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TECHNICAL MEMORANDUM

DATE: December 21, 2021

Project No.: 066-60-21-19
SENT VIA: EMAIL

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SUBJECT: City Dixon - 2021 Water System Master Plan Update (Addendum to 2016 WSMP)

This Technical Memorandum (TM) serves as an addendum to the City of Dixon's (City) 2016 Water System Master Plan (WSMP) and summarizes the update that was performed. Sections of this TM include:

- Introduction and Purpose of Update
- Recent Reliability Improvements
- Existing System Update
- Planning and Design Criteria Update
- Hydraulic Model Update
- Strategic Asset Management Plan Update
- Cybersecurity Assessment
- CIP Alternatives Development

INTRODUCTION AND PURPOSE OF UPDATE

West Yost completed the City's Water System Master Plan (WSMP) and Strategic Asset Management Plan (SAMP) in 2016, finalizing the document in March of 2018. The WSMP evaluated the City's existing and future water systems and identified existing system deficiencies and required improvements based on demand projections from the adopted 1993 General Plan. The SAMP, included in Chapter 9 of the WSMP, established a baseline condition of the water system assets, assessed the risk of individual assets and facilities, and developed a capital improvement program (CIP) to project when, and to what extent, improvements should be implemented. The most urgent CIP projects were prioritized based on results from the risk assessment. The finalized CIP included both hydraulic and condition improvements and was used to establish the City's updated water rates to meet these needs, which were adopted and implemented in 2019.

Subsequently, the new water rates were rescinded with the enactment of Measure S in November 2020. In response to rescinding of the 2019 water rates, the City is reevaluating the CIP recommendations in the WSMP to determine the effect on levels of service and water reliability and revaluate options for addressing these needs.

This update to the WSMP revisits the hydraulic water system and asset models that were used to develop the original CIP. As part of the revisit, three new 10-year CIP alternatives will be developed to reflect different levels of implementation: high (assumes all recommended improvements based on criteria), low (assumes bare minimum improvements to keep system operating), and medium (assumes improvements between high and low CIP alternatives). The three CIP alternatives will be used by the City's rate consultant to prepare updated water rate structures.

RECENT RELIABILITY IMPROVEMENTS

Since completion of the WSMP, despite limited funds, the City has implemented significant operational and maintenance improvements to the water system that improve the reliability of the existing system. Several of the original WSMP-recommended CIP projects have been completed. The City started its own Water Operations Division to perform the day-to-day operations of the water system and no longer relies on outside entities to manage and operate the water system. The following bullets summarize the improvements, which are grouped by maintenance/operational or capital improvements (asset upgrades or replacements):

Maintenance/Operational Improvements:

- Secured TESCO as annual service contractor for Arc flash/ extended maintenance and system services assessment (EMASS) assessments
- Secured Telstar as annual service contractor for Supervisory Control and Data Acquisition (SCADA) controls
- Secured Holt as annual service contractor for emergency generators (including repairs)
- Secured CPM as annual service pump/motor contractor and started annual service on all booster pumps/motors
- Started annual service on all well pumps/motors (vibration testing, balancing, oil change)
- Started annual pump efficiency testing through Powers Service Inc., and started rebuilding pumps/motors based on findings and recommendations from that testing
- Rebuilt or replaced all chlorine pumps and replaced chlorine feed lines, chlorine analyzers, and site sample ports
- Cleaned and re-coated Fitzgerald Tank
- Cleaned and inspected all other tanks
- Cleaned School and Watson Ranch Wells
- Replaced soft start for Watson Ranch Well
- Replaced School Well motor with a refurbished motor
- Replaced/updated distribution sampling stations
- Attempted rehabilitation on Industrial Well

Capital Improvements:

- Connected the North and Core (North/Core) Zones with the South Zone through a new transmission pipeline as part of the Homestead Development
- Upgraded SCADA and controls on all facilities (except for Industrial Well)
- Completed EMASS on all facilities and installed new panel labels (Arc flash study)
- Replaced Variable Frequency Drive (VFD) and instrumentation assets at Fitzgerald Tank site
- Moved SCADA server to Police Department for backup power provision
- Underway with design for drilling of a new well at Fitzgerald Tank site (to replace capacity at Industrial Well site)
- Installed bypass pumping capabilities at all storage tank/booster pump facilities
- Installed a new emergency fill valve and flow meter at Watson Ranch

EXISTING SYSTEM UPDATE

The purpose of this section is to discuss recent changes to the City's existing water system. Since the WSMP, the City's service area has continued to grow and expand. The number of connections served by the City has increased from 2,727 connections in 2015 to 2,930 connections at the end of 2020. The City has made improvements to how the system is operated, by creating a Water Distribution Division within the City to maintain and operate the water system. As detailed above, one of the benefits for the City having a Water Distribution Division is the ability to facilitate reliability improvements that have been implemented to facilities and operation. Other changes to the City's existing water system are detailed in the following sections.

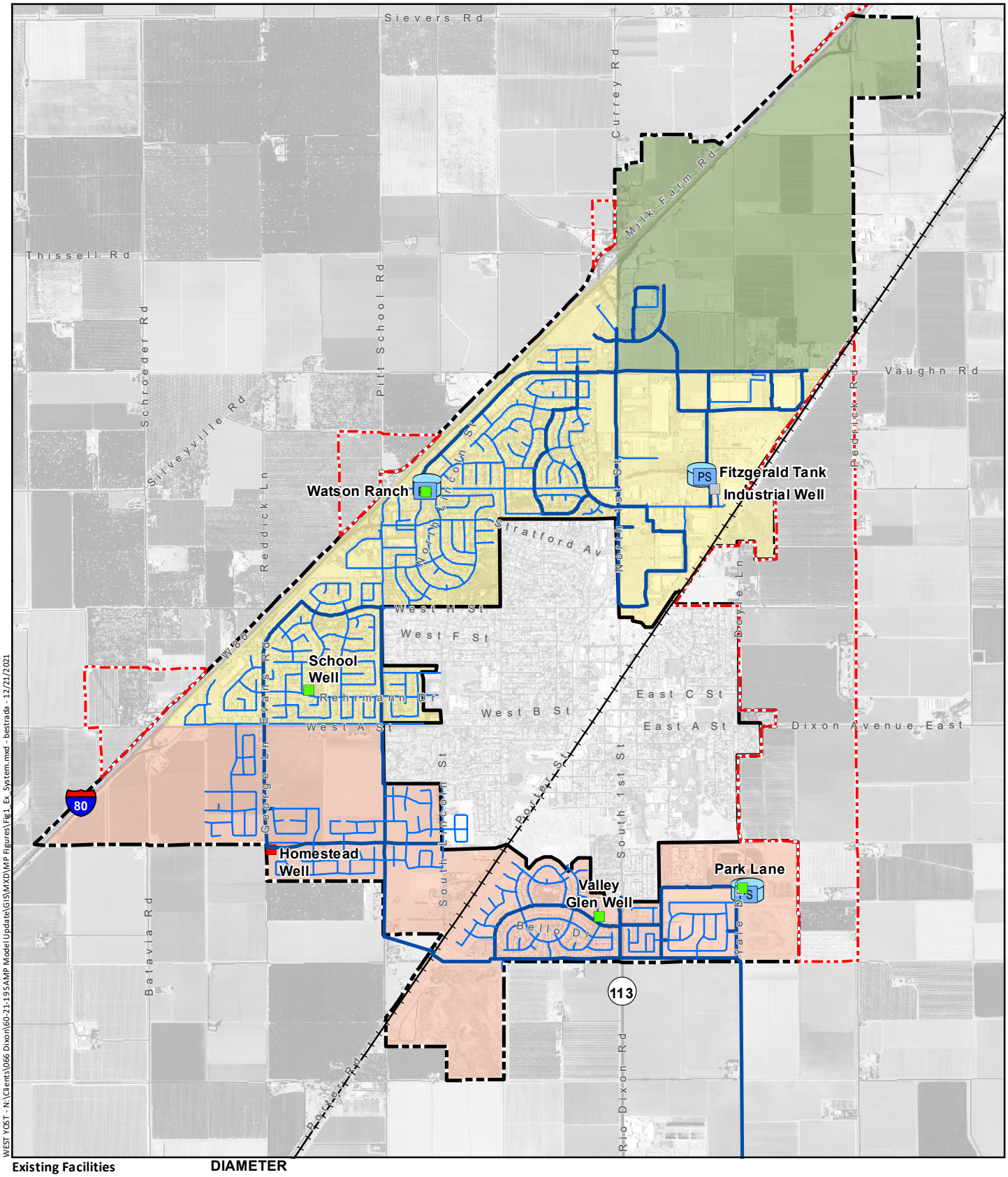
System Improvement Updates

In the WSMP, the City's water service area was divided into three sub-areas: North Zone, Core Zone, and South Zone. The North/Core Zone was hydraulically connected and operated as a single pressure zone (see Figure 1). The South Zone was hydraulically disconnected from the North/Core Zone and operated as a separate system. Since then, the Homestead Project Phase 1 – Backbone project was constructed, connecting the North/Core Zone with the South Zone via a 14-inch diameter transmission pipeline between Parkway Boulevard and West A Street. The 14-inch diameter transmission pipeline, along with all Phase 1 – Village 2 and Phase 1 – Village 3 pipelines, were added to the model. The City's overall system now operates as a single, hydraulically connected pressure zone.

Water Demands

As the City's connections have increased, so have the system demands. The City demands in the WSMP used 2014 consumption data and showed approximately 1,100 gallons per minute (gpm) for the average day demand (ADD). The most recent consumption information for 2020 shows the ADD has increased to approximately 1,340 gpm. The increase in demands is a result of the increase in service connections.

Since the completion of the WSMP, the City's General Plan 2040 was adopted in May 2021. The land use adopted in the General Plan was used to update the projected City demands. For this update, it is assumed parcels located within the City's existing water service area will develop by 2040 and parcels located within the City's sphere of influence (SOI) will develop at a later time and constitute a buildout of the entire City system (see Figure 2). The actual timing of when parcels will develop often changes over time. The City's service area demands, calculated based on the General Plan 2040, are presented in Table 1.



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Existing Facilities

- Active Well
- Inactive Well
- PS Booster Pump Station
- Tank

DIAMETER

- 6- to 10-inch Diameter
- 12-inch Diameter and Greater

Future Facilities

- Future Well

N

0 1,500 3,000

Scale in Feet

Note:
- Addendum to 2016 Water System Master Plan.
- The Homestead Well is currently under design and anticipated to be active in 2022.

DIXON CALIFORNIA

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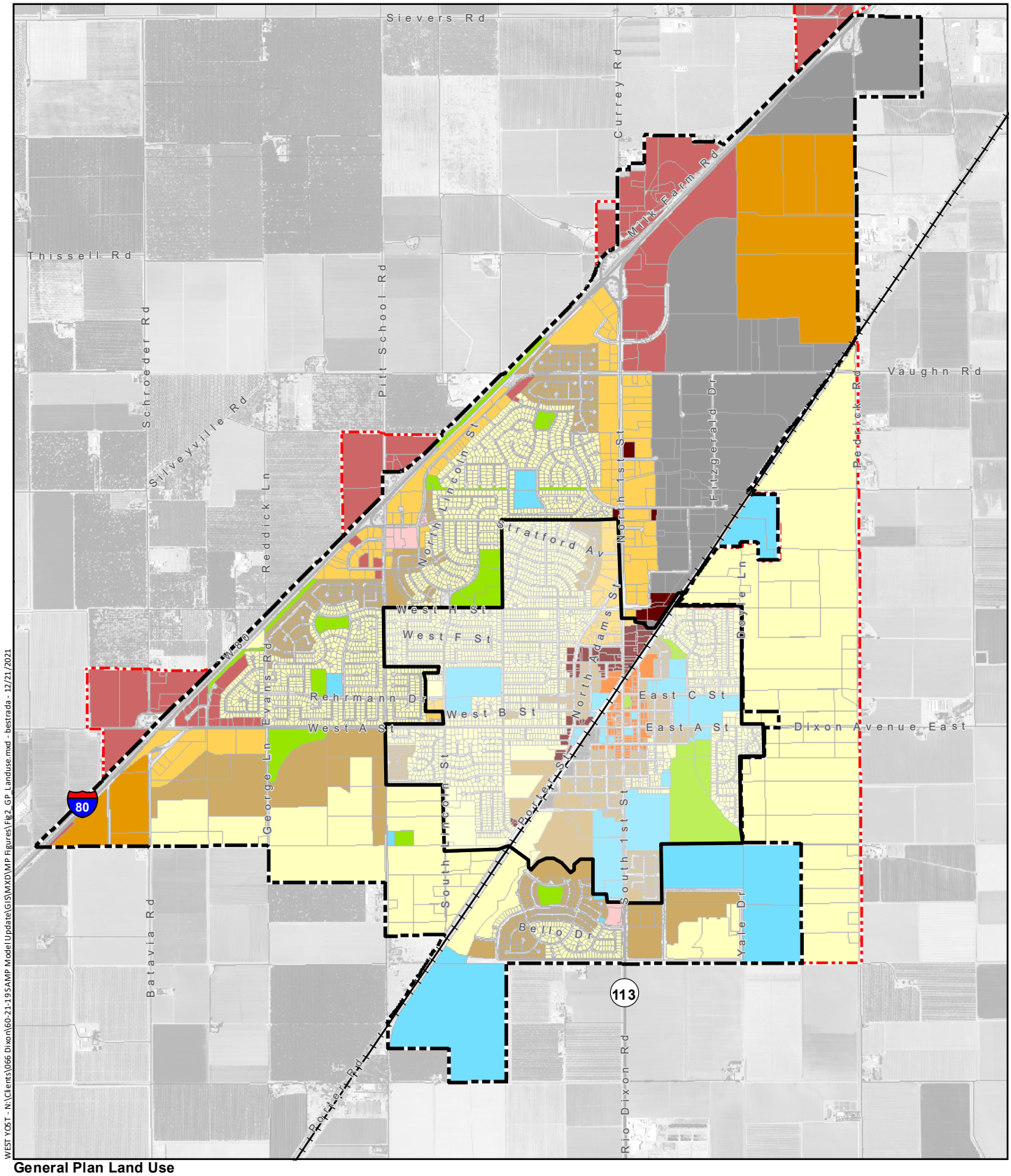
Figure 1

Existing Water System

City of Dixon
2021 Water System
Master Plan Update



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General Plan Land Use

- Low Density Residential
- Medium Density Residential
- Corridor Mixed Use
- Downtown Mixed Use
- Campus Mixed Use
- Neighborhood Commercial
- Regional Commercial
- Service Commercial
- Industrial
- Public Facilities
- Parks
- Sphere of Influence

N

0 1,500 3,000

Scale in Feet

Note:
- Addendum to 2016 Water System Master Plan.

Figure 2

2040 General Plan Land Use

City of Dixon
2021 Water System Master Plan Update

Table 1. Projected Average Day Demand

Water Use Type	Existing Demands, gpm[a]	2040			Buildout SOI, gpm	Total, gpm
		Existing Service Area Development, gpm[b]	Northeast Quadrant Specific Plan, gpm	Southwest Dixon Specific Plan, gpm[c]		
Single Family Residential	549	285	-	332	1,029	2,195
Multi-Family Residential	391	88	-	327	-	805
Industrial	102	123	260	-	-	486
Commercial	109	176	277	79	177	818
Government	16	16	-	-	-	32
Landscape	9	56	-	37	-	101
Non-Revenue Water	164	104	75	108	169	620
Total	**1,340**	**848**	**612**	**882**	**1,374**	**5,057**

(a) Land use based on 2040 General Plan designations. Existing demands are based on 2020 consumption information provided by the City.

(b) Growth areas based on regional areas within the existing City limit boundaries and adopted sphere of influence locations. The Existing Development Area represents a portion of the existing City water service area and includes development of vacant and underutilized parcels.

(c) Demands for Southwest Dixon Specific Plan are based on 1,175 residential units with a mix of single family and multi-family units.

Water Supply

The City has not added any new supply into the water system since the WSMP. However, the City has had to change the status of the Industrial Well to standby due to excessive sanding issues and other water quality concerns. City staff performed rehabilitation work in 2018 to try and extend the useful life of the Industrial Well. The Industrial Well was originally installed in 1977 and is well beyond its expected useful life of 30 years. Due to the age and condition of the well infrastructure and natural conditions associated with the shallow well depth, it was determined that the well has reached the end of its useful life and cannot be extended. The supply provided by the Industrial Well is critical to the City's water supply and the City is currently undertaking a design to replace the Industrial Well at a location on the Fitzgerald Tank site. The total groundwater supply for the City is shown in Table 2.

Table 2. Existing Groundwater Well Capacity

Well No.	Facility Name	Zone	Well Capacity, gpm
1	DW-37: Watson Ranch Well	North/Core	1,500
2	DW-44: Industrial Well[a]	North/Core	0
3	DW-48: School Well[b]	North/Core	1,100
4	DW-52: Valley Glen Well	South	1,900
5	DW-54: Park Lane Well	South	2,500
		Total Capacity	**7,000**
		Firm Capacity[c]	**4,500**

(a) Industrial Well is currently standby and excluded from analysis.

(b) School Well capacity is 1,800 gpm however it is limited to 1,100 gpm to avoid draw down issues during peak summer month usage and can be increased to 1,500 gpm during lower demand usage.

(c) Firm capacity assumes largest well is offline.

PLANNING AND DESIGN CRITERIA UPDATE

West Yost reviewed the planning and design criteria presented in the WSMP. The following sections detail recommended updates to the planning and design criteria. Table 3 summarizes the City's updated recommended water system performance and operational criteria.

Fire Storage

With the increased awareness of fire threats to California, it is imperative the City plans for adequate storage to address these emergency conditions. In the WSMP, the fire storage requirement included separate fire storage for tanks in the North/Core Zone and for the tanks in the South Zone due to the zones being hydraulically disconnected. Since the City has added the 14-inch diameter transmission pipeline connecting the zones, the entire system is now hydraulically connected. However, rather than recommending the fire storage requirement be changed to reflect the zone connections, it is recommended the City continue to assume the storage tanks in the North/Core Zone and South Zone areas continue to include separate fire flow storage. Since the system is connected by a single pipeline, the separate fire flow requirement will continue to provide the City more redundancy and reliability. Should the City need to close the connecting pipeline for any maintenance, they will have adequate fire flow storage in all areas of the system.

System Pressures

West Yost has revisited the recommended distribution system pressure criteria for the City's system based on operator input, SCADA information, and the previous hydrant pressure recorders used for the model calibration.

The City currently maintains pressures in the system between 50 pounds per square inch (psi) and 70 psi. Operators are able to manage the pressures with the operation of their various facilities. In the WSMP, the pressure criteria were not revisited, and the City's Engineering Design Standards were used.

Review of the SCADA for the summer of 2020 confirmed the City generally operates between 50 to 70 psi. Table 4 shows the pressure range at the pump stations.

It is recommended the City update the minimum pressure criteria to align with current operations. The minimum pressure for normal operating conditions is recommended to be 50 psi and for peak hour conditions 45 psi. While the City currently maintains pressures at 70 psi within the system, it is recommended the City adjust the maximum pressure requirement to align with the Uniform Plumbing Code's maximum pressure of 80 psi. Services with pressures over 80 psi would require individual service pressure reducing valves be installed. No changes are recommended for the maximum day plus fire flow minimum pressure requirement.

Table 3. Summary of Recommended Potable Water System Performance and Operational Criteria

Component	Criteria	Remarks / Issues
Fire Flow Requirements (flow [gpm] @ duration [hours])[a]		
Single Family Residential	1,000 gpm @ 3 hours	
Multi Family Residential	2,500 gpm @ 3 hours	
Commercial and Industrial	3,500 gpm @ 3 hours	Includes schools
Commercial and Industrial in Northeast Quadrant	4,000 gpm @ 3 hours	
Water Supply Capacity[b]		
Supply / Pumping Capacity	Provide firm supply capacity equal to maximum day demand	Firm groundwater supply capacity is defined as the largest facility out of service for maintenance
Water Distribution System Capacity[b]		
Maximum Day Demand plus Fire Flow	Provide firm capacity equal to maximum day demand plus fire flow	
Peak Hour Demand	Provide firm capacity equal to peak hour demand	
Pumping Facility Capacity[b]		
Pumping Capacity	Provide the greater of maximum day concurrent with fire flow or peak hour demand	Assumes firm pumping capacity. Firm pumping capacity is defined as the total booster pump station capacity with the largest pump out of service
Backup Power	Provide backup power at all wells and pump stations	
Water Storage Capacity[c]		
Operational	20 percent of maximum day demand	
Fire	Largest fire flow for each zone	North/Core Zone: 4000 gpm x 3 hrs = 0.72 million gallons (MG) South Zone: 3500 gpm x 3 hrs = 0.63 MG
Emergency	1 x average day demand (minimum)	Provided by the City's backup power at all pumping facilities
Total Water Storage Capacity	Operational + Fire + Emergency	
Distribution System Pressures[d]		
Minimum Pressure - Normal Operating Conditions	50 psi	
Minimum Pressure - Peak Hour Conditions	45 psi	
Maximum Pressure	80 psi	
Minimum Pressure - Fire Flow Conditions	20 psi	At all customer service connections
Water Transmission and Distribution Pipelines[a]		
Minimum Pipeline Diameter	6-inch; 12-inch for multi-family residential, commercial, and industrial developments with more than two units	Locate new distribution pipelines within designated utility corridors wherever possible
Maximum Velocity - Normal Operating Conditions	6 ft/s	Criteria based on requirements for new development. Existing distribution mains will be evaluated on case-by-case basis. Evaluation will include age, material, type, velocity, headloss and pressure
Maximum Velocity - Fire Flow Conditions	12 ft/s	
Hazen Williams "C" Factor	130	For consistency in hydraulic modeling
Pipeline Material	Polyvinyl chloride (PVC)	For consistency in hydraulic modeling

(a) Criteria based on the City's Engineering Design Standards, August 2014 Section 5.

(b) Criteria included in the City's 2000 Master Plan

(c) Water storage capacity fire component criteria updated to provide redundancy in the North/Core and South Zones

(d) Criteria based on SCADA data and actual system operation pressures.

Table 4. System Operating Pressures[(a)]

Pump Facility	Minimum Pressure, psi	Maximum Pressure, psi
Watson Ranch	49	54
Fitzgerald Drive	51	55
Valley Glen	52	59
Park Lane	55	63
School Well	50	55

(a) Data shown based on SCADA pressure information provided for May through September 2020.

HYDRAULIC MODEL UPDATE

The City's existing hydraulic model was developed and calibrated as part of the WSMP based on the system information for the year 2014. Since completion of the WSMP, the City has completed several capital projects, including connection of the City's North/Core Zone with the South Zone which allows the City's system to operate as a single pressure zone. To update the existing water system hydraulic model, West Yost performed the following key tasks:

- Updated the hydraulic model with system improvements implemented since the WSMP
- Allocated 2019 water demands by geocoding City customer addresses to properly distribute demands spatially within the hydraulic model
- Verified the hydraulic model is generally representative of the City's current water system based on system pressures, flows, and tank elevations from the City's SCADA system
- Evaluated the existing system pumping and storage capacities

To accomplish these tasks, West Yost worked closely with the City to obtain and review:

- As-builts and record drawings associated with water system improvements implemented since the WSMP
- SCADA system information for May 2020 through September 2020
- Metered account information
- System operator knowledge on how facilities are operated

The water distribution system model was then verified using tank level, flow and pressure data from the City's SCADA system for July 2020. The hydraulic model update and verification are described below.

Demand Allocation

The hydraulic model demands were updated to capture the growth that has occurred in the City since the WSMP and also capture the most recent consumption pattern for the City's customers. The hydraulic model was updated using 2019 consumption information instead of 2020 data due to work from home and the change of typical water use patterns. City staff provided West Yost with a billing database file containing metered accounts and their corresponding water consumption data by address for calendar year 2019. The City's total consumption for 2019, based on the metered data provided, was 1,277 gpm.

