April 2, 2024

Lori Charlton
Chair, Board of Finance
Town of Fairfield, CT

Thank you for choosing PKF O'Connor Davies to provide professional services to the Town of Fairfield, CT (Town). This letter sets forth our understanding of the terms and objectives of our engagement, and the nature and scope of the services we will provide to the Town.

Scope of project

Based upon our discussion, we propose the following scope of services:

1. Review of policies and procedures and related internal controls over the human resources/payroll functions

2. Review of the system rights (access) for all employees with rights to the payroll software module

3. Review of payroll change process, reports and related supporting documentation and approvals

4. Provide recommendations to eliminate identified manual processes included in the payroll process

5. We will perform any other procedures determined necessary as a result of our review and the procedures noted above.

6. If necessary, we will recommend additional procedures or changes to the scope of services that we believe should be performed or would provide the Town the information that is requested in the scope of services. We will provide the Town with an estimate fee for completion of the recommended additional procedures. Any additional procedures will require written approval by Town.

7. Following the completion of the procedures as noted above, we will issue a written report communicating the results of the procedures performed and our recommendations to improve internal controls, opportunities to increase efficiency and upgrade to best practices.

Engagement administration, fees and other electronic and other communication

During the course of the engagement, we may communicate with you or with Town personnel via fax or e-mail. You should be aware that communication in those media may be unsafe to use and contains a risk of misdirection and/or interception by unintended third parties, or failed delivery or receipt. In that regard, you agree that we shall have no liability for any loss or damage to any person or entity resulting from the use of e-mail or other electronic transmissions, including any consequential, incidental, direct, indirect or special damages.

PKF O'Connor Davies, LLP is a member firm of the PKF International Limited network of legally independent firms and does not accept any responsibility or liability for the actions or inactions on the part of any other individual member firm or firms.

Liability

Any and all claims by the Town arising under this engagement must be commenced by the Town within one year following the date on which our firm delivered our report on the financial statements associated with this engagement, or the date the Town is informed of the engagement's termination in the event our report is not delivered, for any reason.

You agree to indemnify our firm, its partners, principals and employees, to the fullest extent permitted by law for any expense, including compensation for our time at our standard billing rates and reimbursement for our out-of-pocket expenses and reasonable attorneys' fees, incurred in complying with or responding to any request (by subpoena or otherwise) for testimony, documents or other information concerning the Town by any governmental agency or investigative body or by a party in any litigation or dispute other than litigation or disputes involving claims by the Town against the firm. This indemnification will survive termination of this engagement.

Dispute resolution

Any claim or controversy ("dispute") arising out of or relating to this engagement, the services provided thereunder, or any other services provided by or on behalf of the firm or any of its subcontractors or agents to the Town or at its request (including any dispute involving any person or entity for whose benefit the services in question are or were provided), shall first be submitted in good faith for mediation administered by the American Arbitration Association ("AAA") under its Mediation Rules. Each party shall bear its own costs in the mediation. Absent an agreement to the contrary, the fees and expenses of the mediator shall be shared equally by the parties.

If the dispute is not resolved by mediation within 90 days of its submission to the mediator, then, and only then, the parties shall submit the dispute for arbitration administered by the American Arbitration Association under its Professional Accounting and Related Services Dispute Resolution Rules (the "Rules"). The arbitration will be conducted before a single arbitrator selected from the AAA's Panel of Accounting Professionals and Attorneys and shall take place in Hartford, CT.

Any discovery sought in connection with the arbitration must be expressly approved by the arbitrator upon a showing of substantial need by the party seeking discovery.

All aspects of the arbitration shall be treated as confidential. The parties and the arbitrator may disclose the existence, content or result of the arbitration only as expressly provided by the Rules. The arbitrator shall issue his or her final award in a written and reasoned decision to be provided to each party. In his or her decision, the arbitrator will declare one party the prevailing party. The arbitrator shall have the power to award to the prevailing party reasonable legal fees associated with the arbitration and prior mediation. The arbitrator shall have no authority to award non-monetary or equitable relief of any sort. The arbitrator shall not have authority to award damages that are punitive in nature, or that are not measured by the prevailing party's actual compensatory loss.

The award reached as a result of the arbitration will be binding on the parties and confirmation of the arbitration award may be sought in any court having jurisdiction.

Fees and billing

Our estimated fee for these services will be $8,000 to $9.000. The fee quoted above includes an estimate of 25-30 hours of service.

Due to the nature of these types of engagements it is difficult to estimate the fee until we have a detailed understanding of the Town’s policies and procedures and the actual number of items that may need to be reviewed. Therefore, we have quoted the fee as a range. If the project requires additional hours, we will consult with you before performing additional work.

Also, based upon the procedures performed, if we recommend that the scope be expanded, we will inform the Town of our recommendations and an estimate of the additional cost.

The fee shall be payable to us within 30 days of the invoice date. The Town will only be billed for the actual hours necessary to complete the project.

In accordance with our firm policies, work may be suspended if your account becomes overdue and will not be resumed until your account is paid in full. If we elect to terminate our services for nonpayment, our engagement will be deemed to have been completed even if we have not issued our report. You will be obligated to compensate us for all time expended and to reimburse us for all out-of-pocket expenditures through the date of termination.

Our engagement ends on delivery of our report. Requests for services other than those included in this engagement letter will be agreed upon separately.

All rights and obligations set forth herein shall become the rights and obligations of any successor firm to PKF O'Connor Davies, LLP by way of merger, acquisition or otherwise.

If this letter correctly expresses your understanding of the terms of our engagement, including our respective responsibilities, please sign the enclosed copy where indicated and return it to us.

By your execution of this Agreement, the undersigned represent and warrant that he or she is authorized on behalf of the Town or entities listed to bind and are in fact binding each such entity to the terms and conditions of this Agreement.

We are pleased to have this opportunity to serve you.

PKF O'Connor Davies, LLP

The services and terms described in the foregoing letter are in accordance with our requirements and are acceptable to us.

Town of Fairfield, CT

BY: _____

TITLE: _____

DATE: _____

PKF O'Connor Davies, LLP is a member firm of the PKF International Limited network of legally independent firms and does not accept any responsibility or liability for the actions or inactions on the part of any other individual member firm or firms.

Memorandum

To: Board of Selectmen, Board of Finance, Representative Town Meeting

From: Mark S. Barnhart, Director of Community & Economic Development

Date: 10/13/2022

Re: Stratfield Streetscape Enhancements

The Town has been working with the Stratfield Village Association (SVA) for the past three years on a project to make pedestrian and streetscape enhancements to the Stratfield Village Business District and the surrounding area. The project is intended to improve pedestrian safety, create additional pedestrian connections and to beautify the area around the four corners section of Stratfield.

The Town originally received $650,000 in grant funding from the State of Connecticut toward the cost of the project. The Stratfield Village Association committed to raise another $150,000 toward the project, which they have done. Additionally, the Town appropriated $550,000 toward the project, of which $450,000 was allocated from the Coronavirus Fiscal Recovery Funds (ARPA).

The Town solicited bids earlier this year. Three bidders responded, but all of the bids were over budget. A copy of the bid tabulation summary is attached, as compared to the engineer's estimate. It goes without saying that the project was conceived in a much different cost environment. Additionally, continued supply chain issues, high fuel costs and other inflationary effects also likely contributed to the higher than projected costs. For the past several months the Town has been working with the design consultant and the lowest responsible bidder to evaluate the potential costs savings from changes to the project scope. These efforts yielded only modest savings without compromising the overall intent of the project, however. As a result, we are requesting that Town Boards consider allocating an additional $700,000 from ARPA funds to construct the project as designed.

I have also attached a statement comparing original sources and uses to the revised figures reflecting the additional ARPA funds and including a modest construction contingency.

I am happy to answer any questions that you may have. Thank you for your consideration.

S.Pellegrini
8/19/20202
BL Project No. 1901070
Streetscape Improvements in Stratfield Village Business
Opened 11:00 a.m. on 9 August 2022

				Engineer's Estimate		**Colonna Concrete & Asphalt Paving LLC** Woodbridge, CT			**Star Construction** Stratford, CT			**Waters Construction Company** Bridgeport, CT		
Item No.	Description	Unit	Qty.	Unit Price	Extended Total	Unit Price	Extended Price	% Difference	Unit Price	Extended Price	Sub	Unit Price	Extended Price	% Difference
201001	CLEARING AND GRUBBING	l.s.	1	$8,105.61	$8,105.61	$60,000.00	$60,000.00	**640.23%**	$12,000.00	$12,000.00	**48.05%**	$24,000.00	$24,000.00	**196.09%**
202000	EARTH EXCAVATION	c.y.	470	$21.40	$10,058.00	$30.00	$14,100.00	**40.19%**	$35.00	$16,450.00	**63.55%**	$90.00	$42,300.00	**320.56%**
202513	REMOVAL OF CONCRETE SIDEWALK	s.y.	10	$18.80	$188.00	$30.00	$300.00	**59.57%**	$95.00	$950.00	**405.32%**	$116.00	$1,160.00	**517.02%**
202529	CUT BITUMINOUS CONCRETE PAVEMENT	l.f.	2389	$2.40	$5,733.60	$5.00	$11,945.00	**108.33%**	$4.50	$10,750.50	**87.50%**	$3.00	$7,167.00	**25.00%**
202530	REMOVAL OF BITUMINOUS SIDEWALK	s.y.	165	$33.80	$5,561.98	$10.00	$1,650.00	**-70.33%**	$20.00	$3,300.00	**-40.67%**	$16.00	$2,640.00	**-52.53%**
0202559A	REMOVE AND RESET SURVEY MONUMENT	ea.	2	$509.00	$1,018.00	$1,200.00	$2,400.00	**135.76%**	$2,500.00	$5,000.00	**391.16%**	$2,400.00	$4,800.00	**371.51%**
212000	SUBBASE	c.y.	180	$42.40	$7,632.00	$60.00	$10,800.00	**41.51%**	$65.00	$11,700.00	**53.30%**	$100.00	$18,000.00	**135.85%**
219001	SEDIMENTATION CONTROL SYSTEM	l.f.	3694	$5.40	$19,947.60	$4.00	$14,776.00	**-25.93%**	$5.50	$20,317.00	**1.85%**	$10.00	$36,940.00	**85.19%**
0219011A	SEDIMENT CONTROL SYSTEM AT CATCH BASIN	ea.	15	$108.00	$1,620.00	$300.00	$4,500.00	**177.78%**	$250.00	$3,750.00	**131.48%**	$206.00	$3,090.00	**90.74%**
304002	PROCESSED AGGREGATE BASE	c.y.	62	$48.00	$2,976.00	$60.00	$3,720.00	**25.00%**	$65.00	$4,030.00	**35.42%**	$110.00	$6,820.00	**129.17%**
406170	HMA S1	ton	170	$109.80	$18,666.00	$220.00	$37,400.00	**100.36%**	$230.00	$39,100.00	**109.47%**	$320.00	$54,400.00	**191.44%**
406171	HMA S0.5	ton	450	$125.00	$56,250.00	$180.00	$81,000.00	**44.00%**	$220.00	$99,000.00	**76.00%**	$211.00	$94,950.00	**68.80%**
406236	MATERIAL FOR TACK COAT	gal	365	$36.70	$13,395.50	$15.00	$5,475.00	**-59.13%**	$16.00	$5,840.00	**-56.40%**	$6.00	$2,190.00	**-83.65%**
0406275A	FINE MILLING OF BITUMINOUS CONCRETE (0" TO 4")	s.y.	3000	$5.00	$15,000.00	$7.00	$21,000.00	**40.00%**	$6.00	$18,000.00	**20.00%**	$6.50	$19,500.00	**30.00%**
507001	TYPE "C" CATCH BASIN	ea.	6	$3,638.60	$21,831.60	$5,000.00	$30,000.00	**37.42%**	$4,800.00	$28,800.00	**31.92%**	$7,000.00	$42,000.00	**92.38%**
507006	TYPE "C" CATCH BASIN TOP	ea.	6	$718.00	$4,308.00	$1,600.00	$9,600.00	**122.84%**	$1,000.00	$6,000.00	**39.28%**	$1,200.00	$7,200.00	**67.13%**
507771	RESET CATCH BASIN	ea.	6	$875.00	$5,250.00	$1,000.00	$6,000.00	**14.29%**	$1,200.00	$7,200.00	**37.14%**	$1,500.00	$9,000.00	**71.43%**
507781	RESET MANHOLE	ea.	1	$1,260.00	$1,260.00	$1,600.00	$1,600.00	**26.98%**	$1,200.00	$1,200.00	**-4.76%**	$2,000.00	$2,000.00	**58.73%**
507831	CONVERT CATCH BASIN TO MANHOLE	ea.	5	$1,692.80	$8,464.00	$2,400.00	$12,000.00	**41.78%**	$2,800.00	$14,000.00	**65.41%**	$2,500.00	$12,500.00	**47.68%**
651011	12'' R.C. PIPE	l.f.	30	$53.60	$1,608.00	$150.00	$4,500.00	**179.85%**	$180.00	$5,400.00	**235.82%**	$230.00	$6,900.00	**329.10%**
651012	15'' R.C. PIPE	l.f.	24	$60.80	$1,459.20	$160.00	$3,840.00	**163.16%**	$200.00	$4,800.00	**228.95%**	$350.00	$8,400.00	**475.66%**
811001	CONCRETE CURBING	l.f.	1275	$32.40	$41,310.00	$36.00	$45,900.00	**11.11%**	$65.00	$82,875.00	**100.62%**	$40.00	$51,000.00	**23.46%**
815001	BITUMINOUS CONCRETE LIP CURBING	l.f.	105	$7.20	$756.00	$20.00	$2,100.00	**177.78%**	$20.00	$2,100.00	**177.78%**	$18.00	$1,890.00	**150.00%**
915000	TREE PROTECTION	l.s.	1	$500.00	$500.00	$6,000.00	$6,000.00	**1100.00%**	$3,000.00	$3,000.00	**500.00%**	$4,300.00	$4,300.00	**760.00%**
0921001A	CONCRETE SIDEWALK	s.f.	12115	$11.00	$133,265.00	$13.00	$157,495.00	**18.18%**	$20.00	$242,300.00	**81.82%**	$15.00	$181,725.00	**36.36%**
0921003A	MONOLITHIC CONCRETE SIDEWALK AND CURB	s.f.	2471	$15.00	$37,065.00	$18.00	$44,478.00	**20.00%**	$23.00	$56,833.00	**53.33%**	$23.00	$56,833.00	**53.33%**
921005	CONCRETE SIDEWALK RAMP	s.f.	1038	$18.40	$19,099.20	$22.00	$22,836.00	**19.57%**	$21.00	$21,798.00	**14.13%**	$31.00	$32,178.00	**68.48%**
0921008A	BRICK PAVER SIDEWALK	s.f.	1122	$20.00	$22,440.00	$40.00	$44,880.00	**100.00%**	$51.00	$57,222.00	**155.00%**	$41.00	$46,002.00	**105.00%**
921013	CONCRETE DRIVEWAY APRON	s.f.	2465	$18.60	$45,849.00	$22.00	$54,230.00	**18.28%**	$23.00	$56,695.00	**23.66%**	$21.00	$51,765.00	**12.90%**
921039	DETECTABLE WARNING STRIP	ea.	18	$236.20	$4,251.60	$250.00	$4,500.00	**5.84%**	$275.00	$4,950.00	**16.43%**	$315.00	$5,670.00	**33.36%**
922001	BITUMINOUS CONCRETE SIDEWALK	s.y.	15	$57.00	$855.00	$60.00	$900.00	**5.26%**	$90.00	$1,350.00	**57.89%**	$442.00	$6,630.00	**675.44%**
0922050A	DECORATIVE CROSSWALK	s.f.	2055	$28.00	$57,540.00	$40.00	$82,200.00	**42.86%**	$20.00	$41,100.00	**-28.57%**	$22.00	$45,210.00	**-21.43%**
922500	BITUMINOUS CONCRETE DRIVEWAY (COMMERCIAL)	s.y.	300	$49.40	$14,820.00	$65.00	$19,500.00	**31.58%**	$110.00	$33,000.00	**122.67%**	$120.00	$36,000.00	**142.91%**
922501	BITUMINOUS CONCRETE DRIVEWAY	s.y.	65	$31.20	$2,028.00	$60.00	$3,900.00	**92.31%**	$90.00	$5,850.00	**188.46%**	$130.00	$8,450.00	**316.67%**
939001	SWEEPING FOR DUST CONTROL	hr	19	$66.00	$1,254.00	$30.00	$570.00	**-54.55%**	$200.00	$3,800.00	**203.03%**	$240.00	$4,560.00	**263.64%**
944000	FURNISHING AND PLACING TOPSOIL	s.y.	1780	$6.80	$12,104.00	$10.00	$17,800.00	**47.06%**	$15.00	$26,700.00	**120.59%**	$21.00	$37,380.00	**208.82%**
947207	BICYCLE STAND	ea.	1	$500.00	$500.00	$3,500.00	$3,500.00	**600.00%**	$2,000.00	$2,000.00	**300.00%**	$1,500.00	$1,500.00	**200.00%**
949248	JUNPIERUS CHINENSIS SARGENTI (SARGENT JUNIPER)	ea.	28	$37.00	$1,036.00	$100.00	$2,800.00	**170.27%**	$80.00	$2,240.00	**116.22%**	$68.00	$1,904.00	**83.78%**
949832	CORNUS KOUSA (KOUSA DOGWOOD)	ea.	3	$540.40	$1,621.20	$1,000.00	$3,000.00	**85.05%**	$900.00	$2,700.00	**66.54%**	$1,020.00	$3,060.00	**88.75%**
949897	ILEX GLABRA (INKBERRY)	ea.	19	$42.50	$807.50	$100.00	$1,900.00	**135.29%**	$200.00	$3,800.00	**370.59%**	$89.00	$1,691.00	**109.41%**
992090	BENCH	ea.	1	$1,000.00	$1,000.00	$4,000.00	$4,000.00	**300.00%**	$3,000.00	$3,000.00	**200.00%**	$1,200.00	$1,200.00	**20.00%**
992103	TRASH CAN	ea.	1	$750.00	$750.00	$3,000.00	$3,000.00	**300.00%**	$5,000.00	$5,000.00	**566.67%**	$3,200.00	$3,200.00	**326.67%**
950005	TURF ESTABLISHMENT	s.y.	1780	$1.40	$2,492.00	$6.00	$10,680.00	**328.57%**	$5.00	$8,900.00	**257.14%**	$4.00	$7,120.00	**185.71%**
0952001A	SELECTIVE CLEARING AND THINNING	l.s.	1	$500.00	$500.00	$12,000.00	$12,000.00	**2300.00%**	$6,000.00	$6,000.00	**1100.00%**	$5,400.00	$5,400.00	**980.00%**
0969060A	CONSTRUCTION FIELD OFFICE, SMALL	mo.	8	$2,827.40	$22,619.20	$4,000.00	$32,000.00	**41.47%**	$5,200.00	$41,600.00	**83.91%**	$4,200.00	$33,600.00	**48.55%**
970006	TRAFFICPERSON (MUNICIPAL POLICE OFFICER)	est.	12000	$1.00	$12,000.00	$12,000.00	$12,000.00	**0.00%**	$12,000.00	$12,000.00	**0.00%**	$12,000.00	$12,000.00	**0.00%**
0971001A	MAINTENANCE AND PROTECTION OF TRAFFIC	l.s.	1	$32,422.43	$32,422.43	$60,000.00	$60,000.00	**85.06%**	$25,000.00	$25,000.00	**-22.89%**	$35,000.00	$35,000.00	**7.95%**
975004	MOBILIZATION AND PROJECT CLOSEOUT	l.s.	1	$56,739.26	$56,739.26	$60,000.00	$60,000.00	**5.75%**	$42,000.00	$42,000.00	**-25.98%**	$198,000.00	$198,000.00	**248.96%**
979003	CONSTRUCTION BARRICADE TYPE III	ea.	4	$132.80	$531.20	$100.00	$400.00	**-24.70%**	$185.00	$740.00	**39.31%**	$100.00	$400.00	**-24.70%**
980001	CONSTRUCTION STAKING	l.s.	1	$8,102.63	$8,105.61	$40,000.00	$40,000.00	**393.49%**	$16,000.00	$16,000.00	**97.39%**	$19,000.00	$19,000.00	**134.41%**
981100	42" TRAFFIC CONE	ea.	30	$40.11	$1,203.22	$60.00	$1,800.00	**49.60%**	$60.00	$1,800.00	**49.60%**	$20.00	$600.00	**-50.13%**
1001001	TRENCHING AND BACKFILLING	l.f.	190	$25.00	$4,750.00	$40.00	$7,600.00	**60.00%**	$220.00	$41,800.00	**780.00%**	$105.00	$19,950.00	**320.00%**
1002203	TRAFFIC CONTROL FOUNDATION-PEDESTALTYPE I	ea.	6	$662.68	$3,976.08	$1,000.00	$6,000.00	**50.90%**	$900.00	$5,400.00	**35.81%**	$956.00	$5,736.00	**44.26%**
1008115	2'' RIGID METAL CONDUIT IN TRENCH	l.f.	79	$18.52	$1,463.41	$35.00	$2,765.00	**88.94%**	$29.00	$2,291.00	**56.55%**	$73.00	$5,767.00	**294.08%**
1008215	2'' RIGID METAL CONDUIT UNDER ROADWAY	l.f.	130	$21.71	$2,821.92	$35.00	$4,550.00	**61.24%**	$34.00	$4,420.00	**56.63%**	$32.00	$4,160.00	**47.42%**
1008908A	CLEAN EXISTING CONDUIT	l.f.	230	$3.42	$785.83	$10.00	$2,300.00	**192.68%**	$5.00	$1,150.00	**46.34%**	$8.00	$1,840.00	**134.15%**
1010011	CONCRETE HANDHOLE - TYPE I	ea.	1	$875.09	$875.09	$1,100.00	$1,100.00	**25.70%**	$1,000.00	$1,000.00	**14.27%**	$1,065.00	$1,065.00	**21.70%**
1010021	CONCRETE HANDHOLE - TYPE II	ea.	1	$667.55	$667.55	$1,000.00	$1,000.00	**49.80%**	$900.00	$900.00	**34.82%**	$850.00	$850.00	**27.33%**
1010054	CAST IRON HANDHOLE COVER, TYPE II	ea.	1	$387.33	$387.33	$600.00	$600.00	**54.91%**	$500.00	$500.00	**29.09%**	$508.00	$508.00	**31.15%**
1010905	RESET CONCRETE HANDHOLE	ea.	1	$576.00	$576.00	$600.00	$600.00	**4.17%**	$400.00	$400.00	**-30.56%**	$790.00	$790.00	**37.15%**
1010060A	CLEAN EXISTING CONCRETE HANDHOLE	ea.	2	$314.34	$628.68	$350.00	$700.00	**11.34%**	$385.00	$770.00	**22.48%**	$465.00	$930.00	**47.93%**
1101302	POLE ANCHOR	ea.	1	$717.00	$717.00	$3,000.00	$3,000.00	**318.41%**	$2,750.00	$2,750.00	**283.54%**	$2,500.00	$2,500.00	**248.68%**
1102002	8' ALUMINUM PEDESTAL	ea.	6	$642.62	$3,855.73	$1,300.00	$7,800.00	**102.30%**	$1,183.00	$7,098.00	**84.09%**	$1,000.00	$6,000.00	**55.61%**
1106001A	1 WAY PEDESTRIAN SIGNAL POLE MOUNTED	ea.	1	$829.12	$829.12	$1,300.00	$1,300.00	**56.79%**	$1,265.00	$1,265.00	**52.57%**	$1,050.00	$1,050.00	**26.64%**
1106003A	1 WAY PEDESTRIAN SIGNAL PEDESTAL MOUNTED	ea.	5	$669.75	$3,348.77	$1,300.00	$6,500.00	**94.10%**	$1,265.00	$6,325.00	**88.88%**	$1,050.00	$5,250.00	**56.77%**
1106004A	2 WAY PEDESTRIAN SIGNAL PEDESTAL MOUNTED	ea.	1	$1,261.71	$1,261.71	$2,500.00	$2,500.00	**98.14%**	$2,585.00	$2,585.00	**104.88%**	$2,100.00	$2,100.00	**66.44%**
1107011A	ACCESSIBLE PEDESTRIAN SIGNAL AND DETECTOR (TYPE A)	ea.	8	$893.17	$7,145.33	$1,300.00	$10,400.00	**45.55%**	$1,320.00	$10,560.00	**47.79%**	$1,200.00	$9,600.00	**34.35%**
1108163A	MODIFY EXISTING CONTROLLER	ea.	1	$3,266.67	$3,266.67	$5,000.00	$5,000.00	**53.06%**	$3,850.00	$3,850.00	**17.86%**	$3,700.00	$3,700.00	**13.27%**
1111201A	TEMPORARY DETECTION (SITE 1)	l.s.	1	$2,500.00	$2,500.00	$5,000.00	$5,000.00	**100.00%**	$4,950.00	$4,950.00	**98.00%**	$4,500.00	$4,500.00	**80.00%**
1113103	7 CONDUCTOR NO. 14 CABLE	l.f.	1610	$2.50	$4,018.03	$5.00	$8,050.00	**100.35%**	$3.85	$6,198.50	**54.27%**	$4.00	$6,440.00	**60.28%**
1118012A	REMOVAL AND/OR RELOCATION OF TRAFFIC SIGNAL EQUIPMENT	l.s.	1	$5,000.00	$5,000.00	$4,000.00	$4,000.00	**-20.00%**	$4,000.00	$4,000.00	**-20.00%**	$6,400.00	$6,400.00	**28.00%**
1118051A	TEMPORARY SIGNALIZATION (SITE NO. 1)	l.s.	1	$5,000.00	$5,000.00	$4,000.00	$4,000.00	**-20.00%**	$2,750.00	$2,750.00	**-45.00%**	$7,900.00	$7,900.00	**58.00%**
1206023A	REMOVAL AND RELOCATION OF EXISTING SIGNS	l.s.	1	$500.00	$500.00	$2,000.00	$2,000.00	**300.00%**	$4,000.00	$4,000.00	**700.00%**	$5,000.00	$5,000.00	**900.00%**
1208931A	SIGN FACE - SHEET ALUMINUM (TYPE IX RETROREFLECTIVE SHEETING)	s.f.	19	$65.43	$1,243.10	$120.00	$2,280.00	**83.41%**	$75.00	$1,425.00	**14.63%**	$65.00	$1,235.00	**-0.65%**
1208937A	SIGN FACE - SHEET ALUMINUM (TYPE XI RETROREFLECTIVE SHEETING)	s.f.	85	$60.00	$5,100.00	$120.00	$10,200.00	**100.00%**	$75.00	$6,375.00	**25.00%**	$70.00	$5,950.00	**16.67%**
1210101	4" WHITE EPOXY RESIN PAVEMENT MARKINGS	l.f.	2100	$0.40	$840.00	$1.50	$3,150.00	**275.00%**	$0.70	$1,470.00	**75.00%**	$0.75	$1,575.00	**87.50%**
1210102	4" YELLOW EPOXY RESIN PAVEMENT MARKINGS	l.f.	2120	$0.40	$848.00	$1.50	$3,180.00	**275.00%**	$0.70	$1,484.00	**75.00%**	$0.75	$1,590.00	**87.50%**
1210104	8" WHITE EPOXY RESIN PAVEMENT MARKINGS	l.f.	85	$0.63	$53.55	$5.00	$425.00	**693.65%**	$0.80	$68.00	**26.98%**	$1.00	$85.00	**58.73%**
1210105	EPOXY RESIN PAVEMENT MARKINGS, SYMBOLS AND LEGENDS	s.f.	510	$4.00	$2,040.00	$7.00	$3,570.00	**75.00%**	$6.00	$3,060.00	**50.00%**	$5.50	$2,805.00	**37.50%**
1211001	REMOVAL OF PAVEMENT MARKINGS	s.f.	90	$1.20	$108.00	$5.00	$450.00	**316.67%**	$2.50	$225.00	**108.33%**	$2.30	$207.00	**91.67%**
1220013	CONSTRUCTION SIGNS - BRIGHT FLUORESCENT SHEETING	s.f.	35	$75.00	$2,625.00	$40.00	$1,400.00	**-46.67%**	$60.00	$2,100.00	**-20.00%**	$167.00	$5,845.00	**122.67%**
1220027	CONSTRUCTION SIGNS	s.f.	437	$21.50	$9,397.54	$40.00	$17,480.00	**86.01%**	$50.00	$21,850.00	**132.51%**	$22.00	$9,614.00	**2.30%**
1302048	RESET VALVE BOX (WATER MAIN)	ea.	3	$270.00	$810.00	$250.00	$750.00	**-7.41%**	$250.00	$750.00	**-7.41%**	$1,300.00	$3,900.00	**381.48%**
3000101	TRAFFICPERSON (STATE POLICE OFFICER)	est.	48000	$1.00	$48,000.00	$48,000.00	$48,000.00	**0.00%**	$1.00	$48,000.00	**0.00%**	$48,000.00	$48,000.00	**0.00%**
	TOTAL AMOUNT OF THIS BASE PROPOSAL			**$871,237.00**		**$1,268,625.00**			**$1,331,710.00**			**$1,482,067.00**		
	BID ALTERNATE A - ILLUMINATION											*Math Error on bid form. Correct total value as shown on this document.		
406005	PAVEMENT REPLACEMENT PERMANENT	s.y.	40	$97.00	$3,880.00	$100.00	$4,000.00	**3.09%**	$450.00	$18,000.00	**363.92%**	$772.00	$30,880.00	**695.88%**
1001001	TRENCHING AND BACKFILLING	l.f.	2205	$25.00	$55,125.00	$35.00	$77,175.00	**40.00%**	$45.00	$99,225.00	**80.00%**	$35.00	$77,175.00	**40.00%**
1002110A	DECORATIVE LIGHT POLE FOUNDATION	ea.	22	$700.00	$15,400.00	$2,000.00	$44,000.00	**185.71%**	$1,600.00	$35,200.00	**128.57%**	$1,800.00	$39,600.00	**157.14%**
1003595A	DECORATIVE LIGHT POLE & LUMINAIRE	ea.	22	$2,900.00	$63,800.00	$9,000.00	$198,000.00	**210.34%**	$7,800.00	$171,600.00	**168.97%**	$7,500.00	$165,000.00	**158.62%**
1008009	2" RIGID METAL CONDUIT	l.f.	10	$20.00	$200.00	$40.00	$400.00	**100.00%**	$33.00	$330.00	**65.00%**	$34.00	$340.00	**70.00%**
1008190	2" PVC CONDUIT SCHEDULE 80	l.f.	2545	$15.00	$38,175.00	$20.00	$50,900.00	**33.33%**	$17.05	$43,392.25	**13.67%**	$11.00	$27,995.00	**-26.67%**
1010021	CONCRETE HANDHOLE - TYPE II	ea.	10	$595.00	$5,950.00	$1,000.00	$10,000.00	**68.07%**	$900.00	$9,000.00	**51.26%**	$950.00	$9,500.00	**59.66%**
1012060A	NO. 4 SINGLE CONDUCTOR	l.f.	9510	$1.10	$10,461.00	$4.00	$38,040.00	**263.64%**	$3.30	$31,383.00	**200.00%**	$6.00	$57,060.00	**445.45%**
1015000	NO. 4 BARE COPPER GROUNDING CONDUCTOR	l.f.	2370	$1.40	$3,318.00	$4.00	$9,480.00	**185.71%**	$3.20	$7,584.00	**128.57%**	$6.00	$14,220.00	**328.57%**
1017002	SERVICE ENTRANCE AND CABINET - TYPE II	ea.	1	$9,805.00	$9,805.00	$25,000.00	$25,000.00	**154.97%**	$22,000.00	$22,000.00	**124.38%**	$18,000.00	$18,000.00	**83.58%**
	TOTAL AMOUNT OF THIS BASE PROPOSAL			**$206,114.00**		**$456,995.00**			**$437,714.25**			**$439,770.00**		
	GRAND AMOUNT FOR PROPOSAL			**$1,077,351.00**		**$1,725,620.00**			**$1,769,424.25**			**$1,921,837.00**		

Stratfield Pedestrian Streetscape Improvements
Sources Uses

					Comments
Sources:		**Estimated**		**Revised**	
Urban Act Grant	$	650,000	$	650,000	
Fairfield	$	550,000	$	1,250,000	
SVNA Contribution	$	150,000	$	150,000	
	$	1,350,000	$	2,050,000	
Uses:					
Design	$	150,000	$	150,000	
Construction	$	1,077,351	$	1,725,620	
Miscellaneous	$	2,000	$	2,000	
Contingency	$	107,735	$	172,380	
	$	1,337,086	$	2,050,000	
Net Source/Uses:	$	12,914	$	-	
Town Sources					
Appropriation	$	100,000	$	100,000	
ARPA	$	450,000	$	450,000	Total ARPA = $700K ($250K to Southport)
Supplemental ARPA	$	-	$	700,000	
Total Available	$	550,000	$	1,250,000	

					Comments
Sources:		**Estimated**		**Revised**	
Urban Act Grant	$	650,000	$	650,000	
Fairfield	$	550,000	$	1,250,000	
SVNA Contribution	$	150,000	$	150,000	
	$	1,350,000	$	2,050,000	
Uses:					
Design	$	150,000	$	150,000	
Construction	$	1,077,351	$	1,725,620	
Miscellaneous	$	2,000	$	2,000	
Contingency	$	107,735	$	172,380	
	$	1,337,086	$	2,050,000	
Net Source/Uses:	$	12,914	$	-	
Town Sources					
Appropriation	$	100,000	$	100,000	
ARPA	$	450,000	$	450,000	Total ARPA = $700K ($250K to Southport)
Supplemental ARPA	$	-	$	700,000	
Total Available	$	550,000	$	1,250,000	

