Seabrook Water& Sewer Department

PO Box 456
Seabrook, NH 03874
(603)-474-9921

MEMORANDUM

To: Board of Selectmen

Cc: William Manzi III; Town Manager

From: Curtis Slayton; Water & Sewer Superintendent

Date: September 5, 2023

Subject: Monthly Report from July 1st to Date

Below is a list of activities ongoing and completed by the Water & Sewer Department staff since the last report.

WATER

- Responded to 106 requests for service to include water turn on/off, inspections and meter repairs.
- Responded to 118 dig safe requests.
- 34,719,000 gallons of treated water was pumped into the distribution system in July, 37,982,000 gallons in August.
- Meter reads were completed on the first of every month.
- Residential meter maintenance has finally restarted. Staff are working on testing meters that have been in service for over 10 years.
- Bacteria samples were completed in the first two weeks of the month.
- The propane tank at the 107-water tower started leaking, as instructed by the propane provider we ran the generator until the tank was empty. The propane provided has repaired and filled the tank.
- Both Water and Sewer Departments are now using Bamboo HR.
- One 50 hp high lift pump motor was sent out for repair and has since been reinstalled.
- Work at the Merriman-Weare Disc Golf Course is almost complete, just signage and mowing left to do.
- 3rd quarter lead and copper sampling has been completed.
- One emergency water main repair at 49 Ayer Circle.
- Grounds keeping around Water Treatment Facility and wells.
- Weed trimming around and painting fire hydrants.
- Harry assisted the sewer department by operating tractor for the carbon installed.
- Cleaning brass and copper in the process area.

- Power washed the bottom rings of the 107-water tank.
- Altitude valve at 107 tank and speed controllers in the process area were rebuilt by Flow Rite
- The tractor was serviced by Milton Cat. The staff greased and washed.
- Hydrant at Quaker Lane was repaired from a hit and run.

SEWER

* 27 million gallons of wastewater treated in July and 29 million gallons in August
*143 tons of biosolids were sent out in July and 136 in August
* Monthly operation reports sent to NHDES and USEPA
* Daily lab work 7 days a week
*Grounds keeping at WWTF and pump stations to include brush cutting
* Weekly pump station checks
*Centennial pump station is equipped with 3 Fair Banks Morse pumps. The first one broke down at the end of August, and the needed soft start is a few weeks out. Sunday on the holiday weekend another pump broke down leaving one pump in operation. Technicians were there on the Monday Holiday diagnosing the problems. Tuesday they will return to modify one of the pumps so it will operate on an emergency basis if something happens to the main pump.
* The pump station master plan has been completed (attached). This was an ARPA $100,000 grant that evaluates the condition of the 17 larger sewer pump stations. The draft of this report was used to create the 2024 CIP.
* JCB backhoe hydraulic out rigger was repaired.
* Route 1A pump station slide gate in the wet well has been repaired.
*New mechanical seal installed on 1 of the outfall pumps.
* Lighting strike at the WWTF. 1 return pump VFD and 1 sludge pump VFD were damaged. The main breaker that supplies power to the facility was damaged. We are working on replacing the VFD's and repairing the breaker.
* Oil sampling was completed on the transformer that supplies all the power to the WWTF
* Staff replaced brakes on #92 crane truck and changed oil in the crane.
* Installed a new sampler in the influent building that had a bad refrigeration unit.
* Change the carbon in the odor control for the influent building, it took 5000 LBS of carbon.
* Wilson Controls replaced the interface screen at River Street drainage station.
* The power stations discharge permit was renewed.
* The grit classifier is out to bid.
* Replaced the blower for the odor control at Centennial with one not being used at the Sludge Building. The bearings were replaced due to age.
* Built new green head boxes for bug control at the WWTF
* Repaired sample vault barrier to prevent flooding.
* Swapped aeration tanks, rotor #1 has a bad bearing and stub staff. The shaft is on order.
* Replace sump pump at Centennial Pump Station.

* Pressure washed the outside of the admin building.
* Replaced the air filters in the lab HVAC system.
* Inspected influent wet well floats that control the screw pumps.
* Pump work at Batchelder Rd, Mill Ln, Stard Rd, and Autumn Way.
* Staff attended TRC and Construction meetings for new projects around town.

Respectfully submitted.

Curtis Slayton, Water & Sewer Superintendent

SEABROOK WATER DEPARTMENT

Water Delivered

Year: 2023 Month: July

Gravel Packed Wells

1:	4,896,000
3:	5,524,000
7:	224,000

Plant: 24,075,000

Total: 34,719,000

Previous Month / Year	Jul-22	Total	39,719,000
Previous Month / Year	Jun-21	Total	34,761,000

Respectfully submitted: George M. Eaton Chief Op

Date: 8/1/2023

SEABROOK WATER DEPARTMENT

Water Delivered

Year: 2023 Month: August

Gravel Packed Wells

1:	5,713,000
3:	38,000
7:	4,051,000

Plant: 28,180,000

Total: 37,982,000

Previous Month / Year	Aug-22	Total	39,808,000
Previous Month / Year	Aug-21	Total	34,795,000

Respectfully submitted: George M. Eaton Chief Op

Date: 9/5/2023

Weston & Sampson

westonandsampson.com

WESTON & SAMPSON ENGINEERS, INC.
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FINAL REPORT

September 2023

TOWN OF
Seabrook
New Hampshire

Pump Station Evaluations and Master Plan Final Report

Table of Contents

Weston & Sampson

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Town of Seabrook, New Hampshire
Weston & Sampson Project No. ENG22-0942

September 13, 2023

Curtis Slayton
Water & Sewer Superintendent
274 Route 286 (Wrights Island)
Seabrook, NH 03874

Re: Final Report
Wastewater Pump Station Evaluations and Master Plan

Dear Mr. Slayton:

Weston & Sampson is pleased to submit this report on evaluations conducted on the Town of Seabrook wastewater pump stations. The draft report presents our findings for work completed under this project, including collected pump station information, general observations and deficiencies, recommendations for improvements, and a prioritized master plan.

Project Background
For many communities, pump stations are an integral part of wastewater collection systems due to varying topography. Pump stations use mechanical equipment and pressurized piping to lift fluid from a low elevation point to a higher elevation and transport flows to the gravity portions of the collection systems.

Seventeen (17) of the larger wastewater pump stations in the Town of Seabrook were included as part of this report, consisting of three (3) custom flooded suction stations, thirteen (13) dry-well stations, and one (1) submersible station. A summary of the 17 inspected pump stations is included in Table 1 on Page 2 of this report.

As the town's pump station infrastructure and equipment continue to age, critical repairs and/or upgrades are necessary to ensure efficient operation. The purpose of this project was to visit, inspect and document conditions of each pump station to make recommendations for improvements and develop a master plan. The master plan will aid Seabrook in budgeting for annual costs of pump station improvements.

Field Evaluations
Weston & Sampson staff performed field evaluations on 16 of the 17 larger pump stations on October 24, 2022. A follow up inspection was conducted on April 17, 2023, for RTU-04: Walton Road Pump Station, which was not inspected on the initial site visit due to time restraints, as well as the need to gather additional information from a handful of other pump stations throughout the Town. The following items were evaluated at each pump station:

- Building structure and site
- Motor control center

- Level control system
- Mechanical piping, valves, fitting and supports
- Heating, ventilation, lighting, and dehumidification systems
- Electric motors, including amperage and voltage readings
- Pump and motor appurtenances and wet well
- Standby generator (if applicable)

A summary of the seventeen (17) inspected pump stations is shown below in Table 1:

TABLE 1
PUMP STATION SUMMARY
SEABROOK, NH - PUMP STATION EVALUATIONS

Station Name	Station Type	Number of Pumps	Pump Manufacturer	GPM	TDH[1]	HP
RTU-01: B Street	Dry Well	2	Gorman-Rupp	275	61.18	15
RTU-02: Dows Lane	Dry Well	2	Gorman-Rupp	125	25.90	5
RTU-03: Batchelder Road	Dry Well	2	Gorman-Rupp	225	50.69	10
RTU-04: Walton Road	Wet Well Submersible	2	Flygt	150*	29*	2.4
RTU-05: Causeway Street	Dry Well	2	Gorman-Rupp	275	30.97	5
RTU-06: Worthley Ave	Dry Well	2	Gorman-Rupp	125	29.17	5
RTU-07: Mill Lane	Dry Well	2	Gorman-Rupp	175	39.61	7.5
RTU-08: Riley Road	Dry Well	2	Gorman-Rupp	125	39.79	7.5
RTU-09: Stard Road	Dry Well	2	Gorman-Rupp	225	59.63	15
RTU-10: Ledge Road	Dry Well	2	Gorman-Rupp	175	32.11	5
RTU-11: Folly Mill Terrace	Dry Well	2	Gorman-Rupp	140	26.13	5
RTU-12: Old New Boston Road	Dry Well	2	Gorman-Rupp	200	45.34	10
RTU-15: Route 1A	Flooded Suction	2	Gorman-Rupp	1,000	36.66	20
RTU-16: Route 107	Dry Well	2	Gorman-Rupp	500	66.60	25
RTU-17: Rocks Road	Dry Well	2	Gorman-Rupp	800	55.70	25
RTU-18: Route 286	Flooded Suction	2	Fairbanks-Morse	1,500	40.70	25
RTU-19: Centennial Street	Flooded Suction	3	Fairbanks-Morse	1,800	75.80	50

Notes:
1 - As provided from Town of Seabrook
*- Estimated

Digital photographs were taken of all components inspected to document their condition at the time of the evaluation. In addition to visual inspection, Weston & Sampson staff met with Seabrook Wastewater Department staff at each station and discussed existing operational problems and previous improvements.

A detailed summary of field evaluations for each pump station is included in Appendix A. The summary includes a brief description of the station, observations from the evaluation and a select number of digital photographs. The entire collection of digital photographs taken during field evaluations can be provided upon request.

Force Main Inspections

Evaluating existing conditions of pump station force mains was not included as part of this effort. Historically, performing force main inspections has been costly and difficult under live conditions. With the development of new technology, performing these evaluations has become a much more feasible task.

Barring any replacement, the age of each force main is likely identical to the adjacent pump station. As the pump station degrades over time, so do associated buried pipes. Unfortunately, without the ability to television inspect these pipes because they are always in use, defects are not usually identified until failure. Developing a program to evaluate each force main would provide a proactive approach to avoid potential failures of these critical infrastructure components.

One option would be to perform inspections and cleaning of the force mains for each station as the repairs are performed under the Capital Improvement Plan created within this report. It should be noted the Town is proactive in maintaining their force mains, however, installing equipment to perform a "Pigging" cleaning technique while each pump station is under construction could be beneficial in extending the life of the force main. "Pigging" consists of inserting a device (pig) into the force main and uses pressure to move it down the pipe. The pig then scraps the inside sidewalls and carrying debris to an exit point out of the pipe. A permanent pig launcher can be installed to maintain the force mains at each of the two larger pump stations (Route 286 and Centennial). It is estimated that the pig launcher equipment and installation costs will be approximately $ 78,000 per installation. This does not include the cost for performing the pipeline pigging cleaning technique.

Weston & Sampson has assisted other communities in developing similar programs aimed at inspecting all force mains within the town's wastewater system. We are available to discuss these options and estimated costs at the Town's request.

Capital Improvements Plan & Prioritization

The Town of Seabrook is positioned to commence work on a comprehensive wastewater pump station improvements program, the purpose of which is to provide the Town with a basis to financially plan for future pump station improvements. This Wastewater Pump Station Master Plan provides a specific plan for operating, maintaining, and improving the Town's wastewater pump stations. The Wastewater Pump Station Master Plan also provides a schedule and projection of costs of the recommended improvements. Based on the level of need for improvements, each pump station was prioritized within the program accordingly.

The Wastewater Pump Station Master Plan has been designed such that changes to the schedule can be easily implemented. The schedule can be revised annually to reflect problems that may arise within a station or to align scheduled work with available funding for that year. Depending on funding, the Town may wish to adjust a station in priority or combine multiple phases into one year of the program. For example, if a station is scheduled for design and replacement in the near future, it is not recommended to perform the repair/maintenance recommendations listed. The improvement priority list is shown on page 4 in Table 2. The program was prioritized based on the overall condition

of the station, previously completed improvements, observations from the field evaluations and discussion with town personnel.

Detailed recommendations for improvements at each station are shown in Appendix A. These recommendations include some work that may be performed directly by town personnel, and some work the Town may wish to procure assistance to complete, including work that will require engineering review to establish design criteria and/or review station hydraulics.

Recommended Improvement Plans

A list of recommended improvements for each station was created based on Weston & Sampson's observations during the field evaluations. Each recommendation was listed as either: (a) an item requiring general repair and/or maintenance, or (b) an item that requires additional investigation and/or engineering design to refine recommended improvements or upgrades. The complete list of specific recommendations and preliminary budget-level costs for each individual pump station is included in Appendix A.

The estimated planning level costs for items requiring repair and/or maintenance include materials, labor, installation, engineering and bidding assistance, construction engineering services, and contingency have been included in the cost estimates provided in Table 2 below.

