TRUE
J-1008	60.6	48.7	2,883	TRUE
J-1012	63	51.3	4,000	TRUE
J-1017	48.3	36.3	3,494	TRUE
J-1018	59.2	48.8	4,000	TRUE
J-1022	57.5	45.8	4,000	TRUE
J-1025	63.6	51.6	4,000	TRUE
J-1030	84.7	73.8	3,601	FALSE
J-1034	65.8	55.6	4,000	TRUE
J-1036	63.6	53.6	4,000	TRUE
J-1038	59.7	47.6	1,485	FALSE
J-1039	61.6	50.8	4,000	TRUE
J-1040	59.8	48.9	4,000	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-1041	59.7	48.9	2,455	TRUE
J-1043	68.6	56.8	4,000	TRUE
J-1048	74.6	62.5	2,053	TRUE
J-1051	48.7	36.6	3,870	TRUE
J-1057	64.4	52.5	4,000	TRUE
J-1059	73.5	61.4	2,150	TRUE
J-1066	59.8	49.4	3,769	TRUE
J-1073	54.7	42.7	4,000	TRUE
J-1074	98.2	91	4,000	TRUE
J-1076	66	54.4	4,000	TRUE
J-1078	67.7	56.5	2,342	TRUE
J-1080	91.8	84.5	4,000	TRUE
J-1082	64.5	52.5	4,000	TRUE
J-1084	60.3	49.1	1,864	FALSE
J-1089	46.1	34	2,271	TRUE
J-1091	47.2	45.9	2,907	TRUE
J-1097	58	46.2	1,109	TRUE
J-1099	64.4	52.5	4,000	TRUE
J-1113	56.6	44.7	3,743	TRUE
J-1116	63	53	3,554	TRUE
J-1119	66	54.3	2,525	TRUE
J-1122	60.5	50	4,000	TRUE
J-1125	47.2	35.1	3,115	TRUE
J-1131	106.3	98	2,878	TRUE
J-1167	64	52	4,000	TRUE
J-1174	59.3	48.8	4,000	TRUE
J-1179	50.1	38.1	3,872	TRUE
J-1182	58.9	47	4,000	TRUE
J-1183	65	53.1	4,000	TRUE
J-1185	64.9	52.9	4,000	TRUE
J-1187	62.6	52.3	4,000	TRUE
J-1189	66	54.4	4,000	TRUE
J-1193	65	53.5	1,912	TRUE
J-1195	72.3	62.1	4,500	TRUE
J-1198	61.7	52.4	5,000	TRUE
J-1200	50.4	38.4	3,541	TRUE
J-1205	101.4	93.1	2,162	TRUE
J-1206	54.6	42.8	4,000	TRUE
J-1214	65.4	53.8	4,000	TRUE
J-1216	64.5	54.2	4,000	TRUE
J-1217	57.5	45.6	4,000	TRUE
J-1225	53.9	42	4,000	TRUE
J-1228	87.2	76.3	3,395	FALSE
J-1230	62.3	51.9	4,000	TRUE
J-1232	103	94.7	3,222	TRUE
J-1234	107.4	99.1	2,956	TRUE
J-1235	64.3	52.3	3,899	TRUE
J-1236	64.3	52.4	3,849	TRUE
J-1241	60.5	48.5	4,000	TRUE
J-1243	59.7	48	4,000	TRUE
J-1244	59.7	47.9	4,000	TRUE
J-1245	65.3	53.4	4,000	TRUE
J-1246	58.8	47	4,000	TRUE
J-1248	70	58.1	4,000	TRUE
J-1250	62.6	51.8	3,357	TRUE
J-1251	62.9	52.7	4,000	TRUE
J-1254	81.6	70.8	2,639	FALSE
J-1256	64.4	52.5	4,000	TRUE
J-1260	61.7	51.3	4,000	TRUE
J-1261	61.7	51.3	4,000	TRUE
J-1263	67.1	55.2	4,000	TRUE
J-1265	67.1	55.2	4,000	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-1268	107.5	99.2	2,822	TRUE
J-1271	64.4	52.5	1,589	TRUE
J-1272	48.4	36.3	3,514	TRUE
J-1277	100	92.8	4,000	TRUE
J-1279	67.1	55.2	4,000	TRUE
J-1286	87.2	76.3	3,622	FALSE
J-1289	87.7	76.8	3,641	FALSE
J-1291	58.9	48.1	4,000	TRUE
J-1293	60.9	48.9	4,000	TRUE
J-1300	65.6	55.4	4,000	TRUE
J-1306	62.6	52.4	4,000	TRUE
J-1308	56.6	44.7	3,083	TRUE
J-1314	54	42	4,000	TRUE
J-1315	95.5	88.3	4,000	TRUE
J-1321	100.4	93.2	4,000	TRUE
J-1324	101.3	93.5	4,000	TRUE
J-1326	107	98.7	2,822	TRUE
J-1329	65.8	54.2	2,293	TRUE
J-1332	67.1	55.2	4,000	TRUE
J-1334	63.1	51.1	2,944	TRUE
J-1337	56.2	44.4	4,000	TRUE
J-1340	61.1	50.9	4,000	TRUE
J-1341	61.1	50.9	4,000	TRUE
J-1342	70.2	60.1	4,000	TRUE
J-1344	62.6	51.8	4,000	TRUE
J-1346	65.9	54.7	4,000	TRUE
J-1348	64.1	53.9	4,000	TRUE
J-1352	64.8	53.7	4,000	TRUE
J-1353	64.8	53.7	4,000	TRUE
J-1355	63.3	53.1	4,000	TRUE
J-1359	67.7	55.9	4,000	TRUE
J-1362	55.4	43.5	4,000	TRUE
J-1367	54.7	42.8	4,000	TRUE
J-1369	67.1	57	4,000	TRUE
J-1374	67.1	55.3	4,000	TRUE
J-1376	65.3	53.4	4,000	TRUE
J-1379	58	46.1	3,378	TRUE
J-1380	61.5	51.4	4,000	TRUE
J-1383	55.9	44	2,039	TRUE
J-1385	61.6	49.6	4,000	TRUE
J-1386	59.7	47.7	4,000	TRUE
J-1391	66.9	55.5	3,674	TRUE
J-1397	65	53.4	4,000	TRUE
J-1399	65.8	54.1	4,000	TRUE
J-1401	61.4	49.4	4,000	TRUE
J-1403	66.7	55.2	2,707	TRUE
J-1405	62.9	52.3	4,000	TRUE
J-1406	97.8	90.6	4,000	TRUE
J-1415	93.5	86.3	4,000	TRUE
J-1420	103	94.8	2,304	TRUE
J-1421	62.2	51.4	5,000	TRUE
J-1422	62.2	51.4	4,000	TRUE
J-1423	59.2	47.5	3,473	TRUE
J-1435	62	52.1	4,000	TRUE
J-1436	46.9	34.9	2,780	TRUE
J-1441	56.1	44.2	4,000	TRUE
J-1444	60.5	48.6	4,000	TRUE
J-1450	54.7	42.7	4,000	TRUE
J-1452	67.4	57.3	4,000	TRUE
J-1454	66.7	54.9	4,000	TRUE
J-1457	45.4	33.3	3,148	TRUE
J-1459	45.5	33.5	1,653	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-1463	59.1	47.3	4,000	TRUE
J-1466	57.5	45.6	4,000	TRUE
J-1477	63.4	51.4	4,000	TRUE
J-1481	84	73.2	3,768	FALSE
J-1489	67.8	55.9	3,606	TRUE
J-1495	60	50.2	5,000	TRUE
J-1500	64.1	54.1	4,000	TRUE
J-1508	66.2	54.4	4,000	TRUE
J-1510	57.5	46.9	3,836	TRUE
J-1513	59.8	47.9	2,822	TRUE
J-1516	103.9	95.7	3,088	TRUE
J-1528	61.9	51.6	4,000	TRUE
J-1532	60.6	49	1,768	TRUE
J-1538	46.6	45.3	3,279	TRUE
J-1545	59.7	47.7	4,000	TRUE
J-1547	65.8	54.2	4,000	TRUE
J-1549	65.6	54	4,000	TRUE
J-1553	64.9	52.9	4,000	TRUE
J-1554	63	51	2,793	TRUE
J-1559	49.2	37.2	3,495	TRUE
J-1572	90.3	79.3	3,497	FALSE
J-1573	63.4	53.7	4,000	TRUE
J-1576	44.8	32.8	2,355	TRUE
J-1588	49.9	37.8	3,679	TRUE
J-1593	49.7	37.7	4,000	TRUE
J-1596	97.8	90.6	4,000	TRUE
J-1597	47.1	35	3,536	TRUE
J-1602	56.4	44.7	4,362	TRUE
J-1603	100.7	93.5	4,000	TRUE
J-1607	48.7	36.7	3,449	TRUE
J-1617	62.6	51.8	3,504	TRUE
J-1622	62.1	51.7	4,000	TRUE
J-1630	46.7	34.6	3,267	TRUE
J-1632	62.2	51.7	3,832	TRUE
J-1635	57.9	45.9	1,856	FALSE
J-1636	48.2	36.1	3,269	TRUE
J-1637	46.3	44.9	2,785	TRUE
J-1639	55.2	43.2	2,555	TRUE
J-1640	55.9	44	4,000	TRUE
J-1643	61.2	49.5	2,839	TRUE
J-1645	59.9	47.9	1,662	TRUE
J-1648	59.2	47.2	1,697	TRUE
J-1652	51.7	39.7	3,749	TRUE
J-1661	47.2	45.9	2,985	TRUE
J-1662	65.8	54.2	4,000	TRUE
J-1666	61.4	49.4	4,000	TRUE
J-1672	52.6	40.5	3,282	TRUE
J-1676	63.1	53	4,000	TRUE
J-1679	48.2	36.2	3,323	TRUE
J-1682	62.2	51.9	4,000	TRUE
J-1684	61.4	49.4	3,439	TRUE
J-1687	65.1	53.4	4,000	TRUE
J-1692	44.9	32.9	1,839	TRUE
J-1703	56.7	44.7	4,000	TRUE
J-1709	48.4	36.4	3,804	TRUE
J-1713	65.1	55.4	4,000	TRUE
J-1714	65.1	55.4	4,000	TRUE
J-1716	66	56.1	4,000	TRUE
J-1722	61.2	50.6	4,000	TRUE
J-1725	60	48	4,000	TRUE
J-1726	59.9	47.9	4,000	TRUE
J-1727	62	51.5	4,000	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-1735	53.2	41.1	4,000	TRUE
J-1747	52.9	40.8	4,000	TRUE
J-1753	63.5	53.2	4,000	TRUE
J-1770	57.9	46.1	3,230	TRUE
J-1771	65.9	54.6	3,604	TRUE
J-1774	49.7	37.7	3,662	FALSE
J-1776	43.2	31.2	2,315	TRUE
J-1777	62.1	50.8	2,024	TRUE
J-1780	61.4	49.4	4,000	TRUE
J-1783	52.7	40.7	3,909	TRUE
J-1787	67.5	55.6	4,000	TRUE
J-1789	59	47	1,647	FALSE
J-1795	59	47.4	3,479	TRUE
J-1797	62.7	51.7	4,000	TRUE
J-1801	107.1	98.8	2,903	TRUE
J-1805	53.1	41.1	4,000	TRUE
J-1810	90.4	83.3	4,000	TRUE
J-1819	59.9	50.1	4,000	TRUE
J-1824	104.6	96.4	3,065	TRUE
J-1827	59.5	48.7	4,000	TRUE
J-1835	62.5	51.1	2,868	TRUE
J-1843	45.9	33.8	2,686	TRUE
J-1847	68.3	56.4	3,935	TRUE
J-1853	59.4	47.8	4,000	TRUE
J-1855	66.9	55.1	4,000	TRUE
J-1860	65.4	53.7	4,000	TRUE
J-1862	58.4	46.4	1,918	FALSE
J-1865	65.3	53.4	4,000	TRUE
J-1868	104.7	96.4	2,998	TRUE
J-1871	48	35.9	3,369	TRUE
J-1876	84.4	73.6	3,718	FALSE
J-1877	84.5	73.6	3,172	FALSE
J-1879	92	81.1	3,500	FALSE
J-1881	99.1	91.8	4,000	TRUE
J-1893	70.1	60	4,000	TRUE
J-1910	48	35.9	3,678	TRUE
J-1913	62.6	51.6	3,801	TRUE
J-1917	107.8	99.5	2,977	TRUE
J-1925	44.1	32	2,459	TRUE
J-1929	71.4	61.2	4,500	TRUE
J-1934	62.7	50.7	4,000	TRUE
J-1936	67.7	56.4	3,271	TRUE
J-1938	53.2	41.1	3,519	TRUE
J-1939	53.6	41.6	4,000	TRUE
J-1946	59.4	47.8	3,890	TRUE
J-1968	105.5	97.2	3,057	TRUE
J-1972	51.8	39.7	4,000	TRUE
J-1981	60.5	48.5	3,109	TRUE
J-1983	61.5	51.5	4,000	TRUE
J-1988	61.4	49.4	4,000	TRUE
J-1990	61.9	51.7	4,000	TRUE
J-1992	93.7	86.5	4,000	TRUE
J-2007	62.2	50.2	4,000	TRUE
J-2010	62.1	51.3	4,000	TRUE
J-2012	52.7	40.7	3,653	TRUE
J-2014	74.4	64.1	4,500	TRUE
J-2020	64.1	53.8	4,000	TRUE
J-2021	64.1	53.8	4,000	TRUE
J-2028	92.8	85.6	4,000	TRUE
J-2029	65	53.1	4,000	TRUE
J-2031	64.4	52.5	2,365	TRUE
J-2034	56.8	44.9	4,000	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-2053	72.6	60.6	2,763	TRUE
J-2061	85.4	74.5	3,568	FALSE
J-2062	90.3	79.3	3,484	FALSE
J-2063	90.3	79.3	3,485	FALSE
J-2078	44.3	32.2	2,249	TRUE
J-2082	62.3	52.1	4,000	TRUE
J-2083	62.3	52.1	4,000	TRUE
J-2085	62.9	52.9	4,000	TRUE
J-2087	72.2	60.2	2,811	TRUE
J-2090	44.7	32.6	2,420	TRUE
J-2101	57.6	45.8	4,000	TRUE
J-2102	63.3	51.9	2,144	TRUE
J-2106	61.9	51.6	4,000	TRUE
J-2108	59.3	48.6	4,000	TRUE
J-2115	73.7	61.6	2,073	TRUE
J-2117	61.8	49.8	4,000	TRUE
J-2121	45.8	33.8	2,178	TRUE
J-2123	57.6	45.8	4,408	TRUE
J-2128	68.8	56.9	4,000	TRUE
J-2130	61.5	51.4	4,000	TRUE
J-2137	100.7	93.5	4,000	TRUE
J-2140	50.6	38.5	3,273	TRUE
J-2147	59.4	47.8	3,753	TRUE
J-2149	52.3	40.3	4,000	TRUE
J-2185	83.6	72.7	3,774	FALSE
J-2201	69.5	57.7	2,354	TRUE
J-2202	98.9	91.7	4,000	TRUE
J-2211	62.1	51.4	3,754	TRUE
J-2215	71.9	61.7	4,500	TRUE
J-2231	100.2	93	4,000	TRUE
J-2234	62.9	52.2	1,882	TRUE
J-2246	48.9	36.8	3,338	TRUE
J-2247	99.6	92.4	4,000	TRUE
J-2250	88.2	77.3	3,489	FALSE
J-2253	67.1	57	4,000	TRUE
J-2262	59.2	48.4	4,000	TRUE
J-2266	64.6	54.7	2,770	TRUE
J-2271	63.1	52.9	4,000	TRUE
J-2273	59.8	48	1,964	TRUE
J-2280	58.1	46.3	3,105	TRUE
J-2284	47.7	35.6	2,920	TRUE
J-2299	70.2	60.1	4,000	TRUE
J-2301	81.4	70.7	4,357	TRUE
J-2309	87.6	76.7	3,514	FALSE
J-2313	89.4	78.5	3,510	FALSE
J-2328	67.7	56.3	3,329	TRUE
J-2330	56.7	44.8	3,099	TRUE
J-2333	65.6	53.9	2,301	TRUE
J-2335	62.6	51.6	4,000	TRUE
J-2349	62.3	52.1	4,000	TRUE
J-2353	71.9	61.7	4,500	TRUE
J-2354	56.6	44.8	4,597	TRUE
J-2357	64.1	53.8	4,000	TRUE
J-2359	60.7	49.5	2,977	TRUE
J-2360	60.7	49.5	3,418	TRUE
J-2367	48.4	36.4	2,983	TRUE
J-2371	58.9	47.8	3,710	TRUE
J-2375	53.7	41.7	4,000	TRUE
J-2383	69.9	59.8	4,000	TRUE
J-2384	58.9	46.9	1,995	FALSE
J-2390	74	63.7	4,500	TRUE
J-2397	61.7	49.7	2,651	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-2401	56.7	44.8	4,000	TRUE
J-2405	47.5	35.5	3,546	TRUE
J-2410	59	48.2	4,000	TRUE
J-2418	64.5	52.9	3,500	TRUE
J-2419	79.7	69.1	4,500	TRUE
J-2421	59.4	48.5	4,000	TRUE
J-2425	73.1	61	2,254	TRUE
J-2427	64.9	52.9	4,000	TRUE
J-2435	67.9	56.1	4,000	TRUE
J-2438	64	52	4,000	TRUE
J-2441	59.4	47.8	3,507	TRUE
J-2447	105.7	97.4	3,119	TRUE
J-2451	65.4	53.9	2,057	TRUE
J-2455	99.3	92.1	4,000	TRUE
J-2456	64.4	52.5	4,000	TRUE
J-2465	69.3	57.4	4,000	TRUE
J-2467	69.1	57.2	4,000	TRUE
J-2470	67	56.8	3,484	TRUE
J-2484	74.4	64	4,500	TRUE
J-2485	74.6	64.2	4,500	TRUE
J-2486	62.8	52.6	4,000	TRUE
J-2488	58.2	47	3,188	TRUE
J-2491	70.4	58.6	1,830	TRUE
J-2496	64.4	54.2	4,000	TRUE
J-2502	65.2	53.8	3,341	TRUE
J-2504	69.7	59.6	4,000	TRUE
J-2510	53.4	41.4	4,000	TRUE
J-2514	105	96.7	3,100	TRUE
J-2515	53.5	41.5	3,714	TRUE
J-2517	59	48.2	4,000	TRUE
J-2518	59	48.1	4,000	TRUE
J-2522	45.6	33.6	1,857	TRUE
J-2528	69.6	59.4	5,000	TRUE