TOWN OF FAIRFIELD CAPITAL PLAN

CAPITAL AND NON RECURRING TOTAL BY FISCAL YEAR

	FY24 Ban	FY24 Bond	FY25 Ban	FY25 Bond	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	Total FY25-34	2/2/24 Plan	Diff	Comment
Town																	
Authorized/Unissued (A)	$ 2,670,000	$ 6,517,000		$ 5,910,159	$ 3,909,387	$ 1,158,460	$ 1,200,000	$ 750,000	$ -	$ -	$ -	$ -	$ -	$ 12,928,006			
CNR	$ -	$ -		$ 2,690,200	$ 5,755,012	$ 1,099,500	$ 1,386,000	$ 475,000	$ -	$ -	$ -	$ -	$ -	$ 11,405,712			
Capital Over $1M	$ -	$ -		$ 4,989,953	$ 24,235,888	$ 33,071,886	$ 12,984,035	$ 9,191,025	$ 16,010,023	$ 19,501,387	$ 26,796,929	$ 17,693,000	$ 17,257,500	$181,731,627			
Subtotal	**$ 2,670,000**	**$ 6,517,000**	$ -	**$ 13,590,312**	**$ 33,900,287**	**$ 35,329,846**	**$ 15,570,035**	**$ 10,416,025**	**$ 16,010,023**	**$ 19,501,387**	**$ 26,796,929**	**$ 17,693,000**	**$ 17,257,500**	**$206,065,344**			
BOE																	
Authorized/Unissued	$ -	$14,088,000		$ 20,551,052	$ 9,237,388	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 29,788,440			
CNR	$ -	$ -		$ -	$ 398,280	$ 833,259	$ 1,644,469	$ 20,000	$ 387,631	$ 974,891	$ 2,309,354	$ 612,872	$ -	$ 7,180,756			moved approved projects to Authorized unissued section; made changes to Traffic signals and Tidegates
Capital Over $1M	$ -	$ -		$ -	$ 4,328,301	$ 9,126,849	$ 24,398,960	$ 35,138,870	$ 38,083,096	$ 21,959,400	$ 14,480,118	$ -	$ 5,227,084	$152,742,678			
Subtotal	**$ -**	**$14,088,000**	$ -	**$ 20,551,052**	**$ 13,963,969**	**$ 9,960,108**	**$ 26,043,429**	**$ 35,158,870**	**$ 38,470,727**	**$ 22,934,291**	**$ 16,789,472**	**$ 612,872**	**$ 5,227,084**	**$189,711,874**			
WPCA																	
Funded by Town																	
Authorized/Unissued														$ -			
CNR														$ -			
Capital Over $1M	$ -	$ -		$ -	$ -	$ -	$ -	$ -	$ 12,217,716	$ 6,403,599	$ -	$ -	$ -	$ 18,621,314			
Funded by WPCA														$ -			
Authorized/Unissued (B)	$ 4,000,000	$ 5,000,000		$ 4,000,000	$ 1,750,000	$ 1,750,000	$ 1,000,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,500,000			
CNR	$ -	$ -		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -			
Capital Over $1M	$ -	**$ -**		$ 16,165,801	$ 15,178,055	$ 14,726,703	$ 20,737,116	$ 17,218,928	$ -	$ -	$ -	$ -	$ -	$ 84,026,604			changes to Plant equipment estimate; added 3 projects that were on the Old version that was not carreid over to the 2.06.24 plan
Subtotal	**$ 4,000,000**	**$ 5,000,000**	$ -	**$ 20,165,801**	**$ 16,928,055**	**$ 16,476,703**	**$ 21,737,116**	**$ 17,218,928**	**$ 12,217,716**	**$ 6,403,599**	**$ -**	**$ -**	**$ -**	**$111,147,918**			
Grand Total Including Previously Authorized and WPCA	**$ 6,670,000**	**$25,605,000**	$ -	**$ 54,307,166**	**$ 64,792,311**	**$ 61,766,658**	**$ 63,350,580**	**$ 62,793,823**	**$ 66,698,466**	**$ 48,839,277**	**$ 43,586,401**	**$ 18,305,872**	**$ 22,484,584**	**$506,925,137**	$494,521,136	$ 12,404,001	

Cumulative Total FY25-34

(A) FY24 Ban - will be bonded or a ban again to FY25
Turney Creek $1M
Pumper LSN $950K
Post Tension tension court $520k
Tunxis Hill Pickelball Courts $200k

(B) FY24 Ban - will be bonded or a ban again to FY25
East Trunk Wetlands Corssing $2M
East Trunk Replacement Project $2M

										Town of Fairfield Capital Plan													
										Cash Flow Timing (Bond or BAN)													
	Project	CNR YR	Project ID	Total Project Cost	Other Financing Source	Net to be Bonded	RTM Auth Date	Total Bonded Thru FY24	Remaining Authorization	FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
Town																							
Previously Authorized & Unissued:																							
DPW	BURR MANSION KITCHEN UPGRADE 20YR	CNRFYE18	018T2	$ 228,000		$ 228,000	2/27/2017	$ 215,666	$ 12,334	$ 215,666													
DPW	TRANSFER STATION RENOVATION - 20YR	CNRFYE21	021T1	$ 250,000		$ 250,000	2/24/2020	$ 250,000	$ -	$ 250,000													
DPW	SENIOR CENTER DESIGN - 20 YR	CNRFYE21	021T3	$ 100,000		$ 100,000	2/24/2020	$ 100,000	$ -	$ -		$ 100,000											
DPW	INDEPENDENCE HALL BOILER - 20YR	CNRFYE21	021T7	$ 115,000		$ 115,000	2/24/2020	$ 115,000	$ -	$ 100,000		$ 15,000											
DPW	TRANSFER STA TRASH COMPACTORS 20YR	CNRFYE21	021T8	$ 354,000		$ 354,000	2/24/2020	$ 354,000	$ -	$ 354,000													
DPW	INDY HALL OFFICE RENOVATION-20 YEAR	CNRFYE22	022T1	$ 500,000		$ 500,000	3/22/2021	$ 300,000	$ 200,000			$ 300,000				$ 200,000							Engineering, Conservation, IT, HR,DPW, Building Dept on 2nd fl. complete.Plans for Finance dept ready.James Ryan has shown Christine Brown the plans for Finance and explained to her the ideas the past administration had. I am waiting on any feedback from them. Planning and Zoning, Parking Authority and Probate are not done yet and were all part of a discussion to be relocated and/ or renovated. There is not going to be enough funding. About $70,000 each dept in furniture alone. --- SB moved the remaining authorization to FY28 due to unlikely/unprobable completion and need for bonding in earlier FYs
DPW	TOWNWIDE FACILITY AUDIT-20 YEAR	CNRFYE22	022T2	$ 400,000		$ 400,000	3/22/2021	$ 400,000	$ -			$ 400,000											Mostly Silver Petrucelli, Audit and HVAC Bid documents. Emergency lighting complete, Fire 1 controls complete, Seismic Analysis Fire 2 complete, DPW Dry pipe Design complete, $74K left to spend in this account and will be used for the Phase 1 Town-wide Facility upgrades below.
DPW	Town-wide Facility Upgrades - Phase 1		FY221	$ 1,949,778		$ 1,949,778	5/23/2022	$ 974,889	$ 974,889	$ 974,889				$ 974,889									Transferred upgrade projects to Audit account to use first. HVAC Bid opened. Received only one bid (all others who did the walk through said the project was too big/ did not have the resources to handle) and it came back much higher than estimated by Silver Petrucelli. We interviewed the 1 bidder andfound some sayings. We have decided to move forward with the HVAC and figure out how much we can finish with the remaining budget. we have placed the
DPW	Transfer Station Repairs		FY224	$ 450,000		$ 450,000	5/23/2022	$ 375,000	$ 75,000	$ 375,000													
DPW	Capital Equipment- Phase 2		26557010	$ 2,377,000	$ -	$ 2,377,000	6/26/2023	$ -	$ 2,377,000				**$ 2,377,000**	$ -									see 14 point document - this is the sum of FY24,25,26 on document attached which was alreadyapproved
ENG	HULLS FARM RD BRIDGE DESIGN 20YR	CNRFYE18	018T1	$ 150,000		$ 150,000	2/27/2017	$ 124,966	$ 25,034	$ 124,966													hold delay by westport
ENG	ROOSTER RIVER BANK STABILIZE 20Y	CNRFYE18	018T3	$ 350,000		$ 350,000	2/27/2017	$ 191,540	$ 158,460	$ 191,540					$ 158,460								stabilize bank or purchase property when property comes available
ENG	H SMITH RICH PUMP STATION 20YR	CNRFYE18	018T4	$ 150,000		$ 150,000	2/27/2017	$ 143,954	$ 6,046	$ 143,954													
ENG	S BENSON MARINA DREDGING 10YR	CNRFYE18	018T5	$ 700,000		$ 700,000	2/27/2017	$ 660,480	$ 39,520	$ 660,480													1 more year of monitoring and then close out - 98% complete
ENG	SOUTHPORT SIDEWALK CONNECTIVITY-20Y	CNRFYE20	020T1	$ 460,000	$ (360,000)	$ 100,000	2/25/2019	$ 100,000	$ -	$ 100,000													Was in ARPA as well and recently cancelled. Added in NRC below.
ENG	GRASMERE AVE PED IMPROVEMENT-20YR	CNRFYE20	020T2	$ 200,000	$ -	$ 200,000	2/25/2019	$ 174,240	$ 25,760	$ 174,240													in progress (processed grant and approval)
ENG	CONGRESS BRIDGE REPAIR-20YR	CNRFYE20	020T3	$ 180,000	$ -	$ 180,000	2/25/2019	$ 156,816	$ 23,184	$ 156,816													in progress (processed grant and approval)
ENG	BROOKSIDE DR BRIDGE DESIGN-20YR	CNRFYE20	020T4	$ 350,000	$ -	$ 350,000	2/25/2019	$ 161,841	$ 188,159	$ 161,841			**$ 188,159**										in progress (processed grant and approval)- invoicing forthcoming in March 2024
ENG	STRATFIELD PED STREETSCAPE-20 YR	CNRFYE20	020T6	$ 750,000	$ (645,473)	$ 104,527	2/25/2019	$ 91,379	$ 13,148	$ 91,379													State Grant and pedestrian donation $150K
ENG	KINGS HIGHWAY PHASE III DESIGN 20YR	CNRFYE21	021T2	$ 300,000		$ 300,000	2/24/2020	$ 300,000	$ -	$ -		$ 300,000											in progress
ENG	BRONSON RD ARCH TO BOX CULVERT 20YR	CNRFYE21	021T4	$ 250,000		$ 250,000	2/24/2020	$ 250,000	$ -	$ -		$ 250,000											
ENG	STORM SYSTEM IMPROVEMENTS - 20YR	CNRFYE21	021T5	$ 500,000		$ 500,000	2/24/2020	$ 500,000	$ -	$ 500,000													in progress (design)
ENG	ROOSTER RIVER DET AREA STUDY 20YR	CNRFYE21	021T6	$ 320,000		$ 320,000	2/24/2020	$ 310,000	$ 10,000	$ 300,000		$ 10,000											spent

Town of Fairfield Capital Plan

	Project	CNR YR	Project ID	Total Project Cost	Other Financing Source	Net to be Bonded	RTM Auth Date	Total Bonded Thru FY24	Remaining Authorization	Cash Flow Timing (Bond or BAN) FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
ENG	TOWNWIDE GUIDE RAIL/FENCING-20 YEAR	CNRFYE22	022T5	$ 200,000		$ 200,000	3/22/2021	$ 200,000	$ -			$ 200,000											In progress; Cross Hwy and Redding Rd sections completed. Next step: roads and bridge guiderail but complete ARPA sections first. Schedule meeting with contractor.
ENG	FLOOD CONTROL STUDY-20 YEAR	CNRFYE22	022T4	$ 100,000		$ 100,000	3/22/2021	$ -	$ 100,000					$ 100,000									**to be revisited**
ENG	BLACK ROCK TNPK DESIGN-20 YEAR	CNRFYE22	022T6	$ 250,000		$ 250,000	3/22/2021	$ -	$ 250,000					$ 250,000									MetroCOG approval, awaiting DOT final grant approval. RFP for design still pending. Town just received grant notice to proceed for sister project (Kings Hwy East) so this one may still a have a few months delay. Follow up with DOT and Metrocog. (Metrocog to discuss with State).
ENG	ROAD SAFETY IMPROVEMENT-20 YEAR	CNRFYE22	022T7	$ 250,000		$ 250,000	3/22/2021	$ -	$ 250,000				**$ 250,000**										in progress (Villa Ave, Redding RD, in design) RRFB for Old Post Rd, has been installed. Edge lines and rumblestrips on Redding Road complete- invoice pending. Mill Plain ADA ramps completed by Contractor and Town. Upcoming Villa Ave, and other Riverfield School zone improvements. School zone pedestrian safety signs received PC approval. Next Step: RRFB for Riverfield (needs PC approval) and BOE requests- Mill Hill School sidewalks, investigating Pequot Ave improvements.
ENG	CONGRESS ST BRIDGE DESIGN-20 YEAR	CNRFYE22	022T8	$ 150,000		$ 150,000	3/22/2021	$ -	$ 150,000				**$ 150,000**										WMC to start borings/ design.
ENG	REEF RD CULVERT REPAIR-20 YEAR	CNRFYE22	022T9	$ 100,000		$ 100,000	3/22/2021	$ -	$ 100,000					$ 100,000									Design almost complete. Working on permits. Town & Consultant unable to perform detailed inspection, needs cleaning, to determine repair or replacement, Goal is for COP by winter 2024. May involve Additional pipe per Conservation, which would require 6-12 month DEEP permit. Sediment removal required to finish inspection.
ENG	UNDERWATER BRIDGE INSPECTION-10YR	CNRFYE23	023T1	$ 150,000		$ 150,000	3/1/2022	$ 150,000	$ -			$ 150,000											Inspections in progress. RFP awarded to RACE(TG) and GZA (br)for underwater BRIDGE and tidegate inspection. Weston and Sampson testing. Reviewing draft bridge and Tidegate inspection reports. Sediment disposal necessary for 6 tidegates- will expend budget. May need additional funding, TBD.
ENG/Cons	PINE CREEK-MCCLEARY TIDEGATE-20YEAR	CNRFYE23	023T3	$ 500,000		$ 500,000	3/1/2022	$ 250,000	$ 250,000			$ 250,000		$ 250,000									Working with Engineering on RFP tide-gate design - submission pending Winter 2024
ENG	RIVERSIDE CREEK TIDEGATE-20 YEAR	CNRFYE23	023T4	$ 453,200		$ 453,200	3/1/2022	$ 200,000	$ 253,200			$ 200,000		$ 253,200									Working with Engineering on RFP tide-gate design - submission pending Winter 24
ENG	RESILIENCY-JENNINGS BEACH-20 YEAR	CNRFYE23	023T5	$ 250,000		$ 250,000	3/1/2022	$ 250,000	$ -			$ 250,000											TBD FEMA/DEEP issues- Cost Benefit Analysis recieved from GZA. CBA less than 1. Results indicate costs much higher than benefits per FEMA formulas.
ENG	GUIDERAIL REPAIRS PHASE 2- 20 YEAR	CNRFYE24	024T1	$ 210,000		$ 210,000	2/27/2023	$ -	$ 210,000			$ -		$ 210,000									Design winter 2024-Bid Spring 2024 ARPA first
ENG	STRATFIELD RD DESIGN (RSA)- 20 YEAR	CNRFYE24	024T2	$ 325,000		$ 325,000	2/27/2023	$ -	$ 325,000			$ -		$ 325,000									Awaiting state paperwork then RFP for Design
ENG	DESIGN- POST RD & JUG HANDLE-20 YEA	CNRFYE24	024T3	$ 175,000		$ 175,000	2/27/2023	$ -	$ 175,000			$ -		$ 175,000									Awaiting State paperwork then RFP for design consultant'
ENG	ROUND HILL RD & REEF SIDEWALKS-20 Y	CNRFYE24	024T4	$ 611,298	$ (500,000)	$ 111,298	2/27/2023	$ -	$ 111,298			$ -		$ 111,298									In design, Survey completed.Goal to go out to bid together Winter 2024.$500K grant
ENG	LOWER WHARF/FISHING PIER-20 YEAR	CNRFYE24	024T5	$ 800,000	$ (640,000)	$ 160,000	2/27/2023	$ -	$ 160,000			$ -		$ 160,000									Waiting on permits; design being paid by HMC - $640K grant
ENG	Kings Highway Pedestrian LOTCIP Grant - PEDESTRIAN IMPROVEMENTS - PHASE 3 (commerce)		22557049	$ 1,940,600	$ (1,940,600)	$ -	5/22/2023	$ -	$ -														State approved LOTCIP grant. Town to hire Consultant for design. RFP winter 2024.
ENG	Commerce Dr/ Kings Highway Imp		22557048	$ 3,448,950	$ (2,986,560)	$ 462,390	11/2013/ 10/27/2014 / 09/25/2017	$ 377,300	$ 85,090	$ 377,300													state grant

Town of Fairfield Capital Plan

	Project	CNR YR	Project ID	Total Project Cost	Other Financing Source	Net to be Bonded	RTM Auth Date	Total Bonded Thru FY24	Remaining Authorization	Cash Flow Timing (Bond or BAN) FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
ENG	Commerce Drive Bridge Construction		22757036	$ 2,759,433	$ (2,759,433)	$ -	2/27/2017	$ -	$ -														LOTCIP grant; Design 95% complete. ROW acquisitions complete.(186K should be 100% reimbursable when construction begins 2024). Next step: Finalize plans/permits (awaiting final USACE permit); go out to bid.
ENG	Commerce Drive Sidewalk design and row		22757048	$ 200,000	$ (200,000)	$ -	4/25/2022	$ -	$ -														LOTCIP grant; ROW acquisitions complete.(186K should be 100% reimbursable when construction begins 2024).
ENG	Valley Road Bridge		24257016	$ 3,200,000	$ (2,578,400)	$ 621,600	9/25/2017	$ 621,600	$ -	$ 429,600		$ 192,000											state grant
ENG	Tide gate system (Railroad bridge)		FY223	$ 2,250,000		$ 2,250,000	5/23/2022	$ 2,250,000	$ -	$ 2,250,000													Have permits/approvals from CT DEEP & SHPO. Received USACE permit on 10/25/23. Design 95% complete, RACE to finalize plans and generate RFP bid docs-est Winter 2024.
ENG/CONS	Turney Creek/Riverside Dr Tide Gates		26357160	$ 6,750,000		$ 6,750,000	5/22/2023	$ 2,000,000	$ 4,750,000		$ 1,000,000	$ 2,000,000	**$ 1,000,000**	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 750,000						Final design complete OCT 2023. Bid Nov 2023.see also Siphon WPCA. Bids came in within budget Jan 2024. based on what was spent to-date and what was banned ($1M banned in FY24 which turns into a bond in FY25), we have allocated $1M per year and $750K in FY29
FD	FIRE STATION REHABILIATION 20YR	CNRFYE21	021TA	$ 250,000		$ 250,000	2/24/2020	$ 250,000	$ -	$ 100,000		$ 150,000											completed
FD	FIRE PUMPER LSN 11-20 YEAR	CNRFYE22	022TA	$ 725,000		$ 725,000	3/22/2021	$ 700,000	$ 25,000	$ 700,000													$1,865 remaining in account. Will be spent shortly.
FD	FIRE STATION REHABILITATION-20 YEAR	CNRFYE22	022TB	$ -		$ -	3/22/2021	$ -	$ -														N/A
FD	SCBA-FIRE APPARATUS-10 YEAR	CNRFYE23	023T2	$ 358,445		$ 358,445	3/1/2022	$ 350,000	$ 8,445			$ 350,000											$171 remaining in account. Will be spent shortly.
FD	PUMPER-LSN 14-20 YEAR	CNRFYE24	024T6	$ 980,000		$ 980,000	2/27/2023	$ -	$ 980,000		$ 950,000	$ -	**$ 950,000**										$955,601 encumbered by P.O. for truck. Delivery expected May 2025 $950K was banned in FY24, this will roll into a bond in FY25, $955,601 spent
IT	IT-LAND USE & PERMTNG INSP SYS 10YR	CNRFYE21	021T9	$ 100,000		$ 100,000	2/24/2020	$ 100,000	$ -	$ 100,000													
PD	POLICE DEPT-HVAC- 20 YEAR	CNRFYE22	022T3	$ 500,000		$ 500,000	3/22/2021	$ 500,000	$ -	$ 300,000		$ 200,000											95% complete. DX Compressors, Coils, Return Fan, Cooling Tower, Drives roof enclosure and chiller installed. Waiting on Commissioning and Training
PD	Radio System (Infrastructure and Public Safety Users)		FY222	$ 7,000,000	$ (3,500,000)	$ 3,500,000	5/23/2022	$ 3,500,000	$ -	$ 3,500,000													emergency radio grant; Tower work has begun on all towers including PD HQ, Woodhouse Road, Roncali Hall, and Troop G. NTP for Woodhouse Road received and work has begun. Roncali hall work has begun and nearly complete. PD HQ tower work is expected to begin during the week of 11/20. As of 9/15/23 approved 48% payment for delivered materials and equipment (Milestone 1).
P&R	TOMLINSON ARTIFICIAL TURF 10YR	CNRFYE18	018T6	$ 500,000		$ 500,000	2/27/2017	$ 416,486	$ 83,514	$ 416,486													COMPLETE
P&R	GOLF COURSE RENO-HSR-20YR	CNRFYE20	020T5	$ 100,000	$ -	$ 100,000	2/25/2019	$ 97,390	$ 2,610	$ 97,390													COMPLETE
P&R	HSR GOLF COURSE RENOVATION 10YR	CNRFYE21	021TB	$ 100,000		$ 100,000	2/24/2020	$ 100,000	$ -	$ 100,000													COMPLETE
P&R	POST-TENSION TENNIS COURT-TMLS 20YR	CNRFYE21	021TC	$ 400,000		$ 400,000	2/24/2020	$ 398,750	$ 1,250	$ 223,750		$ 175,000											COMPLETE
P&R	LAKE MOHEGAN SPLASH PAD REPLACE-20	CNRFYE22	022TD	$ 150,000		$ 150,000	3/22/2021	$ 150,000	$ -			$ 150,000											COMPLETE
P&R	PINE CREEK PARK PLAYGROUND-20 YEAR	CNRFYE22	022TC	$ 103,000		$ 103,000	3/22/2021	$ -	$ 103,000														COMPLETE - we will not be bonding remaining authorization since remaining amount spent is under $100K
P&R	LAKE MOHEGAN-RESTORATION STORM-20YR	CNRFYE23	023T6	$ 500,000	$ (375,000)	$ 125,000	3/1/2022	$ 125,000	$ -			$ 125,000											Should be spent in FY25 - RACE is currently working on the bid package to finish the project. FEMA grant is still pending approval
P&R	TENNIS CENTER LIGHT REPLACE-20YEAR	CNRFYE23	023T7	$ 100,000		$ 100,000	3/1/2022	$ 100,000	$ -			$ 100,000											PROJECT REJECTED for additional
P&R	POST-TENSION TENNIS-DWIGHT-20 YEAR	CNRFYE23	023T8	$ 550,000		$ 550,000	3/1/2022	$ 550,000	$ -			$ 550,000											COMPLETE
P&R	JACKY DURRELL PAV UPGRADES-20 YEAR	CNRFYE23	023T9	$ 103,000		$ 103,000	3/1/2022	$ 100,000	$ 3,000			$ 100,000											FY24
P&R	HSR DRIVING RANGE UPGRADES-20 YEAR Phase 1	CNRFYE24	024T7	$ 275,000		$ 275,000	2/27/2023	$ -	$ 275,000			$ -	**$ 275,000**										FY24 -
P&R	POST-TENSION TENNIS CRT- FFLD WOODS	CNRFYE24	024T8	$ 522,000		$ 522,000	2/27/2023	$ -	$ 522,000		$ 520,000	$ -	**$ 520,000**										COMPLETE - **$520K was banned in FY24, this will roll into a bond in FY25**
P&R	TUNXIS HILL PICKLEBALL COURTS-20 YR	CNRFYE24	024T9	$ 575,000		$ 575,000	2/27/2023	$ -	$ 575,000		$ 200,000	$ -	**$ 200,000**										FY24/FY25 - **$200K was banned in 24 which will roll into the bond in FY25**

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	Project	CNR YR	Project ID	Total Project Cost	Other Financing Source	Net to be Bonded	RTM Auth Date	Total Bonded Thru FY24	Remaining Authorization	Cash Flow Timing (Bond or BAN) FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
P&R	Roger Ludlowe Middle School Turf		FY225	$ 4,125,000		$ 4,125,000	5/23/2022	$ 4,125,000	$ -	$ 4,125,000													FY24/FY25
	Total Authorized & Unissued			**$ 54,473,704**	**$ (16,485,466)**	**$ 37,988,238**		**$ 24,111,297**	**$ 13,876,941**	**$ 17,594,297**	**$ 2,670,000**	**$ 6,517,000**	**$ 5,910,159**	**$ 3,909,387**	**$ 1,158,460**	**$ 1,200,000**	**$ 750,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	
										bond total		**$ 37,039,303**	**Diff**	$ 948,935	**Authorized which will not be bonded**								
Non-recurring Capital < $1mm to be Bonded																							
DPW	Transfer station canopy			$ 120,000	$ (120,000)	$ -																	The application for the "energy efficiency and conservation block grant" is still pending approval.
DPW	Barnacle Work Boat - Marina			$ 350,000		$ 350,000							**$ 350,000**										see 14 point document - included in FY25CNR
ENG	Hulls Farm Road Bridge Construction			$ 779,762		$ 779,762								$ 779,762									Engineering estimate based on past projects
ENG	Southport Median Grant Design			$ 315,000		$ 315,000								$ 315,000									Engineering estimate based on past projects
ENG	Sturges Bridge Design			$ 346,500	$ (173,250)	$ 173,250								$ 173,250									Engineering estimate based on past projects
ENG	Oldfield Road Bridge Design			$ 570,000		$ 570,000							**$ 570,000**										Consultant estimate for design - included in FY25CNR
ENG	Wakeman Lane/Old Rd. Bridge Construct.			$ 432,600		$ 432,600							**$ 432,600**										State DOT semi final estimate - included in FY25CNR
ENG	KHW Greens Farm Road Bridge			$ 432,600		$ 432,600							**$ 432,600**										State DOT semi final estimate - included in FY25CNR
ENG	Meadow Brook Road Sound Barrier			$ 350,000		$ 350,000							**$ 350,000**										Engineering estimate based on some state data - included in FY25CNR
ENG	Update to 2015 Master Plan for Flood Protection, Climate Resilience and Erosion Control			$ 250,000		$ 250,000								$ 250,000									Rough estimate- placeholder - increased by $100,000 since ARPA funds reallocated; to be discussed and revisited
ENG	Storm System Improvements for various Neighborhoods			$ 500,000		$ 500,000								$ 500,000									Engineering estimate based on using DPW which would be cheaper than using outside consultants;to be discussed with Bill Hurley and revisited
ENG	McKinley School-Knapps Highway Neighborhood Connectivity			$ 850,000	$ (700,000)	$ 150,000							**$ 150,000**										2023 Community Connectivity grant; Engineering Estimate and Connectivity award pararameters - included in FY25CNR
ENG	Morehouse Highway Bridge culverts design			$ 350,000	$ (175,000)	$ 175,000								$ 175,000									Engineering Estimate based on past .
ENG	SOUTHPORT SIDEWALK CONNECTIVITY-20Y			$ 250,000		$ 250,000								$ 250,000									Removed from ARPA. Added to Capital Plan in FY26. Bill advised the bid package would be presented to purchasing in the spring.
ENG	Downtown Resiliency - Phase 2 Design			$ 512,000		$ 512,000								$ 512,000									Design for D2 and D3 - 'design for phases previously lumped in with construction costs
ENG	Downtown Resiliency - Phase 3 Design			$ 537,000		$ 537,000									$ 537,000								Design for D4 and B - design for phases previously lumped in with construction costs
ENG	Downtown Resiliency - Phase 4 Design			$ 786,000		$ 786,000										$ 786,000							Design for Alternate A - design for phases previously lumped in with construction costs
FD	Fire Station Rehabilitation Years 4 and 5			$ 862,500		$ 862,500								$ 600,000	$ 262,500								Based upon previous Bids by Purchasing Dept. We have been advised that the current amounts have not changed. However, the project is still in design stage with the architects. The costs could change based on the architects calculations on contruction documents. - $600Kmoved from FY25 to FY26 - to be reviewed by David Becker

										Town of Fairfield Capital Plan													
										Cash Flow Timing (Bond or BAN)													
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FD	Shop Truck Replacement			$ 130,000		$ 130,000							**$ 130,000**										Estimate - see 14 point document - included in FY25CNR - The Fairfield Fire Department is requesting replacement of Maintenance 1, a 2012 Chevy 3500 Apparatus Service Truck. Maintenance 1 currently has over 90, 000 miles on it and by the time its replacement is delivered and outfitted, it will have been in service for 12 years and will have over 100,000 miles on it. This request is accordance with the Fairfield Fire Department Apparatus Replacement Program and has been listed in the Town Capital
FD	Marine 217			$ 250,000		$ 250,000								$ 250,000									Estimate- Replacement of 2007 shallow-draft rescue boat that responds from Ye Yacht Yard in Southport
FD	Car3			$ 175,000		$ 175,000											$ 175,000						State Contract for vehicle plus estimates on equipment - Replacement as per Apparatus Replacement Plan of Shift Commander's Response SUV
PD	Police Department Rehabilitation - Years 2 and 3			$ 800,000		$ 800,000								$ 800,000									As discussed during 2/20 finance meeting Project was moved and combined in FY26. This is a placeholder until PD gets a more accurate cost estimate. This may be moved to Capital over $1M depending on the contractor estimate
P&R	HSR Driving Range - Phase 2			$ 275,000		$ 275,000							**$ 275,000**										see 14 point document - included in FY25CNR
P&R	Dog Park (Location TBD)			$ 200,000		$ 200,000								$ 200,000									Internal Estimate
P&R	Lake Mohegan Concession/Water Park			$ 250,000		$ 250,000								$ 250,000									Vendor Estimate
P&R	Lake Mohegan Playground Replacement			$ 150,000		$ 150,000								$ 150,000									Vendor Estimate
P&R	Beach Parking Kiosks			$ 250,000		$ 250,000								$ 250,000									Vendor Estimate
P&R	Grasmere Playground Replacement			$ 150,000		$ 150,000								$ 150,000									Internal Estimate
P&R	Rugby Park Playground Replacement			$ 150,000		$ 150,000								$ 150,000									Internal Estimate
P&R	Knapps Park Playground Replacement			$ 150,000		$ 150,000									$ 150,000								Internal Estimate
P&R	Hook and Ladder Playground Replacement			$ 150,000		$ 150,000									$ 150,000								Internal Estimate
P&R	Veterans Park Playground Replacement			$ 150,000		$ 150,000										$ 150,000							Internal Estimate
P&R	Veres Park Playground Replacement			$ 150,000		$ 150,000										$ 150,000							Internal Estimate
P&R	Owen Fish Playground Replacement			$ 300,000		$ 300,000										$ 300,000							Internal Estimate
P&R	Oldfield Playground Replacement			$ 150,000		$ 150,000											$ 150,000						Internal Estimate
P&R	Ash Creek Playground Replacement			$ 150,000		$ 150,000											$ 150,000						Internal Estimate
	Total < $1mm			$ 12,573,962	$ (1,168,250)	$ 11,405,712		$ -	$ -	$ -	$ -	$ -	$ 2,690,200	$ 5,755,012	$ 1,099,500	$ 1,386,000	$ 475,000	$ -	$ -	$ -	$ -	$ -	
Capital > $1mm to be Bonded																							
DPW	BETA Roadway Capital Improvement and ADA Compliance Plan			$ 14,555,797	$ (8,000,000)	$ 6,555,797							**$ 1,776,953**	**$ 1,649,138**	**$ 1,495,670**	$ 1,634,035	$ -						Amounts based on the paving study/plan performed by BETA and presented to the BOF by John Cotell less $2M in operating budget. This assumes that the operating budget remains at $2M per year. If the operating budget is reduced in fture years, the bonded amount will increase. There was still a need for $2M in order to finish the Spring paving in FY24. $2,768,779 ARPA funds reallocation was approved by all 3 boards.
ENG	BETA Sidewalk Capital Improvement Plan			$ 7,000,000	$ (400,000)	$ 6,600,000							**$ 1,920,000**	**$ 1,920,000**	**$ 920,000**	$ 920,000	$ 920,000						Based on BETA program, cost for FY24 totaling $2,060,730 has not been funded. The BETA report Amounts are rounded down to $2M and $1M and further reduced by the current $80,000 operating budget. Should the operating budget increase or decrease, the total bonded amount will need to be changed to reflect that change. Since FY24 was not funded, we have added on $1M in FY29 less the $80,000.