TABLE 2
DESIGN/UPGRADE IMPROVEMENT PRIORITY LIST
SEABROOK, NH - PUMP STATION EVALUATIONS

Priority Year	Pump Station	Station Name	Design/Upgrade Estimate		
			Present Cost[1]	Future Cost[2]	Total Cost
Year 1	RTU-15*	Route 1A PS	$2,668,572	$2,668,572	$4,275,139
	RTU-10*	Ledge Road PS	$1,606,566	$1,606,566	
Year 2	RTU-18*	Route 286 PS	$2,629,462	$3,023,881	$3,023,881
Year 3	RTU-19*	Centennial Road PS	$2,967,513	$3,561,015	$5,487,513
	RTU-17*	Rocks Road PS	$1,605,415	$1,926,498	
Year 4	RTU-08	Riley Road PS	$1,087,486	$1,359,358	$2,707,830
	RTU-12	Old New Boston PS	$1,078,778	$1,348,472	
Year 5	RTU-03	Batchelder Road PS	$1,053,896	$1,370,064	$2,643,089
	RTU-06	Worthley Road PS	$979,250	$1,273,024	
Year 6	RTU-01	B Street PS	$949,391	$1,281,678	$2,971,676
	RTU-02	Dow's Lane PS	$778,950	$1,051,582	
	RTU-04	Walton Road PS	$472,901	$638,416	
Year 7	RTU-16	Route 107 PS	$1,106,148	$1,548,607	$1,548,607
Year 8	RTU-09	Stard Road PS	$1,096,195	$1,589,483	$1,589,483
Year 9	RTU-05	Causeway Street PS	$955,612	$1,433,418	$1,433,418
Year 10	RTU-07	Mill Lane PS	$1,021,549	$1,583,401	$1,583,401
Year 11	RTU-11	Folly Mill PS	$1,006,620	$1,610,592	$1,610,592

Notes:
1 - Design/Upgrade costs for each station include engineering design/investigation, construction, bid and award and a 20% contingency
2 - Future costs reflect an escalation of 5.0% per year to account for rises in material and labor costs over time.
* = Full Upgrade

Life expectancy for components of pump stations is based on the material of construction. Concrete structures are anticipated to need repair or replacement after 50 years of service, whereas steel structures are likely to need replacement after a 25-year period. A single roof life expectancy is anticipated to last between 20 and 30 years. The life expectancy of a pump typically lasts between 20 to 30 years. Backup generator life expectancy varies depending on a variety of factors including yearly preventative maintenance and operation hours. Replacement of all of these have been included in the recommendations of the design/upgrade improvement plan. The Town may not wish to perform the repair/maintenance tasks if it is scheduled for replacement in the near future.

Dry Well Pump Stations (Suction Lift Pump Stations)
14 of the 17 inspected pump stations are dry well pump stations. In dry-well pump stations, pumps and valves are housed in a concrete or steel walled pump room. The wet-well is a separate chamber located adjacent or below the pump room structure. Pump controls are housed in above grade steel service cabinets in the pump room, or adjacent to the wet-well. Most of these pump stations were constructed in 1995 and 1996.

12 of the 14 dry well pump stations have a shingle roof that is approaching the end of its life expectancy and showing signs of deterioration. The estimated costs for this work have been included in the recommendations in Appendix A. Over the long-term, it is likely that many of the pumps, piping, valves, fittings, as well as the generator will require replacement as the structures continue to deteriorate. A preliminary planning-level cost for replacing these components has been included in the recommendations in Appendix A.

Unlike the other dry well pump stations, Ledge Road Pump Station (RTU-10) does not have a concrete walled pump room, but rather the pumps are housed in an above grade fiberglass arched sliding enclosure. As a result, the pumps, motors, piping, and valves are severely corroded and town personnel expressed the need to house the pumps and components within a building. The pavement located inside the fenced pump station has settled and become cracked and uneven. The generator is located outdoors on a concrete pad that has settled unevenly. As a result of these findings, RTU-10 is recommended for a full pump station replacement and upgrade, including the installation of a new fiberglass building to house the pumps, motors, piping, valves, generator, etc.

The Route 1A (RTU-15) pump station has the potential to be impacted by coastal flooding during storm surges. The pumps are located in a steel can approximately 18 to 20-feet below grade, which could result in an unsafe condition if pump maintenance is required, or they are impacted by coastal flooding. Currently wastewater staff are entering this confined space utilizing a permanent ladder attached to the pump station steel can. The control panel is located above grade in a stainless-steel cabinet, and the generator is located off site approximately ¼ mile away. As a result of these findings, in addition to the potential impact of coastal flooding during a storm surge, RTU-15 is recommended for a full pump station replacement and upgrade, including the installation of a new building with HVAC to house the pumps, motors, piping, valves, generator, etc.

Flooded Suction Pump Stations
Centennial Street (RTU-19) and Route 286 (RTU-18) are flooded suction pump stations. Flooded suction pump stations use gravity to feed flow into the pumps by mounting the pumps below the wet well. Pump controls are housed in stainless steel service cabinets.

Centennial Street (RTU-19) is the largest pump station in the Town of Seabrook. The building exterior and interior had a variety of defects including deterioration of the ballasted membrane roof, significant rust and corrosion of the doors and frames, chipped paint on the interior walls and ceiling, and the metal grates at the mid-level of the interior are not properly fastened and unsafe. The pumps, motors, piping, and valves at each of these locations are severely corroded and replacement of these components should be prioritized. The flow meter in the wet well is severely corroded, and the Muffin Monster grinder cutters are worn. This station has an odor control issue; however, this is currently being addressed by the Town on a separate project. As a result of these findings, in addition to the high volume of flow, RTU-19 is recommended for a full pump station upgrade including pump replacement.

Route 286 (RTU-18) is the second largest pump station in the Town of Seabrook. Similarly, to Centennial Street (RTU-19), this building exterior and interior had a variety of defects including deterioration of the ballasted membrane roof, significant rust and corrosion of the doors and frames, and chipped paint on the interior walls and ceiling. The pumps, motors, piping, and valves at each of these locations are severely corroded and replacement of these components should be prioritized. The Muffin Monster grinder cutters in the wet well are worn and require replacement. The water for the emergency shower and eyewash station located in the control room is not heated and is required to be between 60-90 degrees, specifically in rooms used for chemical storage to meet code. As a result of these findings, in addition to the high volume of flow, RTU-18 is recommended for a full pump replacement and pump station upgrade.

Submersible Pump Stations
As noted above, RTU-04: Walton Road Pump Station, is the only station inspected that is a submersible station. Constructed in 1995, this submersible pump station consists of a below-grade concrete wet well containing two submersible pumps, check valves, discharge gate valves and discharge piping. Pump controls are housed in above grade stainless steel service cabinets adjacent to the wet well. There is not a backup power source on site for RTU-04, however town personnel were not concerned with an additional power source at RTU-04.

At a minimum RTU-04: Walton Road Pump Station will require replacement of the pumps, piping, valves, etc. The coating of the concrete wet well has begun to show signs of deterioration and a new epoxy coating should also be applied. Town personnel also expressed concern with difficulty opening the wet well hatch, so a new hatch with fall protection is recommended for installation. The estimated costs for this work have been included in the recommendations in Appendix A.

Generators
A backup generator's life expectancy varies depending on a variety of factors including yearly preventative maintenance and operation hours. While majority of the generators were found to be in good working condition and recommended for replacement within the next 5 to 10 years, costs to replace the generators is included for each pump station for future budgetary planning purposes.

Propane Tanks

Seven (7) of the inspected pump stations have above ground propane tanks to power the backup generators. 6 of the 7 propane tanks were found to be either too close to the pump room or property line. Per NFPA-58, propane tanks between 501 to 2,000 gallons need to be a minimum of 25-feet from the edge of a building and 25-feet from the property line. The B Street Pump Station (RTU-01), the Dows Lane Pump Station (RTU-02), the Causeway Street Pump Station (RTU-05), the Riley Road Pump Station (RTU-08), the Stard Road Pump Station (RTU-09), and the Ledge Road Pump Station (RTU-10) are all 1,000 gallons or larger and located too close to the edge of the pump room building or property line. There may be exceptions in areas that are considered "non-constructable" (such as wetlands), however further investigation and review of the Towns property and wetland delineation plans would need to be conducted to determine if this is applicable to each pump station. One potential solution the Town may want to consider is burying the propane tanks. Burying the larger propane tanks (501 to 2,000 gallons) reduces the minimum distance to 10-feet from the edge of a building and 10-feet from the property line. Costs associated with reviewing the property and wetland plans, or burying the propane tanks were not included in the design/upgrade improvement plan.

Batchelder Road Pump Station (RTU-03) has three 120-gallon propane tanks against the edge of the building, however, this is acceptable under NFPA-58, as they are not located within 10-feet from an ignition source.

Summary and Conclusions

Weston & Sampson performed evaluations at 17 of the larger wastewater pump stations in the Town of Seabrook. Recommendations for improvements were developed for each station as detailed in Appendix A. Each recommendation was categorized based on the nature of the work. An annual improvement plan and prioritization list with cost estimates was created and is included in Table 2.

The Wastewater Pump Station Master Plan was prioritized based on existing conditions, previously completed repairs, and discussion with town personnel. Changes to the prioritization can easily be made to align work with available funding or if additional pump station problems arise.

We wish to thank you and members of the wastewater staff for the assistance provided to us while completing this project. We are available to meet with you at your earliest convenience to discuss this report and options for moving forward. Please do not hesitate to contact me at (603) 431-3937 with any questions or comments you may have.

Very truly yours,

WESTON & SAMPSON

John M. Sykora III
Team Leader

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APPENDIX A

Evaluation Summaries

RTU-01: B Street Pump Station

Description

This station was commissioned in 1995. A concrete building contains the control panels, which are housed in an above grade cabinet. Two 275 gpm (15-hp) Gorman-Rupp pumps are located within the concrete building. Backup power for the pumps is provided by an Auto-Start system, with a 1,000-gallon propane tank located outside on a concrete pad approximately 10 feet from the rear of the building. The system is a duplex pump system that draws wastewater from a concrete wet well located outside of the building. The following observations were noted during the evaluation of this pumps station.

Building Exterior –

- Shingle roof is nearing end of 30-year life cycle. Has moss growing on it and should be replaced.
- The drip edge needs to be replaced.
- Door surface and frame are beginning to rust. Should be replaced.
- Caulking around louvers needs to be replaced.

Building Interior –

- The building interior is in fair condition.

Backup Power –

- Backup power is provided by an "Auto-Start" system and should be replaced. The Town requested all Auto-Start backup systems be converted to a stand-alone generator. This will require new electrical, plumbing, and concrete pad.

Service/Control Cabinets –

- Auto-Start system controls should be replaced with a new control panel.

Pumps –

- Pumps, motors, piping, and valves are 28 years old but in fair condition. Should be replaced within 5 to 10 years.

Wet Well –

- The concrete wet well interior is in fair condition but should be recoated to extend life.
- Float switches are deteriorated and should be replaced.

Miscellaneous –

- Fencing around the station is in good condition.
- Propane tank needs to be 25 feet from building and property line, per NFPA-58.

The following table displays the recommended improvements and estimated costs for this pump station. The recommendations have been categorized based on items requiring repair/maintenance or items that will require design for recommended upgrades (if applicable).

Capital Improvements and Estimated Costs
RTU-01: B Street Pump Station

Observation	Recommendation	Estimated Cost (1)
Repair/Maintenance Items		
Building Exterior –		
The roofing material is approaching end of life cycle and deteriorating.	Replace roofing.	$10,000
Doors are beginning to rust.	Replace doors	$5,000
Caulking around louvers needs to be replaced.	Repair around louver	$500
Building Interior -		
Lighting is 2-lamp fluorescent fixtures	Install new LED energy efficient lighting	$500
No emergency lighting	Install exit signs and emergency lighting to meet current codes	$1,000
Backup Power -		
Auto-Start system should be replaced	Convert to a stand-alone generator backup power source	$85,000
Service/Control Cabinet - –		
Instrumentation should be upgraded or replaced	Replace/Upgrade instrumentation, PLC's, OIT's, and radio system	Included in Pump Estimate
Pumps –		
Pumps, motors, piping, and valves are 28 years old	Replace in 5 to 10 years	$225,000
Wet Well -		
Float switches are deteriorated.	Replace float switches	$4,000
Walls are fair, but should be recoated to extend life expectancy	Recoat wet well walls	$35,000
	Equipment + Construction Subtotal[1]	$647,856
	Design + Bidding	$107,178
	CA Engineering	$64,786
	20% Contingency	$129,571
	Total	$949,391

(1) Equipment + Construction costs include materials, labor and installation, bypass, bonds, mobilization, general conditions, overhead, and profit.


ELLIS
ENGINEERING

RTU-02: Dows Lane Pump Station

Description

This station was commissioned in 1996. The station contains two 125 gpm (5-hp) Gorman-Rupp pumps located in a concrete building. The controls and electrical systems, as well as a standby generator on a concrete pad are located within the concrete building. The system is a duplex pump system that draws wastewater from a concrete wet well located outside of the building. A 1,000-gallon propane tank is located outside on a concrete pad approximately 10 feet from the building. The following observations were noted during the evaluation of this pump station:

Building Exterior –

- Shingle roof is nearing end of 30-year life cycle. Has moss growing on it and should be replaced.
- Drip edge and fascia should be replaced.
- Fencing around is in good condition.
- Door surface and frame are beginning to rust. Should be replaced.
- Propane tank needs to be 25 feet from building and property line, per NFPA-58.

Building Interior –

- Floor finish is chipped and should be refinished.
- Floor drain cover is corroded and should be replaced.

Service/Control Cabinets

- A new ATS is needed.

Pumps –

- Pumps, motors, piping, and valves are 27 years old but in fair condition. Should be replaced within 5 to 10 years.

Wet Well –

- Concrete wet well interior is in fair condition but should be recoated to extended life expectancy.
- Wet well piping is in fair condition; however, bolts should be replaced.
- Wet well electrical components are in fair condition. Consider replacement in 5 years.
- Float switch is deteriorated and requires replacement.
- No wet well ventilation.