To spatially allocate demands in the model, West Yost used a separate water service location file containing the addresses and spatial location of the metered accounts based on the centroid from the Solano County parcel geodatabase. Addresses were linked to the water service connection shapefile to assign a spatial location (see Figure 3). Approximately 93 percent of the demands, 1,190 gpm, from the metered accounts were successfully linked to a parcel. The remaining accounts that were not able to be linked were landscape accounts that do not have an exact address associated with the account (i.e., 00000 N Lincoln S/B – W of Russell Ln) and are typically associated with street landscape irrigation.

Water demands for calendar year 2019 were allocated in the hydraulic model using the spatially located water service connection demand data. InfoWater's "Demand Allocator" tool analyzes the metered demand data to identify the closest pipelines to each meter point. The tool then applies the metered water demand to the closest junction of the selected pipeline. West Yost staff reviewed the allocated water demands to confirm they were allocated properly. To account for the landscape demands that did not link to a parcel, overall demands in the model were scaled up to account for the landscape irrigation. Demands were also allocated to represent non-revenue water in the system. The 14 percent factor from the WSMP was assumed.

Hydraulic Model Verification

To ensure the hydraulic model is correctly configured and capable of producing results that are consistent with data observed in the City's SCADA system, a detailed extended period verification process was conducted. A description of the verification process and results are discussed below.

Hydraulic Model Verification Results

The City's model, developed as part of the WSMP, was calibrated and validated. The results showed the hydraulic model outcome trended well with the field data collected from hydrant pressure recorders and SCADA.

As part of this update, a SCADA verification was performed to confirm the City's hydraulic model can still generally replicate the water system operation with all of the system improvements that have been made.

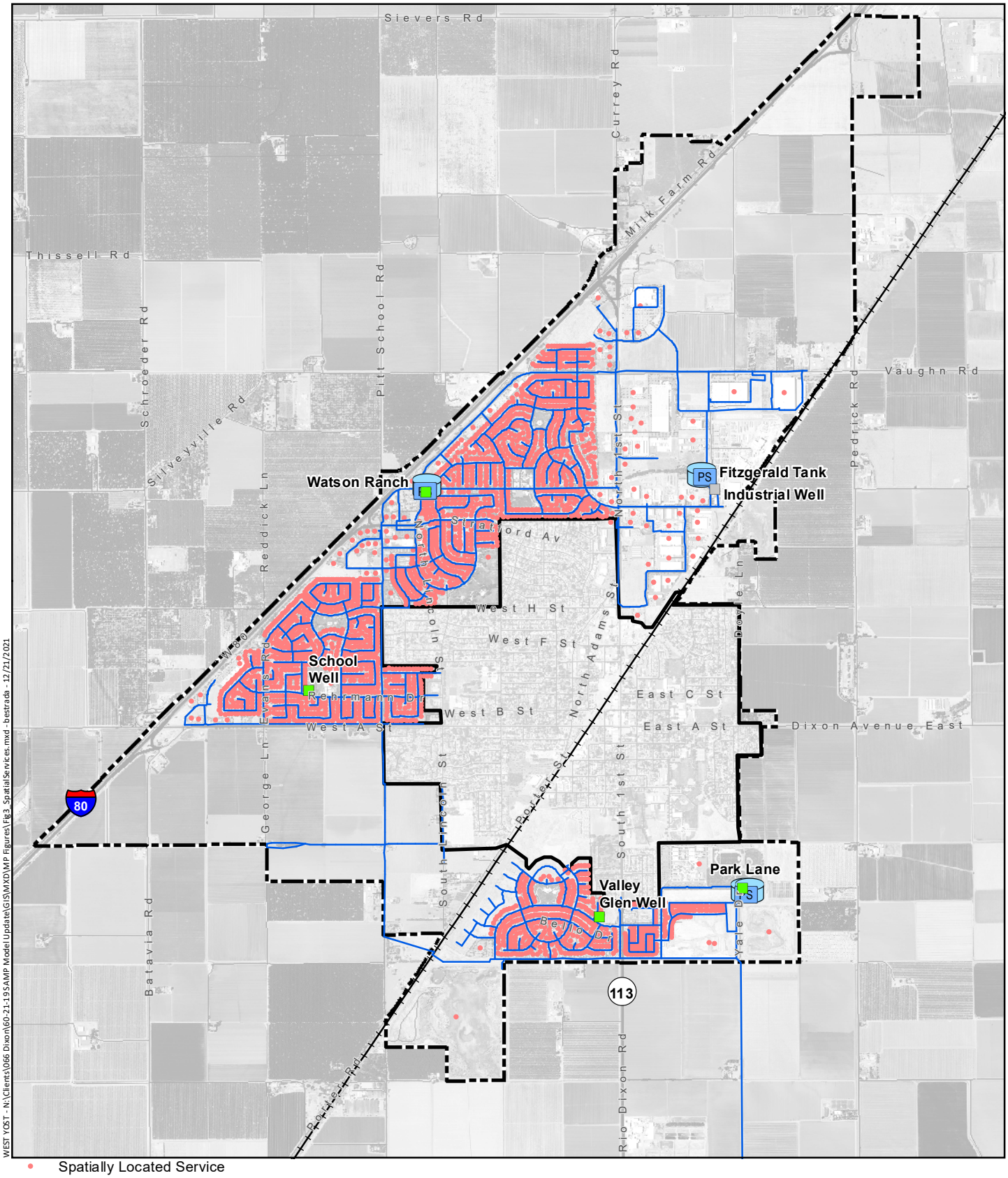
The hydraulic model controls were adjusted based on review with City staff to understand the operations and confirm the configuration of key supply facilities. This knowledge transfer between City staff and West Yost in May 2021 was an important process to ensure the hydraulic model would be able to replicate established system operations and provide accurate results.

Based on the results of the hydraulic model verification, it can be concluded that the hydraulic model continues to provide an accurate operational representation of the City's water distribution system and is adequate for use as a planning tool. Attachment A provides graphs comparing the SCADA information with the hydraulic model results.

Existing Water System Capacity Analysis

To evaluate the existing water system, analyses addressing the following system facilities were conducted:

- Supply Capacity
- Pumping Capacity
- Storage Capacity



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Spatially Located Service

Existing Facilities

- Active Well
- Inactive Well
- PS Booster Pump Station
- Tank
- Pipeline

Note:
- Addendum to 2016 Water System Master Plan.

N

0 1,500 3,000

Scale in Feet

Figure 3

Spatially Located Services

City of Dixon
2021 Water System Master Plan Update

The capacity analyses are based on the existing and projected demands for the City. Table 5 shows the existing and projected demands for average day, maximum day, and peak hour conditions.

Table 5. Existing Demands, gpm

Timeframe	Average Day Demand	Maximum Day Demand[(b)]	Peak Hour Demand[(c)]
Existing[(a)]	1,340	2,948	4,422

(a) Existing demands are based on 2020 consumption provided by the City.
(b) Maximum day demand = 2.2 times average day demand.
(c) Peak hour demand = 3.3 times average day demand.

Supply Capacity

The City currently operates four active groundwater wells with a total available capacity of approximately 7,000 gpm (10.08 million gallons per day (mgd)). The Industrial Well is offline and was excluded from the analysis. Additionally, while the School Well capacity is 1,800 gpm, the capacity was limited to 1,100 gpm for the analysis to avoid draw down issues. Since the City's North/Core and South Zones are hydraulically connected, the firm well capacity is calculated as a single zone as shown in Table 6. The firm well capacity is calculated based on the largest well out of service. The City should have adequate firm supply capacity to meet a maximum day demand condition. Comparing the City's firm supply to maximum day demands shows the City currently has adequate supply to meet demands.

Table 6. Existing Groundwater Well Supply Capacity, gpm

Well No.	Facility Name	Zone	Well Capacity	Surplus/(Deficit)[(a)]
1	DW-37: Watson Ranch Well	North/Core	1,500	
2	DW-44: Industrial Well[(b)]	North/Core	0	
3	DW-48: School Well[(c)]	North/Core	1,100	
4	DW-52: Valley Glen Well	South	1,900	
5	DW-54: Park Lane Well	South	2,500	
		Total Capacity	**7,000**	
		Firm Capacity[(d)]	**4,500**	**1,552**

(a) Surplus calculated using firm groundwater well supply (4,500 gpm) minus 2020 maximum day demand (2,948 gpm).
(b) Industrial Well is currently offline and excluded from analysis.
(c) School Well capacity is 1,800 gpm, however it is limited to 1,100 gpm to avoid draw down issues during peak summer month usage and can be increased to 1,500 gpm during lower demand usage.
(d) Firm capacity assumes largest well is offline.

Pumping Capacity

The City's pumping capacity was evaluated to assess its ability to deliver reliable, firm capacity to the City's existing service area (see Table 7). Firm capacity assumes a reduction in total pumping capacity to account for pumps that are out of service at any given time due to mechanical breakdowns, maintenance, water quality, or other operational issues. For the City's booster pump stations, the criteria for firm pumping capacity assumes the largest pump is off-line at a station. The North/Core and South Zones are evaluated as a single zone since they are hydraulically connected.

Table 7. Existing Firm Pumping Capacity, gpm

Firm Pumping Capacity[a]	Peak Hour Demand[b]	Maximum Day Demand Plus Fire Flow[c]	Pumping Surplus / (Deficit)
8,650	4,422	6,948	1,702

(a) Firm pumping capacity includes booster pump stations (with largest pump assumed for offline and not included in the capacity calculations) and any wells which pump directly into the distribution system. Existing facilities include Fitzgerald BPS (1,330 gpm), Watson Ranch BPS (1,660 gpm), Parklane BPS (2,660 gpm), School Well (1,100 gpm), and Valley Glen Well (1,900 gpm).
(b) Existing peak hour demands based on 2020 demands.
(c) Existing maximum day demand 2020 demands (ADD x 2.2) plus 4,000 gpm fire flow.

Storage Capacity

The principal advantages that storage provides for the water system are as follows: the ability to equalize demands on supply sources, production facilities, and transmission mains; to provide emergency storage in case of supply failure; and to provide water to fight fires.

The City has available storage in the City's tanks and the groundwater basin. Together, these sources of storage must be sufficient to meet the City's storage criteria for the City's existing water system. The volume required for each storage component is detailed below:

- Operational Storage: 20 percent of maximum day demand
- Fire Storage: Largest fire flow for North/Core Zone and South Zone

The City's existing storage was evaluated to determine whether the City's existing water system has sufficient capacity to provide the required system storage. Currently, the City has a water storage capacity surplus under existing conditions as summarized in Table 8.

Table 8. Existing Available and Required Storage Capacity, MG

Available Storage Capacity[a]	Required Storage Capacity			Storage Surplus / (Deficit)
	Operational[b]	Fire Flow[c]	Total	
3.6	0.85	1.35	2.20	1.40

(a) Available storage is calculated using the usable storage within the tanks. Usable storage is defined as the volume between the tank overflow level and the "dead" or unusable storage, based on the tank outlet.
(b) Operational Storage equals 20 percent of maximum day demand (2,948 gpm).
(c) Fire Flow Storage is based on providing 4,000 gpm for 3 hours (0.72 MG) for the North/Core Zone and 3,500 gpm for 3 hours (0.63 MG) in the South Zone.
MG = Million Gallons

Future System Capacity Analysis

The updated projected demands were used to evaluate additional facilities needed to meet the future demands and maintain a reliable system. The same criteria were used to determine the adequacy of existing facilities and the capacity required to meet demands. The projected demands for 2040 and buildout conditions are shown in Table 9.

Table 9. Projected Demands, gpm

Timeframe	Average Day Demand	Maximum Day Demand[a]	Peak Hour Demand[b]
2040[c]	3,684	8,105	12,157
Buildout[d]	5,058	11,128	16,691

(a) Maximum day demand = 2.2 times average day demand.
(b) Peak hour demand = 3.3 times average day demand.
(c) 2040 demands based on 2040 General Plan land use within the existing City limit boundaries.
(d) Buildout demands based on 2040 General Plan land use including within the adopted sphere of influence locations.

Supply Capacity

The City's current firm groundwater supply of 4,500 gpm will not be adequate to meet future development demands. The City actively works with new developments to ensure adequate facilities are constructed to continue to meet minimum system requirements. Table 10 shows the current, planned groundwater facilities compared to projected maximum day demands.

Table 10. Future Groundwater Well Supply Capacity, gpm

Well Facility	Well Capacity	Maximum Day Demand[a]	Surplus/(Deficit)
Existing System[b]			
Watson Ranch Well	1,500		
School Well	1,100		
Valley Glen Well	1,900		
Park Lane Well	2,500		
Total Capacity	**7,000**		
Total Firm Capacity	**4,500**	**2,948**	**1,552**
Near-Term (2040 General Plan)			
Existing Well Firm Capacity	4,500		
Improvements to School Well[c]	300		
Fitzgerald Well	1,500		
Homestead Well	1,500		
NEQ Well #1	1,500		
Total Firm Capacity	**9,300**	**8,105**	**1,195**
Buildout			
Near-Term Well Firm Capacity	9,300		
Improvements to School Well[d]	400		
NEQ Well #2	1,500		
East Side Well	1,500		
Total Firm Capacity	**12,700**	**11,128**	**1,572**

(a) Maximum day demand is equal to 2.2 times ADD and equals 2,948 gpm for the existing system.
(b) Industrial Well is excluded from this analysis.
(c) Near-term assumes rehabilitation of School Well to increase supply capacity by approximately 300 gpm has been completed to a total capacity of 1,400 gpm (1,100 gpm + 300 gpm).
(d) Buildout assumes rehabilitation of School Well to increase supply capacity by approximately 400 gpm to its full capacity of 1,800 gpm has been completed (1,400 gpm + 400 gpm).

Based on the future supply capacity requirements, the City will need to replace the lost capacity of the Industrial Well with a new well at the Fitzgerald Tank site. The City is also working with the Homestead development to construct a new well. The City needs to continue to monitor the pace of development in the City to continue to ensure adequate supplies are available to meet the existing and future demands in the system. The well capacity shown in Table 10 for planned/future wells represents an estimate for the potential well production capacity. However, many factors (hydrogeologic formations, water quality, etc.) impact actual production which could result in less capacity available. Therefore, the City should continue to plan for the new wells listed in Table 10 and re-evaluate supply capacity as new wells are brought on-line to ensure adequate supply is available.

Pumping Capacity

The City's criterion requires the system has sufficient pumping capacity to meet the greater demand scenario for a peak hour demand or a maximum day demand concurrent with a maximum fire flow event. For the City's existing system, the maximum day demand with a concurrent fire flow is the greater demand scenario. As the City continues to develop and demands increase, the peak hour demand scenario becomes the controlling scenario. The results of the pumping capacity evaluation are shown in Table 11.

Table 11. Future Firm Pumping Capacity, gpm

Future Scenario	Firm Pumping Capacity[a,b,c]	Peak Hour Demand[d]	Maximum Day Demand plus Fire Flow	Pumping Surplus / (Deficit)
2040	12,650	12,157	12,105	493
Buildout	16,510	16,691	15,128	(181)

(a) Firm pumping capacity includes booster pump stations (with largest pump assumed for standby and not included in the capacity calculations) and any wells which pump directly into the distribution system.
(b) 2040 firm pumping capacity includes facilities for existing system plus new Southwest Dixon SP Well (aka Homestead Well) (1,500 gpm), and New Fitzgerald Well #1 (1,500 gpm).
(c) Buildout firm pumping capacity includes facilities for 2040 system plus new Northeast Quadrant SP BPS (1,660 gpm), and East Development Area Well (1,500 gpm).
(d) Peak hour demand based on 2020 ADD and projected demands based on the General Plan 2040, multiplied by 3.3. Maximum day demand (based on 2020 ADD and projected demands based on the General Plan 2040, and multiplied by 2.2) plus 4,000 gpm (maximum fire flow requirement).

The pumping capacity analysis indicates the future firm pumping capacity still meets the pumping capacity criterion for 2040 with the improvements recommended in the WSMP. While there is a slight deficit showing at buildout, it is not great enough to recommend additional pumping capacity

Storage Capacity

The City's future storage was evaluated to determine whether the City's existing storage capacity is sufficient to provide the required storage for future demands and make recommendations for future tank capacity as needed. The updated storage evaluation results are summarized in Table 12.

Table 12. Future Available and Required Storage Capacity, MG

Scenario	Available Storage Capacity[a]	Required Storage Capacity			Storage Surplus/(Deficit)
		Operational[b]	Fire Flow[c]	Total	
2040	3.6	2.33	1.35	3.68	-0.08
Buildout	3.6	3.20	1.35	4.55	-0.95

(a) Available storage is calculated using the usable storage within the tanks. Usable storage is defined as the volume between the tank overflow level and the "dead" or unusable storage, based on the tank outlet.
(b) Operational Storage equals 20 percent of Maximum Day Demand.
(c) Fire Flow Storage is based on providing 4,000 gpm for 3 hours.

The storage capacity results are similar to the WSMP. The recommendations indicate there is sufficient storage in the City's system now that the system is hydraulically connected. The storage deficit by buildout has increased based on the updated demand projections. It is recommended the City plan for 1.0 MG of useable storage be added to the system. The City could phase the construction of the storage to include 0.5 MG tank prior to 2040 and a second 0.5 MG tank prior to buildout. Figure 4 shows the buildout system improvement recommendations.

STRATEGIC ASSET MANAGEMENT PLAN UPDATE

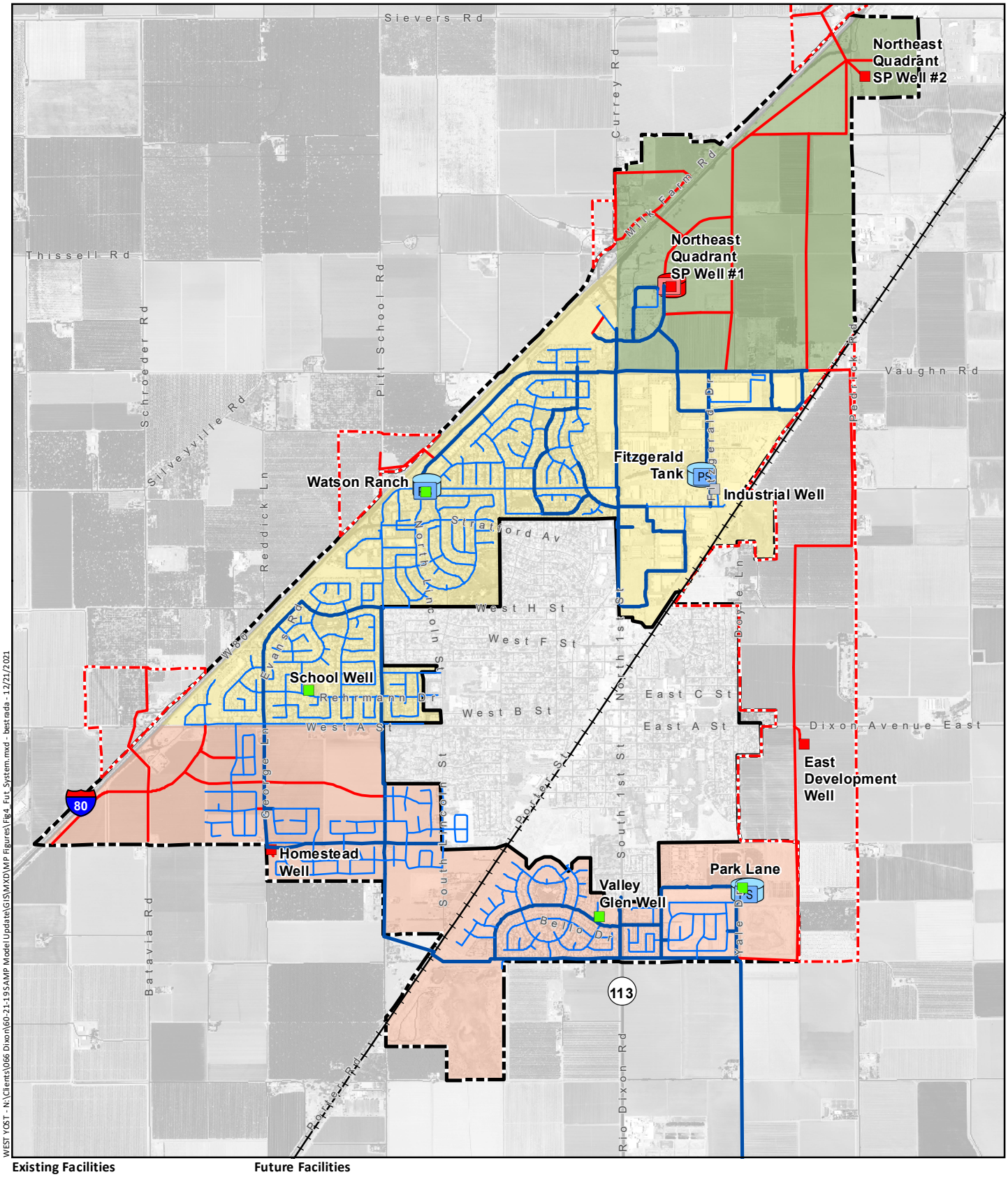
The 2016 SAMP was developed using an asset model that estimated risk ratings for vertical assets and facilities. Risk assessment factors included asset age, condition, performance rating, operating ability (functionality of a facility if an asset fails), and service reliability (time or resources required to repair or replace an asset). This information was used to develop condition and age-based rehabilitation CIP projects, prioritized based on risk.

Due to the significant reliability improvements completed since the WSMP, the City desired to update the SAMP model prior to developing the new CIP alternatives with the understanding that certain CIP projects would no longer be necessary, and the revised CIP would likely reduce in scope and cost.

The following sections describe the tasks that were performed as part of the SAMP update which informed the development of the revised CIP alternatives.

Levels of Service

As part of the WSMP, West Yost worked with the City to define the levels of service and associated performance metrics. These levels of service allow the City to focus its efforts and resources, communicate service expectations and choices, and evaluate risk levels. Utility performance can be evaluated using the level of service performance metrics, which can justify increased or decreased maintenance, rehabilitation, or capital improvements. Table 13 presents the City's levels of service and the performance for the years 2019 and 2020. Prior to 2019, the City was transitioning from contracted operation of the water system (by Severn Trent) to internal City staff, so data from that period is not reliable or readily available.



WEST YOST - N:\Clients\066 Dixon\60-21-19 SAMP Model Update\GIS\MXD\MP Figures\Fig4_Fut_System.mxd - bestrada - 12/21/2021

Existing Facilities

- Active Well
- Inactive Well
- PS — Booster Pump Station
- Tank
- 6- to 10-inch Diameter
- 12-inch Diameter and Greater

Future Facilities

- Future Well
- PS — Future BPS
- Future Tank
- Future Pipeline

N

0 1,500 3,000

Scale in Feet

Note:
- Addendum to 2016 Water System Master Plan.

Figure 4

Buildout Water System

City of Dixon
2021 Water System
Master Plan Update

Table 13. Levels of Service and Performance

Goals	Metric and Target	Performance		
		2018	2019	2020
Maximized Efficiency and Useful Life				
• Continue to proactively maintain the wells, booster pumps, storage tanks, and distribution facilities • Proactively replace infrastructure	Conduct annual valve exercise program	33%	15% per year	15% per year
	Breaks per 100 miles (proposed target < 10 breaks per year)	-	0	0
	Unaccounted for water (proposed target < 5 percent)	-	9%	13%
Increased Reliability and Customer Satisfaction				
• Maintain optimal pressure in system • Perform all required monitoring and reporting by mandated schedule • Develop system redundancies in case of unexpected failures	Customer service complaints per 1,000 customers[(a)] (proposed target < 1 call per 1,000)	-	2.5	3.5
	Emergency response time (proposed target < 1 hour)	-	<1 hour	<1 hour
	Time to resolution for emergencies (proposed target < 24 hours)	-	<24 hours	<24 hours

(a) Customer Complaint Logs were reviewed to identify complaints related only to City operations and maintenance (pressure, color, leaks on City side of system, etc.). Total City-responsible complaints were: 22 for 2019 and 31 for 2020. Service populations were estimated using the methodology in the WSMP: 8,782 for 2019 and 8,794 for 2020.