J-2531	46.2	34.2	1,952	TRUE
J-2539	60.5	48.6	3,855	TRUE
J-2545	103.1	94.8	2,285	TRUE
J-2547	63.6	53.9	2,989	TRUE
J-2550	61.5	51.5	4,000	TRUE
J-2553	103.5	95.2	2,416	TRUE
J-2557	61.9	51.6	4,000	TRUE
J-2560	64.1	53.8	4,000	TRUE
J-2561	64.1	53.8	4,000	TRUE
J-2564	66.3	55.1	2,796	TRUE
J-2565	98.6	91.4	4,000	TRUE
J-2568	99.1	91.9	4,000	TRUE
J-2569	59.6	48.8	4,000	TRUE
J-2572	68.3	58.2	4,000	TRUE
J-2573	100.2	93	4,000	TRUE
J-2577	63.2	53.2	4,000	TRUE
J-2580	61.6	51.5	4,000	TRUE
J-2581	93	85.9	5,000	TRUE
J-2582	79.1	68.6	4,500	TRUE
J-2586	104.8	96.5	3,009	TRUE
J-2592	103.7	95.4	3,149	TRUE
J-2597	58.4	46.4	1,310	FALSE
J-2603	104.8	96.5	3,082	TRUE
J-2607	61.2	49.2	3,181	TRUE
J-2611	68.8	56.9	4,000	TRUE
J-2613	104.3	96	3,191	TRUE
J-2618	63.6	53.4	4,000	TRUE
J-2620	65.8	55.6	4,000	TRUE
J-2621	48	36	3,038	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-2624	62.2	51.4	4,000	TRUE
J-2629	70.1	58.2	1,941	TRUE
J-2630	100.8	93.6	4,872	TRUE
J-2635	62.5	50.5	3,547	TRUE
J-2636	61.8	49.9	3,477	TRUE
J-2638	66.7	54.9	4,000	TRUE
J-2647	64.1	53.8	2,911	TRUE
J-2648	60.5	49.3	4,000	TRUE
J-2651	66.7	56.5	4,000	TRUE
J-2652	65.6	53.6	3,138	TRUE
J-2654	57.6	45.7	2,253	TRUE
J-2657	68	56.1	3,680	TRUE
J-2659	61	51.2	4,000	TRUE
J-2660	61	51.2	4,000	TRUE
J-2661	47.2	45.9	2,924	TRUE
J-2662	67.6	57.4	4,000	TRUE
J-2671	105.5	97.2	3,115	TRUE
J-2674	45.8	33.8	1,888	TRUE
J-2677	61.4	49.4	3,381	TRUE
J-2680	64.4	52.4	4,000	TRUE
J-2685	65.8	54.2	4,000	TRUE
J-2691	53.2	41.1	3,593	TRUE
J-2692	61.3	49.7	2,760	TRUE
J-2698	48.1	36	3,080	TRUE
J-2701	67.1	55.2	2,069	TRUE
J-2706	87.1	76.2	3,420	FALSE
J-2711	92.9	85.7	4,000	TRUE
J-2713	45.8	33.8	1,874	TRUE
J-2715	64.3	52.5	4,000	TRUE
J-2716	67.9	55.9	3,886	TRUE
J-2717	72.2	62	4,500	TRUE
J-2721	94.6	87.4	5,000	TRUE
J-2723	48.6	36.6	3,352	TRUE
J-2725	63.4	51.5	4,000	TRUE
J-2726	62.8	52.6	4,000	TRUE
J-2729	65.7	55.7	4,000	TRUE
J-2737	57.5	45.6	4,000	TRUE
J-2740	56.2	44.5	4,000	TRUE
J-2741	67.1	55.3	4,000	TRUE
J-2742	55.8	43.8	4,000	TRUE
J-2747	64.1	53.8	4,000	TRUE
J-2748	60.3	49.1	4,000	TRUE
J-2752	67.9	56	3,178	TRUE
J-2754	44.3	32.3	1,921	TRUE
J-2755	44.2	32.2	1,970	TRUE
J-2757	46.3	34.3	2,857	TRUE
J-2758	87.6	76.7	3,555	FALSE
J-2763	49.7	37.7	3,647	TRUE
J-2764	65	54.8	4,000	TRUE
J-2765	61.8	49.8	4,000	TRUE
J-2768	105.2	97	3,000	TRUE
J-2774	63.1	51.2	4,000	TRUE
J-2775	65.5	53.8	4,000	TRUE
J-2780	55.5	43.7	4,000	TRUE
J-2782	64.1	53.8	4,000	TRUE
J-2784	47.4	35.4	3,089	TRUE
J-2786	65	53.3	4,000	TRUE
J-2787	65	53.3	4,000	TRUE
J-2788	47.9	35.9	3,047	TRUE
J-2789	48	36	3,085	TRUE
J-2792	69.1	59	3,608	TRUE
J-2798	61.5	50.6	1,280	FALSE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-2799	61.4	50.6	4,000	TRUE
J-2800	64.9	52.9	4,000	TRUE
J-2806	105.8	97.5	2,988	TRUE
J-2807	67.9	56	3,673	TRUE
J-2809	89.9	79	3,487	FALSE
J-2812	43.7	31.6	2,138	TRUE
J-2813	43.6	31.6	2,132	TRUE
J-2815	71.5	61.3	4,500	TRUE
J-2818	65.4	53.7	4,000	TRUE
J-2820	61.1	49.1	4,000	TRUE
J-2821	45.9	33.8	2,000	TRUE
J-2824	61.8	52	4,000	TRUE
J-2825	68.4	58.3	4,000	TRUE
J-2827	92.6	85.4	4,000	TRUE
J-2828	92.8	85.5	4,000	TRUE
J-2832	98.8	91.6	4,000	TRUE
J-2838	63.6	51.6	4,000	TRUE
J-2843	62.3	51.9	3,310	TRUE
J-2845	63.6	53.4	4,000	TRUE
J-2846	63.7	53.4	4,000	TRUE
J-2850	64.2	53.9	4,000	TRUE
J-2851	51.3	39.2	3,829	TRUE
J-2853	64.3	52.3	3,901	TRUE
J-2854	86.8	75.9	3,440	FALSE
J-2856	64.5	54.2	4,000	TRUE
J-2857	47.8	35.7	3,050	TRUE
J-2858	49.3	37.2	3,278	TRUE
J-2860	59.2	48.3	5,000	TRUE
J-2868	73.4	61.6	3,546	TRUE
J-2871	64.1	52.1	2,282	TRUE
J-2874	65.3	53.7	1,923	TRUE
J-2876	68.4	56.4	3,690	TRUE
J-2877	68.2	56.3	3,731	TRUE
J-2881	90.3	79.3	3,489	FALSE
J-2887	61.5	49.5	2,362	TRUE
J-2888	98.6	91.4	4,000	TRUE
J-2892	61.6	52.1	4,000	TRUE
J-2897	64.7	52.8	4,000	TRUE
J-2898	64.5	52.5	4,000	TRUE
J-2901	63.8	51.8	2,972	TRUE
J-2902	103.5	95.2	2,642	TRUE
J-2904	46.7	34.6	2,847	TRUE
J-2905	46.9	34.9	2,842	TRUE
J-2910	62.3	51.8	4,000	TRUE
J-2911	61.1	50.1	1,370	FALSE
J-2912	60.9	49.9	1,291	FALSE
J-2918	107.3	99	2,901	TRUE
J-2919	61.2	49.2	3,455	TRUE
J-2921	65.8	54.2	4,000	TRUE
J-2924	55.7	43.7	4,000	TRUE
J-2925	55.5	43.6	4,000	TRUE
J-2930	61.8	49.8	4,000	TRUE
J-2931	98.5	91.3	4,000	TRUE
J-2934	62.1	50.8	1,983	FALSE
J-2935	55.4	43.4	4,000	TRUE
J-2936	55.4	43.4	4,000	TRUE
J-2938	64.1	53.9	4,000	TRUE
J-2939	84.5	73.7	2,724	FALSE
J-2940	49.7	37.7	3,226	TRUE
J-2942	87.2	76.4	3,489	FALSE
J-2943	87.3	76.4	3,485	FALSE
J-2947	46.2	34.1	2,688	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-2950	45.4	33.3	3,159	TRUE
J-2951	64.4	52.5	4,000	TRUE
J-2954	69.2	57.4	2,144	TRUE
J-2959	61.6	51.3	4,000	TRUE
J-2961	82.7	71.8	3,738	FALSE
J-2962	61.3	49.3	4,000	TRUE
J-2963	58.8	48.2	4,000	TRUE
J-2966	82.9	72	2,236	FALSE
J-2967	107.4	99.1	2,885	TRUE
J-2969	47.2	35.2	3,055	TRUE
J-2970	62.8	52.5	3,096	TRUE
J-2971	63	52.8	3,242	TRUE
J-2973	45.2	33.2	2,986	TRUE
J-2974	62.7	52.5	4,000	TRUE
J-2975	70.9	59	1,656	TRUE
J-2976	62.9	52.6	3,940	TRUE
J-2977	63.2	53	4,000	TRUE
J-2979	107.4	99.1	2,882	TRUE
J-2980	53.6	41.6	4,000	TRUE
J-2982	107.5	99.2	2,916	TRUE
J-2986	104.8	96.5	3,032	TRUE
J-2991	103.1	94.8	3,036	TRUE
J-2992	65.5	55.4	4,000	TRUE
J-2994	44.9	32.9	1,820	TRUE
J-2996	92.8	85.6	4,000	TRUE
J-2998	66.8	54.9	4,000	TRUE
J-3001	48.5	36.5	3,339	TRUE
J-3008	80.5	69.6	3,382	FALSE
J-3012	93.9	86.7	4,000	TRUE
J-3013	45.4	33.3	2,524	TRUE
J-3014	45.4	33.3	2,533	TRUE
J-3017	48.6	36.6	2,433	TRUE
J-3018	64	53.7	4,000	TRUE
J-3020	73	61.2	4,000	TRUE
J-3023	60.8	49.6	4,000	TRUE
J-3025	64.9	53.2	4,000	TRUE
J-3026	59	48	4,611	TRUE
J-3027	107.4	99.1	2,911	TRUE
J-3029	64.5	52.8	4,000	TRUE
J-3032	60.4	49.2	4,000	TRUE
J-3034	67.7	55.9	3,139	TRUE
J-3036	62.9	53.4	4,000	TRUE
J-3037	63.3	53.8	4,000	TRUE
J-3038	64.3	52.4	3,927	TRUE
J-3040	67.5	55.7	4,000	TRUE
J-3042	63.1	51.2	4,000	TRUE
J-3044	104.8	96.5	2,985	TRUE
J-3045	55	43	4,000	TRUE
J-3046	55.1	43.1	4,000	TRUE
J-3048	57.6	45.7	4,000	TRUE
J-3050	71	59.1	3,101	TRUE
J-3054	63.9	53.7	4,000	TRUE
J-3057	50.6	38.6	3,281	TRUE
J-3059	66.3	54.5	4,000	TRUE
J-3060	64.6	54.3	4,000	TRUE
J-3064	107.2	98.9	2,752	TRUE
J-3068	86.3	75.3	3,271	FALSE
J-3070	65.8	54.2	4,000	TRUE
J-3072	104.8	96.5	3,107	TRUE
J-3074	73.4	61.4	2,227	TRUE
J-3075	73.3	61.3	2,217	TRUE
J-3076	65.4	53.8	2,131	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-3078	107	98.7	2,928	TRUE
J-3084	58.2	46.3	4,000	TRUE
J-3085	59.6	48.7	958	FALSE
J-3087	61.4	49.4	3,341	TRUE
J-3092	65	53.3	4,000	TRUE
J-3093	65.2	53.5	4,000	TRUE
J-3094	68.4	56.4	3,833	TRUE
J-3096	61.4	49.4	4,000	TRUE
J-3097	55.5	43.5	2,992	TRUE
J-3100	82.4	71.6	2,690	FALSE
J-3101	82.1	71.3	2,647	FALSE
J-3102	87.7	76.8	3,402	FALSE
J-3103	61.8	49.9	4,000	TRUE
J-3105	65.6	53.7	2,758	TRUE
J-3106	65.4	53.4	2,865	TRUE
J-3107	46.7	34.7	2,907	TRUE
J-3111	49.1	37	2,461	TRUE
J-3112	49.3	37.2	2,632	TRUE
J-3114	67.3	57.1	3,719	TRUE
J-3116	90.2	83	4,000	TRUE
J-3117	51.3	39.3	4,000	TRUE
J-3118	103.8	95.6	3,295	TRUE
J-3120	64.4	52.5	4,000	TRUE
J-3121	46.4	34.3	3,154	TRUE
J-3122	46.2	34.2	3,332	TRUE
J-3123	97.1	89.9	4,000	TRUE
J-3124	97.2	90	4,000	TRUE
J-3126	59	48.1	4,000	TRUE
J-3127	74.5	64.2	4,500	TRUE
J-3128	83.4	72.4	2,462	FALSE
J-3129	63.8	53.6	5,000	TRUE
J-3131	64.1	53.8	4,000	TRUE
J-3132	44.5	32.5	2,290	TRUE
J-3133	101.3	93.1	2,195	TRUE
J-3134	107.5	99.2	2,844	TRUE
J-3138	66.7	54.8	4,000	TRUE
J-3139	61.6	51.7	5,000	TRUE
J-3140	59.1	48.2	4,702	TRUE
J-3142	96.5	89.3	4,000	TRUE
J-3143	96.6	89.4	4,000	TRUE
J-3145	45.4	33.3	1,914	TRUE
J-3147	62.7	50.7	4,000	TRUE
J-3148	63	51	4,000	TRUE
J-3149	61.4	49.4	2,486	TRUE
J-3154	62.8	52.5	4,000	TRUE
J-3158	48.2	36.2	3,171	TRUE
J-3159	50.6	38.5	3,379	TRUE
J-3160	103.1	95	3,639	TRUE
J-3161	107.8	99.5	2,867	TRUE
J-3164	76.7	64.6	1,835	TRUE
J-3166	103.7	95.4	2,594	TRUE
J-3167	88.7	77.7	3,327	FALSE
J-3171	61.3	49.3	3,380	TRUE
J-3177	46.5	34.5	3,009	TRUE
J-3178	63.3	51.8	3,436	TRUE
J-3180	67.1	55.2	4,000	TRUE
J-3181	68.4	58.2	4,000	TRUE
J-3183	73.5	61.4	2,166	TRUE
J-3187	107	98.7	2,809	TRUE
J-3188	103.5	95.4	3,177	TRUE
J-3189	68.4	58.2	4,000	TRUE
J-3190	74.7	64.3	4,500	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-3192	63.2	53.1	4,000	TRUE
J-3193	105.2	97	3,115	TRUE
J-3195	89	78	3,292	FALSE
J-3196	107	98.7	2,893	TRUE
J-3199	64	53.7	4,000	TRUE
J-3200	61.8	49.8	4,000	TRUE
J-3201	64.4	52.5	3,967	TRUE
J-3204	60.3	48.3	3,969	TRUE
J-3206	50.7	38.7	3,489	TRUE
J-3207	99.1	91.9	5,000	TRUE
J-3209	48.6	36.5	3,329	TRUE
J-3210	60.5	48.5	2,907	TRUE
J-3212	66.2	54.4	4,000	TRUE
J-3213	63.6	52.2	3,821	TRUE
J-3215	63.1	51.1	2,779	TRUE
J-3216	63.7	51.7	2,970	TRUE
J-3220	63.7	51.8	4,000	TRUE
J-3222	61.4	49.4	3,860	TRUE
J-3223	61.4	49.4	4,000	TRUE
J-3225	61.4	49.4	2,776	TRUE
J-3226	57.7	46.1	3,540	TRUE
J-3227	87	76.2	3,624	FALSE
J-3229	56.3	44.5	1,752	TRUE
J-3232	69.2	57.4	4,000	TRUE
J-3234	50.2	38.2	3,417	TRUE
J-3235	87.2	76.3	3,531	FALSE
J-3237	65.8	54	3,198	TRUE
J-3238	64.5	52.7	4,000	TRUE
J-3239	63	52.8	4,000	TRUE
J-3241	66.2	54.4	3,213	TRUE
J-3244	58.8	46.9	4,000	TRUE
J-3246	73.4	61.4	2,204	TRUE
J-3248	47.7	35.6	2,872	TRUE
J-3249	64.9	52.9	3,627	TRUE
J-3250	48	35.9	2,724	TRUE
J-3251	107.3	99	2,832	TRUE
J-3252	103.9	95.6	2,987	TRUE
J-3253	47.4	35.4	2,970	TRUE
J-3254	63.6	53.4	5,000	TRUE
J-3255	51.3	39.2	3,358	TRUE
J-3256	70.1	60	4,000	TRUE
J-3257	62	50	4,000	TRUE
J-3258	65.8	54.1	4,000	TRUE
J-3259	86.8	75.9	3,611	FALSE
J-3261	104.8	96.5	3,022	TRUE
J-3262	64.7	54.4	4,000	TRUE
J-3263	64.3	54	2,023	TRUE
J-3264	64.5	54.3	2,341	TRUE
J-3265	61	49	4,000	TRUE
J-3266	91.9	84.7	4,000	TRUE
J-3267	84.4	73.4	2,678	FALSE
J-3269	46.8	45.5	3,227	TRUE
J-3270	68.7	56.7	2,826	TRUE
J-3271	105.5	97.2	3,106	TRUE
J-3274	64.5	54.3	4,000	TRUE
J-3275	61.7	49.7	2,291	TRUE
J-3276	61	49	4,000	TRUE
J-3277	64.9	53.3	1,836	TRUE
J-3280	61.8	49.8	3,487	TRUE
J-3281	89.2	78.3	3,315	FALSE
J-3283	61	50.5	3,339	TRUE
J-3284	61.4	49.4	2,762	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-3285	89.6	78.7	3,026	FALSE
J-3288	79.9	69.3	4,500	TRUE
J-3289	62.8	50.8	4,000	TRUE
J-3290	61.3	50.3	4,000	TRUE
J-3291	44.5	32.5	2,367	TRUE
J-3292	101.2	94	4,000	TRUE
J-3293	73.5	61.4	2,300	TRUE
J-3294	105.7	97.4	2,889	TRUE
J-3295	46.7	45.4	2,857	TRUE
J-3297	63.2	53	5,000	TRUE
J-3301	67.6	55.7	3,258	TRUE
J-3302	51.6	43	4,000	TRUE
J-3304	99.5	92.3	4,000	TRUE
J-3305	99.4	92.2	4,000	TRUE
J-3306	106.1	97.8	2,829	TRUE