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ENG	Townwide Road Safety Improvements And NEW SIDEWALKS, COMPLETE STREETS			$ 4,650,000	$ -	$ 4,650,000								$ 2,500,000	$ 1,050,000	$ 1,100,000	$ -						Rough Engineering Estimate based on paving list and public requests. Added 5% to FY26 and 10% to FY27- since a study is not complete and ready to go, we are shifting this over one year.
DPW/CON	Tidegate and Flood Control Structural Repair and Replacements Plan- 5 Year Plan			$ 2,214,000		$ 2,214,000							**$ 893,000**	**$ 813,000**	**$ 217,000**	$ 191,000	$ 100,000						see 14 point document - we are asking for approval and 3 year authorization totaling $1,923,000 of this 5 year plan; the total project cost increased from $1.950K to $2.214K due to added environemental and 20% contincinecy based on current propsals from Cisco and Weston and Sampson and 20% contingency
DPW	Capital Equipment - Phase 3			$ 1,503,000		$ 1,503,000									$ 1,503,000								this is the sum of FY27-29 on 10 year replacement plan attached
DPW	Capital Equipment - Phase 4			$ 1,609,000		$ 1,609,000												$ 1,609,000					this is the sum of FY30-32 on 10 year replacement plan attached
DPW	Capital Equipment - Phase 5			$ 403,000		$ 403,000															$ 403,000		This only includes FY33 so far - will be updated to include FY34 and FY35 too
DPW	Town-wide Facility Upgrades (Priority IIA)			$ 1,400,000	$ -	$ 1,400,000							$ -	$ 1,400,000	$ -	$ -	$ -						this is a part of Priority II broken out into different phases. The same needs to be done with the amounts below. This will be changed once we receive the updated project estimates. See note below
DPW	Town-wide Facility Upgrades (Based on Audit Recommendations)			$ 13,688,981	$ -	$ 13,688,981							$ -	$ -	$ 2,913,617	$ -	$ 3,001,025	$ 3,001,023	$ 2,351,387	$ 2,421,929			we are in the process of getting an updated bid from Silver Petrucelli which should be submitted by next week, which will include a 10 year plan with an inflation escalator. The last bid was performed in 2021. Phase 1 was approved in 2022, and is included in the authorized and unissued debt section.
ENG	Rooster River			$ 11,324,000	$ (6,095,463)	$ 5,228,537								$2,956,000	$ 2,272,537	$ -	$ -						Awaiting permit conditions and Consultant cost estimate; **$2,844,921 may be removed from ARPA funding and added to FY25** depending on what the 3 boards decide regarding the reallocation of these funds. So far we have left the funding in ARPA but if the army core of engineers do not approve within the next few months, the ARPA funds will be reallocated to Paving and the amount in FY25 on the capital plan will remain.
ENG	Kings Highway Pedestrian Improvements Phase III Construction			$ 1,940,600	$ (1,940,600)	$ -							$ -	$ -	$ -	$ -	$ -						Commitment to Fund award. Cost estimate upon final design late 2024/2025
ENG	Brookside Drive Bridge Construction			$ 2,865,600	$ (2,865,600)	$ -							$ -	$ -	$ -	$ -	$ -						Commitment to Fund award. Cost estimate upon final design late 2024/2025
ENG	Congress St. Bridge Construction			$ 2,535,600	$ (2,535,600)	$ -							$ -	$ -	$ -	$ -	$ -						Commitment to Fund award. Cost estimate upon final design late 2024/2025
ENG	Stratfield Road Pedestrian Improvement (RSA) - Construction			$ 2,000,000	$ (2,000,000)	$ -							$ -	$ -	$ -	$ -	$ -						Engineering Estimate and Urban Act grant amount
ENG	Post Road & Jug Handle Pedestrian Improvement - Construction			$ 1,750,000	$ (1,750,000)	$ -							$ -	$ -	$ -	$ -	$ -						Engineering Estimate and Urban Act grant amount
ENG	Traffic Signal Improvements -for New Signal and repairs, upgrades and ADA Compliance - Years 2-5			$ 5,145,000	$ -	$ 5,145,000							**$ 400,000**	**$ 1,600,000**	**$ 1,770,000**	$ 675,000	$ 700,000						Based on Consultant 5 year Traffic Signal Plan- removed year 1 totaling $1,200,000 as this was ARPA funded ($1M), but added $400,000 for additional
ENG	Oldfield Road Bridge Construction			$ 5,813,750	$ (1,575,000)	$ 4,238,750							$ -	$ 1,653,750	$ 2,585,000	$ -	$ -						Engineering/Consultant Estimate based on previous projects; added 5% and 10% to FY26 and FY27, respectively
ENG	Black Rock Turnpike			$ 2,100,000	$ (2,100,000)	$ -							$ -	$ -	$ -	$ -	$ -						Potential grant - design will determine cost estimate
ENG	Southport Median Grant Construction			$ 2,100,000	$ (2,100,000)	$ -							$ -	$ -	$ -	$ -	$ -						Potential grant - design will determine cost estimate
ENG	Sturges Bridge Construction			$ 2,838,938	$ (1,351,875)	$ 1,487,063							$ -	$ -	$ 1,487,063	$ -	$ -						Engineering Estimate based on previous projects; added 10% inflation factor
ENG	Increase Resiliency - Jennings Beach			$ 2,520,000	$ -	$ 2,520,000							$ -	$ -	$ -	$ -	$ 2,520,000						Engineering estimate based on similar studies, added 20% inflation factor

Town of Fairfield Capital Plan

	Project	CNR YR	Project ID	Total Project Cost	Other Financing Source	Net to be Bonded	RTM Auth Date	Total Bonded Thru FY24	Remaining Authorization	Cash Flow Timing (Bond or BAN) FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
ENG	Downtown Resiliency			$ 16,666,000	$ -	$ 16,666,000								$ 2,864,000	$ 4,188,000	$ 3,614,000	$ -			$ 6,000,000			NEW project - 'Design costs for Phases 1 will be paid out of ARPA funds. FY26 for testing, design, start construction for Phase 1 -added 5% to FY27 and 10% to FY28; added alternate A in FY32 as a place holder if we decide to persue. There may be a potential grant in the future. Added the $776K to FY26 that was removed from ARPA funding. Note that these are conceptual contruction estimates and are 50% accurate at best since design is just starting for Phase 1 and permit conditions are unknown at this time. I have removed design costs here, and added design costs separately for Phase 2, 3 and 4 under CNR FY26,27 28.
ENG	Morehouse Highway Bridge Contruction			$ 3,740,000	$ -	$ 3,740,000									$ 3,740,000								Engineering Estimate based on similar past projects. Added 10% for inflation
ENG	Brooklawn Parkway Retaining Wall Replacement			$ 2,100,000		$ 2,100,000												$ 2,100,000					Placeholder, rough estimate - added 25% to for inflation
ENG	S. Benson Stormwater Pump Station - Design			$ 3,750,000		$ 3,750,000												$ 3,750,000					Consultant estimate placeholder - added 25% to FY30 for inflation
ENG	S. Benson Stormwater Pump Station - Construction			$ 27,825,000		$ 27,825,000													$13,650,000	$14,175,000			Consultant estimate placeholder - Added 30% in FY31 and 35% in FY32 for inflation
ENG	S. Benson SW Pump Drainage Lines/Paving/Environmental			$ 20,947,500		$ 20,947,500															$10,290,000	$10,657,500	Consultant estimate placeholder - Added 40% in FY33 and 45% in FY34 for inflation
FD	Apparatus Maintenance			$ 1,400,000	$ -	$ 1,400,000							$ -	$ 1,400,000	$ -	$ -	$ -						Best estimate - Construction of facility or add-on to existing facitlity to provide adequate space for Fire Apparatus Maintenance. Currently it co-exists on apparatus floor at Fire Station 2 and is not optimal.
FD	Pumper - LSN 15			$ 1,100,000	$ -	$ 1,100,000							$ -	$ 1,100,000	$ -	$ -	$ -						Based upon prev. purchase with inflation escalator - Replacement as per Apparatus Replacement Plan of 2013 Pumper which will then act as spare/reserve vehicle.
FD	Pumper - LSN 16			$ 1,300,000	$ -	$ 1,300,000											$ 1,300,000						'Based upon prev. purchase with inflation escalator - Replacement as per Apparatus Replacement Plan of 2017 Pumper which will then act as spare/reserve vehicle.
FD	Rescue 1 - LSN78			$ 1,000,000	$ -	$ 1,000,000							$ -	$ -	$ -	$ 1,000,000	$ -						'Based upon prev. purchase with inflation escalator - Replacement as per Apparatus Replacement Plan of 2016 Heavy Rescue vehicle which will then act as spare/reserve vehicle.
FD	LSN 17			$ 1,400,000		$ 1,400,000												$ 1,400,000					'Based upon prev. purchase with inflation escalator - Replacement as per Apparatus Replacement Plan of 2017 Pumper which will then act as spare/reserve vehicle.
FD	LSN 53			$ 2,200,000		$ 2,200,000														$ 2,200,000			'Based upon prev. purchase with inflation escalator - Replacement as per Apparatus Replacement Plan of 2020 Tower Ladder which will then act as spare/reserve vehicle.
FD	LSN 18			$ 1,600,000		$ 1,600,000																$ 1,600,000	'Based upon prev. purchase with inflation escalator - Replacement as per Apparatus Replacement Plan of 2022 Pumper which will then act as spare/reserve vehicle.
P&R	Jennings Master Plan Upgrade			$ 3,900,000	$ -	$ 3,900,000							$ -	$ -	$ 3,900,000	$ -	$ -						Initial Vendor Estimate
P&R	Dougiello Master Plan Upgrade			$ 3,200,000	$ -	$ 3,200,000							$ -	$ -	$ -	$ 3,200,000	$ -						Initial Vendor Estimate
P&R	South Benson Marina Dock Replacement - phase 3			$ 2,600,000		$ 2,600,000									$ 650,000	$ 650,000	$ 650,000	$ 650,000					Internal Estimate
Town	Remediation Fill Pile Berm ($8.76M)			$ 8,760,000		$ 8,760,000	??							$ 4,380,000	$ 4,380,000								Penfield - changed from $8.7M to $8.76M to reflect the amount presented at the 1/9/24 BOF meeting.

Town of Fairfield Capital Plan

										Cash Flow Timing (Bond or BAN)													
	Project	CNR YR	Project ID	Total Project Cost	Other Financing Source	Net to be Bonded	RTM Auth Date	Total Bonded Thru FY24	Remaining Authorization	FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
T hall	Renovation/Addition Construction			$ 7,000,000		$ 7,000,000												$ 3,500,000	$ 3,500,000				place holder for an idea for a future project - Independence Hall addition of about 10,000 sq ft so to move OLD Town Hall departments into one building
O T Hall	Design/Upgrade/Renovation/Repair			$ 4,000,000		$ 4,000,000														$ 2,000,000	$ 2,000,000		place holder for an idea for a future project - to renovate OTH into meeting rooms
Town	Turner Property Renovation			$ 10,000,000		$ 10,000,000															$ 5,000,000	$ 5,000,000	place holder for an idea for a future project - renovate Armory near Gould Manor for Parks and Recreation use
	Total > $1mm			$ 214,445,766	$ (32,714,138)	$ 181,731,628		$ -	$ -	$ -	$ -	$ -	$ 4,989,953	$24,235,888	$ 33,071,886	$12,984,035	$ 9,191,025	$16,010,023	$19,501,387	$26,796,929	$17,693,000	$17,257,500	
	Total CNR and Capital > $1M			$ 227,019,727	$ (33,882,388)	$ 193,137,339		$ -	$ -	$ -	$ -	$ -	$ 7,680,153	$29,990,900	$ 34,171,386	$14,370,035	$ 9,666,025	$16,010,023	$19,501,387	$26,796,929	$17,693,000	$17,257,500	
	Total Town - including previously authorized			**$ 281,493,431**	**$ (50,367,854)**	**$ 231,125,577**		**$ 24,111,297**	**$ 13,876,941**	**$ 17,594,297**	**$ 2,670,000**	**$ 6,517,000**	**$13,590,312**	**$33,900,287**	**$ 35,329,846**	**$15,570,035**	**$10,416,025**	**$16,010,023**	**$19,501,387**	**$26,796,929**	**$17,693,000**	**$17,257,500**	
BOE																							
Previously Authorized & Unissued:																							
FWHS	FWHS LMC HVAC ROOFTOP 20YR	CNRFYE18	018B1	$ 250,000		$ 250,000	2/27/2017	$ 195,853	$ 54,147	$ 195,853													Completed
TMS	TOMLINSON MID ROOF REPLACE 20YR	CNRFYE18	018B2	$ 875,000		$ 875,000	2/27/2017	$ 678,680	$ 196,320	$ 678,680													Completed
	SYSTEMWIDE SECURITY INFRASTRUC 5YR	CNRFYE18	018B3	$ 335,000		$ 335,000	2/27/2017	$ 282,084	$ 52,916	$ 282,084													Completed
	WHS ARTIFICIAL TURF REPLACE 10YR	CNRFYE18	018B4	$ 750,000		$ 750,000	2/27/2017	$ 743,390	$ 6,610	$ 743,390													BOE PROJECT COMPLETE
	FWHS BLAKE TENNIS COURT REPLACE 10Y	CNRFYE18	018B5	$ 325,000		$ 325,000	2/27/2017	$ 325,000	$ -	$ 325,000													BOE PROJECT COMPLETE
	IT SWITCH REPLACE-PHASE 2-10YR	CNRFYE20	020B1	$ 581,755	$ -	$ 581,755	2/25/2019	$ 581,726	$ 29	$ 581,726													Completed
	IT SERVER NETWORK HVAC CONTROL-15YR	CNRFYE20	020B2	$ 275,000	$ -	$ 275,000	2/25/2019	$ 251,061	$ 23,939	$ 251,061													Completed
	SECURITY & SAFETY INFR-PHASE 5-20YR	CNRFYE20	020B3	$ 350,000	$ -	$ 350,000	2/25/2019	$ 304,921	$ 45,079	$ 304,921													Completed
Dwight	DWIGHTHVAC BMS CONTROL UPGRADE-15YR	CNRFYE20	020B4	$ 200,000	$ -	$ 200,000	2/25/2019	$ 193,540	$ 6,460	$ 193,540													Completed
	FLHS TENNIS COURTS REPLACE-20YR	CNRFYE20	020B5	$ 550,000	$ -	$ 550,000	2/25/2019	$ 545,061	$ 4,939	$ 545,061													BOE PROJECT COMPLETE
FWHS	FWHS FITTS HVAC RTU REPLACE-20YR	CNRFYE20	020B6	$ 300,000	$ -	$ 300,000	2/25/2019	$ 261,360	$ 38,640	$ 261,360													Completed
TMS	TOMLINSON MS FLOORING REPLACE-15YR	CNRFYE20	020B7	$ 440,000	$ -	$ 440,000	2/25/2019	$ 440,000	$ -	$ 440,000													
FWMS	FWMS ELEVATOR REPLCMT PROJECT 20 YR	CNRFYE21	021B1	$ 175,000		$ 175,000	2/24/2020	$ 175,000	$ -	$ 175,000													
RLMS	RLMS COOLING TOWER REPLC PROJ 10YR	CNRFYE21	021B2	$ 400,000		$ 400,000	2/24/2020	$ 400,000	$ -	$ 400,000													
FLHS	FLHS EMERGENCY GENERATOR REPL 20YR	CNRFYE21	021B3	$ 200,000		$ 200,000	2/24/2020	$ 200,000	$ -	$ 200,000													
	RETRO REBALANCE SCHOOL MECH-20 YEAR	CNRFYE22	022B1	$ 625,000	$ (25,000)	$ 600,000	3/22/2021	$ 600,000	$ -			$ 600,000											
Burr	BOILER BURNER REPLACE-BURR-20YEAR	CNRFYE23	023B1	$ 996,370		$ 996,370	3/1/2022	$ 953,000	$ 43,370			$ 953,000											In progress
FLHS	ELEVATOR MODERNIZATION-FLHS-20YEAR	CNRFYE23	023B2	$ 265,329		$ 265,329	3/1/2022	$ 265,000	$ 329			$ 265,000											In progress
Nstratfield	N STRATFIELD VESTIBULE- 20 YEAR	CNRFYE24	024B1	$ 652,500		$ 652,500	2/27/2023	$ 500,000	$ 152,500			$ 500,000											In progress -
Osborn	OSBORN HILL VESTIBULE-20 YEAR	CNRFYE24	024B2	$ 597,500		$ 597,500	2/27/2023	$ 450,000	$ 147,500			$ 450,000											In progress
FWMS	FFLD WOODS MIDDLE VESTIBULE-20 YR	CNRFYE24	024B3	$ 769,500		$ 769,500	2/27/2023	$ 580,000	$ 189,500			$ 580,000											In progress
FWHS	FF WARDE HS BOILER REPLACE-20 YEAR	CNRFYE24	024B4	$ 343,862		$ 343,862	2/27/2023	$ 340,000	$ 3,862			$ 340,000											In progress
FWHS	F WARDE HS-KNAPPS TENNIS & BASKET-2	CNRFYE24	024B5	$ 418,362		$ 418,362	2/27/2023	$ 400,000	$ 18,362			$ 400,000											In progress
HH	Holland Hill Expansion		25057016	$ 18,540,500	$ (3,415,943)	$ 15,124,557	8/29/2016/ 06/27/2017	$ 14,851,883	$ 272,674	$ 14,851,883													Completed waiting on state Audit
Sherman	Sherman School Expansion		25353300	$ 3,200,000	$ -	$ 3,200,000	4/23/2018	$ 2,441,083	$ 758,917	$ 2,441,083													Completed waiting on state Audit
Osborn	Osborne Hill Roof Replacement		OROOF	$ 1,409,046	$ (243,520)	$ 1,165,526	2/24/2020	$ 759,100	$ 406,426	$ 759,100													Completed waiting on state Audit
FWHS	Fairfield Warde Air Conditioner		WHSAC	$ 1,500,000		$ 1,500,000	2/24/2020	$ 1,100,000	$ 400,000	$ 1,100,000													In progress -Sal advised the amount he has encumbered is enough for what he needs to complete the project
RLMSSherMc	Roof Projects-RLMS & Sherman/McKinley		ROOFS	$ 2,991,607	$ (557,212)	$ 2,434,395	10/25/2021	$ 2,391,607	$ 42,788	$ 2,391,607													other sources relates to a state grant; In progress
Districtwide	Air Conditioning at Schools-Phase 1		FY226	$ 39,104,000	$ (8,562,408)	$ 30,541,592	5/23/2022/ 12/18/2023 /	$ 11,153,717	$ 19,387,875	$ 1,153,717		$ 10,000,000	**$10,150,487**	$ 9,237,388									FY25 and FY26 - will the BOE spend the $10M in one summer? If not, then should we not break this out? Sal Morabito advised we should leave this as is.
Riverfield	Roof Replacement- Sherman and Riverfield - River only		RIVER	$ 1,565,110	$ (406,929)	$ 1,158,181	10/24/2022	$ -	$ 1,158,181	$ -			**$ 1,158,181**										Completed; waiting on state Audit - this project qualifies for reimbursement through OSCG&R program, around 26% per Sal Morabito, the amount to be bonded will be equal to the amount spent less grants.
Sherman	Roof Replacement- Sherman and Riverfield Sherman only		SHERM	$ 1,916,647	$ (498,328)	$ 1,418,319	10/24/2022	$ -	$ 1,418,319	$ -			**$ 1,418,319**										Completed ; waiting on state Audit - this project qualifies for reimbursement through OSCG&R, around 26% per Sal Morabito.the amount to be bonded will be equal to the amount spent less grants.
	Roof Replacement		25857005	$ 1,542,150		$ 1,542,150	3/22/2021	$ 1,542,150	$ -	$ 1,542,150													In progress
Ludlow	Ludlow HS School Bathroom Renovation		25857007	$ 3,172,000		$ 3,172,000	03/22/2021 / 11/29/2023	$ 2,111,000	$ 1,061,000	$ 2,111,000			**$ 1,061,000**										**FY25**

Town of Fairfield Capital Plan

	Project	CNR YR	Project ID	Total Project Cost	Other Financing Source	Net to be Bonded	RTM Auth Date	Total Bonded Thru FY24	Remaining Authorization	Cash Flow Timing (Bond or BAN) FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
Dist.	AC Project Preconstruction Phases II-V		FPSAC	$ 973,090	$ -	$ 973,090	11/29/2023	$ -	$ 973,090				**973,090**	-	-	-	-	-	-	-	-	-	this was moved up to authorized section from BOE over $1M section since it has been approved and an account was created.
Holland Hill	Partial Roof Replacement		HOLLH	$ 1,863,680	$ (458,091)	$ 1,405,589	10/23/2023	$ -	$ 1,405,589				**1,405,589**	-	-	-	-	-	-	-	-	-	this was moved up to authorized section from BOE over $1M section since it has been approved and an account was created.
North Stratfield	Roof Replacement Project		NSTRT	$ 4,422,800	$ (1,087,120)	$ 3,335,680	10/23/2023	$ -	$ 3,335,680				**3,335,680**	-	-	-	-	-	-	-	-	-	this was moved up to authorized section from BOE over $1M section since it has been approved and an account was created.
Roger Sherman	Boiler/Burner Replacement		SHBLR	$ 1,048,706	$ -	$ 1,048,706	11/29/2023?	$ -	$ 1,048,706				**1,048,706**	-	-	-	-	-	-	-	-	-	this was moved up to authorized section from BOE over $1M section since it has been approved and an account was created.
	Total Authorized & Unissued			**$ 93,924,514**	**$ (15,254,551)**	**$ 78,669,963**		**$ 46,016,217**	**$ 32,653,746**	**$ 31,928,217**	**$ -**	**$ 14,088,000**	**$20,551,052**	**$ 9,237,388**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	
										bond total		**$ 75,804,657**	**Diff**	$ 2,865,306	**Authorized which will not be bonded**								
Non-recurring Capital < $1mm																							
Districtwide	Aboveground Storage Tank (AST) Replacements (Design)			$ 329,956	$ -	$ 329,956							$ -	$ -	$ -	-	20,000	309,956	-	-	-	-	
Burr	Entrance Vestibule Project			$ 672,998	$ (165,422)	$ 507,576							$ -	$ -	$ -	-	-	39,325	468,251	-	-	-	
Burr	Elevator			$ 687,115	$ -	$ 687,115							$ -	$ -	$ -	-	-	-	-	687,115	-	-	
McKinley	Entrance Vestibule Project			$ 543,228	$ (133,525)	$ 409,703							$ -	$ -	$ 35,425	374,278	-	-	-	-	-	-	
North Stratfield	Entrance Vestibule Project													$ -	$ -	-	-	-	-	-	-	-	we have been advised that the additional funds requested for the 3 vestibile projects that were in the BOE "2024/2025 Capital and Non-recurring Projects" book and on the BOE Cash flow as of October 2023, will no longer be needed. So we have zeroed out the amounts for the 3 NRC projects that total $453,550.
Osborn Hill	Entrance Vestibule Project													$ -	$ -	-	-	-	-	-	-	-	we have been advised that the additional funds requested for the 3 vestibile projects that were in the BOE "2024/2025 Capital and Non-recurring Projects" book and on the BOE Cash flow as of October 2023, will no longer be needed. So we have zeroed out the amounts for the 3 NRC projects that total $453,550.
Roger Sherman	Entrance Vestibule Project			$ 543,228	$ (133,525)	$ 409,703							$ -	$ -	$ 35,425	374,278	-	-	-	-	-	-	
Stratfield	Front façade and Cornice Wall Painting			$ 648,050	$ -	$ 648,050							$ -	$ -	$ -	-	-	-	-	35,178	612,872	-	
Stratfield	HVAC BMS Controls Upgrade			$ 383,365	$ -	$ 383,365							$ -	$ -	$ 25,000	358,365	-	-	-	-	-	-	
Stratfield	Elevator Replacement (1)			$ 575,048	$ -	$ 575,048							$ -	$ -	$ 37,500	537,548	-	-	-	-	-	-	
Stratfield	Entrance Vestibule Project			$ 656,310	$ (161,320)	$ 494,990							$ -	$ -	$ -	-	-	38,350	456,640	-	-	-	
ECC	Location 1			$ 443,857	$ -	$ 443,857							$ -	$ -	$ -	-	-	-	25,000	418,857	-	-	
ECC	Location 2			$ 443,857	$ -	$ 443,857							$ -	$ -	$ -	-	-	-	25,000	418,857	-	-	
FWMS	Entrance Vestibule Project													$ -	$ -	-	-	-	-	-	-	-	we have been advised that the additional funds requested for the 3 vestibile projects that were in the BOE "2024/2025 Capital and Non-recurring Projects" book and on the BOE Cash flow as of October 2023, will no longer be needed. So we have zeroed out the amounts for the 3 NRC projects that total $453,550.
RLMS	Fire Alarm Replacement			$ 404,798	$ -	$ 404,798							$ -	$ 27,375	$ 377,423	-	-	-	-	-	-	-	
TMS	Elevator Replacement (#2)			$ 749,347	$ -	$ 749,347							$ -	$ -	$ -	-	-	-	-	749,347	-	-	
FLHS	Partial Roof Replacement			$ 223,332	$ (54,895)	$ 168,437							$ -	$ 7,194	$ 161,243	-	-	-	-	-	-	-	
FWHS	Replace Boiler/Burner			$ 356,517	$ -	$ 356,517							$ -	$ 356,517	$ -	-	-	-	-	-	-	-	
FWHS	Partial Roof Replacement			$ 223,332	$ (54,895)	$ 168,437							$ -	$ 7,194	$ 161,243	-	-	-	-	-	-	-	
	Total - Non-recurring Capital < $1mm			**$ 7,884,338**	**$ (703,582)**	**$ 7,180,756**		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 398,280**	**$ 833,259**	**$ 1,644,469**	**$ 20,000**	**$ 387,631**	**$ 974,891**	**$ 2,309,354**	**$ 612,872**	**$ -**	
Capital > $1mm																							
Tom.	A/C Phase Two (Tomlinson Middle School)			$ 2,512,440	$ (617,556)	$ 1,894,884							-	947,442	947,442	-	-	-	-	-	-	-	
FLHS	A/C Phase Three (Fairfield Ludlowe High School)			$ 24,436,356	$ (6,006,432)	$ 18,429,924							-	-	6,143,308	6,143,308	6,143,308	-	-	-	-	-	
WFC	A/C Phase Four (Walter Fitzgerald)			$ 2,650,337	$ (651,450)	$ 1,998,887							-	-	-	-	1,998,887	-	-	-	-	-	
FWHS	A/C Phase Five (Fairfield Warde High School)			$ 29,425,444	$ (7,232,745)	$ 22,192,699							-	-	-	-	7,397,566	7,397,566	7,397,567	-	-	-	
Districtwide	PV System Replacements &/or Upgrades			$ 514,631	$ -	$ 514,631							-	-	-	-	-	-	-	-	-	514,631	
Districtwide	Tunnel Asbestos Abatement and Reinsulation Project (seed money)			$ 1,897,247	$ -	$ 1,897,247							-	-	-	-	115,000	1,782,247	-	-	-	-	
Dwight	Renovation Project or New			$ 60,719,193	$ (8,982,090)	$ 51,737,103							-	1,935,493	-	16,600,537	16,600,537	16,600,536	-	-	-	-	

Town of Fairfield Capital Plan

	Project	CNR YR	Project ID	Total Project Cost	Other Financing Source	Net to be Bonded	RTM Auth Date	Total Bonded Thru FY24	Remaining Authorization	Cash Flow Timing (Bond or BAN) FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
Jennings	Additions and alterations (Scope To Be Determined)			$ 37,650,154	$ (9,254,370)	$ 28,395,784							-	-	-	-	-	2,200,000	13,097,892	13,097,892	-	-	
McKinley	Roof Project			$ 1,755,819	$ (431,579)	$ 1,324,240							-	1,324,240	-	-	-	-	-	-	-	-	
McKinley	Boiler/Burner Replacement			$ 1,477,441	$ -	$ 1,477,441							-	-	-	-	89,554	1,387,887	-	-	-	-	
Osborn Hill	Additions and Renovations enclose walkway between bldg and annex			$ 6,580,214	$ (1,617,410)	$ 4,962,804							-	-	-	-	398,854	4,563,950	-	-	-	-	
Riverfield	Partial Roof Replacement			$ -	$ -	$ -							-	-	-	-	-	-	-	-	-	-	
Roger Sherman	Partial Roof Replacement			$ -	$ -	$ -							-	-	-	-	-	-	-	-	-	-	
Stratfield	Roof Replacement Project			$ 1,317,666	$ (323,881)	$ 993,785							-	42,447	951,338	-	-	-	-	-	-	-	
FWMS	Window & Siding Replacement			$ 1,464,726	$ -	$ 1,464,726							-	-	-	-	-	-	82,500	1,382,226	-	-	
FWMS	Renovate Student Bathrooms			$ 1,510,412	$ -	$ 1,510,412							-	-	-	1,510,412	-	-	-	-	-	-	
FWMS	Boiler/Burner Replacement			$ 1,163,440	$ -	$ 1,163,440							-	78,679	1,084,761	-	-	-	-	-	-	-	
Tomlinson	Partial Roof Replacement			$ 1,331,081	$ (327,178)	$ 1,003,903							-	-	-	-	38,282	965,621	-	-	-	-	
Tomlinson	Boiler/Burner Replacement			$ 1,467,172	$ -	$ 1,467,172							-	-	-	-	-	85,731	1,381,441	-	-	-	
FLHS	Artificial Turf Replacement			$ 1,649,779	$ -	$ 1,649,779							-	-	-	-	100,000	1,549,779	-	-	-	-	
FWHS	Renovate Bathrooms			$ 2,301,585	$ -	$ 2,301,585							-	-	-	144,703	2,156,882	-	-	-	-	-	
FWHS	New Window Project			$ 6,248,272	$ (1,535,819)	$ 4,712,453							-	-	-	-	-	-	-	-	-	4,712,453	
FWHS	Artificial Turf Replacement			$ 1,649,779	$ -	$ 1,649,779							-	-	-	-	100,000	1,549,779	-	-	-	-	
	Total > $1mm			**189,723,188**	**(36,980,510)**	**152,742,678**		**-**	**-**	**-**	**-**	**-**	**-**	**4,328,301**	**9,126,849**	**24,398,960**	**35,138,870**	**38,083,096**	**21,959,400**	**14,480,118**	**-**	**5,227,084**	
	Total CNR and Capital > $1M			$ 197,607,526	$ (37,684,092)	$ 159,923,434	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,726,581	$ 9,960,108	$26,043,429	$35,158,870	$38,470,727	$22,934,291	$16,789,472	$ 612,872	$ 5,227,084	
	Total BOE - including previously authorized			**291,532,040**	**(52,938,643)**	**238,593,397**	**-**	**46,016,217**	**32,653,746**	**31,928,217**	**-**	**14,088,000**	**20,551,052**	**13,963,969**	**9,960,108**	**26,043,429**	**35,158,870**	**38,470,727**	**22,934,291**	**16,789,472**	**612,872**	**5,227,084**	
														$ 2,865,306									
WPCA. - Funded by Town																							
Non-recurring Capital < $1mm																							
	Total < $1mm																						
														-	-								
Capital > $1mm																							
	Inflow and Infiltration (I/I) Improvements Program - Phase V			$ -		$ -		$ -	$ -														
	Plant equipment improvements			$ 7,703,333		$ 7,703,333												$ 3,851,667	$ 3,851,667				Prepared by Woodard & Curran - High Priority will be addressed in FY25 and 26, medium and Low in the following years. See attached draft report summary. FY25-29 will be funded by WPCA. FY30 and afterwards will be funded by town. Total project cost was **reduced by $680,000** due to a review of the equipment listed in the report and determined as already repaired/replaced. So those costs were removed.
	Fairfield Beach Pump Station			$ -		$ -																	
	Fairfield Beach Pump Station Force Main			$ -		$ -																	
	Center Street Pump Station			$ -		$ -																	
	Center Street Pump Station Force Main			$ -		$ -																	
	Pine Creek Pump Station			$ -		$ -																	
	Pine Creek Pump Station Force Main			$ -		$ -																	
	Mill Hill Pump Station			$ -		$ -																	
	Mill Hill Pump Station Force Main			$ -		$ -																	
	Toll House Pump Station			$ -		$ -																	Prepared by Tighe & Bond - planning/conceptual level design- 25% contingency added.
	Toll House Pump Station Force Main			$ -		$ -																	Prepared by Tighe & Bond - planning/conceptual level design- 25% contingency added.
	Willow Street Pump Station			$ 2,115,433		$ 2,115,433												2,115,433					
	Willow Street Pump Station Force Main			$ 1,250,616		$ 1,250,616												1,250,616					
	Eastfield Drive Pump Station			$ 1,436,518		$ 1,436,518													1,436,518				Prepared by Tighe & Bond - planning/conceptual level design- 25% contingency added.
	Eastfield Drive Pump Station Force Main			$ 1,115,414		$ 1,115,414													1,115,414				Prepared by Tighe & Bond - planning/conceptual level design- 25% contingency added.
	Kings Highway Trunk Design			$ -		$ -																	
	Kings Highway Trunk Construction			$ 5,000,000		$ 5,000,000												$ 5,000,000					
	Ruane and Thorpe Pipe Replacement			$ -		$ -																	
	Total > $1mm			$ 18,621,314	$ -	$ 18,621,314		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$12,217,716	$ 6,403,599	$ -	$ -	$ -	
	Total WPCA			**$ 18,621,314**	**$ -**	**$ 18,621,314**		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$12,217,716**	**$ 6,403,599**	**$ -**	**$ -**	**$ -**	
	Total Town, BOE & WPCA - Town Funded			**$ 591,646,785**	**$ (103,306,497)**	**$ 488,340,289**		**$ 70,127,514**	**$ 46,530,687**	**$ 49,522,514**	**$ 2,670,000**	**$ 20,605,000**	**$34,141,364**	**$47,864,256**	**$ 45,289,954**	**$41,613,464**	**$45,574,895**	**$66,698,466**	**$48,839,277**	**$43,586,401**	**$18,305,872**	**$22,484,584**	

Town of Fairfield Capital Plan

	Project	CNR YR	Project ID	Total Project Cost	Other Financing Source	Net to be Bonded	RTM Auth Date	Total Bonded Thru FY24	Remaining Authorization	Cash Flow Timing (Bond or BAN) FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026 $ 3,814,242	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
WPCA - Funded by WPCA																							
Previously Authorized & Unissued:																							
WPCA/ENG	East Trunk Wetlands Crossing - Phase 1		80077	$ 6,250,000	$ (750,000)	$ 5,500,000	3/27/2023	$ 2,000,000	$ 3,500,000		$ 2,000,000	$ 2,000,000	**$ 2,000,000**	$ 750,000	$ 750,000								Design 100 % complete, extra funding for construction based on consultant estimate approved-750 K grant. Bids came in too high. Next Step: combine with East trunk sewer. **FY24 Ban - this will be either rolled into a bond or another ban in FY25**
WPCA/ENG	East Trunk Replacement Project		26457150	$ 11,000,000	$ (3,000,000)	$ 8,000,000	5/22/2023	$ 3,000,000	$ 5,000,000		$ 2,000,000	$ 3,000,000	**$ 2,000,000**	$ 1,000,000	$ 1,000,000	$ 1,000,000							WPCA and Engineering. Finalizing design, Combine with wetland crossing. Borings completed. **FY24 Ban - this will be either rolled into a bond or another ban in FY25**
WPCA/ENG	Turney Creek/Riverside Dr Tide Gates - Sewer Siphon		26357050	$ 400,000	$ (400,000)	$ -	5/22/2023	$ -	$ -														WPCA approved "up to amount" 940K but has final say. Only save 100K if using only 2 siphons, makes sense to approve the 3. Need Town approvals?
	Total Authorized & Unissued			**$ 17,650,000**	**$ (4,150,000)**	**$ 13,500,000**		**$ 5,000,000**	**$ 8,500,000**	**$ -**	**$ 4,000,000**	**$ 5,000,000**	**$ 4,000,000**	**$ 1,750,000**	**$ 1,750,000**	**$ 1,000,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	
Non-recurring Capital < $1mm																							
	TBD																						
	TBD																						
	TBD																						
	TBD																						
	Total < $1mm			**$ -**	**$ -**	**$ -**		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	
Capital > $1mm																							
	Inflow and Infiltration (I/I) Improvements Program - Phase V			$ 7,500,000		$ 7,500,000							**$ 1,500,000**	**$ 1,500,000**	**$ 1,500,000**	$ 1,500,000	$ 1,500,000						Prepared by wright-Pierce - FY 25 and 26 address Priority I and II - see attached report summary for Phase V
	Plant equipment improvements			$ 26,481,667		$ 26,481,667							**$ 6,223,333**	**$ 6,223,333**	**$ 6,223,333**	$ 3,960,000	$ 3,851,667						Prepared by Woodard & Curran - High Priority will be addressed in FY25 and 26, medium and Low in the following years. See attached draft report summary. FY25-29 will be funded by WPCA. FY30 and afterwards will be funded by town. Total project cost was **reduced by $685,000** due to a review of the equipment listed in the report and determined as already repaired/replaced. So those costs were removed.
	Fairfield Beach Pump Station			$ 5,681,988		$ 5,681,988							**$ 5,681,988**										Prepared by Tighe & Bond - planning/conceptual level design- 25% contingency added.
	Fairfield Beach Pump Station Force Main			$ 2,760,480		$ 2,760,480							**$ 2,760,480**										Prepared by Tighe & Bond - planning/conceptual level design- 25% contingency added.
	Center Street Pump Station			$ 4,221,234		$ 4,221,234								$ 4,221,234									Prepared by Tighe & Bond - planning/conceptual level design- 25% contingency added.
	Center Street Pump Station Force Main			$ 3,233,488		$ 3,233,488								$ 3,233,488									Prepared by Tighe & Bond - planning/conceptual level design- 25% contingency added.
	Pine Creek Pump Station			$ 3,979,692		$ 3,979,692									$ 3,979,692								Prepared by Tighe & Bond - planning/conceptual level design- 25% contingency added.
	Pine Creek Pump Station Force Main			$ 1,023,678		$ 1,023,678									$ 1,023,678								Prepared by Tighe & Bond - planning/conceptual level design- 25% contingency added.
	Mill Hill Pump Station			$ 6,859,918		$ 6,859,918										$ 6,859,918							Prepared by Tighe & Bond - planning/conceptual level design- 25% contingency added.
	Mill Hill Pump Station Force Main			$ 8,417,198		$ 8,417,198										$ 8,417,198							Prepared by Tighe & Bond - planning/conceptual level design- 25% contingency added.