Level of Service Conclusions

The following subsections provide a summary of the level of service performance metric results and discussion on how that may impact the revised CIP. Information was obtained from discussions with City staff.

Valve Exercising

Valve exercising was performed by Severn Trent on the entire system between 2016 and 2018 (estimated at 33 percent of all valves, per year). As the City has taken over operation and maintenance (O&M) of the system, valve exercising has been limited to approximately 15 percent per year. When the Water Distribution Division is fully staffed (anticipated by the end of 2021), a full valve exercising program is planned. The City is currently working with an asset management contractor to develop this program in conjunction with a uni-directional flushing program.

The City has included funds in their CIP to fund replacement of valves that are discovered as non-functioning or damaged during valve exercising. This amount has been $50,000 for FY19/20 and FY20/21, which is expected to be necessary in future years based on the rate of valves requiring replacement that have been identified over the past two years.

Mainline Breaks

Since 2019, the City has averaged less than one mainline break per year. The City does experience reoccurring failures on a section of asbestos cement (AC) pipeline, specifically due to failures at the corporation stop service saddles due to outdated construction practices. The remainder of the City's AC pipe (approximately two percent of the distribution system by length) is performing well, has adequate remaining useful life, and does not appear to require proactive replacement. The WSMP CIP project for system-wide replacement of AC pipe should be adjusted to allow for a longer duration for completing the replacement.

Unaccounted for Water

The industry has shifted from use of the term 'unaccounted for water' as more agencies are acknowledging that no water is truly "unaccounted for". All volumes of water supplied to distribution go to either beneficial consumption or wasteful loss[1]. Instead, the term 'non-revenue' water is used to define the distributed volume of water that is not reflected in customer billings. Non-revenue water is specifically defined as the sum of Unbilled Authorized Consumption (water for firefighting, flushing, etc.) plus Apparent Losses (customer meter inaccuracies, unauthorized consumption and systematic data handling errors) plus Real Losses (system leakage and storage tank overflows). Typical non-revenue values for similar utilities are in the range of 8 to 12 percent of demands. The City was not required to track water loss until it became an urban water supplier in 2021. The City should continue to track the non-revenue water and address Apparent and Real Losses in a timely manner.

Customer Service Complaints

The majority of customer complaints are related to leaks on services (19 of 22 total complaints in 2019 and 18 of 31 total complaints in 2020). Without the service-related leaks, the City would have met the target in both 2019 and 2020 of one call per 1,000 customers.

Emergency Response Times

According to the City, emergency response time and resolution targets were met in 2019 and 2020. The City staff successfully addressed emergencies with a response time of less than 24 hours.

Updated Levels of Service

Levels of service were reviewed with City staff and it was agreed to make updates, as discussed in the previous section, to the metrics and targets from the WSMP. Goals were agreed to remain the same. Updated levels of service are shown in Table 14, with changes from the WSMP identified in bold.

These levels of service should be tracked annually and reviewed for changes to the O&M and capital priorities. Levels of service should be re-evaluated at regular planning intervals (e.g., during completion of master plan updates) to evaluate their applicability to the system, needs and expectations of customers, and available City resources.

[1] IWA/AWWA Water Audit Method, Water Loss Control Terms Defined (AWWA, 2012).

Table 14. Updated Levels of Service

Goals	Metric and Target
Maximized Efficiency and Useful Life	
• Continue to proactively maintain the wells, booster pumps, storage tanks, and distribution facilities • Proactively replace infrastructure	Conduct annual valve exercise program **(target: 50 percent of valves per year)**
	Breaks per 100 miles **(target: < 5 breaks per year)**
	Non-revenue water **(target: < 10 percent)**
Increased Reliability and Customer Satisfaction	
• Maintain optimal pressure in system • Perform all required monitoring and reporting by mandated schedule • Develop system redundancies in case of unexpected failures	Customer service complaints per 1,000 customers **(target < 2 calls per 1,000)**
	Emergency response time **(target: < 1 hour)**
	Time to resolution for emergencies **(target: < 24 hours)**

Condition Assessment

The WSMP included a field condition assessment of each well, booster pump, and storage tank facility to gather equipment information and assess the condition of the facilities. Each of the facilities' components were rated on a 1 through 5 scale, with 1 representing the best condition and performance and 5 representing the worst (see Table 15). Ratings were assigned based on external visual observation and discussions with City staff. The inspection information was collected on inspection forms and transferred to a Microsoft Access registry database to document the assessment and perform the subsequent risk assessment.

Table 15. Condition and Performance Ranking Index

Score	Condition Ranking Index	Performance Ranking Index
1	Excellent	Component functioning as intended
2	Slight visible degradation	In service, but higher than expected O&M costs
3	Visible degradation	In service, but function is impaired
4	Integrity of component moderately compromised	In service, but function is highly impaired
5	Integrity of component severely compromised	Component is not functioning as intended

As discussed previously, since completion of the WSMP, the City has implemented significant operational and maintenance improvements to the system and completed several of the original WSMP recommended CIP projects. For these reasons, the City desired to update the condition assessment to inform the three CIP alternatives.

Condition Assessment Update

West Yost conducted site visits of all facilities on March 2, 2021 with an inspection team consisting of a mechanical engineer, electrical/instrumentation engineer, the West Yost project manager, and two City distribution system operators. Each component was reassessed using the same visual condition assessment method and ranking index (Table 15). Components which had been added, removed, or replaced since the 2016 inspection were updated through the inspection forms and in the Microsoft Access database.

The results of the updated 2021 condition assessment for each facility are included in the Facility Inspection Report, included as Attachment B. Attachment B supersedes the previous version included as Appendix D in the WSMP.

Risk Assessment

The 2016 condition assessment data was used to inform the original water system risk assessment. Risk framework elements included *likelihood of failure*, *consequence of failure*, and *risk*, which are each calculated at the individual component level and for each facility. The risk assessment results provide a picture of the overall risk of the system at the component level, facility level, and of the water system as a whole. This information can be used to direct funding resources, and to prioritize rehabilitation or repair efforts.

Risk Assessment Update

Using the updated condition assessment results, the 2016 risk assessment methodology was applied to perform an updated risk assessment at the component and facility level. Results from the updated risk assessment are presented below.

Risk Assessment – Components

At the component level, risk is calculated by considering the likelihood of failure of each component. Likelihood of failure contributing factors include asset age and the Condition and Performance Ratings assigned in the updated Condition Assessment. Consequence of failure factors evaluate the impact component failure may have on operating the respective facility. Table 16 summarizes the component risk results from the 2016 assessment and the 2021 update.

Table 16. Summary of Component Risk Assessment Results (2016 and 2021 Update)

Risk Level	2016 Results		2021 Updated Results	
	No. of Components	% of Total	No. of Components	% of Total
Low	50	20	26	11
Medium-Low	69	28	62	25
Medium	31	13	53	22
Medium-High	51	21	65	27
High	44	18	39	16
Total	**245**	**100%**	**245**	**100%**

Based on the updated component risk assessment results, the majority of assets fall between the Medium-Low to Medium-High risk levels. The City improved the condition of many assets through recent reliability improvements, seen in the risk assessment as a reduction in the number of components in the High risk level. Even with improvements, all water system assets continued to undergo normal age-based deterioration, and the asset consequence of failure remained the same. Therefore, since 2016, there was an increase in the number of water system components in the Medium and Medium-High risk levels and it's important to note that nearly 40-percent of water system component risk assessment results fall in the Medium-High and High risk levels.

Risk Assessment – Facilities

At the facility level, risk is calculated by considering the likelihood of failure from all components at that facility, and a consequence of failure that considers the impact a facility's failure may have on the level of service provided by the water system. Table 17 summarizes the facility risk results from the 2016 assessment and the 2021 update.

Table 17. Summary of Facility Risk Assessment Results (2016 and 2021 Update)

Facility Name	2016 Results Risk Level	2021 Updated Results Risk Level
School Well	High	Medium-High
Valley Glen	Medium-High	Medium-High
Industrial Well	Medium-High	Medium-High
Watson Ranch	Medium-High	Medium-Low
Park Lane	Medium	Low
Fitzgerald	Medium	Medium

Facility risk is reduced for the School Well, Watson Ranch, and Park Lane facilities. The Valley Glen, Fitzgerald, and Industrial Well facility risk level remained the same. The updated results of the facility risk assessment are indicative of the recent reliability improvements undertaken by the City, specifically connection of the North/Core and South Zones. This connection provides greater excess capacity and redundancy for the entire system. The City has not invested in rehabilitation of the Industrial Well as it is currently classified through the State as a standby source. Overall, the City's system falls in a Medium risk level on a facility level average.

CYBERSECURITY ASSESSMENT

As part of the WSMP update, the City elected to include a cybersecurity assessment to evaluate the risk of cybersecurity threats to the City's water system and infrastructure. A workshop was conducted with City staff on July 1, 2021 to assess the City's current cybersecurity controls. The results from the assessment were used to develop recommended controls (improvement projects) to reduce the vulnerability of the water system to a cyberattack, and to reduce the consequences associated with a cyberattack, should one occur.

CIP ALTERNATIVES DEVELOPMENT

Improvement recommendations from the hydraulic model update, strategic asset management update, and the cybersecurity assessment were combined to develop a master list of projects for the CIP. The master list was then refined into three CIP alternatives reflecting different levels of implementation, described in general as:

- High – most expensive and conservative approach; assumes all facilities are replaced based on estimated useful life
- Medium – mid-range between High and Low
- Low – least expensive and conservative approach; provides the minimal level of projects to keep the system operational

The selection of projects for each alternative was completed using information from the risk assessment and significant feedback from City staff.

Table 18 presents a summary of the proposed High, Medium, and Low CIP Alternatives. Full detail for the three alternatives is provided in Attachment C. Projects from the City's existing CIP were carried into the alternatives and are shown in grey cells at the bottom of the tables. Project descriptions are provided once in the High alterative table. The WSMP CIP was valued at $25,703,800 (2016 dollars, revised November 2019).

Table 18. Summary of 10-Year CIP Alternatives (2022 Dollars, 3% Inflation per Year)

Alternative	Cost, dollars
High	$37,931,370
Medium	$20,974,717
Low	$8,266,563

The CIP alternatives were provided to the City's water rate consultant for incorporation into development of the updated water rates.

Attachment A

Model Verification Graphs

Figure A-1. Watson Ranch Booster Pump Station: Flow and Pressure Comparison

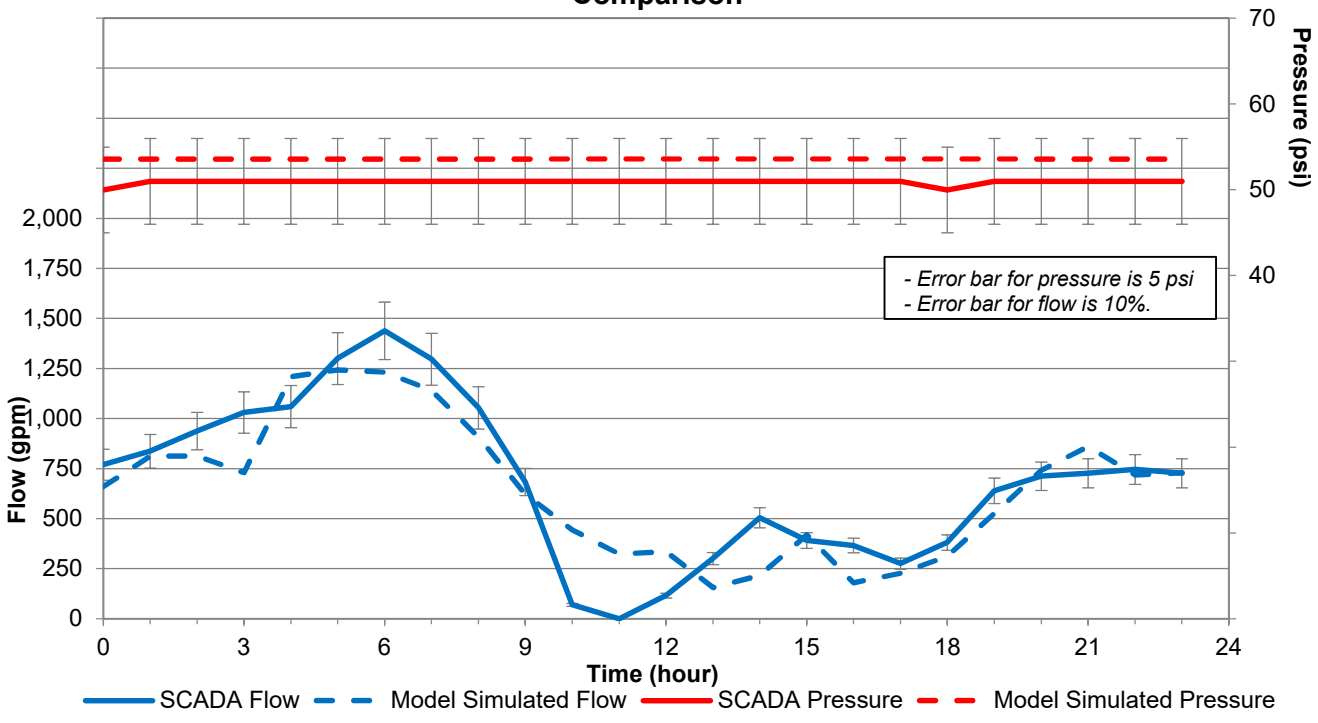
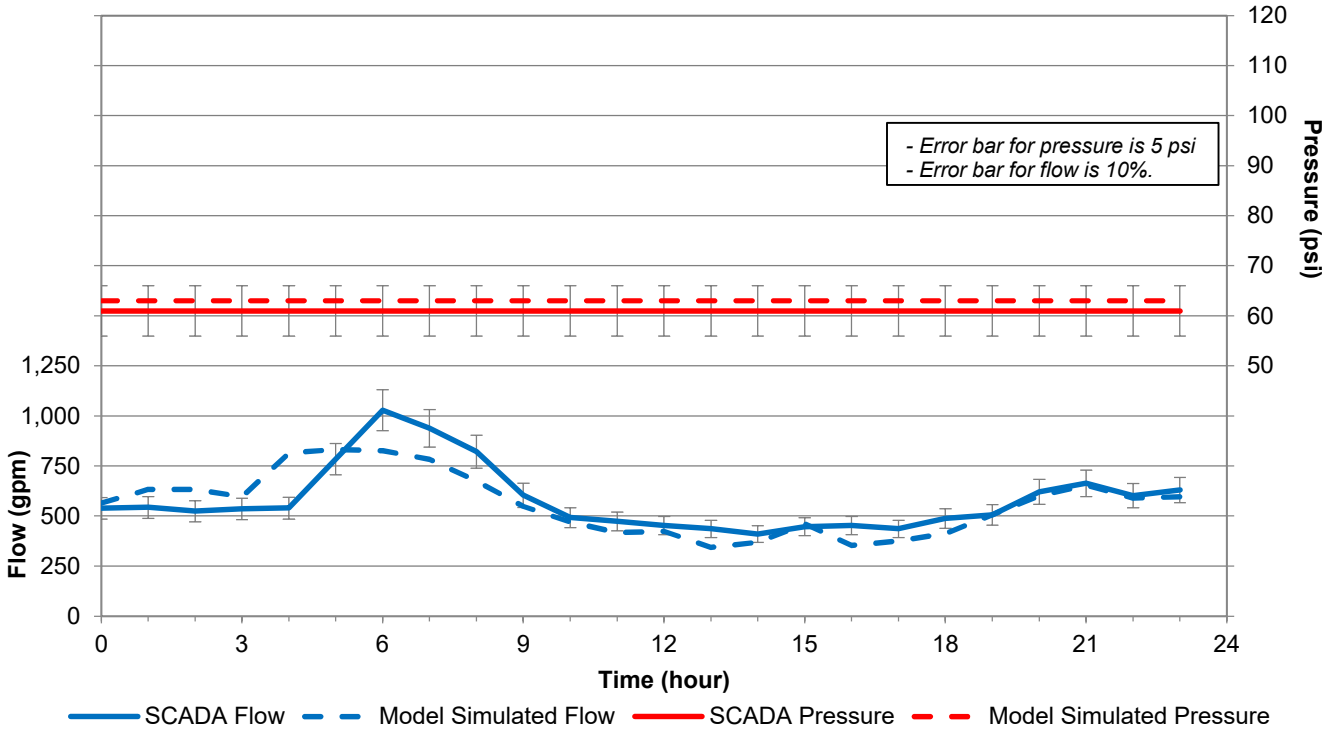


Figure A-2. Parklane Booster Pump Station: Flow and Pressure Comparison



Note: All figures display SCADA from July 27, 2020

Figure A-3. Watson Ranch Well: Flow Comparison

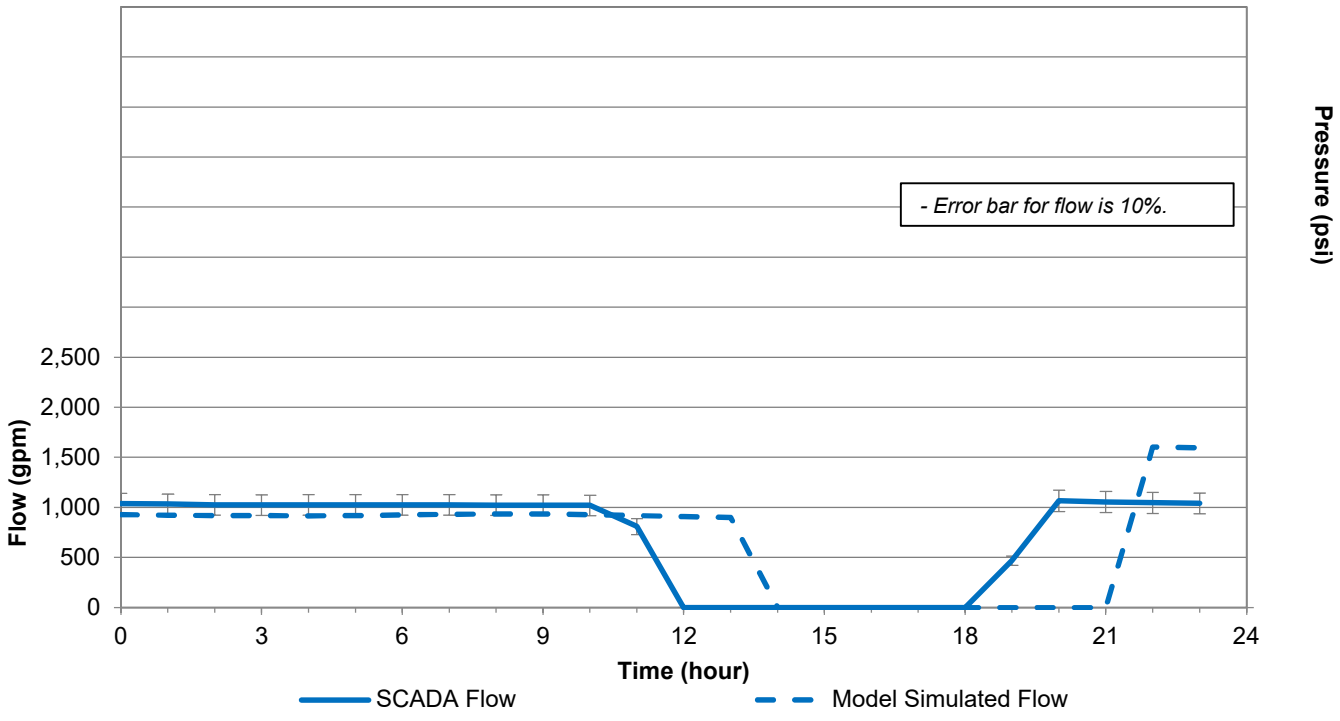
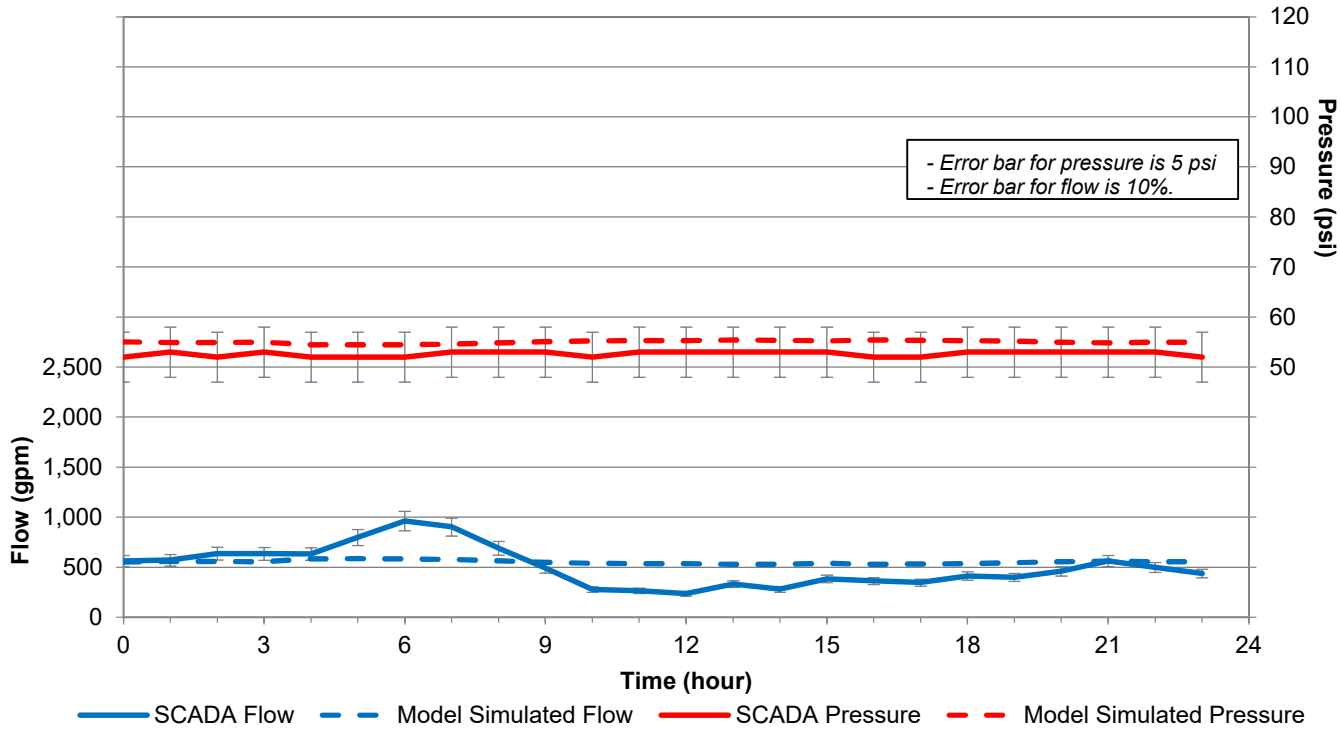