J-3307	106.4	98.1	2,926	TRUE
J-3308	66.6	54.9	4,000	TRUE
J-3311	65.3	53.6	4,000	TRUE
J-3312	89.4	78.5	3,366	FALSE
J-3315	65.4	53.7	3,217	TRUE
J-3318	96.6	89.4	4,000	TRUE
J-3319	45.4	33.3	2,257	TRUE
J-3320	44.7	32.6	2,031	TRUE
J-3321	106.5	98.2	2,805	TRUE
J-3322	106.7	98.4	2,900	TRUE
J-3324	59.9	47.9	4,000	TRUE
J-3325	73.8	61.8	2,774	TRUE
J-3326	97.1	89.9	4,000	TRUE
J-3327	63.6	51.6	2,636	TRUE
J-3329	67.2	57.1	4,000	TRUE
J-3330	83.4	76.2	4,000	TRUE
J-3331	65.5	53.7	4,000	TRUE
J-3332	62.6	52.7	1,299	TRUE
J-3333	53.5	41.6	3,364	TRUE
J-3334	67.3	55.4	2,283	TRUE
J-3336	56.4	44.4	4,000	TRUE
J-3337	64.4	52.5	4,000	TRUE
J-3340	51.6	39.6	3,819	TRUE
J-3341	73.6	61.7	3,408	TRUE
J-3343	83.4	72.5	3,721	FALSE
J-3345	64.5	54.2	4,000	TRUE
J-3347	46.2	34.2	2,648	TRUE
J-3350	97.3	90.1	4,000	TRUE
J-3351	98.3	91.1	4,000	TRUE
J-3352	68.8	56.9	4,000	TRUE
J-3354	100.8	93.6	4,000	TRUE
J-3356	67	55.2	4,000	TRUE
J-3363	62.8	51.9	3,568	TRUE
J-3364	63	52.2	1,227	TRUE
J-3365	66.9	55.1	2,907	TRUE
J-3366	48.4	36.4	3,521	TRUE
J-3367	68.7	56.8	4,000	TRUE
J-3369	65	53.3	4,000	TRUE
J-3374	47.2	45.9	2,392	TRUE
J-3375	102.2	94.2	3,739	TRUE
J-3376	47.6	35.6	3,150	TRUE
J-3377	61.4	49.4	4,000	TRUE
J-3379	47.2	45.9	2,879	TRUE
J-3380	46.6	34.5	3,378	TRUE
J-3381	58.5	47.6	4,000	TRUE
J-3382	55.3	43.3	3,431	TRUE
J-3383	67.1	55.2	3,600	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-3384	103.6	95.3	2,528	TRUE
J-3385	46.3	45	3,340	TRUE
J-3386	64.9	53	4,000	TRUE
J-3387	67.5	55.7	4,000	TRUE
J-3390	64.4	52.5	4,000	TRUE
J-3391	65.8	54.3	4,000	TRUE
J-3392	100.3	93.1	4,000	TRUE
J-3394	43.4	31.3	2,195	TRUE
J-3395	69.2	57.4	1,935	TRUE
J-3398	66.1	54.5	4,000	TRUE
J-3399	65.1	53.5	3,542	TRUE
J-3400	66.8	55	4,000	TRUE
J-3401	48.4	36.4	3,085	TRUE
J-3402	64.6	52.7	4,000	TRUE
J-3403	88.8	81.6	3,245	TRUE
J-3404	89.2	82	3,467	TRUE
J-3405	64.9	54.7	4,000	TRUE
J-3406	64.9	54.7	4,000	TRUE
J-3407	50.2	38.2	3,219	TRUE
J-3408	67.1	56.9	4,000	TRUE
J-3409	65.8	54.1	3,408	TRUE
J-3410	67.3	55.5	4,000	TRUE
J-3411	92	81.1	3,505	FALSE
J-3413	67	55.2	4,000	TRUE
J-3414	46.2	34.2	2,003	TRUE
J-3415	62.8	52.5	4,000	TRUE
J-3416	67.9	57.8	3,985	TRUE
J-3417	58.8	47	3,780	TRUE
J-3418	64.9	53	3,481	TRUE
J-3419	67.6	55.7	3,801	TRUE
J-3421	101.2	94	4,000	TRUE
J-3422	73.1	61.3	3,237	TRUE
J-3423	97.6	89.8	4,000	TRUE
J-3425	73.9	61.9	2,254	TRUE
J-3426	45.5	33.4	2,458	TRUE
J-3427	72.2	60.2	2,860	TRUE
J-3428	64.5	54.3	4,000	TRUE
J-3429	47.1	35	2,819	TRUE
J-3430	65	53.3	4,000	TRUE
J-3431	64.9	52.9	4,000	TRUE
J-3432	43.3	31.2	2,126	TRUE
J-3433	65	53.3	3,307	TRUE
J-3435	67.9	56	2,803	TRUE
J-3436	48.3	36.2	3,263	TRUE
J-3438	66.5	54.7	1,281	TRUE
J-3439	62.7	50.7	4,000	TRUE
J-3441	61.2	50.9	890	FALSE
J-3442	63.2	53.1	4,000	TRUE
J-3443	84.9	74	3,043	FALSE
J-3445	60.4	48.5	3,962	TRUE
J-3446	47.7	35.7	2,575	TRUE
J-3447	69.5	57.7	2,981	TRUE
J-3448	103.5	95.4	3,015	TRUE
J-3449	58.3	47.2	2,832	FALSE
J-3450	47.9	35.9	1,839	TRUE
J-3451	60.1	48.1	1,667	TRUE
J-3452	66.4	55.1	3,493	TRUE
J-3453	96	88.8	4,000	TRUE
J-3454	65.8	54.1	2,708	TRUE
J-3455	62.2	51.4	4,000	TRUE
J-3456	99.8	92.6	4,000	TRUE
J-3457	48.7	36.6	1,863	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-3458	61	49	2,873	TRUE
J-3459	61.6	49.6	4,000	TRUE
J-3461	60.9	48.9	4,000	TRUE
J-3462	63.6	51.6	3,811	TRUE
J-3464	49.3	48	4,000	TRUE
J-3466	103.3	95	2,331	TRUE
J-3469	46.7	34.6	3,437	TRUE
J-3470	61.6	51.3	3,518	TRUE
J-3471	98.1	90.9	5,000	TRUE
J-3472	97.1	89.9	5,000	TRUE
J-3473	104	95.8	2,809	TRUE
J-3474	91.4	84.2	4,000	TRUE
J-3475	62.8	52.6	3,973	TRUE
J-3476	84.5	73.6	3,630	FALSE
J-3477	103.2	95.2	3,429	TRUE
J-3479	46.6	34.5	2,407	TRUE
J-3481	60.1	48.2	2,710	TRUE
J-3482	60.1	48.1	3,436	TRUE
J-3483	61.3	49.3	4,000	TRUE
J-3484	65.3	54.1	4,000	TRUE
J-3485	61.9	49.9	4,000	TRUE
J-3487	62.8	52.5	3,871	TRUE
J-3488	43.6	31.6	2,211	TRUE
J-3493	65.5	54	3,930	TRUE
J-3495	87.7	76.8	3,478	FALSE
J-3496	61.5	51.2	3,479	TRUE
J-3497	48.9	36.8	3,224	TRUE
J-3498	48.9	36.8	2,506	TRUE
J-3499	47.3	35.3	2,361	TRUE
J-3500	83.3	72.5	2,923	FALSE
J-3503	90.8	83.6	3,929	TRUE
J-3504	47.2	35.1	2,402	TRUE
J-3506	61.7	49.7	2,048	TRUE
J-3507	62.6	51.6	898	TRUE
J-3509	43.9	31.8	1,663	TRUE
J-3510	44.2	32.2	1,851	TRUE
J-3511	64.3	54	4,000	TRUE
J-3512	52	39.9	3,781	TRUE
J-3513	64.4	52.5	3,509	TRUE
J-3514	66.3	56.1	3,341	TRUE
J-3516	44.9	32.9	1,736	TRUE
J-3517	66.2	54.5	4,000	TRUE
J-3518	48	36	2,437	TRUE
J-3520	47.5	35.4	3,379	TRUE
J-3521	87.7	76.7	3,372	FALSE
J-3522	60.4	48.4	1,601	TRUE
J-3525	66.6	54.8	4,000	TRUE
J-3526	67.9	56.1	4,000	TRUE
J-3527	67.2	57.2	4,000	TRUE
J-3528	59.9	49.1	4,000	TRUE
J-3529	49.3	37.2	2,431	TRUE
J-3530	69.9	59.8	4,000	TRUE
J-3531	59.4	48.6	5,000	TRUE
J-3533	102.2	95	4,000	TRUE
J-3534	101.2	94	4,000	TRUE
J-3535	66.7	55.1	4,000	TRUE
J-3536	63.8	53.6	3,905	TRUE
J-3537	55.5	43.5	4,000	TRUE
J-3538	65	53.3	3,927	TRUE
J-3539	64.8	52.9	2,545	TRUE
J-3540	65.7	54.1	1,214	FALSE
J-3541	66.2	54.6	1,353	FALSE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-3542	86.5	75.6	3,611	FALSE
J-3544	58.9	48.4	3,712	TRUE
J-3545	66.6	54.8	4,000	TRUE
J-3547	87.2	76.2	3,328	FALSE
J-3548	61.6	51.2	4,000	TRUE
J-3549	63.7	53.5	4,000	TRUE
J-3550	52.5	40.5	4,000	TRUE
J-3551	60.9	48.9	1,670	TRUE
J-3553	89	78.1	3,487	FALSE
J-3554	54.1	42.3	3,932	TRUE
J-3558	64	52	4,000	TRUE
J-3559	66.7	54.9	4,000	TRUE
J-3560	71.8	61.6	4,500	TRUE
J-3561	93	85.8	5,000	TRUE
J-3563	82.8	71.9	3,057	FALSE
J-3565	64.6	52.6	3,511	TRUE
J-3566	61.3	49.3	3,584	TRUE
J-3567	52.3	40.3	3,737	TRUE
J-3568	64.9	53.4	3,393	TRUE
J-3569	66.3	56.1	2,251	TRUE
J-3570	86.1	75.2	3,532	FALSE
J-3572	63.4	51.4	4,000	TRUE
J-3573	103	94.7	2,319	TRUE
J-3574	57.9	47.1	3,803	TRUE
J-3575	58.3	47.5	3,862	TRUE
J-3576	66.8	54.9	2,419	TRUE
J-3578	99.7	91.5	2,768	TRUE
J-3579	64.3	54	3,856	TRUE
J-3580	58.8	47.8	4,625	TRUE
J-3582	64.4	52.5	4,000	TRUE
J-3583	61	49	3,364	TRUE
J-3585	59.5	49.1	3,759	TRUE
J-3586	67.5	57.4	4,000	TRUE
J-3587	64	52.1	4,000	TRUE
J-3588	61.7	50.6	1,266	FALSE
J-3589	95	87.8	5,000	TRUE
J-3591	60.1	49.4	4,688	TRUE
J-3592	83	75.8	4,000	TRUE
J-3595	85.2	74.4	3,629	FALSE
J-3596	85.7	74.9	3,628	FALSE
J-3597	86.4	75.4	3,504	FALSE
J-3598	63.2	52.9	4,000	TRUE
J-3599	86.7	75.8	3,625	FALSE
J-3600	102.7	94.4	2,180	TRUE
J-3601	61.8	49.9	4,000	TRUE
J-3602	57.5	46.9	2,592	TRUE
J-3603	57.2	46.6	2,342	TRUE
J-3604	66.9	55.1	4,000	TRUE
J-3606	61.3	49.4	4,000	TRUE
J-3607	66.7	54.9	2,352	TRUE
J-3608	62.3	52.1	4,000	TRUE
J-3609	52.3	40.3	3,502	TRUE
J-3610	63.2	52.9	4,000	TRUE
J-3612	103.9	95.7	2,698	TRUE
J-3613	107.8	99.5	2,815	TRUE
J-3615	65.8	54.1	2,344	FALSE
J-3617	66.2	56.1	3,088	TRUE
J-3618	67.9	57.7	4,000	TRUE
J-3619	62.3	50.3	4,000	TRUE
J-3621	59.2	48.1	2,879	FALSE
J-3622	61	49	4,000	TRUE
J-3623	61.2	49.3	4,000	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-3625	66.4	54.7	2,305	TRUE
J-3626	58.8	48.3	3,678	TRUE
J-3627	66.5	54.9	1,602	TRUE
J-3628	70.7	58.8	4,000	TRUE
J-3629	70.5	58.6	4,000	TRUE
J-3630	65.4	53.9	3,529	TRUE
J-3631	36.8	27.9	1,357	FALSE
J-3633	60.5	49.9	4,530	TRUE
J-3634	51	38.9	2,667	TRUE
J-3635	51.7	39.7	2,985	TRUE
J-3636	70.5	58.6	4,000	TRUE
J-3637	62.1	51.8	4,000	TRUE
J-3638	65.8	54.1	2,273	TRUE
J-3641	68	56.2	4,000	TRUE
J-3642	67.8	56	4,000	TRUE
J-3643	54.9	42.9	4,000	TRUE
J-3645	61.8	49.9	4,000	TRUE
J-3646	61	50.5	4,000	TRUE
J-3647	61.8	51.5	4,000	TRUE
J-3648	60.1	49.6	3,605	TRUE
J-3649	62.8	52.5	4,000	TRUE
J-3650	61.5	50	679	TRUE
J-3651	64	52	3,342	TRUE
J-3652	62.3	51.5	4,000	TRUE
J-3653	68.4	56.5	4,000	TRUE
J-3654	99.7	91.8	4,000	TRUE
J-3655	107.4	99.1	2,728	TRUE
J-3656	49.5	37.5	3,208	TRUE
J-3657	60.1	48.1	4,000	TRUE
J-3658	48.9	36.8	3,136	TRUE
J-3659	62.8	52.5	4,000	TRUE
J-3662	65.6	53.7	3,857	TRUE
J-3663	69.2	57.4	4,000	TRUE
J-3664	68.9	58.7	4,000	TRUE
J-3665	62	50.6	1,028	TRUE
J-3667	107.5	99.2	2,728	TRUE
J-3668	61.3	49.3	4,000	TRUE
J-3669	64.9	54.7	4,000	TRUE
J-3670	53.2	41.2	4,000	TRUE
J-3672	53.4	41.4	4,000	TRUE
J-3673	62.3	51.9	3,860	TRUE
J-3674	64.6	53.1	3,790	TRUE
J-3675	61.4	49.4	4,000	TRUE
J-3676	59.5	47.5	4,000	TRUE
J-3677	67.1	55.3	4,000	TRUE
J-3678	62.3	52	3,986	TRUE
J-3679	88.3	77.4	3,476	FALSE
J-3681	68.6	58.5	4,000	TRUE
J-3682	75.6	65.2	4,500	TRUE
J-3683	82.6	71.9	4,008	TRUE
J-3685	63.8	53.5	4,000	TRUE
J-3686	107	98.7	2,569	TRUE
J-3687	64.3	52.4	1,666	TRUE
J-3688	92.4	81.5	3,144	FALSE
J-3689	63.7	53.5	3,925	TRUE
J-3690	51.9	39.9	4,000	TRUE
J-3692	67.1	55.2	4,000	TRUE
J-3694	63	52.7	2,950	TRUE
J-3695	69.7	57.8	2,115	TRUE
J-3697	57.6	45.9	4,000	TRUE
J-3698	66.7	56.7	3,453	TRUE
J-3699	66.3	56.2	2,781	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-3700	62.3	52	3,884	TRUE
J-3701	63.6	53.3	3,863	TRUE
J-3702	75.8	65.4	4,500	TRUE
J-3703	93.3	82.4	3,386	FALSE
J-3704	61.5	51.4	4,000	TRUE
J-3705	63	52.7	3,848	TRUE
J-3706	60.8	48.8	2,923	TRUE
J-3707	62.3	52	3,856	TRUE
J-3708	106.5	98.2	2,379	TRUE
J-3709	61.3	50.2	611	FALSE
J-3710	64.5	52.6	1,981	TRUE
J-3711	67.5	55.6	4,000	TRUE
J-3712	63.6	51.6	4,000	TRUE
J-3713	82.5	71.7	2,471	FALSE
J-3714	52.7	40.7	3,422	TRUE
J-3715	61.8	49.9	3,450	TRUE
J-3716	62.5	50.6	3,484	TRUE
J-3717	53	41	4,000	TRUE
J-3718	65.3	53.6	2,115	TRUE
J-3719	88.8	77.9	3,609	FALSE
J-3720	88.6	77.7	3,532	FALSE
J-3721	66.3	56.4	4,000	TRUE
J-3722	52.3	40.2	3,387	TRUE
J-3723	90.7	79.8	3,074	FALSE
J-3724	69.7	59.6	4,000	TRUE
J-3725	64.1	52.1	4,664	TRUE
J-3727	58.3	47.4	4,000	TRUE
J-3728	91.6	80.7	3,074	FALSE
J-3729	92.5	81.6	2,818	FALSE
J-3730	51.5	39.6	1,392	FALSE
J-3731	68.3	58.2	4,000	TRUE
J-3732	59.5	48.3	1,900	TRUE
J-3733	64.9	52.9	4,000	TRUE
J-3734	82.2	71.4	2,273	FALSE
J-3735	67	55.1	1,012	FALSE
J-3736	67.1	55.2	884	FALSE
J-3737	82.9	72.1	3,521	FALSE
J-3738	89	78.1	3,521	FALSE
J-3739	61.6	50	628	TRUE
J-3741	83.8	72.8	2,785	FALSE
J-3742	69.6	59.5	4,000	TRUE
J-3743	68.4	58.3	2,711	TRUE
J-3744	64.8	52.9	2,569	TRUE
J-3745	46	33.9	2,759	TRUE
J-3748	71.1	61	4,500	TRUE
J-3750	68.8	56.9	3,122	TRUE
J-3751	64.3	52.3	2,787	TRUE
J-3752	66.3	54.3	1,255	FALSE
J-3753	56.7	44.7	1,412	TRUE
J-3754	61.4	51.7	4,000	TRUE
J-3755	65.8	54.1	1,522	FALSE
J-3756	64.9	54.7	3,106	TRUE
J-3757	56.7	44.7	4,000	TRUE
J-3758	85.5	74.6	3,622	FALSE
J-3759	88.6	77.7	3,426	FALSE
J-3760	65	53.3	597	TRUE
J-3763	61.8	49.8	2,780	TRUE
J-3766	96.4	89.3	4,000	TRUE
J-3767	95.7	87.9	4,000	TRUE
J-3769	85.7	78.5	2,243	TRUE
J-3771	73.3	62.9	2,583	TRUE
J-3773	98.9	91.1	4,000	TRUE