Town of Fairfield Capital Plan

Project	CNR YR	Project ID	Total Project Cost	Other Financing Source	Net to be Bonded	RTM Auth Date	Total Bonded Thru FY24	Remaining Authorization	Cash Flow Timing (Bond or BAN) FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
Toll House Pump Station			$ 2,501,231		$ 2,501,231											$ 2,501,231						Prepared by Tighe & Bond - planning/conceptual level design- 25% contingency added.
Toll House Pump Station Force Main			$ 2,366,030		$ 2,366,030											$ 2,366,030						Prepared by Tighe & Bond - planning/conceptual level design- 25% contingency added.
Willow Street Pump Station			$ -		$ -																	funded by town
Willow Street Pump Station Force Main			$ -		$ -																	funded by town
Eastfield Drive Pump Station			$ -		$ -																	funded by town
Eastfield Drive Pump Station Force Main			$ -		$ -																	funded by town
Kings Highway Trunk Design			$ 2,000,000		$ 2,000,000											$ 2,000,000						
Kings Highway Trunk Construction			$ 5,000,000		$ 5,000,000											$ 5,000,000						
Ruane and Thorpe Pipe Replacement			$ 2,000,000		$ 2,000,000									$ 2,000,000								
					$ -																	
Total > $1mm			**$ 84,026,604**	**$ -**	**$ 84,026,604**		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$16,165,801**	**$15,178,055**	**$ 14,726,703**	**$20,737,116**	**$17,218,928**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	
Total WPCA - WPCA Funded			**$ 101,676,604**	**$ (4,150,000)**	**$ 97,526,604**		**$ 5,000,000**	**$ 8,500,000**	**$ -**	**$ 4,000,000**	**$ 5,000,000**	**$20,165,801**	**$16,928,055**	**$ 16,476,703**	**$21,737,116**	**$17,218,928**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	
TOTAL BONDED DEBT			**$ 693,323,389**	**$ (107,456,497)**	**$ 585,866,892**		**$ 75,127,514**	**$ 55,030,687**	**$ 49,522,514**	**$ 6,670,000**	**$ 25,605,000**	**$54,307,166**	**$64,792,311**	**$ 61,766,658**	**$63,350,580**	**$62,793,823**	**$66,698,466**	**$48,839,277**	**$43,586,401**	**$18,305,872**	**$22,484,584**	
													$ (3,814,242)	Differences in authorized and unissued debt in Town and BOE as noted above								
Total to Be Bonded - FY 25-34					**$ 506,925,137**																	

WPCA reconciliation

East Trunk Wetlands Crossing - Phase 1			$ 6,250,000	$ (750,000)	$ 5,500,000	3/27/2023	$ 2,000,000	$ 3,500,000		$ 2,000,000	$ 2,000,000	**$ 2,000,000**	$ 750,000	$ 750,000								
East Trunk Replacement Project			$ 11,000,000	$ (3,000,000)	$ 8,000,000	5/22/2023	$ 3,000,000	$ 5,000,000		$ 2,000,000	$ 3,000,000	**$ 2,000,000**	$ 1,000,000	$ 1,000,000	$ 1,000,000							
Turney Creek/Riverside Dr Tide Gates - Sewer Siphon			$ 400,000	$ (400,000)	$ -	5/22/2023	$ -	$ -														
Inflow and Infiltration (I/I) Improvements Program - Phase V			$ 7,500,000	$ -	$ 7,500,000		$ -	$ 7,500,000	$ -	$ -	$ -	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ -	$ -	$ -	$ -	$ -	
Plant equipment improvements			$ 34,185,000	$ -	$ 34,185,000		$ -	$ 34,185,000	$ -	$ -	$ -	$ 6,223,333	$ 6,223,333	$ 6,223,333	$ 3,960,000	$ 3,851,667	$ 3,851,667	$ 3,851,667	$ -	$ -	$ -	
Fairfield Beach Pump Station			$ 5,681,988	$ -	$ 5,681,988		$ -	$ 5,681,988	$ -	$ -	$ -	$ 5,681,988	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Fairfield Beach Pump Station Force Main			$ 2,760,480	$ -	$ 2,760,480		$ -	$ 2,760,480	$ -	$ -	$ -	$ 2,760,480	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Center Street Pump Station			$ 4,221,234	$ -	$ 4,221,234		$ -	$ 4,221,234	$ -	$ -	$ -	$ -	$ 4,221,234	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Center Street Pump Station Force Main			$ 3,233,488	$ -	$ 3,233,488		$ -	$ 3,233,488	$ -	$ -	$ -	$ -	$ 3,233,488	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Pine Creek Pump Station			$ 3,979,692	$ -	$ 3,979,692		$ -	$ 3,979,692	$ -	$ -	$ -	$ -	$ -	$ 3,979,692	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Pine Creek Pump Station Force Main			$ 1,023,678	$ -	$ 1,023,678		$ -	$ 1,023,678	$ -	$ -	$ -	$ -	$ -	$ 1,023,678	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Mill Hill Pump Station			$ 6,859,918	$ -	$ 6,859,918		$ -	$ 6,859,918	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,859,918	$ -	$ -	$ -	$ -	$ -	$ -	
Mill Hill Pump Station Force Main			$ 8,417,198	$ -	$ 8,417,198		$ -	$ 8,417,198	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,417,198	$ -	$ -	$ -	$ -	$ -	$ -	
Toll House Pump Station			$ 2,501,231	$ -	$ 2,501,231		$ -	$ 2,501,231	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,501,231	$ -	$ -	$ -	$ -	$ -	
Toll House Pump Station Force Main			$ 2,366,030	$ -	$ 2,366,030		$ -	$ 2,366,030	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,366,030	$ -	$ -	$ -	$ -	$ -	
Willow Street Pump Station			$ 2,115,433	$ -	$ 2,115,433		$ -	$ 2,115,433	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,115,433	$ -	$ -	$ -	$ -	
Willow Street Pump Station Force Main			$ 1,250,616	$ -	$ 1,250,616		$ -	$ 1,250,616	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,250,616	$ -	$ -	$ -	$ -	
Eastfield Drive Pump Station			$ 1,436,518	$ -	$ 1,436,518		$ -	$ 1,436,518	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,436,518	$ -	$ -	$ -	
Eastfield Drive Pump Station Force Main			$ 1,115,414	$ -	$ 1,115,414		$ -	$ 1,115,414	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,115,414	$ -	$ -	$ -	
Kings Highway Trunk Design			$ 2,000,000	$ -	$ 2,000,000		$ -	$ 2,000,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,000,000	$ -	$ -	$ -	$ -	$ -	
Kings Highway Trunk Construction			$ 10,000,000	$ -	$ 10,000,000		$ -	$ 10,000,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000,000	$ 5,000,000	$ -	$ -	$ -	$ -	
Ruane and Thorpe Pipe Replacement			$ 2,000,000	$ -	$ 2,000,000		$ -	$ 2,000,000	$ -	$ -	$ -	$ -	$ -	$ 2,000,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
			$ 120,297,918	**$ (4,150,000)**	**$ 116,147,918**		**$ 5,000,000**	**$ 97,147,918**	**$ -**	**$ 4,000,000**	**$ 5,000,000**	**$20,165,801**	**$16,928,055**	**$ 16,476,703**	**$21,737,116**	**$17,218,928**	**$12,217,716**	**$ 6,403,599**	**$ -**	**$ -**	**$ -**	

SUMMARY OF CHANGES - CURRENT PLAN VERSUS PRELIMINARY PLAN 1 AS OF 02/06/2024 BOF MEETING

Town of Fairfield Capital Plan

Cash Flow Timing (Bond or BAN)

	Project	Project ID	Auth Date	FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
Town																	
Previously Authorized & Unissued:																	
DPW	BURR MANSION KITCHEN UPGRADE 20YR	018T2	2/27/2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
DPW	TRANSFER STATION RENOVATION - 20YR	021T1	2/24/2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
DPW	SENIOR CENTER DESIGN - 20 YR	021T3	2/24/2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
DPW	INDEPENDENCE HALL BOILER - 20YR	021T7	2/24/2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
DPW	TRANSFER STA TRASH COMPACTORS 20YR	021T8	2/24/2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
DPW	INDY HALL OFFICE RENOVATION-20 YEAR	022T1	3/22/2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Engineering, Conservation, IT, HR,DPW, Building Dept on 2nd fl. complete.Plans for Finance dept ready.James Ryan has shown Christine Brown the plans for Finance and explained to her the ideas the past administration had. I am waiting on any feedback from them. Planning and Zoning, Parking Authority and Probate are not done yet and were all part of a discussion to be relocated and/ or renovated. There is not going to be enough funding. About $70,000 each dept in furniture alone. --- SB moved the remaining authorization to FY28 due to unlikely/unprobable completion and need for bonding in earlier FYs
DPW	TOWNWIDE FACILITY AUDIT-20 YEAR	022T2	3/22/2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Mostly Silver Petrucelli, Audit and HVAC Bid documents. Emergency lighting complete, Fire 1 controls complete, Seismic Analysis Fire 2 complete, DPW Dry pipe Design complete, $74K left to spend in this account and will be used for the Phase 1 Town-wide Facility upgrades below.
DPW	Town-wide Facility Upgrades - Phase 1	FY221	5/23/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Transferred upgrade projects to Audit account to use first. HVAC Bid opened. Received only one bid (all others who did the walk through said the project was too big/ did not have the resources to handle) and it came back much higher than estimated by Silver Petrucelli. We interviewed the 1 bidder andfound some sayings. We have decided to move forward with the HVAC and figure out how much we can finish with the remaining budget. we have placed the remaining authroization in FY26.
DPW	Transfer Station Repairs	FY224	5/23/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
	Capital Equipment- Phase 2	26557010		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	see 14 point document - this is the sum of FY24,25,26 on document attached which was alreadyapproved - moved up from Capital over $1M
ENG	HULLS FARM RD BRIDGE DESIGN 20YR	018T1	2/27/2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	hold delay by westport
ENG	ROOSTER RIVER BANK STABILIZE 20Y	018T3	2/27/2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	stabilize bank or purchase property when property comes available
ENG	H SMITH RICH PUMP STATION 20YR	018T4	2/27/2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
ENG	S BENSON MARINA DREDGING 10YR	018T5	2/27/2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	1 more year of monitoring and then close out - 98% complete
ENG	SOUTHPORT SIDEWALK CONNECTIVITY-20Y	020T1	2/25/2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Was in ARPA as well and recently cancelled. Added in NRC below.
ENG	GRASMERE AVE PED IMPROVEMENT-20YR	020T2	2/25/2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	in progress (processed grant and approval)
ENG	CONGRESS BRIDGE REPAIR-20YR	020T3	2/25/2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	in progress (processed grant and approval)
ENG	BROOKSIDE DR BRIDGE DESIGN-20YR	020T4	2/25/2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	in progress (processed grant and approval)- invoicing forthcoming in March 2024
ENG	STRATFIELD PED STREETSCAPE-20 YR	020T6	2/25/2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	State Grant and pedestrian donation $150K
ENG	KINGS HIGHWAY PHASE III DESIGN 20YR	021T2	2/24/2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	in progress
ENG	BRONSON RD ARCH TO BOX CULVERT 20YR	021T4	2/24/2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
ENG	STORM SYSTEM IMPROVEMENTS - 20YR	021T5	2/24/2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	in progress (design)
ENG	ROOSTER RIVER DET AREA STUDY 20YR	021T6	2/24/2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	spent
ENG	TOWNWIDE GUIDE RAIL/FENCING-20 YEAR	022T5	3/22/2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	In progress; Cross Hwy and Redding Rd sections completed. Next step: roads and bridge guiderail but complete ARPA sections first. Schedule meeting with contractor.
ENG	FLOOD CONTROL STUDY-20 YEAR	022T4	3/22/2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	to be revisited
ENG	BLACK ROCK TNPK DESIGN-20 YEAR	022T6	3/22/2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	MetroCOG approval, awaiting DOT final grant approval. RFP for design still pending. Town just received grant notice to proceed for sister project (Kings Hwy East) so this one may still a have a few months delay. Follow up with DOT and Metrocog. (Metrocog to discuss with State).

SUMMARY OF CHANGES - CURRENT PLAN VERSUS PRELIMINARY PLAN 1 AS OF 02/06/2024 BOF MEETING

Town of Fairfield Capital Plan

				Cash Flow Timing (Bond or BAN)													
	Project	Project ID	Auth Date	FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
ENG	ROAD SAFETY IMPROVEMENT-20 YEAR	022T7	3/22/2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	in progress (Villa Ave, Redding RD, in design) RRFB for Old Post Rd, has been installed. Edge lines and rumblestrips on Redding Road complete- invoice pending. Mill Plain ADA ramps completed by Contractor and Town. Upcoming Villa Ave, and other Riverfield School zone improvements. School zone pedestrian safety signs received PC approval. Next Step: RRFB for Riverfield (needs PC approval) and BOE requests- Mill Hill School sidewalks, investigating Pequot Ave improvements.
ENG	CONGRESS ST BRIDGE DESIGN-20 YEAR	022T8	3/22/2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	WMC to start borings/ design.
ENG	REEF RD CULVERT REPAIR-20 YEAR	022T9	3/22/2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Design almost complete. Working on permits. Town & Consultant unable to perform detailed inspection, needs cleaning, to determine repair or replacement, Goal is for COP by winter 2024. May involve Additional pipe per Conservation, which would require 6-12 month DEEP permit. Sediment removal required to finish inspection.
ENG	UNDERWATER BRIDGE INSPECTION-10YR	023T1	3/1/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Inspections in progress. RFP awarded to RACE(TG) and GZA (br)for underwater BRIDGE and tidegate inspection. Weston and Sampson testing. Reviewing draft bridge and Tidegate inspection reports. Sediment disposal necessary for 6 tidegates- will expend budget. May need additional funding, TBD.
ENG/Cons	PINE CREEK-MCCLEARY TIDEGATE-20YEAR	023T3	3/1/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Working with Engineering on RFP tide-gate design - submission pending Winter 2024
ENG	RIVERSIDE CREEK TIDEGATE-20 YEAR	023T4	3/1/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Working with Engineering on RFP tide-gate design - submission pending Winter 24
ENG	RESILIENCY-JENNINGS BEACH-20 YEAR	023T5	3/1/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	TBD FEMA/DEEP issues- Cost Benefit Analysis recieved from GZA. CBA less than 1. Results indicate costs much higher than benefits per FEMA formulas.
ENG	GUIDERAIL REPAIRS PHASE 2- 20 YEAR	024T1	2/27/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Design winter 2024-Bid Spring 2024 ARPA first
ENG	STRATFIELD RD DESIGN (RSA)- 20 YEAR	024T2	2/27/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Awaiting state paperwork then RFP for Design
ENG	DESIGN- POST RD & JUG HANDLE-20 YEA	024T3	2/27/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Awaiting State paperwork then RFP for design consultant'
ENG	ROUND HILL RD & REEF SIDEWALKS-20 Y	024T4	2/27/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	In design, Survey completed.Goal to go out to bid together Winter 2024.$500K grant
ENG	LOWER WHARF/FISHING PIER-20 YEAR	024T5	2/27/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Waiting on permits; design being paid by HMC - $640K grant
ENG	Kings Highway Pedestrian LOTCIP Grant - PEDESTI	22557049	5/22/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	State approved LOTCIP grant. Town to hire Consultant for design. RFP winter 2024.
ENG	Commerce Dr/ Kings Highway Imp	22557048	11/2013/ 10/27/2014/ 09/25/2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	state grant
ENG	Commerce Drive Bridge Construction	22757036	2/27/2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	LOTCIP grant; Design 95% complete. ROW acquisitions complete.(186K should be 100% reimbursable when construction begins 2024). Next step: Finalize plans/permits (awaiting final USACE permit); go out to bid.
ENG	Commerce Drive Sidewalk design and row	22757048	4/25/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	LOTCIP grant; ROW acquisitions complete.(186K should be 100% reimbursable when construction begins 2024).
ENG	Valley Road Bridge	24257016	9/25/2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	state grant
ENG	Tide gate system (Railroad bridge)	FY223	5/23/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Have permits/approvals from CT DEEP & SHPO. Received USACE permit on 10/25/23. Design 95% complete, RACE to finalize plans and generate RFP bid docs-est Winter 2024.
ENG/CONS	Turney Creek/Riverside Dr Tide Gates	26357160	5/22/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Final design complete OCT 2023. Bid Nov 2023.see also Siphon WPCA. Bids came in within budget Jan 2024. based on what was spent to-date and what was banned ($1M banned in FY24 which turns into a bond in FY25), we have allocated $1M per year and $750K in FY29
FD	FIRE STATION REHABILIATION 20YR	021TA	2/24/2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	completed
FD	FIRE PUMPER LSN 11-20 YEAR	022TA	3/22/2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$1,865 remaining in account. Will be spent shortly.
FD	FIRE STATION REHABILITATION-20 YEAR	022TB	3/22/2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	N/A
FD	SCBA-FIRE APPARATUS-10 YEAR	023T2	3/1/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$171 remaining in account. Will be spent shortly.
FD	PUMPER-LSN 14-20 YEAR	024T6	2/27/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$955,601 encumbered by P.O. for truck. Delivery expected May 2025 $950K was banned in FY24, this will roll into a bond in FY25, $955,601 spent
IT	IT-LAND USE & PERMTNG INSP SYS 10YR	021T9	2/24/2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
PD	POLICE DEPT-HVAC- 20 YEAR	022T3	3/22/2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	95% complete. DX Compressors, Coils, Return Fan, Cooling Tower, Drives roof enclosure and chiller installed. Waiting on Commissioning and Training

SUMMARY OF CHANGES - CURRENT PLAN VERSUS PRELIMINARY PLAN 1 AS OF 02/06/2024 BOF MEETING

Town of Fairfield Capital Plan

				Cash Flow Timing (Bond or BAN)													
	Project	Project ID	Auth Date	FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
PD	Radio System (Infrastructure and Public Safety Users	FY222	5/23/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	emergency radio grant; Tower work has begun on all towers including PD HQ, Woodhouse Road, Roncali Hall, and Troop G. NTP for Woodhouse Road received and work has begun. Roncali hall work has begun and nearly complete. PD HQ tower work is expected to begin during the week of 11/20. As of 9/15/23 approved 48% payment for delivered materials and equipment (Milestone 1).
P&R	TOMLINSON ARTIFICIAL TURF 10YR	018T6	2/27/2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	COMPLETE
P&R	GOLF COURSE RENO-HSR-20YR	020T5	2/25/2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	COMPLETE
P&R	HSR GOLF COURSE RENOVATION 10YR	021TB	2/24/2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	COMPLETE
P&R	POST-TENSION TENNIS COURT-TMLS 20YR	021TC	2/24/2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	COMPLETE
P&R	LAKE MOHEGAN SPLASH PAD REPLACE-20	022TD	3/22/2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	COMPLETE
P&R	PINE CREEK PARK PLAYGROUND-20 YEAR	022TC	3/22/2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	COMPLETE - we will not be bonding remaining authorization since remaining amount spent is under $100K
P&R	LAKE MOHEGAN-RESTORATION STORM-20YR	023T6	3/1/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Should be spent in FY25 - RACE is currently working on the bid package to finish the project. FEMA grant is still pending approval
P&R	TENNIS CENTER LIGHT REPLACE-20YEAR	023T7	3/1/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	PROJECT REJECTED for additional funds
P&R	POST-TENSION TENNIS-DWIGHT-20 YEAR	023T8	3/1/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	COMPLETE
P&R	JACKY DURRELL PAV UPGRADES-20 YEAR	023T9	3/1/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	FY24
P&R	HSR DRIVING RANGE UPGRADES-20 YEAR Phas	024T7	2/27/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	FY24 -
P&R	POST-TENSION TENNIS CRT- FFLD WOODS	024T8	2/27/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	COMPLETE - $520K was banned in FY24, this will roll into a bond in FY25
P&R	TUNXIS HILL PICKLEBALL COURTS-20 YR	024T9	2/27/2023	$ -	$ -	$ -	$ (375,000)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	FY24/FY25 - $200K was banned in 24 which will roll into the bond in FY25
P&R	Roger Ludlowe Middle School Turf	FY225	5/23/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	FY24/FY25
	Total Authorized & Unissued			**$ -**	**$ -**	**$ -**	**$ (375,000)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	
Non-recurring Capital < $1mm to be Bonded																	
DPW	Transfer station canopy			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	The application for the "energy efficiency and conservation block grant" is still pending approval.
DPW	Barnacle Work Boat - Marina			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	see 14 point document - included in FY25CNR
ENG	Hulls Farm Road Bridge Construction			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Engineering estimate based on past projects
ENG	Southport Median Grant Design			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Engineering estimate based on past projects
ENG	Sturges Bridge Design			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Engineering estimate based on past projects
ENG	Oldfield Road Bridge Design			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Consultant estimate for design - included in FY25CNR
ENG	Wakeman Lane/Old Rd. Bridge Construct.			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	State DOT semi final estimate - included in FY25CNR
ENG	KHW Greens Farm Road Bridge			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	State DOT semi final estimate - included in FY25CNR
ENG	Meadow Brook Road Sound Barrier			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Engineering estimate based on some state data - included in FY25CNR
ENG	Update to 2015 Master Plan for Flood Protection, Clir			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Rough estimate- placeholder - increased by $100,000 since ARPA funds reallocated; to be discussed and revisited
ENG	Storm System Improvements for various Neighborho			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Engineering estimate based on using DPW which would be cheaper than using outside consultants;to be discussed with Bill Hurley and revisited
ENG	McKinley School-Knapps Highway Neighborhood Co			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	2023 Community Connectivity grant; Engineering Estimate and Connectivity award pararameters - included in FY25CNR
ENG	Morehouse Highway Bridge culverts design			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Engineering Estimate based on past .
ENG	SOUTHPORT SIDEWALK CONNECTIVITY-20Y			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Removed from ARPA. Added to Capital Plan in FY26. Bill advised the bid package would be presented to purchasing in the spring.
ENG	Downtown Resiliency - Phase 2 Design			$ -	$ -	$ -	$ -	$ 512,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Design for D2 and D3 - 'design for phases previously lumped in with construction costs
ENG	Downtown Resiliency - Phase 3 Design			$ -	$ -	$ -	$ -	$ -	$ 537,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Design for D4 and B - design for phases previously lumped in with construction costs
ENG	Downtown Resiliency - Phase 4 Design			$ -	$ -	$ -	$ -	$ -	$ -	$ 786,000	$ -	$ -	$ -	$ -	$ -	$ -	Design for Alternate A - design for phases previously lumped in with construction costs

SUMMARY OF CHANGES - CURRENT PLAN VERSUS PRELIMINARY PLAN 1 AS OF 02/06/2024 BOF MEETING

Town of Fairfield Capital Plan

				Cash Flow Timing (Bond or BAN)													
	Project	Project ID	Auth Date	FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
FD	Fire Station Rehabilitation Years 4 and 5			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Based upon previous Bids by Purchasing Dept. We have been advised that the current amounts have not changed. However, the project is still in design stage with the architects. The costs could change based on the architects calculations on contruction documents. - $600Kmoved from FY25 to FY26 - to be reviewed by David Becker
FD	Shop Truck Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Estimate - see 14 point document - included in FY25CNR - The Fairfield Fire Department is requesting replacement of Maintenance 1, a 2012 Chevy 3500 Apparatus Service Truck. Maintenance 1 currently has over 90, 000 miles on it and by the time its replacement is delivered and outfitted, it will have been in service for 12 years and will have over 100,000 miles on it. This request is accordance with the Fairfield Fire Department Apparatus Replacement Program and has been listed in the Town Capital Program
FD	Marine 217			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Estimate- Replacement of 2007 shallow-draft rescue boat that responds from Ye Yacht Yard in Southport
FD	Car3			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	State Contract for vehicle plus estimates on equipment - Replacement as per Apparatus Replacement Plan of Shift Commander's Response SUV
PD	Police Department Rehabilitation - Years 2 and 3			$ -	$ -	$ -	$ (500,000)	$ 500,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	As discussed during 2/20 finance meeting Project was moved and combined in FY26. This is a placeholder until PD gets a more accurate cost estimate. This may be moved to Capital over $1M depending on the contractor estimate
P&R	HSR Driving Range - Phase 2			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	see 14 point document - included in FY25CNR
P&R	Dog Park (Location TBD)			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Internal Estimate
P&R	Lake Mohegan Concession/Water Park			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Vendor Estimate
P&R	Lake Mohegan Playground Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Vendor Estimate
P&R	Beach Parking Kiosks			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Vendor Estimate
P&R	Grasmere Playground Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Internal Estimate
P&R	Rugby Park Playground Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Internal Estimate
P&R	Knapps Park Playground Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Internal Estimate
P&R	Hook and Ladder Playground Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Internal Estimate
P&R	Veterans Park Playground Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Internal Estimate
P&R	Veres Park Playground Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Internal Estimate
P&R	Owen Fish Playground Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Internal Estimate
P&R	Oldfield Playground Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Internal Estimate
P&R	Ash Creek Playground Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Internal Estimate
	Total < $1mm			$ -	$ -	$ -	$ (500,000)	$ 1,012,000	$ 537,000	$ 786,000	$ -	$ -	$ -	$ -	$ -	$ -	
Capital > $1mm to be Bonded																	
DPW	BETA Roadway Capital Improvement and ADA Comp			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$1m in ARPA allocation was previously from FY25 but I never removed from the Other sources, so this difference refers to that. Now the total FY-FY34 revnciles to Net to be bonded. $10M other sources is $2M operating budget for 5 years.
ENG	BETA Sidewalk Capital Improvement Plan			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Based on BETA program, cost for FY24 totaling $2,060,730 has not been funded. The BETA report Amounts are rounded down to $2M and $1M and further reduced by the current $80,000 operating budget. Should the operating budget increase or decrease, the total bonded amount will need to be changed to reflect that change. Since FY24 was not funded, we have added on $1M in FY29 less the $80,000.
ENG	Townwide Road Safety Improvements And NEW SID			$ -	$ -	$ -	$ (2,500,000)	$ 1,450,000	$ (50,000)	$ 1,100,000	$ -	$ -	$ -	$ -	$ -	$ -	Rough Engineering Estimate based on paving list and public requests. Added 5% to FY26 and 10% to FY27- since a study is not complete and ready to go, we are shifting this over one year.
DPW/CON	Tidegate and Flood Control Structural Repair and Re			$ -	$ -	$ -	$ (1,057,000)	$ 813,000	$ 217,000	$ 191,000	$ 100,000	$ -	$ -	$ -	$ -	$ -	see 14 point document - we are asking for approval and 3 year authorization totaling $1,923,000 of this 5 year plan; the total project cost increased from $1.950K to $2.214K due to added environemental and 20% contincinecy based on current propsals from Cisco and Weston and Sampson and 20% contingency
DPW	Capital Equipment - Phase 3			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	this is the sum of FY27-29 on 10 year replacement plan attached
DPW	Capital Equipment - Phase 4			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	this is the sum of FY30-32 on 10 year replacement plan attached

SUMMARY OF CHANGES - CURRENT PLAN VERSUS PRELIMINARY PLAN 1 AS OF 02/06/2024 BOF MEETING

Town of Fairfield Capital Plan

				Cash Flow Timing (Bond or BAN)													
	Project	Project ID	Auth Date	FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
DPW	Capital Equipment - Phase 5			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	This only includes FY33 so far - will be updated to include FY34 and FY35 too
DPW	Town-wide Facility Upgrades (Priority IIA)			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	this is a part of Priority II broken out into different phases. The same needs to be done with the amounts below. This will be changed once we receive the updated project estimates. See note below
DPW	Town-wide Facility Upgrades (Based on Audit Recom			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	we are in the process of getting an updated bid from Silver Petrucelli which should be submitted by next week, which will include a 10 year plan with an inflation escalator. The last bid was performed in 2021. Phase 1 was approved in 2022, and is included in the authorized and unissued debt section.
ENG	Rooster River			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Awaiting permit conditions and Consultant cost estimate; $2,844,921 may be removed from ARPA funding and added to FY25 depending on what the 3 boards decide regarding the reallocation of these funds. So far we have left the funding in ARPA but if the army core of engineers do not approve within the next few months, the ARPA funds will be reallocated to Paving and the amount in FY25 on the capital plan will remain.
ENG	Kings Highway Pedestrian Improvements Phase III C			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Commitment to Fund award. Cost estimate upon final design late 2024/2025
ENG	Brookside Drive Bridge Construction			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Commitment to Fund award. Cost estimate upon final design late 2024/2025
ENG	Congress St. Bridge Construction			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Commitment to Fund award. Cost estimate upon final design late 2024/2025
ENG	Stratfield Road Pedestrian Improvement (RSA) - Con			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Engineering Estimate and Urban Act grant amount
ENG	Post Road & Jug Handle Pedestrian Improvement - C			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Engineering Estimate and Urban Act grant amount
ENG	Traffic Signal Improvements -for New Signal and repa			$ -	$ -	$ -	$ (800,000)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Based on Consultant 5 year Traffic Signal Plan- removed year 1 totaling $1,200,000 as this was ARPA funded ($1M), but added $400,000 for additional repairs related to year 1 repairs.
ENG	Oldfield Road Bridge Construction			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Engineering/Consultant Estimate based on previous projects; added 5% and 10% to FY26 and FY27, respectively
ENG	Black Rock Turnpike			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Potential grant - design will determine cost estimate
ENG	Southport Median Grant Construction			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Potential grant - design will determine cost estimate
ENG	Sturges Bridge Construction			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Engineering Estimate based on previous projects; added 10% inflation factor
ENG	Increase Resiliency - Jennings Beach			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Engineering estimate based on similar studies, added 20% inflation factor
ENG	Downtown Resiliency			$ -	$ -	$ -	$ -	$ (512,000)	$ (537,000)	$ (786,000)	$ -	$ -	$ -	$ -	$ -	$ -	I have removed design costs here, and added design costs separately for Phase 2, 3 and 4 under CNR FY26,27 28
ENG	Morehouse Highway Bridge Contruction			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Engineering Estimate based on similar past projects. Added 10% for inflation
ENG	Brooklawn Parkway Retaining Wall Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Placeholder, rough estimate - added 25% to for inflation
ENG	S. Benson Stormwater Pump Station - Design			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Consultant estimate placeholder - added 25% to FY30 for inflation
ENG	S. Benson Stormwater Pump Station - Construction			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Consultant estimate placeholder - Added 30% in FY31 and 35% in FY32 for inflation
ENG	S. Benson SW Pump Drainage Lines/Paving/Environ			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Consultant estimate placeholder - Added 40% in FY33 and 45% in FY34 for inflation
FD	Apparatus Maintenance			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Best estimate - Construction of facility or add-on to existing facitlity to provide adequate space for Fire Apparatus Maintenance. Currently it co-exists on apparatus floor at Fire Station 2 and is not optimal.
FD	Pumper - LSN 15			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Based upon prev. purchase with inflation escalator - Replacement as per Apparatus Replacement Plan of 2013 Pumper which will then act as spare/reserve vehicle.
FD	Pumper - LSN 16			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	'Based upon prev. purchase with inflation escalator - Replacement as per Apparatus Replacement Plan of 2017 Pumper which will then act as spare/reserve vehicle.
FD	Rescue 1 - LSN78			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	'Based upon prev. purchase with inflation escalator - Replacement as per Apparatus Replacement Plan of 2016 Heavy Rescue vehicle which will then act as spare/reserve vehicle.

SUMMARY OF CHANGES - CURRENT PLAN VERSUS PRELIMINARY PLAN 1 AS OF 02/06/2024 BOF MEETING

Town of Fairfield Capital Plan

				Cash Flow Timing (Bond or BAN)													
	Project	Project ID	Auth Date	FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
FD	LSN 17			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	'Based upon prev. purchase with inflation escalator - Replacement as per Apparatus Replacement Plan of 2017 Pumper which will then act as spare/reserve vehicle.
FD	LSN 53			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	'Based upon prev. purchase with inflation escalator - Replacement as per Apparatus Replacement Plan of 2020 Tower Ladder which will then act as spare/reserve vehicle.
FD	LSN 18			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	'Based upon prev. purchase with inflation escalator - Replacement as per Apparatus Replacement Plan of 2022 Pumper which will then act as spare/reserve vehicle.
P&R	Jennings Master Plan Upgrade			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Initial Vendor Estimate
P&R	Dougiello Master Plan Upgrade			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Initial Vendor Estimate
P&R	South Benson Marina Dock Replacement - phase 3			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Internal Estimate
Town	Remediation Fill Pile Berm ($8.76M)		??	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Penfield - changed from $8.7M to $8.76M to reflect the amount presented at the 1/9/24 BOF meeting.
T hall	Renovation/Addition Construction			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	place holder for an idea for a future project - Independence Hall addition of about 10,000 sq ft so to move OLD Town Hall departments into one building
O T Hall	Design/Upgrade/Renovation/Repair			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	place holder for an idea for a future project - to renovate OTH into meeting rooms
Town	Turner Property Renovation			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	place holder for an idea for a future project - renovate Armory near Gould Manor for Parks and Recreation use
	Total > $1mm			$ -	$ -	$ -	$ (4,357,000)	$ 1,751,000	$ (370,000)	$ 505,000	$ 100,000	$ -	$ -	$ -	$ -	$ -	
	Total CNR and Capital > $1M			$ -	$ -	$ -	$ (4,857,000)	$ 2,763,000	$ 167,000	$ 1,291,000	$ 100,000	$ -	$ -	$ -	$ -	$ -	
	Total Town - including previously authorized			**$ -**	**$ -**	**$ -**	**$ (5,232,000)**	**$ 2,763,000**	**$ 167,000**	**$ 1,291,000**	**$ 100,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	
BOE																	
Previously Authorized & Unissued:																	
FWHS	FWHS LMC HVAC ROOFTOP 20YR	018B1	2/27/2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Completed
TMS	TOMLINSON MID ROOF REPLACE 20YR	018B2	2/27/2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Completed
	SYSTEMWIDE SECURITY INFRASTRUC 5YR	018B3	2/27/2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Completed
	WHS ARTIFICIAL TURF REPLACE 10YR	018B4	2/27/2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	BOE PROJECT COMPLETE
	FWHS BLAKE TENNIS COURT REPLACE 10Y	018B5	2/27/2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	BOE PROJECT COMPLETE
	IT SWITCH REPLACE-PHASE 2-10YR	020B1	2/25/2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Completed
	IT SERVER NETWORK HVAC CONTROL-15YR	020B2	2/25/2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Completed
	SECURITY & SAFETY INFR-PHASE 5-20YR	020B3	2/25/2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Completed
Dwight	DWIGHTHVAC BMS CONTROL UPGRADE-15YR	020B4	2/25/2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Completed
	FLHS TENNIS COURTS REPLACE-20YR	020B5	2/25/2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	BOE PROJECT COMPLETE
FWHS	FWHS FITTS HVAC RTU REPLACE-20YR	020B6	2/25/2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Completed
TMS	TOMLINSON MS FLOORING REPLACE-15YR	020B7	2/25/2019	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
FWMS	FWMS ELEVATOR REPLCMT PROJECT 20 YR	021B1	2/24/2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
RLMS	RLMS COOLING TOWER REPLC PROJ 10YR	021B2	2/24/2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
FLHS	FLHS EMERGENCY GENERATOR REPL 20YR	021B3	2/24/2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
	RETRO REBALANCE SCHOOL MECH-20 YEAR	022B1	3/22/2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Burr	BOILER BURNER REPLACE-BURR-20YEAR	023B1	3/1/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	In progress
FLHS	ELEVATOR MODERNIZATION-FLHS-20YEAR	023B2	3/1/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	In progress
Nstratfield	N STRATFIELD VESTIBULE- 20 YEAR	024B1	2/27/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	In progress -
Osborn	OSBORN HILL VESTIBULE-20 YEAR	024B2	2/27/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	In progress
FWMS	FFLD WOODS MIDDLE VESTIBULE-20 YR	024B3	2/27/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	In progress
FWHS	FF WARDE HS BOILER REPLACE-20 YEAR	024B4	2/27/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	In progress
FWHS	F WARDE HS-KNAPPS TENNIS & BASKET-2	024B5	2/27/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	In progress
HH	Holland Hill Expansion	25057016	8/29/2016/ 06/27/2017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Completed waiting on state Audit
Sherman	Sherman School Expansion	25353300	4/23/2018	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Completed waiting on state Audit
Osborn	Osborne Hill Roof Replacement	OROOF	2/24/2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Completed waiting on state Audit
FWHS	Fairfield Warde Air Conditioner	WHSAC	2/24/2020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	In progress -Sal advised the amount he has encumbered is enough for what he needs to complete the project
RLMSSherMcK	Roof Projects-RLMS & Sherman/McKinley	ROOFS	10/25/2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	other sources relates to a state grant; In progress
Districtwide	Air Conditioning at Schools-Phase 1	FY226	5/23/2022/ 12/18/2023/	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	FY25 and FY26 - will the BOE spend the $10M in one summer? If not, then should we not break this out? Sal Morabito advised we should leave this as is.
Riverfield	Roof Replacement- Sherman and Riverfield - River o	RIVER	10/24/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Completed; waiting on state Audit - this project qualifies for reimbursement through OSCG&R program, around 26% per Sal Morabito, the amount to be bonded will be equal to the amount spent less grants.