Generator –

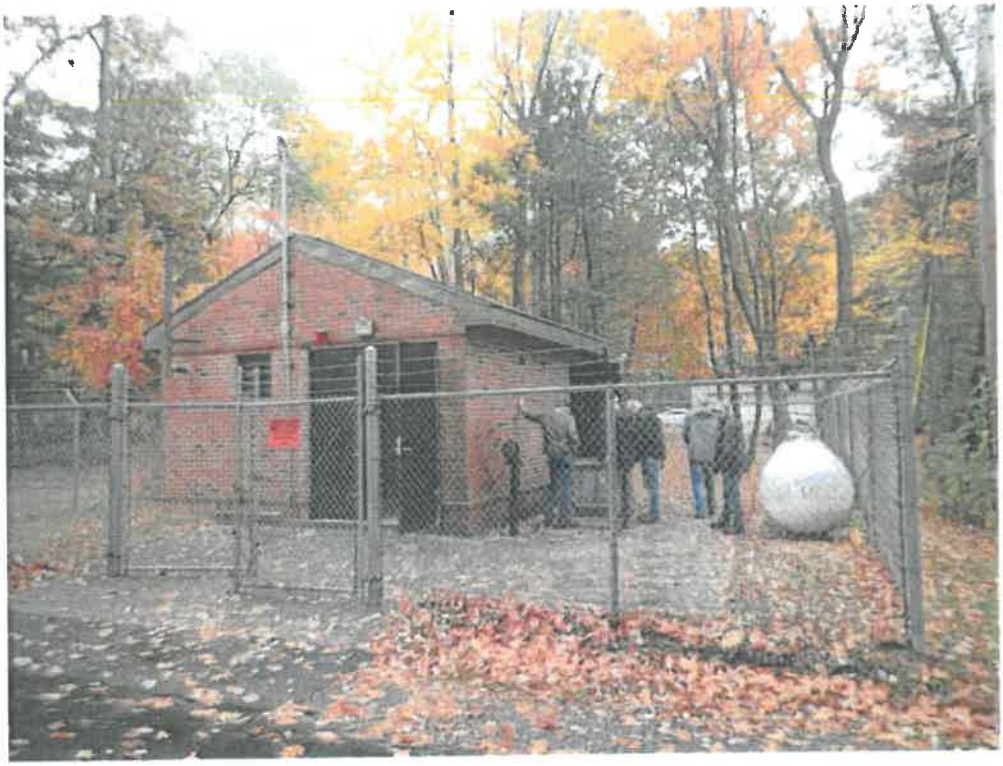
- Generator has a small oil leak and requires repair.
- Generator is 27 years old and should be considered for replacement in 5 to 10 years.

The following table displays the recommended improvements and estimated costs for this pump station. The recommendations have been categorized based on items requiring repair/maintenance or items that will require design for recommended upgrades (if applicable).

Capital Improvements and Estimated Costs
RTU-02: Dows Lane Pump Station

Observation	Recommendation	Estimated Cost (1)
Repair/Maintenance Items		
Building Exterior -		
Roof is deteriorating and nearing end of life cycle.	Replace roof.	$10,000
Doors are beginning to rust.	Replace doors	$5,000
Building Interior -		
Floor finish is chipped	Refinish floor	$10,000
Floor drain cover is corroded	Replace floor drain cover	$500
No emergency lighting	Install exit signs and emergency lighting to meet current codes	$1,000
Lighting is 2-lamp fluorescent fixtures	Install all new LED energy efficient lighting	$500
Service/Control Cabinet -		
ATS needs replacement	Replace ATS	$8,000
Instrumentation should be upgraded or replaced	Replace/Upgrade instrumentation, PLC's, OIT's, and radio system	Included in Pump Estimate
Pumps -		
Pumps, motors, piping, and valves are 27 years	Replace in 5 to 10 years	$160,000
Wet Well -		
Wet well piping bolts are deteriorated	Replace with stainless steel bolts	$1,000
Electrical components are beginning to deteriorate	Replace in 5 years	$7,500
Float switches are deteriorated.	Replace float switches.	$4,000
No Wet Well Ventilation	Install wet well ventilation	$5,000
Walls are fair, but should be recoated to extend life expectancy	Recoat wet well walls	$35,000
Generator -		
Generator engine is leaking oil.	Replace generator in 5 to 10 years	$50,000
	Equipment + Construction Subtotal[1]	$530,310
	Design + Bidding	$89,547
	CA Engineering	$53,031
	20% Contingency	$106,062
	Total	$778,950

(1) Equipment + Construction costs include materials, labor and installation, bypass, bonds, mobilization, general conditions, overhead, and profit.



RTU-03: Batchelder Road Pump Station

Description

This station was commissioned in 1996. Two 225 gpm (10-hp) Gorman-Rupp pumps are located in a concrete building. The control panels, which are housed in an above grade service cabinet, are also located within the concrete building. Backup power for the pumps is provided by an Auto-Start system, with three 120-gallon propane tanks located outside against the wall of the building. The system is a duplex pump system that draws wastewater from a concrete wet well located outside of the building. The following observations were noted during the evaluation of this pumps station.

Building Exterior –

- Shingle roof is nearing end of 30-year life cycle. Has moss growing on it and should be replaced.
- Drip edge and fascia should be replaced.
- Doors are beginning to have signs of rust. Should be replaced.
- The fencing around the station is in good condition.
- Doors are beginning to have signs of rust.

Backup Power –

- Backup power is provided by an "Auto-Start" system and should be replaced. The Town requested all Auto-Start backup systems be converted to a stand-alone generator. This will require new electrical, plumbing, and concrete pad.

Service/Control Cabinets –

- Auto-Start system controls should be replaced with a new control panel.

Pumps –

- Pumps, motors, piping, and valves are 27 years old but in fair condition. Should be replaced within 5 to 10 years.

Wet Well –

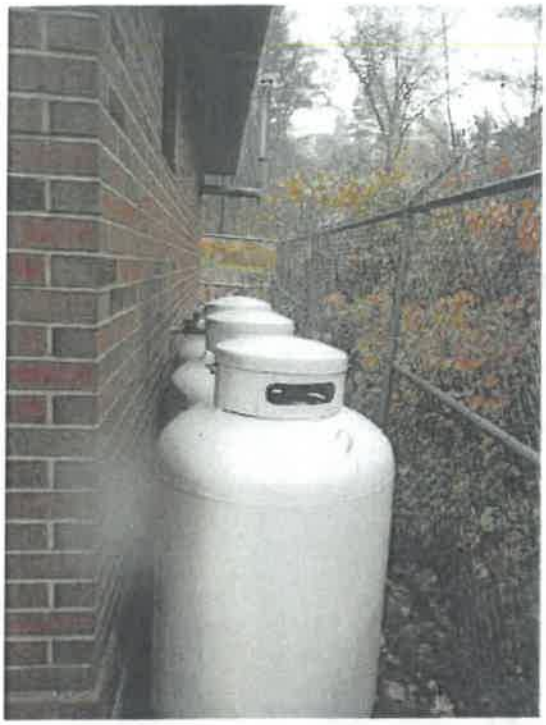
- Wet well hatch is in low spot. Has ponding during wet weather.
- Float switches are deteriorated and should be replaced.

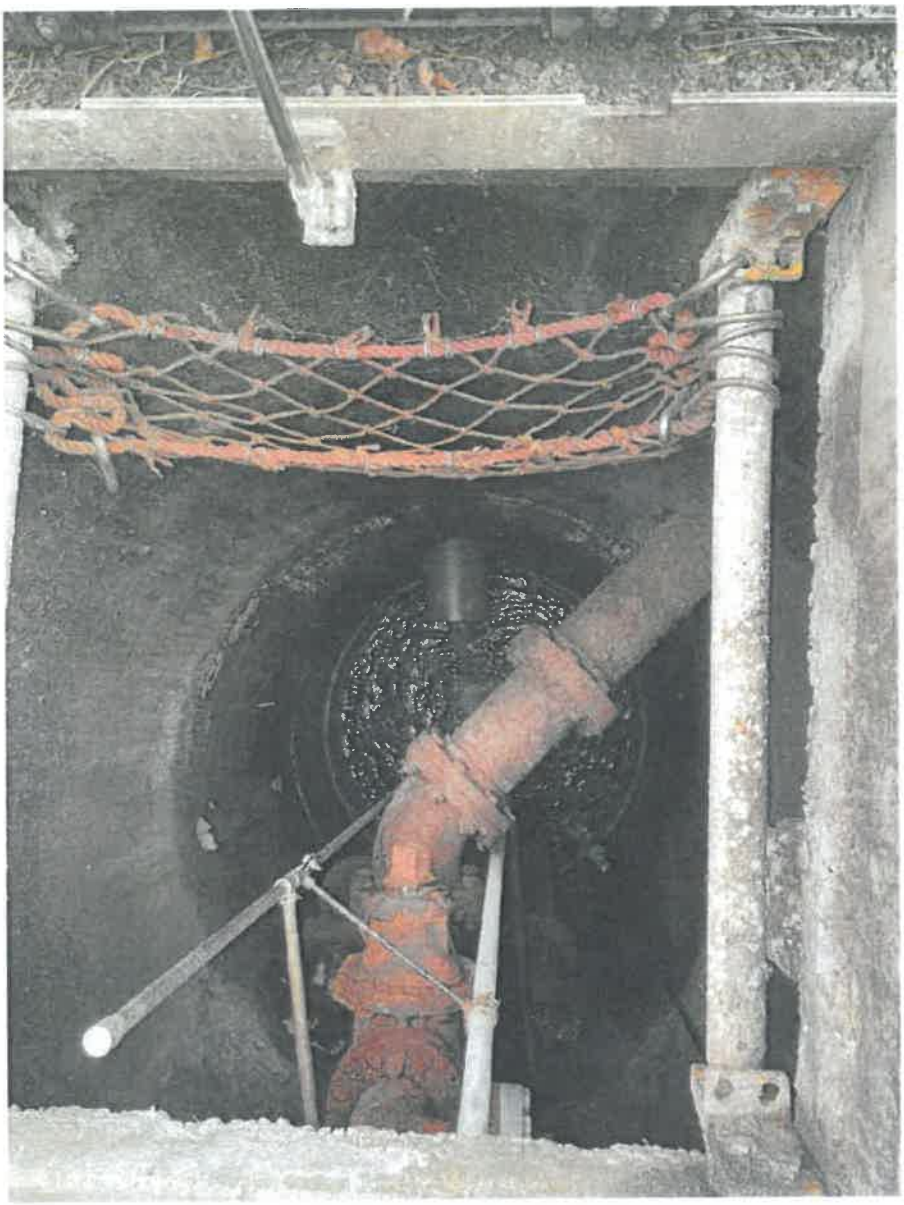
The following table displays the recommended improvements and estimated costs for this pump station. The recommendations have been categorized based on items requiring repair/maintenance or items that will require design for recommended upgrades (if applicable).

Capital Improvements and Estimated Costs
RTU-03: Batchelder Road Pump Station

Observation	Recommendation	Estimated Cost (1)
Repair/Maintenance Items		
Building Exterior –		
Roof is deteriorating and nearing end of life cycle.	Replace roof.	$10,000
Doors are beginning to rust.	Replace doors	$5,000
Building Interior -		
Lighting is 2-lamp fluorescent fixture	Install LED energy efficient lightings	$500
No emergency lighting	Install exit signs and emergency lighting to meet current codes	$1,000
Backup Power -		
Auto-Start system should be replaced with a new control panel	Convert to a stand-alone generator backup power source	$85,000
Service/Control Cabinet –		
Instrumentation should be upgraded or replaced	Replace/Upgrade instrumentation, PLC's, OIT's, and radio system	Included in Pump Estimate
Needs new circuit breaker	Install new service-entrance rated main circuit breaker located outside of the electrical enclosure and refeed the existing electrical enclosure breaker, transformer, and panelboard	$7,500
Pumps –		
Pumps, motors, piping, and valves are 27 years old.	Replace in 5 to 10 years	$260,000
Wet Well -		
Float switches are deteriorated.	Replace float switches	$4,000
Walls are fair, but should be recoated to extend life expectancy	Recoat wet well walls	$35,000
	Equipment + Construction Subtotal[1]	$719,928
	Design + Bidding	$117,989
	CA Engineering	$71,993
	20% Contingency	$143,986
	Total	**$1,053,896**

(1) Equipment + Construction costs include materials, labor and installation, bypass, bonds, mobilization, general conditions, overhead, and profit.





RTU-04: Walton Road Pump Station

Description

This station was commissioned in 1995. Two 2.4-hp Flygt submersible pumps are located in a concrete wet well. The controls and electrical panels are located outside adjacent to the wet well. The following observations were noted during the evaluation of this pump station:

Service/Control Cabinets –
- Panel should be replaced/upgraded.

Wet Well –
- Hatch is difficult to open and should be replaced.
- Pumps are 28 years old and should be replaced.
- The station has a ragging and clogging problem.

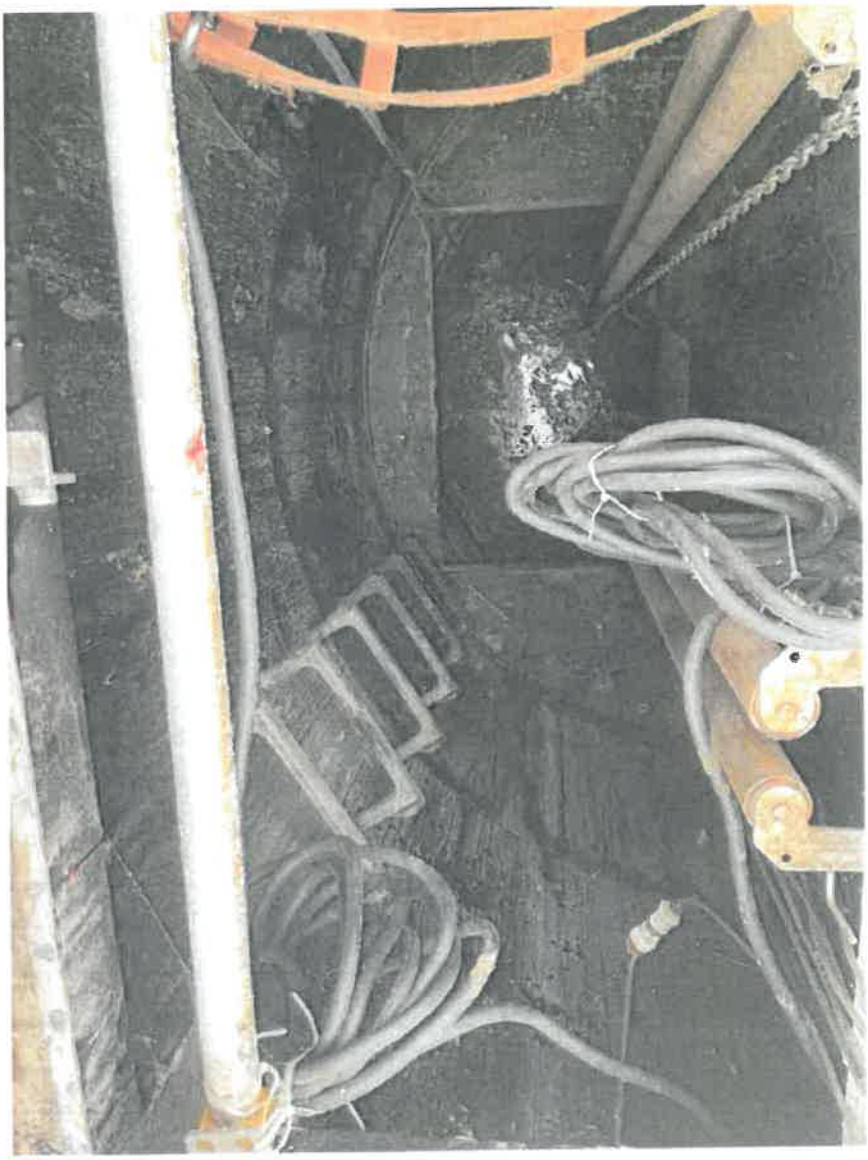
Miscellaneous –
- Does not have a backup power source.