Figure A-4. School Well: Flow and Pressure Comparison



Note: All figures display SCADA from July 27, 2020

Figure A-5. Parklane West: Tank Level Comparison

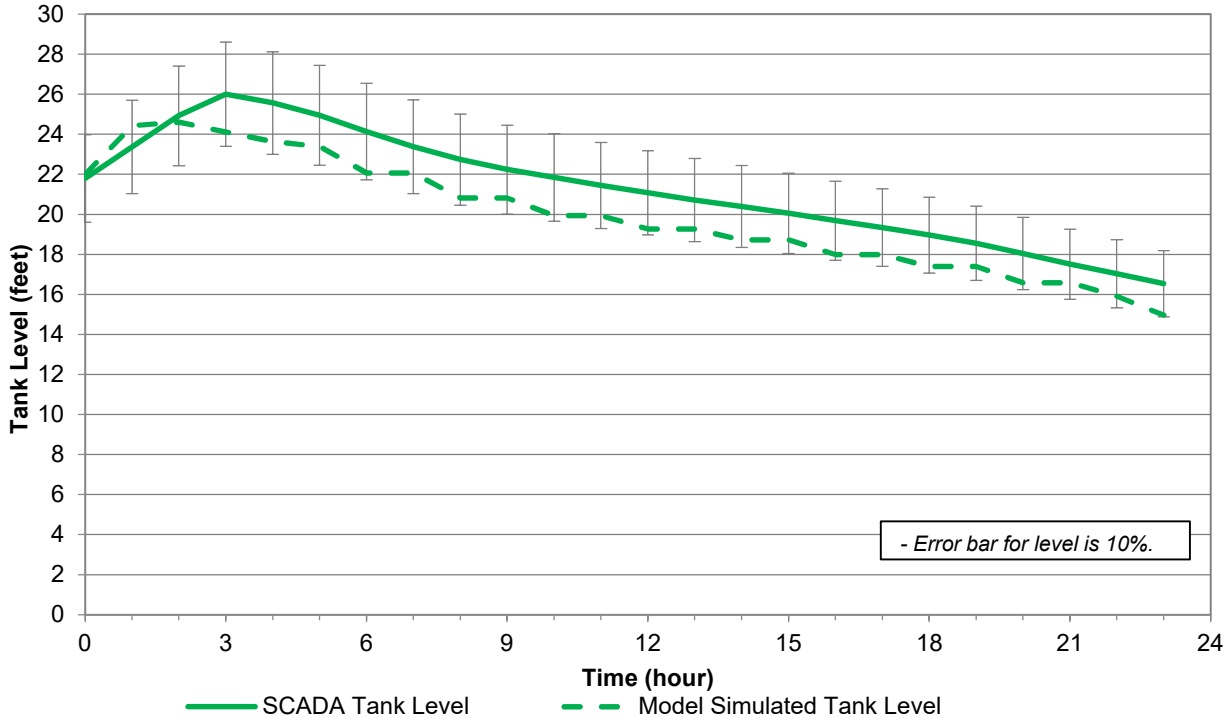
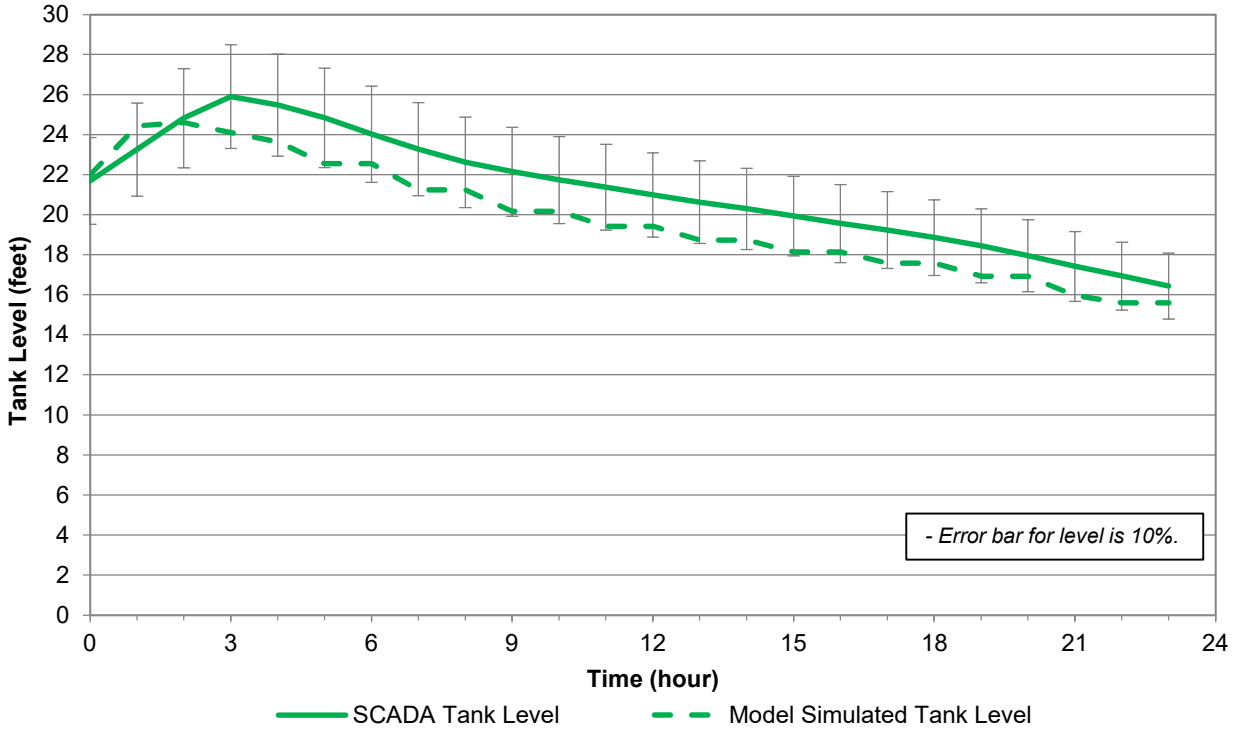
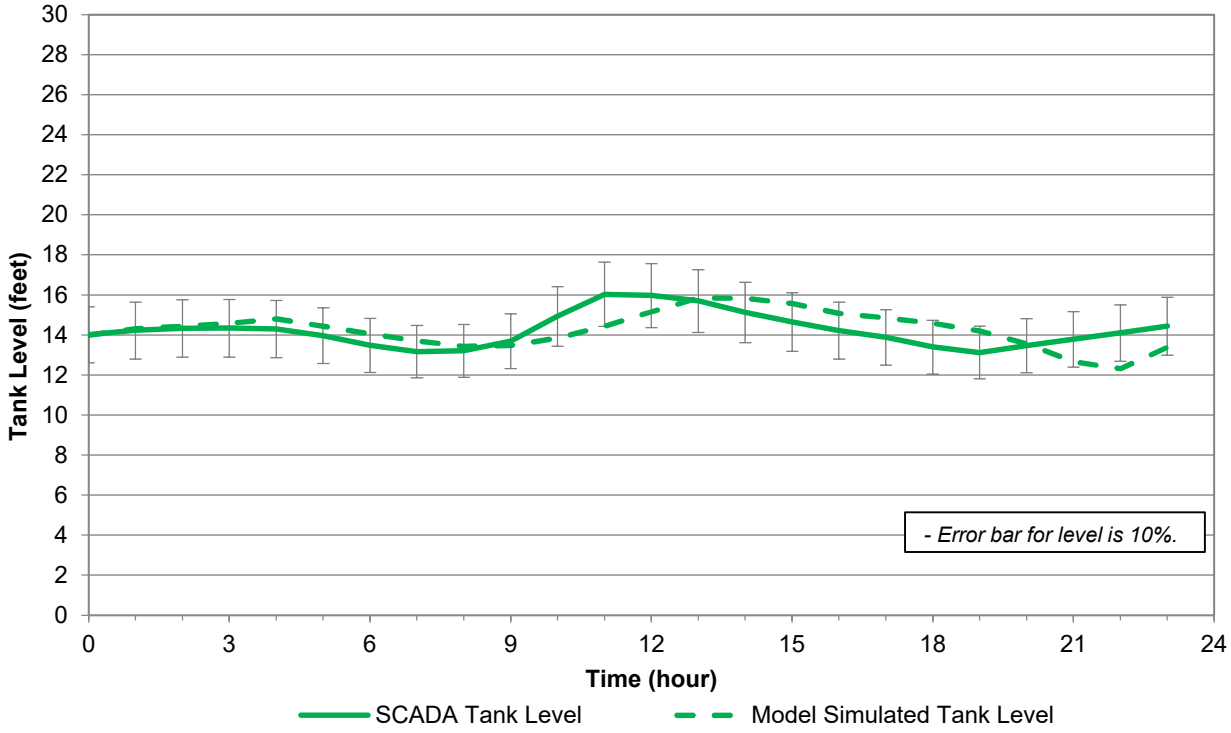


Figure A-6. Parklane East - Tank level Comparison



Note: All figures display SCADA from July 27, 2020

Figure A-7. Watson Ranch: Tank Level Comparison



Note: All figures display SCADA from July 27, 2020

Attachment B

Facility Inspection Report

Fitzgerald

Facility Address	Adjacent Land Use
1550 Fitzgerald Drive	Industrial
Service Status	**Zone**
Active	Core
Year Originally Constructed	**Year of Latest Upgrade**
2002 (O&M Manual)	

Comments

Tank and Booster Pump Site
-Tank, 1.5 MG
-Booster Pump 1, 330 gpm
-Booster Pump 2, 1000 gpm
-Booster Pump 3, 1000 gpm

Inspection Date

March 2, 2021

Inspection Team

D. Shimberg, C. Neher, and B. Estrada (West Yost); J. Hudson and D. Dunn (Dixon)

Hazards (trees, fire, flood, landslide, etc.)

None

Health and Safety Equipment On-site (PPE, first aid, fire extinguisher, safety shower, MSDS, etc.)

Fire Extinguisher

Notes

Condition Rating Index:
1 - Excellent
2 - Slight Visible Degradation
3 - Visible Degradation
4 - Integrity Moderately Compromised
5 - Integrity Severely Compromised

Performance Rating Index:
1 - Functioning as Intended
2 - In Service, High OM Costs
3 - In Service, Function Impaired
4 - In Service, Function Highly Impaired
5 - Not Functioning as Intended

Fitzgerald

Structural / Architectural

Asset: WT-FZ-BLD-01, Distribution Pumping Building

Size / Material	Condition Rating: 1	Purchase Year
1,500 sq ft, CMU	Performance Rating: 1	2002 (City Finance Records)
Manufacturer/Model	Standard Useful Life: 50 years	
	Remaining Life: 31 years	
Serial Number	Replacement Cost: $711,204	
	Notes:	
Comments		

Asset: WT-FZ-GST-01, Ground Storage Tank

Size / Material	Condition Rating: 2	Purchase Year
1,500,000 gal, A36	Performance Rating: 1	2001 (Nameplate)
Manufacturer/Model	Standard Useful Life: 40 years	
Pacific Tank and Construction Co.	Remaining Life: 20 years	
Serial Number	Replacement Cost: $4,349,063	
	Notes: - Recommended adding flexible connection between tank and each below-grade pipeline. - New cathodic protection installed in 2020. - Cleaned and re-coated in 2019.	
Comments		

Asset: WT-FZ-ACT-01, GST Distribution Isolation BFV Actuator
Subcomponent to: WT-FZ-GST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2002
Manufacturer/Model	Condition Rating: 3	
	Performance Rating: 4	
Serial Number	Standard Useful Life: 30 years	
	Remaining Life: 11 years	
Comments	Replacement Cost: $23,352	
	Notes: - Only for emergency use - not operated regularly. Recommended monthly valve exercise to verify that the valve will perform as required when needed. - Valve/actuator gets stuck. Scheduled to be replaced.	

Fitzgerald

Structural / Architectural

Asset: WT-FZ-LIT-01, GST Level Indicator Transmitter
Subcomponent to: WT-FZ-GST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
	24 V	2020

Manufacturer/Model
Foxboro, LG01

Serial Number
2A3220

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 14 years
Replacement Cost: $7,942
Notes:

Asset: WT-FZ-VLV-10, GST Inlet Check Valve
Subcomponent to: WT-FZ-GST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
12 in		2002

Manufacturer/Model
SCI Valves

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 6 years
Replacement Cost: $8,654
Notes: Coating on flange and on pipe transition at grade is compromised. Recommended to recoat.

Asset: WT-FZ-VLV-11, GST Inlet Isolation BFV
Subcomponent to: WT-FZ-GST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
12 in		2002

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 11 years
Replacement Cost: $7,326
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Structural / Architectural

Asset: WT-FZ-VLV-12, GST Distribution Inlet Check Valve
Subcomponent to: WT-FZ-GST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2000 (Nameplate)

Manufacturer/Model
SCI Valves

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 4 years
Replacement Cost: $7,042
Notes: Only for emergency use - not operated regularly. Recommended annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-FZ-VLV-13, GST Distribution Isolation BFV
Subcomponent to: WT-FZ-GST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2002

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 4
Standard Useful Life: 30 years
Remaining Life: 11 years
Replacement Cost: $5,477
Notes: - Only for emergency use - not operated regularly. Recommended monthly valve exercise to verify that the valve will perform as required when needed.
- Valve/actuator gets stuck. Scheduled to be replaced.

Asset: WT-FZ-PST-02, Hydropneumatic Tank

Size / Material	Purchase Year
5,300 gal	2001 (Nameplate)

Manufacturer/Model
Wendland

Serial Number
33733

Comments
6' diameter x 25' length

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 10 years
Replacement Cost: $241,881
Notes:

Structural / Architectural

Asset: WT-FZ-CMP-01, Hydropneumatic Tank Air Compressor
Subcomponent to: WT-FZ-PST-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
3 hp	230/460 V, 12.5/6.25 A, 5 hp, 1750 RPM	2002

Manufacturer/Model
Ingersoll-Rand, 2475

Serial Number
01039714

Comments

Condition Rating: 3
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 1 years
Replacement Cost: $5,619
Notes:

Mechanical Systems

Asset: WT-FZ-DBP-01, Booster Pump 1

Size/Material	Volts/Amps/HP/Speed	Purchase Year
20 hp	20 hp	2019

Manufacturer/Model	Duty (gpm) / Duty (TDH)
Paco, 16-30707-140101-2851	330 gpm, 150 ft

Serial Number	
25175	**Condition Rating:** 1
Comments	**Performance Rating:** 1
7.10" impeller diameter	**Standard Useful Life:** 30 years
	Remaining Life: 28 years
	Replacement Cost: $45,991
	Notes:

Asset: WT-FZ-BPM-01, Booster Pump 1 Motor
Subcomponent to: WT-FZ-DBP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
20 hp	230/460 V, 46/23 A, 20 hp, 3550 RPM	2002

Manufacturer/Model	
US Electrical Motors, UTE4	**Condition Rating:** 2
Serial Number	**Performance Rating:** 1
G04 41073904 036 F	**Standard Useful Life:** 30 years
Comments	**Remaining Life:** 11 years
	Replacement Cost: $9,483
	Notes:

Asset: WT-FZ-PIT-01, Booster Pump 1 Discharge Pressure Sensor
Subcomponent to: WT-FZ-DBP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2002

Manufacturer/Model	
FLOTECT	**Condition Rating:** 1
Serial Number	**Performance Rating:** 1
	Standard Useful Life: 15 years
Comments	**Remaining Life:** 0 years
	Replacement Cost: $4,978
	Notes:

Mechanical Systems

Asset: WT-FZ-VFD-01, Booster Pump 1 VFD
Subcomponent to: WT-FZ-DBP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
27 A	480 V, 27 A, 20 hp	2020

Manufacturer/Model
Allen-Bradley, PowerFlex 700 AC Drive

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 14 years
Replacement Cost: $43,740
Notes:

Asset: WT-FZ-VLV-01, Booster Pump 1 Discharge Check Valve
Subcomponent to: WT-FZ-DBP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2002

Manufacturer/Model
SCI Valves

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 6 years
Replacement Cost: $7,042
Notes:

Asset: WT-FZ-VLV-02, Booster Pump 1 Discharge Isolation BFV
Subcomponent to: WT-FZ-DBP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2002

Manufacturer/Model
CMB Industries

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 11 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Mechanical Systems

Asset: WT-FZ-VLV-03, Booster Pump 1 Suction Isolation BFV
Subcomponent to: WT-FZ-DBP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2002

Manufacturer/Model
CMB Industries

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 11 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-FZ-DBP-02, Booster Pump 2

Size/Material	Volts/Amps/HP/Speed	Purchase Year
50 hp	50 hp	Rebuilt 2021 (2002 Original)

Manufacturer/Model
Paco, 16-60125-1A011X-2902

Duty (gpm) / Duty (TDH)
1000 gpm, 130 ft

Serial Number
01C1169701C

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 30 years
Replacement Cost: $114,978
Notes: Coating shows damage/corrosion; evidence of leak

Asset: WT-FZ-BPM-02, Booster Pump 2 Motor
Subcomponent to: WT-FZ-DBP-02

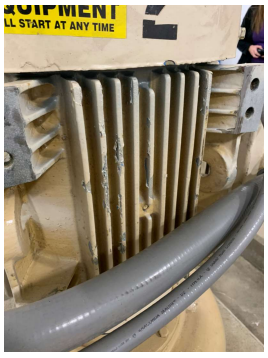
Size/Material	Volts/Amps/HP/Speed	Purchase Year
50 hp	460 V, 62.2 A, 50 hp, 1775 RPM	Rebuilt 2021 (2002 Original)

Manufacturer/Model
GE Motors, 5KS326SS2262D20W6

Serial Number
SS6225215

Comments

Condition Rating: 3
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 30 years
Replacement Cost: $23,707
Notes: - Motor dipped/baked rebuilt 2020/2021.
- Coating on one side heavily peeling.



Mechanical Systems

Asset: WT-FZ-PIT-02, Booster Pump 2 Discharge Pressure Sensor
Subcomponent to: WT-FZ-DBP-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2002

Manufacturer/Model
FLOTECT

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 0 years
Replacement Cost: $4,978
Notes:

Asset: WT-FZ-VFD-02, Booster Pump 2 VFD
Subcomponent to: WT-FZ-DBP-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
65 A	480 V, 65 A, 50 hp	2020

Manufacturer/Model
Allen-Bradley, PowerFlex 700 AC Drive

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 14 years
Replacement Cost: $87,478
Notes:

Asset: WT-FZ-VLV-04, Booster Pump 2 Discharge Check Valve
Subcomponent to: WT-FZ-DBP-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2002

Manufacturer/Model
SCI Valves

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 6 years
Replacement Cost: $7,042
Notes:

Mechanical Systems

Asset: WT-FZ-VLV-05, Booster Pump 2 Discharge Isolation BFV
Subcomponent to: WT-FZ-DBP-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2002

Manufacturer/Model
CMB Industries

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 11 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-FZ-VLV-06, Booster Pump 2 Suction Isolation BFV
Subcomponent to: WT-FZ-DBP-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2002

Manufacturer/Model
CMB Industries

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 11 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-FZ-DBP-03, Booster Pump 3

Size/Material	Volts/Amps/HP/Speed	Purchase Year
50 hp	20 hp	2015 (Operations Staff)

Manufacturer/Model
Paco, 16-60125-1A011X-2902

Duty (gpm) / Duty (TDH)
1000 gpm, 130 ft

Serial Number
01C1169701B

Comments

Condition Rating: 3
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 24 years
Replacement Cost: $114,978
Notes: Minor coating damage; Pump replaced 3/2015

Mechanical Systems

Asset: WT-FZ-BPM-03, Booster Pump 3 Motor
Subcomponent to: WT-FZ-DBP-03

Size/Material	Volts/Amps/HP/Speed	Purchase Year
50 hp	460 V, 62.2 A, 50 hp, 1775 RPM	2015 (Operations Staff)

Manufacturer/Model
GE Motors, SKS326SS2262D20W6

Serial Number
SS6225216

Comments
Motor rebuilt 3/2015

Condition Rating: 3
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 24 years
Replacement Cost: $23,707
Notes: Minor coating damage

Asset: WT-FZ-PIT-03, Booster Pump 3 Discharge Pressure Sensor
Subcomponent to: WT-FZ-DBP-03

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2002

Manufacturer/Model
FLOTECT

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 0 years
Replacement Cost: $4,978
Notes:

Asset: WT-FZ-VFD-03, Booster Pump 3 VFD
Subcomponent to: WT-FZ-DBP-03

Size/Material	Volts/Amps/HP/Speed	Purchase Year
65 A	480 V, 65 A, 50 hp	2020

Manufacturer/Model
Allen-Bradley, PowerFlex 700 AC Drive

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 14 years
Replacement Cost: $87,478
Notes:

Mechanical Systems

Asset: WT-FZ-VLV-07, Booster Pump 3 Discharge Check Valve
Subcomponent to: WT-FZ-DBP-03

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2002

Manufacturer/Model
SCI Valves

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 6 years
Replacement Cost: $7,042
Notes:

Asset: WT-FZ-VLV-08, Booster Pump 3 Discharge Isolation BFV
Subcomponent to: WT-FZ-DBP-03

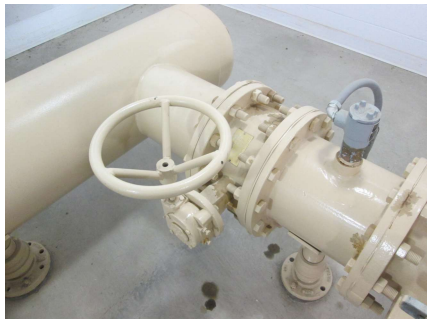
Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2002

Manufacturer/Model
CMB Industries

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 11 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.



Asset: WT-FZ-VLV-09, Booster Pump 3 Suction Isolation BFV
Subcomponent to: WT-FZ-DBP-03

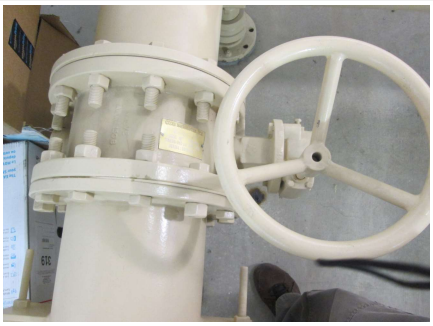
Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2002

Manufacturer/Model
CMB Industries

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 11 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.



Electrical and Power Systems

Asset: WT-FZ-ATS-01, Auto Transfer Switch

Size	Volts	Amps	Horsepower	Speed	Purchase Year
600 A	277/480	600			2002

Manufacturer/Model
GE, Zenith MX100

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 1 years
Replacement Cost: $21,336
Notes: No Arc Flash Label

Asset: WT-FZ-ECP-01, Control Panel

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	120/240	225			2002

Manufacturer/Model
Square D, NQODQ2

Serial Number
80110-188-05

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 1 years
Replacement Cost: $106,681
Notes: No Arc Flash Label

Asset: WT-FZ-GNR-02, Backup Generator

Size	Volts	Amps	Horsepower	Speed	Purchase Year
300 kW	277/480	451		1800	2002

Manufacturer/Model
Katolight, N14-G1 / D300 FR241

Serial Number
12036822 / LM239449-73275

Comments
700 gallon sub-base fuel tank

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 6 years
Replacement Cost: $364,493
Notes: -No Arc Flash Label
-Run monthly for 30 min
-Cummins performs all PM

Electrical and Power Systems

Asset: WT-FZ-MCC-01, Motor Control Center

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	480	600			2002

Manufacturer/Model
Square D, Model 6

Serial Number
14552498-002

Comments

Condition Rating: 3
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 1 years
Replacement Cost: $215,391
Notes: No Arc Flash Label

Asset: WT-FZ-MTR-01, Utility Meter

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	277/480	600			2002

Manufacturer/Model
Landis+Gyr, 1008847758

Serial Number
KZL10088477581212

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 1 years
Replacement Cost: $5,927
Notes:

Asset: WT-FZ-PLC-01, Programmable Logic Controller

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	120				2002

Manufacturer/Model
Allen-Bradley, Compact Logix L33ER

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 1 years
Replacement Cost: $59,267
Notes:

Electrical and Power Systems

Asset: WT-FZ-SBD-01, Switchboard

Size	Volts	Amps	Horsepower	Speed	Purchase Year
600 A	277/480	600			2002

Manufacturer/Model
Square D, QED

Serial Number
14552498-001

Comments

Condition Rating: 3
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 1 years
Replacement Cost: $97,198
Notes: No Arc Flash Label

Asset: WT-FZ-SPD-01, Surge Protection Device

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	277/480				2002

Manufacturer/Model
Leviton

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 1 years
Replacement Cost: $2,371
Notes:

Instrumentation / Controls

Asset: WT-FZ-CIT-01, In-Line Chlorine Analyzer

Size	Volts	Amps	Purchase Year
			2019

Manufacturer/Model
Evoqua, Depolox 3 plus

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 13 years
Replacement Cost: $23,707
Notes: Need to confirm that drain discharges to sanitary sewer.