SUMMARY OF CHANGES - CURRENT PLAN VERSUS PRELIMINARY PLAN 1 AS OF 02/06/2024 BOF MEETING

Town of Fairfield Capital Plan

Cash Flow Timing (Bond or BAN)

	Project	Project ID	Auth Date	FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
Sherman	Roof Replacement- Sherman and Riverfield Sherman	SHERM	10/24/2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Completed ; waiting on state Audit - this project qualifies for reimbursement through OSCG&R, around 26% per Sal Morabito.the amount to be bonded will be equal to the amount spent less grants.
	Roof Replacement	25857005	3/22/2021	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	In progress
Ludlow	Ludlow HS School Bathroom Renovation	25857007	03/22/2021/ 11/29/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	FY25
Dist.	AC Project Preconstruction Phases II-V	FPSAC	11/29/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	this was moved up to authorized section from BOE over $1M section since it has been approved and an account was created.
Holland Hill	Partial Roof Replacement	HOLLH	10/23/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	this was moved up to authorized section from BOE over $1M section since it has been approved and an account was created.
North Stratfield	Roof Replacement Project	NSTRT	10/23/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	this was moved up to authorized section from BOE over $1M section since it has been approved and an account was created.
Roger Sherman	Boiler/Burner Replacement	SHBLR	11/29/2023?	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	this was moved up to authorized section from BOE over $1M section since it has been approved and an account was created.
	Total Authorized & Unissued			**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	
Non-recurring Capital < $1mm																	
Districtwide	Aboveground Storage Tank (AST) Replacements (De			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Burr	Entrance Vestibule Project			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Burr	Elevator			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
McKinley	Entrance Vestibule Project			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
North Stratfield	Entrance Vestibule Project			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	we have been advised that the additional funds requested for the 3 vestibile projects that were in the BOE "2024/2025 Capital and Non-recurring Projects" book and on the BOE Cash flow as of October 2023, will no longer be needed. So we have zeroed out the amounts for the 3 NRC projects that total $453,550.
Osborn Hill	Entrance Vestibule Project			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	we have been advised that the additional funds requested for the 3 vestibile projects that were in the BOE "2024/2025 Capital and Non-recurring Projects" book and on the BOE Cash flow as of October 2023, will no longer be needed. So we have zeroed out the amounts for the 3 NRC projects that total $453,550.
Roger Sherman	Entrance Vestibule Project			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Stratfield	Front façade and Cornice Wall Painting			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Stratfield	HVAC BMS Controls Upgrade			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Stratfield	Elevator Replacement (1)			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Stratfield	Entrance Vestibule Project			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
ECC	Location 1			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
ECC	Location 2			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
FWMS	Entrance Vestibule Project			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	we have been advised that the additional funds requested for the 3 vestibile projects that were in the BOE "2024/2025 Capital and Non-recurring Projects" book and on the BOE Cash flow as of October 2023, will no longer be needed. So we have zeroed out the amounts for the 3 NRC projects that total $453,550.
RLMS	Fire Alarm Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
TMS	Elevator Replacement (#2)			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
FLHS	Partial Roof Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
FWHS	Replace Boiler/Burner			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
FWHS	Partial Roof Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
	Total - Non-recurring Capital < $1mm			**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	
Capital > $1mm																	
Tom.	A/C Phase Two (Tomlinson Middle School)			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
FLHS	A/C Phase Three (Fairfield Ludlowe High School)			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
WFC	A/C Phase Four (Walter Fitzgerald)			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
FWHS	A/C Phase Five (Fairfield Warde High School)			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Districtwide	PV System Replacements &/or Upgrades			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Districtwide	Tunnel Asbestos Abatement and Reinsulation Projec			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Dwight	Renovation Project or New			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Jennings	Additions and alterations (Scope To Be Determined)			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
McKinley	Roof Project			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
McKinley	Boiler/Burner Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Osborn Hill	Additions and Renovations enclose walkway betwee			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Riverfield	Partial Roof Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	

SUMMARY OF CHANGES - CURRENT PLAN VERSUS PRELIMINARY PLAN 1 AS OF 02/06/2024 BOF MEETING

Town of Fairfield Capital Plan

Cash Flow Timing (Bond or BAN)

	Project	Project ID	Auth Date	FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
Roger Sherman	Partial Roof Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Stratfield	Roof Replacement Project			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
FWMS	Window & Siding Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
FWMS	Renovate Student Bathrooms			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
FWMS	Boiler/Burner Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Tomlinson	Partial Roof Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Tomlinson	Boiler/Burner Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
FLHS	Artificial Turf Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
FWHS	Renovate Bathrooms			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
FWHS	New Window Project			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
FWHS	Artificial Turf Replacement			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
	Total > $1mm		-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Total CNR and Capital > $1M			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
	Total BOE - including previously authorized			-	-	-	-	-	-	-	-	-	-	-	-	-	
WPCA																	
Previously Authorized & Unissued:																	
WPCA/ENG	East Trunk Wetlands Crossing - Phase 1	80077	3/27/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Design 100 % complete, extra funding for construction based on consultant estimate approved-750 K grant. Bids came in too high. Next Step: combine with East trunk sewer. FY24 Ban - this will be either rolled into a bond or another ban in FY25
WPCA/ENG	East Trunk Replacement Project	26457150	5/22/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	WPCA and Engineering. Finalizing design, Combine with wetland crossing. Borings completed. FY24 Ban - this will be either rolled into a bond or another ban in FY25
WPCA/ENG	Turney Creek/Riverside Dr Tide Gates - Sewer Sipho	26357050	5/22/2023	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	WPCA approved "up to amount" 940K but has final say. Only save 100K if using only 2 siphons, makes sense to approve the 3. Need Town approvals?
	Total Authorized & Unissued			**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	
WPCA -Town and WPCA Funded Total																	
WPCA	East Trunk Wetlands Crossing - Phase 1			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
WPCA	East Trunk Replacement Project			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
WPCA	Turney Creek/Riverside Dr Tide Gates - Sewer Siphon			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
WPCA	Inflow and Infiltration (I/I) Improvements Program - Phase V			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
WPCA	Plant equipment improvements			$ -	$ -	$ -	$ (3,896,666.67)	$ (1,726,666.67)	$ 4,123,333.33	$ 1,860,000.00	$ 1,751,666.67	$ 1,751,666.67	$ 1,751,666.67	$ (2,100,000.00)	$ (2,100,000.00)	$ (2,100,000.00)	Prepared by Woodard & Curran - High Priority will be addressed in FY25 and 26, medium and Low in the following years. See attached draft report summary. FY25-29 will be funded by WPCA. FY30 and afterwards will be funded by town. Total project cost was **reduced by $685,000** due to a review of the equipment listed in the report and determined as already repaired/replaced. So those costs were removed.
WPCA	Fairfield Beach Pump Station			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
WPCA	Fairfield Beach Pump Station Force Main			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
WPCA	Center Street Pump Station			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
WPCA	Center Street Pump Station Force Main			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
WPCA	Pine Creek Pump Station			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
WPCA	Pine Creek Pump Station Force Main			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
WPCA	Mill Hill Pump Station			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
WPCA	Mill Hill Pump Station Force Main			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
WPCA	Toll House Pump Station			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
WPCA	Toll House Pump Station Force Main			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
WPCA	Willow Street Pump Station			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
WPCA	Willow Street Pump Station Force Main			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
WPCA	Eastfield Drive Pump Station			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
WPCA	Eastfield Drive Pump Station Force Main			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
	Kings Highway Trunk Design			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,000,000.00	$ -	$ -	$ -	$ -	$ -	Did not carry these projects over from old plan; added on upon discussions with WPCA that projects should still be on the plan
	Kings Higheay Trunk Construction			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,000,000.00	$ 5,000,000.00	$ -	$ -	$ -	$ -	Did not carry these projects over from old plan; added on upon discussions with WPCA that projects should still be on the plan

SUMMARY OF CHANGES - CURRENT PLAN VERSUS PRELIMINARY PLAN 1 AS OF 02/06/2024 BOF MEETING

Town of Fairfield Capital Plan

				Cash Flow Timing (Bond or BAN)												
Project	Project ID	Auth Date	FY 2023 & Prior (Actual) Bond	FY 2024 Ban	FY 2024 Bond	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	Explain basis of cost estimate (i.e., based on conceptual design as of [date] with inflation escalator of x% per annum; final bid price; internal estimate, etc.) and funding source(Grant - Awarded, Grant - Estimated, Surplus - Cap Projects, Surplus - Debt Service)
Ruane and Thorpe Pipe Replacement			$ -	$ -	$ -	$ -	$ -	$ 2,000,000.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Did not carry these projects over from old plan; added on upon discussions with WPCA that projects should still be on the plan
			$ -	$ -	$ -	$ (3,896,666.67)	$ (1,726,666.67)	$ 6,123,333.33	$ 1,860,000.00	$ 8,751,666.67	$ 6,751,666.67	$ 1,751,666.67	$ (2,100,000.00)	$ (2,100,000.00)	$ (2,100,000.00)	
Total WPCA			$ -	$ -	$ -	$ (3,896,666.67)	$ (1,726,666.67)	$ 6,123,333.33	$ 1,860,000.00	$ 8,751,666.67	$ 6,751,666.67	$ 1,751,666.67	$ (2,100,000.00)	$ (2,100,000.00)	$ (2,100,000.00)	
Grand Total Changes			$ -	$ -	$ -	$ (9,128,666.67)	$ 1,036,333.33	$ 6,290,333.33	$ 3,151,000.00	$ 8,851,666.67	$ 6,751,666.67	$ 1,751,666.67	$ (2,100,000.00)	$ (2,100,000.00)	$ (2,100,000.00)	
Sum of All FY			$ 12,404,000.00													

20 YEAR

A RESOLUTION APPROPRIATING $2,760,480 FOR THE COSTS TO REPLACE THE FAIRFIELD BEACH ROAD PUMP STATION FORCE MAIN AND AUTHORIZING THE ISSUANCE OF BONDS AND/OR CLEAN WATER FUND OBLIGATIONS TO FINANCE SUCH APPROPRIATION

RESOLVED:

1. As requested by the Water Pollution Control Authority (the "WPCA") of the Town of Fairfield (the "Town") and as recommended by the Board of Selectmen and the Board of Finance, the Town hereby appropriates the sum of Two Million Seven Hundred Sixty Thousand Four Hundred Eighty and 00/100 ($2,760,480) Dollars for costs to replace the existing force main serving the Fairfield Beach Road pump station with an entirely new force main, which costs will include but not be limited to, design, engineering, installation, materials, construction, equipment, site work, fixtures, architectural fees, environmental, oversight, as well as, all administrative, financing, legal, contingency and other soft costs related thereto (the "Project").

2. To finance such appropriation and in lieu of a tax therefor, and as recommended by the Board of Selectmen and the Board of Finance, the Town may issue (i) bonds under its corporate name and seal upon the full faith and credit of the Town, (ii) project loan obligations, interim funding obligations or other obligations (collectively, the "CWF Obligations") as described herein meeting the conditions prescribed in Sections 22a-475 to 22a-483, inclusive, of the Connecticut General Statutes (the "Clean Water Fund Statutes"), or (iii) any combination of bonds or CWF Obligations described in (i) and (ii) above, provided, in all cases, that the total, aggregate principal amount thereof outstanding at any time shall not exceed $2,760,480. The aggregate amount of bonds and CWF Obligations shall be issued in an amount necessary to meet the Town's share of Project costs determined after considering the estimated amounts of grants in aid of the Project.

3. The Board of Selectmen, the Treasurer and the Chief Fiscal Officer of the Town are hereby appointed a committee (the "Committee") with full power and authority to cause said bonds to be sold, issued and delivered; to determine their form and terms, including provision for redemption prior to maturity; to determine the aggregate principal amount thereof within the amount hereby authorized and the denominations and maturities thereof; to fix the time of issue of each series thereof and the rate or rates of interest thereon as herein provided; to determine whether the interest rate on any series will be fixed or variable and to determine the method by which the variable rate will be determined, the terms of conversion, if any, from one interest rate mode to another or from fixed to variable; to set whatever other terms of the bonds they deem necessary, desirable or appropriate; to designate the bank or trust company to certify the issuance thereof and to act as transfer agent, paying agent and as registrar for the bonds, and to designate bond counsel. The Committee shall have all appropriate powers under the Connecticut General Statutes, as amended (the "Statutes") including Chapter 748 (Registered Public Obligations Act) and

Chapter 109 (Municipal Bond Issues) to issue, sell and deliver the bonds and, further, shall have full power and authority to do all that is required under the Internal Revenue Code of 1986, as amended, and under rules of the Securities and Exchange Commission, and other applicable laws and regulations of the United States, to provide for issuance of the bonds in tax exempt form and to meet all requirements which are or may become necessary in and subsequent to the issuance and delivery of the bonds in order that the interest on the bonds be and remain exempt from Federal income taxes, including, without limitation, to covenant and agree to restriction on investment yield of bond proceeds, rebate of arbitrage earnings, expenditure of proceeds within required time limitations, the filing of information reports as and when required, and the execution of Continuing Disclosure Agreements for the benefit of the holders of the bonds and notes.

4. The First Selectman and Treasurer or Chief Fiscal Officer, on behalf of the Town, shall execute and deliver such bond purchase agreements, reimbursement agreements, line of credit agreement, credit facilities, remarketing agreement, standby marketing agreements, standby bond purchase agreements, and any other commercially necessary or appropriate agreements which the Committee determines are necessary, appropriate or desirable in connection with or incidental to the sale and issuance of bonds, and if the Committee determines that it is necessary, appropriate, or desirable, the obligations under such agreements shall be secured by the Town's full faith and credit.

5. The First Selectman and Treasurer or Chief Fiscal Officer shall execute on the Town's behalf such interest rate swap agreements or similar agreements related to the bonds for the purpose of managing interest rate risk which the Committee determines are necessary, appropriate or desirable in connection with or incidental to the carrying or selling and issuance of the bonds, and if the Committee determines that it is necessary, appropriate or desirable, the obligations under such interest rate swap agreements shall be secured by the Town's full faith and credit.

6. Any bonds may be designated "Public Improvement Bonds of the Town of Fairfield", series of the year of their issuance and may be issued in one or more series, and may be consolidated as part of the same issue with other bonds of the Town; shall be in serial form maturing in not more than twenty (20) annual installments of principal, the first installment to mature not later than three (3) years from the date of issue and the last installment to mature not later than twenty (20) years from the date of issuance or as otherwise provided by statute. The bonds may be sold at an aggregate sales price of not less than par and accrued interest at public sale upon invitation for bids to the responsible bidder submitting the bid resulting in the lowest true interest cost to the Town, provided that nothing herein shall prevent the Town from rejecting all bids submitted in response to any one invitation for bids and the right to so reject all bids is hereby reserved, and further provided that the Committee may sell the bonds on a negotiated basis, as provided by statute. Interest on the bonds shall be payable semi-annually or annually. The bonds shall be signed on behalf of the Town by at least a majority of the Board of Selectmen and the Treasurer, and shall bear the seal of the Town. The signing, sealing and certification of the bonds may be by facsimile as provided by statute.

7. The Committee is further authorized to make temporary borrowings as authorized by the Statutes and to issue temporary notes of the Town in anticipation of the receipt of proceeds from the sale of the bonds to be issued pursuant to this resolution or in anticipation of the receipt of grants. Such notes shall be issued and renewed at such time and with such maturities, requirements and limitations as provided by the Statutes. Notes evidencing such borrowings shall be signed by the First Selectman and Treasurer or Chief Fiscal Officer, have the seal of the Town affixed, which signing and sealing may be by facsimile as provided by statute, be certified by and payable at a bank or trust company incorporated under the laws of this or any other state, or of the United States, be approved as to their legality by bond counsel and may be consolidated with the issuance of other Town bond anticipation notes. The Committee shall determine the date, maturity, interest rates, form and manner of sale, including negotiated sale, and other details of said notes consistent with the provisions of this resolution and the Statutes and shall have all powers and authority as set forth above in connection with the issuance of bonds and especially with respect to compliance with the requirements of the Internal Revenue Code of 1986, as amended, and regulations thereunder in order to obtain and maintain issuance of the notes in tax exempt form.

8. Pursuant to Section 1.150-2, as amended, of the Federal Income Tax Regulations the Town hereby declares its official intent to reimburse expenditures (if any) paid for the Project from its General or Capital Funds, such reimbursement to be made from the proceeds of the sale of bonds and notes authorized herein and in accordance with the time limitations and other requirements of said regulations.

9. The First Selectman, Chief Fiscal Officer and Town Treasurer are hereby authorized, on behalf of the Town, to enter into agreements or otherwise covenant for the benefit of bondholders to provide information on an annual or other periodic basis to the Municipal Securities Rulemaking Board (the "MSRB") and to provide notices to the MSRB of material events as enumerated in Securities and Exchange Commission Exchange Act Rule 15c2-12, as amended, as may be necessary, appropriate or desirable to effect the sale of the bonds and notes authorized by this resolution.

10. The Committee is hereby authorized to take all action necessary and proper for the sale, issuance and delivery of the bonds and notes in accordance with the provisions of the Statutes and the laws of the United States.

11. Any CWF Obligations shall be issued pursuant and subject to the Clean Water Fund Statutes. To meet any portion of the costs of the Project determined to be eligible for funding under said Clean Water Fund Statutes, the Town may borrow pursuant to, and issue its project loan obligations to the State of Connecticut (the "State") and may issue interim funding obligations in anticipation of such project loan obligations in such denominations as may be appropriate. Any such interim funding obligations may be renewed from time to time by the issuance of other notes, provided the final maturity of such notes do not exceed the maximum period permitted under Section 22a-479 of the Connecticut General Statutes. The CWF Obligations may be secured as to both principal and interest by a pledge of revenues to be derived by the WPCA from sewerage system use

and/or connection charges or benefit assessments or both. The CWF Obligations may also be secured by the full faith and credit of the Town. The First Selectman of the Town is authorized to sign such CWF Obligations by his manual or facsimile signature. The First Selectman is further authorized to execute and deliver to the State project funding agreements, project loan and project grant agreements and any other documents required by the State in connection with the CWF Obligations. The CWF Obligations shall bear the seal of the Town or a facsimile of the seal.

12. The First Selectman or other proper Town official is authorized to apply for and accept any available State or Federal grant in aid of the financing of the Project, including the grants set forth in section 3 herein, and to take all action necessary and proper in connection therewith. Any such grants or contribution received prior to the issuance of the bonds authorized herein shall be applied to the costs of the Project or to pay at maturity the principal of any outstanding bond anticipation notes issued pursuant this resolution and shall reduce the amount of the bonds that can be issued pursuant to this resolution. If such grants and contributions are received after the issuance of the bonds, they shall be applied to pay the principal on the bonds or as otherwise authorized by the Board of Selectmen, Board of Finance and Representative Town Meeting provided such application does not adversely affect the tax-exempt status of the bonds or the Town's receipt of such grant or contribution.

SUPPLEMENTAL RESOLUTION

WHEREAS, the Town of Fairfield (the "Town") has adopted, at the request of the Water Pollution Control Authority ("WPCA"), a Resolution entitled "A RESOLUTION APPROPRIATING $2,760,480 FOR THE COSTS TO REPLACE THE FAIRFIELD BEACH ROAD PUMP STATION FORCE MAIN AND AUTHORIZING THE ISSUANCE OF BONDS AND/OR CLEAN WATER FUND OBLIGATIONS TO FINANCE SUCH APPROPRIATION" (the "Resolution"); and

WHEREAS, the Resolution appropriated $2,760,480 for costs to replace the Fairfield Beach Road pump station force main (the "Project") and authorized the issuance of bonds (the "Bonds") and/or Clean Water Fund obligations (the "CWF Obligations"); and

WHEREAS, while the Town is liable for the debt service on the Bonds and the CWF Obligations, for internal accounting purposes, it is appropriate that the costs of the Project including debt service on the Bonds and the CWF Obligations be allocated to the WPCA; and

WHEREAS, the Town's WPCA has agreed to pay for the costs of the Project and the debt service on the Bonds and the CWF Obligations authorized by the Resolution; and

NOW, THEREFORE, IT IS HEREBY:

RESOLVED,

1) That the debt service on the Bonds and the CWF Obligations as it becomes due shall be paid by the WPCA from its own funds and the obligation of the WPCA shall be set forth in a memorandum of understanding (the "MOU") with the Town satisfactory to First Selectman; and

2) That the First Selectman is hereby authorized to execute the MOU on behalf of the Town.

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding is made as of the ___ day of _____, 2024 by and between the Town of Fairfield, Connecticut (the "Town") and the Water Pollution Control Authority in the Town (the "WPCA").

WHEREAS, on _____, 2024, the Town's Representative Town Meeting ("RTM") approved a resolution related to the Fairfield Beach Road pump station force main replacement project (the "Project") which resolution was entitled "A RESOLUTION APPROPRIATING $2,760,480 FOR THE COSTS TO REPLACE THE FAIRFIELD BEACH ROAD PUMP STATION FORCE MAIN AND AUTHORIZING THE ISSUANCE OF BONDS AND/OR CLEAN WATER FUND OBLIGATIONS TO FINANCE SUCH APPROPRIATION" (the "Force Main Resolution"); and

WHEREAS, on _____, 2024, the RTM also approved a Supplemental Resolution related to the Force Main Resolution stating that the debt service on the bonds or the Clean Water Fund obligations (the "CWF Obligations") as such debt service becomes due shall be paid by the WPCA from its own funds, that the obligation of the WPCA shall be set forth in a memorandum of understanding ("MOU") with the Town satisfactory to the First Selectman, and that the First Selectman is authorized to execute the MOU on behalf of the Town; and

WHEREAS, the WPCA Board of Commissioners approved the Project and agreed to reimburse the Town for debt service on any bonds, CWF Obligations and notes issued by the Town in connection with the costs of the Project.

NOW THEREFORE, in consideration of the mutual agreements contained in this Memorandum of Understanding, the Town and the WPCA agree to the following:

1. To the extent the Town issues any bonds, CWF Obligations or notes on behalf of and at the request of the WPCA to fund any or all of the costs of the Project, the WPCA will be responsible for and pay the full debt service on such bonds, CWF Obligations or notes based on a schedule established by the Town for repayment of the bonds, the CWF Obligations or notes; and

2. The WPCA agrees to use its reserves, assess user fees or raise other monies sufficient to fund the debt service on such bonds, CWF Obligations or notes.

IN WITNESS WHEREOF, each party intending to be bound, has executed this Memorandum of Understanding to reflect its agreement with the terms hereof.

TOWN OF FAIRFIELD

By: _____
William A. Gerber
First Selectman

WATER POLLUTION CONTROL AUTHORITY

By: _____

Its

Fairfield Beach Road Pump Station Force Main Replacement

Project cost $2,760,480

1. **Background**: A force main is a pressurized sewer pipe that conveys wastewater from the discharge side of a pump station in locations where gravity is not enough to move the wastewater from a lower to higher elevation through the sewer line. The force main at the Fairfield Beach Road pump station was installed in 1959 and conveys wastewater from the station a total of 2,460 feet to a manhole where it then flows by gravity to the wastewater treatment plant. The existing 8" diameter pipe is made of asbestos concrete pipe and has been in service for 65 years.

2. **Purpose & Justification:** The purpose of this project is to replace a critical piece of the Fairfield Beach pump station that has exceeded its 50 year design service life and has failed in the past due to its deteriorating condition. In 2013, a major force main break just outside of the station caused gravel from the surrounding soil to be sucked into the wetwell, and required emergency repairs. The surrounding water table is tidal and mostly salt water, which adds to the degradation of the pipe.

3. **Detailed Description of Proposal:** Remove and replace the entire force main totaling 2,460 feet with new pipe made of the most sensible material to survive in the salty environment. Pipe will be replaced from the station to the gravity manhole to which it discharges.

4. **Reliability of Cost estimate:** Based on a scale of 0 to 10, this is at a 5 as it is based on consultant conceptual cost estimate. The design for this project is not complete and is still in the investigation phase.

5. **Increased Efficiency:** New pipe will ensure proper conveyance of sewage and protect the area. It will enhance the station upgrade, as all components will be new.

6. **Additional Long Range Costs:** Maintenance of the force main will be bore by the WPCF out of the annual operating budget.

7. **Additional Use or Demand on Existing Facilities:** None

8. **Alternatives to this Request:** None. The Do Nothing alternative means the force main continues to age and deteriorate to potential failure in the future.

9. **Safety and Loss Control:** Environmental conditions will be better protected with this project.

10. **Environmental Considerations:** Environmentally due to slightly higher velocities in this force main, sulfides can be produced and released into the atmosphere in the discharge manhole and downstream piping. Town will hire a licensed environmental firm to perform specialized inspections throughout the project. Federal, state and local permits will be required.

11. **Insurance:** Contractor will be required to carry the necessary insurance as directed by the Town of Fairfield Purchasing Department.

12. **Financing:** Funded by a 20 year bond. WPCA to pay debt service. However, all sources of funding will also be researched and applied for to try to lessen the bonding impact on the Town. The scope of this project meets the eligibility criteria for Clean Water Fund (CWF) grant or loan. The new force main will have a 50-year service life.

13. **Other Considerations:** None

14. **Other Approvals:** WPCA Commission/BOS/BOF/RTM

Pump Station and Force main Opinion of Probable Construction Costs (Jan 2024)
Town of Fairfield, CT

Tighe&Bond

Pump Station & Force Main	2024 OPCC	Assumed year of Construction[6]	Escalation	Total	
Toll House Pump Station	$1,480,000	2031	$1,021,231	$2,501,231	5
Toll House Pump Station Force Main [1]	$1,400,000	2031	$966,030	$2,366,030	
Eastfield Drive Pump Station	$850,000	2031	$586,518	$1,436,518	7
Eastfield Drive Pump Station Force Main	$660,000	2031	$455,414	$1,115,414	
Mill Hill Pump Station [2]	$3,480,000	2033	$3,379,918	$6,859,918	4
Mill Hill Pump Station Force Main [3]	$4,270,000	2033	$4,147,198	$8,417,198	
Center Street Pump Station [4,5]	$3,670,000	2026	$551,234	$4,221,234	2
Center Street Pump Station Force Main	$2,811,240	2026	$422,248	$3,233,488	
Willow Street Pump Station	$1,251,720	2031	$863,713	$2,115,433	6
Willow Street Pump Station Force Main	$740,000	2031	$510,616	$1,250,616	
Pine Creek Pump Station	$3,460,000	2026	$519,692	$3,979,692	3
Pine Creek Pump Station Force Main	$890,000	2026	$133,678	$1,023,678	
Fairfield Beach Pump Station [4]	$4,940,000	2026	$741,988	$5,681,988	1
Fairfield Beach Pump Station Force Main	$2,400,000	2026	$360,480	$2,760,480	
	$32,302,960			**$46,962,917**	

Notes:

1 Assumes new FM under RT 15 will be installed via Horizontal Directional Drilling.
2 Structural evaluation of the building to counteract flood impacts are still ongoing and costs will vary based on results of the evaluation
3 Assumes replacement of FM under river via open cut method. Used recent project costs at $ 8,500/lf for replacement of pipe under a 130 ft wide river
4 Assumes both Fairfield Beach and Center Street PS structures will need to be significantly reinforced to counteract flood impacts.
5 Assumes new structure to house Generator at Center Street PS to counteract flood impacts.
6 Assumes CTDOT Escalation of 6.5%

WRIGHT-PIERCE
Engineering a Better Environment

Memorandum

Date: **12/20/2022**

Project No.: **21271– Pump Station Evaluation Update**

To: **John Bodie, Superintendent**

From: **Dennis Dievert & Prashanth Emmanuel**

Subject: **Town of Fairfield, CT - Sewer Pump Station Evaluation Update - FINAL**

Background

In March 2018, Wright-Pierce (WP) finalized an evaluation of the eight remote pump stations in the Town of Fairfield, CT as part of a comprehensive wastewater facilities planning study utilizing a 55% Planning Grant through the Clean Water Fund (CWF) Program. The results of this evaluation are summarized in the *Pump Stations Evaluation for the Fairfield, CT Water Pollution Control Authority Report (March 2018).* The evaluation for each pump station included an assessment of the existing pumping equipment, building structures, electrical equipment, controls, heating/ventilation equipment, resiliency, site access and beautification, code compliance, safety compliance and energy efficiency. The results of the evaluation was summarized in a 15-year Pump Station Capital Improvement Plan (CIP) to allow the Town to determine the basis and probable timing of future pump station capital expenditures, as well as to comply with the Environmental Protection Agency's (EPA) requirements for Capacity, Management, Operation and Maintenance (CMOM) regulations.

The following pump stations were evaluated as part of the 2018 Report:

- Toll House Pump Station
- Easton Turnpike Pump Station
- Eastfield Drive Pump Station
- Mill Hill Terrace Pump Station
- Center Street Pump Station
- Willow Street Pump Station
- Pine Creek Pump Station
- Fairfield Beach Road Pump Station

The 2018 Report recommended the following prioritized upgrades and additional inspections over the 15-year planning period (2018 – 2032) as summarized below and shown in Table 1:

- Immediate comprehensive upgrades to the Easton Turnpike, Center Street, Pine Creek, and Fairfield Beach Pump Stations
- Replacement of the Easton Turnpike, Center Street and Fairfield Beach force mains
- Partial upgrades to the Toll House, Eastfield, Mill Hill, and Willow Street Pump Station.
- Hardening of pump station structures against potential flooding and storm surges for the Center Street, Pine Creek, and Fairfield Beach Pump Stations
- Additional inspections of the Willow Street and Pine Creek force mains

TABLE 1
2018 PUMP STATION CAPITAL IMPROVEMENT PLAN

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Toll House											★					
Easton Turnpike & FM		★														
Eastfield Drive													★			
Mill Hill								★								
Center Street & FM				★												
Willow Street															★	
Pine Creek						★										
Fairfield Beach & FM			★													
FM Inspections					★											

Since the completion of the 2018 Report, the town has completed an upgrade to the Easton Turnpike Pump Station and force main in 2021 along with the replacement of the generator and associated electrical and instrumentation infrastructure at the Mill River Pump Station utilizing FEMA funding. Upgrades to the Fairfield Beach, Center Street and Pine Creek Pump Stations and associated force mains were scheduled for upgrades in 2019, 2020 and 2022 respectively. However, as of December 2022, these upgrades are still only in the planning stages. To ensure the town remains proactive in their planning for future capital expenditures related to their sewer pump stations, they have requested Wright-Pierce to update the 2018 recommendations, costs, current available funding opportunities and CIP. This memorandum shall serve to replace Section 7 of the March 2018 Report.

Project Approach

The project approach to update the 2018 evaluation included the following:

- Conduct a workshop with WPCF and collection systems staff to identify any additional operational challenges and equipment issues realized since the completion of the 2018 Report
- Update and amend the recommendations (Section 7) of the 2018 Report to include additional items identified during the workshop with Town Staff including:
    - Updated costs for each recommended improvement in 2022 construction dollars

  - Updated 15-year Pump Station CIP priorities from 2023 - 2038
- Investigate current available funding opportunities at the state and federal level for pump station and force main upgrades

Updated 2022 Recommendations

WP met with the Town of Fairfield treatment plant staff in November 2022 to review the existing recommendations and to identify any new operational challenges or equipment issues experienced since the completion of the 2018 Report. The section below summarizes the updated recommendations for each pump station.

Toll House Road Pump Station

The Toll House Road pump station was identified to be in fair condition in the 2018 Evaluation. Site visits conducted to this station in 2018 showed that the age and condition of various components have exceeded their useful life. The pump station was identified to be potentially impacted by flooding and upgrades should account for raising critical equipment to 3 feet above the 100-year floodplain elevation. The updated recommended improvements to the Toll House Road Pump Station are summarized below.

Process Improvements:

- Replace existing pumps, discharge piping, valves, and supports.
- Replace the wet well and valve vault access hatches.
- Install a wet well vent.

Electrical & Instrumentation Improvements:

- Upgrade electrical infrastructure and relocate wiring and junction boxes in wet well.
- Install new control panel and address communication and SCADA issues.
- Replace standby generator.

HVAC Improvements:

- Replace unit heaters.

Building & Site Improvements:

- Repair building cracks in the CMU walls and replace building siding and roofing.
- Replace the building entrance door and overhead roll up door.
- Repair damaged fence gate or replace fence.
- Replace railings to improve safety inside the pump station.
- Regrade existing site for improved access.
- Floodproof the station to 3-feet above the 100-year flood elevation by raising electrical equipment, installing flood doors, and sealing/patching any open penetrations below the flood elevation.

Force Main Improvements:

- Conduct inspection of the existing 6-inch force main that runs under Merritt Parkway and carry full replacement costs in the CIP.

Easton Turnpike Pump Station

This pump station was comprehensively upgraded in 2021 which included a new submersible station, valve vault, dual force mains, and a new masonry structure to house a new standby generator and electrical/instrumentation equipment. There is no action required for this pump station in the CIP. The station should be evaluated in 2045.

Eastfield Drive Pump Station

The Eastfield Drive pump station was identified to be in fair condition in the 2018 Evaluation. Site visits conducted to this pump station in 2018 recommended high priority safety improvements due to access concerns. The updated recommended improvements to the Eastfield Drive Pump Station are summarized below.

High Priority Improvements:

- Removal of the fencing and replacement with a design that provides adequate access that meets industry codes for safe access.

Process Improvements:

- Replace the pumps, discharge piping, pump guide rails and connection fittings to the pumps to provide for a complete seal to the discharge piping.
- Install a new pump station bypass connection and associated valves. The bypass connection should be accessible at ground level.

Electrical & Instrumentation Improvements:

- Upgrade electrical junction box in wet well to comply with new code requirements
- Install new control panel and address communication and SCADA issues.

Force Main Improvements:

- Inspect force main and carry full replacement costs in the CIP.
- Reconfigure force main piping in yard and add new valve vault to access valves.

Mill River Pump Station

The Mill River pump station was identified to be in fair condition in the 2018 Evaluation. Site visits conducted to this station in 2018 showed that the age and condition of various components exceeded their useful life and recommended improvements to the process, mechanical, electrical, and building/site components for the station. The updated recommended improvements to the Mill River Pump Station are summarized below.

Process Improvements:

- Replace Pump 1 and 3 to improve pumping efficiency and maintain capacity and redundancy per TR-16.
- Replace the pump suction and discharge piping and valves based on the age and condition.
- Replacement of check valves with weighted check valves on the pump discharge piping.
- Replace existing comminutor in the influent channel.

Mechanical Improvements:

- Upgrade/Replace wet well and dry well ventilation systems.

Electrical Improvements:

- Replace electrical equipment in its entirety.
- Install new variable frequency drives to improve efficiency of process pumps.

- Maintain generator installed in 2022 with FEMA funding.

Building & Site Improvements:

- Upgrade the building shell to meet current codes (doors, windows, roofing).
- Floodproof the station to 3-feet above the 100-year flood elevation by raising electrical equipment, installing flood doors, and sealing/patching any open penetrations below the flood elevation.
- Upgrade existing monorail system that is currently not adequately supported with new monorail beam and hoist.
- Add stiffener supports or replace existing grating in the wet well and based on a structural evaluation during design.