City of Hollister
2018 Water Model Results
Existing Conditions

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-3776	70.7	60.5	4,000	TRUE
J-3780	107.7	100.6	4,000	TRUE
J-3785	108.1	101	4,000	TRUE
J-3789	97.6	89.8	4,000	TRUE
J-3790	90.8	83	3,964	TRUE
J-3791	97.4	89.5	4,000	TRUE
J-3794	107.1	100	4,000	TRUE
J-3795	53.7	41.7	4,000	TRUE
J-3798	106.9	99.8	4,000	TRUE
J-3799	86	78.9	4,000	TRUE
J-3800	64.3	54.1	4,000	TRUE
J-3804	91.6	80.6	3,500	FALSE
J-3805	45.4	33.3	3,046	TRUE
J-3806	103.1	95.9	4,000	TRUE
J-3807	57.1	45.2	4,000	TRUE
J-3808	31.1	22.2	1,150	FALSE
J-3809	61.6	51.8	4,000	TRUE
J-3810	104.1	96.9	4,000	TRUE
J-3811	105.1	97.9	4,000	TRUE
J-3812	106.4	99.3	4,000	TRUE
J-3815	66.6	54.8	1,476	FALSE
J-3818	60.8	49.2	938	FALSE
J-3819	59.5	48	4,000	TRUE
J-3821	59.2	47.2	1,562	FALSE
J-3822	58.4	46.7	4,000	TRUE
J-3823	88.8	81.7	4,000	TRUE
J-3824	87.1	80	4,000	TRUE
J-3825	67.5	56.1	3,298	TRUE
J-3832	61.1	51	1,981	TRUE
J-3834	61	50.9	4,000	TRUE
J-3836	61.5	51.1	4,000	TRUE
J-3837	56.8	44.8	4,000	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-1	76.5	65	4,500	TRUE
J-8	94.5	86.4	4,000	TRUE
J-9	94.1	86.1	4,000	TRUE
J-12	104.8	96.4	4,000	TRUE
J-15	105.6	97.3	4,000	TRUE
J-18	92.2	80.6	4,500	TRUE
J-19	99.1	91	4,000	TRUE
J-24	63.4	51.4	4,000	TRUE
J-25	60.9	47.2	4,000	TRUE
J-31	87.4	75.8	4,500	TRUE
J-33	91.8	80.2	4,500	TRUE
J-39	101.2	93.1	4,000	TRUE
J-47	60.5	46.8	4,000	TRUE
J-49	56.2	43	4,000	TRUE
J-51	89.2	77.6	4,500	TRUE
J-56	59.5	45.8	4,000	TRUE
J-61	67.1	53.9	4,000	TRUE
J-64	104.4	96	4,000	TRUE
J-73	61.3	50.3	4,000	TRUE
J-79	66.5	55.1	4,000	TRUE
J-84	61.2	48.7	4,000	TRUE
J-86	62.2	49.8	4,000	TRUE
J-92	61.6	49.3	4,000	TRUE
J-94	62.2	49.8	4,000	TRUE
J-101	61.2	48.8	4,000	TRUE
J-104	62.5	51.2	4,000	TRUE
J-106	55.8	42.4	4,000	TRUE
J-109	56.2	42.9	4,000	TRUE
J-111	103.4	95.1	4,000	TRUE
J-117	62.5	51.2	4,000	TRUE
J-118	69.5	58.2	4,000	TRUE
J-121	56.2	42.9	4,000	TRUE
J-123	98.9	90.8	4,000	TRUE
J-125	65.8	51.2	4,000	TRUE
J-127	89.5	77.8	4,500	TRUE
J-137	57.1	43.8	3,598	TRUE
J-140	56.3	42.9	4,000	TRUE
J-142	62.2	50.1	4,000	TRUE
J-145	64.4	51.3	4,000	TRUE
J-146	64.8	51.2	2,378	TRUE
J-150	97.5	89.5	4,000	TRUE
J-152	61.3	48.8	4,000	TRUE
J-157	60.8	47	4,000	TRUE
J-158	88.2	76.5	4,500	TRUE
J-162	90.1	78.5	4,500	TRUE
J-164	62.5	51.2	4,000	TRUE
J-166	64.4	50.7	4,000	TRUE
J-170	62.2	49.8	4,000	TRUE
J-171	102.1	94	4,000	TRUE
J-175	63.2	52	4,000	TRUE
J-179	62.5	51.2	4,000	TRUE
J-181	53.6	40.2	4,000	TRUE
J-182	64.3	52.7	4,000	TRUE
J-185	62.2	49.8	4,000	TRUE
J-188	61.7	50.7	4,000	TRUE
J-193	58.5	45.3	3,735	TRUE
J-195	62.5	51.2	4,000	TRUE
J-198	95.8	87.7	4,000	TRUE
J-201	61.1	50.6	5,000	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-202	54.2	40.9	4,000	TRUE
J-215	66.7	53.3	3,954	TRUE
J-219	104	95.9	4,000	TRUE
J-220	53.6	40.2	4,000	TRUE
J-221	66.5	49.8	3,574	TRUE
J-225	61.3	48.8	4,000	TRUE
J-227	62.5	51.3	4,000	TRUE
J-228	65.3	51.9	4,000	TRUE
J-230	60.7	49.3	4,000	TRUE
J-233	64.3	51.7	4,000	TRUE
J-235	62.6	51.3	4,000	TRUE
J-237	103.6	95.5	4,000	TRUE
J-238	60	47.9	4,000	TRUE
J-241	62.9	51.8	4,000	TRUE
J-242	61.2	48.8	4,000	TRUE
J-243	61.2	48.7	4,000	TRUE
J-245	61.6	50.3	4,000	TRUE
J-246	59.9	47.1	2,998	TRUE
J-247	59.9	47.1	4,000	TRUE
J-249	58.8	46.8	2,721	TRUE
J-250	66.6	53.3	1,116	TRUE
J-252	59.4	45.7	4,000	TRUE
J-255	60.8	48.2	4,000	TRUE
J-256	60.8	48.2	4,000	TRUE
J-258	59.9	47.1	4,000	TRUE
J-259	59.9	47.1	4,000	TRUE
J-260	59.9	47.1	4,000	TRUE
J-261	59.9	47.1	4,000	TRUE
J-262	101	92.9	4,000	TRUE
J-264	67.1	53.7	1,637	TRUE
J-265	66.9	53.6	1,727	TRUE
J-267	63.7	52.1	4,000	TRUE
J-269	89.2	77.6	4,500	TRUE
J-271	102.4	94.3	4,000	TRUE
J-278	66	52.6	4,000	TRUE
J-279	65.9	52.5	4,000	TRUE
J-282	54.3	41	4,000	TRUE
J-284	84.9	73.2	4,500	TRUE
J-287	97.8	89.7	4,000	TRUE
J-288	62.4	49.7	4,000	TRUE
J-291	66.5	49.8	3,490	TRUE
J-298	65.7	50.5	4,000	TRUE
J-300	105.6	97.3	3,853	TRUE
J-302	66.2	52.8	4,000	TRUE
J-303	98.6	90.5	4,000	TRUE
J-305	65.2	51.2	4,000	TRUE
J-308	62.5	50.5	4,000	TRUE
J-310	62.4	50.4	2,470	TRUE
J-314	58.8	46.4	4,000	TRUE
J-315	65.4	50.8	4,000	TRUE
J-316	65.4	50.8	4,000	TRUE
J-317	59.4	47.4	4,000	TRUE
J-320	65.5	52.5	4,000	TRUE
J-322	98.5	90.4	4,000	TRUE
J-323	98.6	90.5	4,000	TRUE
J-326	63.9	52.3	4,000	TRUE
J-330	62.8	51.3	5,000	TRUE
J-333	57.2	43.9	4,000	TRUE
J-334	62.2	49.9	3,289	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-335	62.2	49.9	3,250	TRUE
J-341	61.3	47.5	3,140	TRUE
J-343	65	50.4	4,000	TRUE
J-345	61.4	47.7	4,000	TRUE
J-347	61	50.8	4,000	TRUE
J-350	54.3	40.9	4,000	TRUE
J-351	54.3	40.9	4,000	TRUE
J-352	66.5	49.8	4,000	TRUE
J-354	84.4	72.8	4,500	TRUE
J-356	58.4	46.3	4,000	TRUE
J-359	65.2	51.3	4,000	TRUE
J-361	66.3	51.1	4,000	TRUE
J-363	63.1	49.4	4,000	TRUE
J-372	56.7	43.5	4,000	TRUE
J-375	64.7	53.2	4,000	TRUE
J-377	64.3	52.8	4,000	TRUE
J-379	63.2	51.6	4,000	TRUE
J-381	68.1	56.7	4,000	TRUE
J-383	64.9	53.4	5,000	TRUE
J-385	83.7	72.1	4,500	TRUE
J-387	84	72.5	4,500	TRUE
J-389	64.1	52.5	4,000	TRUE
J-391	83.4	71.9	4,500	TRUE
J-393	83.7	72.1	4,500	TRUE
J-395	83.5	71.9	4,500	TRUE
J-397	91.9	80.3	4,500	TRUE
J-399	66.3	54.9	3,907	TRUE
J-401	86.4	74.8	4,500	TRUE
J-403	64.1	51.1	4,000	TRUE
J-405	65.9	54.4	4,000	TRUE
J-407	64.7	53.7	4,000	TRUE
J-409	65	51.9	4,000	TRUE
J-411	82.7	71.2	4,500	TRUE
J-413	64.3	52.7	4,000	TRUE
J-415	69.1	57.7	4,000	TRUE
J-417	64.3	52.7	4,000	TRUE
J-419	66.8	55.6	4,000	TRUE
J-421	68.7	57.4	4,000	TRUE
J-424	84.8	73.1	4,500	TRUE
J-430	64.7	52.6	4,000	TRUE
J-431	69.4	58	4,000	TRUE
J-434	62.4	50.9	4,000	TRUE
J-462	67	55.8	4,000	TRUE
J-463	103.9	95.5	3,227	TRUE
J-466	44.7	43.4	3,374	TRUE
J-469	62.4	49.7	4,000	TRUE
J-471	102.8	94.8	4,000	TRUE
J-474	98.8	90.7	4,000	TRUE
J-475	98.8	90.7	4,000	TRUE
J-477	68.7	52.3	4,000	TRUE
J-478	56.2	42.9	4,000	TRUE
J-479	56.2	42.9	4,000	TRUE
J-483	54.4	41.3	4,000	TRUE
J-486	63.2	49.2	4,000	TRUE
J-489	65	51.4	4,000	TRUE
J-490	56.2	42.9	4,000	TRUE
J-492	65.3	54	4,000	TRUE
J-493	65.3	54	4,000	TRUE
J-494	58.5	45.3	3,437	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-496	59.3	45.8	3,172	TRUE
J-498	62.2	49.8	4,000	TRUE
J-502	66.8	55.4	4,000	TRUE
J-506	63.2	51.6	4,000	TRUE
J-509	58.2	45	4,000	TRUE
J-511	59.6	47.6	4,000	TRUE
J-515	65.9	52.6	4,000	TRUE
J-519	66.1	51	4,000	TRUE
J-521	59.9	47.1	4,000	TRUE
J-523	62.5	51.3	4,000	TRUE
J-524	61.7	50.7	4,000	TRUE
J-527	104.3	96	3,855	TRUE
J-529	62.2	49.8	2,832	TRUE
J-530	94.9	86.9	4,000	TRUE
J-532	60.5	48.6	4,000	TRUE
J-534	67.1	53.9	4,000	TRUE
J-536	62.5	51.3	4,000	TRUE
J-539	62.2	49.9	4,000	TRUE
J-541	65.3	51.8	4,000	TRUE
J-542	65.3	51.8	4,000	TRUE
J-544	60	46.2	4,000	TRUE
J-546	59.9	47.9	3,998	TRUE
J-548	98.8	90.7	4,000	TRUE
J-549	59.2	45.5	4,000	TRUE
J-553	57.3	43.8	4,000	TRUE
J-560	64.3	52.7	4,000	TRUE
J-562	64.8	51.1	4,000	TRUE
J-563	64.8	51.1	4,000	TRUE
J-564	66.3	50.3	4,000	TRUE
J-566	64.5	51.2	4,000	TRUE
J-569	55.8	42.4	4,000	TRUE
J-570	55.8	42.4	4,000	TRUE
J-572	60.9	47.2	4,000	TRUE
J-573	99.5	91.4	4,000	TRUE
J-577	64.6	53.9	4,000	TRUE
J-579	61.6	50.3	4,000	TRUE
J-580	61.5	50.3	4,000	TRUE
J-582	94	86	4,000	TRUE
J-583	69.3	57.9	4,000	TRUE
J-588	65.2	51.6	4,000	TRUE
J-589	65.3	51.8	4,000	TRUE
J-592	63.7	52.1	4,000	TRUE
J-594	64.3	51.7	4,000	TRUE
J-600	65.8	51	4,000	TRUE
J-603	64.3	50.4	4,000	TRUE
J-604	58.7	45.1	3,246	TRUE
J-606	98.7	90.6	4,000	TRUE
J-609	103.1	95.1	4,000	TRUE
J-610	103.1	95.1	4,000	TRUE
J-612	93.2	85.2	5,000	TRUE
J-615	62.4	49.8	4,000	TRUE
J-621	55.5	42.1	4,000	TRUE
J-624	64.4	52.8	4,000	TRUE
J-627	98	89.9	4,000	TRUE
J-630	62.6	48.8	4,000	TRUE
J-633	61.2	49.4	4,000	TRUE
J-639	91.1	79.5	4,500	TRUE
J-641	60.5	48.5	4,000	TRUE
J-645	98.8	90.7	4,000	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-648	61.2	49.4	4,000	TRUE
J-650	76.4	64.9	4,500	TRUE
J-651	59.5	45.8	4,000	TRUE
J-652	63.9	50.2	4,000	TRUE
J-655	63.2	51.7	5,000	TRUE
J-656	63.3	51.7	4,000	TRUE
J-658	61.8	47.9	4,000	TRUE
J-660	65.8	52.8	3,809	TRUE
J-661	65.8	52.8	3,792	TRUE
J-662	66.1	51.1	4,000	TRUE
J-664	63.1	49.4	4,000	TRUE
J-667	55.8	42.4	4,000	TRUE
J-668	64.7	53.2	4,000	TRUE
J-670	61.5	49.9	4,000	TRUE
J-674	85.7	74.1	4,500	TRUE
J-678	76.3	64.8	4,500	TRUE
J-680	61.2	49.8	4,000	TRUE
J-681	64.7	51	4,000	TRUE
J-683	61.5	49.8	4,000	TRUE
J-689	65.8	52.5	4,000	TRUE
J-701	62.2	49.9	3,272	TRUE
J-706	61.7	47.9	4,000	TRUE
J-708	63.9	50.1	4,000	TRUE
J-710	66.6	49.8	3,609	TRUE
J-713	98.4	90.4	4,000	TRUE
J-716	107.4	99	3,664	TRUE
J-717	65.4	52.5	4,000	TRUE
J-720	59.2	47.2	4,000	TRUE
J-727	64.8	51.2	2,567	TRUE
J-732	65.2	51.6	4,000	TRUE
J-737	62.5	50.9	5,000	TRUE
J-739	62.7	51.2	5,000	TRUE
J-743	61	49.1	4,000	TRUE
J-745	53.5	40.1	4,000	TRUE
J-747	68.9	57.5	4,000	TRUE
J-749	97.8	89.7	4,000	TRUE
J-751	65	52	4,000	TRUE
J-752	61.2	49.8	4,000	TRUE
J-756	58.4	45.8	5,000	TRUE
J-757	67.1	54	4,000	TRUE
J-761	72.8	56	2,208	TRUE
J-763	72.8	56	2,548	TRUE
J-766	63.7	52.1	3,320	TRUE
J-769	64.7	51	4,000	TRUE
J-770	65.7	49.1	4,000	TRUE
J-772	61.7	47.8	4,000	TRUE
J-775	57.8	45.1	4,640	TRUE
J-777	100.2	92.1	4,000	TRUE
J-779	61	48.2	3,011	TRUE
J-781	67.4	51.6	4,000	TRUE
J-787	63.9	50.1	4,000	TRUE
J-792	66.2	52.8	4,000	TRUE
J-802	57.2	44.1	4,000	TRUE
J-803	57.1	44.1	4,000	TRUE
J-806	63.6	51	4,000	TRUE
J-807	60.7	49.3	4,000	TRUE
J-808	62.2	50.1	4,000	TRUE
J-809	60.6	49.4	4,000	TRUE
J-810	60.6	49.4	4,000	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-811	47.2	45.9	3,061	TRUE
J-813	61.1	49.4	4,000	TRUE
J-815	53.9	40.6	3,839	TRUE
J-816	66.9	53.6	1,753	TRUE
J-817	66.8	53.5	1,774	TRUE
J-824	60.9	47.1	4,000	TRUE
J-832	62.2	48.3	3,488	TRUE
J-835	89.7	78.1	4,500	TRUE
J-836	60.1	48.1	4,000	TRUE
J-839	67.7	51.9	4,000	TRUE
J-841	63.7	50.2	2,616	TRUE
J-845	63.3	50.8	4,000	TRUE
J-846	63.3	50.8	4,000	TRUE
J-850	65.1	51.4	4,000	TRUE
J-852	103.5	95.5	4,000	TRUE
J-856	72	56.1	3,799	TRUE
J-859	59.1	47.1	3,918	TRUE
J-861	62.2	48.5	4,000	TRUE
J-862	65.8	52.4	4,000	TRUE
J-863	66.2	52.8	4,000	TRUE
J-864	66.2	52.7	4,000	TRUE
J-868	65.8	52.8	3,497	TRUE
J-869	64.9	52	4,000	TRUE
J-870	64.9	51.9	4,000	TRUE
J-871	65.4	52.5	4,000	TRUE
J-872	65	52	4,000	TRUE
J-874	107.4	99	3,355	TRUE
J-875	66.2	53.7	2,384	TRUE
J-876	66.2	53.7	2,008	TRUE
J-881	66.5	49.8	4,000	TRUE
J-882	93.7	85.7	4,000	TRUE
J-885	61.6	50.6	4,000	TRUE
J-887	66.8	55.3	4,000	TRUE
J-891	62	48.2	4,000	TRUE
J-894	68	52.1	4,000	TRUE
J-897	64.7	51.3	4,000	TRUE
J-904	66.9	51.3	4,000	TRUE
J-906	58.9	45.9	3,501	TRUE
J-908	56.2	42.8	3,600	TRUE
J-909	56.4	43.1	4,000	TRUE
J-911	64.2	51.7	4,000	TRUE
J-924	106.1	97.7	3,840	TRUE
J-930	66.2	52.8	4,000	TRUE
J-932	61.6	50.6	4,000	TRUE
J-935	55.8	42.4	4,000	TRUE
J-938	46.3	45	2,800	TRUE
J-940	63.7	52.1	4,000	TRUE
J-946	62.7	51.2	4,000	TRUE
J-951	94.9	86.9	4,000	TRUE
J-955	66	50.6	4,000	TRUE
J-958	61.1	50.7	4,000	TRUE
J-961	64.6	53.9	4,000	TRUE
J-965	60.5	46.7	4,000	TRUE
J-967	65.7	52.2	4,000	TRUE
J-968	58.5	45.3	4,000	TRUE
J-970	62.9	50.7	4,000	TRUE
J-976	62.4	48.5	4,000	TRUE
J-980	65.6	52.1	4,000	TRUE
J-984	65.4	51.1	4,000	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-990	60	46.2	4,000	TRUE
J-994	85.2	73.6	4,500	TRUE
J-996	58.4	45.1	1,710	TRUE
J-999	57.1	43.8	3,119	TRUE
J-1000	57.1	43.8	3,531	TRUE
J-1003	62.2	48.5	4,000	TRUE
J-1008	60.1	46.7	3,169	TRUE
J-1012	63.2	52.1	4,000	TRUE
J-1017	98.7	90.7	4,000	TRUE
J-1018	58.8	46.8	4,000	TRUE
J-1022	57.1	44	4,000	TRUE
J-1025	63.2	49.3	4,000	TRUE
J-1030	84.5	72.9	4,500	TRUE
J-1034	65.4	53.9	4,000	TRUE
J-1036	63.4	52.1	4,000	TRUE
J-1038	59.2	45.6	1,670	TRUE
J-1039	61.2	48.8	4,000	TRUE
J-1040	59.3	46.9	4,000	TRUE
J-1041	59.3	46.9	2,472	TRUE
J-1043	67.4	51.5	4,000	TRUE
J-1048	72.6	55.7	1,940	TRUE
J-1051	99	91	4,000	TRUE
J-1057	63.9	50.1	4,000	TRUE
J-1059	72.2	55.3	2,034	TRUE
J-1066	59.4	47.4	3,705	TRUE
J-1073	54.3	40.9	4,000	TRUE
J-1074	98	90	4,000	TRUE
J-1076	65.4	51.9	4,000	TRUE
J-1078	67.2	54.1	2,391	TRUE
J-1080	91.5	83.5	4,000	TRUE
J-1082	63.8	49.7	4,000	TRUE
J-1084	60	47.4	4,000	TRUE
J-1089	96.5	88.4	4,000	TRUE
J-1091	47.2	45.9	2,907	TRUE
J-1097	57.6	44.4	1,107	TRUE
J-1099	64	50.1	4,000	TRUE
J-1113	56.2	42.9	3,951	TRUE
J-1116	62.7	51.5	3,531	TRUE
J-1119	65.5	51.9	2,589	TRUE
J-1122	60	48	4,000	TRUE
J-1125	97.5	89.5	4,000	TRUE
J-1131	106.3	97.9	3,597	TRUE
J-1167	63.5	49.7	4,000	TRUE
J-1174	58.8	46.8	4,000	TRUE
J-1179	100.5	92.4	4,000	TRUE
J-1182	58.5	45.3	4,000	TRUE
J-1183	64.3	50.3	4,000	TRUE
J-1185	64.3	50.3	4,000	TRUE
J-1187	62.2	50.6	4,000	TRUE
J-1189	65.5	52	4,000	TRUE
J-1193	64.5	51	1,909	TRUE
J-1195	71.9	60.5	4,500	TRUE
J-1198	61.4	51.1	5,000	TRUE
J-1200	100.8	92.7	4,000	TRUE
J-1205	101.4	93	2,469	TRUE
J-1206	54.2	41.1	4,000	TRUE
J-1214	64.9	51.6	4,000	TRUE
J-1216	64.1	52.5	4,000	TRUE
J-1217	57.2	43.9	4,000	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-1225	53.5	40.2	4,000	TRUE
J-1228	87	75.4	4,500	TRUE
J-1230	61.9	50.1	4,000	TRUE
J-1232	103	94.6	4,000	TRUE
J-1234	107.3	98.9	3,731	TRUE
J-1235	63.8	50.1	4,000	TRUE
J-1236	63.8	50.2	4,000	TRUE
J-1241	59.9	46.1	4,000	TRUE
J-1243	59.3	46.2	4,000	TRUE
J-1244	59.3	46.2	4,000	TRUE
J-1245	64.8	51	4,000	TRUE
J-1246	58.5	45.3	4,000	TRUE
J-1248	68.7	52.3	4,000	TRUE
J-1250	62.2	49.9	3,405	TRUE
J-1251	62.6	51	4,000	TRUE
J-1254	81.6	70.1	4,328	TRUE
J-1256	63.7	49.8	4,000	TRUE
J-1260	61.3	49.5	4,000	TRUE
J-1261	61.3	49.5	4,000	TRUE
J-1263	65.8	49.5	4,000	TRUE
J-1265	65.9	49.7	4,000	TRUE
J-1268	107.5	99.1	3,482	TRUE
J-1271	64.4	50.8	4,000	TRUE
J-1272	98.8	90.7	4,000	TRUE