Asset: WT-FZ-FIT-02, Distribution Flow Meter

Size	Volts	Amps	Purchase Year
8 in			2020

Manufacturer/Model
Ultra Mag, UM06-08ASR150A1

Serial Number
UP20-1277 / E20-06335

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 14 years
Replacement Cost: $11,735
Notes:

Industrial

Facility Address	Adjacent Land Use
1555 Fitzgerald Drive	Industrial
Service Status	**Zone**
Standby	Core
Year Originally Constructed	**Year of Latest Upgrade**
1977 (City financial records)	
Comments	
Well Site -Well No. 44, 800 gpm	

Inspection Date

March 3, 2021

Inspection Team

D. Shimberg, C. Neher, and B. Estrada (West Yost); J. Hudson and D. Dunn (Dixon)

Hazards (trees, fire, flood, landslide, etc.)

None

Health and Safety Equipment On-site (PPE, first aid, fire extinguisher, safety shower, MSDS, etc.)

Emergency Shower/Eyewash; Sodium Hydpochlorite MSDS; Fire Extinguisher; PPE

Notes

-No major issues other than age
-Adding sodium hypochlorite at well, target residual 1 ppm

Condition Rating Index:
1 - Excellent
2 - Slight Visible Degradation
3 - Visible Degradation
4 - Integrity Moderately Compromised
5 - Integrity Severely Compromised

Performance Rating Index:
1 - Functioning as Intended
2 - In Service, High OM Costs
3 - In Service, Function Impaired
4 - In Service, Function Highly Impaired
5 - Not Functioning as Intended

Industrial

Site / Civil

Asset: DW 44, Well

Size / Material
872 ft
Purchase Year
1977 (City financial records)
Comments

Condition Rating: -
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 0 years
Replacement Cost: $2,370,682
Notes:

Industrial

Structural / Architectural

Asset: WT-ID-BLD-01, Electrical Building

Size / Material
260 sq ft, CMU

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 50 years
Remaining Life: 6 years
Replacement Cost: $123,275
Notes:

Purchase Year
1977 (City financial records)

Asset: WT-ID-BLD-02, Chlorine Pump Building

Size / Material
64 sq ft, Metal (prefab)

Manufacturer/Model

Serial Number

Comments

Condition Rating: 3
Performance Rating: 1
Standard Useful Life: 50 years
Remaining Life: 29 years
Replacement Cost: $30,345
Notes:

Purchase Year
2000

Asset: WT-ID-BLD-03, Chlorine Tank Building

Size / Material
80 sq ft, Wood (prefab)

Manufacturer/Model

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 50 years
Remaining Life: 44 years
Replacement Cost: $37,931
Notes:

Purchase Year
2015

Industrial

Structural / Architectural

Asset: WT-ID-CHT-01, Sodium Hypochlorite Storage Tank

Size / Material
400 gal

Manufacturer/Model

Serial Number

Comments

Condition Rating: 3
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 21 years
Replacement Cost: $10,668
Notes: Tighten seismic restraints

Purchase Year
2012 (Operations Staff)

Asset: WT-ID-PST-01, Hydropneumatic Tank

Size / Material
5,300 gal

Manufacturer/Model
Modern Welding Co.

Serial Number

Comments
-6' diameter x 25' length
-Maximum operating pressure 100 psi @ 150 F

Condition Rating: 4
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 0 years
Replacement Cost: $241,881
Notes: - Not in use - well pumps directly to Fitzgerald tank
- Concrete cracking/spalling

Purchase Year
1977 (Nameplate)

Industrial

Mechanical Systems

Asset: WT-ID-CHP-01, Sodium Hypochlorite Pump

Size/Material	Volts/Amps/HP/Speed	Purchase Year
1 gph		Rebuilt 2019 (2015 Original)
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
ProMinent, Gamma/L		
Serial Number	**Condition Rating:** 1	
2014064870	**Performance Rating:** 1	
Comments	**Standard Useful Life:** 10 years	
	Remaining Life: 8 years	
	Replacement Cost: $1,422	
	Notes:	

Asset: WT-ID-CLR-01, Chlorine Injector

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2019
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
Serial Number	**Condition Rating:** 1	
	Performance Rating: 1	
Comments	**Standard Useful Life:** 7 years	
	Remaining Life: 5 years	
	Replacement Cost: $3,082	
	Notes: Corrosion at Weldolet - check metal components to determine if there are dielectric connections to protect incompatible materials	

Asset: WT-ID-VLV-01, Well Check Valve

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		1976 (Nameplate)
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
Mueller, Series 8000		
Serial Number	**Condition Rating:** 2	
	Performance Rating: 1	
Comments	**Standard Useful Life:** 25 years	
	Remaining Life: 0 years	
	Replacement Cost: $7,042	
	Notes:	

Industrial

Mechanical Systems

Asset: WT-ID-VLV-02, Well Isolation Gate Valve

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		1977

Manufacturer/Model	Duty (gpm) / Duty (TDH)
Mueller	

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 0 years
Replacement Cost: $5,477
Notes: Replacement recommended

Asset: WT-ID-WLP-01, Well Pump

Size/Material	Volts/Amps/HP/Speed	Purchase Year
125 hp	125 hp, 1800 RPM	2019

Manufacturer/Model	Duty (gpm) / Duty (TDH)
Johnston	800 gpm, 320 ft

Serial Number

Comments
Vertical Turbine Pump

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 28 years
Replacement Cost: $248,922
Notes:

Asset: WT-ID-WLM-01, Well Pump Motor
Subcomponent to: WT-ID-WLP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
125 hp	125 hp1800 RPM	2019

Manufacturer/Model	Duty (gpm) / Duty (TDH)
US Motors, DT80	

Serial Number
Z027688663-0007 R 0001

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 28 years
Replacement Cost: $59,267
Notes:

Industrial

Electrical and Power Systems

Asset: WT-ID-ATS-01, Auto Transfer Switch

Size	Volts	Amps	Horsepower	Speed	Purchase Year
400 A	277/480	400			1977

Manufacturer/Model
ASCO

Serial Number

Comments

Condition Rating: 3
Performance Rating: 2
Standard Useful Life: 20 years
Remaining Life: 0 years
Replacement Cost: $14,224
Notes: No Arc Flash Label. Still operational, but too old and over the equipment life.

Asset: WT-ID-ECP-01, Control Panel

Size	Volts	Amps	Horsepower	Speed	Purchase Year
					1977

Manufacturer/Model

Serial Number

Comments

Condition Rating: 4
Performance Rating: 4
Standard Useful Life: 20 years
Remaining Life: 0 years
Replacement Cost: $106,681
Notes:

Asset: WT-ID-GNR-01, Backup Generator

Size	Volts	Amps	Horsepower	Speed	Purchase Year
175 kW	277/480	263		1800	1977

Manufacturer/Model
Caterpillar, 3208 / SR4

Serial Number
30A03426 / 6JA02208

Comments
100 gallon sub-base fuel tank

Condition Rating: 4
Performance Rating: 2
Standard Useful Life: 25 years
Remaining Life: 0 years
Replacement Cost: $364,493
Notes: -No Arc Flash Label
-Cummins performs all PM
-Run monthly for 30 min

Industrial

Electrical and Power Systems

Asset: WT-ID-MCC-01, Motor Control Center

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	480	300			1977

Manufacturer/Model
Square D, Model 5

Serial Number

Comments

Condition Rating: 4
Performance Rating: 4
Standard Useful Life: 20 years
Remaining Life: 0 years
Replacement Cost: $196,923
Notes: No Arc Flash Label. Still operational, but too old and over the equipment life.

Asset: WT-ID-MTR-01, Utility Meter

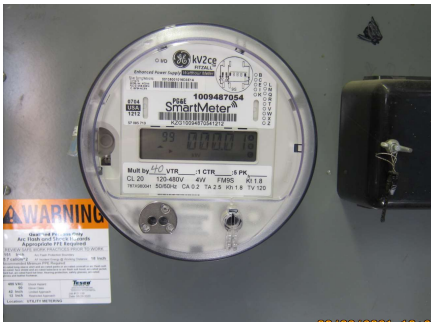
Size	Volts	Amps	Horsepower	Speed	Purchase Year
	277/480	400			1977

Manufacturer/Model
GE, 1009487054

Serial Number
KZG10094870541212

Comments
Transformer T-11554

Condition Rating: 3
Performance Rating: 3
Standard Useful Life: 20 years
Remaining Life: 0 years
Replacement Cost: $5,927
Notes: No Arc Flash Label. Still operational, but too old and over the equipment life.



Asset: WT-ID-PLC-01, Programmable Logic Controller

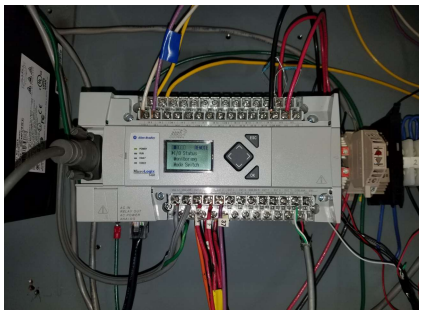
Size	Volts	Amps	Horsepower	Speed	Purchase Year
	120				1977

Manufacturer/Model
Allen-Bradley, MicroLogix 1400

Serial Number

Comments

Condition Rating: 3
Performance Rating: 3
Standard Useful Life: 20 years
Remaining Life: 0 years
Replacement Cost: $59,267
Notes:



Industrial

Electrical and Power Systems

Asset: WT-ID-SBD-01, Switchboard

Size	Volts	Amps	Horsepower	Speed	Purchase Year
400 A	277/480	400			1977

Manufacturer/Model
Square D, Speed-D

Serial Number

Comments

Condition Rating: 3
Performance Rating: 3
Standard Useful Life: 20 years
Remaining Life: 0 years
Replacement Cost: $85,345
Notes: No Arc Flash Label. Still operational, but too old and over the equipment life.

Asset: WT-ID-SPD-01, Surge Protection Device

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	277/480				1977

Manufacturer/Model
ASCO

Serial Number

Comments

Condition Rating: 3
Performance Rating: 3
Standard Useful Life: 20 years
Remaining Life: 0 years
Replacement Cost: $2,371
Notes: No Arc Flash Label. Still operational, but too old and over the equipment life.

Industrial

Instrumentation / Controls

Asset: WT-ID-CIT-01, In-Line Chlorine Analyzer

Size	Volts	Amps	Purchase Year
			2010 (Operations Staff)

Manufacturer/Model

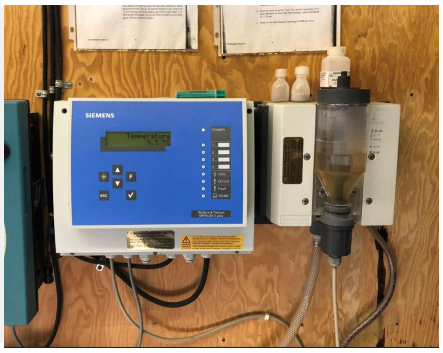
Siemens, Depolox 3

Serial Number

BO 90085 01

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 4 years
Replacement Cost: $23,707
Notes: Need to confirm that drain discharges to sanitary sewer. Last calibrated by Calcon Systems on 7/27/2015.



Asset: WT-ID-FIT-01, Well Flow Meter

Size	Volts	Amps	Purchase Year
8 in			1977

Manufacturer/Model

Serial Number

Comments

Condition Rating: 4
Performance Rating: 3
Standard Useful Life: 15 years
Remaining Life: 0 years
Replacement Cost: $11,735
Notes: Last calibrated by Calcon Systems on 7/20/2015.

Park Lane

Facility Address	Adjacent Land Use
Yale Drive	School
Service Status	**Zone**
Active	South
Year Originally Constructed	**Year of Latest Upgrade**
2007 (DSWA Well Summary)	

Comments

Well, Tank, and Booster Pump Site
-Well No. 54, 2500 gpm
-Tank 1, 1 MG
-Tank 2, 1 MG
-Booster Pump 1, 330 gpm
-Booster Pump 2, 330 gpm
-Booster Pump 3, 1000 gpm
-Booster Pump 4, 1000 gpm
-Booster Pump 5, 1000 gpm

Inspection Date

March 3, 2021

Inspection Team

D. Shimberg, C. Neher, and B. Estrada (West Yost); J. Hudson and D. Dunn (Dixon)

Hazards (trees, fire, flood, landslide, etc.)

None

Health and Safety Equipment On-site (PPE, first aid, fire extinguisher, safety shower, MSDS, etc.)

Emergency Shower/Eyewash; Sodium Hydpochlorite MSDS; Fire Extinguisher; PPE; Spill Kit

Notes

-Adding sodium hypochlorite at well, target residual 1 ppm

Condition Rating Index:
1 - Excellent
2 - Slight Visible Degradation
3 - Visible Degradation
4 - Integrity Moderately Compromised
5 - Integrity Severely Compromised

Performance Rating Index:
1 - Functioning as Intended
2 - In Service, High OM Costs
3 - In Service, Function Impaired
4 - In Service, Function Highly Impaired
5 - Not Functioning as Intended

Park Lane

Site / Civil

Asset: DW 54, Well

Size / Material
1,470 ft
Purchase Year
2007
Comments

Condition Rating: -
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $4,741,363
Notes:

Park Lane

Structural / Architectural

Asset: WT-PL-BLD-01, Distribution Pumping Building

Size / Material
2,400 sq ft, CMU

Manufacturer/Model

Serial Number

Comments

Condition Rating 1
Performance Rating: 1
Standard Useful Life: 50 years
Remaining Life: 36 years
Replacement Cost $1,137,927
Notes:

Purchase Year
2007

Asset: WT-PL-CHT-01, Sodium Hypochlorite Storage Tank

Size / Material
400 gal

Manufacturer/Model

Serial Number

Comments

Condition Rating 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 21 years
Replacement Cost $10,668
Notes:

Purchase Year
2012 (Operations Staff)

Asset: WT-PL-GST-01, Ground Storage Tank 1

Size / Material
1,000,000 gal, A36

Manufacturer/Model
Crosno

Serial Number

Comments

Condition Rating 2
Performance Rating: 1
Standard Useful Life: 40 years
Remaining Life: 26 years
Replacement Cost $3,318,954
Notes: -Quarterly inspection inside tanks
-Recommend adding larger pipe supports to pipe assesmblies for distribution and well fill valves and piping.

Purchase Year
2007

Park Lane

Structural / Architectural

Asset: WT-PL-ACT-01, GST 1 Distribution Inlet Isolation BFV Actuator
Subcomponent to: WT-PL-GST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
8 in		2007

Manufacturer/Model
Rotork

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $20,412
Notes: Only for emergency use - not operated regularly. Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-PL-FIT-03, GST 1 Distribution Inlet Flow Meter
Subcomponent to: WT-PL-GST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
8 in	120 V	2007

Manufacturer/Model
Sensus, W-5500

Serial Number
1100D-S-123531E

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 1 years
Replacement Cost: $11,735
Notes:

Asset: WT-PL-LIT-01, GST 1 Ultrasonic Level Indicator/Transmitter
Subcomponent to: WT-PL-GST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
	24 V	2007

Manufacturer/Model
Rosemount, 3051 TG1A2B21JB4M6

Serial Number
1756212

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 1 years
Replacement Cost: $7,942
Notes:

Park Lane

Structural / Architectural

Asset: WT-PL-VLV-16, GST 1 Distribution Inlet Check Valve
Subcomponent to: WT-PL-GST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
8 in		2007

Manufacturer/Model
SCI Valves

Serial Number

Comments

Condition Rating: 2
Performance Rating: -
Standard Useful Life: 25 years
Remaining Life: 11 years
Replacement Cost: $5,477
Notes: Only for emergency use - not operated regularly. Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-PL-VLV-17, GST 1 Distribution Inlet Isolation BFV
Subcomponent to: WT-PL-GST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
8 in		2007 (Nameplate)

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: -
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $3,841
Notes: Only for emergency use - not operated regularly. Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-PL-VLV-18, GST 1 Inlet Check Valve
Subcomponent to: WT-PL-GST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
12 in		2007

Manufacturer/Model
SCI Valves

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 11 years
Replacement Cost: $8,654
Notes:

Park Lane

Structural / Architectural

Asset: WT-PL-VLV-19, GST 1 Inlet Isolation BFV
Subcomponent to: WT-PL-GST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
12 in		2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $7,326
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-PL-GST-02, Ground Storage Tank 2

Size / Material
1,000,000 gal, A36

Manufacturer/Model
Crosno

Serial Number

Comments

Condition Rating 2
Performance Rating: 1
Standard Useful Life: 40 years
Remaining Life: 26 years
Replacement Cost $3,318,954
Notes: -Quarterly inspection inside tanks
-Recommend adding larger pipe supports to pipe assesmblies for distribution and well fill valves and piping.

Purchase Year
2007

Asset: WT-PL-ACT-02, GST 2 Distribution Inlet Isolation BFV Actuator
Subcomponent to: WT-PL-GST-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
8 in		2007

Manufacturer/Model
Rotork

Serial Number

Comments

Condition Rating: 3
Performance Rating: -
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $20,412
Notes: Only for emergency use - not operated regularly. Recommend annual valve exercise to verify that the valve will perform as required when needed.

Park Lane

Structural / Architectural

Asset: WT-PL-FIT-04, GST 2 Distribution Inlet Flow Meter
Subcomponent to: WT-PL-GST-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
8 in	120 V	2007

Manufacturer/Model
Sensus, W-5500

Serial Number
1100D-S-123532E

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 1 years
Replacement Cost: $11,735
Notes: Only for emergency use - not operated regularly. Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-PL-LIT-02, GST 2 Ultrasonic Level Indicator/Transmitter
Subcomponent to: WT-PL-GST-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 1 years
Replacement Cost: $7,942
Notes:

Asset: WT-PL-VLV-20, GST 2 Inlet Check Valve
Subcomponent to: WT-PL-GST-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
12 in		2007

Manufacturer/Model
SCI Valves

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 11 years
Replacement Cost: $8,654
Notes:

Park Lane

Structural / Architectural

Asset: WT-PL-VLV-21, GST 2 Inlet Isolation BFV
Subcomponent to: WT-PL-GST-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
12 in		2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $7,326
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-PL-VLV-22, GST 2 Distribution Inlet Check Valve
Subcomponent to: WT-PL-GST-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
8 in		2007

Manufacturer/Model
SCI Valves

Serial Number

Comments

Condition Rating: 2
Performance Rating: -
Standard Useful Life: 25 years
Remaining Life: 11 years
Replacement Cost: $5,477
Notes: Only for emergency use - not operated regularly. Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-PL-VLV-23, GST 2 Distribution Inlet Isolation BFV
Subcomponent to: WT-PL-GST-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
8 in		2007 (Nameplate)

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: -
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $3,841
Notes: Only for emergency use - not operated regularly. Recommend annual valve exercise to verify that the valve will perform as required when needed.

Park Lane

Structural / Architectural

Asset: WT-PL-PST-01, Hydropneumatic Tank

Size / Material	Condition Rating 2	Purchase Year
5,300 gal	**Performance Rating:** 1	2007 (Nameplate)
Manufacturer/Model	**Standard Useful Life:** 30 years	
Pressure Vessel Technologies	**Remaining Life:** 16 years	
Serial Number	**Replacement Cost** $241,881	
26591	**Notes:**	
Comments		
-6' diameter x 25' length -Maximum operating pressure 150 psi @ 120 F		

Asset: WT-PL-CMP-01, Hydropneumatic Tank Air Compressor/Receiver
Subcomponent to: WT-PL-PST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
3 hp	3 hp	2007
Manufacturer/Model	**Condition Rating:** 2	
Quincy, QR-325	**Performance Rating:** 1	
Serial Number	**Standard Useful Life:** 20 years	
20070725-0113	**Remaining Life:** 6 years	
Comments	**Replacement Cost:** $5,619	
	Notes:	

Park Lane

Mechanical Systems

Asset: WT-PL-CHP-01, Sodium Hypochlorite Pump

Size/Material	Volts/Amps/HP/Speed	Purchase Year
3 gph		2018
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
ProMinent, Gamma X		
Serial Number	**Condition Rating:** 1	
2018128854	**Performance Rating:** 1	
Comments	**Standard Useful Life:** 10 years	
	Remaining Life: 7 years	
	Replacement Cost: $1,422	
	Notes: Metering pump should be bolted to stand for seismic restraint.	

Asset: WT-PL-DBP-01, Booster Pump 1

Size/Material	Volts/Amps/HP/Speed	Purchase Year
20 hp	20 hp	Rebuilt 2018 (2007 Original)
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
Paco, 91868907	330 gpm, 150 ft	
Serial Number	**Condition Rating:** 1	
197100209610A	**Performance Rating:** 1	
Comments	**Standard Useful Life:** 30 years	
6.6" impeller diameter	**Remaining Life:** 27 years	
	Replacement Cost: $45,991	
	Notes:	

Asset: WT-PL-BPM-01, Booster Pump 1 Motor
Subcomponent to: WT-PL-DBP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
20 hp	230/460 V, 46/23 A, 20 hp	2007
Manufacturer/Model	**Condition Rating:** 2	
Emerson, G29315	**Performance Rating:** 1	
Serial Number	**Standard Useful Life:** 30 years	
K07-G29315-M	**Remaining Life:** 16 years	
Comments	**Replacement Cost:** $9,483	
	Notes:	

Park Lane

Mechanical Systems

Asset: WT-PL-PIT-01, Booster Pump 1 Discharge Pressure Sensor
Subcomponent to: WT-PL-DBP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 1 years
Replacement Cost: $4,978
Notes:

Asset: WT-PL-VFD-01, Booster Pump 1 VFD
Subcomponent to: WT-PL-DBP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
52 A	480 V, 52 A, 20 hp	2007

Manufacturer/Model
Rockwell

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 1 years
Replacement Cost: $48,599
Notes: PS is in operation unable to open MCC door to verify inside MCC

Asset: WT-PL-VLV-01, Booster Pump 1 Discharge Check Valve
Subcomponent to: WT-PL-DBP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2005 (Nameplate)

Manufacturer/Model
SCI Valves

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 9 years
Replacement Cost: $7,042
Notes:

Park Lane

Mechanical Systems

Asset: WT-PL-VLV-02, Booster Pump 1 Suction Isolation BFV
Subcomponent to: WT-PL-DBP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-PL-VLV-03, Booster Pump 1 Discharge Isolation BFV
Subcomponent to: WT-PL-DBP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-PL-DBP-02, Booster Pump 2

Size/Material	Volts/Amps/HP/Speed	Purchase Year
20 hp	20 hp	Rebuilt 2018 (2007 Original)

Manufacturer/Model
Paco, 91868907

Duty (gpm) / Duty (TDH)
330 gpm, 150 ft

Serial Number
197100209610B

Comments
6.6" impeller diameter

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 27 years
Replacement Cost: $45,991
Notes:

Park Lane

Mechanical Systems

Asset: WT-PL-BPM-02, Booster Pump 2 Motor
Subcomponent to: WT-PL-DBP-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
20 hp	230/460 V, 46/23 A, 20 hp, 3550 RPM	2007

Manufacturer/Model
Emerson, G29315

Serial Number
K05-G29315-M

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $9,483
Notes:

Asset: WT-PL-PIT-02, Booster Pump 2 Discharge Pressure Sensor
Subcomponent to: WT-PL-DBP-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 1 years
Replacement Cost: $4,978
Notes:

Asset: WT-PL-VFD-02, Booster Pump 2 VFD
Subcomponent to: WT-PL-DBP-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
52 A	480 V, 52 A, 20 hp	2007

Manufacturer/Model
Rockwell

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 1 years
Replacement Cost: $48,599
Notes: PS is in operation unable to open MCC door to verify inside MCC

Park Lane

Mechanical Systems

Asset: WT-PL-VLV-04, Booster Pump 2 Discharge Check Valve
Subcomponent to: WT-PL-DBP-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2005 (Nameplate)

Manufacturer/Model
SCI Valves

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 9 years
Replacement Cost: $7,042
Notes:

Asset: WT-PL-VLV-05, Booster Pump 2 Suction Isolation BFV
Subcomponent to: WT-PL-DBP-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-PL-VLV-06, Booster Pump 2 Discharge Isolation BFV
Subcomponent to: WT-PL-DBP-02

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Park Lane

Mechanical Systems

Asset: WT-PL-DBP-03, Booster Pump 3

Size/Material	Volts/Amps/HP/Speed	Purchase Year
50 hp	50 hp	Rebuilt 2018 (2007 Original)
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
Paco, 91868924	1000 gpm, 150 ft	
Serial Number	**Condition Rating:** 2	
197100209620C	**Performance Rating:** 1	
Comments	**Standard Useful Life:** 30 years	
12.1" impeller diameter	**Remaining Life:** 27 years	
	Replacement Cost: $114,978	
	Notes:	

Asset: WT-PL-BPM-03, Booster Pump 3 Motor
Subcomponent to: WT-PL-DBP-03

Size/Material	Volts/Amps/HP/Speed	Purchase Year
50 hp	230/460 V, 114/57 A, 50 hp, 1775 RPM	2007
Manufacturer/Model	**Condition Rating:** 2	
Emerson, 6211-2Z-JC3	**Performance Rating:** 1	
Serial Number	**Standard Useful Life:** 30 years	
K12-20062624-100R-01	**Remaining Life:** 16 years	
Comments	**Replacement Cost:** $23,707	
	Notes:	

Asset: WT-PL-PIT-03, Booster Pump 3 Discharge Pressure Sensor
Subcomponent to: WT-PL-DBP-03

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2007
Manufacturer/Model	**Condition Rating:** 1	
	Performance Rating: 1	
Serial Number	**Standard Useful Life:** 15 years	
	Remaining Life: 1 years	
Comments	**Replacement Cost:** $4,978	
	Notes:	

Park Lane

Mechanical Systems

Asset: WT-PL-VFD-03, Booster Pump 3 VFD
Subcomponent to: WT-PL-DBP-03

Size/Material	Volts/Amps/HP/Speed	Purchase Year
120 A	480 V, 120 A, 50 hp	2007

Manufacturer/Model
Rockwell

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 1 years
Replacement Cost: $121,498
Notes: PS is in operation unable to open MCC door to verify inside MCC

Asset: WT-PL-VLV-07, Booster Pump 3 Discharge Check Valve
Subcomponent to: WT-PL-DBP-03

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2006 (Nameplate)

Manufacturer/Model
SCI Valves

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 10 years
Replacement Cost: $7,042
Notes:

Asset: WT-PL-VLV-08, Booster Pump 3 Suction Isolation BFV
Subcomponent to: WT-PL-DBP-03

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Park Lane

Mechanical Systems

Asset: WT-PL-VLV-09, Booster Pump 3 Discharge Isolation BFV
Subcomponent to: WT-PL-DBP-03

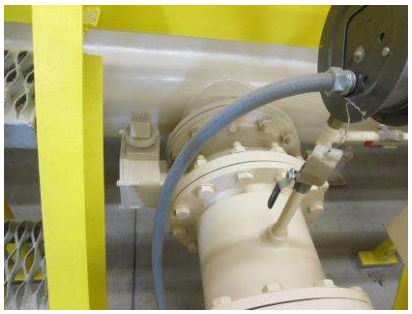
Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.