Force Main Improvements:

- Conduct investigation to verify structural integrity of the two force mains that run under Mill River.

Center Street Pump Station

The Center Street pump station was identified to be in fair condition in the 2018 Evaluation. Site visits conducted to this station in 2018 identified certain high priority improvements to address safety concerns observed. The pump station was identified to be impacted from flooding and upgrades should account for floodproofing the structure and raising critical equipment to 3 feet above the 100-year floodplain. The updated recommended improvements to the Center Street Pump Station are summarized below.

High Priority Improvements:

- Implement floodproofing measures, such as floodproof doors and access hatches to the building structure to protect critical equipment to 3-feet above the 100-year base flood elevation. During design, it may be realized that a new superstructure will be required to comply with FEMA.
- Replace wet well grating.

Process Improvements:

- Replace the pumps, valves and pump suction and discharge piping based on the age and condition.
- Repair/Replace the Parshall flume flow meter.

Mechanical Improvements

- Upgrade of the wet well and dry well ventilation systems.

Electrical Improvements:

- Replace all electrical infrastructure.
- Salvage existing generator that was replaced in 2012 for use elsewhere. Install a new natural gas generator to allow for operation in "island mode".

Force Main Improvements:

- Replace the existing 14-inch force diameter main with a new 14-inch diameter force main. The existing force main is difficult to access and has experienced breaks in the past.

Building & Site Improvements:

- Install a new pump station bypass connection and associated valves. The bypass connection will be accessed at grade level.
- Extend natural gas service to the site.
- Building improvements, including replacement of the ceiling and insulation and modifications to the generator building entrance step.

- Replace windows, doors and roof of the pump station structure.

Willow Street Pump Station

The Willow Street pump station identified to be in fair condition in the 2018 Evaluation. Site visits conducted to this station in 2018 identified high priority improvements to address safety and access concerns. The updated recommended improvements to the Willow Street Pump Station are summarized below.

High Priority Improvements:

- Installation or modification of the facilities to provide safe access to both the dry well, both wet wells, and electrical equipment enclosure.

Process Improvements:

- Replacement of can-style pump station with a packaged submersible style pump station to improve operator access and eliminate confined space requirements. Design and construct critical equipment to 3-feet above the 100-year base flood elevation.
- Install a new pump station bypass connection and associated valves.
- Relocate the control panel from the buried drywell to an above grade building or panel board to reduce potential confined space issues.

Force Main Improvements:

- Evaluate the condition of the force main, and carry full replacement costs in the CIP.

Pine Creek Pump Station

The Pine Creek pump station was identified to be in fair condition in the 2018 Evaluation. Site visits conducted to this station in 2018 identified certain high priority improvements to address safety concerns. The pump station was identified to be severely impacted from flooding and significant upgrades or replacements to the building will be required to protect the station components. The updated recommended improvements to the Pine Creek Pump Station are summarized below.

High Priority Improvements:

- Upgrade of the station to meet floodproofing requirements. Currently the 100 year flood elevation is 8-feet above current finished floor. Due to the 100-year flood elevation, this would require a new structure protected to 3-feet above the 100-year flood elevation with secondary access (up and over) to a dry side (Electrical/Generator Room) and wet side (submersible pump station wet well).

Process Improvements:

- Replacement of can-style pump station with a packaged submersible style pump station to improve operator access and eliminate confined space requirements. The new station will be accessed from the new building.

Electrical Improvements:

- Replace all electrical infrastructure and install a permanent standby generator to eliminate plant staff from needing to install a trailer mounted generator at this station prior to each flood event.

Force Main Improvements:

- Replace existing force main in its entirety.

Fairfield Beach Pump Station

The Fairfield Beach pump station was identified to need high priority improvements to address safety concerns in the 2018 Evaluation. The pump station was also identified to be severely impacted from flooding and significant upgrades or replacements to the building will be required to protect the station components. The updated recommended improvements to the Fairfield Beach Pump Station are summarized below.

High Priority Improvements:

- Upgrade of the station to meet floodproofing requirements. Currently the 100-year flood elevation is 6-feet above current finished floor. Due to the 100-year flood elevation, this would require a new structure protected to 3-feet above the 100-year flood elevation with secondary access (up and over) to a drywell, electrical gear and wet well.
- Replace the mid-level floor structure with steel framing and grating.
- Replace all hatches with hatches that have secondary fall protection.
- Replace access ladders in the dry well due to their severely corroded condition.

Process Improvements:

- Reevaluate pumps installed as part of the 2016 upgrade and install a third pump.
- Replace the piping in pump station due to its age and condition. The existing valves may be reinstalled since they are new. The new piping should be reconfigured to allow for better operator access and reduced bends.
- Install a new pump station bypass connection and associated valves. The bypass connection should be accessed at the ground surface.

Mechanical Improvements:

- Upgrade of the wet well and dry well ventilation systems.

Electrical Improvements:

- Replace all electrical infrastructure.
- Review of standby generator replacement and location due to its age.

Force Main Improvements:

- Replace the existing force in its entirety.

Force Mains

The 2018 Report identified the following force mains as suspect based on their location, proximity to salt water, age, recorded historical breaks, material of construction, and the identified flow conditions including velocity and residence time to determine their effective remaining service life and intended use.

- Easton Turnpike Pump Station Force main (Replacement)
- Center Street Pump Station Force main (Replacement)
- Fairfield Beach Pump Station Force main (Replacement)
- Willow Street Pump Station Force main (Inspection)
- Pine Street Pump Station Force main (Inspection)

In 2021, the Town completed replacement of the Easton Turnpike Pump Station and installed a new dual force main.

Based on discussion with Town staff in November 2022, the recommended force main replacements and investigations have been updated as follows:

- Center Street Pump Station Force main (Replacement)
- Fairfield Beach Pump Station Force main (Replacement)
- Pine Street Pump Station Force main (Replacement)
- Willow Street Pump Station Force main (Inspection)
- Toll House Road Pump Station (Inspection under Merritt Parkway)
- Eastfield Pump Station (Inspection)
- Mill River Pump Station (Inspection under Mill River)

For budgeting purposes, full replacement costs have been carried for all pump station force mains except for Easton Turnpike which was replaced in 2021.

Additionally, as part of this Report amendment, an evaluation was conducted based on the average daily flow for each pump station to estimate the number of trucks required to maintain station flow in an event a force main failure occurs (Table 2). This allows the Town to prioritize the force mains based on the ability to maintain flow during a failure. It is recommended that that town develop an emergency plan for each remote pump station that includes an adopted Standard Operating Procedure (SOP) in the event of a force main failure. This has been included in the CIP.

TABLE 2
NUMBER OF TRUCKS TO MAINTAIN STATION FLOW DURING FORCE MAIN FAILURE

Pump Station	2018 Average Daily Flow (GPD)	Number of Septic Trucks	Number of Tanker Truck
Toll House Pump Station	27,000	8	4
Easton Turnpike Pump Station	141,000	40	22
Eastfield Drive Pump Station	6,000	2	1
Mill River Pump Station	1,025,000	293	158
Center Street Pump Station	616,000	176	95
Willow Street Pump Station	24,000	7	4
Pine Creek Pump Station	20,000	6	3
Fairfield Beach Pump Station	199,000	57	31

As shown in Table 2, the number of trucks required for each pump station is based on a 3,500-gallon septage hauling truck and 6,500-gallon taker truck capacity. The table shows that a force main failure at the Easton Turnpike, Center Street, Mill River, and Fairfield Beach Pump Stations can result in significant environmental and cost impacts requiring the need to install a temporary force main to the nearest discharge manhole to maintain incoming flows while repairs to the force main are made. It should be noted that the Easton Turnpike and Mill River Pump Stations have dual force mains. The use of the second force main during the failure of the other should be included in the SOP and the need for a temporary force main may not be required. The remaining stations can be maintained with septage and/or tanker trucks. The SOP for these stations should include a site plan locating the staged trucks as well the discharge manhole the trucks can be discharged. There should also be an aerial overview of the force main route to identify areas of potential traffic, societal and environmental impacts along the pipe route in the event of a pipe failure.

As shown in Table 2, the number of trucks required for each pump station is based on a 3,500-gallon septage hauling truck and 6,500-gallon taker truck capacity. The table shows that a force main failure at the Easton Turnpike, Center Street, Mill River, and Fairfield Beach Pump Stations can result in significant environmental and cost impacts requiring the need to install a temporary force main to the nearest discharge manhole to maintain incoming flows while repairs to the force main are made. It should be noted that the Easton Turnpike and Mill River Pump Stations have dual force mains. The use of the second force main during the failure of the other should be included in the SOP and the need for a temporary force main may not be required. The remaining stations can be maintained with septage and/or tanker trucks. The SOP for these stations should include a site plan locating the staged trucks as well the discharge manhole the trucks can be discharged. There should also be an aerial overview of the force main route to identify areas of potential traffic, societal and environmental impacts along the pipe route in the event of a pipe failure.

2022 Updated Opinion of Probable Project Costs

The cost estimates prepared for the 2018 Evaluation were developed prior to the COVID-19 pandemic. Since this time, construction costs have been unpredictable and heavily impacted by supply chain issues and increased inflation. As part of this amendment, updated costs have been developed to reflect the updated recommendations by station as well the impacts of current economic conditions. A summary of the updated 2022 Opinion of Probable Costs is shown in Table 3, with detailed supporting breakdowns attached to his memorandum. The 2022 Opinion of Probable Costs utilize an ENR CCI Index factor of 13175 and includes the following components:

- Construction Costs in 2022 dollars accounting for cost impacts of extended material lead times
- 15% construction contingency (*includes some costs for hazardous materials & soils remediation*)
- 20% Technical services for preliminary, final design and construction phase services
- Force main costs assume $700/LF all-inclusive with a 15% contingency and 20% technical services. Additional contingencies were carried for the Toll House and Mill River Pump Station force mains as portions of the pipe run beneath Route 15 and the Mill River respectively.

TABLE 3
2022 OPINION OF PROBABLE PROJECT COSTS

Pump Station	Cost in 2022 Dollars
Toll House Pump Station	$1,150,000
Toll House Pump Station Force Main	$1,100,000
Eastfield Drive Pump Station	$683,000
Eastfield Drive Pump Station Force Main	$407,000
Mill River Pump Station	$2,640,000
Mill River Pump Station Force Main	$1,500,000
Center Street Pump Station	$1,410,000

See updated estimates from Tighe & Bond

Pump Station	Cost in 2022 Dollars
Center Street Pump Station Force Main	$2,740,000
Willow Street Pump Station	$1,220,000
Willow Street Pump Station Force Main	$530,000
Pine Creek Pump Station	$2,950,000
Pine Creek Pump Station Force Main	$750,000
Fairfield Beach Pump Station	$3,190,000
Fairfield Beach Pump Station Force Main	$2,360,000

2022 Updated 15-Year Capital Improvement Plan

A CIP is a planning tool that allows municipalities to prioritize upgrade projects based on changing conditions. The total estimated project costs from the 2018 CIP were updated to reflect the additional improvements identified as part of this study along with reprioritizing pump station and force main improvements based on current conditions. These recommendations are prioritized based upon age, criticality of failure, flood concerns, and general station reliability. In general, the priorities presented in the 2018 CIP were updated slightly pushing the timing of the Mill Hill River Pump Station from 2024 to 2031. This decision was based on the installation of a new generator at this station in 2021 utilizing FEMA funding. The total estimated project cost for the recommended pump station improvements, force main replacements and additional investigations is approximately $22.83M in 2022 dollars. The 2022 CIP includes an inflation rate of 8% per year for years 1 through 5, 6.5% for years 6 through 10, and 5% for years 11 through 15. This can be adjusted up or down each year based on the changes in the economy.

The CIP should be considered a working document that gets updated annually during the budget season. At this time, inflation can be adjusted as required. This Pump Station CIP has been developed to address the most critical pump station and force main upgrades first followed by partial and less critical upgrades second. The current CIP assumes that upgrades will be grouped together to save cost and time. The first grouping includes the Center Street, Pine Creek and Fairfield Beach Pump Stations and force mains. The second grouping includes the Toll House, Eastfield Drive and Willow Street Pump Station and force mains. The last group includes the Mill Hill River Pump Station and force main. Costs have been carried for full force main replacement at all pump stations with the same timing as the pump station upgrades. The timing of the force main replacements should be re-evaluated following the findings of the recommended 2023 force main inspections.

TABLE 3
PUMP STATION CAPITAL IMPROVEMENTS PLAN – TARGET REPLACEMENT/UPGRADE YEAR

Item/Equipment	2022 Budget Cost	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Inflation factor (See Note 1)	1.00	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52	2.72	2.94	3.17	3.43
Pump Station Upgrades																	
Toll House	$1,150,000						$900,000	$960,000									
Eastfield Drive	$683,000						$534,000	$570,000									
Mill Hill	$2,640,000									$2,500,000	$2,660,000						
Center Street	$1,410,000		$548,000	$592,000	$640,000												
Willow Street	$1,220,000						$955,000	$1,020,000									
Pine Creek	$2,950,000		$1,147,000	$1,240,000	$1,338,000												
Fairfield Beach	$3,190,000		$1,240,000	$1,340,000	$1,447,000												
Force Main Replacements																	
Toll House	$1,100,000						$860,000	$917,000									
Eastfield Drive	$407,000						$318,000	$340,000									
Mill Hill	$1,500,000									$1,420,000	$1,510,000						
Center Street	$2,740,000		$1,065,000	$1,150,000	$1,243,000												
Willow Street	$530,000						$415,000	$442,000									
Pine Creek	$750,000		$292,000	$315,000	$340,000												
Fairfield Beach	$2,360,000		$918,000	$990,000	$1,070,000												
Additional Investigations																	
Force Main Inspections	$150,000	150,000															
Develop Pump Station SOPs	$50,000	50,000															
Total	$22,830,000	$200,000	$5,200,000	$5,630,000	$6,080,000	$0	$4,000,000	$4,240,000	$0	$4,000,000	$4,200,000	$0	$0	$0	$0	$0	$0

Note 1: Inflation is assumed to be 8% per year for years 1 through 5, 6.5% per year for years 6 through 10, and 5% per year for years 11 through 15.

Funding Opportunities for Improvement Projects

There could be several funding sources available to the Town of Fairfield for the design and construction of the recommended upgrades. The recommended improvements could be funded locally through bonding (if approved by the community) or through the new reserve for pump stations as part of the DEEP Clean Water (CWF) priority list, currently a 100% low interest loan program. Because the new reserve is "first-come, first served", there is no guarantee that this type of funding will be available when the Town moves forwards with any or all of these upgrades. Therefore, the full estimated costs of the recommended facilities should be budgeted for by the Town.

Another approach may be viable for obtaining additional funds, however. If the WPCA pursues the alternative, there may be some energy efficiency funding and grant monies available for the project. The DEEP and the electrical utilities in Connecticut have created programs that assist in projects that reduce energy demand and consumption. Eliminating the dual pumping of flows from pump station could qualify for participation in these programs, although the exact level of funding is difficult to determine at this time.

There are also several funding opportunities for projects that include flood mitigation. The current available programs are summarized below but are updated and new programs are added every year.

Funding Options for Flood Mitigation

Hazard Mitigation Grant Program (HMGP)

The Connecticut Division of Emergency Management Agency and Homeland Security administers the federal Hazard Mitigation Grant Program (HMGP). Funds may be available statewide following a Presidential Major Disaster Declaration as requested by the Governor, with priority given to projects in the area of the state affected by the disaster. These funds assist communities to enact mitigation measures that reduce the risk of loss of life and property from future disasters.

Building Resilient Infrastructure and Communities (BRIC)

The United States Federal Emergency Management Agency (FEMA) administers the Building Resilient Infrastructure and Communities (BRIC) to support states, local communities, tribes, and territories, with pre-disaster mitigation activities. Local governments, including cities, townships, counties, special district governments, and Native American tribal organizations are considered Sub-applicants and must submit sub-applications for mitigation planning and projects to their State/Territory applicant agency. Eligible projects include:

- Mitigation Projects: cost-effective projects designed to increase resilience and public safety; reduce injuries and loss of life; and reduce damage and destruction to property, critical services, facilities, and infrastructure.

Applications for the current fiscal cycle of this program are being accepted between September 30, 2022, and January 27, 2023.

CT DEEP Climate Resilience Fund

The CT DEEP Climate Resilience Fund provides grants to help Connecticut communities initiate planning and develop projects that will help communities become more resilient to the effects of climate change. The Fund specifically is intended to support climate resilience planning at regional, municipal, and neighborhood-level scales,

and to support resilience project scoping and development. DEEP intends to make available up to $10 million in this first round through the DEEP Climate Resilience Fund. DEEP Climate Resilience Fund (ct.gov)

Connecticut Institute for Resilience & Climate Adaptation (CIRCA)

In addition to possible FEMA grants that may be available depending upon current programs, the Connecticut Institute for Resilience & Climate Adaptation (CIRCA) offers funding options assist Connecticut towns and cities adapt to a changing climate and to enhance the resilience of their infrastructure. Under the Matching Funds Program, up to $100,000 is available to municipalities for projects that are in line with the institute's mission. This includes projects that 'foster resilient actions and sustainable communities, particularly along the Connecticut coastline and inland waterway, that can adapt to the impacts and hazards of climate change and reduce the loss of life and property, natural systems and ecological damage, and social disruption from high-impact events.

This CIRCA Matching Funds program and other potential funding opportunities can be found on their website at the University of Connecticut's website the institute: http://circa.uconn.edu/

Town of Fairfield
Pump Station Evaluation
Toll House Road Pump Station

Item Description	Quantity	Units	Unit Cost	Total Unit Cost	Labor Cost	Total Cost
Demolition						
Demolition	1	LS	$ 15,000	$ 15,000	$ -	$ 15,000
Temp. Emergency Power Provisions	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Temp. Bypass Pumping System	1	LS	$ 25,000	$ 25,000	$ -	$ 25,000
Subtotal						**$ 50,000**
Civil						
Site Mods for Access	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Chain Link Fence	80	LF	$ 100	$ 8,000	$ -	$ 8,000
Subtotal						**$ 58,000**
Architectural/Structural						
Building Repairs and Replacements	1	LS	$ 75,000	$ 75,000	$ -	$ 75,000
Wetwell Vent	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Alum. Access Hatch	2	EA	$ 12,500	$ 25,000	$ 7,500	$ 32,500
Concrete Pads	1	EA	$ 7,500	$ 7,500	$ -	$ 7,500
Railing	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Flood Proof PS	1	LS	$ 100,000	$ 100,000	$ -	$ 100,000
Painting	1	LS	$ 5,000	$ 5,000	$ -	$ 5,000
Subtotal						**$ 240,000**
Process & HVAC						
Submersible Pumps	2	EA	$ 12,000	$ 24,000	$ 6,750	$ 30,750
Plug Valves	2	EA	$ 1,500	$ 3,000	$ 2,250	$ 5,250
Check Valves	2	EA	$ 2,000	$ 4,000	$ 3,000	$ 7,000
Gate Valves	2	EA	$ 1,200	$ 2,400	$ 1,800	$ 4,200
6-in DIP & Fittings	1	LS	$ 20,000	$ 20,000	$ -	$ 20,000
Pipe Supports	1	LS	$ 5,000	$ 5,000	$ -	$ 5,000
Unit Heaters	1	EA	$ 5,000	$ 5,000	$ 3,750	$ 8,750
Subtotal						**$ 80,950**
Electrical/Instrumentation						
Misc Electrical Repairs/Upgrades	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
Power Company Fees	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Control Panel	1	EA	$ 25,000	$ 25,000	$ 7,500	$ 32,500
Pressure Transducer System	1	EA	$ 3,000	$ 3,000	$ 3,000	$ 6,000
Conduit/Wire/Grounding	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Flood Proof Transformer	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
30kW Generator ans Transfer Switch	1	LS	$ 60,000	$ 60,000	$ 30,000	$ 90,000
Subtotal						**$ 268,500**
Subtotal						**$ 697,450**
Miscellaneous Items						
Mobilization/Demobilization (5%)	1	LS				$ 34,873
Bonding (2%)	1	LS				$ 13,949
Overhead & Profit (15%)	1	LS				$ 104,618
Subtotal						**$ 153,439**
Subtotal Construction Costs						**$ 850,889**
Construction Contingency (15%)						**$ 127,633**
Technical Services (20%)						**$ 170,178**
Total Project Cost						**$ 1,150,000**

Town of Fairfield
Pump Station Evaluation
Eastfield Drive Pump Station

Item Description	Quantity	Units	Unit Cost	Total Unit Cost	Labor Cost	Total Cost
Demolition						
Demolition	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Temp. Emergency Power Provisions	1	LS	$ 5,000	$ 5,000	$ -	$ 5,000
Temp. Bypass Pumping System	1	LS	$ 20,000	$ 20,000	$ -	$ 20,000
Subtotal						$ 35,000
Civil						
Site Access Improvements	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Site Piping Modification	1	LS	$ 25,000	$ 25,000	$ -	$ 25,000
Valve Vault	1	EA	$ 15,000	$ 15,000	$ 15,000	$ 30,000
Vinyl Fence	50	LF	$ 80	$ 4,000	$ -	$ 4,000
Subtotal						$ 109,000
Architectural/Structural						
Valve Bypass Structure	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Alum. Flood Proof Access Hatch	1	EA	$ 25,000	$ 25,000	$ -	$ 25,000
Subtotal						$ 75,000
Process						
Submersible Pumps	2	EA	$ 10,000	$ 20,000	$ 5,750	$ 25,750
Plug Valves	2	EA	$ 1,500	$ 3,000	$ 2,250	$ 5,250
Check Valves	2	EA	$ 2,000	$ 4,000	$ 3,000	$ 7,000
Gate Valves	2	EA	$ 1,200	$ 2,400	$ 1,800	$ 4,200
4-in DIP & Fittings / Bypass Connection	1	LS	$ 15,000	$ 15,000	$ -	$ 15,000
Pipe Supports	1	LS	$ 5,000	$ 5,000	$ -	$ 5,000
Subtotal						$ 67,200
Electrical/Instrumentation						
Misc Electrical	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Power Company Fees	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Control Panel	1	EA	$ 25,000	$ 25,000	$ 7,500	$ 32,500
Pressure Transducer System	1	EA	$ 3,000	$ 3,000	$ 3,000	$ 6,000
Conduit/Wire/Grounding	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
Subtotal						$ 128,500
Subtotal						$ 414,700
Miscellaneous Items						
Mobilization/Demobilization (5%)	1	LS				$ 20,735
Bonding (2%)	1	LS				$ 8,294
Overhead & Profit (15%)	1	LS				$ 62,205
Subtotal						$ 91,234
Subtotal Construction Costs						$ 505,934
Construction Contingency (15%)						$ 75,890
Technical Services (20%)						$ 101,187
Total Project Cost						$ 683,000

Town of Fairfield
Pump Station Evaluation
Mill River Pump Station

Item Description	Quantity	Units	Unit Cost	Total Unit Cost	Labor Cost	Total Cost
Demolition						
Demolition	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Temp. Emergency Power Provisions	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Temp. Bypass Pumping System	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
Subtotal						**$ 90,000**
Architectural/Structural						
Building Shell & Flood Improvements	1	LS	$ 200,000	$ 200,000	$ -	$ 200,000
New Monorail	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
Wetwell Grating Repairs/Replacement	1	LS	$ 20,000	$ 20,000	$ -	$ 20,000
Subtotal						**$ 251,000**
Process & HVAC						
Pumps	2	EA	$ 75,000	$ 150,000	$ 45,000	$ 195,000
Communitor	1	EA	$ 50,000	$ 50,000	$ 15,000	$ 65,000
Plug Valves	3	EA	$ 3,500	$ 10,500	$ 7,875	$ 18,375
Check Valves	2	EA	$ 5,000	$ 10,000	$ 7,500	$ 17,500
14-in DIP & Fittings	1	LS	$ 75,000	$ 75,000	$ 37,500	$ 112,500
Pipe Supports	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
New HVAC System	1	LS	$ 150,000	$ 150,000		$ 150,000
Subtotal						**$ 588,375**
Electrical/Instrumentation						
Full Electrical Upgrade	1	LS	$ 350,000	$ 350,000	$ -	$ 350,000
CL&P Costs	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Control Panel	1	EA	$ 40,000	$ 40,000	$ 10,000	$ 50,000
Pressure Transducer System	1	EA	$ 3,000	$ 3,000	$ 3,000	$ 6,000
Variable Frequency Drives	3	EA	$ 15,000	$ 45,000	$ 11,250	$ 56,250
100KW Generator and Transfer Switch	1	LS	$ 200,000	$ 200,000	$ -	$ 200,000
Subtotal						**$ 672,250**
Subtotal						**$ 1,601,625**
Miscellaneous Items						
Mobilization/Demobilization (5%)		LS				$ 80,081
Bonding (2%)		LS				$ 32,033
Overhead & Profit (15%)		LS				$ 240,244
Subtotal						**$ 352,358**
Subtotal Construction Costs						**$ 1,953,983**
Construction Contingency (15%)						**$ 293,097**
Technical Services (20%)						**$ 390,797**
Total Project Cost						**$ 2,640,000**

Town of Fairfield
Pump Station Evaluation
Center Street Pump Station & Force Main

Item Description	Quantity	Units	Unit Cost	Total Unit Cost	Labor Cost	Total Cost
Demolition						
Demolition	1	LS	$ 20,000	$ 20,000	$ -	$ 20,000
Temp. Emergency Power Provisions	1	LS	$ 5,000	$ 5,000	$ -	$ 5,000
Temp. Bypass Pumping System	1	LS	$ 20,000	$ 20,000	$ -	$ 20,000
Subtotal						**$ 45,000**
Architectural/Structural						
Wetwell Grating Replacement	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
Main Improvements/Flood Protection	1	LS	$ 150,000	$ 150,000	$ -	$ 150,000
Gen Bldg Improvements/Flood Protection	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Painting	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Subtotal						**$ 240,000**
Process & HVAC System						
Pumps	2	EA	$ 25,000	$ 50,000	$ 15,000	$ 65,000
HVAC System Upgrade	1	LS	$ 100,000	$ 100,000	$ -	$ 100,000
Valves	6	EA	$ 3,000	$ 18,000	$ 5,400	$ 23,400
DI Pipe and Fittings	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Parshall Flume	1	LS	$ 15,000	$ 15,000	$ -	$ 15,000
Pipe Supports	1	LS	$ 15,000	$ 15,000	$ -	$ 15,000
Subtotal						**$ 203,400**
Electrical/Instrumentation						
Full Electrical Upgrade	1	LS	$ 300,000	$ 300,000	$ -	$ 300,000
CL&P Costs	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Control Panel	1	EA	$ 30,000	$ 30,000	$ 7,500	$ 37,500
Pressure Transducer System	1	EA	$ 3,000	$ 3,000	$ 3,000	$ 6,000
Generator Rebuild	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Subtotal						**$ 363,500**
Subtotal						**$ 853,900**
Miscellaneous Items						
Mobilization/Demobilization (5%)	1	LS				$ 42,695
Bonding (2%)	1	LS				$ 17,078
Overhead & Profit (15%)	1	LS				$ 128,085
Subtotal						**$ 187,858**
Subtotal Construction Costs						**$ 1,041,758**
Construction Contingency (15%)						**$ 156,264**
Technical Services (20%)						**$ 208,352**
Total Project Cost						**$ 1,410,000**

Town of Fairfield
Pump Station Evaluation
Pine Creek Pump Station

Item Description	Quantity	Units	Unit Cost	Total Unit Cost	Labor Cost	Total Cost
Demolition						
Demo Pump Station	1	LS	$ 75,000	$ 75,000	$ -	$ 75,000
Site Piping	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
Temp. Power Provisions	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Temp. Bypass Pumping System	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
Subtotal						**$ 145,000**
Civil						
Sitework	1	LS	$ 100,000	$ 100,000	$ -	$ 100,000
Bituminous Concrete Paving	100	Tons	$ 200	$ 20,000	$ -	$ 20,000
Chain Link Fence	120	LF	$ 80	$ 9,600	$ -	$ 9,600
Subtotal						**$ 129,600**
Architectural/Structural						
New Building with Secondary Access	400	SF	$ 500	$ 200,000	$ 100,000	$ 300,000
Building Foundation/Interior Flood Walls	1	LS	$ 300,000	$ 300,000	$ -	$ 300,000
Subtotal						**$ 600,000**
Process						
Packaged Submerible Pump Station	1	LS	$ 350,000	$ 350,000	$ 175,000	$ 525,000
Subtotal						**$ 526,500**
Electrical/Instrumentation						
Misc Electrical	1	LS	$ 250,000	$ 250,000	$ -	$ 250,000
Power Company Fees	1	LS	$ 15,000	$ 15,000	$ -	$ 15,000
Conduit/Wire/Grounding	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Generator & ATS	1	LS	$ 60,000	$ 60,000	$ 15,500	$ 75,500
Subtotal						**$ 390,500**
Subtotal						**$ 1,791,600**
Miscellaneous Items						
Mobilization/Demobilization (5%)	1	LS				$ 89,580
Bonding (2%)	1	LS				$ 35,832
Overhead (15%)	1	LS				$ 268,740
Subtotal						**$ 394,152**
Subtotal Construction Costs						**$ 2,185,752**
Construction Contingency (15%)						**$ 327,863**
Technical Services (20%)						**$ 437,150**
Total						**$ 2,950,000**

Town of Fairfield
Pump Station Evaluation
Fairfield Beach Pump Station

Item Description	Quantity	Units	Unit Cost	Total Unit Cost	Labor Cost	Total Cost
Demolition						
Demo Pump Station	1	LS	$ 100,000	$ 100,000	$ -	$ 100,000
Site Piping	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Temp. Power Provisions	1	LS	$ 15,000	$ 15,000	$ -	$ 15,000
Temp. Bypass Pumping System	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
Subtotal						$ 195,000
Civil						
Sitework	1	LS	$ 100,000	$ 100,000	$ -	$ 100,000
Bituminous Concrete Paving	50	Tons	$ 200	$ 10,000	$ -	$ 10,000
Chain Link Fence	120	LF	$ 80	$ 9,600	$ -	$ 9,600
Subtotal						$ 119,600
Architectural/Structural						
New Building with Secondary Access	400	SF	$ 500	$ 200,000	$ 100,000	$ 300,000
Building Foundation/Interior Flood Walls	1	LS	$ 300,000	$ 300,000	$ -	$ 300,000
Access Ladder	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Alum. Access Hatch	2	EA	$ 10,000	$ 20,000	$ 10,000	$ 30,000
Steel Frame Replacement (Mid Floor)	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Subtotal						$ 690,000
Process & HVAC System						
Submersible Pump Spare	1	EA	$ 25,000	$ 25,000	$ -	$ 25,000
Reinstall Existing Valves	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
10in DIP & Fittings	1	LS	$ 100,000	$ 100,000	$ -	$ 100,000
Pipe Supports	1	LS	$ 20,000	$ 20,000	$ 1,000	$ 21,000
Ventilation System Upgrade	1	LS	$ 250,000	$ 250,000	$ -	$ 250,000
Subtotal						$ 406,000
Electrical/Instrumentation						
Misc Electrical	1	LS	$ 250,000	$ 250,000	$ -	$ 250,000
Control Panel and Instrumentation	1	LS	$ 60,000	$ 60,000	$ -	$ 60,000
Power Company Fees	1	LS	$ 15,000	$ 15,000	$ -	$ 15,000
Conduit/Wire/Grounding	1	LS	$ 125,000	$ 125,000	$ -	$ 125,000
Generator & ATS	1	LS	$ 60,000	$ 60,000	$ 15,500	$ 75,500
Subtotal						$ 525,500
Subtotal						$ 1,936,100
Miscellaneous Items						
Mobilization/Demobilization (5%)	1	LS				$ 96,805
Bonding (2%)	1	LS				$ 38,722
Overhead & Profit (15%)	1	LS				$ 290,415
Subtotal						$ 425,942
Subtotal Construction Costs						$ 2,362,042
Construction Contingency (15%)						$ 354,306
Technical Services (20%)						$ 472,408
Total						$ 3,190,000

Town of Fairfield
Pump Station Evaluation
Willow Street Pump Station

Item Description	Quantity	Units	Unit Cost	Total Unit Cost	Labor Cost	Total Cost
Demolition						
Demo Pump Station	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Site Piping	1	LS	$ 25,000	$ 25,000	$ -	$ 25,000
Temp. Power Provisions	1	LS	$ 5,000	$ 5,000	$ -	$ 5,000
Temp. Bypass Pumping System	1	LS	$ 25,000	$ 25,000	$ -	$ 25,000
Subtotal						**$ 105,000**
Civil						
Sitework	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Regrade Site for flood Elevation	1	LS	$ 5,000	$ 5,000	$ -	$ 5,000
Bituminous Concrete Paving	75	Tons	$ 200	$ 15,000	$ -	$ 15,000
Chain Link Fence	175	LF	$ 80	$ 14,000	$ -	$ 14,000
Landscaping	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Subtotal						**$ 94,000**
Architectural/Structural						
Generator Pad	10	CY	$ 1,000	$ 10,000	$ -	$ 10,000
Subtotal						**$ 10,000**
Process						
Packaged Submerible Pump Station	1	LS	$ 300,000	$ 300,000	$ 150,000	$ 450,000
Subtotal						**$ 451,500**
Electrical/Instrumentation						
Tie in Packaged Equipment	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
Generator and ATS	1	LS	$ 40,000	$ 40,000	$ -	$ 40,000
Install Packaged Control Panel	1	LS	$ 12,000	$ 12,000	$ -	$ 12,000
Subtotal						**$ 82,003**
Subtotal						**$ 742,503**
Miscellaneous Items						
Mobilization/Demobilization (5%)	1	LS				$ 37,125
Bonding (2%)	1	LS				$ 14,850
Overhead & Profit (15%)	1	LS				$ 111,375
Subtotal						**$ 163,351**
Subtotal Construction Costs						**$ 905,854**
Construction Contingency (15%)						**$ 135,878**
Technical Services (20%)						**$ 181,171**
Total						**$ 1,220,000**

20 YEAR

A RESOLUTION APPROPRIATING $4,500,000 FOR THE COSTS OF PHASE V OF THE WATER POLLUTION CONTROL FACILITY INFLOW AND INFILTRATION IMPROVEMENTS PROGRAM AND AUTHORIZING THE ISSUANCE OF BONDS AND/OR CLEAN WATER FUND OBLIGATIONS TO FINANCE SUCH APPROPRIATION.

Resolved:

1. As requested by the Water Pollution Control Authority (the "WPCA") of the Town of Fairfield (the "Town") and as recommended by the Board of Selectmen and the Board of Finance, the Town of Fairfield appropriates Four Million Five Hundred Thousand and 00/100 ($4,500,000) Dollars to fund the costs of a Phase V of the Water Pollution Control Facility inflow and infiltration improvements program, such costs to include, but not be limited to, repair and replace manholes, pipe repair, redirection of sump pumps and yard drains, replace and rehabilitate sewer laterals, costs for planning, design, construction, materials, engineering, as well as, all administrative, financing, legal, contingency and other soft costs related thereto (the "Project").