J-1277	99.7	91.8	4,000	TRUE
J-1279	65.8	49.3	4,000	TRUE
J-1286	87	75.4	4,500	TRUE
J-1289	87.5	75.9	4,500	TRUE
J-1291	58.5	46.1	4,000	TRUE
J-1293	60.5	46.6	4,000	TRUE
J-1300	65.2	53.8	4,000	TRUE
J-1306	62.3	50.7	4,000	TRUE
J-1308	56.2	43	3,176	TRUE
J-1314	53.7	40.3	3,491	TRUE
J-1315	95.3	87.3	4,000	TRUE
J-1321	100.2	92.3	4,000	TRUE
J-1324	101.3	93.4	4,000	TRUE
J-1326	106.9	98.5	3,487	TRUE
J-1329	65.3	51.8	2,329	TRUE
J-1332	66.1	50.7	4,000	TRUE
J-1334	62.6	48.9	3,010	TRUE
J-1337	55.8	42.7	3,744	TRUE
J-1340	60.7	49.3	4,000	TRUE
J-1341	60.7	49.3	4,000	TRUE
J-1342	69.8	58.5	4,000	TRUE
J-1344	62.1	49.9	4,000	TRUE
J-1346	65.5	52.5	4,000	TRUE
J-1348	63.7	52.3	4,000	TRUE
J-1352	64.4	51.8	4,000	TRUE
J-1353	64.4	51.8	4,000	TRUE
J-1355	63	51.4	4,000	TRUE
J-1359	66.7	51	4,000	TRUE
J-1362	55.1	41.8	4,000	TRUE
J-1367	54.3	41	4,000	TRUE
J-1369	66.8	55.5	4,000	TRUE
J-1374	66.1	51	4,000	TRUE
J-1376	64.8	51.1	4,000	TRUE
J-1379	57.6	44.3	3,460	TRUE
J-1380	61.2	49.8	4,000	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-1383	55.5	42.2	2,053	TRUE
J-1385	61	47.3	4,000	TRUE
J-1386	58.9	45.2	4,000	TRUE
J-1391	66.3	52.9	4,000	TRUE
J-1397	64.5	51.4	4,000	TRUE
J-1399	65.3	51.6	4,000	TRUE
J-1401	60.9	47.2	4,000	TRUE
J-1403	66.2	52.7	2,808	TRUE
J-1405	62.5	50.3	4,000	TRUE
J-1406	97.5	89.5	4,000	TRUE
J-1415	93.3	85.3	4,000	TRUE
J-1420	103	94.6	2,668	TRUE
J-1421	61.7	49.4	5,000	TRUE
J-1422	61.7	49.3	4,000	TRUE
J-1423	58.8	45.7	3,550	TRUE
J-1435	61.7	50.6	4,000	TRUE
J-1436	97.3	89.2	4,000	TRUE
J-1441	55.7	42.5	4,000	TRUE
J-1444	60	46.2	4,000	TRUE
J-1450	54.3	41	4,000	TRUE
J-1452	67	55.8	4,000	TRUE
J-1454	65.9	51.6	4,000	TRUE
J-1457	95.8	87.7	4,000	TRUE
J-1459	95.3	87.3	3,654	TRUE
J-1463	58.6	45.5	4,000	TRUE
J-1466	57.2	43.9	4,000	TRUE
J-1477	62.6	48.7	4,000	TRUE
J-1481	83.8	72.3	4,500	TRUE
J-1489	66.5	49.8	3,499	TRUE
J-1495	59.7	48.7	5,000	TRUE
J-1500	63.8	52.5	4,000	TRUE
J-1508	65.2	50.1	4,000	TRUE
J-1510	57	44.9	3,787	TRUE
J-1513	59.4	45.9	3,187	TRUE
J-1516	103.9	95.6	4,000	TRUE
J-1528	61.5	49.9	4,000	TRUE
J-1532	60.2	47.1	4,000	TRUE
J-1538	46.6	45.3	3,279	TRUE
J-1545	59.2	45.6	4,000	TRUE
J-1547	65.1	51.4	4,000	TRUE
J-1549	65.1	51.4	4,000	TRUE
J-1553	64.4	50.6	4,000	TRUE
J-1554	62.5	48.8	2,848	TRUE
J-1559	99.6	91.5	4,000	TRUE
J-1572	90.1	78.4	4,500	TRUE
J-1573	63	52.2	4,000	TRUE
J-1576	95.2	87.2	4,000	TRUE
J-1588	100.3	92.2	4,000	TRUE
J-1593	100.1	92	4,000	TRUE
J-1596	97.6	89.6	4,000	TRUE
J-1597	97.5	89.4	4,000	TRUE
J-1602	56.1	43	4,064	TRUE
J-1603	100.4	92.3	4,000	TRUE
J-1607	99.1	91	4,000	TRUE
J-1617	62.2	49.9	3,560	TRUE
J-1622	61.7	50	4,000	TRUE
J-1630	97.1	89	4,000	TRUE
J-1632	61.9	50	4,000	TRUE
J-1635	57.4	43.9	2,559	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-1636	98.5	90.5	4,000	TRUE
J-1637	46.3	44.9	2,785	TRUE
J-1639	54.8	41.4	2,581	TRUE
J-1640	55.5	42.2	4,000	TRUE
J-1643	60.7	47.5	3,032	TRUE
J-1645	59.5	45.8	3,244	TRUE
J-1648	58.8	45.2	2,019	TRUE
J-1652	102.1	94.1	4,000	TRUE
J-1661	47.2	45.9	2,985	TRUE
J-1662	65.3	51.8	4,000	TRUE
J-1666	60.9	47.1	4,000	TRUE
J-1672	102.9	94.9	4,000	TRUE
J-1676	62.8	51.3	4,000	TRUE
J-1679	98.6	90.5	4,000	TRUE
J-1682	61.8	50.2	4,000	TRUE
J-1684	60.9	47.2	3,859	TRUE
J-1687	64.5	50.7	4,000	TRUE
J-1692	95.3	87.3	4,000	TRUE
J-1703	56.3	43	4,000	TRUE
J-1709	98.8	90.7	4,000	TRUE
J-1713	64.8	54	4,000	TRUE
J-1714	64.8	54	4,000	TRUE
J-1716	65.7	54.6	4,000	TRUE
J-1722	60.8	48.7	4,000	TRUE
J-1725	59.5	45.9	4,000	TRUE
J-1726	59.4	45.8	4,000	TRUE
J-1727	61.7	49.9	4,000	TRUE
J-1735	103.6	95.5	4,000	TRUE
J-1747	103.2	95.2	4,000	TRUE
J-1753	63.1	51.6	4,000	TRUE
J-1770	57.5	44.3	4,000	TRUE
J-1771	65.5	52.5	3,744	TRUE
J-1774	100.1	92	5,000	TRUE
J-1776	93.6	85.6	4,000	TRUE
J-1777	61.5	48.5	3,905	TRUE
J-1780	60.9	47.1	4,000	TRUE
J-1783	103.1	95.1	4,000	TRUE
J-1787	66	49.5	4,000	TRUE
J-1789	58.6	44.9	2,905	TRUE
J-1795	58.6	45.5	3,551	TRUE
J-1797	62.2	49.6	4,000	TRUE
J-1801	107.1	98.7	3,634	TRUE
J-1805	103.5	95.4	4,000	TRUE
J-1810	90.3	82.4	4,000	TRUE
J-1819	55.3	44.3	4,000	TRUE
J-1824	104.6	96.2	3,987	TRUE
J-1827	58.9	46.6	4,000	TRUE
J-1835	62	48.9	2,958	TRUE
J-1843	96.3	88.2	4,000	TRUE
J-1847	66.8	50.1	3,835	TRUE
J-1853	58.9	45.9	4,000	TRUE
J-1855	66.2	51.9	4,000	TRUE
J-1860	64.8	51.1	4,000	TRUE
J-1862	58	44.5	2,714	TRUE
J-1865	64.8	51.1	4,000	TRUE
J-1868	104.7	96.3	3,852	TRUE
J-1871	98.4	90.3	4,000	TRUE
J-1876	84.2	72.6	4,500	TRUE
J-1877	84.3	72.7	4,500	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-1879	90.9	79.3	4,500	TRUE
J-1881	98.8	90.8	4,000	TRUE
J-1893	69.6	58.3	4,000	TRUE
J-1910	98.4	90.3	4,000	TRUE
J-1913	62.1	49.5	3,852	TRUE
J-1917	107.8	99.4	3,764	TRUE
J-1925	94.5	86.4	4,000	TRUE
J-1929	71	59.7	4,500	TRUE
J-1934	62.2	48.5	4,000	TRUE
J-1936	67.1	53.9	3,549	TRUE
J-1938	103.6	95.5	4,000	TRUE
J-1939	104	96	4,000	TRUE
J-1946	58.9	45.9	4,000	TRUE
J-1968	105.4	97	3,957	TRUE
J-1972	102.2	94.1	4,000	TRUE
J-1981	60.1	46.3	3,180	TRUE
J-1983	61.2	49.9	4,000	TRUE
J-1988	60.9	47.2	4,000	TRUE
J-1990	61.6	50.1	4,000	TRUE
J-1992	93.5	85.5	4,000	TRUE
J-2007	61.7	48	4,000	TRUE
J-2010	61.7	49.3	4,000	TRUE
J-2012	103.1	95	4,000	TRUE
J-2014	74.1	62.6	4,500	TRUE
J-2020	63.7	52.1	4,000	TRUE
J-2021	63.7	52.1	4,000	TRUE
J-2028	92.6	84.7	4,000	TRUE
J-2029	64.3	50.3	4,000	TRUE
J-2031	64.3	50.5	4,000	TRUE
J-2034	56.4	43.1	4,000	TRUE
J-2053	71.3	54.5	2,634	TRUE
J-2061	85.2	73.6	4,500	TRUE
J-2062	89.7	78.1	4,500	TRUE
J-2063	89.8	78.2	4,500	TRUE
J-2078	94.6	86.6	4,000	TRUE
J-2082	62	50.4	4,000	TRUE
J-2083	62	50.4	4,000	TRUE
J-2085	62.5	51.3	4,000	TRUE
J-2087	70.8	54	2,682	TRUE
J-2090	95.1	87	4,000	TRUE
J-2101	57.2	44.1	4,000	TRUE
J-2102	63.1	51.1	4,000	TRUE
J-2106	61.5	49.9	4,000	TRUE
J-2108	58.9	46.6	4,000	TRUE
J-2115	72.4	55.5	1,959	TRUE
J-2117	61.3	47.6	4,000	TRUE
J-2121	96.2	88.1	4,000	TRUE
J-2123	57.2	44.1	4,580	TRUE
J-2128	67.6	51.7	4,000	TRUE
J-2130	61.2	49.8	4,000	TRUE
J-2137	100.1	92.2	4,000	TRUE
J-2140	101	92.9	4,000	TRUE
J-2147	58.9	45.9	3,891	TRUE
J-2149	102.7	94.6	4,000	TRUE
J-2185	83.3	71.8	4,500	TRUE
J-2201	68.4	52.4	2,288	TRUE
J-2202	98.1	90	4,000	TRUE
J-2211	61.8	49.8	4,000	TRUE
J-2215	71.5	60.1	4,500	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-2231	100	92	4,000	TRUE
J-2234	62.3	50.4	1,883	TRUE
J-2246	99.2	91.2	4,000	TRUE
J-2247	99.5	91.4	4,000	TRUE
J-2250	88	76.4	4,500	TRUE
J-2253	66.8	55.4	4,000	TRUE
J-2262	58.8	46.3	4,000	TRUE
J-2266	64.3	53.2	2,754	TRUE
J-2271	62.7	51.2	4,000	TRUE
J-2273	59.4	46.3	1,960	TRUE
J-2280	57.7	44.5	3,970	TRUE
J-2284	98.1	90	4,000	TRUE
J-2299	69.8	58.5	4,000	TRUE
J-2301	81.2	69.6	4,500	TRUE
J-2309	87.4	75.8	4,500	TRUE
J-2313	89.2	77.6	4,500	TRUE
J-2328	67.1	53.8	3,911	TRUE
J-2330	56.3	43	3,196	TRUE
J-2333	64.7	50	2,295	TRUE
J-2335	62.1	49.5	4,000	TRUE
J-2349	62	50.4	4,000	TRUE
J-2353	71.7	60.2	4,500	TRUE
J-2354	56.2	43.1	4,213	TRUE
J-2357	63.7	52.1	4,000	TRUE
J-2359	60.3	47.5	2,993	TRUE
J-2360	60.2	47.5	3,447	TRUE
J-2367	98.8	90.7	4,000	TRUE
J-2371	58.5	45.9	5,000	TRUE
J-2375	53.3	40.1	3,980	TRUE
J-2383	69.6	58.3	4,000	TRUE
J-2384	58.4	44.9	2,834	TRUE
J-2390	73.7	62.3	4,500	TRUE
J-2397	60.9	47.1	2,693	TRUE
J-2401	56.3	43	4,000	TRUE
J-2405	97.9	89.9	4,000	TRUE
J-2410	58.6	46.2	4,000	TRUE
J-2418	64.5	52.9	4,000	TRUE
J-2419	79.4	67.9	4,500	TRUE
J-2421	59	46.5	4,000	TRUE
J-2425	71.6	54.7	2,134	TRUE
J-2427	64.2	50.2	4,000	TRUE
J-2435	66.8	51	4,000	TRUE
J-2438	63.5	49.7	4,000	TRUE
J-2441	58.9	45.9	3,607	TRUE
J-2447	105.6	97.3	4,000	TRUE
J-2451	64.9	51.5	2,058	TRUE
J-2455	99.1	91.1	4,000	TRUE
J-2456	63.9	50.1	4,000	TRUE
J-2465	68.1	51.8	4,000	TRUE
J-2467	67.7	51.6	4,000	TRUE
J-2470	66.6	55.2	3,624	TRUE
J-2484	73.9	62.4	4,500	TRUE
J-2485	74.3	62.9	4,500	TRUE
J-2486	62.4	50.9	4,000	TRUE
J-2488	57.8	45.1	4,506	TRUE
J-2491	69.1	53.1	1,766	TRUE
J-2496	64	52.5	4,000	TRUE
J-2502	64.8	51.7	3,483	TRUE
J-2504	69.3	58	4,000	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-2510	103.8	95.7	4,000	TRUE
J-2514	105.5	97.1	4,000	TRUE
J-2515	104	95.9	4,000	TRUE
J-2517	58.6	46.2	4,000	TRUE
J-2518	58.5	46.1	4,000	TRUE
J-2522	96	88	4,000	TRUE
J-2528	69.2	57.8	5,000	TRUE
J-2531	96.6	88.6	4,000	TRUE
J-2539	60	46.2	4,000	TRUE
J-2545	102.9	94.5	2,594	TRUE
J-2547	63.3	52.4	2,962	TRUE
J-2550	61.2	49.9	4,000	TRUE
J-2553	103.5	95.1	2,878	TRUE
J-2557	61.5	49.9	4,000	TRUE
J-2560	63.7	52.1	4,000	TRUE
J-2561	63.7	52.1	4,000	TRUE
J-2564	65.8	52.8	2,863	TRUE
J-2565	98.4	90.4	4,000	TRUE
J-2568	98.8	90.8	4,000	TRUE
J-2569	59.1	46.7	4,000	TRUE
J-2572	67.9	56.5	4,000	TRUE
J-2573	100	92	4,000	TRUE
J-2577	62.9	51.7	4,000	TRUE
J-2580	61.3	50	4,000	TRUE
J-2581	92.9	85	5,000	TRUE
J-2582	78.9	67.3	4,500	TRUE
J-2586	104.8	96.4	3,871	TRUE
J-2592	103.6	95.3	4,000	TRUE
J-2597	57.9	44.3	2,515	TRUE
J-2603	104.8	96.4	4,000	TRUE
J-2607	60.7	47	3,652	TRUE
J-2611	67.6	51.6	4,000	TRUE
J-2613	104.2	95.9	4,000	TRUE
J-2618	63.3	51.7	4,000	TRUE
J-2620	65.4	53.9	4,000	TRUE
J-2621	98.4	90.4	4,000	TRUE
J-2624	61.7	49.3	4,000	TRUE
J-2629	68.9	53	1,880	TRUE
J-2630	100.5	92.5	5,000	TRUE
J-2635	62	48.2	3,737	TRUE
J-2636	61.2	47.4	3,644	TRUE
J-2638	65.8	51.2	4,000	TRUE
J-2647	63.7	52.1	2,885	TRUE
J-2648	60.1	47.3	4,000	TRUE
J-2651	66.3	54.9	4,000	TRUE
J-2652	65	51.3	3,163	TRUE
J-2654	57.2	44	4,000	TRUE
J-2657	66.7	50	3,595	TRUE
J-2659	60.7	49.7	4,000	TRUE
J-2660	60.7	49.7	4,000	TRUE
J-2661	47.2	45.9	2,924	TRUE
J-2662	67.2	55.8	4,000	TRUE
J-2671	105.5	97.1	4,000	TRUE
J-2674	96.2	88.1	4,000	TRUE
J-2677	60.9	47.1	3,540	TRUE
J-2680	63.9	50.1	4,000	TRUE
J-2685	65.3	51.6	4,000	TRUE
J-2691	103.6	95.5	4,000	TRUE
J-2692	60.9	47.6	2,917	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-2698	98.4	90.4	4,000	TRUE
J-2701	65.9	50.3	2,038	TRUE
J-2706	87	75.3	4,500	TRUE
J-2711	92.7	84.8	4,000	TRUE
J-2713	96.2	88.1	4,000	TRUE
J-2715	63.5	49.2	4,000	TRUE
J-2716	66.5	49.8	3,841	TRUE
J-2717	71.8	60.4	4,500	TRUE
J-2721	94.3	86.4	5,000	TRUE
J-2723	99	90.9	4,000	TRUE
J-2725	62.9	49	4,000	TRUE
J-2726	62.4	50.9	4,000	TRUE
J-2729	65.4	54.1	4,000	TRUE
J-2737	57.2	43.9	4,000	TRUE
J-2740	55.9	42.8	4,000	TRUE
J-2741	65.9	51	4,000	TRUE
J-2742	55.4	42.1	4,000	TRUE
J-2747	63.7	52.1	4,000	TRUE
J-2748	59.9	47.1	4,000	TRUE
J-2752	66.5	49.8	3,057	TRUE
J-2754	94.7	86.7	4,000	TRUE
J-2755	94.6	86.6	4,000	TRUE
J-2757	96.8	88.7	4,000	TRUE
J-2758	87.4	75.8	4,500	TRUE
J-2763	100.1	92	4,000	TRUE
J-2764	64.6	53.1	4,000	TRUE
J-2765	61.2	47.4	4,000	TRUE
J-2768	105.2	96.8	3,844	TRUE
J-2774	62.3	48.4	4,000	TRUE
J-2775	64.8	51.1	4,000	TRUE
J-2780	55.1	42	4,000	TRUE
J-2782	63.7	52.1	4,000	TRUE
J-2784	97.8	89.7	4,000	TRUE
J-2786	64.4	50.8	4,000	TRUE
J-2787	64.4	50.8	4,000	TRUE
J-2788	98.3	90.2	4,000	TRUE
J-2789	98.4	90.3	4,000	TRUE
J-2792	68.8	57.4	3,621	TRUE
J-2798	61	48.6	1,616	TRUE
J-2799	61	48.6	4,000	TRUE
J-2800	64.3	50.3	4,000	TRUE
J-2806	105.8	97.4	3,813	TRUE
J-2807	66.6	49.9	3,520	TRUE
J-2809	89.7	78.1	4,500	TRUE
J-2812	94.1	86	4,000	TRUE
J-2813	94	86	4,000	TRUE
J-2815	70.7	59.3	4,500	TRUE
J-2818	65	51.9	4,000	TRUE
J-2820	60.6	46.8	4,000	TRUE
J-2821	96.3	88.2	4,000	TRUE
J-2824	61.5	50.5	4,000	TRUE
J-2825	68.1	56.7	4,000	TRUE
J-2827	92.3	84.3	4,000	TRUE
J-2828	92.5	84.5	4,000	TRUE
J-2832	98.5	90.5	4,000	TRUE
J-2838	62.8	48.9	4,000	TRUE
J-2843	61.9	50.1	3,273	TRUE
J-2845	63.3	51.8	4,000	TRUE
J-2846	63.3	51.8	4,000	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-2850	63.8	52.2	4,000	TRUE
J-2851	101.6	93.6	4,000	TRUE
J-2853	63.8	50.1	4,000	TRUE
J-2854	86.6	75	4,500	TRUE
J-2856	64.1	52.5	4,000	TRUE
J-2857	98.2	90.1	4,000	TRUE
J-2858	99.3	91.3	4,000	TRUE
J-2860	58.7	46.3	5,000	TRUE
J-2868	72	56.1	3,516	TRUE
J-2871	63.7	50	2,299	TRUE
J-2874	64.8	51.3	1,937	TRUE
J-2876	66.5	49.8	3,558	TRUE
J-2877	66.8	50	3,623	TRUE
J-2881	90.1	78.4	4,500	TRUE
J-2887	61	47.2	2,394	TRUE
J-2888	98.5	90.5	4,000	TRUE
J-2892	61.3	50.9	4,000	TRUE
J-2897	63.8	49.7	4,000	TRUE
J-2898	63.8	49.7	4,000	TRUE
J-2901	63.3	49.6	3,024	TRUE
J-2902	103.5	95.1	3,204	TRUE
J-2904	97.1	89	4,000	TRUE
J-2905	97.3	89.2	4,000	TRUE
J-2910	61.9	50	4,000	TRUE
J-2911	60.8	48.7	4,000	TRUE
J-2912	60.6	48.6	4,000	TRUE
J-2918	107.3	98.9	3,626	TRUE
J-2919	60.8	47	3,601	TRUE
J-2921	65.2	51.7	4,000	TRUE
J-2924	55.3	42	4,000	TRUE
J-2925	55.2	41.9	4,000	TRUE
J-2930	61.3	47.5	4,000	TRUE
J-2931	98.3	90.3	4,000	TRUE
J-2934	61.5	48.5	2,596	TRUE
J-2935	55	41.7	4,000	TRUE
J-2936	55	41.7	4,000	TRUE
J-2938	63.7	52.2	4,000	TRUE
J-2939	86	74.4	3,634	TRUE
J-2940	100.1	92	4,000	TRUE
J-2942	87	75.5	4,500	TRUE
J-2943	87.1	75.5	4,500	TRUE
J-2947	96.6	88.5	4,000	TRUE
J-2950	95.8	87.7	4,000	TRUE
J-2951	63.9	50.1	4,000	TRUE
J-2954	68.2	52.6	2,121	TRUE
J-2959	61.2	49.6	4,000	TRUE
J-2961	82.5	70.9	4,500	TRUE
J-2962	60.5	46.8	4,000	TRUE
J-2963	58.4	46.3	3,979	TRUE
J-2966	82.7	71.1	4,129	TRUE
J-2967	107.4	99	3,596	TRUE
J-2969	97.6	89.5	4,000	TRUE
J-2970	62.4	50.8	3,069	TRUE
J-2971	62.6	51.1	3,215	TRUE
J-2973	95.6	87.5	4,000	TRUE
J-2974	62.3	50.8	4,000	TRUE
J-2975	69.6	53.7	1,600	TRUE
J-2976	62.5	51	3,917	TRUE
J-2977	62.8	51.3	4,000	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-2979	107.4	99	3,591	TRUE
J-2980	53.3	40	3,914	TRUE
J-2982	107.5	99.1	3,653	TRUE
J-2986	104.8	96.4	3,916	TRUE
J-2991	103.1	94.7	4,000	TRUE
J-2992	65.1	53.7	4,000	TRUE
J-2994	95.3	87.3	4,000	TRUE
J-2996	92.5	84.5	4,000	TRUE
J-2998	65.6	50	4,000	TRUE
J-3001	98.9	90.8	4,000	TRUE
J-3008	80.3	68.7	4,500	TRUE
J-3012	93.7	85.7	4,000	TRUE