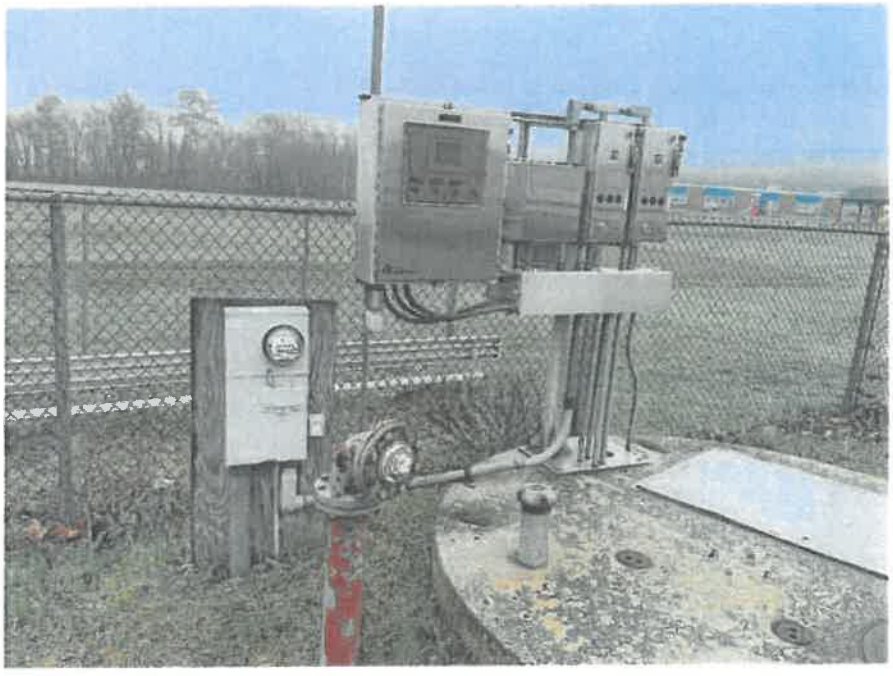
The following table displays the recommended improvements and estimated costs for this pump station. The recommendations have been categorized based on items requiring repair/maintenance or items that will require design for recommended upgrades (if applicable).

Capital Improvements and Estimated Costs
RTU-04: Walton Road Pump Station

Observation	Recommendation	Estimated Cost (1)
Repair/Maintenance Items		
Service/Control Cabinet -		
Control panels are dated	Replace control panels	$75,000
Pumps –		
Pumps and piping are 28 years old.	Replace pumps and piping	$60,000
Wet Well –		
Hatch door is difficult to open	Replace hatch	$4,500
Walls are fair, but should be recoated to extend life expectancy	Recoat wet well walls	$35,000
	Equipment + Construction Subtotal[1]	$319,242
	Design + Bidding	$57,886
	CA Engineering	$31,924
	20% Contingency	$63,848
	Total	$472,901

(1) Equipment + Construction costs include materials, labor and installation, bypass, bonds, mobilization, general conditions, overhead, and profit.





RTU-05: Causeway Street Pump Station

Description

This station was commissioned in 1995. Two 275 gpm (5-hp) Gorman-Rupp pumps are located in a concrete building. The controls and electrical systems, as well as a standby generator on a concrete pad are located within the concrete building. The system is a duplex pump system that draws wastewater from a concrete wet well located outside of the building. A 1,000-gallon propane tank located outside on a concrete pad. The following observations were noted during the evaluation of this pump station:

Building Exterior –

- Shingle roof nearing end of 30-year life cycle and has moss growing on it.
- Drip edge has rust and should be replaced.
- Door surface and frame are beginning to rust. Should be replaced.
- Fencing around the station is in excellent condition.
- Propane tank needs to be 25 feet from building and property line, per NFPA-58.

Service/Control Cabinets –

- A new ATS is needed.
- Two new VFD's are needed.
- Existing Gorman-Rupp panel should be upgraded. IO from existing panel can be moved to new control panel.

Pumps –

- Pumps, motors, piping, and valves are 28 years old and should be replaced.

Wet Well –

- Concrete wet well interior walls are in fair condition.
- Float switches should be replaced.
- Conduit in wet well is deteriorated and should be replaced.
- No Ventilation

Generator –

- Generator is 28 years old. Routine maintenance should be performed, and replacement considered within 5 to 10 years.

The following table displays the recommended improvements and estimated costs for this pump station. The recommendations have been categorized based on items requiring repair/maintenance or items that will require design for recommended upgrades (if applicable).

Capital Improvements and Estimated Costs
RTU-05: Causeway Street Pump Station

Observation	Recommendation	Estimated Cost (1)
Repair/Maintenance Items		
Building Exterior –		
Roof is deteriorating and nearing end of life cycle.	Replace roof.	$10,000
Doors are beginning to rust.	Replace doors	$5,000
Service/Control Cabinet -		
Existing Gorman-Rupp panel should be upgraded.	Replace panel	$85,000
A new ATS is needed	Install new ATS	$8,000
Instrumentation should be upgraded or replaced	Replace/Upgrade instrumentation, PLC's, OIT's, and radio system	Including in Pump Replacement Estimate
No emergency lighting	Install exit signs and emergency lighting to meet current codes	$1,000
Lighting is 2-lamp fluorescent fixtures	Install all new LED energy efficient lighting	$500
Replace main circuit breaker	Install new service-entrance rated main circuit breaker outside of the electrical enclosure, refeed the existing electrical enclosure breaker, transformer, and panelboard	$7,500
Pumps –		
Pumps, motors, piping, and valves are 28 years old.	Replace pumps, motors, piping, and valves	$150,000
Wet Well –		
Conduit in wet well is severely corroded	Replace conduit	$7,500
Float switches are deteriorated.	Replace float switches	$4,000
No Wet Well Ventilation	Install wet well ventilation	$5,000
Walls are fair, but should be recoated to extend life expectancy	Recoat wet well walls	$35,000
Generator –		
Generator is 28 years old.	Replace in 5 to 10 years.	$50,000
	Equipment + Construction Subtotal[1]	$652,146
	Design + Bidding	$107,822
	CA Engineering	$65,215
	20% Contingency	$130,429
	Total	**$955,612**

(1) Equipment + Construction costs include materials, labor and installation, bypass, bonds, mobilization, general conditions, overhead, and profit.

RTU-06: Worthley Ave Pump Station

Description

This station was commissioned in 1995. Two 125 gpm (5-hp) Gorman-Rupp pumps are located in a concrete building. The controls, electrical systems, and a standby generator on a concrete pad are also located within the concrete building. The system is a duplex pump system that draws wastewater from a concrete wet well located outside of the building. The following observations were noted during the evaluation of this pumps station.

Building Exterior –

- Shingle roof is approaching end of 30-year life span, has moss growing on shingles.
- No gutters, drip edge is rusting and should be replaced.
- Caulking around louvers needs to be replaced.
- Fencing around the station is in good condition.

Building Interior –

- Floor drain is covered and rusted.
- Building has a rodent problem.

Service/Control Cabinet –

- System does not have VFD's. Two VFD's are needed.
- Existing Gorman-Rupp panel should be upgraded. IO from existing panel can be moved to new control panel.

Pumps –

- Pumps and piping are 28 years old and have signs of corrosion. Should be replaced.

Wet Well –

- Further evaluation of piping and wall coating are needed in the concrete wet well.
- Float switches should be replaced.
- Conduit in wet well is severely corroded and should be replaced.
- Existing gooseneck ventilation above the wet well is capped. Provide wet well ventilation.

Generator –

- Generator is 28 years old. Routine maintenance should be performed, and replacement considered within 5 to 10 years.

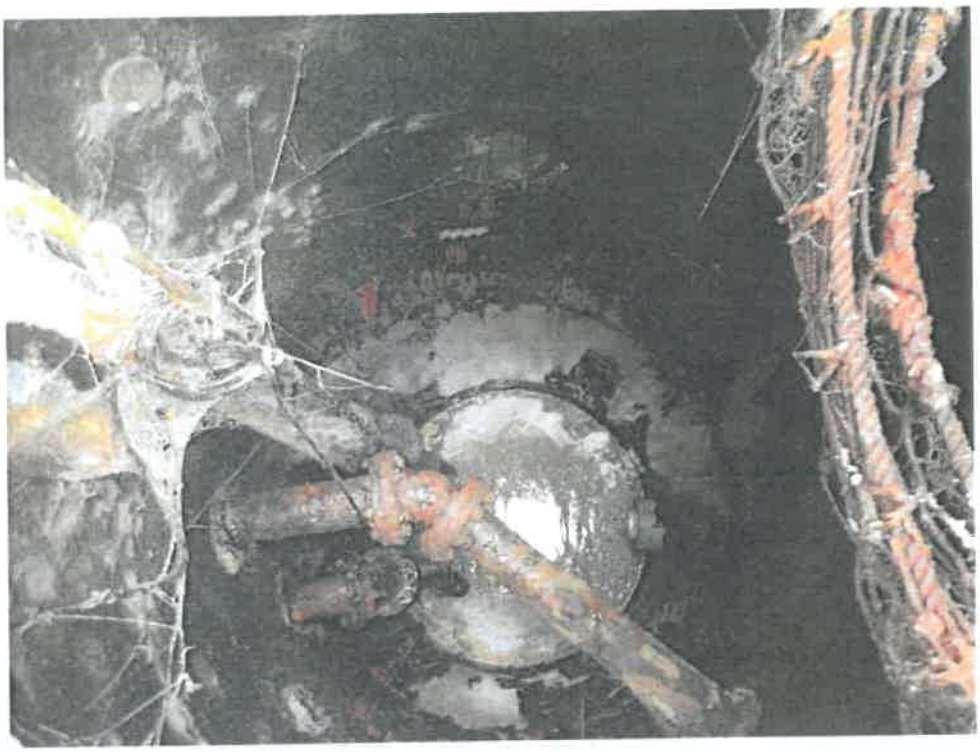
The following table displays the recommended improvements and estimated costs for this pump station. The recommendations have been categorized based on items requiring repair/maintenance or items that will require design for recommended upgrades (if applicable).

Capital Improvements and Estimated Costs
RTU-06: Worthley Ave Pump Station

Observation	Recommendation	Estimated Cost (1)
Repair/Maintenance Items		
Building Exterior -		
Roof is approaching end of life cycle and deteriorating	Replace roof	$10,000
Caulking around louvers needs to be replaced	Replace caulking	$500
Doors are beginning to rust.	Replace doors	$5,000
Building Interior -		
Floor drain cover is rusted	Replace floor drain cover	$500
No emergency lighting	Install exit signs and emergency lighting to meet current codes	$1,000
Lighting is 2-lamp fluorescent fixtures	Install all new LED energy efficient lighting	$500
Pumps -		
Pumps and piping are 28 years old and have signs of corrosion	Replace pumps and piping	$150,000
Service/Control Cabinet -		
Existing Gorman-Rupp panel should be upgraded.	Replace panel	$85,000
System does not have VFD's	Install two VFD's	$7,500
Instrumentation should be upgraded or replaced	Replace/Upgrade instrumentation, PLC's, OIT's, and radio system	Included in Pump Replacement Estimate
Wet Well -		
Conduit in wet well is severely corroded	Replace conduit	$7,500
Float switches are deteriorated.	Replace float switches	$4,000
Concrete walls are beginning to deteriorate	Recoat wet wells walls	$35,000
Piping and valves are deteriorating	Replace Piping and Valves	$15,000
Existing gooseneck ventilation above the wet well is capped.	Install wet well ventilation	$5,000
Generator -		
Generator is 28 years old	Replace in 5 to 10 years.	$50,000
Miscellaneous -		

Building has a rodent problem	Perform rodent control measures	$1,500
	Equipment + Construction Subtotal[1]	$668, 448
	Design + Bidding	$110,267
	CA Engineering	$66,845
	20% Contingency	$133,690
	Total	$979,250

(1) Equipment + Construction costs include materials, labor and installation, bypass, bonds, mobilization, general conditions, overhead, and profit.

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RTU-07: Mill Lane Pump Station

Description

This station was commissioned in 1996. The station contains two 125 gpm (5-hp) Gorman-Rupp pumps located in a concrete building along with the controls and electrical systems. Backup power for the pumps is provided by an Auto-Start system. The system is a duplex pump system that draws wastewater from a concrete wet well located outside of the building. A 1,000-gallon propane tank located outside on a concrete pad approximately 10 feet the building. The following observations were noted during the evaluation of this pump station:

Building Exterior –

- Shingle roof is nearing end of 30-year life cycle. Has moss growing on it and should be replaced.
- Drip edge needs to be replaced.
- Rust is beginning to form on door and door frame. Should be replaced.
- Fencing around the building is in good condition.

Building Interior –

- Paint on the floor and walls are chipped. Repaint floors and walls.

Backup Power –

- Backup power is provided by an "Auto-Start" system and should be replaced. The Town requested all Auto-Start backup systems be converted to a stand-alone generator. This will require new electrical, plumbing, and concrete pad.

Service/Control Cabinets –

- Auto-Start system controls should be replaced with a new control panel.

Pumps –

- Town recently replaced one of the pumps. The second should be replaced within 5 to 10 years.