2. To finance such appropriation and in lieu of a tax therefor, and as recommended by the Board of Selectmen and the Board of Finance, the Town may issue (i) bonds under its corporate name and seal upon the full faith and credit of the Town, (ii) project loan obligations, interim funding obligations or other obligations (collectively, the "CWF Obligations") as described herein meeting the conditions prescribed in Sections 22a-475 to 22a-483, inclusive, of the Connecticut General Statutes (the "Clean Water Fund Statutes"), or (iii) any combination of bonds or CWF Obligations described in (i) and (ii) above, provided, in all cases, that the total, aggregate principal amount thereof outstanding at any time shall not exceed $4,500,000. The aggregate amount of bonds and CWF Obligations shall be issued in an amount necessary to meet the Town's share of Project costs determined after considering the estimated amounts of grants in aid of the Project.

3. The Board of Selectmen, the Treasurer and the Chief Fiscal Officer of the Town are hereby appointed a committee (the "Committee") with full power and authority to cause said bonds to be sold, issued and delivered; to determine their form and terms, including provisions for redemption prior to maturity; to determine the aggregate principal amount thereof within the amount hereby authorized and the denominations and maturities thereof; to fix the time of issue of each series thereof and the rate or rates of interest thereon as herein provided; to determine whether the interest rate on any series will be fixed or variable and to determine the method by which the variable rate will be determined, the terms of conversion, if any, from one interest rate mode to another or from fixed to variable; to set whatever other terms of the bonds they deem necessary, desirable or appropriate; to designate the bank or trust company to certify the issuance

thereof and to act as transfer agent, paying agent and as registrar for the bonds, and to designate bond counsel. The Committee shall have all appropriate powers under the Connecticut General Statutes, as amended (the "Statutes") including Chapter 748 (Registered Public Obligations Act), and Chapter 109 (Municipal Bond Issues) to issue, sell and deliver the bonds and, further, shall have full power and authority to do all that is required under the Internal Revenue Code of 1986, as amended, and under rules of the Securities and Exchange Commission, and other applicable laws and regulations of the United States, to provide for issuance of the bonds in tax exempt form and to meet all requirements which are or may become necessary in and subsequent to the issuance and delivery of the bonds in order that the interest on the bonds be and remain exempt from Federal income taxes, including, without limitation, to covenant and agree to restriction on investment yield of bond proceeds, rebate of arbitrage earnings, expenditure of proceeds within required time limitations, the filing of information reports as and when required, and the execution of Continuing Disclosure Agreements for the benefit of the holders of the bonds and notes.

4. The First Selectman and Treasurer or Chief Fiscal Officer, on behalf of the Town, shall execute and deliver such bond purchase agreements, reimbursement agreements, line of credit agreement, credit facilities, remarketing agreement, standby marketing agreements, standby bond purchase agreements, and any other commercially necessary or appropriate agreements which the Committee determines are necessary, appropriate or desirable in connection with or incidental to the sale and issuance of bonds, and if the Committee determines that it is necessary, appropriate, or desirable, the obligations under such agreements shall be secured by the Town's full faith and credit.

5. The First Selectman and Treasurer or Chief Fiscal Officer shall execute on the Town's behalf such interest rate swap agreements or similar agreements related to the bonds for the purpose of managing interest rate risk which the Committee determines are necessary, appropriate or desirable in connection with or incidental to the carrying or selling and issuance of the bonds, and if the Committee determines that it is necessary, appropriate or desirable, the obligations under such interest rate swap agreements shall be secured by the Town's full faith and credit.

6. Any bonds may be designated "Public Improvement Bonds of the Town of Fairfield," series of the year of their issuance and may be issued in one or more series, and may be consolidated as part of the same issue with other bonds of the Town; shall be in serial form maturing in not more than twenty (20) annual installments of principal, the first installment to mature not later than three (3) years from the date of issue and the last installment to mature not later than twenty (20) years from the date of issuance or as otherwise provided by statute. The bonds may be sold at an aggregate sales price of not less than par and accrued interest at public sale upon invitation for bids to the responsible bidder submitting the bid resulting in the lowest true interest cost to the Town, provided that nothing herein shall prevent the Town from rejecting all bids submitted in response to any one invitation for bids and the right to so reject all bids is

hereby reserved, and further provided that the Committee may sell the bonds on a negotiated basis, as provided by statute. Interest on the bonds shall be payable semi-annually or annually. The bonds shall be signed on behalf of the Town by at least a majority of the Board of Selectmen and the Treasurer, and shall bear the seal of the Town. The signing, sealing and certification of the bonds may be by facsimile as provided by statute.

7. The Committee is further authorized to make temporary borrowings as authorized by the Statutes and to issue temporary notes of the Town in anticipation of the receipt of proceeds from the sale of the bonds to be issued pursuant to this resolution or in anticipation of the receipt of the Grants. Such notes shall be issued and renewed at such time and with such maturities, requirements and limitations as provided by the Statutes. Notes evidencing such borrowings shall be signed by the First Selectman and Treasurer or the Chief Fiscal Officer, have the seal of the Town affixed, which signing and sealing may be by facsimile as provided by statute, be certified by and payable at a bank or trust company incorporated under the laws of this or any other state, or of the United States, be approved as to their legality by bond counsel, and may be consolidated with the issuance of other Town bond anticipation notes. The Committee shall determine the date, maturity, interest rates, form and manner of sale, including negotiated sale, and other details of said notes consistent with the provisions of this resolution and the Statutes and shall have all powers and authority as set forth above in connection with the issuance of bonds and especially with respect to compliance with the requirements of the Internal Revenue Code of 1986, as amended, and regulations thereunder in order to obtain and maintain issuance of the notes in tax exempt form.

8. Pursuant to Section 1.150-2, as amended, of the Federal Income Tax Regulations the Town hereby declares its official intent to reimburse expenditures (if any) paid for the Project from its General or Capital Funds, such reimbursement to be made from the proceeds of the sale of bonds and notes authorized herein and in accordance with the time limitations and other requirements of said regulations.

9. The First Selectman, the Chief Fiscal Officer and Town Treasurer are hereby authorized, on behalf of the Town, to enter into agreements or otherwise covenant for the benefit of bondholders to provide information on an annual or other periodic basis to the Municipal Securities Rulemaking Board (the "MSRB") and to provide notices to the MSRB of material events as enumerated in Securities and Exchange Commission Exchange Act Rule 15c2-12, as amended, as may be necessary, appropriate or desirable to effect the sale of the bonds and notes authorized by this resolution.

10. The Committee is hereby authorized to take all action necessary and proper for the sale, issuance and delivery of the bonds and notes in accordance with the provisions of the Statutes and the laws of the United States.

11. Any CWF Obligations shall be issued pursuant and subject to the Clean Water Fund Statutes. To meet any portion of the costs of the Project determined to be eligible for funding under said Clean Water Fund Statutes, the Town may borrow pursuant to, and issue its project loan obligations to the State of Connecticut (the "State") and may issue interim funding obligations in anticipation of such project loan obligations in such denominations as may be appropriate. Any such interim funding obligations may be renewed from time to time by the issuance of other notes, provided the final maturity of such notes do not exceed the maximum period permitted under Section 22a-479 of the Connecticut General Statutes. The CWF Obligations may be secured as to both principal and interest by a pledge of revenues to be derived by the WPCA from sewerage system use and/or connection charges or benefit assessments or both. The CWF Obligations may also be secured by the full faith and credit of the Town. The First Selectman of the Town is authorized to sign such CWF Obligations by his manual or facsimile signature. The First Selectman is further authorized to execute and deliver to the State project funding agreements, project loan and project grant agreements and any other documents required by the State in connection with the CWF Obligations. The CWF Obligations shall bear the seal of the Town or a facsimile of the seal.

12. The First Selectman or other proper Town official is authorized to apply for and accept any available State or Federal grant in aid of the financing of the Project, including the grants set forth in section 3 herein, and to take all action necessary and proper in connection therewith. Any such grants or contribution received prior to the issuance of the Bonds authorized herein shall be applied to the costs of the Project or to pay at maturity the principal of any outstanding bond anticipation notes issued pursuant this resolution and shall reduce the amount of the Bonds that can be issued pursuant to this resolution. If such grants and contributions are received after the issuance of the Bonds, they shall be applied to pay the principal on the Bonds or as otherwise authorized by the Board of Selectmen, Board of Finance and Representative Town Meeting provided such application does not adversely affect the tax-exempt status of the Bonds or the Town's receipt of such grant or contribution.

SUPPLEMENTAL RESOLUTION

WHEREAS, the Town of Fairfield (the "Town") has adopted, at the request of the Water Pollution Control Authority ("WPCA"), a Resolution entitled "A RESOLUTION APPROPRIATING $4,500,000 FOR THE COSTS OF PHASE V OF THE WATER POLLUTION CONTROL FACILITY INFLOW AND INFILTRATION IMPROVEMENTS PROGRAM AND AUTHORIZING THE ISSUANCE OF BONDS AND/OR CLEAN WATER FUND OBLIGATIONS TO FINANCE SUCH APPROPRIATION" (the "Resolution"); and

WHEREAS, the Resolution appropriated $4,500,000 for costs associated with Phase V of the Water Pollution Control Facility inflow and infiltration improvements program (the "Project") and authorized the issuance of bonds (the "Bonds") and/or Clean Water Fund obligations (the CWF Obligations"); and

WHEREAS, while the Town is liable for the debt service on the Bonds and the CWF Obligations, for internal accounting purposes, it is appropriate that the costs of the Project including debt service on the Bonds and the CWF Obligations be allocated to the WPCA; and

WHEREAS, the Town's WPCA has agreed to pay for the costs of the Project and the debt service on the Bonds and the CWF Obligations authorized by the Resolution; and

NOW, THEREFORE, IT IS HEREBY:

RESOLVED,

1) That the debt service on the Bonds and the CWF Obligations as it becomes due shall be paid by the WPCA from its own funds and the obligation of the WPCA shall be set forth in a memorandum of understanding (the "MOU") with the Town satisfactory to First Selectman; and

2) That the First Selectman is hereby authorized to execute the MOU on behalf of the Town.

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding is made as of the ___ day of _____, 2024 by and between the Town of Fairfield, Connecticut (the "Town") and the Water Pollution Control Authority in the Town (the "WPCA").

WHEREAS, on _____, 2024, the Town's Representative Town Meeting ("RTM") approved a resolution related to the Water Pollution Control Facility inflow and infiltration improvements program – Phase V project (the "Project") which resolution was entitled "A RESOLUTION APPROPRIATING $4,500,000 FOR THE COSTS OF PHASE V OF THE WATER POLLUTION CONTROL FACILITY INFLOW AND INFILTRATION IMPROVEMENTS PROGRAM AND AUTHORIZING THE ISSUANCE OF BONDS AND/OR CLEAN WATER FUND OBLIGATIONS TO FINANCE SUCH APPROPRIATION" (the "WPCF Inflow and Infiltration Resolution"); and

WHEREAS, on _____, 2024, the RTM also approved a Supplemental Resolution related to the WPCF Inflow and Infiltration Resolution stating that the debt service on the bonds and the Clean Water Fund obligations (the "CWF Obligations") as such debt service becomes due shall be paid by the WPCA from its own funds, that the obligation of the WPCA shall be set forth in a memorandum of understanding ("MOU") with the Town satisfactory to the First Selectman, and that the First Selectman is authorized to execute the MOU on behalf of the Town; and

WHEREAS, the WPCA's Board of Commissioners approved the Project and agreed to reimburse the Town for debt service on any bonds, CWF Obligations and notes issued by the Town in connection with the costs of the Project.

NOW THEREFORE, in consideration of the mutual agreements contained in this Memorandum of Understanding, the Town and the WPCA agree to the following:

1. To the extent the Town issues any bonds, CWF Obligations or notes on behalf of and at the request of the WPCA to fund any or all of the costs of the Project, the WPCA will be responsible for and pay the full debt service on such bonds, CWF Obligations or notes based on a schedule established by the Town for repayment of the bonds, the CWF Obligations or the notes; and

2. The WPCA agrees to use its reserves, assess user fees or raise other monies sufficient to fund the debt service on such bonds, CWF Obligations or notes.

IN WITNESS WHEREOF, each party intending to be bound, has executed this Memorandum of Understanding to reflect its agreement with the terms hereof.

TOWN OF FAIRFIELD

By: _____
William A. Gerber
First Selectman

WATER POLLUTION CONTROL AUTHORITY

By: _____

Its

Inflow and Infiltration (I&I) Improvements Program – Phase V

Three Year Authorization Total: $4,500,000

1. **Background:** The total average daily influent flow at the Water Pollution Control Facility (WPCF) is 8.64 MGD, which is near the permitted capacity, and historical plant operating data shows that 4.5 to 5.0 MGD of that is due to Inflow and infiltrations (I&I), or half of the total average daily flow received. Inflow is defined as water, other than wastewater, that enters the collection system directly through sources such as roof drains, downspouts, storm drains and manhole cover, etc. Infiltration is defined as water, other than wastewater, that enters the collection system from the ground through defects in the piping system or manholes.

   In 2016, a system wide I&I Evaluation of the 210 miles of Fairfield sewer collection system was performed by Wright-Pierce and funded by the Clean Water Fund (CWF) 55% planning grant program. This evaluation took a holistic look at the entire Fairfield collection system by subdividing all 210 miles of gravity sewer main piping into 48 sub-areas (40 flow meters and 8 pump stations via pump run times data) and then prioritizing those areas based on measured I&I as well as rain induced inflow and infiltration (RDII). The findings of this report were summarized in the Final Inflow and Infiltration Evaluation Report dated January 2017. Final recommendations of the report included a Phase 1 and Phase 2 Sewer System Evaluation Study (SSES) for the prioritized sub areas in town. At that time, the Town decided not to proceed with this work under the CWF planning grant and the application was closed.

   From 2018 to 2022, the WPCA completed four phases (Phase I through Phase IV) of small-scale I&I rehabilitation work in the sewer system. Known structural defects and inflow/infiltration related issues within the collection system that had been previously identified were repaired through targeted CCTV inspections of suspect areas and lining broken pipes and manholes.

   In 2023, WPCA engaged Wright-Pierce to conduct all the SSES field work recommended in the 2017 report as part of the Phase V Sewer System Evaluation Survey (SSES) (Phase 1 and Phase 2). The focus of this SSES investigation was to determine point sources of I&I within the areas identified in 2017, including smoke testing, manhole inspections, building inspections, CCTV pipe inspections, night flow isolations and catch basin dye testing. The findings of this investigation are summarized in Phase V Sewer System Evaluation Survey Final Report dated January 2024.

2. **Purpose and Justification:** The purpose of this project is to perform necessary rehabilitation and improvements to the Fairfield sanitary sewer collection system to address known issues and bring the system into state of good repair.

3. **Detailed Description of Proposal:** Phase V report recommends to reduce I&I and prevent pipe failures through a variety of repair and replacement methods including:
   - Grout, line, replace in full, or remove roots in 78 sewer manholes
   - Clean, line, grout, test and seal joints or conduct full CIPP in over 5,000 linear feet of

gravity main

- Conduct 120 point repairs through spot lining or physical excavation and repair
- Rehabilitate three sewer laterals
- Disconnect 2 Stormwater catch basins from the sewer system
- Replace 12 private sewer lateral cleanout caps
- Develop a strategy to disconnect/redirect 8 sump sumps, 7 roof leaders and 10 yard drains connected to the sewer system
- Replace up to 50 sewer manhole covers in low lying areas with excessive holes

4. **Reliability of Cost Estimate:** Cost on a scale of 1-10, reliability is 7. The project design and mitigation will be on-going until reasonable goals are met.

5. Increased Efficiency: Removing I&I decreases the overall flow to the treatment plant. This will allow for better treatment of sewage and lessen the chance of sanitary sewer overflows (SSO) from sewer lines throughout the collection system.

6. **Additional Long Range Costs:** None.

7. **Additional Use or Demand on Existing Facilities:** None. Demand on existing facilities will decrease.

8. **Alternatives to this request**: None. The Do nothing alternative will result in continued problems and most likely significant environmental violations and potential fines as pipe and manhole conditions in the collection system worsen.

9. **Safety and Loss Control:** Safety and health will be improved by reducing inflow and infiltration and sewer system overflows throughout the collection system. Easier access to manholes will improve worker safety especially during storm events.

10. **Environmental Considerations:** The environment will be better protected with less sanitary sewer overflows from streets and yards. The treatment plant will operate under permitted capacity and be able to process wastewater effluent into Long Island Sound more efficiently.

11. **Insurance:** Contractor will be required to carry the necessary insurance as directed by the Town of Fairfield Purchasing Department.

12. **Financing**: Funded by a 20 year bond as part of a 5 year capital plan, with 3 year appropriation and authorization. WPCA to pay debt service.

13. **Other Considerations:** None.

14. **Other Approvals:** WPCA Commission/BOS/BOF/RTM

PHASE V

SB copy
1/23/24

1/24

FAIRFIELD, CONNECTICUT

Final Report

JANUARY 2024

Town of Fairfield Phase V Sewer System Evaluation Survey (SSES) Report

WRIGHT-PIERCE
Engineering a Better Environment

Town of Fairfield Phase V Sewer System Evaluation Survey (SSES) Report

Fairfield, Connecticut

Final Report
JANUARY 2024



01/06/24

Prepared By:

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Section 1 Executive Summary

In 2016, Wright-Pierce completed an Inflow and Infiltration (I/I) Evaluation of the Fairfield sewer collection system which was funded through the Clean Water Fund (CWF) planning grant program. It included the analysis of influent flow readings at the Fairfield Water Pollution Control Facility (WPCF), eight remote pump stations, and 40 portable flow meters which were installed within the collection system between March 10 and May 18 of 2016. The findings of this analysis were summarized in the Inflow & Infiltration Evaluation Report submitted in January of 2017.

Historical plant operating data showed that there is I/I in the Fairfield collection system. The 2016 evaluation took a holistic look at the Fairfield collection system by subdividing all 210 miles of gravity sewer main piping into 48 sub-areas, inclusive of the 40 flow portable meters and eight pump stations. These sub-areas were then prioritized based on measured inflow and infiltration. Final recommendations of the 2017 evaluation report included a phased Sewer System Evaluation Survey (SSES) for the sub-areas with the highest I/I. At the time, the Town decided not to proceed with this work under the CWF planning grant, therefore the application was closed. Since then, there have been four phases of rehabilitation work in the sewer system including pipe and manhole lining and repairs to reduce I/I.

The focus of this SSES project was to determine point sources of I/I within the areas identified in the 2017 report. SSES investigations included approximately 90,000 linear feet (LF) of smoke testing, 237 manhole inspections, 238 building inspections, approximately 50,000 LF of closed-circuit television (CCTV) pipe inspections, and approximately 140,000 LF of night flow isolations.

The field investigations identified the following deficiencies with a high potential to contribute I/I in the sewer:

- 73 sanitary manholes requiring grouting to remediate I/I defects.
- 14,900 LF of sewer pipes with a Likelihood of Failure (LoF) score of 3, 4, or 5.
- Two catch basins with a direct connection to the sanitary sewer (catch basins adjacent to MH-C3021 and MH-T5044).
- Seven catch basins with a potential indirect connection to the sanitary sewer.
- Eight buildings with sump pumps that are connected to the sanitary sewer.
- Six missing cleanout caps.
- Six broken or defective cleanout caps.
- Nine buildings with a driveway or yard drain connected to the sanitary sewer.
- Nine homes, structures, or buildings with a potential direct connection to the sanitary sewer.
- Eight downspouts/rain gutters with a potential direct connection to the sanitary sewer.
- Six downspouts with a potential direct connection to the sanitary sewer.
- Six ground locations with a potential direct connection to the sanitary sewer.

I/I quantification was determined using the results of the 2016 flow monitoring performed as a part of the I/I evaluation study mentioned above. Potential direct connections were identified through smoke testing, manhole inspections, dye testing, CCTV, and building inspections performed as part of the Fairfield Phase 5 SSES work. All results of the fieldwork can be viewed in **Appendix A.**

Using the results of the I/I quantification and the pipe LoFs, recommendations were developed for each defect or structure. A cost-effective analysis (C/E/A) was performed in accordance with the Massachusetts Department of

Environmental Protection (MassDEP) Guidelines for Performing I/I Analysis and Sewer Systems Evaluation Survey, dated May 2017 (MassDEP Guidelines). CT DEEP does not have existing guidelines for quantification of defects and proposed recommendations for SSES projects, thus the MassDEP Guidelines have been used and are referenced throughout this report. MassDEP is one of the few state agencies that provides specific thresholds and guidelines for I/I investigations. The MassDEP Guidelines are also referenced by the U.S. Environmental Protection Agency in the 2014 Guide for Estimating Infiltration and Inflow.

All proposed improvements were identified and categorized as "Priority 1 Improvements," "Priority 2 Improvements," and "Low Priority Improvements." Improvements which should be immediately corrected consist of the less costly items including new cleanout caps, replacing vented manhole covers, etc. and are included in the Priority 1 Improvements category. Pipes and manholes that received an LoF of 4 or higher have been identified as Priority 1 Improvements and are recommended for rehabilitation, repair, or replacement within one to two years. Further, the redirection of sump pumps, rain gutters, yard drains, etc. are also included in the Priority 1 Improvements category. Pipes and manholes that received an LoF less than 4 and a C/E/A ratio greater than 1 have been identified as Priority 2 Improvements and are recommended for rehabilitation, repair, or replacement within one to three years. Pipes and manholes that received an LoF less than 4 and a C/E/A ratio less than 1 have been identified as a Low Priority Improvement and are recommended for rehabilitation, repair, or replacement within three to five years.

Table 1-1 summarizes the estimated rehabilitation costs for the Priority 1 Improvements, **Table 1-2** summarizes the estimated costs for the Priority 2 Improvements, and **Table 1-3** summarizes the estimated rehabilitation costs for the Low Priority Improvements. In addition to these recommended improvements, the Town should budget approximately $100,000 per year to continue to investigate manholes, pipes, and catch basins with potential indirect connections that could not be accessed within the Phase 5 study. Further, the Town should continue to conduct additional focused SSES investigations within the remaining lower priority sewer basins. Recommendations for replacement and rehabilitation of pipes and manholes throughout the Fairfield sanitary sewer system can be found in **Appendix B**.

Table 1-1 Summary of Priority 1 Improvements Program Costs

Improvement Item	Cost[1]
Manhole Repair	$ 171,000
Pipe Repair	$ 679,000
Redirection of Sump Pumps, Yard Drains, etc.	$ 176,000
Engineering Fees and Construction Contingency (45%)[2]	$ 462,000
Total Costs	$ 1,488,000

Notes:

[1] Total costs are rounded.
[2] Engineering at 20% with the balance being construction contingencies, traffic control, permitting, etc.

Table 1-2 Summary of Priority 2 Improvements Program Costs

Improvement Item	Cost[1]
Manhole Repair	$ 15,500
Pipe Repair	$ 975,000
Engineering Fees and Construction Contingency (45%)[2]	$ 446,000
Total Costs	$ 1,437,000

Notes:

[1] Total costs are rounded.
[2] Engineering at 20% with the balance being construction contingencies, traffic control, permitting, etc.

Table 1-3 Summary of Low Priority Improvements Program Costs

Improvement Item	Cost[1]
Manhole Repair	$ 93,000
Engineering Fees and Construction Contingency (45%)[2]	$ 42,000
Total Costs	$ 135,000

Notes:

[1] Total costs are rounded.
[2] Engineering at 20% with the balance being construction contingencies, traffic control, permitting, etc.

A proposed implementation schedule for the recommended Priority 1, Priority 2, and Low Priority Improvements as well as additional field investigations is provided in **Table 1-4**.

Table 1-4 Implementation Schedule

Phase	Start Date	Finish Date
Priority 1 Improvements		
Design	Winter 2024	Spring 2025
Construction	Summer 2025	Winter 2025
Priority 2 Improvements		
Design	Winter 2026	Spring 2027
Construction	Summer 2027	Winter 2027
Low Priority Improvements		
Design	Winter 2028	Spring 2029
Construction	Summer 2029	Winter 2029
Additional SSES Investigations	Spring 2024	Annual Recurrence

Section 2 Introduction

2.1 Background

The Town of Fairfield is in Fairfield County, Connecticut, and has a population of over 61,000 people. The Town's current wastewater collection system consists of approximately 210 miles of sewer, which are maintained by the Town's Water Pollution Control Authority.

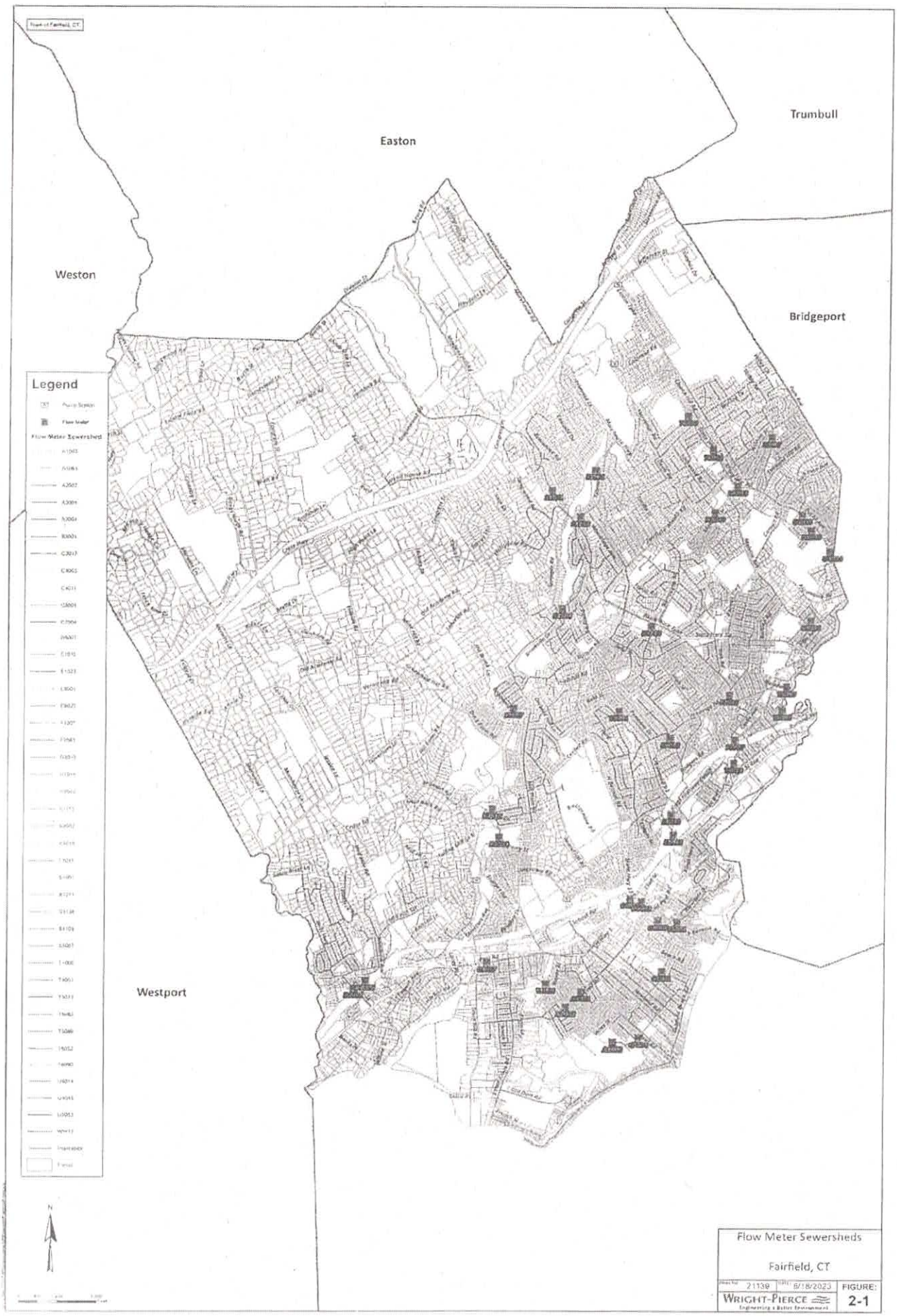
The Town has been actively evaluating and rehabilitating its wastewater collection system since the late 1990s. In 2017, Wright-Pierce prepared an Inflow & Infiltration Evaluation Report for the Town based on results from the 2016 inflow and infiltration (I/I) analysis. Based on the results of the I/I evaluation, areas throughout the Town were flagged for suspected high inflow and infiltration. Wright-Pierce then recommended a Sewer Systems Evaluation Survey (SSES) to investigate the sources of I/I from these areas.

Based on results from the 2017 I/I Evaluation Report, SSES investigations were performed and included:

- Smoke testing
- Manhole inspections
- Building inspections
- Closed-circuit television (CCTV) pipe inspections
- Dyed water testing
- Night flow isolations

2.2 Description of Project Area

The project areas for the various fieldwork tasks were determined and prioritized from the sewer drainage basins estimated to be high in inflow and infiltration from the 2017 report as well as from input from Town staff. The various sewer drainage basins within the Town can be seen in **Figure 2-1**.


Town of Fairfield, CT
Trumbull
Easton
Weston
Bridgeport
Westport
Legend
Flow Meter Sewersheds
N
Flow Meter Sewersheds
Fairfield, CT
21139
8/18/2023
FIGURE:
2-1
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Section 3 Flow Monitoring Program

3.1 Previous Flow Monitoring Program

Town-wide flow monitoring was completed in 2016 with the installation of 40 flow meters. The Massachusetts Department of Environmental Protection (MassDEP) Guidelines for Performing I/I Analysis and Sewer Systems Evaluation Survey dated May 2017 (MassDEP Guidelines) define infiltration rates equal to or greater than 4,000 gallons per day per inch diameter mile (GPD/IDM) as excessive. The MassDEP Guidelines deem all inflow as excessive; however, in the Guidelines, it is recommended that a community remove inflow from sub-areas that contribute to the top 80 percent of the total system inflow volume.

Table 3-1 summarizes the flow monitoring information from the 2016 Town-wide flow monitoring project. **Table 3-2** through **Table 3-4** summarize the base infiltration and inflow results for each drainage basin used to identify and prioritize the field work.

Table 3-1 Size of 2016 Flow Monitoring Basins

Meter ID / Manhole #	Net Basin Size (LF)	Net IDM (inch-diameter-mile)
A1003	53,350	139.174
A1063	22,203	47.350
A2002	16,360	25.708
A3001	20,545	31.836
B2004	20,214	31.786
B3001	24,111	41.619
C3017	55,500	99.788
C4005	26,491	47.030
C4011	19,154	29.308
C5001	21,113	50.277
C7004	61,828	122.317
D5001	23,154	45.928
E1015	27,036	51.807
E1023	33,279	51.365
E5001	27,518	42.967
E9022	25,928	40.499

Meter ID / Manhole #	Net Basin Size (LF)	Net IDM (inch-diameter-mile)
F1007	26,192	40.332
F2083	22,032	33.676
G2015	30,615	47.633
H1010	26,692	41.921
H2040	18,781	28.456
K1113	30,304	46.900
K4002	28,569	53.769
K4010	22,903	60.230
L2057	24,667	37.706
S1001	19,192	31.197
S1071	25,084	38.633
S3138	23,623	45.208
S4108	23,162	51.461
S5067	27,615	63.842
T1005	24,365	46.347
T4001	31,411	98.441
T5013	22,577	49.153
T5083	24,789	41.910
T5089	23,867	56.571
T6052	30,771	47.355
T6090	45,152	67.342
U4014	23,920	40.225
U5053	25,445	40.354
Total	**1,101,764**	**2,047**

Table 3-2 Summary of Base Infiltration (BI) Analysis

Meter ID / Manhole #	Net ADDF[1] (MGD[2])	Net BSF[3] (MGD)	Net BI[4] (MGD)	IDM	Normalized Infiltration (gpd/IDM)
A1003	0.280	0.239	0.046	139.174	331
A1063	0.550	0.226	0.326	47.350	6,885
A2002	0.177	0.054	0.124	25.708	4,823
A3001	0.310	0.108	0.201	31.836	6,314
B2004	0.178	0.075	0.103	31.786	3,240
B3001	0.123	0.066	0.057	41.619	1,370
C3017	0.418	0.217	0.201	99.788	2,014
C4005	0.118	0.118	0.000	47.030	0
C4011	0.106	0.086	0.02	29.308	682
C5001	0.226	0.226	0.000	50.277	0
C7004	0.026	0.026	0.000	122.317	0
D5001	0.947	0.287	0.659	45.928	14,348
E1015	0.176	0.102	0.074	51.807	1,428
E1023	0.159	0.131	0.027	51.365	526
E5001	0.272	0.131	0.142	42.967	3,305
E9022	0.144	0.031	0.112	40.499	2,766
F1007	0.228	0.098	0.130	40.332	3,223
F2083	0.172	0.079	0.093	33.676	2,762
G2015	0.277	0.111	0.166	47.633	3,485
H1010	0.172	0.083	0.089	41.921	2,123
H2040	0.082	0.039	0.043	28.456	1,511
K1113	0.173	0.097	0.077	46.900	1,642
K4002	0.104	0.086	0.018	53.769	335
K4010	0.348	0.072	0.277	60.230	4,599

Meter ID / Manhole #	Net ADDF[1] (MGD[2])	Net BSF[3] (MGD)	Net BI[4] (MGD)	IDM	Normalized Infiltration (gpd/IDM)
L2057	0.253	0.050	0.203	37.706	5,384
S1001	0.092	0.029	0.063	31.197	2,019
S1071	0.057	0.034	0.023	38.633	595
S3138	0.080	0.030	0.050	45.208	11,016
S4108	0.036	0.036	0.000	51.461	0
S5067	0.304	0.060	0.244	63.842	3,822
T1005	0.778	0.267	0.511	46.347	11,025
T4001	0.207	0.207	0.000	98.441	0
T5013	0.390	0.194	0.196	49.153	3,988
T5083	0.086	0.086	0.000	41.910	0
T5089	0.214	0.214	0.000	56.571	0
T6052	0.185	0.145	0.040	47.355	845
T6090	0.263	0.074	0.189	67.342	2,807
U4014	0.000	0.000	0.000	40.225	0
U4045	0.206	0.057	0.149	39.535	3,769
U5053	0.046	0.022	0.024	40.354	595
Total		**4.293**	**4.677**		

Notes:

[1] ADDF standards for "Average Dry Day Flow."
[2] GPM stands for "gallons per day."
[3] BSF stands for "Base Sanitary Flow."
[4] BI stands for "Base Infiltration."

Regarding **Table 3-2** above, the net flows account for only the flows originating in the meter shed while flows originating from upstream meters have been subtracted. Therefore, basins resulting with a net ADDF of zero simply had upstream meters with greater flows at the time of the readings.