J-3013	95.8	87.7	4,000	TRUE
J-3014	95.8	87.7	4,000	TRUE
J-3017	99	90.9	4,000	TRUE
J-3018	63.6	52.1	4,000	TRUE
J-3020	71.9	56	4,000	TRUE
J-3023	60.3	47.6	4,000	TRUE
J-3025	64.7	52.5	4,000	TRUE
J-3026	58.2	45.7	4,743	TRUE
J-3027	107.4	99	3,656	TRUE
J-3029	64.5	52.7	4,000	TRUE
J-3032	59.9	47.2	4,000	TRUE
J-3034	66.7	51.3	4,000	TRUE
J-3036	62.6	52	4,000	TRUE
J-3037	63	52.5	4,000	TRUE
J-3038	63.8	50.1	4,000	TRUE
J-3040	66.6	51.4	4,000	TRUE
J-3042	62.7	48.8	4,000	TRUE
J-3044	104.8	96.4	3,820	TRUE
J-3045	54.6	41.4	4,000	TRUE
J-3046	54.7	41.5	4,000	TRUE
J-3048	57.2	44	4,000	TRUE
J-3050	69.7	53.5	3,037	TRUE
J-3054	63.6	52	4,000	TRUE
J-3057	101	92.9	4,000	TRUE
J-3059	65.4	50.8	4,000	TRUE
J-3060	64.2	52.6	4,000	TRUE
J-3064	107.3	98.9	3,382	TRUE
J-3068	86.1	74.5	4,500	TRUE
J-3070	65.3	51.6	4,000	TRUE
J-3072	104.8	96.4	4,000	TRUE
J-3074	71.8	54.9	2,108	TRUE
J-3075	71.7	54.9	2,099	TRUE
J-3076	64.8	51.3	2,145	TRUE
J-3078	106.9	98.5	3,681	TRUE
J-3084	57.8	44.6	4,000	TRUE
J-3085	59.1	46.7	1,211	TRUE
J-3087	60.7	47	3,233	TRUE
J-3092	64.4	50.9	4,000	TRUE
J-3093	64.6	51.2	4,000	TRUE
J-3094	67	50.2	3,735	TRUE
J-3096	60.8	47	4,000	TRUE
J-3097	55.1	41.7	2,950	TRUE
J-3100	82.2	70.6	4,500	TRUE
J-3101	81.9	70.3	4,334	TRUE
J-3102	87.5	75.9	4,500	TRUE
J-3103	61.1	47.3	4,000	TRUE
J-3105	65	51	2,849	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-3106	64.8	50.9	2,974	TRUE
J-3107	97.2	89.1	4,000	TRUE
J-3111	99.4	91.4	4,000	TRUE
J-3112	99.7	91.6	4,000	TRUE
J-3114	66.9	55.5	3,688	TRUE
J-3116	90	81.9	4,000	TRUE
J-3117	101.3	93.3	4,000	TRUE
J-3118	103.7	95.4	4,000	TRUE
J-3120	64	50.2	4,000	TRUE
J-3121	96.8	88.7	4,000	TRUE
J-3122	96.6	88.6	4,000	TRUE
J-3123	96.9	88.9	4,000	TRUE
J-3124	97	89	4,000	TRUE
J-3126	58.5	46.1	4,000	TRUE
J-3127	74.2	62.8	4,500	TRUE
J-3128	83.2	71.5	4,306	TRUE
J-3129	63.4	51.9	5,000	TRUE
J-3131	63.7	52.1	4,000	TRUE
J-3132	94.9	86.9	4,000	TRUE
J-3133	101.3	92.9	2,517	TRUE
J-3134	107.5	99.1	3,529	TRUE
J-3138	65.7	49.8	4,000	TRUE
J-3139	61.3	50.2	5,000	TRUE
J-3140	58.7	46.2	4,703	TRUE
J-3142	96.2	88.2	4,000	TRUE
J-3143	96.4	88.4	4,000	TRUE
J-3145	95.8	87.7	4,000	TRUE
J-3147	62.2	48.5	4,000	TRUE
J-3148	62.5	48.6	4,000	TRUE
J-3149	60.9	47.1	2,527	TRUE
J-3154	62.4	50.8	4,000	TRUE
J-3158	98.6	90.5	4,000	TRUE
J-3159	101	92.9	4,000	TRUE
J-3160	103	94.8	4,000	TRUE
J-3161	107.8	99.4	3,626	TRUE
J-3164	76	59	1,732	TRUE
J-3166	103.7	95.3	3,124	TRUE
J-3167	88.5	76.9	4,500	TRUE
J-3171	60.8	47.1	3,507	TRUE
J-3177	97	88.9	4,000	TRUE
J-3178	63.2	51.4	4,000	TRUE
J-3180	65.9	49.8	4,000	TRUE
J-3181	68	56.6	4,000	TRUE
J-3183	72.1	55.2	2,049	TRUE
J-3187	106.9	98.5	3,462	TRUE
J-3188	103.5	95.2	4,000	TRUE
J-3189	68	56.6	4,000	TRUE
J-3190	74.4	62.9	4,500	TRUE
J-3192	62.9	51.5	4,000	TRUE
J-3193	105.2	96.8	4,000	TRUE
J-3195	88.8	77.1	4,500	TRUE
J-3196	106.9	98.5	3,616	TRUE
J-3199	63.6	52.1	4,000	TRUE
J-3200	61.3	47.6	4,000	TRUE
J-3201	64	50.3	4,000	TRUE
J-3204	60	46.2	4,000	TRUE
J-3206	101.1	93	4,000	TRUE
J-3207	98.8	90.8	5,000	TRUE
J-3209	99	90.9	4,000	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-3210	60.1	46.3	2,962	TRUE
J-3212	65.4	50.6	4,000	TRUE
J-3213	63.4	51	4,000	TRUE
J-3215	62.5	48.5	2,881	TRUE
J-3216	63.1	49.2	3,104	TRUE
J-3220	63.2	49.5	4,000	TRUE
J-3222	60.8	47	4,000	TRUE
J-3223	60.9	47.1	4,000	TRUE
J-3225	60.6	46.9	2,825	TRUE
J-3226	57.3	44.3	3,775	TRUE
J-3227	86.8	75.3	4,500	TRUE
J-3229	56	42.7	1,756	TRUE
J-3232	68.1	52.1	4,000	TRUE
J-3234	100.6	92.5	4,000	TRUE
J-3235	87	75.4	4,500	TRUE
J-3237	65	50	3,266	TRUE
J-3238	63.8	49.3	4,000	TRUE
J-3239	62.6	51.1	4,000	TRUE
J-3241	65.4	50.5	3,287	TRUE
J-3244	58.4	45.2	4,000	TRUE
J-3246	72.1	55.2	2,085	TRUE
J-3248	98.2	90.2	4,000	TRUE
J-3249	64.2	50.4	3,801	TRUE
J-3250	98.4	90.3	4,000	TRUE
J-3251	107.3	98.9	3,502	TRUE
J-3252	103.8	95.5	3,836	TRUE
J-3253	97.8	89.7	4,000	TRUE
J-3254	63.3	51.7	5,000	TRUE
J-3255	101.7	93.6	4,000	TRUE
J-3256	69.7	58.4	4,000	TRUE
J-3257	61.5	47.6	4,000	TRUE
J-3258	64.9	50.9	4,000	TRUE
J-3259	86.6	75	4,500	TRUE
J-3261	104.8	96.4	3,942	TRUE
J-3262	64.3	52.7	4,000	TRUE
J-3263	63.9	52.3	2,002	TRUE
J-3264	64.1	52.6	2,319	TRUE
J-3265	60.5	46.7	4,000	TRUE
J-3266	91.8	84.1	4,000	TRUE
J-3267	84.2	72.6	4,500	TRUE
J-3269	46.8	45.5	3,227	TRUE
J-3270	68.2	54.2	2,921	TRUE
J-3271	105.5	97.1	4,000	TRUE
J-3274	64.1	52.6	4,000	TRUE
J-3275	61.1	47.3	2,318	TRUE
J-3276	60.5	46.7	4,000	TRUE
J-3277	64.4	50.9	1,846	TRUE
J-3280	61.3	47.5	3,637	TRUE
J-3281	89.1	77.4	4,500	TRUE
J-3283	60.5	48.6	3,280	TRUE
J-3284	60.8	47	2,815	TRUE
J-3285	89.3	77.8	4,111	TRUE
J-3288	79.6	68.1	4,500	TRUE
J-3289	62.2	48.4	4,000	TRUE
J-3290	60.8	48.3	4,000	TRUE
J-3291	94.9	86.9	4,000	TRUE
J-3292	100.6	92.6	4,000	TRUE
J-3293	72.2	55.3	2,179	TRUE
J-3294	105.6	97.3	3,623	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-3295	46.7	45.4	2,857	TRUE
J-3297	62.8	51.3	5,000	TRUE
J-3301	66.2	49.5	3,134	TRUE
J-3302	50.7	41.1	4,000	TRUE
J-3304	99.3	91.3	5,000	TRUE
J-3305	99.2	91.2	5,000	TRUE
J-3306	106.1	97.7	3,508	TRUE
J-3307	106.3	98	3,686	TRUE
J-3308	65.8	51.2	4,000	TRUE
J-3311	64.9	52	4,000	TRUE
J-3312	89.1	77.5	4,500	TRUE
J-3315	64.8	51.1	3,454	TRUE
J-3318	96.4	88.4	4,000	TRUE
J-3319	95.8	87.7	4,000	TRUE
J-3320	95.1	87.1	4,000	TRUE
J-3321	106.5	98.1	3,461	TRUE
J-3322	106.7	98.3	3,634	TRUE
J-3324	59.4	45.7	4,000	TRUE
J-3325	72.2	55.4	2,645	TRUE
J-3326	96.9	88.9	4,000	TRUE
J-3327	63.1	49.4	2,668	TRUE
J-3329	66.8	55.6	4,000	TRUE
J-3330	83.2	75.3	4,000	TRUE
J-3331	64.7	50.2	4,000	TRUE
J-3332	62.3	51.1	1,285	TRUE
J-3333	53.2	40	2,056	TRUE
J-3334	65.8	49.1	2,174	TRUE
J-3336	56	42.7	4,000	TRUE
J-3337	63.9	50	4,000	TRUE
J-3340	102	94	4,000	TRUE
J-3341	72.4	56.5	3,387	TRUE
J-3343	83.2	71.6	4,500	TRUE
J-3345	64.1	52.6	4,000	TRUE
J-3347	96.6	88.6	4,000	TRUE
J-3350	97.1	89.1	4,000	TRUE
J-3351	98	90	4,000	TRUE
J-3352	66.2	50.3	4,000	TRUE
J-3354	100.6	92.6	4,000	TRUE
J-3356	65.9	49.8	4,000	TRUE
J-3363	62.4	50.2	4,000	TRUE
J-3364	62.6	50.4	1,233	TRUE
J-3365	65.9	50.7	2,921	TRUE
J-3366	98.8	90.7	4,000	TRUE
J-3367	67.6	51.9	4,000	TRUE
J-3369	64.7	52	4,000	TRUE
J-3374	47.2	45.9	2,392	TRUE
J-3375	102.2	94.1	4,000	TRUE
J-3376	98	90	4,000	TRUE
J-3377	60.9	47.1	4,000	TRUE
J-3379	47.2	45.9	2,879	TRUE
J-3380	97	88.9	4,000	TRUE
J-3381	58.1	45.6	4,000	TRUE
J-3382	55	41.6	3,136	TRUE
J-3383	65.7	49.1	3,506	TRUE
J-3384	103.5	95.1	3,015	TRUE
J-3385	46.3	45	3,340	TRUE
J-3386	64.4	50.6	4,000	TRUE
J-3387	66.4	51	4,000	TRUE
J-3390	63.8	49.8	4,000	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-3391	65.3	51.8	4,000	TRUE
J-3392	99.9	91.9	4,000	TRUE
J-3394	93.8	85.7	4,000	TRUE
J-3395	68.1	52.1	1,873	TRUE
J-3398	65.4	51.7	4,000	TRUE
J-3399	65	51.4	3,726	TRUE
J-3400	66	51.4	4,000	TRUE
J-3401	98.8	90.7	4,000	TRUE
J-3402	64	50	4,000	TRUE
J-3403	88.6	80.5	3,998	TRUE
J-3404	89	81	4,000	TRUE
J-3405	64.6	53	4,000	TRUE
J-3406	64.6	53	4,000	TRUE
J-3407	100.6	92.5	4,000	TRUE
J-3408	66.7	55.3	4,000	TRUE
J-3409	65.2	51.6	3,696	TRUE
J-3410	66.2	50.5	4,000	TRUE
J-3411	91.8	80.2	4,500	TRUE
J-3413	66.3	51.6	4,000	TRUE
J-3414	96.6	88.6	4,000	TRUE
J-3415	62.4	50.8	4,000	TRUE
J-3416	67.5	56.2	3,975	TRUE
J-3417	58.5	45.2	3,869	TRUE
J-3418	64.4	50.7	3,643	TRUE
J-3419	66.3	49.6	3,720	TRUE
J-3421	101	93	4,000	TRUE
J-3422	71.8	55.8	3,188	TRUE
J-3423	97.6	89.6	4,000	TRUE
J-3425	72.6	55.7	2,134	TRUE
J-3426	95.9	87.9	4,000	TRUE
J-3427	71.1	54.4	2,777	TRUE
J-3428	64.1	52.6	4,000	TRUE
J-3429	97.5	89.4	4,000	TRUE
J-3430	64.5	50.8	4,000	TRUE
J-3431	64.2	50.2	4,000	TRUE
J-3432	93.7	85.6	4,000	TRUE
J-3433	64.6	51.7	3,735	TRUE
J-3435	66.5	49.8	2,583	TRUE
J-3436	98.7	90.6	4,000	TRUE
J-3438	65.4	49.8	4,000	TRUE
J-3439	62.2	48.4	4,000	TRUE
J-3441	60.8	49.2	876	TRUE
J-3442	62.9	51.5	4,000	TRUE
J-3443	84.7	73.1	4,500	TRUE
J-3445	60	46.2	4,000	TRUE
J-3446	98.1	90	4,000	TRUE
J-3447	68.9	52.8	2,939	TRUE
J-3448	103.5	95.2	3,891	TRUE
J-3449	57.9	45.2	4,881	TRUE
J-3450	98.3	90.2	3,776	TRUE
J-3451	59.6	46	1,821	TRUE
J-3452	65.8	52.6	3,807	TRUE
J-3453	95.8	87.8	4,000	TRUE
J-3454	65.2	51.3	2,774	TRUE
J-3455	61.7	49.4	4,000	TRUE
J-3456	99.6	91.7	4,000	TRUE
J-3457	99.1	91	3,773	TRUE
J-3458	60.5	46.6	2,962	TRUE
J-3459	61.1	47.3	4,000	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-3461	60.3	46.6	4,000	TRUE
J-3462	63.1	49.4	3,977	TRUE
J-3464	49.3	48	4,000	TRUE
J-3466	103.2	94.9	2,705	TRUE
J-3469	97.1	89	4,000	TRUE
J-3470	61.2	49.6	3,503	TRUE
J-3471	97.8	89.9	5,000	TRUE
J-3472	96.8	88.9	5,000	TRUE
J-3473	104	95.6	3,497	TRUE
J-3474	91.1	83.1	4,000	TRUE
J-3475	62.5	50.9	3,968	TRUE
J-3476	84.3	72.7	4,500	TRUE
J-3477	103.1	95.1	4,000	TRUE
J-3479	97	88.9	4,000	TRUE
J-3481	59.7	46.2	2,948	TRUE
J-3482	59.6	45.9	3,543	TRUE
J-3483	60.8	47	4,000	TRUE
J-3484	64.8	52.1	4,000	TRUE
J-3485	61.4	47.6	4,000	TRUE
J-3487	62.4	50.8	3,863	TRUE
J-3488	94	86	4,000	TRUE
J-3493	65	51.9	4,000	TRUE
J-3495	87.5	75.9	4,500	TRUE
J-3496	61.1	49.5	3,463	TRUE
J-3497	99.3	91.2	4,000	TRUE
J-3498	99.2	91.2	4,000	TRUE
J-3499	97.7	89.6	4,000	TRUE
J-3500	83.1	71.5	4,500	TRUE
J-3503	90.5	82.5	4,000	TRUE
J-3504	97.6	89.5	4,000	TRUE
J-3506	61.1	47.5	2,055	TRUE
J-3507	62.2	49.8	3,550	TRUE
J-3509	94.3	86.2	4,000	TRUE
J-3510	94.6	86.6	4,000	TRUE
J-3511	63.9	52.3	4,000	TRUE
J-3512	102.3	94.3	4,000	TRUE
J-3513	63.8	49.9	3,711	TRUE
J-3514	65.9	54.5	3,468	TRUE
J-3516	95.3	87.3	4,000	TRUE
J-3517	65.4	50.9	4,000	TRUE
J-3518	98.4	90.3	4,000	TRUE
J-3520	97.9	89.8	4,000	TRUE
J-3521	87.5	75.8	4,500	TRUE
J-3522	59.9	46.2	1,628	TRUE
J-3525	65.7	50.8	4,000	TRUE
J-3526	66.8	51.1	4,000	TRUE
J-3527	66.8	55.7	4,000	TRUE
J-3528	59.4	47.2	4,000	TRUE
J-3529	99.7	91.6	4,000	TRUE
J-3530	69.6	58.2	4,000	TRUE
J-3531	58.9	46.6	5,000	TRUE
J-3533	102	94.1	4,000	TRUE
J-3534	101	93.1	4,000	TRUE
J-3535	66.1	52.4	4,000	TRUE
J-3536	63.4	51.9	3,886	TRUE
J-3537	55.1	41.9	4,000	TRUE
J-3538	64.8	52.7	4,000	TRUE
J-3539	64.3	50.6	2,600	TRUE
J-3540	65.1	51.6	1,960	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-3541	65.6	52.1	2,098	TRUE
J-3542	86.3	74.7	4,500	TRUE
J-3544	58.5	46.4	3,647	TRUE
J-3545	65.7	50.5	4,000	TRUE
J-3547	87	75.4	4,500	TRUE
J-3548	61.2	49.3	4,000	TRUE
J-3549	63.4	51.8	4,000	TRUE
J-3550	102.9	94.8	4,000	TRUE
J-3551	60.4	46.7	1,684	TRUE
J-3553	88.8	77.2	4,500	TRUE
J-3554	53.7	40.6	3,147	TRUE
J-3558	63.5	49.8	4,000	TRUE
J-3559	66.3	51.6	4,000	TRUE
J-3560	71.4	60	4,500	TRUE
J-3561	92.8	84.8	5,000	TRUE
J-3563	82.6	71	4,500	TRUE
J-3565	64	50	3,713	TRUE
J-3566	60.7	46.9	3,725	TRUE
J-3567	102.7	94.6	4,000	TRUE
J-3568	64.5	51.5	3,679	TRUE
J-3569	65.9	54.5	2,294	TRUE
J-3570	85.9	74.3	4,500	TRUE
J-3572	62.8	48.9	4,000	TRUE
J-3573	103	94.6	2,695	TRUE
J-3574	57.4	45.2	3,760	TRUE
J-3575	57.9	45.6	3,821	TRUE
J-3576	65.8	50.6	2,403	TRUE
J-3578	99.7	91.3	3,475	TRUE
J-3579	63.9	52.4	3,837	TRUE
J-3580	58.4	45.9	4,605	TRUE
J-3582	63.9	49.9	4,000	TRUE
J-3583	60.4	46.7	3,486	TRUE
J-3585	59.1	47.1	3,695	TRUE
J-3586	67.2	55.8	4,000	TRUE
J-3587	63.4	49.3	4,000	TRUE
J-3588	61.4	49.4	4,000	TRUE
J-3589	94.8	86.8	5,000	TRUE
J-3591	59.6	47.3	4,649	TRUE
J-3592	82.8	75	4,000	TRUE
J-3595	85	73.5	4,500	TRUE
J-3596	85.5	73.9	4,500	TRUE
J-3597	86.2	74.5	4,500	TRUE
J-3598	62.8	51.2	4,000	TRUE
J-3599	86.5	74.9	4,500	TRUE
J-3600	102.7	94.3	2,489	TRUE
J-3601	61.3	47.4	4,000	TRUE
J-3602	57	44.9	2,551	TRUE
J-3603	56.8	44.7	2,304	TRUE
J-3604	66	51	4,000	TRUE
J-3606	60.8	46.9	4,000	TRUE
J-3607	65.7	51.5	2,351	TRUE
J-3608	62	50.4	4,000	TRUE
J-3609	102.7	94.6	4,000	TRUE
J-3610	62.8	51.2	4,000	TRUE
J-3612	103.9	95.5	3,295	TRUE
J-3613	107.8	99.4	3,465	TRUE
J-3615	65.1	50.8	3,851	TRUE
J-3617	65.9	54.4	3,192	TRUE
J-3618	67.5	56.1	4,000	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-3619	61.7	48	4,000	TRUE
J-3621	58.8	46.2	4,863	TRUE
J-3622	60.4	46.6	4,000	TRUE
J-3623	60.7	46.9	4,000	TRUE
J-3625	65.5	51.2	2,303	TRUE
J-3626	58.3	46.3	3,614	TRUE
J-3627	65.9	52.4	2,300	TRUE
J-3628	69.4	53	4,000	TRUE
J-3629	69.2	52.9	4,000	TRUE
J-3630	65	51.8	3,718	TRUE
J-3631	66.8	59.3	1,865	TRUE
J-3633	60.1	47.9	4,497	TRUE
J-3634	101.4	93.3	4,000	TRUE
J-3635	102.1	94	4,000	TRUE
J-3636	68.8	52.2	4,000	TRUE
J-3637	61.7	50	4,000	TRUE
J-3638	65.1	50.8	3,766	TRUE
J-3641	66.8	50.5	4,000	TRUE
J-3642	66.5	50	4,000	TRUE
J-3643	54.6	41.3	4,000	TRUE
J-3645	61.3	47.6	4,000	TRUE
J-3646	60.5	48.6	4,000	TRUE
J-3647	61.4	49.7	4,000	TRUE
J-3648	60.4	48.4	3,734	TRUE
J-3649	62.4	50.8	4,000	TRUE
J-3650	61.1	48	4,000	TRUE
J-3651	63.3	49.3	3,525	TRUE
J-3652	61.9	49.5	4,000	TRUE
J-3653	67.4	51.2	4,000	TRUE
J-3654	99.6	91.7	4,000	TRUE
J-3655	107.4	99	3,316	TRUE
J-3656	99.9	91.8	4,000	TRUE
J-3657	59.7	46	4,000	TRUE
J-3658	99.3	91.2	4,000	TRUE
J-3659	62.4	50.8	4,000	TRUE
J-3662	65.1	51.4	4,000	TRUE
J-3663	68	51.9	4,000	TRUE
J-3664	68.5	57.1	4,000	TRUE
J-3665	61.7	49.2	1,031	TRUE
J-3667	107.5	99.1	3,315	TRUE
J-3668	60.8	47.1	4,000	TRUE
J-3669	64.6	53	4,000	TRUE
J-3670	103.6	95.5	4,000	TRUE
J-3672	103.8	95.7	4,000	TRUE
J-3673	61.9	50.1	3,860	TRUE
J-3674	64.2	51.4	4,000	TRUE
J-3675	60.9	47.2	4,000	TRUE
J-3676	59.1	45.5	4,000	TRUE
J-3677	66.1	51	4,000	TRUE
J-3678	61.9	50.3	3,962	TRUE
J-3679	88.1	76.5	4,500	TRUE
J-3681	68.2	56.9	4,000	TRUE
J-3682	75.3	63.8	4,500	TRUE
J-3683	82.4	70.9	4,500	TRUE
J-3685	63.4	51.8	4,000	TRUE
J-3686	106.9	98.5	3,054	TRUE
J-3687	63.8	50.1	1,669	TRUE
J-3688	92.3	80.6	4,426	TRUE
J-3689	63.3	51.8	3,907	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