Wet Well –

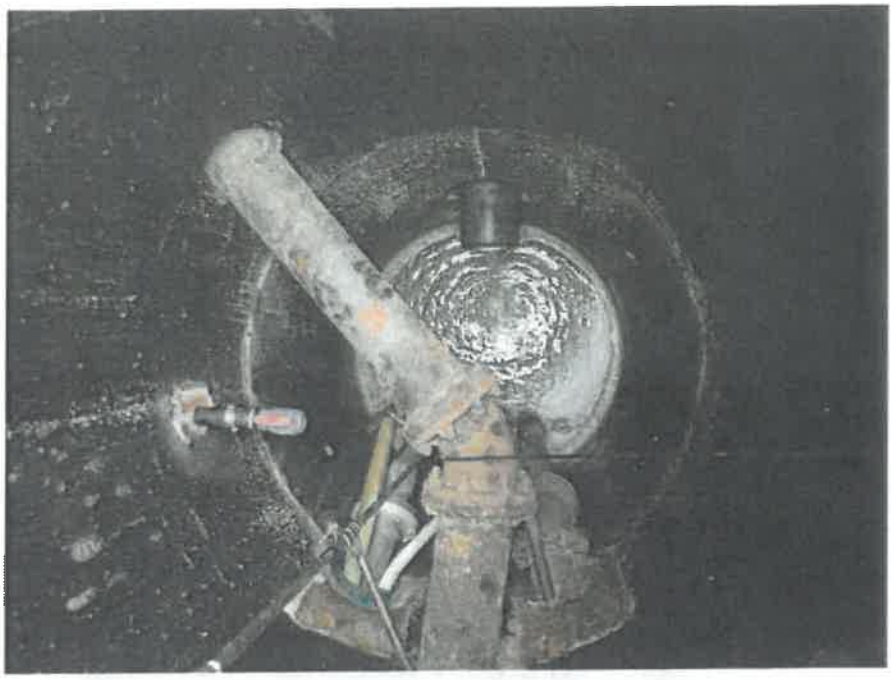
- Town recently replaced 1 suction line. The second suction line needs replacement.
- Wet well concrete walls are in fair condition but should be recoated to extend life expectancy.
- Float switches should be replaced.
- Air bubbler is galvanized.

The following table displays the recommended improvements and estimated costs for this pump station. The recommendations have been categorized based on items requiring repair/maintenance or items that will require design for recommended upgrades (if applicable).

Capital Improvements and Estimated Costs
RTU-07: Mill Lane Pump Station

Observation	Recommendation	Estimated Cost (1)
Repair/Maintenance Items		
Building Exterior -		
Roof is deteriorating and nearing end of life cycle.	Replace roof.	$10,000
Doors are beginning to rust.	Replace doors	$5,000
Building Interior -		
Floor and wall paint is chipped.	Refinish floor and walls	$12,000
Lighting is 2-lamp fluorescent fixture	Install LED energy efficient lighting	$500
No emergency lighting	Install exit signs and emergency lighting to meet current codes	$1,000
Backup Power -		
Auto-Start system should be replaced	Convert to a stand-alone generator backup power source	$85,000
Service/Control Cabinet -		
Instrumentation should be upgraded or replaced	Replace/Upgrade instrumentation, PLC's, OIT's, and radio system	Included in Pump Estimate
Needs new circuit breaker	Install new service-entrance rated main circuit breaker located outside of the electrical enclosure and refeed the existing electrical enclosure breaker, transformer, and panelboard.	$7,500
Pumps -		
One pump and its piping, motor, and valves are 27 years old and needs to be replaced.	Replace pump, piping, motor, and valve within 5 to 10 years.	$235,000
Wet Well -		
Float switches are deteriorated.	Replace float switches	$4,000
Walls are fair, but should be recoated to extend life expectancy	Recoat wet well walls	$35,000
	Equipment and Construction Subtotal[1]	$697,620
	Design + Bidding	$114,643
	CA Engineering	$69,762
	20% Contingency	$139,524
	Total	**$1,021,549**

(1) Equipment + Construction costs include materials, labor and installation, bypass, bonds, mobilization, general conditions, overhead, and profit.



RTU-08: Riley Road Pump Station

Description

This station was commissioned in 1996. Two 125 gpm (7.5-hp) Gorman-Rupp pumps are contained inside a concrete building. The control panels, which are housed in an above grade service cabinet, are also located within the concrete building. Backup power for the pumps is provided by an Auto-Start system, with a 1,000-gallon propane tank located outside on a concrete pad. The system is a duplex pump system that draws wastewater from a concrete wet well located outside of the building.

Building Exterior –

- Shingle roof is nearing end of 30-year life cycle. Has moss growing on it and should be replaced.
- Drip edge and fascia should be replaced. The trim is falling off.
- Door surface and frame are beginning to rust. Should be replaced.
- Fencing around the station is in good condition.
  Propane tank needs to be 25 feet from building and property line, per NFPA-58.

Building Interior –

- Ceiling and floor paint is cracked and should be repainted.

Backup Power –

- Backup power is provided by an "Auto-Start" system and should be replaced. The Town requested all Auto-Start backup systems be converted to a stand-alone generator. This will require new electrical, plumbing, and concrete pad.

Service/Control Cabinets –

- Auto-Start system controls should be replaced with a new control panel.

Pumps –

- Pumps, motors, piping, and valves are 27 years old but in fair condition. Should be replaced within 5 to 10 years.

Wet Well –

- Wet well concrete wall coating is deteriorating.
- Piping and valves in wet well are deteriorated and should be replaced.
- Internal wet well electrical components are unsafe and should be replaced.
- Float switches are deteriorated and should be replaced.

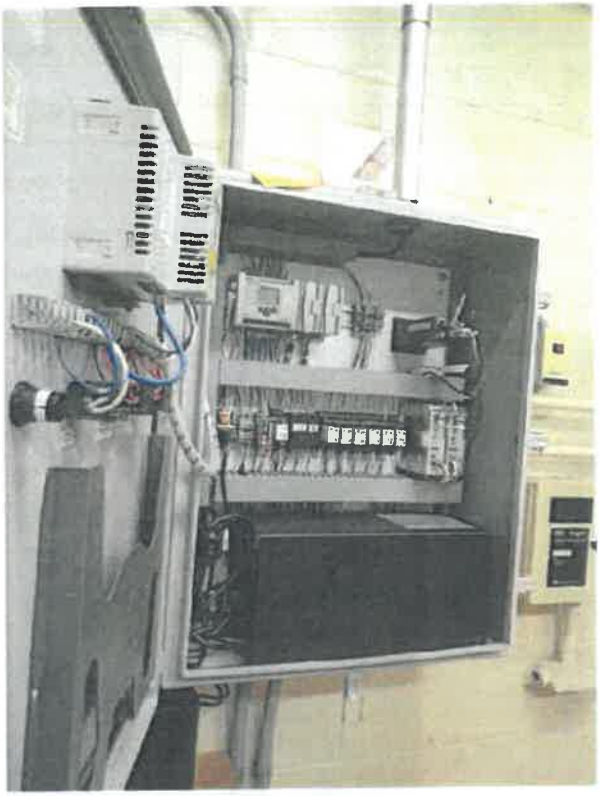
The following table displays the recommended improvements and estimated costs for this pump station. The recommendations have been categorized based on items requiring repair/maintenance or items that will require design for recommended upgrades (if applicable).

Capital Improvements and Estimated Costs
RTU-08: Riley Road Pump Station

Observation	Recommendation	Estimated Cost (1)
Repair/Maintenance Items		
Building Exterior –		
Roof is deteriorating and nearing end of life cycle.	Replace roof	$10,000
Doors are beginning to rust.	Replace doors	$5,000
Above ground propane tank needs additional condition assessment	Evaluate propane tank condition	$2,000
Propane surface needs to be cleaned and repainted	Clean and paint propane tank	$2,000
Building Interior –		
Ceiling and floor paint is cracked	Refinish ceiling and floor	$12,000
Lighting is 2-lamp fluorescent fixtures	Install LED energy efficient lighting	$500
No emergency lighting	Install exit signs and emergency lighting to meet current codes	$1,000
Backup Power -		
Auto-Start system should be replaced	Convert to a stand-alone generator backup power source	$85,000
Service/Control Cabinet -		
Instrumentation should be upgraded or replaced	Replace/Upgrade instrumentation, PLC's, OIT's, and radio system	Included in Pump Estimate
Needs new circuit breaker	Install new service-entrance rated main circuit breaker located outside of the electrical enclosure and refeed the existing electrical enclosure breaker, transformer, and panelboard.	$7,500
Pumps –		
Pumps, motors, piping, and valves are 27 years old.	Replace in 5 to 10 years	$235,000
Wet Well -		
Float switches are deteriorated.	Replace float switches	$4,000
Piping and valves in wet well are deteriorated and	Replace piping and valves	$15,000
Internal wet well electrical components are unsafe	Replace wet well electrical components	$7,500

Wet well concrete wall coating is deteriorating.	Recoat wet well walls	$35,000
	Equipment + Construction Subtotal[1]	$743,094
	Design + Bidding	$121,464
	CA Engineering	$74,309
	20% Contingency	$148,619
	Total	$1,087,486

(1) Equipment + Construction costs include materials, labor and installation, bypass, bonds, mobilization, general conditions, overhead, and profit.



RTU-09: Stard Road Pump Station

Description

This station was commissioned in 1995. Two 225 gpm (15-hp) Gorman-Rupp pumps are contained inside a concrete building. The control panels, which are housed in an above grade service cabinet, are also located within the concrete building. Backup power for the pumps is provided by an Auto-Start system, with a 1,000-gallon propane tank located outside on a concrete pad. The system is a duplex pump system that draws wastewater from a concrete wet well located outside of the building.

Building Exterior –

- Shingle roof is nearing end of 30-year life cycle. Has moss growing on it and should be replaced.
- Drip edge and fascia should be replaced. Eave soffit trim falling off. Fascia trim missing at ridge.
- Door surface and frame are beginning to rust. Should be replaced.
- Fencing around is in good condition.
- Ponding was observed around wet well hatch.
- Propane tank needs to be 25 feet from building and property line, per NFPA-58.

Building Interior –

- Floor and wall paint is chipped. Repaint floor and walls.

Backup Power –

- Backup power is provided by an "Auto-Start" system and should be replaced. The Town requested all Auto-Start backup systems be converted to a stand-alone generator. This will require new electrical, plumbing, and concrete pad.

Service/Control Cabinets –

- Auto-Start system controls should be replaced with a new control panel.

Pumps–

- Pumps, motors, piping, and valves are 28 years old but in fair condition. Should be replaced within 5 to 10 years.

Wet Well –

- Wet well concrete walls are in fair condition but should be recoated to extended life expectancy.
- Piping and valves in wet well are in fair condition. Replacement should be considered in 5 to 10 years.

The following table displays the recommended improvements and estimated costs for this pump station. The recommendations have been categorized based on items requiring repair/maintenance or items that will require design for recommended upgrades (if applicable).

Capital Improvements and Estimated Costs
RTU-09: Stard Road Pump Station

Observation	Recommendation	Estimated Cost (1)
Repair/Maintenance Items		
Building Exterior -		
Roof is deteriorating and nearing end of life cycle.	Replace roof.	$10,000
Doors are beginning to rust.	Replace doors	$5,000
Building Interior -		
Floor and wall paint is chipped	Refinish floor and walls	$12,000
Lighting is 2-lamp fluorescent fixtures	Install LED energy efficient lighting	$500
No emergency lighting	Install exit signs and emergency lighting to meet current codes	$1,000
Backup Power -		
Auto-Start system should be replaced	Convert to a stand-alone generator backup power source	$85,000
Service/Control Cabinet -		
Instrumentation should be upgraded or replaced	Replace/Upgrade instrumentation, PLC's, OIT's, and radio system	Included in Auto Start Conversion Estimate
Needs new circuit breaker	Install service-entrance rated main circuit breaker located outside of the electrical enclosure and refeed the existing electrical enclosure breaker, transformer, and panelboard.	$7,500
Pumps -		
Pumps, motors, piping, and valves are 28 years old	Replace in 5 to 10 years	$250,000
Wet Well -		
Piping and valves in wet well are in fair condition	Replace in 5 to 10 years	$15,000
Float switches should be replaced	Replace float switches	$4,000
Walls are fair, but should be recoated to extend life expectancy	Recoat wet well walls	$35,000
	Equipment+ Construction Subtotal[1]	$749,100
	Design + Bidding	$122,365
	CA Engineering	$74,910
	20% Contingency	$149,820
	Total	$1,096,195

(1) Equipment + Construction costs include materials, labor and installation, bypass, bonds, mobilization, general conditions, overhead, and profit.

RTU-10: Ledge Road Pump Station

Description

This station was commissioned in 1995. Two 175 gpm (5-hp) Gorman-Rupp pumps are contained in an above grade fiberglass arched enclosure on a concrete pad. The control panel is housed in an above grade service cabinet. A standby generator on a concrete pad is located outside. The system is a duplex pump system that draws wastewater from a concrete wet well located outside. A 1,000-gallon propane tank is located outside on a concrete pad. The following observations were noted during the evaluation of this pump station:

Fiberglass Enclosure –

- Pumps are contained in an above grade fiberglass arched enclosure on a concrete pad. New building should be constructed to protect pumps from deterioration due to the elements.

Exterior –

- Fencing around the pump station is in good condition.
- Pavement is cracking, uneven, and settled in spots. Needs to be repaved.
- The propane tank's paint is deteriorated and needs to be repainted, and needs to be 25 feet from property line, per NFPA-58.

Service/Control Cabinets –

- Instrumentation should be upgraded.

Pumps –

- Pumps, motors, piping, and valves are severely deteriorated and should be replaced.

Wet Well –

- Severe corrosion of piping in wet well
- Float switches are deteriorated and should be replaced.