Asset: WT-PL-DBP-04, Booster Pump 4

Size/Material	Volts/Amps/HP/Speed	Purchase Year
50 hp	50 hp	2007

Manufacturer/Model
Paco, 91868924

Duty (gpm) / Duty (TDH)
1000 gpm, 150 ft

Serial Number
197100209620B

Comments
12.1" impeller diameter

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $114,978
Notes:

Asset: WT-PL-BPM-04, Booster Pump 4 Motor
Subcomponent to: WT-PL-DBP-04

Size/Material	Volts/Amps/HP/Speed	Purchase Year
50 hp	230/460 V, 114/37 A, 50 hp, 1775 RPM	2007

Manufacturer/Model
Emerson, 6211-2Z-JC3

Serial Number
K12-20062624-100R-02

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $23,707
Notes:

Park Lane

Mechanical Systems

Asset: WT-PL-PIT-04, Booster Pump 4 Discharge Pressure Sensor
Subcomponent to: WT-PL-DBP-04

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 1 years
Replacement Cost: $4,978
Notes:

Asset: WT-PL-VFD-04, Booster Pump 4 VFD
Subcomponent to: WT-PL-DBP-04

Size/Material	Volts/Amps/HP/Speed	Purchase Year
120 A	480 V, 120 A, 50 hp	2007

Manufacturer/Model
Rockwell

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 1 years
Replacement Cost: $121,498
Notes: PS is in operation unable to open MCC door to verify inside MCC

Asset: WT-PL-VLV-10, Booster Pump 4 Discharge Check Valve
Subcomponent to: WT-PL-DBP-04

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2006 (Nameplate)

Manufacturer/Model
SCI Valves

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 10 years
Replacement Cost: $7,042
Notes:

Park Lane

Mechanical Systems

Asset: WT-PL-VLV-11, Booster Pump 4 Suction Isolation BFV
Subcomponent to: WT-PL-DBP-04

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-PL-VLV-12, Booster Pump 4 Discharge Isolation BFV
Subcomponent to: WT-PL-DBP-04

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-PL-DBP-05, Booster Pump 5

Size/Material	Volts/Amps/HP/Speed	Purchase Year
50 hp	50 hp	2007

Manufacturer/Model
Paco, 91868924

Duty (gpm) / Duty (TDH)
1000 gpm, 150 ft

Serial Number
197100209620A

Comments
12.10" impeller diameter

Condition Rating: 3
Performance Rating: 2
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $114,978
Notes: Evidence of minor past leakage at pump/motor connection

Park Lane

Mechanical Systems

Asset: WT-PL-BPM-05, Booster Pump 5 Motor
Subcomponent to: WT-PL-DBP-05

Size/Material	Volts/Amps/HP/Speed	Purchase Year
50 hp	230/460 V, 114/37 A, 50 hp, 1775 RPM	2007

Manufacturer/Model
Emerson, 6211-2Z-JC3

Serial Number
K12-20062624-100R-03

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $23,707
Notes:

Asset: WT-PL-PIT-05, Booster Pump 5 Discharge Pressure Sensor
Subcomponent to: WT-PL-DBP-05

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 1 years
Replacement Cost: $4,978
Notes:

Asset: WT-PL-VFD-05, Booster Pump 5 VFD
Subcomponent to: WT-PL-DBP-05

Size/Material	Volts/Amps/HP/Speed	Purchase Year
120 A	480 V, 120 A, 50 hp	2007

Manufacturer/Model
Rockwell

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 1 years
Replacement Cost: $121,498
Notes: PS is in operation unable to open MCC door to verify inside MCC

Park Lane

Mechanical Systems

Asset: WT-PL-VLV-13, Booster Pump 5 Discharge Check Valve
Subcomponent to: WT-PL-DBP-05

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2006 (Nameplate)

Manufacturer/Model
SCI Valves

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 10 years
Replacement Cost: $7,042
Notes:

Asset: WT-PL-VLV-14, Booster Pump 5 Suction Isolation BFV
Subcomponent to: WT-PL-DBP-05

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-PL-VLV-15, Booster Pump 5 Discharge Isolation BFV
Subcomponent to: WT-PL-DBP-05

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Park Lane

Mechanical Systems

Asset: WT-PL-VLV-24, Well Isolation BFV

Size/Material	Volts/Amps/HP/Speed	Purchase Year
12 in		2007
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
Serial Number	**Condition Rating:** 2	
	Performance Rating: 1	
Comments	**Standard Useful Life:** 30 years	
	Remaining Life: 16 years	
	Replacement Cost: $7,326	
	Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.	

Asset: WT-PL-VLV-25, Well Check Valve

Size/Material	Volts/Amps/HP/Speed	Purchase Year
12 in		2007
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
Mueller, Series 8000		
Serial Number	**Condition Rating:** 2	
	Performance Rating: 1	
Comments	**Standard Useful Life:** 25 years	
	Remaining Life: 11 years	
	Replacement Cost: $8,654	
	Notes:	

Asset: WT-PL-WLP-01, Well Pump

Size/Material	Volts/Amps/HP/Speed	Purchase Year
300 hp	300 hp, 1775 RPM	2007
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
Flowserve, 14ENL-7	2500 gpm, 369 ft	
Serial Number	**Condition Rating:** 2	
0703CG80844-1	**Performance Rating:** 1	
Comments	**Standard Useful Life:** 30 years	
Vertical Turbine Pump	**Remaining Life:** 16 years	
	Replacement Cost: $597,412	
	Notes:	

Park Lane

Mechanical Systems

Asset: WT-PL-PIT-06, Well Pump Discharge Pressure Sensor
Subcomponent to: WT-PL-WLP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 1 years
Replacement Cost: $4,978
Notes:

Asset: WT-PL-VFD-06, Well Pump Soft Starter
Subcomponent to: WT-PL-WLP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
500 A	480 V, 500 A, 300 hp	2007

Manufacturer/Model
Rockwell

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 1 years
Replacement Cost: $87,478
Notes: PS is in operation unable to open MCC door to verify inside MCC

Asset: WT-PL-WLM-01, Well Pump Motor
Subcomponent to: WT-PL-WLP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
300 hp	460 V, 338 A, 300 hp, 1785 RPM	2007

Manufacturer/Model
Emerson, 7322 BEM

Serial Number
L04-20072137-GT-01

Comments

Condition Rating: 3
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 16 years
Replacement Cost: $142,241
Notes: Serviced, vibration tested, and balanced

Park Lane

Electrical and Power Systems

Asset: WT-PL-ATS-01, Auto Transfer Switch

Size	Volts	Amps	Horsepower	Speed	Purchase Year
1,200 A	277/480	1200			2007

Manufacturer/Model
GE, Zenith Entelli-Switch 250

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 6 years
Replacement Cost: $42,672
Notes: No Arc Flash Label

Asset: WT-PL-ECP-01, Control Panel

Size	Volts	Amps	Horsepower	Speed	Purchase Year
					2007

Manufacturer/Model

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 6 years
Replacement Cost: $106,681
Notes:

Asset: WT-PL-GNR-01, Backup Generator

Size	Volts	Amps	Horsepower	Speed	Purchase Year
750 kW	277/480	1127.7		1800	2007

Manufacturer/Model
Cummins, QST30-G5NR2 / DQFAA-5790

Serial Number
37227155 / B070027407

Comments
1340 gallon sub-base fuel tank

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 11 years
Replacement Cost: $1,385,071
Notes: -No Arc Flash Label
-Generator not run during school hours per AQMD
-Cummins performs all PM
-Run monthly for 30 min

Park Lane

Electrical and Power Systems

Asset: WT-PL-MCC-01, Motor Control Center

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	480	1200			2007

Manufacturer/Model
Industrial Electrical MFG

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 6 years
Replacement Cost: $406,190
Notes: No Arc Flash Label

Asset: WT-PL-MTR-01, Utility Meter

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	277/480	1200			2007

Manufacturer/Model
GE, 5000037360

Serial Number
KZG50000373601012

Comments
Transformer T-23525

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 6 years
Replacement Cost: $5,927
Notes:

Asset: WT-PL-PLC-01, Programmable Logic Controller

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	120				2007

Manufacturer/Model
Allen-Bradley, CompactLogix L33ER

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 6 years
Replacement Cost: $59,267
Notes:

Park Lane

Electrical and Power Systems

Asset: WT-PL-SBD-01, Switchboard

Size	Volts	Amps	Horsepower	Speed	Purchase Year
1,200 A		1200			2007

Manufacturer/Model
Industrial Electrical MFG

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 6 years
Replacement Cost: $132,758
Notes: No Arc Flash Label

Asset: WT-PL-SPD-01, Surge Protection Device

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	277/480				2007

Manufacturer/Model
Emerson, Liebert

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 6 years
Replacement Cost: $2,371
Notes:

Park Lane

Instrumentation / Controls

Asset: WT-PL-CIT-01, In-Line Chlorine Analyzer

Size	Volts	Amps	Purchase Year
			2010 (Operations Staff)

Manufacturer/Model
Siemens, Depolox 3

Serial Number
BP 90134 03

Comments

Condition Rating: 3
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 4 years
Replacement Cost: $23,707
Notes: Need to confirm that drain discharges to sanitary sewer. Last calibrated by Calcon Systems on 7/27/2015.

Asset: WT-PL-FIT-01, Well Flow Meter

Size	Volts	Amps	Purchase Year
12 in	120		2007

Manufacturer/Model
McCrometer, Ultra Mag, UM06-08

Serial Number
UM20110791

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 1 years
Replacement Cost: $14,366
Notes: UV damaged

Asset: WT-PL-FIT-02, Distribution Flow Meter

Size	Volts	Amps	Purchase Year
10 in	120		2007

Manufacturer/Model
Sensus, W-5500

Serial Number
67607030

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 1 years
Replacement Cost: $13,110
Notes: Last calibrated by Calcon Systems on 7/20/2015.

Park Lane

Instrumentation / Controls

Asset: WT-PL-PIT-10, Flow and Pressure Indicator/Transmitter

Size	Volts	Amps	Purchase Year
			2007

Manufacturer/Model
Rosemount

Serial Number
1755209

Comments
Tag on asset: PIT-001

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 1 years
Replacement Cost: $4,267
Notes:

School Well

Facility Address	Adjacent Land Use
1756 Rehrmann Drive	School
Service Status	**Zone**
Active	Core
Year Originally Constructed	**Year of Latest Upgrade**
1989 (City financial records)	

Comments

Well Site
-Well No. 48, 1800 gpm

Inspection Date

March 2, 2021

Inspection Team

D. Shimberg, C. Neher, and B. Estrada (West Yost); J. Hudson and D. Dunn (Dixon)

Hazards (trees, fire, flood, landslide, etc.)

None

Health and Safety Equipment On-site (PPE, first aid, fire extinguisher, safety shower, MSDS, etc.)

Emergency Shower/Eyewash; Sodium Hydpochlorite MSDS; Fire Extinguisher; PPE

Notes

-Pump hasn't been pulled since STS took over
-School well next on City's list of inspections, and would include full video condition assessment of well casing. Planned for first quarter 2017.
-Adding sodium hypochlorite at well, target residual 1 ppm

Condition Rating Index:
1 - Excellent
2 - Slight Visible Degradation
3 - Visible Degradation
4 - Integrity Moderately Compromised
5 - Integrity Severely Compromised

Performance Rating Index:
1 - Functioning as Intended
2 - In Service, High OM Costs
3 - In Service, Function Impaired
4 - In Service, Function Highly Impaired
5 - Not Functioning as Intended

School Well

Site / Civil

Asset: DW 48, Well

Size / Material	Condition Rating: -
1,430 ft	Performance Rating: 1
Purchase Year	Standard Useful Life: 30 years
1989 (City financial records)	Remaining Life: 0 years
Comments	Replacement Cost: $3,793,090
	Notes: - Well cleaned and video insepcted in 2017. - Level transducer added in 2017 and replaced in 2021.

School Well

Structural / Architectural

Asset: WT-SW-BLD-01, Electrical Building

Size / Material
300 sq ft, CMU

Manufacturer/Model

Serial Number

Comments

Condition Rating 2
Performance Rating: 1
Standard Useful Life: 50 years
Remaining Life: 18 years
Replacement Cost $142,241
Notes:

Purchase Year
1989

Asset: WT-SW-CHT-01, Sodium Hypochlorite Storage Tank

Size / Material
400 gal

Manufacturer/Model

Serial Number

Comments

Condition Rating 3
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 21 years
Replacement Cost $10,668
Notes: Restraints not anchored to floor

Purchase Year
2012 (Operations Staff)

Asset: WT-SW-PST-01, Hydropneumatic Tank

Size / Material
4,200 gal

Manufacturer/Model
Trusco

Serial Number
1317195

Comments
-6' diameter x 20' length
-Maximum operating pressure 100 psi @ 300 F

Condition Rating 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 0 years
Replacement Cost $192,334
Notes: Coating peeling on bottom. Recommend recoating.

Purchase Year
1989 (Nameplate)

School Well

Mechanical Systems

Asset: WT-SW-CHP-01, Sodium Hypochlorite Pump

Size/Material	Volts/Amps/HP/Speed	Purchase Year
2 gph		2019
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
ProMinent, Gamma X		
Serial Number	**Condition Rating:** 1	
2019317826	**Performance Rating:** 1	
Comments	**Standard Useful Life:** 10 years	
	Remaining Life: 8 years	
	Replacement Cost: $1,422	
	Notes:	

Asset: WT-SW-CLR-01, Chlorine Injector

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2018
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
Serial Number	**Condition Rating:** 1	
	Performance Rating: 1	
Comments	**Standard Useful Life:** 7 years	
	Remaining Life: 4 years	
	Replacement Cost: $3,082	
	Notes:	

Asset: WT-SW-VLV-01, Well Check Valve

Size/Material	Volts/Amps/HP/Speed	Purchase Year
12 in		2016
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
American		
Serial Number	**Condition Rating:** 1	
	Performance Rating: 1	
Comments	**Standard Useful Life:** 25 years	
	Remaining Life: 20 years	
	Replacement Cost: $8,654	
	Notes:	

School Well

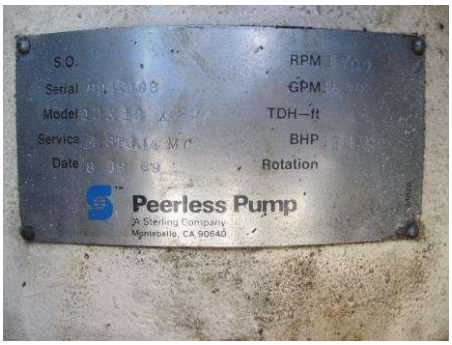
Mechanical Systems

Asset: WT-SW-VLV-02, Well Isolation Gate Valve

Size/Material	Volts/Amps/HP/Speed	Purchase Year
12 in		2016
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
American		
Serial Number	**Condition Rating:** 1	
	Performance Rating: 1	
Comments	**Standard Useful Life:** 30 years	
	Remaining Life: 25 years	
	Replacement Cost: $7,326	
	Notes:	

Asset: WT-SW-WLP-01, Well Pump

Size/Material	Volts/Amps/HP/Speed	Purchase Year
200 hp	200 hp, 1760 RPM	1989 (Nameplate)
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
Peerless Pump, 12x12x20	1800 gpm, 270 ft	
Serial Number	**Condition Rating:** 2	
8942998	**Performance Rating:** 1	
Comments	**Standard Useful Life:** 30 years	
	Remaining Life: 0 years	
	Replacement Cost: $398,274	
	Notes: Pump casing rebuilt 2014	



Asset: WT-SW-PIT-01, Well Pump Discharge Pressure Sensor
Subcomponent to: WT-SW-WLP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		1989
Manufacturer/Model	**Condition Rating:** 1	
	Performance Rating: 1	
Serial Number	**Standard Useful Life:** 15 years	
	Remaining Life: 0 years	
Comments	**Replacement Cost:** $4,978	
	Notes:	

School Well

Mechanical Systems

Asset: WT-SW-VFD-01, Well Pump VFD
Subcomponent to: WT-SW-WLP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
302 A	480 V, 302 A, 200 hp	1989

Manufacturer/Model
Allen-Bradley, 1336 Plus

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 0 years
Replacement Cost: $160,377
Notes: PS is in operation unable to open MCC door to verify inside MCC

Asset: WT-SW-WLM-01, Well Pump Motor
Subcomponent to: WT-SW-WLP-01

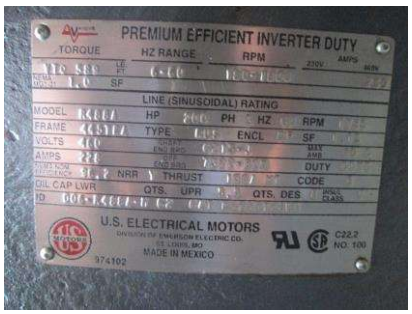
Size/Material	Volts/Amps/HP/Speed	Purchase Year
200 hp	460 V, 220 A, 200 hp, 1785 RPM	2014 (Operations Staff)

Manufacturer/Model
US Electrical Motors, RU88A

Serial Number
006R488A-M

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 23 years
Replacement Cost: $94,827
Notes: -Motor rebuilt 2014, bearings replaced 6/2016



School Well

Electrical and Power Systems

Asset: WT-SW-ATS-01, Auto Transfer Switch

Size	Volts	Amps	Horsepower	Speed	Purchase Year
400 A	277/480	400			1989

Manufacturer/Model
GE, Zenith MX100

Serial Number

Comments

Condition Rating: 1
Performance Rating: 3
Standard Useful Life: 20 years
Remaining Life: 0 years
Replacement Cost: $14,224
Notes: No Arc Flash Label. Still operational, but too old and over the equipment life.

Asset: WT-SW-ECP-01, Control Panel

Size	Volts	Amps	Horsepower	Speed	Purchase Year
					1989

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 0 years
Replacement Cost: $106,681
Notes:

Asset: WT-SW-GNR-01, Backup Generator

Size	Volts	Amps	Horsepower	Speed	Purchase Year
250 kW	277/480	376		1800	2000 (O&M Manual)

Manufacturer/Model
Katolight, D250FPZ4 / WA518893

Serial Number
NA518893 57516 / 34959217

Comments
400 gallon sub-base fuel tank

Condition Rating: 1
Performance Rating: 3
Standard Useful Life: 25 years
Remaining Life: 4 years
Replacement Cost: $364,493
Notes: -No Arc Flash Label
-Foundation in good condition
-Run monthly for 30 min
-Cummins performs all PM

School Well

Electrical and Power Systems

Asset: WT-SW-MCC-01, Motor Control Center

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	480	400			1989

Manufacturer/Model
Tesco

Serial Number

Comments

Condition Rating: 1
Performance Rating: 2
Standard Useful Life: 20 years
Remaining Life: 0 years
Replacement Cost: $196,923
Notes: No Arc Flash Label. Still operational, but too old and over the equipment life.

Asset: WT-SW-MTR-01, Utility Meter

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	277/480	400			1989

Manufacturer/Model
Landis+Gyr, 1008845971

Serial Number
KZG10094870541212

Comments
Transformer T-10136

Condition Rating: 3
Performance Rating: 3
Standard Useful Life: 20 years
Remaining Life: 0 years
Replacement Cost: $5,927
Notes: No Arc Flash Label. Still operational, but too old and over the equipment life.

Asset: WT-SW-PLC-01, Programmable Logic Controller

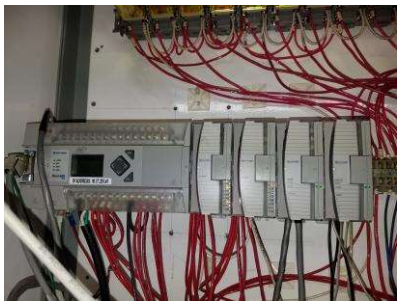
Size	Volts	Amps	Horsepower	Speed	Purchase Year
	120				1989

Manufacturer/Model
Allen-Bradley, CompactLogix L33ER

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 0 years
Replacement Cost: $59,267
Notes:



School Well

Electrical and Power Systems

Asset: WT-SW-SBD-01, Switchboard

Size	Volts	Amps	Horsepower	Speed	Purchase Year
400 A	277/480	400			1989

Manufacturer/Model
Tesco

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 0 years
Replacement Cost: $85,345
Notes: No Arc Flash Label. Still operational, but too old and over the equipment life.

Asset: WT-SW-SPD-01, Surge Protection Device

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	277/480				1989

Manufacturer/Model
ASCO

Serial Number

Comments

Condition Rating: 3
Performance Rating: 3
Standard Useful Life: 20 years
Remaining Life: 0 years
Replacement Cost: $2,371
Notes: No Arc Flash Label. Still operational, but too old and over the equipment life.

School Well

Instrumentation / Controls

Asset: WT-SW-CIT-01, In-Line Chlorine Analyzer

Size	Volts	Amps	Purchase Year
			2010 (Operations Staff)

Manufacturer/Model
Siemens, Depolox 3

Serial Number
BN 90424 03

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 4 years
Replacement Cost: $23,707
Notes: Need to confirm that drain discharges to sanitary sewer. Last calibrated by Calcon Systems on 7/27/2015.

Asset: WT-SW-FIT-01, Well Flow Meter

Size	Volts	Amps	Purchase Year
8 in	24		1989

Manufacturer/Model
Sensus, W-3500

Serial Number
1000D-S-A-36906C

Comments

Condition Rating: 3
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 0 years
Replacement Cost: $11,735
Notes: Last calibrated by Calcon Systems on 7/20/2015.