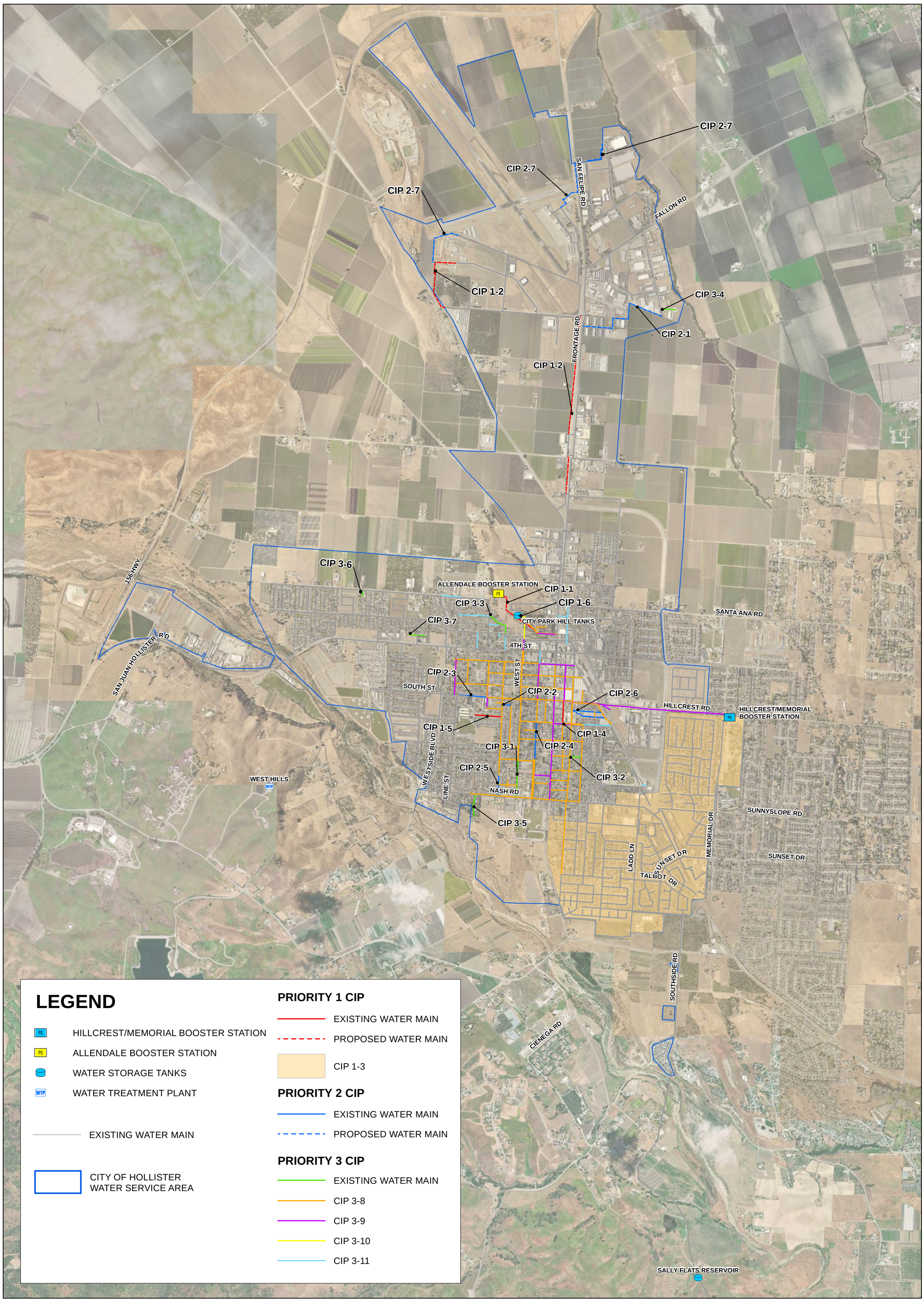
Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-3690	102.3	94.3	4,000	TRUE
J-3692	66.1	50.6	4,000	TRUE
J-3694	62.6	51	2,922	TRUE
J-3695	68.4	52.6	2,065	TRUE
J-3697	57.3	44.1	4,000	TRUE
J-3698	66.4	55.1	3,431	TRUE
J-3699	65.9	54.7	2,759	TRUE
J-3700	61.9	50.3	3,857	TRUE
J-3701	63.2	51.6	3,839	TRUE
J-3702	75.5	64	4,500	TRUE
J-3703	93.1	81.5	4,500	TRUE
J-3704	61.2	49.9	4,000	TRUE
J-3705	62.6	51	3,823	TRUE
J-3706	60.1	46.4	2,997	TRUE
J-3707	61.9	50.3	3,830	TRUE
J-3708	106.5	98.1	2,760	TRUE
J-3709	60.9	48.4	4,650	TRUE
J-3710	64.1	50.4	2,001	TRUE
J-3711	66.1	49.4	4,000	TRUE
J-3712	63	49.2	4,000	TRUE
J-3713	82.3	70.7	4,357	TRUE
J-3714	103.1	95.1	4,000	TRUE
J-3715	61.2	47.5	3,595	TRUE
J-3716	62	48.2	3,640	TRUE
J-3717	103.4	95.3	4,000	TRUE
J-3718	64.6	51	2,113	TRUE
J-3719	86.9	75.3	4,500	TRUE
J-3720	87.5	75.9	4,500	TRUE
J-3721	66	54.9	4,000	TRUE
J-3722	102.6	94.6	4,000	TRUE
J-3723	90.5	78.9	4,287	TRUE
J-3724	69.4	58	4,000	TRUE
J-3725	63.6	49.9	4,928	TRUE
J-3727	57.8	45.5	3,972	TRUE
J-3728	91.4	79.8	4,265	TRUE
J-3729	92.2	80.6	4,119	TRUE
J-3730	101.9	93.9	4,000	TRUE
J-3731	67.9	56.7	4,000	TRUE
J-3732	59.1	46.4	4,000	TRUE
J-3733	64.4	50.6	4,000	TRUE
J-3734	82	70.4	4,233	TRUE
J-3735	66.6	53.2	2,466	TRUE
J-3736	66.7	53.3	3,505	TRUE
J-3737	82.7	71.2	4,500	TRUE
J-3738	88.8	77.2	4,500	TRUE
J-3739	61.1	48.1	1,624	TRUE
J-3741	83.6	72	3,990	TRUE
J-3742	69.2	57.9	4,000	TRUE
J-3743	68.1	56.7	2,704	TRUE
J-3744	63.9	50.2	3,472	TRUE
J-3745	96.3	88.3	4,000	TRUE
J-3748	70.8	59.4	4,500	TRUE
J-3750	67.7	52	4,000	TRUE
J-3751	63.6	49.7	3,000	TRUE
J-3752	65.8	52.4	2,290	TRUE
J-3753	56.3	42.8	1,443	TRUE
J-3754	61.2	50.4	4,000	TRUE
J-3755	65.3	51.7	4,000	TRUE
J-3756	64.6	53	3,078	TRUE