Generator –

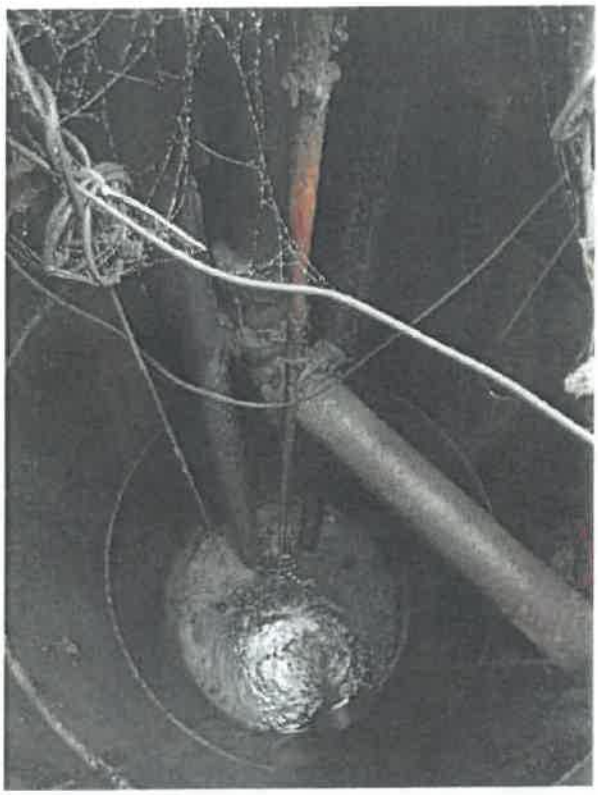
- The concrete pad the generator is on has settled and is uneven.
- Generator is 28 years old and has been exposed to the elements. Replacement is recommended.

The following table displays the recommended improvements and estimated costs for this pump station. The recommendations have been categorized based on items requiring repair/maintenance or items that will require design for recommended upgrades (if applicable).

Capital Improvements and Estimated Costs
RTU-10: Ledge Road Pump Station

Observation	Recommendation	Estimated Cost (1)
Design/Upgrade Items		
Station is recommended for a full pump station replacement, including a new fiberglass building, pumps and piping, generator and pad, geotechnical study, wet well piping and valves		
Exterior -		
Pavement is cracking and uneven	Repave area	$20,000
The propane tank's paint is deteriorated	Repaint tank	$2,000
Service/Control Cabinet -		
Instrumentation should be upgraded or replaced	Replace/Upgrade instrumentation, PLC's, OIT's, and radio system	Included in Pump Building Estimate
Pumps –		
Pumps, motors, piping, and valves are severely deteriorated	Replace pumps, motors, piping, and valves	Included in Pump Building Estimate
Wet Well -		
Float switches are deteriorated.	Replace float switches	$4,000
Piping in wet well is deteriorated	Replace wet well piping	$15,000
Walls are fair, but should be recoated to extend life expectancy	Recoat wet well walls	$35,000
Generator -		
Generator pad has settled and uneven	Replace generator and pad	$60,000
Miscellaneous -		
Settling of pavement and concrete pad raise geotechnical concerns	Further investigate sub surface conditions	Included in Design Estimate
Pump enclosure should be replaced	Replace with fiberglass, precast concrete, or wooden structure	$425,000
	Equipment + Construction Subtotal[1]	$1,228,128
	Design + Bidding	$194,219
	CA Engineering	$122,813
	20% Contingency	$61,406
	Total (Full Design/Upgrade)	$1,606,566

(1) Equipment + Construction costs include materials, labor and installation, bypass, bonds, mobilization, general conditions, overhead, and profit.



RTU-11: Folly Mill Terrace Pump Station

Description

This station was commissioned in 1995. Two 140 gpm (5-hp) Gorman-Rupp pumps are contained inside a concrete building. The control panels, which are housed in an above grade service cabinet, are also located within the concrete building. Backup power for the pumps is provided by an Auto-Start system. The system is a duplex pump system that draws wastewater from a concrete wet well located outside of the building.

Building Exterior –

- Shingle roof is nearing end of 30-year life cycle. Has moss growing on it and should be replaced.
- Drip edge needs to be replaced.
- Doors and frame have begun to corrode and have rust. Should be replaced.

Building Interior –

- Floor drain cover needs to be replaced.

Backup Power –

- Backup power is provided by an "Auto-Start" system and should be replaced. The Town requested all Auto-Start backup systems be converted to a stand-alone generator. This will require new electrical, plumbing, and concrete pad.

Service/Control Cabinets –

- Auto-Start system controls should be replaced with a new control panel.

Pumps –

- Pumps, motors, piping, and valves are 28 years old but in fair condition. Should be replaced within 5 to 10 years.

Wet Well –

- Explosion proof junction box is exposed to atmosphere and hanging by wires. Should be replaced immediately.
- Concrete walls of wet well show signs of deterioration and should be repaired.
- Float switches are deteriorated and should be replaced.
- Piping has corrosion and should be replaced in 5 to 10 years.

Miscellaneous –

- Fencing around the station is in fair condition, however, back corner of fence has a gap at the bottom and should be repaired.

The following table displays the recommended improvements and estimated costs for this pump station. The recommendations have been categorized based on items requiring repair/maintenance or items that will require design for recommended upgrades (if applicable).

Capital Improvements and Estimated Costs
RTU-11: Folly Mill Terrace Pump Station

Observation	Recommendation	Estimated Cost (1)
Repair/Maintenance Items		
Building Exterior -		
The roofing material is approaching end of life cycle and deteriorating.	Replace roofing.	$10,000
Doors are beginning to rust.	Replace doors	$5,000
Back corner of fence has a gap	Repair section of fence.	$500
Building Interior -		
Floor drain cover needs replacement	Replace cover.	$500
Lighting is 2-lamp fluorescent fixtures	Install LED energy efficient lighting	$500
No emergency lighting	Install exit signs and emergency lighting to meet current codes	$1,000
Backup Power -		
Auto-Start system should be replaced	Convert to a stand-alone generator backup power source	$85,000
Service/Control Cabinet -		
Instrumentation should be upgraded or replaced	Replace/Upgrade instrumentation, PLC's, OIT's, and radio system	Included in Pump Estimate
Pumps –		
Pumps, motors, piping, and valves are 28 years old.	Replace in 5 to 10 years	$225,000
Wet Well -		
Explosion proof junction box is exposed to atmosphere and hanging by wires.	Replace junction box	$7,500
Concrete walls show signs of deterioration	Repair and recoat wet well interior walls	$35,000
Float switches are deteriorated.	Replace float switches	$4,000
Piping has corrosion	Replace in 5 to 10 years	$15,000
	Equipment + Construction Subtotal[1]	$687,324
	Design + Bidding	$113,099
	CA Engineering	$68,732
	20% Contingency	$137,465
	Total	$1,006,620

(1) Equipment + Construction costs include materials, labor and installation, bypass, bonds, mobilization, general conditions, overhead, and profit.


RTU-11


HIGH
VOLTAGE

RTU-12: Old New Boston Road Pump Station

Description

This station was commissioned in 1995. Two 200 gpm (10-hp) Gorman-Rupp pumps are contained inside a concrete building. The control panels, which are housed in an above grade service cabinet, are also located within the concrete building. Backup power for the pumps is provided by an Auto-Start system. The system is a duplex pump system that draws wastewater from a concrete wet well located outside of the building.

Building Exterior –

- Shingle roof is nearing end of 30-year life cycle. Has moss growing on it and should be replaced.
- Drip edge and fascia to be replaced. Soffit loose in areas.
- Door surface and frame are beginning to rust. Should be replaced.

Building Interior –

- Floor paint is chipping and should be repainted.

Backup Power –

- Backup power is provided by an "Auto-Start" system and should be replaced. The Town requested all Auto-Start backup systems be converted to a stand-alone generator. This will require new electrical, plumbing, and concrete pad.

Service/Control Cabinets –

- Auto-Start system controls should be replaced with a new control panel.

Pumps –

- Pumps, motors, piping, and valves are 28 years old but in fair condition. Should be replaced within 5 to 10 years.

Wet Well –

- Wet well concrete walls show signs of deterioration.
- Float switches are deteriorated and should be replaced.
- Pipes and valves in wet well are deteriorated and should be replaced.

Miscellaneous –

- Fencing around the station is in good condition.

The following table displays the recommended improvements and estimated costs for this pump station. The recommendations have been categorized based on items requiring repair/maintenance or items that will require design for recommended upgrades (if applicable).

Capital Improvements and Estimated Costs
RTU-12: Old New Boston Road Pump Station

Observation	Recommendation	Estimated Cost (1)
Repair/Maintenance Items		
Building Exterior -		
Roof is deteriorating and nearing end of life cycle.	Replace roof	$10,000
Doors are beginning to rust.	Replace doors	$5,000
Building Interior -		
Floor paint is chipping	Refinish floor	$10,000
Lighting is 2-lamp fluorescent fixture	Install LED energy efficient lighting	$500
No emergency lighting	Install exit signs and emergency lighting to meet current codes	$1,000
Backup Power -		
Auto-Start system should be replaced	Convert to a stand-alone generator backup power source	$85,000
Service/Control Cabinet -		
Instrumentation should be upgraded or replaced	Replace/Upgrade instrumentation, PLC's, OIT's, and radio system	Included in Pump Estimate
Needs new circuit breaker	Install new service-entrance rated MCB located outside of the elec. enclosure and re-feed the existing electrical enclosure breaker, transformer and panelboard	$7,500
Pumps -		
Pumps, motors, piping, and valves are 28 years old.	Replace in 5 to 10 years	$245,000
Wet Well -		
Float switches are deteriorated.	Replace float switches	$4,000
Pipes and valves in wet well are deteriorated	Replace pipes and valves	$15,000
Wet well walls show sign of deterioration	Repair and recoat wet well walls	$35,000
	Equipment + Construction Subtotal[1]	$737,088
	Design + Bidding	$120,563
	CA Engineering	$73,709
	20% Contingency	$147,418
	Total	$1,078,778

(1) Equipment + Construction costs include materials, labor and installation, bypass, bonds, mobilization, general conditions, overhead, and profit.

RTU-15: Route 1A Pump Station

Description

This station was commissioned in 1995. Two 1,000 gpm (20-hp) Gorman-Rupp pumps are contained in a below grade concrete structure. The control panel is housed in an above grade service cabinet. The system is a duplex pump system that draws wastewater from a concrete wet well located outside of the structure. The backup generator is located off site, approximately ¼ mile away. The following observations were noted during the evaluation of this pumps station.

Exterior –

- Fencing around the station is in poor condition and should be replaced.
- Pavement around pump station has cracks and is uneven and should be replaced.

Service/Control Cabinet –

- Pump control cabinet is in good condition.

Pumps –

- Pumps were not inspected due to access limitations, located approximately 18 feet below grade. Will need further evaluation.

Wet Well –

- Existing manhole cover should be replaced with an aluminum access hatch.
- Muffin Monster sewage grinder cutters are worn and require replacement.
- Float switches are deteriorated and should be replaced.

Generator –

- Generator is located approximately ¼ mile away.

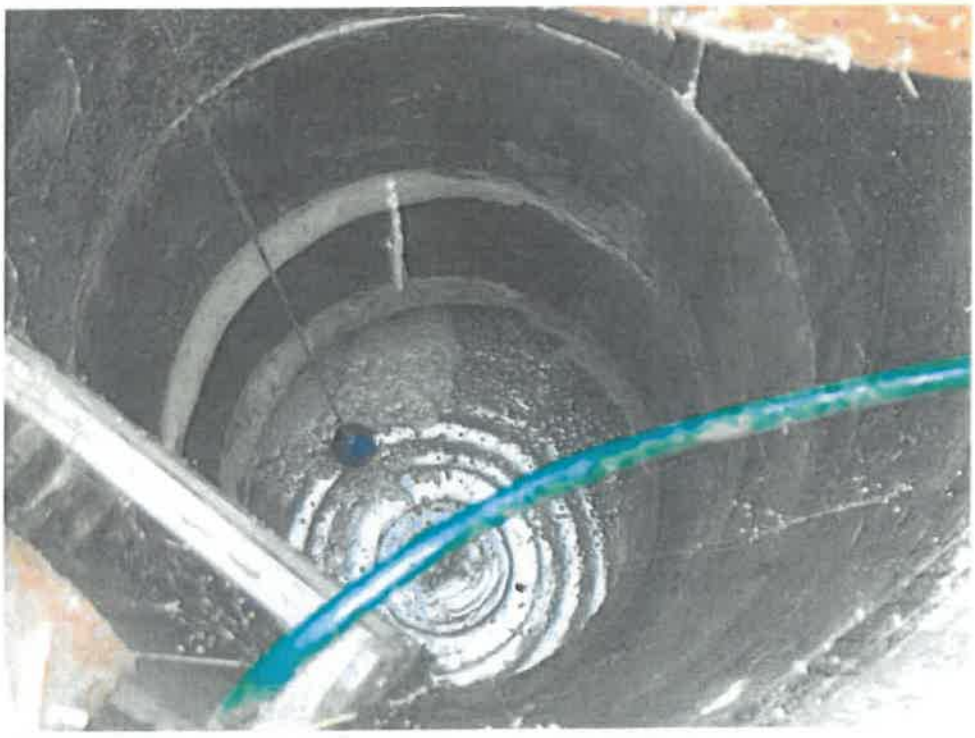
The following table displays the recommended improvements and estimated costs for this pump station. The recommendations have been categorized based on items requiring repair/maintenance or items that will require design for recommended upgrades (if applicable).

Capital Improvements and Estimated Costs
RTU-15: Route 1 A Pump Station

Observation	Recommendation	Estimated Cost (1)
Design/Upgrade Items		
Station is recommended for a full pump station rehabilitation, including a new building, pumps and piping, generator and pad, geotechnical study, wet well piping and valves		
Exterior -		
Pavement is cracking and uneven	Repave area	$20,000
Proximity to ocean raises geotechnical concerns	Further Investigate sub surface conditions	Included in Design Estimate
Steel can style presents potential safety hazard	Replace with new building with HVAC	$375,000
Wet Well/Can -		
Float switches are deteriorated.	Replace float switches	$4,000
Muffin Monster cutters are worn	Replace Muffin Monster	$50,000
Manhole cover is current access to wet well	Replace with aluminum access hatch	$4,500
Piping in wet well has begun to show signs of deterioration	Replace wet well piping and valves	$15,000
Walls are fair, but should be recoated to extend life expectancy	Recoat wet well walls	$35,000
Pumps -		
Pumps, motors, piping, and valves are 28 years old.	Replace pumps, piping, valves, etc.	$200,000
Service/Control Cabinet -		
Instrumentation should be upgraded or replaced	Replace/Upgrade instrumentation, PLC's, OIT's, and radio system	Included in Pump Replacement Estimate
Needs new circuit breaker	Install new service-entrance rated main circuit breaker located outside of the electrical enclosure and remove the existing breaker from the electrical enclosure	$7,500
Miscellaneous -		
Generator and Pad are located off site	Install new generator and pad on site	$60,000
	Equipment + Construction Subtotal[1]	$1,715,208
	Design + Bidding	$267,281
	CA Engineering	$171,521
	30% Contingency	$514,562
	Total (Full Design/Upgrade)	$2,668,752

(1) Equipment + Construction costs include materials, labor and installation, bypass, bonds, mobilization, general conditions, overhead, and profit.