Valley Glen

Facility Address	Adjacent Land Use
150 Valley Glen Drive	Single Family
Service Status	**Zone**
Active	South
Year Originally Constructed	**Year of Latest Upgrade**
2004 (City financial records)	
Comments	
Well Site -Well No. 52, 1900 gpm	

Inspection Date

March 3, 2021

Inspection Team

D. Shimberg, C. Neher, and B. Estrada (West Yost); J. Hudson and D. Dunn (Dixon)

Hazards (trees, fire, flood, landslide, etc.)

None

Health and Safety Equipment On-site (PPE, first aid, fire extinguisher, safety shower, MSDS, etc.)

Emergency Shower/Eyewash; Sodium Hydpochlorite MSDS; Fire Extinguisher; PPE

Notes

-Well high in nitrates, well only used as backup but is exercised on weekly basis
-Adding sodium hypochlorite at well, target residual 1 ppm

Condition Rating Index:
1 - Excellent
2 - Slight Visible Degradation
3 - Visible Degradation
4 - Integrity Moderately Compromised
5 - Integrity Severely Compromised

Performance Rating Index:
1 - Functioning as Intended
2 - In Service, High OM Costs
3 - In Service, Function Impaired
4 - In Service, Function Highly Impaired
5 - Not Functioning as Intended

Valley Glen

Site / Civil

Asset: DW 52, Well

Size / Material	Condition Rating: -
1,480 ft	Performance Rating: 1
Purchase Year	Standard Useful Life: 30 years
2004 (City financial records)	Remaining Life: 13 years
Comments	Replacement Cost: $4,741,363
	Notes:

Valley Glen

Structural / Architectural

Asset: WT-VG-BLD-01, Distribution Pumping Building

Size / Material
450 sq ft, CMU

Manufacturer/Model

Serial Number

Comments

Condition Rating 2
Performance Rating: 1
Standard Useful Life: 50 years
Remaining Life: 33 years
Replacement Cost $213,361
Notes: Evidence of mineral scale around drain for chlorine analyzer.

Purchase Year
2004

Asset: WT-VG-CHT-01, Sodium Hypochlorite Storage Tank

Size / Material
400 gal

Manufacturer/Model

Serial Number

Comments

Condition Rating 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 21 years
Replacement Cost $10,668
Notes: Tighten seismic restraints

Purchase Year
2012 (Operations Staff)

Asset: WT-VG-PST-01, Hydropneumatic Tank

Size / Material
5,300 gal

Manufacturer/Model
Southgate

Serial Number

Comments
6' diameter x 25' length
-Maximum operating pressure 150 psi @ 120 F

Condition Rating 3
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 12 years
Replacement Cost $241,881
Notes: - Recommend recoating
- Grout base failing

Purchase Year
2003 (Nameplate)

Valley Glen

Structural / Architectural

Asset: WT-VG-CMP-01, Hydropneumatic Tank Air Compressor
Subcomponent to: WT-VG-PST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
5 hp		2004

Manufacturer/Model
Ingersoll-Rand

Serial Number

Comments
Baldor motor

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 3 years
Replacement Cost: $7,634
Notes:

Valley Glen

Mechanical Systems

Asset: WT-VG-CHP-01, Sodium Hypochlorite Pump

Size/Material	Volts/Amps/HP/Speed	Purchase Year
1 gph		Rebuilt 2019 (2004 Original)
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
ProMinent, Gamma/L		
Serial Number	**Condition Rating:** 2	
2014281232	**Performance Rating:** 1	
Comments	**Standard Useful Life:** 10 years	
	Remaining Life: 8 years	
	Replacement Cost: $1,422	
	Notes: -Metering pump should be bolted to stand for seismic restraint. -Wiring needs cap (STS fixing as of 8/2016)	

Asset: WT-VG-CLR-01, Chlorine Injector

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2019
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
Serial Number	**Condition Rating:** 1	
	Performance Rating: 1	
Comments	**Standard Useful Life:** 7 years	
	Remaining Life: 5 years	
	Replacement Cost: $3,082	
	Notes:	

Asset: WT-VG-WLP-01, Well Pump

Size/Material	Volts/Amps/HP/Speed	Purchase Year
300 hp	300 hp, 1751 RPM	2004
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
Flowserve, 13MQH 7STG	1900 gpm, 435 ft	
Serial Number	**Condition Rating:** -	
S2502	**Performance Rating:** 1	
Comments	**Standard Useful Life:** 30 years	
Submersible	**Remaining Life:** 13 years	
	Replacement Cost: $597,412	
	Notes: No way to pull the pump without taking apart piping	

Mechanical Systems

Asset: WT-VG-LIT-01, Well Level Indicator Transmitter
Subcomponent to: WT-VG-WLP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2004

Manufacturer/Model

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 0 years
Replacement Cost: $7,942
Notes:

Asset: WT-VG-PIT-01, Well Pump Discharge Pressure Sensor
Subcomponent to: WT-VG-WLP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2004

Manufacturer/Model

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 0 years
Replacement Cost: $4,978
Notes:

Asset: WT-VG-VFD-01, Well Pump VFD and Soft Starter
Subcomponent to: WT-VG-WLP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
302 A	480 V, 302 A, 300 hp	2004

Manufacturer/Model
Rockwell

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 0 years
Replacement Cost: $346,950
Notes: PS is in operation unable to open MCC door to verify inside MCC

Valley Glen

Mechanical Systems

Asset: WT-VG-VLV-01, Well Isolation BFV
Subcomponent to: WT-VG-WLP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
12 in		2004

Manufacturer/Model
Pratt, 2F2

Serial Number
414100-22HP

Comments
Hand operated

Condition Rating: 3
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 13 years
Replacement Cost: $7,326
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-VG-VLV-02, Well Check Valve
Subcomponent to: WT-VG-WLP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
12 in		2004

Manufacturer/Model
Mueller, Series 8000

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 8 years
Replacement Cost: $8,654
Notes:

Asset: WT-VG-WLM-01, Well Pump Motor
Subcomponent to: WT-VG-WLP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
300 hp	300 hp1751 RPM	2004

Manufacturer/Model

Serial Number

Comments

Condition Rating: -
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 13 years
Replacement Cost: $142,241
Notes:

Valley Glen

Electrical and Power Systems

Asset: WT-VG-ATS-01, Auto Transfer Switch

Size	Volts	Amps	Horsepower	Speed	Purchase Year
600 A	277/480	800			2004

Manufacturer/Model
GE, Zenith Entelli-Switch 250

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 3 years
Replacement Cost: $21,336
Notes: No Arc Flash Label.

Asset: WT-VG-ECP-01, Control Panel

Size	Volts	Amps	Horsepower	Speed	Purchase Year
					2004

Manufacturer/Model

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 3 years
Replacement Cost: $106,681
Notes:

Asset: WT-VG-GNR-01, Backup Generator

Size	Volts	Amps	Horsepower	Speed	Purchase Year
400 kW	277/480				2004

Manufacturer/Model
Volvo / Katolight, TAD1241GE / FC24-10-

Serial Number
868836 / 135196 2003

Comments
-700 gallon sub-base fuel tank
-Run monthly for 30 min

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 8 years
Replacement Cost: $524,869
Notes: -No Arc Flash Label
-Run monthly for 30 min
-Cummins performs all PM

Valley Glen

Electrical and Power Systems

Asset: WT-VG-MTR-01, Utility Meter

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	277/480	800			2004

Manufacturer/Model
GE, 1006732575

Serial Number
KZG10067325751109

Comments
Transformer T-11554

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 3 years
Replacement Cost: $5,927
Notes: No Arc Flash Label.

Asset: WT-VG-PLC-01, Programmable Logic Controller

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	120				2004

Manufacturer/Model
Allen-Bradley, CompactLogix L33ER

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 3 years
Replacement Cost: $59,267
Notes:

Asset: WT-VG-SBD-01, Main Switchboard

Size	Volts	Amps	Horsepower	Speed	Purchase Year
600 A		600			2004

Manufacturer/Model
Square D

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 3 years
Replacement Cost: $97,198
Notes: No Arc Flash Label.

Valley Glen

Electrical and Power Systems

Asset: WT-VG-SBD-02, Power Distribution Switchboard

Size	Volts	Amps	Horsepower	Speed	Purchase Year
800 A	277/480	800			2004

Manufacturer/Model
Square D, QED

Serial Number
17260901-001

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 3 years
Replacement Cost: $109,051
Notes: No Arc Flash Label.

Asset: WT-VG-SPD-01, Surge Protection Device

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	277/480				2004

Manufacturer/Model
Square D, Surgelogic

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 3 years
Replacement Cost: $2,371
Notes: No Arc Flash Label.

Valley Glen

Instrumentation / Controls

Asset: WT-VG-CIT-01, In-Line Chlorine Analyzer

Size	Volts	Amps	Purchase Year
			2010 (Operations Staff)

Manufacturer/Model
Siemens, Depolox 3

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 4 years
Replacement Cost: $23,707
Notes: Need to confirm that drain discharges to sanitary sewer.

Asset: WT-VG-FIT-01, Well Flow Meter

Size	Volts	Amps	Purchase Year
12 in			2004

Manufacturer/Model
Sensus, W-3500

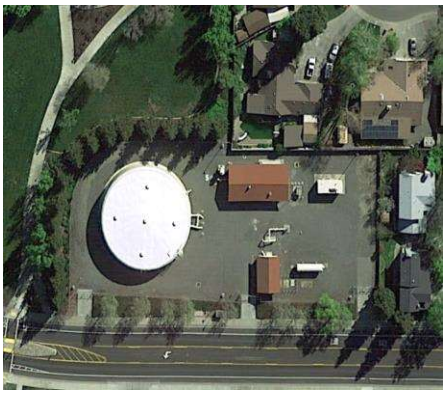
Serial Number
1100D-S-99947E

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 0 years
Replacement Cost: $14,366
Notes:

Watson Ranch

Facility Address	Adjacent Land Use
North Lincoln Street	Single Family
Service Status	**Zone**
Active	Core
Year Originally Constructed	**Year of Latest Upgrade**
1978 (City financial records)	2015
Comments	
Well, Tank, and Booster Pump Site -Well No. 37, 1500 gpm -Tank B, 0.8 MG -Booster Pump 2-1, 330 gpm -Booster Pump 2-2, 330 gpm -Booster Pump 2-3, 1000 gpm -Booster Pump 2-4, 1000 gpm	



Inspection Date

March 2, 2021

Inspection Team

D. Shimberg, C. Neher, and B. Estrada (West Yost); J. Hudson and D. Dunn (Dixon)

Hazards (trees, fire, flood, landslide, etc.)

None

Health and Safety Equipment On-site (PPE, first aid, fire extinguisher, safety shower, MSDS, etc.)

Emergency Shower/Eyewash; Sodium Hydpochlorite MSDS; Fire Extinguisher; PPE

Notes

-Adding sodium hypochlorite at well, target residual 1 ppm
-2015 upgrade included recoating storage tank
-Pumps 3 and 4 run most often

Condition Rating Index:
1 - Excellent
2 - Slight Visible Degradation
3 - Visible Degradation
4 - Integrity Moderately Compromised
5 - Integrity Severely Compromised

Performance Rating Index:
1 - Functioning as Intended
2 - In Service, High OM Costs
3 - In Service, Function Impaired
4 - In Service, Function Highly Impaired
5 - Not Functioning as Intended

Watson Ranch

Site / Civil

Asset: DW 37, Well

Size / Material	Condition Rating: -
917 ft	Performance Rating: 2
Purchase Year	Standard Useful Life: 30 years
1987 (City financial records)	Remaining Life: 0 years
Comments	Replacement Cost: $2,370,682
	Notes: No way to tell water depth, ports filled with gravel

Watson Ranch

Structural / Architectural

Asset: WT-WR-BLD-01, Distribution Pumping Building (Old)

Size / Material
600 sq ft

Manufacturer/Model

Serial Number

Comments

Condition Rating NA
Performance Rating: NA
Standard Useful Life: 50 years
Remaining Life: 8 years
Replacement Cost $284,482
Notes: Not evaluated - building not used.

Purchase Year
1979 (City financial records)

Asset: WT-WR-BLD-02, Distribution Pumping Building (New)

Size / Material
1,800 sq ft, CMU

Manufacturer/Model

Serial Number

Comments

Condition Rating 2
Performance Rating: 1
Standard Useful Life: 50 years
Remaining Life: 36 years
Replacement Cost $853,445
Notes: Spalling/cracking near chlorine pump. Recommend further evaluation by structural engineer.

Purchase Year
2007 (O&M Manual)

Asset: WT-WR-CHT-01, Sodium Hypochlorite Storage Tank

Size / Material
400 gal

Manufacturer/Model

Serial Number

Comments

Condition Rating 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 21 years
Replacement Cost $10,668
Notes: Tighten seismic restraints

Purchase Year
2012 (Operations Staff)

Watson Ranch

Structural / Architectural

Asset: WT-WR-GST-01, Ground Storage Tank

Size / Material	Condition Rating 2	Purchase Year
800,000 gal, A36	**Performance Rating:** 1	2015 (O&M Manual)
Manufacturer/Model	**Standard Useful Life:** 40 years	
Pitt-Des Moines	**Remaining Life:** 34 years	
Serial Number	**Replacement Cost** $2,860,180	
	Notes: - Interconnection piping tee on south side of tank needs recoating. - Pipe support on east pipe of interconnect is not anchored to slab - East pipe coming out of tank needs to be recoated - Recoat/repaint base - Recommend adding flexible connection betwee	
Comments		
Major rehab to interior lining completed in summer 2015 - orginally installed in 1995.		

Asset: WT-WR-ACT-01, GST Distribution Isolation BFV Actuator
Subcomponent to: WT-WR-GST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
8 in		1995
Manufacturer/Model	**Condition Rating:** 3	
Limitourque	**Performance Rating:** -	
Serial Number	**Standard Useful Life:** 30 years	
	Remaining Life: 4 years	
Comments	**Replacement Cost:** $20,412	
	Notes: Only for emergency use - not operated regularly. Recommend annual valve exercise to verify that the valve will perform as required when needed.	

Asset: WT-WR-LIT-01, GST Ultrasonic Level Transmitter
Subcomponent to: WT-WR-GST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
	24 V	2019
Manufacturer/Model	**Condition Rating:** 1	
	Performance Rating: 1	
Serial Number	**Standard Useful Life:** 15 years	
	Remaining Life: 13 years	
Comments	**Replacement Cost:** $7,942	
	Notes:	

Watson Ranch

Structural / Architectural

Asset: WT-WR-VLV-13, GST Distribution Inlet Check Valve
Subcomponent to: WT-WR-GST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
8 in		1995

Manufacturer/Model
American, 52-SC

Serial Number

Comments

Condition Rating: 3
Performance Rating: -
Standard Useful Life: 25 years
Remaining Life: 0 years
Replacement Cost: $5,477
Notes: Only for emergency use - not operated regularly. Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-WR-VLV-14, GST Distribution Isolation BFV
Subcomponent to: WT-WR-GST-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
8 in		1995

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: -
Standard Useful Life: 30 years
Remaining Life: 4 years
Replacement Cost: $3,841
Notes: Only for emergency use - not operated regularly. Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-WR-PST-01, Hydropneumatic Tank

Size / Material
2,500 gal

Manufacturer/Model
Pressure Vessel Technologies

Serial Number
26526

Comments
-6' diameter x 12' height
-Maximum operating pressure 150 psi @ 120 F

Condition Rating 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 15 years
Replacement Cost $115,761
Notes: Seismically vulnerable gasket connection from tank to pipe. Recommend connection be modified to include a flexible coupling or flange coupling adaptor.

Purchase Year
2006 (Nameplate)

Watson Ranch

Mechanical Systems

Asset: WT-SND-01, Well Sand Separator

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		1978
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
Serial Number	**Condition Rating:** 2	
	Performance Rating: 1	
Comments	**Standard Useful Life:** 30 years	
	Remaining Life: 0 years	
	Replacement Cost: $18,333	
	Notes:	

Asset: WT-WR-CHP-01, Sodium Hypochlorite Pump

Size/Material	Volts/Amps/HP/Speed	Purchase Year
2 gph		Rebuilt 2020 (2015 Original)
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
ProMinent, Gamma/L		
Serial Number	**Condition Rating:** 1	
2014064872	**Performance Rating:** 1	
Comments	**Standard Useful Life:** 10 years	
	Remaining Life: 9 years	
	Replacement Cost: $1,422	
	Notes: - New replacement pump on order (Gamma X) - Metering pump should be bolted to stand for seismic restraint	

Asset: WT-WR-CLR-01, Chlorine Injector

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2019
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
Serial Number	**Condition Rating:** 1	
	Performance Rating: 1	
Comments	**Standard Useful Life:** 7 years	
	Remaining Life: 5 years	
	Replacement Cost: $3,082	
	Notes: Chlorine feed valves to be replaced soon	

Watson Ranch

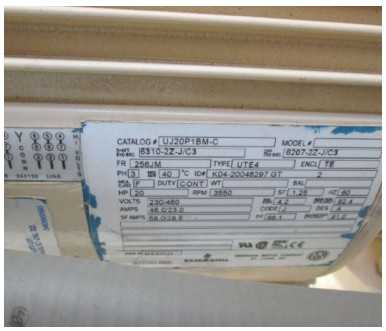
Mechanical Systems

Asset: WT-WR-DBP-21, Booster Pump 2-1

Size/Material	Volts/Amps/HP/Speed	Purchase Year
20 hp	20 hp	Rebuilt 2018 (2009 Original)
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
Paco, 16307071401612851EEU	330 gpm, 150 ft	
Serial Number	**Condition Rating:** 1	
Not legible	**Performance Rating:** 1	
Comments	**Standard Useful Life:** 30 years	
6.30" impeller diameter	**Remaining Life:** 27 years	
	Replacement Cost: $45,991	
	Notes:	

Asset: WT-WR-BPM-21, Booster Pump 2-1 Motor
Subcomponent to: WT-WR-DBP-21

Size/Material	Volts/Amps/HP/Speed	Purchase Year
20 hp	230/460 V, 46/23 A, 20 hp, 3550 RPM	2009
Manufacturer/Model	**Condition Rating:** 2	
Emerson, 6207-2Z-JC3	**Performance Rating:** 1	
Serial Number	**Standard Useful Life:** 30 years	
K04-20088297 GT 2	**Remaining Life:** 18 years	
Comments	**Replacement Cost:** $9,483	
	Notes:	



Asset: WT-WR-PIT-21, Booster Pump 2-1 Discharge Pressure Sensor
Subcomponent to: WT-WR-DBP-21

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2019
Manufacturer/Model	**Condition Rating:** 1	
	Performance Rating: 1	
Serial Number	**Standard Useful Life:** 15 years	
	Remaining Life: 13 years	
Comments	**Replacement Cost:** $4,978	
	Notes:	

Watson Ranch

Mechanical Systems

Asset: WT-WR-VFD-21, Booster Pump 2-1 VFD
Subcomponent to: WT-WR-DBP-21

Size/Material	Volts/Amps/HP/Speed	Purchase Year
52 A	480 V, 52 A, 20 hp	2009

Manufacturer/Model
Rockwell

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 3 years
Replacement Cost: $48,599
Notes: PS is in operation unable to open MCC door to verify inside MCC

Asset: WT-WR-VLV-01, Booster Pump 2-1 Discharge Check Valve
Subcomponent to: WT-WR-DBP-21

Size/Material	Volts/Amps/HP/Speed	Purchase Year
6 in		2005 (Nameplate)

Manufacturer/Model
SCI Valves

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 9 years
Replacement Cost: $3,960
Notes:

Asset: WT-WR-VLV-02, Booster Pump 2-1 Discharge Isolation BFV
Subcomponent to: WT-WR-DBP-21

Size/Material	Volts/Amps/HP/Speed	Purchase Year
6 in		2009

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 18 years
Replacement Cost: $2,418
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Mechanical Systems

Asset: WT-WR-VLV-03, Booster Pump 2-1 Suction Isolation BFV
Subcomponent to: WT-WR-DBP-21

Size/Material	Volts/Amps/HP/Speed	Purchase Year
6 in		2009

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 18 years
Replacement Cost: $2,418
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-WR-DBP-22, Booster Pump 2-2

Size/Material	Volts/Amps/HP/Speed	Purchase Year
20 hp	20 hp	Rebuilt 2020 (2009 Original)

Manufacturer/Model: Paco, 16307071401612851EEU
Duty (gpm) / Duty (TDH): 330 gpm, 150 ft
Serial Number: 619680501 B
Comments: 6.30" impeller diameter

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 29 years
Replacement Cost: $45,991
Notes:

Asset: WT-WR-BPM-22, Booster Pump 2-2 Motor
Subcomponent to: WT-WR-DBP-22

Size/Material	Volts/Amps/HP/Speed	Purchase Year
20 hp	230/460 V, 46/23 A, 20 hp, 3550 RPM	2009

Manufacturer/Model: Emerson, 6207-2Z-JC3
Serial Number: K04-20048297 GT 1
Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 18 years
Replacement Cost: $9,483
Notes:

Mechanical Systems

Asset: WT-WR-PIT-22, Booster Pump 2-2 Discharge Pressure Sensor
Subcomponent to: WT-WR-DBP-22

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2009

Manufacturer/Model

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 3 years
Replacement Cost: $4,978
Notes:

Asset: WT-WR-VFD-22, Booster Pump 2-2 VFD
Subcomponent to: WT-WR-DBP-22

Size/Material	Volts/Amps/HP/Speed	Purchase Year
52 A	480 V, 52 A, 20 hp	2009

Manufacturer/Model
Rockwell

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 3 years
Replacement Cost: $48,599
Notes: PS is in operation unable to open MCC door to verify inside MCC

Asset: WT-WR-VLV-04, Booster Pump 2-2 Discharge Check Valve
Subcomponent to: WT-WR-DBP-22

Size/Material	Volts/Amps/HP/Speed	Purchase Year
6 in		2005 (Nameplate)

Manufacturer/Model
SCI Valves

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 9 years
Replacement Cost: $3,960
Notes:

Mechanical Systems

Asset: WT-WR-VLV-05, Booster Pump 2-2 Discharge Isolation BFV
Subcomponent to: WT-WR-DBP-22

Size/Material	Volts/Amps/HP/Speed	Purchase Year
6 in		2009

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 18 years
Replacement Cost: $2,418
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-WR-VLV-06, Booster Pump 2-2 Suction Isolation BFV
Subcomponent to: WT-WR-DBP-22

Size/Material	Volts/Amps/HP/Speed	Purchase Year
6 in		2009

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 18 years
Replacement Cost: $2,418
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-WR-DBP-23, Booster Pump 2-3

Size/Material	Volts/Amps/HP/Speed	Purchase Year
50 hp	50 hp	2009

Manufacturer/Model
Paco, 16601251A01612902EEU

Duty (gpm) / Duty (TDH)
1000 gpm, 150 ft

Serial Number
61968701 A

Comments
12.1" impeller diameter

Condition Rating: 3
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 18 years
Replacement Cost: $114,978
Notes: - Coating failure at motor/pump connection
- Most frequently used pump. 47,000 hours compared to 12,000 on pump 4.

Watson Ranch

Mechanical Systems

Asset: WT-WR-BPM-23, Booster Pump 2-3 Motor
Subcomponent to: WT-WR-DBP-23

Size/Material	Volts/Amps/HP/Speed	Purchase Year
50 hp	230/460 V, 114/57 A, 50 hp, 1775 RPM	2009

Manufacturer/Model
Emerson, 6211-2Z-JC3

Serial Number
K05 20048195-100R-01

Comments

Condition Rating: 3
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 18 years
Replacement Cost: $23,707
Notes: - Coating failure on motor
- Pump runs more frequently than pumps 1 and 2.