City of Hollister
2018 Water Model Results
Future Conditions with all CIPs

Junction ID	ADD Pressure (psi)	PHD Pressure (psi)	Available Fire Flow (gpm)	Satisfies Fire Flow Constraints? (gpm)
J-3757	56.2	42.8	4,000	TRUE
J-3758	85.3	73.7	4,500	TRUE
J-3759	88.4	76.8	4,500	TRUE
J-3760	64.6	51.6	620	TRUE
J-3763	61.3	47.6	2,836	TRUE
J-3766	96.4	89.3	4,000	TRUE
J-3767	95.7	87.7	4,000	TRUE
J-3769	85.5	77.7	2,250	TRUE
J-3771	72.9	61.5	2,750	TRUE
J-3773	98.9	90.9	4,000	TRUE
J-3776	70.4	58.9	4,000	TRUE
J-3780	107.7	100.6	4,000	TRUE
J-3785	108.1	101	4,000	TRUE
J-3789	97.6	89.6	4,000	TRUE
J-3790	90.8	82.8	4,000	TRUE
J-3791	97.3	89.4	4,000	TRUE
J-3794	108.2	101	4,000	TRUE
J-3795	53.4	40.1	3,447	TRUE
J-3798	106.9	99.8	4,000	TRUE
J-3799	86	78.8	4,000	TRUE
J-3800	64	52.4	4,000	TRUE
J-3804	90.9	79.3	4,500	TRUE
J-3805	95.9	87.8	4,000	TRUE
J-3806	103.5	96.3	4,000	TRUE
J-3807	56.8	43.6	4,000	TRUE
J-3808	60.1	52.6	1,852	TRUE
J-3809	61.3	50.3	4,000	TRUE
J-3810	104.7	97.5	4,000	TRUE
J-3811	106	98.8	4,000	TRUE
J-3812	107.5	100.4	4,000	TRUE
J-3815	65.6	50	4,000	TRUE
J-3818	60.4	47.3	4,000	TRUE
J-3819	59.1	46.1	4,000	TRUE
J-3821	58.8	45.1	2,947	TRUE
J-3822	57.9	44.7	4,000	TRUE
J-3823	87	79.5	4,000	TRUE
J-3824	86.3	79	4,000	TRUE
J-3825	67	53.6	4,000	TRUE
J-3832	60.5	49.2	1,953	TRUE
J-3834	60.7	49.4	4,000	TRUE
J-3836	61.1	49.3	4,000	TRUE
J-3837	56.3	42.9	4,000	TRUE

APPENDIX D

Exhibits



LEGEND

- PS — HILLCREST/MEMORIAL BOOSTER STATION
- PS — ALLENDALE BOOSTER STATION
- WATER STORAGE TANKS
- WTP — WATER TREATMENT PLANT
- EXISTING WATER MAIN
- CITY OF HOLLISTER WATER SERVICE AREA

PRIORITY 1 CIP

- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- CIP 1-3

PRIORITY 2 CIP

- EXISTING WATER MAIN
- PROPOSED WATER MAIN

PRIORITY 3 CIP

- EXISTING WATER MAIN
- CIP 3-8
- CIP 3-9
- CIP 3-10
- CIP 3-11

WALLACE GROUP

CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING/GIS SOLUTIONS
WATER RESOURCES

612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

NTS

CITY OF HOLLISTER
WATER DISTRIBUTION MASTER PLAN

EXHIBIT 1: CAPITAL IMPROVEMENT PROJECTS

NOTES:
BASEMAP COMPILED FROM GIS DATA PROVIDED BY SAN BENITO COUNTY AND THE CITY OF HOLLISTER.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT.
MAP PRODUCED AUGUST 2018.

CITY OF HOLLISTER
WATER DISTRIBUTION MASTER PLAN

EXHIBIT 2
MODELED SERVICE NODES
FIGURE 1 OF 2

LEGEND

- Modeled Service Nodes
- Park Hills Tanks
- West Hills WTP
- Hillcrest/Memorial Booster Station
- Water Mains

NTS

NOTES:
BASEMAP PROVIDE BY SAN BENITO COUNTY.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT.
MAP PRODUCED AUGUST 2018.

WALLACE GROUP
CIVIL ENGINEERING
CONSTRUCTION MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEYING AND MAPPING
WATER RESOURCES
WALLACE SWANSON INTERNATIONAL
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
www.wallacegroup.us

CITY OF HOLLISTER WATER DISTRIBUTION MASTER PLAN

EXHIBIT 2
MODELED SERVICE NODES
FIGURE 2 OF 2

LEGEND

- Modeled Service Nodes
- Park Hills Tanks
- West Hills WTP
- Hillcrest/Memorial Booster Station
- Water Mains

NTS

NOTES:
BASEMAP PROVIDE BY SAN BENITO COUNTY.
WALLACE GROUP DID NOT PERFORM BOUNDARY SURVEY SERVICES FOR THIS MAP. NOT A LEGAL DOCUMENT.
MAP PRODUCED AUGUST 2018.

CIVIL ENGINEERING
WATER RESOURCE MANAGEMENT
LANDSCAPE ARCHITECTURE
MECHANICAL ENGINEERING
PLANNING
PUBLIC WORKS ADMINISTRATION
SURVEY/GIS/GIS SOLUTIONS
WATER RESOURCES
WALLACE BRANNON INTERNATIONAL
612 CLARION COURT
SAN LUIS OBISPO, CA 93401
T 805 544-4011 F 805 544-4294
WALLACE GROUP www.wallacegroup.us