(2) 30% Contingency has been included for this pump station only, all others are 20%




On
Off


On
Off

RTU-16: Route 107 Pump Station

Description

This station was commissioned in 1995. The station contains two 500 gpm (25-hp) Gorman-Rupp pumps located in a concrete building. The controls and electrical systems, as well as a standby generator on a concrete pad are located within the concrete building. The system is a duplex pump system that draws wastewater from a concrete wet well located outside of the building. The following observations were noted during the evaluation of this pump station:

Building Exterior –

- Shingle roof is nearing end of 30-year life cycle. Has moss growing on it and should be replaced.
- The fencing around the building is in good condition, however sections of pavement are missing from the bottom of the fence in sections, creating a small gap.
- Door paint has faded and begun to rust. Should be replaced.

Building Interior –

- Ceiling has cracks and the paint is peeling in areas.
- Check backflow preventer for leaks.

Service/Control Cabinet –

- Needs new ATS.
- Existing Gorman-Rupp panel should be upgraded. IO from existing panel can be moved to new control panel.

Pumps –

- Pumps, motors, piping, and valves are 28 years old but in fair condition. Should be replaced within 5 to 10 years.

Wet Well –

- Concrete walls in wet well are in good condition.
- Piping in wet well is in fair condition.
- Muffin Monster sewage grinder cutters are worn and require replacement.
- Needs fall protection nets.
- Flow meter has been recently replaced and in good condition.

Generator –

- The generator has a small oil leak from the crankshaft seal and should be fixed. Routine maintenance should be performed.
- Generator is 28 years old and should be considered for replacement in 5 to 10 years.

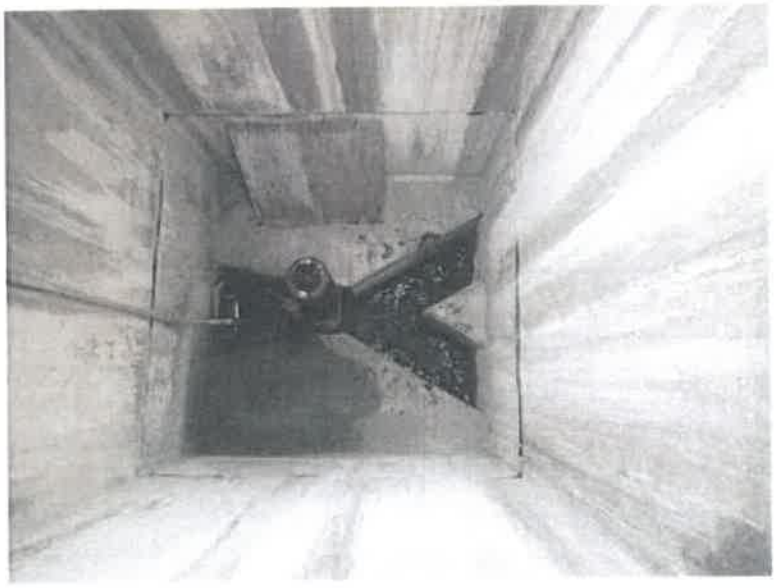
The following table displays the recommended improvements and estimated costs for this pump station. The recommendations have been categorized based on items requiring repair/maintenance or items that will require design for recommended upgrades (if applicable).

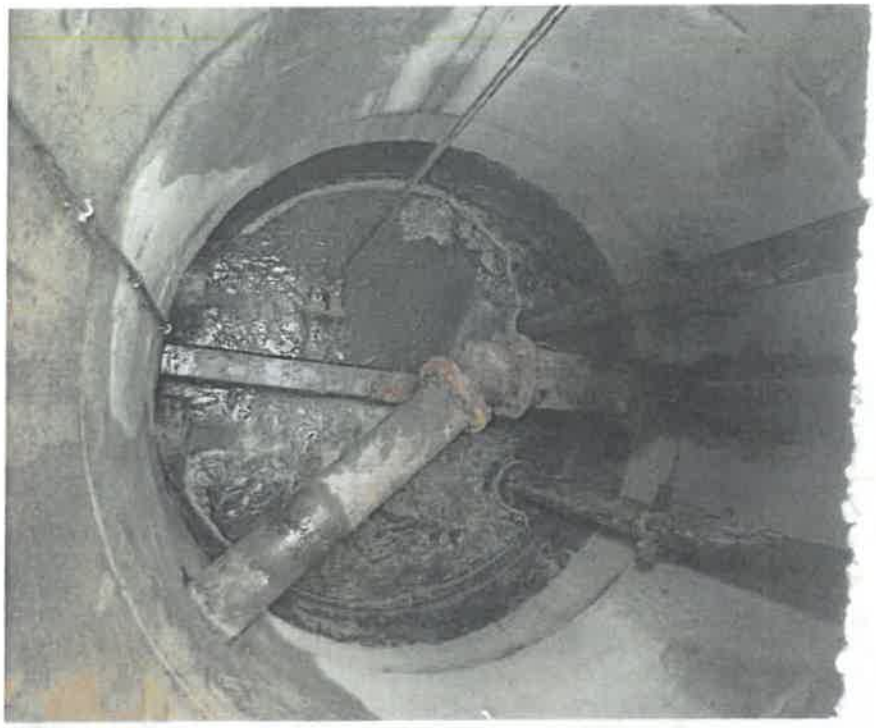
Capital Improvements and Estimated Costs
RTU-16: Route 107 Pump Station

Observation	Recommendation	Estimated Cost (1)
Repair/Maintenance Items		
Building Exterior -		
The roofing material is approaching end of life cycle and deteriorating.	Replace roofing.	$10,000
Doors are beginning to rust.	Replace doors	$5,000
Fencing has gaps between the ground in section	Replace sections of fence	$500
Exterior exhaust grill is rusted	Replace exhaust grille	$500
Building Interior -		
Ceiling has cracks, paint is peeling	Repair and repaint ceiling	$4,000
Backflow Preventer	Check for leakage. Provide indirect drain to floor drain.	$500
Lighting is 2-lamp fluorescent fixtures	Install LED energy efficient lighting	$500
No emergency lighting	Install exit signs and emergency lighting	$1,000
Service/Control Cabinet -		
Existing Gorman-Rupp panel should be replaced.	Replace panel	$85,000
New ATS is needed	Replace ATS	$8,000
Instrumentation should be upgraded or replaced	Replace/Upgrade instrumentation, PLC's, OIT's, and radio system	Included in pump replacement estimate
Needs new disconnect switch	Install wall-mounted service-entrance rated disconnect switch upstream of the automatic transfer switch for the normal utility service	$7,500
Pumps -		
Pumps, motors, piping, and valves are 28 years old.	Replace in 5 to 10 years	$150,000
Wet Well -		
Cutters on sewage grinders are worn.	Replace sewage grinders.	$50,000
Needs fall protection nets	Install fall protection	$2,500
Piping in wet well has begun to show signs of corrosion	Replace piping and valves	$15,000
Float switches are deteriorated	Replace float switches	$4,000

Walls are fair, but should be recoated to extend life expectancy	Recoat wet well walls	$35,000
Generator –		
Generator has small fluid leak from crankshaft seal	Replace in 5 to 10 years.	$50,000
	Equipment + Construction Subtotal[1]	$755,964
	Design + Bidding	$123,395
	CA Engineering	$75,596
	20% Contingency	$151,193
	Total	$1,106,148

(1) Equipment + Construction costs include materials, labor and installation, bypass, bonds, mobilization, general conditions, overhead, and profit.






CAUTION

RTU-17: Rocks Road Pump Station

Description

This station was commissioned in 1995. Two 800 gpm (25-hp) pumps are contained in a concrete building. The controls and electrical systems, as well as a standby generator on a concrete pad are located within the concrete building. The system is a duplex pump system that draws wastewater from a concrete wet well located outside of the building. The following observations were noted during the evaluation of this pump station:

Building Exterior –

- Shingle roof is nearing end of 30-year life cycle. Has moss growing on it and should be replaced.
- Drip edge needs to be replaced.
- Door surface paint is faded and beginning to rust. Should be replaced.
- Fencing around the station is in fair condition.

Building Interior –

- Floor not pitched correctly and has standing water from a leaking back flow.
- Ceiling has some cracking and paint peeling.

Service/Control Cabinets –

- Existing Gorman-Rupp panel should be upgraded. IO from existing panel can be moved to new control panel.
- New ATS should be installed.

Pumps –

- Pumps, motors, piping, and valves are 28 years old and beginning to corrode. Should be replaced.

Wet Well –

- Flow meter needs to be replaced.
- Float switches are deteriorated and should be replaced.
- Muffin Monster sewage grinder cutters are worn and require replacement.
- Seabrook staff noted force main was replaced, and suction lines are good.
- No fall protection.

Generator –

- Generator is 28 years old. Routine maintenance should be performed, and replacement should be considered within 5 to 10 years.

The following table displays the recommended improvements and estimated costs for this pump station. The recommendations have been categorized based on items requiring repair/maintenance or items that will require design for recommended upgrades (if applicable).

Capital Improvements and Estimated Costs
RTU-17: Rocks Road Pump Station

Observation	Recommendation	Estimated Cost (1)
Design/Upgrade Items		
Station is recommended for a full pump station rehabilitation, including pumps and piping, generator and pad, wet well piping and valves		
Building Exterior –		
The roofing material is approaching end of life cycle and deteriorating.	Replace roofing.	$10,000
Doors are beginning to rust.	Replace doors	$5,000
Building Interior –		
Floor is not pitched correctly.	Regrade and refinish floor	$15,000
Ceiling has cracks and paint is peeling	Repair and repaint ceiling	$4,000
No fall protection	Install fall protection	$2,500
No emergency lighting	Install exit signs and emergency lighting to meet current codes	$1,000
Lighting is 2-lamp fluorescent fixtures	Install all new LED energy efficient lighting	$500
Service/Control Cabinet -		
Existing Gorman-Rupp panel should be upgraded.	Replace panel	Included in Pump Replacement Estimate
New ATS should be installed	Replace ATS	$8,000
Instrumentation should be upgraded or replaced	Replace/Upgrade instrumentation, PLC's, OIT's, and radio system	Included in Pump Replacement Estimate
Needs wall-mounted service-entrance rated disconnect switch	Install wall-mounted service-entrance rated disconnect switch upstream of the ATS switch for normal utility service	$7,500
Pumps -		
Pumps, motors, piping, and valves are 28 years old and beginning to corrode	Replace pumps, motors, piping, and valves	$250,000
Wet Well -		
Float switches are deteriorated.	Replace float switches	$4,000
Flow meter is corroded and should be replaced	Replace flow meter	$5,750
Muffin Monster cutters are worn	Replace Muffin Monster	$50,000
Piping and valves are beginning to corrode	Replace piping and valves	$15,000
Walls are in fair condition, but should be recoated to extend life expectancy	Recoat wet well walls	$35,000

Generator -		
Generator is 28 years old.	Replace generator in 5 to 10 years	50,000
	Equipment + Construction Subtotal[1]	$1,100,286
	Design + Bidding	$175,043
	CA Engineering	$110,029
	20% Contingency	$220,057
	Total (Full Design/Upgrade)	$1,605,415

(1) Equipment + Construction costs include materials, labor and installation, bypass, bonds, mobilization, general conditions, overhead, and profit.


OLYMPIAN


On
Off
ELLIS ENGINEERING

RTU-18: Route 286 Pump Station

Description

This station was commissioned in 1995. The flooded suction station contains two 1,500 gpm (25-hp) Fairbanks-Morse pumps located in a concrete structure below grade. A standby generator is located at ground level on a concrete pad in a separate room in the building. The controls and electrical systems are housed in an adjacent concrete building. The following observations were noted during the evaluation of this pump station:

Control Room Building Exterior –

- The ballasted membrane roof that is in marginal condition and should be replaced.
- Some blades are missing from the louvers.
- Control joint sealant is deteriorated and should be replaced.
- No splash block at roof drain outlet

Control Room Building Interior –

- Sample pump control panel and pump control panel should be upgraded.
- Floor could use new coating.
- Paint is chipping and some corrosion is visible on the wall surface.
- Door and door components have significant visible corrosion and should be replaced.
- Motor at louver is corroded.
- Potable and non-potable water needs to be separated.
- Electric unit heater needs replacement.
- Emergency shower and service sink should have tempered water.

Pump Room Building Exterior –

- Roof has leaks, moss growing on surface, and insulation deterioration and should be replaced.
- Exhaust fan is rusted and should be replaced.
- Control joint sealant is deteriorated and should be replaced.
- Door and door components have significant visible corrosion and should be replaced.

Pump Room Building Interior –

- Pumps, motors, piping, and valves are severely deteriorated and should be replaced.
- Floors could use cleaning and new coating.
- Wall paint is chipping, and corrosion is visible on wall surface. Needs new paint.
- Doors and door components have severe corrosion and should be replaced.
- Stairs and stair components have visible rust and should be replaced.
- Muffin Monster sewage grinder cutters are worn and require replacement.
- Dehumidifier needs replacement.
- Exhaust fan in lower level of dry well needs intake opening protection.

Generator –

- Generator is 28 years old. Routine maintenance should be performed, and replacement considered in 5 to 10 years.

Miscellaneous –

- The pavement is in good condition.
- There is no fencing around the building.

- Town requested a "pig launcher" be installed to clean the force main.