Asset: WT-WR-PIT-23, Booster Pump 2-3 Discharge Pressure Sensor
Subcomponent to: WT-WR-DBP-23

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2009

Manufacturer/Model

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 3 years
Replacement Cost: $4,978
Notes:

Asset: WT-WR-VFD-23, Booster Pump 2-3 VFD
Subcomponent to: WT-WR-DBP-23

Size/Material	Volts/Amps/HP/Speed	Purchase Year
120 A	480 V, 120 A, 50 hp	2009

Manufacturer/Model
Rockwell

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 3 years
Replacement Cost: $121,498
Notes: PS is in operation unable to open MCC door to verify inside MCC

Watson Ranch

Mechanical Systems

Asset: WT-WR-VLV-07, Booster Pump 2-3 Discharge Check Valve
Subcomponent to: WT-WR-DBP-23

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2004 (Nameplate)

Manufacturer/Model
SCI Valves

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 8 years
Replacement Cost: $7,042
Notes:

Asset: WT-WR-VLV-08, Booster Pump 2-3 Discharge Isolation BFV
Subcomponent to: WT-WR-DBP-23

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2009

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 18 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-WR-VLV-09, Booster Pump 2-3 Suction Isolation BFV
Subcomponent to: WT-WR-DBP-23

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2009

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 18 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Watson Ranch

Mechanical Systems

Asset: WT-WR-DBP-24, Booster Pump 2-4

Size/Material	Volts/Amps/HP/Speed	Purchase Year
50 hp	50 hp	2009

Manufacturer/Model	Duty (gpm) / Duty (TDH)
Paco, 16601251A01612902EEU	1000 gpm, 150 ft

Serial Number	
61968701 B	**Condition Rating:** 2
Comments	**Performance Rating:** 1
12.1" impeller diameter	**Standard Useful Life:** 30 years
	Remaining Life: 18 years
	Replacement Cost: $114,978
	Notes:

Asset: WT-WR-BPM-24, Booster Pump 2-4 Motor
Subcomponent to: WT-WR-DBP-24

Size/Material	Volts/Amps/HP/Speed	Purchase Year
50 hp	230/460 V, 114/57 A, 50 hp, 1775 RPM	2009

Manufacturer/Model	
Emerson, 6211-2Z-JC3	**Condition Rating:** 2
Serial Number	**Performance Rating:** 1
K05 20048195-100R-02	**Standard Useful Life:** 30 years
Comments	**Remaining Life:** 18 years
	Replacement Cost: $23,707
	Notes:

Asset: WT-WR-PIT-24, Booster Pump 2-4 Discharge Pressure Sensor
Subcomponent to: WT-WR-DBP-24

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		2009

Manufacturer/Model	
	Condition Rating: 1
Serial Number	**Performance Rating:** 1
	Standard Useful Life: 15 years
Comments	**Remaining Life:** 3 years
	Replacement Cost: $4,978
	Notes:

Watson Ranch

Mechanical Systems

Asset: WT-WR-VFD-24, Booster Pump 2-4 VFD
Subcomponent to: WT-WR-DBP-24

Size/Material	Volts/Amps/HP/Speed	Purchase Year
120 A	480 V, 120 A, 50 hp	2009

Manufacturer/Model
Rockwell

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 3 years
Replacement Cost: $121,498
Notes: PS is in operation unable to open MCC door to verify inside MCC

Asset: WT-WR-VLV-10, Booster Pump 2-4 Discharge Check Valve
Subcomponent to: WT-WR-DBP-24

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2004 (Nameplate)

Manufacturer/Model
SCI Valves

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 8 years
Replacement Cost: $7,042
Notes:

Asset: WT-WR-VLV-11, Booster Pump 2-4 Discharge Isolation BFV
Subcomponent to: WT-WR-DBP-24

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2009

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 18 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Watson Ranch

Mechanical Systems

Asset: WT-WR-VLV-12, Booster Pump 2-4 Suction Isolation BFV
Subcomponent to: WT-WR-DBP-24

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		2009

Manufacturer/Model

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 18 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-WR-VLV-15, Well Isolation BFV

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		1995

Manufacturer/Model | **Duty (gpm) / Duty (TDH)**

Pratt

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 4 years
Replacement Cost: $5,477
Notes: Recommend annual valve exercise to verify that the valve will perform as required when needed.

Asset: WT-WR-VLV-16, Well Check Valve

Size/Material	Volts/Amps/HP/Speed	Purchase Year
10 in		1978

Manufacturer/Model | **Duty (gpm) / Duty (TDH)**

Serial Number

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 0 years
Replacement Cost: $7,042
Notes:

Watson Ranch

Mechanical Systems

Asset: WT-WR-WLP-01, Well Pump

Size/Material	Volts/Amps/HP/Speed	Purchase Year
75 hp	75 hp, 1770 RPM	1978
Manufacturer/Model	**Duty (gpm) / Duty (TDH)**	
Johnson	1500 gpm, 148 ft	
Serial Number	**Condition Rating:** 3	
	Performance Rating: 3	
Comments	**Standard Useful Life:** 30 years	
	Remaining Life: 0 years	
	Replacement Cost: $149,353	
	Notes: - Pump designed for 1,500 gpm, operating at 1,150 gpm. Recommend hydraulic evaluation. - Reduced flow may be due to internal damage due to sand and grit.	

Asset: WT-WR-PIT-01, Well Pump Discharge Pressure Sensor
Subcomponent to: WT-WR-WLP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
		1978
Manufacturer/Model	**Condition Rating:** 1	
	Performance Rating: 1	
Serial Number	**Standard Useful Life:** 15 years	
	Remaining Life: 0 years	
Comments	**Replacement Cost:** $4,978	
	Notes:	

Asset: WT-WR-VFD-01, Well Pump Soft Starter
Subcomponent to: WT-WR-WLP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
500 A	480 V, 500 A, 75 hp	2020
Manufacturer/Model	**Condition Rating:** 1	
Rockwell	**Performance Rating:** 1	
Serial Number	**Standard Useful Life:** 15 years	
	Remaining Life: 14 years	
Comments	**Replacement Cost:** $87,478	
	Notes: PS is in operation unable to open MCC door to verify inside MCC	

Asset: WT-WR-WLM-01, Well Pump Motor
Subcomponent to: WT-WR-WLP-01

Size/Material	Volts/Amps/HP/Speed	Purchase Year
75 hp	460 V, 67 A, 75 hp, 1780 RPM	2015 (Monthly Report)

Manufacturer/Model
Nidec Motor Corporation, DT96

Serial Number
W 09 7631731-0061 M 0003

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 30 years
Remaining Life: 24 years
Replacement Cost: $35,560
Notes:

Watson Ranch

Electrical and Power Systems

Asset: WT-WR-ATS-01, Auto Transfer Switch

Size	Volts	Amps	Horsepower	Speed	Purchase Year
1,200 A	277/480	600			2009

Manufacturer/Model
GE, Zenith Entelli-Switch 250

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 8 years
Replacement Cost: $42,672
Notes: No Arc Flash Label

Asset: WT-WR-ECP-01, Control Panel

Size	Volts	Amps	Horsepower	Speed	Purchase Year
					2009

Manufacturer/Model

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 8 years
Replacement Cost: $106,681
Notes:

Asset: WT-WR-GNR-01, Backup Generator

Size	Volts	Amps	Horsepower	Speed	Purchase Year
500 kW	277/480	752		1800	2007 (O&M Manual)

Manufacturer/Model
Katolight, QSX15-G9NR2 / D500 FR24

Serial Number
79233854 / 128718-0407

Comments
750 gallon sub-base fuel tank

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 25 years
Remaining Life: 11 years
Replacement Cost: $1,385,071
Notes: -No Arc Flash Label
-Run monthly for 30 min
-Structure looks good, no visible issues
-Cummins performs all PM, no issues in last 6 mo PM

Watson Ranch

Electrical and Power Systems

Asset: WT-WR-MCC-01, Motor Control Center

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	480	600			2009

Manufacturer/Model
Allen-Bradley, BUL. 2100

Serial Number
N GFZ035/1

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 8 years
Replacement Cost: $527,687
Notes: No Arc Flash Label

Asset: WT-WR-MTR-01, Utility Meter

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	277/480	600			2009

Manufacturer/Model
GE, 5000037379

Serial Number
KZG50000373791012

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 8 years
Replacement Cost: $5,927
Notes:

Asset: WT-WR-PLC-01, Programmable Logic Controller

Size	Volts	Amps	Horsepower	Speed	Purchase Year
	120				2009

Manufacturer/Model
Allen-Bradley, CompactLogix L33ER

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 8 years
Replacement Cost: $59,267
Notes:

Watson Ranch

Electrical and Power Systems

Asset: WT-WR-SBD-01, Switchboard

Size	Volts	Amps	Horsepower	Speed	Purchase Year
1,200 A	277/480	600			2009

Manufacturer/Model
Industrial Electrical MFG

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 8 years
Replacement Cost: $132,758
Notes: No Arc Flash Label

Asset: WT-WR-SPD-01, Surge Protection Device

Size	Volts	Amps	Horsepower	Speed	Purchase Year
		277/480			2009

Manufacturer/Model

Serial Number

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 20 years
Remaining Life: 8 years
Replacement Cost: $2,371
Notes:

Watson Ranch

Instrumentation / Controls

Asset: WT-WR-CIT-01, In-Line Chlorine Analyzer

Size	Volts	Amps	Purchase Year
			2010 (Operations Staff)

Manufacturer/Model
Siemens, Depolox 3

Serial Number
BP 90127 01

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 4 years
Replacement Cost: $23,707
Notes:

Asset: WT-WR-FIT-01, Well Flow Meter

Size	Volts	Amps	Purchase Year
10 in			2019

Manufacturer/Model
McCrometer

Serial Number
18-11351

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 13 years
Replacement Cost: $13,110
Notes:

Asset: WT-WR-FIT-02, Distribution Flow Meter

Size	Volts	Amps	Purchase Year
8 in	24		2009

Manufacturer/Model
Sensus, W-3500

Serial Number
66527043

Comments

Condition Rating: 2
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 3 years
Replacement Cost: $11,735
Notes: Last calibrated by Calcon Systems on 7/20/2015.

Watson Ranch

Instrumentation / Controls

Asset: WT-WR-PIT-10, Flow and Pressure Indicator/Transmitter

Size	Volts	Amps	Purchase Year
			2009

Manufacturer/Model

Rosemount

Serial Number

1671641

Comments

Condition Rating: 1
Performance Rating: 1
Standard Useful Life: 15 years
Remaining Life: 3 years
Replacement Cost: $4,267
Notes:

Attachment C

CIP Alternative Details

Table C1. Recommended CIP - High Alternative

Project Name	Cost (2022 Dollars)	Rehabilitation and Replacement Program (Costs include 3% annual inflation unless otherwise noted)									
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Chromium-6 Treatment Study	$12,000	$12,000	--	--	--	--	--	--	--	--	--
Chromium-6 Treatment Implementation	$10,700,000	--	$2,204,200	$2,270,326	$2,338,436	$2,408,589	$2,480,847	--	--	--	--
Valve Exercising Program - Replacements	$200,000	$50,000	$50,000	$50,000	$50,000	--	--	--	--	--	--
Watson Ranch Well Improvements	$162,000	$162,000	--	--	--	--	--	--	--	--	--
Watson Ranch Well Replacements	$2,371,000	--	--	$628,848	$1,943,142	--	--	--	--	--	--
Arc Flash Study and Labeling	$35,000	--	--	--	$38,245	--	--	--	--	--	--
Valley Glen Electrical Upgrades	$255,000	--	--	--	$278,645	--	--	--	--	--	--
Park Lane Electrical Upgrades	$697,000	--	--	--	--	--	--	$832,254	--	--	--
Fitzgerald Mechanical Replacements	$90,000	$52,200	--	--	--	--	--	$45,135	--	--	--
AC Pipe Replacement Program	$5,490,000	$549,000	$565,470	$582,434	$599,907	$617,904	$636,441	$655,535	$675,201	$695,457	$716,320
Appurtenance Replacement	$5,670,000	$567,000	$584,010	$601,530	$619,576	$638,163	$657,308	$677,028	$697,338	$718,259	$739,806
Watson Ranch Tank Rehab	$150,000	$150,000	--	--	--	--	--	--	--	--	--
School Well Electrical Replacements	$471,000	$471,000	--	--	--	--	--	--	--	--	--
Storage Tank Piping Seismic Upgrades	$209,000	$209,000	--	--	--	--	--	--	--	--	--
Park Lane Tanks #1 and #2 Rehab	$150,000	--	--	$159,135	--	--	--	--	--	--	--
Fitzgerald Electrical Upgrades	$510,000	--	$525,300	--	--	--	--	--	--	--	--
School Well Site Upgrades	$596,000	$596,000	--	--	--	--	--	--	--	--	--
Fitzgerald New Well Source	$3,800,000	--	--	$2,015,710	$2,076,181	--	--	--	--	--	--
Park Lane Instrumentation Upgrades	$55,000	$55,000	--	--	--	--	--	--	--	--	--
School Well Control System Improvements	$20,000	$20,000	--	--	--	--	--	--	--	--	--
School Well Hydropneumatic Tank Rehab	$30,000	$30,000	--	--	--	--	--	--	--	--	--
Valley Glen Well Instrumentation Upgrades	$35,000	$35,000	--	--	--	--	--	--	--	--	--
Valley Glen Hydropneumatic Tank Rehab	$30,000	$30,000	--	--	--	--	--	--	--	--	--
Watson Ranch Instrumentation Upgrades	$25,000	$25,000	--	--	--	--	--	--	--	--	--
Generator Replacement Fund	$600,000	$150,000	--	--	--	$168,826	--	$179,108	--	$190,016	--
Cyber: Access Control Improvements	$150,000	$150,000	--	--	--	--	--	--	--	--	--
Cyber: Telecommunications, Network Security and Architecture Improvements	$250,000	$250,000	--	--	--	--	--	--	--	--	--
Cyber: Conduct "A Day Without SCADA"	$50,000	--	$51,500	--	--	--	--	--	--	--	--
Cyber: Develop Cybersecurity Awareness and Cybersecurity Workforce Development Program	$80,000	--	$82,400	--	--	--	--	--	--	--	--
Cyber: Develop and Implement Policies and Procedures	$75,000	--	$77,250	--	--	--	--	--	--	--	--
Dorset Court Fire Flow Deficiency (CIP-315)	$128,000	--	--	--	--	--	$148,387	--	--	--	--
Water Master Plan Update	$40,000	--	$10,000	$10,000	$10,000	$10,000	--	--	--	--	--
Water Rate Study	$260,000	--	$260,000	--	--	--	--	--	--	--	--
Water Meter Replacement Program	$892,000	--	--	$772,000	$60,000	$60,000	--	--	--	--	--
Strategic AMP	$41,000	--	$11,000	$10,000	$10,000	$10,000	--	--	--	--	--
Solano GSA/GSP	$30,000	--	$25,000	$5,000	--	--	--	--	--	--	--
Cross-Connection Program	$35,000	--	$25,000	--	--	$10,000	--	--	--	--	--
Urban Water Management Plan	$100,000	--	--	$100,000	--	--	--	--	--	--	--
Total	**$34,494,000**	**$3,563,200**	**$4,471,130**	**$7,204,984**	**$8,024,133**	**$3,923,483**	**$3,922,983**	**$2,389,060**	**$1,372,539**	**$1,603,731**	**$1,456,127**
Total w/ 3% Inflation		**$37,931,370**									

Table C2. Recommended CIP - Medium Alternative

Project Name	Cost (2022 Dollars)	Rehabilitation and Replacement Program (Costs include 3% annual inflation unless otherwise noted)									
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Chromium-6 Treatment Study	$12,000	$12,000	--	--	--	--	--	--	--	--	--
Chromium-6 Treatment Implementation	$5,350,000	--	$1,102,100	$1,135,163	$1,169,218	$1,204,294	$1,240,423	--	--	--	--
Valve Exercising Program - Replacements	$200,000	$50,000	$50,000	$50,000	$50,000	--	--	--	--	--	--
Watson Ranch Well Improvements	$162,000	$162,000	--	--	--	--	--	--	--	--	--
Watson Ranch Well Replacements	$2,371,000	--	--	--	--	--	--	--	$729,008	$2,252,634	--
Arc Flash Study and Labeling	$35,000	--	--	--	$38,245	--	--	--	--	--	--
Valley Glen Electrical Upgrades	$127,500	--	--	--	$139,323	--	--	--	--	--	--
Park Lane Electrical Upgrades	$348,500	--	--	--	--	--	--	$416,127	--	--	--
Fitzgerald Mechanical Replacements	$52,200	$52,200	--	--	--	--	--	--	--	--	--
AC Pipe Replacement Program	$1,830,000	$183,000	$188,490	$194,145	$199,969	$205,968	$212,147	$218,512	$225,067	$231,819	$238,773
Appurtenance Replacement	$1,890,000	$189,000	$194,670	$200,510	$206,525	$212,721	$219,103	$225,676	$232,446	$239,420	$246,602
Watson Ranch Tank Rehab	$150,000	$150,000	--	--	--	--	--	--	--	--	--
School Well Electrical Replacements	$471,000	$235,500	--	--	--	--	$273,009	--	--	--	--
Storage Tank Piping Seismic Upgrades	$209,000	$209,000	--	--	--	--	--	--	--	--	--
Park Lane Tanks #1 and #2 Rehab	$150,000	--	--	$159,135	--	--	--	--	--	--	--
Fitzgerald Electrical Upgrades	$510,000	--	$262,650	--	--	--	--	$304,483	--	--	--
School Well Site Upgrades	$150,000	$150,000	--	--	--	--	--	--	--	--	--
Fitzgerald New Well Source	$2,500,000	--	--	$1,326,125	$1,365,909	--	--	--	--	--	--
Park Lane Instrumentation Upgrades	$55,000	$55,000	--	--	--	--	--	--	--	--	--
School Well Control System Improvements	$20,000	$20,000	--	--	--	--	--	--	--	--	--
School Well Hydropneumatic Tank Rehab	$30,000	$30,000	--	--	--	--	--	--	--	--	--
Valley Glen Well Instrumentation Upgrades	$35,000	$35,000	--	--	--	--	--	--	--	--	--
Valley Glen Hydropneumatic Tank Rehab	$30,000	$30,000	--	--	--	--	--	--	--	--	--
Watson Ranch Instrumentation Upgrades	$25,000	$25,000	--	--	--	--	--	--	--	--	--
Generator Replacement Fund	$300,000	--	--	--	--	--	$173,891	--	--	--	$195,716
Cyber: Access Control Improvements	$150,000	$150,000	--	--	--	--	--	--	--	--	--
Cyber: Telecommunications, Network Security and Architecture Improvements	$250,000	--	$257,500	--	--	--	--	--	--	--	--
Cyber: Conduct "A Day Without SCADA"	$50,000	--	$51,500	--	--	--	--	--	--	--	--
Cyber: Develop Cybersecurity Awareness and Cybersecurity Workforce Development Program	$0	--	--	--	--	--	--	--	--	--	--
Cyber: Develop and Implement Policies and Procedures	$0	--	--	--	--	--	--	--	--	--	--
Water Master Plan Update	$40,000	--	$10,000	$10,000	$10,000	$10,000	--	--	--	--	--
Water Rate Study	$260,000	--	$260,000	--	--	--	--	--	--	--	--
Water Meter Replacement Program	$892,000	--	--	$772,000	$60,000	$60,000	--	--	--	--	--
Strategic AMP	$41,000	--	$11,000	$10,000	$10,000	$10,000	--	--	--	--	--
Solano GSA/GSP	$30,000	--	$25,000	$5,000	--	--	--	--	--	--	--
Cross-Connection Program	$35,000	--	$25,000	--	--	$10,000	--	--	--	--	--
Urban Water Management Plan	$100,000	--	--	$100,000	--	--	--	--	--	--	--
Total	**$18,861,200**	**$1,737,700**	**$2,437,910**	**$3,962,078**	**$3,249,189**	**$1,712,984**	**$2,118,573**	**$1,164,798**	**$1,186,521**	**$2,723,872**	**$681,092**
Total w/ 3% Inflation		**$20,974,717**									

Table C3. Recommended CIP - Low Alternative

Project Name	Cost (2022 Dollars)	Rehabilitation and Replacement Program (Costs include 3% annual inflation unless otherwise noted)									
		2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Chromium-6 Treatment Study	$12,000	$12,000	--	--	--	--	--	--	--	--	--
Chromium-6 Treatment Implementation	$0	--	--	--	--	--	--	--	--	--	--
Valve Exercising Program - Replacements	$200,000	$50,000	$50,000	$50,000	$50,000	--	--	--	--	--	--
Watson Ranch Well Improvements	$162,000	$162,000	--	--	--	--	--	--	--	--	--
Watson Ranch Well Replacements	$711,300	--	--	--	--	--	$824,592	--	--	--	--
Arc Flash Study and Labeling	$35,000	--	--	--	$38,245	--	--	--	--	--	--
Valley Glen Electrical Upgrades	$0	--	--	--	--	--	--	--	--	--	--
Park Lane Electrical Upgrades	$0	--	--	--	--	--	--	--	--	--	--
Fitzgerald Mechanical Replacements	$0	--	--	--	--	--	--	--	--	--	--
AC Pipe Replacement Program	$1,500,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000
Appurtenance Replacement	$750,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000
Watson Ranch Tank Rehab	$150,000	--	--	--	--	--	$173,891	--	--	--	--
School Well Electrical Replacements	$235,500	--	--	--	--	--	$273,009	--	--	--	--
Storage Tank Piping Seismic Upgrades	$209,000	$209,000	--	--	--	--	--	--	--	--	--
Park Lane Tanks #1 and #2 Rehab	$150,000	--	--	--	--	--	--	--	--	$190,016	--
Fitzgerald Electrical Upgrades	$255,000	--	--	--	--	--	--	$304,483	--	--	--
School Well Site Upgrades	$150,000	--	--	--	--	--	$173,891	--	--	--	--
Fitzgerald New Well Source	$1,500,000	--	--	$795,675	$819,545	--	--	--	--	--	--
Park Lane Instrumentation Upgrades	$55,000	$55,000	--	--	--	--	--	--	--	--	--
School Well Control System Improvements	$20,000	$20,000	--	--	--	--	--	--	--	--	--
School Well Hydropneumatic Tank Rehab	$30,000	$30,000	--	--	--	--	--	--	--	--	--
Valley Glen Well Instrumentation Upgrades	$35,000	$35,000	--	--	--	--	--	--	--	--	--
Valley Glen Hydropneumatic Tank Rehab	$30,000	$30,000	--	--	--	--	--	--	--	--	--
Watson Ranch Instrumentation Upgrades	$25,000	$25,000	--	--	--	--	--	--	--	--	--
Generator Replacement Fund	$150,000	--	--	--	--	--	--	--	--	--	$195,716
Cyber: Access Control Improvements	$0	--	--	--	--	--	--	--	--	--	--
Cyber: Telecommunications, Network Security and Architecture Improvements	$0	--	--	--	--	--	--	--	--	--	--
Cyber: Conduct "A Day Without SCADA"	$50,000	--	$51,500	--	--	--	--	--	--	--	--
Cyber: Develop Cybersecurity Awareness and Cybersecurity Workforce Development Program	$0	--	--	--	--	--	--	--	--	--	--
Cyber: Develop and Implement Policies and Procedures	$0	--	--	--	--	--	--	--	--	--	--
Water Master Plan Update	$40,000	--	$10,000	$10,000	$10,000	$10,000	--	--	--	--	--
Water Rate Study	$260,000	--	$260,000	--	--	--	--	--	--	--	--
Water Meter Replacement Program	$892,000	--	--	$772,000	$60,000	$60,000	--	--	--	--	--
Strategic AMP	$41,000	--	$11,000	$10,000	$10,000	$10,000	--	--	--	--	--
Solano GSA/GSP	$30,000	--	$25,000	$5,000	--	--	--	--	--	--	--
Cross-Connection Program	$35,000	--	$25,000	--	--	$10,000	--	--	--	--	--
Urban Water Management Plan	$100,000	--	--	$100,000	--	--	--	--	--	--	--
Total	**$7,812,800**	**$853,000**	**$657,500**	**$1,967,675**	**$1,212,791**	**$315,000**	**$1,670,383**	**$529,483**	**$225,000**	**$415,016**	**$420,716**
Total w/ 3% Inflation		**$8,266,563**									