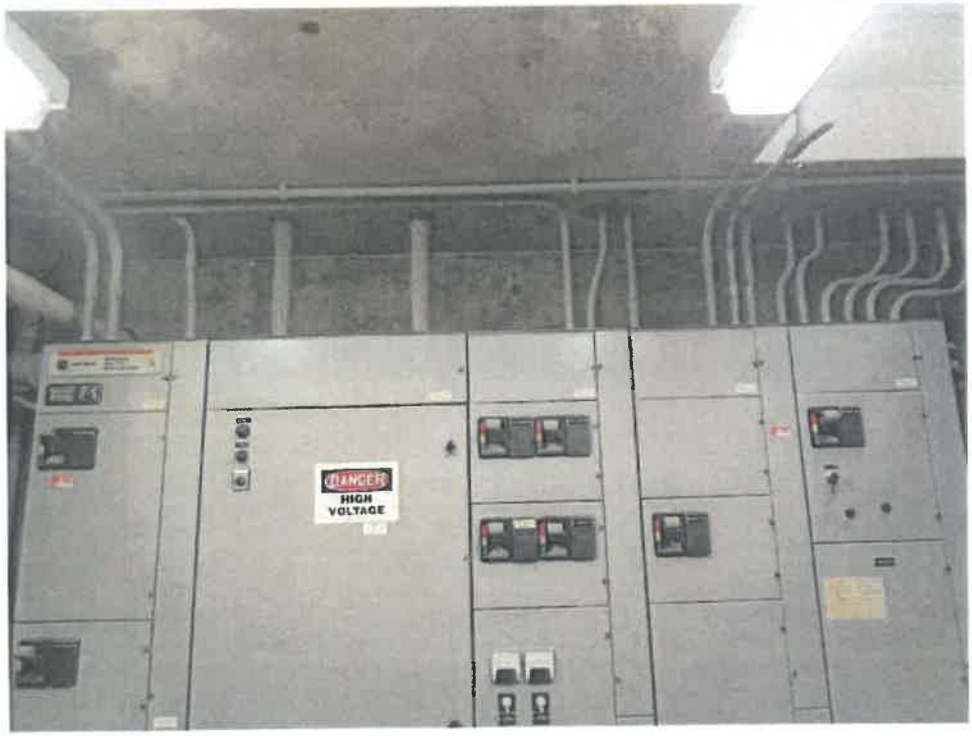
The following table displays the recommended improvements and estimated costs for this pump station. The recommendations have been categorized based on items requiring repair/maintenance or items that will require design for recommended upgrades (if applicable).

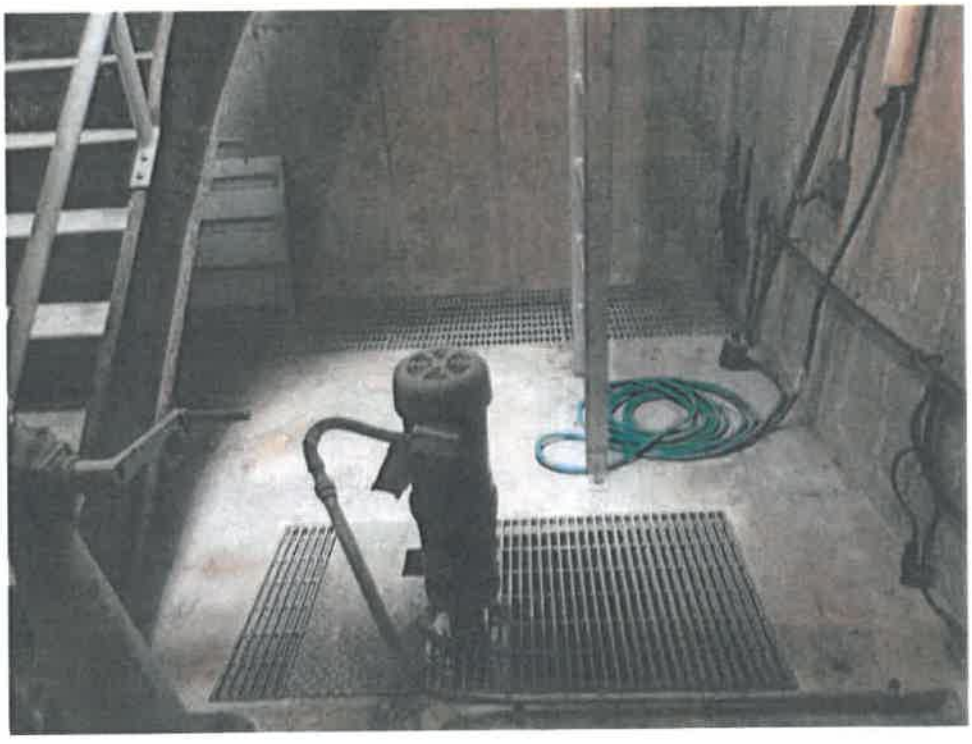
Capital Improvements and Estimated Costs
RTU-18: Route 286 Pump Station

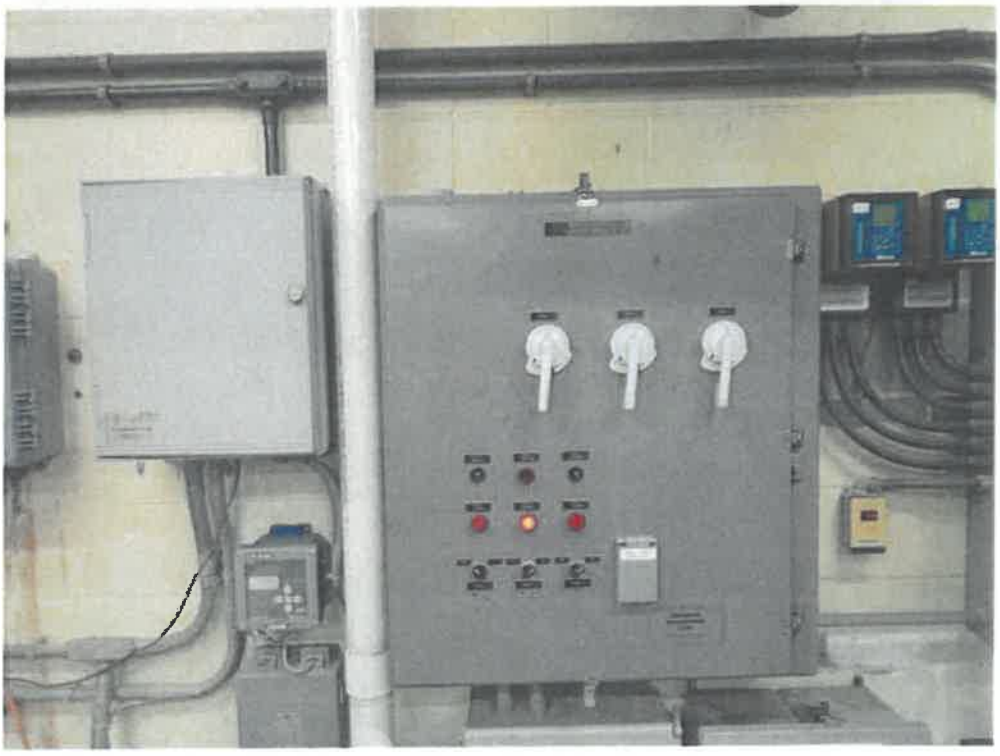
Observation	Recommendation	Estimated Cost (1)
Design/Upgrade Items		
Station is recommended for a full pump station rehabilitation, including new roofing, doors, stairs, lighting, pumps and piping, and generator		
Control Room Building Exterior -		
The roofing material is deteriorating.	Replace roofing.	$20,000
Blades missing from the louvers.	Replace louvers	$500
Brick control joint sealant is deteriorating.	Replace caulking	$1,500
Control Room Building Interior -		
Sample pump control panel and pump control panel should be upgraded.	Replace pump control panels including, PLC's, OIT's, and radio system	$85,000
Floor needs new coating.	Refinish floor	$10,000
Door and components are corroded	Replace doors	$5,000
Wall paint is chipping	Repair and repaint walls	$5,000
Motor at louver is corroded	Replace motor	$500
Emergency shower and service sink water should be tempered	Install electric or gas-fired water heater	$20,000
Separate potable and non-potable water	Install separate backflow preventer for non-potable water	$5,000
Electric unit heater needs replacement	Replace existing electric unit heater	$5,000
Instrumentation should be upgraded or replaced	Replace/Upgrade instrumentation	$50,000
Pump Room Building Exterior -		
The roofing material is deteriorating	Replace roofing.	$15,000
Roof has 2 skylights	Replace 2 skylights	$10,000
Exhaust fan is rusted	Replace exhaust fan	$2,000
Brick control joint sealant is deteriorating.	Replace caulking	$1,500
Door and components are corroded	Replace doors	$5,000

Pump Room Building Interior -		
Pumps, motors, piping, and valves are severely deteriorated.	Replace pumps, motors, piping, and valves	$235,000
Floors and ceiling needs have chips and cracks.	Repair and refinish floors and ceiling	$20,000
Door and components are corroded	Replace doors	$5,000
Wall paint is chipping and has corrosion	Repair and repaint walls	$10,000
Stairs and components have visible rust	Replace all of the stairs	$50,000
Muffin Monster cutters are worn	Replace Muffin Monster	$50,000
Dehumidifier	Remove existing and install new dehumidifier	$2,500
Exhaust fan in lower lever dry well	Install wire mesh screen in intake opening	$200
No emergency lighting	Install exit signs and emergency lighting to meet current codes	$2,000
Lighting is 2-lamp fluorescent fixtures	Install all new LED energy efficient lighting	$1,000
Emergency pushbuttons need to be installed	Install emergency personnel pushbuttons on each level	$5,000
Walls are fair, but should be recoated to extend life expectancy	Recoat wet well walls	$50,000
Generator -		
Generator is 28 years old.	Replace Generator	$85,000
Miscellaneous -		
Town requested pig launcher equipment be installed to clean force main	Install pig launcher equipment	$78,000
	Equipment + Construction Subtotal[1]	$1,806,526
	Design + Bidding	$280,979
	CA Engineering	$180,653
	20% Contingency	$361,305
	Total (Design/Upgrade)	$2,629,462

(1) Equipment + Construction costs include materials, labor and installation, bypass, bonds, mobilization, general conditions, overhead, and profit.


DANGER
HIGH
VOLTAGE






Cutler-Hammer

RTU-19: Centennial Street Pump Station

Description

This station was commissioned in 1996. Three 1,800 gpm (50-hp) Fairbanks-Morse pumps are contained in a below grade concrete structure. A standby generator is located at ground level on a concrete pad in a separate room in the building. The controls and electrical systems are housed in an adjacent room in the concrete building. The following observations were noted during the evaluation of this pump station:

Building Exterior –

- The ballasted membrane roof that is in marginal condition and should be replaced.
- Ruff scupper clogged with leaves and in poor condition.
- The pavement is in good condition.
- Doors and frames have significant rust and should be replaced.
- There is no fencing present around the station.

Building Interior –

- Paint on walls is chipping. Surface rust and corrosion visible on walls and ceilings.
- Doors and frames have significant rust and should be replaced.
- Metal walking grates at the mid-level are unsafe and need to be fixed.
- Dehumidifier needs replacement.

Service/Control Cabinets –

- One soft start was recently replaced. Remaining soft starts should be replaced.
- Pump control panel should be upgraded.
- Motorized dampers are required for the louvers/HVAC.
- VFD on odor control fan needs to be replaced.

Pumps –

- Pumps, motors, piping, and valves are severely deteriorated and should be replaced.

Wet Well/Dry Well –

- Dry Well structure is in good condition.
- Flow meter in wet well is severely corroded and should be replaced.
- Further evaluation of the wet well is warranted.
- Muffin Monster sewage grinder cutters are worn and require replacement.

Miscellaneous –

- Groundwater is affecting media bed.
- Pump station has an odor problem. Odor control is being addressed on another contract.
- Town requested a "pig launcher" be installed to clean the force main.

Generator –

- Generator is 27 years old. Routine maintenance should be performed, and replacement considered within 5 to 10 years.

The following table displays the recommended improvements and estimated costs for this pump station. The recommendations have been categorized based on items requiring repair/maintenance or items that will require design for recommended upgrades (if applicable).

Capital Improvements and Estimated Costs
RTU-19: Centennial Street Pump Station

Observation	Recommendation	Estimated Cost (1)
Design/Upgrade Items		
Station is recommended for a full pump station rehabilitation, including new roofing, doors, stairs, lighting, pumps and piping, and generator		
Building Exterior -		
The roofing material is deteriorating.	Replace roofing.	$15,000
Roof has skylight	Replace skylight	$5,000
Door and components are corroded	Replace doors	$5,000
Building Interior -		
Wall paint is chipping, has surface rust.	Repair and repaint walls	$10,000
Door and components are corroded	Replace doors	$5,000
Stairs should be replaced	Replace Stairs	$30,000
Metal walking grates are unsafe	Replace metal grates	$6,000
Dehumidifier needs replacement	Install new dehumidifier	$2,500
No emergency lighting	Install exit signs and emergency lighting to meet current codes	$1,000
Lighting is 2-lamp fluorescent fixtures	Install all new LED energy efficient lighting	$500
Emergency pushbuttons need to be installed	Install emergency personnel pushbuttons on each level	$5,000
Service/Control Cabinet -		
One soft start was recently replaced. Remaining soft starts should be replaced.	Replace remaining soft starts	Include in pump replacement estimate
Pump control panel should be upgraded.	Replace pump control panel including, PLC's, OIT's, and radio system	$85,000
Motorized dampers are required for the louvers/HVAC	Install new dampers	$2,000
VFD on odor control fan needs to be replaced	Replace VFD on odor control fan	$5,000

Instrumentation should be upgraded or replaced	Replace/Upgrade instrumentation	$50,000
Pumps -		
Pumps, motors, piping, and valves are severely deteriorated	Replace pumps, motors, piping, and valves	$390,000
Wet Well/Dry Well -		
Flow meter in wet well is severely corroded	Replace flow meter	$8,000
Muffin Monster sewage grinder cutters	Replace Muffin Monster	$50,000
Piping and valves are beginning to corrode	Replace piping and valves	$30,000
Walls are fair, but should be recoated to extend life expectancy	Recoat wet well walls	$50,000
Generator –		
Generator is 27 years old.	Replace generator and pad	$85,000
Miscellaneous -		
Town requested pig launcher equipment be installed to clean force main	Install pig launcher equipment	$78,000
	Equipment + Construction Subtotal[1]	$2,039,664
	Design + Bidding	$315,950
	CA Engineering	$203,966
	20% Contingency	$407,933
	Total (Design/Upgrade)	$2,967,513

(1) Equipment + Construction costs include materials, labor and installation, bypass, bonds, mobilization, general conditions, overhead, and profit.


CAUTION