Table 3-3 **Summary of Rainfall-Derived Infiltration and Inflow (RDII) by Storm Event**

Meter ID / Manhole #	3/14/2016 RDII[1,2]	3/28/2016 RDII	4/3/2016 RDII	4/4/2016 RDII	5/3/2016 RDII	5/6/2016 RDII	All Storm Average
A1003	237,013	531,923	635,747	453,011	448,001	320,239	437,656
A1063	78,033	4,782	55,447	35,749	4,356	0	29,728
A2002	56,301	61,391	78,872	83,525	51,622	45,477	62,865
A3001	143,039	262,456	286,492	177,549	159,467	172,869	200,312
B2004	107,151	80,228	127,208	96,343	68,531	72,758	92,036
B3001	55,686	41,910	64,551	70,836	46,946	59,141	56,512
C3017	280,404	255,856	293,177	236,098	272,421	292,279	271,706
C4005	252,363	231,905	300,051	237,407	128,110	187,885	222,954
C4011	25,234	64,097	0	29,777	25,058	63,657	34,637
C5001	254,804	449,376	493,821	576,778	19,105	195,527	331,568
C7004	748,152	144,567	594,045	808,327	236,786	788,636	553,419
D5001	266,015	324,711	462,816	307,488	258,207	198,547	302,964
E1015	176,455	0	215,724	274,577	185,210	0	141,994
E1023	117,266	76,893	66,569	214,603	52,598	152,143	113,345
E5001	203,277	251,615	254,408	150,900	63,376	96,547	170,020
E9022	16,767	53,783	91,811	129,192	86,951	55,119	72,270
F1007	131,845	172,419	232,877	159,271	99,096	91,231	147,790
F2083	86,850	0	187,272	179,055	51,827	92,979	99,664
G2015	84,739	151,092	243,071	149,472	92,313	94,933	135,937
H1010	66,780	104,719	185,165	90,004	56,006	63,343	94,336
H2040	48,859	86,222	101,104	115,247	43,111	28,854	70,566
K1113	61,158	160,867	185,959	141,826	92,815	75,790	119,736
K4002	55,113	92,536	108,828	73,126	53,661	65,652	74,820
K4010	31,199	69,927	116,726	54,147	77,757	40,414	65,028

Meter ID / Manhole #	3/14/2016 RDII[1, 2]	3/28/2016 RDII	4/3/2016 RDII	4/4/2016 RDII	5/3/2016 RDII	5/6/2016 RDII	All Storm Average
L2057	104,182	179,556	228,498	122,167	83,443	76,769	132,436
S1001	68,321	16,098	41,336	47,357	40,057	19,093	38,710
S1071	26,966	28,511	41,492	37,513	33,649	30,404	33,089
S3138	15,145	47,559	97,921	46,835	0	98,463	50,987
S4108	92,372	62,165	62,165	55,115	42,249	2,573	52,773
S5067	62,246	40,987	100,998	82,867	68,439	67,289	70,471
T1005	284,895	501,984	417,494	475,613	441,780	359,699	413,577
T4001	242,066	408,432	295,914	378,604	500,376	396,225	370,269
T5013	21,332	330,062	512,715	76,138	586,739	493,201	336,698
T5083	494,622	215,543	355,732	278,660	650,988	676,930	445,412
T5089	294,565	320,531	497,485	194,378	220,683	134,582	277,038
T6052	83,771	160,344	260,453	94,757	105,365	108,017	135,451
T6090	50,237	79,800	78,790	124,313	90,508	93,067	86,119
U4014	254,182	189,259	195,453	424,092	178,116	289,781	255,147
U4045	0	120,503	282,596	210,484	77,884	67,526	126,499
U5053	65,777	35,955	120,941	76,309	48,546	35,027	63,759

Notes:

[1] RDII is in units of gallons per day (GPD).
[2] Storm values reflect net peak RDII conditions.

Table 3-4 **Summary of Infiltration and Inflow Analyses**

Meter ID / Manhole #	BI Rate (gpd/IDM)	Infiltration Ranking	RDII Rate (gpd/IDM)	RDII Ranking
A1003	331	32	753	40
A1063	6,885	3	7,380	3
A2002	4,823	6	2,445	25
A3001	6,314	4	6,292	8
B2004	3,240	13	2,896	18
B3001	1,370	24	1,358	31
C3017	2,014	20	2,723	22
C4005	0	33 (Lowest)	4,741	10
C4011	682	27	1,182	34
C5001	0	33 (Lowest)	6,595	6
C7004	0	33 (Lowest)	4,525	11
D5001	14,348	1	6,597	5
E1015	1,428	23	2,741	21
E1023	526	30	2,207	27
E5001	3,305	12	3,957	12
E9022	2,766	16	1,785	28
F1007	3,223	14	3,664	14
F2083	2,762	17	2,960	17
G2015	3,485	11	2,854	20
H1010	2,123	18	2,250	26
H2040	1,511	22	2,480	24
K1113	1,642	21	2,553	23
K4002	335	31	1,392	30
K4010	4,599	7	1,080	37
L2057	5,384	5	3,512	15

Meter ID / Manhole #	BI Rate (gpd/IDM)	Infiltration Ranking	RDII Rate (gpd/IDM)	RDII Ranking
S1001	2,019	19	1,241	33
S1071	595	28	857	39
S3138	1,106	25	1,128	35
S4108	0	33 (Lowest)	1,026	38
S5067	3,822	9	1,104	36
T1005	11,025	2	8,924	2
T4001	0	33 (Lowest)	3,761	13
T5013	3,988	8	6,850	4
T5083	0	33 (Lowest)	10,628	1
T5089	0	33 (Lowest)	4,897	9
T6052	845	26	2,860	19
T6090	2,807	15	1,279	32
U4014	0	33 (Lowest)	6,343	7
U4045	3,769	10	3,200	16
U5053	595	29	1,580	29

Tables 3-2, 3-3, and 3-4 delineate how much inflow and infiltration (I/I) can be attributed to each sewer drainage basin in the Town of Fairfield sewer system. The basins with high quantities of I/I compared to the other basins were prioritized for fieldwork during this SSES project.

Section 4 Sewer System Evaluation Survey Results

4.1 Introduction

The Town of Fairfield Phase 5 Sewer System Evaluation Survey (SSES) work included smoke testing, manhole inspections, building inspections, night flow isolations, dyed-water testing, and closed-circuit television (CCTV) pipe inspection to better understand the sewer system condition and to identify and quantify the specific sources of infiltration and inflow (I/I)

Smoke testing identifies or verifies both public and private sources of inflow. Manhole inspections and CCTV pipe inspections identify structural and operation and maintenance (O&M) issues within the sewer system in the public domain. In general, CCTV inspections identify infiltration sources, and manhole inspections can identify both infiltration and inflow sources. Building inspections are performed to help identify private sources of I/I, such as sump pumps, yard drains, and rain gutters that are, or could be, directly connected to the sanitary sewer system.

4.2 Smoke Testing

Wright-Pierce conducted smoke testing on approximately 90,000 linear feet (LF) of sanitary sewers in the Town of Fairfield. Smoke testing was conducted to identify locations if and where storm water collection systems, or other extraneous water sources, are directly connected to the sanitary sewer system. These include catch basins, roof leaders, floor drains, area drains, and manholes. Smoke testing can also identify breaks in sewer laterals if they are located close enough to the surface and if ground conditions are dry. This concept assumes that wherever smoke can exit the system there is potential for inflow into the sewer system.

Before smoke testing began, extensive notification efforts were conducted by Wright-Pierce. This included going door-to-door to each residence and business with notices. A call log was established to record any telephone calls from residents about the notices they received. Any property owners who called identifying health concerns such as respiratory problems were also called just prior to testing in that area to make sure they stepped out of their buildings. The Town Police and Fire Departments were informed of the locations of the smoke testing work. Wright-Pierce conducted smoke testing from August 15 to August 19, 2022 and from August 23 to August 24, 2022, during daytime hours.

Testing was performed by placing a gas-powered blower over centrally located manholes. Liquid smoke was pumped into the blower, which then filled the sewer system with non-toxic smoke. After filling the lines with smoke, Wright-Pierce field staff visually inspected the area.

Any locations where smoke was observed were considered potential inflow sources into the sewer collection system. Several types of smoke testing defects were found during this fieldwork including many sanitary manhole cover vent holes smoking, direct connections of yard drains, rain gutters, and catch basins to the sanitary system, as well as missing / broken cleanout caps. A selection of the various smoke testing defects can be visualized in **Figures 4-1** through **4-4** on the following pages.

The results of the smoke testing are summarized in **Table 4-1.** The smoke testing field logs and photographs are included in **Appendix C.**

Figure 4-1 Smoke Testing Defects – Manhole Cover Vent Holes

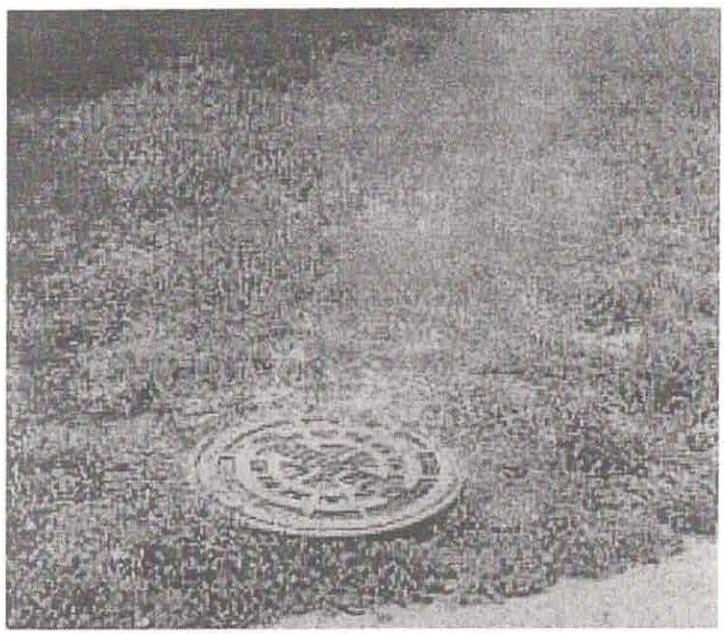


Figure 4-2 Smoke Testing Defects – Cleanout Caps

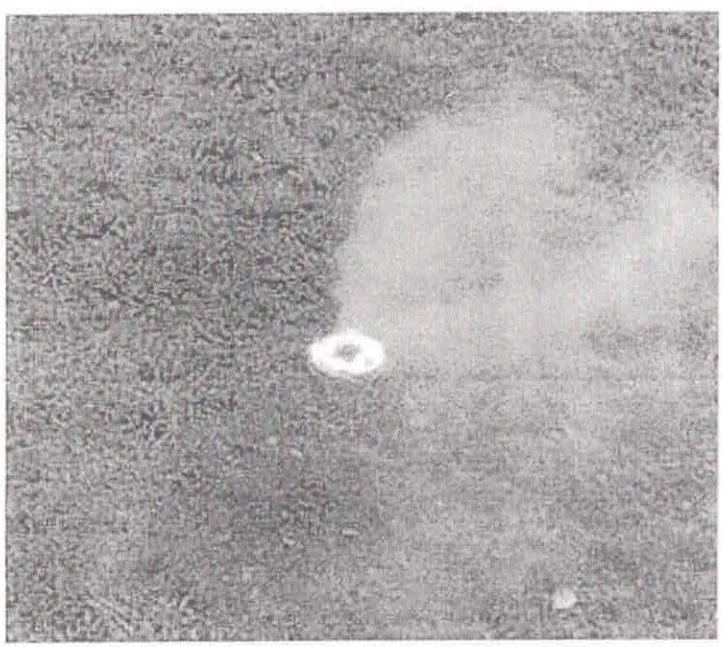


Figure 4-3 Smoke Testing Defects – Catch Basins

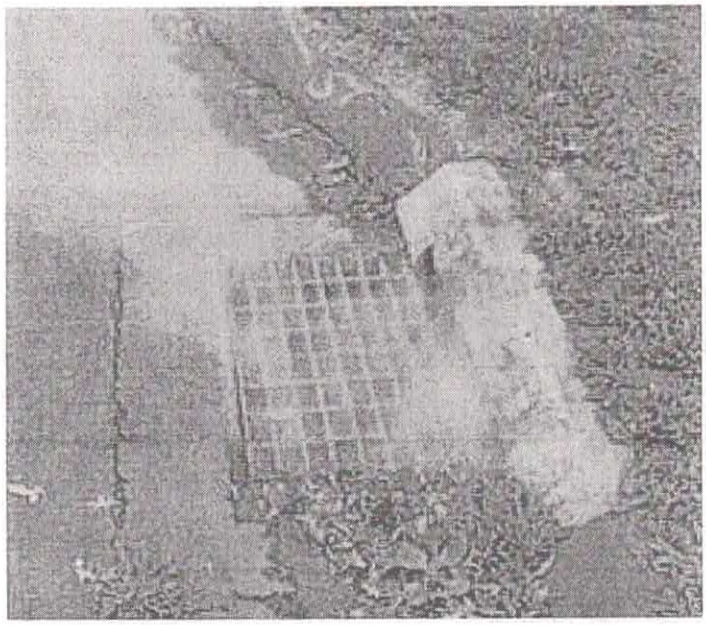


Figure 4-4 Smoke Testing Defects – Yard Drains



Table 4-1 Summary of Smoke Testing Results

Observation of Smoke Origin	Number of Occurrences
Catch Basin	9
Defective/Broken Cleanout Cap	6
Missing Cleanout Cap	6
Home/Structure/Building	20
Driveway/Yard Drain	9
Ground/Potential Lateral Defects	6
Sewer Manhole Frames/Missing Bolts	18
Vent Holes on Manhole Covers	287
Potentially Directly Connected Sump Pumps	4
Potentially Directly Connected Rain Gutters/Downspouts	8
Drain Manhole	2
Other Manholes (electrical, etc.)	5
Total	**380**

4.3 Manhole Inspections

A National Association of Sewer Service Companies (NASSCO) Manhole Assessment Certification Program (MACP) certified Wright-Pierce employee conducted each manhole inspection following NASSCO's MACP inspection standards. The purpose of the manhole inspections was to determine potential sources of I/I. For this project, Level 1 inspections were used to gather detailed information concerning all components of the manhole without entry. As part of Level 1 inspections, the inspector used camera equipment capable of observing and photographing defects present in the manhole. The manhole inspections for this project included noting any potential inflow and infiltration defects inside the manhole.

A total of 237 manhole inspections were performed during daytime hours in late October and early November of 2022.

All inspections were completed at-grade. Manholes were opened and visually inspected for defects using camera equipment inserted into the manhole. Wright-Pierce used reporting software to collect data and produce NASSCO MACP reports and condition ratings. The completed manhole inspections are included in **Appendix D.** A Wright-Pierce MACP certified engineer then performed an independent review of each report and photograph to provide quality control for the manhole inspections.

Evidence of I/I was determined qualitatively by the presence of stains, weepers, drippers, runners, and gushers. According to NASSCO's Pipeline Assessment and Certification Program, stains are a discoloration which indicate the presence (or previous presence) of moisture. Weepers are the presence of moisture on the pipe wall or manhole interior, where groundwater slowly seeps in. Drippers are, as the name suggests, when water slowly drips from a defect in a pipe or manhole. Runners are denoted when a small, steady stream water is actively leaking. Lastly, gushers indicate moderate to heavy consistent streams of water flowing through defective areas. In addition to these I/I defect types, the presence of roots (from nearby trees and vegetation that often grow into manholes and pipelines) can also contribute to infiltration.

Figures 4-5 through **4-8** depict four common sources of infiltration in sanitary manholes found within the Fairfield sewer system.

Figure 4-5 Manhole Inspection Defect – Stains

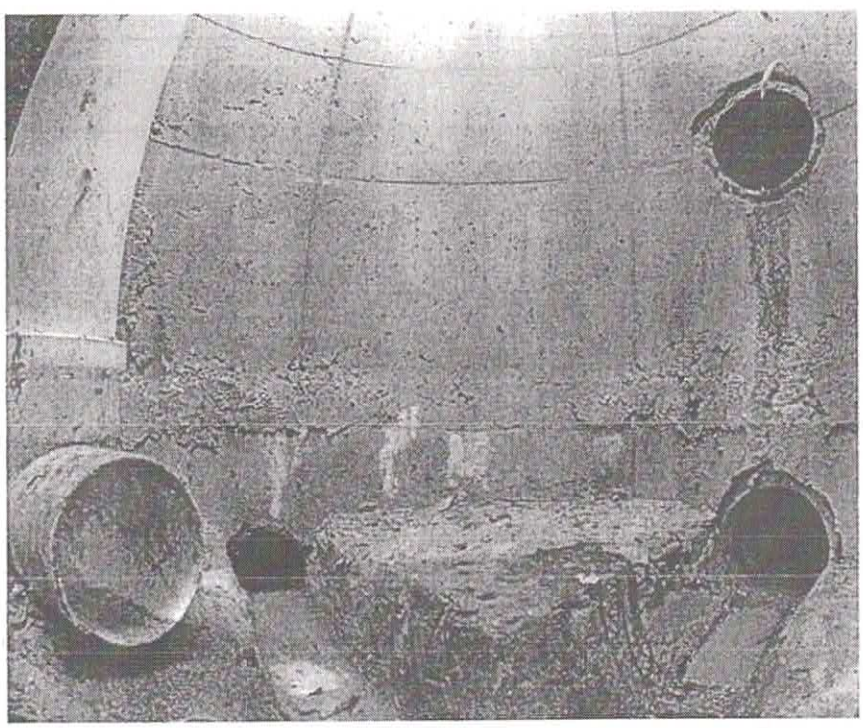


Figure 4-6 Manhole Inspection Defect – Weepers

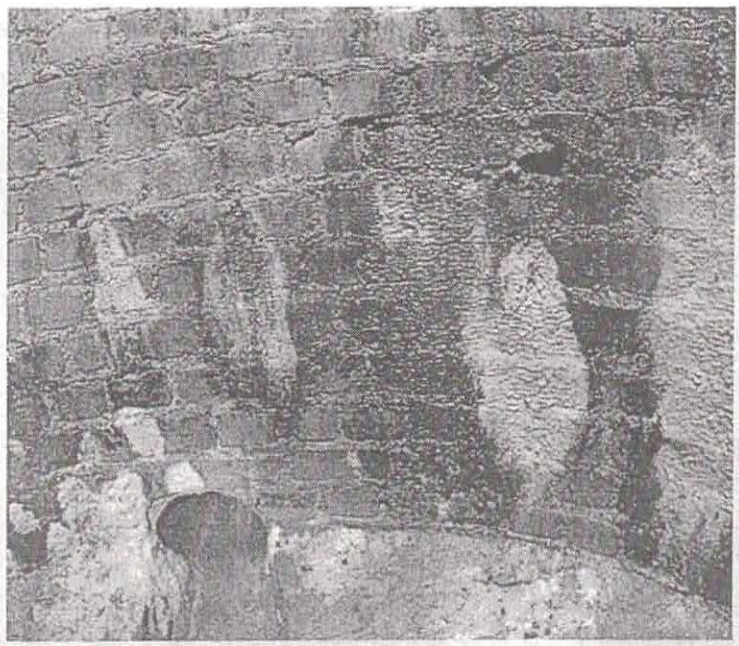


Figure 4-7 Manhole Inspection Defect – Runners

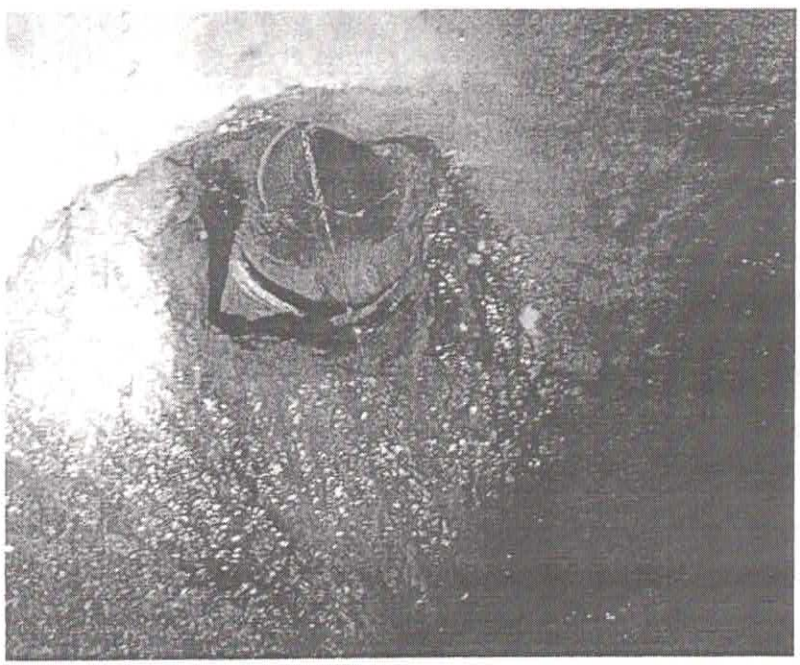
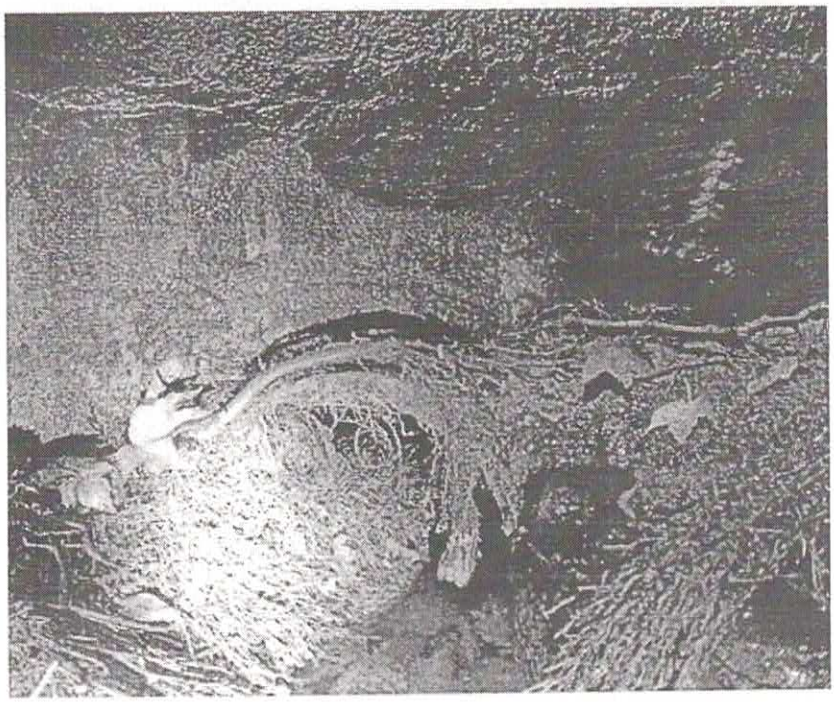


Figure 4-8 Manhole Inspection Defect – Roots



Of the 237 manholes inspected as part of this SSES, 53 had evidence of I/I.

4.4 Building Inspections

Physical building inspections were conducted in 2022 between November 7 and November 10. Prior to performing the building inspections, Wright-Pierce mailed a notice with information on scheduling an appointment for building inspections as well as a questionnaire to older areas of Town suspected of directly connected sump pumps. These notices informed the residents and business owners that inspections would be conducted in the area, and inspectors would need access to the basements to inspect the plumbing connections. The questionnaire served as a condensed mail-in version of the typical building survey. The purpose was to find information on the building relative to direct connections, and if there had been sewer backups, clogging, etc. Questionnaires were mailed to property owners in the project area in early October 2022.

A total of 372 questionnaires were mailed, and the 7 that were returned are included in **Appendix E**. Of the 372 selected buildings, this represents an approximately 2 percent response rate.

The results of the questionnaires filled out by residents are summarized in **Table 4-3**. One potential direct connection was identified from the 7 questionnaires that were returned. Results of the questionnaires were used to supplement data collected during building inspections.

Table 4-2 Summary of Questionnaires

Description	Number of Occurrences
No Direct Connections	
Sump Pump (Not Connected to Sanitary Sewer)	1
Potential Direct Connections	
Sump Pump (Unknown Discharge Location)	1
Other Observations	
Flooding (Inside)	1

Wright-Pierce attempted to perform interior and exterior building inspections at 238 buildings in the project area. Inspectors were required to carry photo identification cards while performing the work. Permission was obtained from residents to inspect 94 of these buildings. Of the 238 attempted inspections, this represents an approximately 40 percent entry rate. Residents either denied entry or were not available at the remainder of the buildings in the project area.

A building inspection form prepared by Wright-Pierce was used to collect the following information:

- Drainage issues (outside), flooding (inside)
- Unknown/suspicious downspout discharge locations
- Sewer backups, clogging
- Standing water
- Sump pumps
- Buried structures
- Other significant issues

Wright-Pierce entered 94 houses and/or businesses in the Town of Fairfield and completed an inspection of these buildings. Complete onsite inspections included entry of the building and a full visual inspection of the basement, especially documenting the number of sump pumps there, if any. Inspectors documented any instances or evidence of sewer back-up, clogging, drainage issues, and flooding issues based on answers provided by the property owners.

The results of the physical inspections performed by Wright-Pierce are summarized in **Table 4-4**. Of the 94 complete inspections, nine buildings were found to have direct connections (eight have a sump pump connected to the sanitary sewer, the other has roof leaders connected to the sanitary sewer).

Table 4-3 Summary of Building Inspections

Description	Number of Occurrences
No Direct Connections	
Sump Pump (Not Connected to Sanitary Sewer)	16
Direct Connections	
Sump Pump (Connected to Sanitary Sewer)	8
Roof Leaders Connected to Sanitary Sewer	1
Other Observations	
Flooding (Inside)	4
Sewer Backups	2
Clogging	1
Other Discharges[1]	11

Note:

[1] 59 Sanford Street has a grease trap separator in the basement that is connected to the sanitary sewer. There were similarly uncategorizable discharges found throughout the building inspections. All building inspection results can be viewed in **Appendix E**.

4.5 Night Flow Isolations

Following smoke testing, manhole inspections, and building inspections, recommendations were made for areas to conduct night flow isolations. The purpose of night flow isolations is to identify / narrow down the approximate locations of infiltration sources to the collection system for further investigation through television inspection. Field crew members lowered a flow meter into manholes at approximate 2,000 LF intervals to measure the flow. The work was conducted at night (between the hours of 10 PM to 4 AM) to ensure that the source of water was groundwater infiltration and not washing dishes, showers, etc. of contributing sewer lines. The diameter of the pipe (in inches), LF of pipe upstream, depth (in inches), and velocity (in feet per second, fps) were recorded at each manhole. Calculations were then made using these parameters to determine excessive I/I flow rates at each location where data was collected.

Night flow isolations were conducted on approximately 142,000 LF of sewer main the week of March 20, 2023. The results of the night flow isolations are summarized in **Tables 4-4** and **4-5** below:

Table 4-4 Night-Flow Isolation Logs

Reading Number	IDM	LF of Pipe Upstream	Depth (in.)	Velocity (fps)	Pipe Size (in.)	Flow Rate (GPM)	NET I/I Rate gpd/IDM	Excessive I/I?
C7002 12:00	5.9	1,859	31.5	1.2	39	3,864	-	No
C7010 12:00	8.4	2,153	27.9	1.3	39	3,761	3,726	No
B1006 6:00	4.4	2,526	2.8	0.8	12	48	15,853	Yes
B1011 6:00	4.0	2,631	1.7	0.8	9	21	7,482	Yes
B1020 3:00	1.8	1,195	1.3	0.3	8	5	4,080	Yes
B1020 12:00	1.8	1,200	1.7	0.6	8	15	11,988	Yes
B1035 1:00	0.5	310	2.6	0.4	8	18	23,081	Yes
B1035 12:00	1.0	685	1.7	0.5	8	11	15,122	Yes
B2065 9:00	2.5	1,647	2.5	1.3	8	54	6,009	Yes
B2072 4:00	3.7	2,424	5.2	0.4	8	43	12,047	Yes
C1004 1:00	3.3	1,945	2.9	0.9	10	53	-	No
C1008 12:00	3.4	1,797	3.4	2.0	10	141	17,319	Yes
C1014 12:00	4.3	2,595	3.3	1.5	10	100	33,891	Yes
C1030 2:00	2.6	1,705	2.1	0.5	8	15	8,185	Yes
C1030 8:00	3.0	1,965	1.8	0.7	8	18	8,476	Yes
C6001 12:00	0.4	257	1.2	1.3	8	20	-	No
C6001 9:00	5.6	984	24.4	1.7	39	4,059	71,896	Yes
C6003 12:00	1.1	150	24.5	1.5	39	3,687	-	No
C6003 3:00	3.4	2,227	3.4	1.5	8	92	39,406	Yes
C6004 12:00	4.6	1,063	24.7	1.6	39	3,947	1,228,451	Yes
C6012 12:00	1.8	2,192	3.7	0.9	8	67	52,565	Yes
C6017 12:00	0.4	252	3.4	0.3	8	16	59,053	Yes
C6017 3:00	2.7	1,788	4.0	0.4	8	28	14,914	Yes
C6017 9:00	0.5	351	3.2	0.3	8	15	39,458	Yes

Reading Number	IDM	LF of Pipe Upstream	Depth (in.)	Velocity (fps)	Pipe Size (in.)	Flow Rate (GPM)	NET I/I Rate gpd/IDM	Excessive I/I?
C6036 3:00	2.6	1,712	3.1	0.9	8	48	26,647	Yes
C7006 12:00	8.6	1,808	1.6	1.2	39	29	4,925	Yes
C7006 3:00	4.6	2,807	32.0	1.4	10	4,577	196,870	Yes
C7010 3:00	2.8	1,849	3.2	1.3	8	78	5,304	Yes
C7010 9:00	2.3	1,522	3.8	1.8	8	132	82,472	Yes
C7012 12:00	2.2	303	24.0	1.5	39	3,679	-	No
C7012 3:00	2.6	1,692	2.3	1.6	8	60	33,490	Yes
C7016 12:00	2.7	1,801	3.3	1.1	8	68	35,962	Yes
F4010 12:00	2.6	1,863	3.3	0.8	8	49	-	No
F4025 12:00	0.5	317	2.2	0.6	8	20	-	No
F4027 10:00	2.3	1,739	2.5	0.6	8	25	15,974	Yes
F4047 12:00	1.4	917	2.9	1.1	8	53	20,580	Yes
F4056 12:00	2.3	1506	2.9	0.6	8	28	17,954	Yes
F4056 3:00	0.3	216	2.5	0.1	8	5	19,856	Yes
F4070 12:00	2.3	1,501	1.7	0.5	8	13	8,081	Yes
H1056 12:00	2.6	1,605	3.9	2.9	10	257	81,075	Yes
H2001 12:00	2.2	1,478	3.3	0.8	8	50	609	No
H2001 3:00	0.7	439	1.3	3.8	8	63	-	No
H2008 12:00	2.7	1,781	1.6	2.1	8	49	26,274	Yes
H2018 12:00	1.9	1,260	1.5	6.8	10	160	78,049	Yes
H2018 9:00	1.5	989	1.1	1.3	8	18	5,326	Yes
H2023 12:00	0.8	530	1.5	1.0	8	21	36,818	Yes
H2023 3:00	2.8	1,857	0.1	0.1	8	0	19	No
H2023 9:00	0.3	211	1.1	1.0	8	12	56,291	Yes
H2058 12:00	4.3	2,835	1.5	1.3	8	27	8,994	Yes

Reading Number	IDM	LF of Pipe Upstream	Depth (in.)	Velocity (fps)	Pipe Size (in.)	Flow Rate (GPM)	NET I/I Rate gpd/IDM	Excessive I/I?
H2058 3:00	2.2	1,441	1.5	0.6	8	11	7,426	Yes
H2078 12:00	2.0	1,316	2.5	0.3	8	13	9,570	Yes
H2078 2:00	1.5	1,021	0.8	0.5	8	3	3,155	No
M3001 1:00	1.5	829	1.7	0.9	10	25	-	No
M3006 3:00	3.4	2,267	2.0	0.7	8	21	-	No
M3008 12:00	3.5	2,314	2.0	0.8	8	26	10,541	Yes
M3036 12:00	2.9	1,884	2.2	1.3	8	43	21,937	Yes
M3036 3:00	1.5	976	1.7	0.8	8	19	18,629	Yes
M4001 3:00	3.5	1,193	3.1	0.7	18	66		No
M4004 3:00	3.9	2,864	0.3	0.3	8	0	135	No
M4004 9:00	2.5	2,340	2.4	0.7	10	33	7,539	Yes
M4008 12:00	2.2	1,446	2.5	0.3	8	10	6,869	Yes
M4017 12:00	1.3	868	1.7	0.4	8	9	10,076	Yes
M5004 12:00	5.1	1,803	4.9	2.3	18	388	61,189	Yes
M5012 12:00	5.2	2,062	4.9	1.0	18	171	-	No
M5017 3:00	2.1	1,415	1.4	0.3	8	6	3,730	No
M5017 12:00	3.7	1,496	4.0	1.5	18	203	57,848	Yes
T2008 12:00	2.9	1,082	2.3	0.3	16	18	8,840	Yes
T3006 9:00	1.9	1,256	2.6	0.7	8	30	22,855	Yes
T3027 9:00	1.3	871	3.0	0.5	8	26	27,922	Yes
T3027 3:00	3.6	1,916	1.6	0.5	10	12	815	No
T3028 3:00	0.0	29	3.5	0.6	8	37	-	No
T3028 9:00	1.8	924	7.0	0.4	10	76	19,259	Yes
T3035 12:00	2.9	1,546	2.4	0.2	10	10	4,931	Yes
T5071 1:00	2.7	1,789	1.3	0.5	8	8	4,286	Yes

Reading Number	IDM	LF of Pipe Upstream	Depth (in.)	Velocity (fps)	Pipe Size (in.)	Flow Rate (GPM)	NET I/I Rate gpd/IDM	Excessive I/I?
T6090 12:00	4.9	2,717	1.4	1.3	10	27	-	No
T7012 9:00	4.7	3,502	1.6	0.6	8	12	3,721	No
T7016 3:00	2.8	1,827	3.6	0.6	8	39	-	No
T7016 9:00	1.3	1,361	4.4	1.6	8	141	51,044	Yes
T7023 12:00	0.5	312	2.1	0.8	8	26	47,477	Yes
T7023 9:00	2.7	1,790	1.7	2.0	8	48	25,401	Yes
T7032 3:00	2.6	1,729	1.3	0.6	8	11	5,812	Yes
T7055 12:00	1.7	1,113	1.0	0.5	8	5	4,345	Yes
T7074 2:00	1.1	795	1.5	0.1	8	3	3,443	No
T7076 12:00	0.9	597	2.7	2.0	8	92	-	No
T7079 9:00	2.9	1,908	2.6	0.9	8	38	19,141	Yes
T7095 12:00	2.7	1,799	5.5	0.7	8	77	40,543	Yes
T7095 9:00	0.7	442	5.0	0.1	8	13	27,278	Yes
T7123 10:00	1.0	685	1.3	0.6	8	9	12,922	Yes
T7123 12:00	2.7	1,532	2.4	3.5	10	156	75,847	Yes
U1009 12:00	2.0	1,319	2.0	0.7	8	21	15,063	Yes
U1021 12:00	2.6	1,836	1.7	0.9	8	21	11,800	Yes
U3003 1:00	1.9	1,285	1.6	0.6	8	12	-	No
U3010 3:00	0.8	515	1.3	0.5	8	8	14,217	Yes
U3010 12:00	1.6	1,370	1.8	0.2	8	5	4,464	Yes
U6002 12:00	3.7	2,108	2.2	0.8	10	32	1,911	No
U6008 12:00	3.8	2,139	1.8	0.9	10	27	10,159	Yes
U6019 3:00	0.9	612	0.1	0.1	8	0	58	No
U6019 9:00	2.5	1,619	0.1	0.1	8	0	22	No

Table 4-5 **Summary of Night Flow Isolations**

Night Flow Isolation Results	Linear Feet (LF)
Non-Excessive I/I	41,280
Excessive I/I[1]	101,020
Total	**142,300**

Note:

[1] Excessive I/I is defined by the MassDEP as 4,000 gpd/IDM.

4.6 Dyed-Water Testing

After conducting the smoke testing, recommendations were made for locations to test with dye. The purpose of dyed-water testing (also known as dye testing), is to identify and confirm points of inflow sources to the collection system that were questionable during smoke testing. Dyed-water testing involves mixing biodegradable, non-toxic dye with water to create a brightly colored solution. This solution is poured into a location where inflow is suspected, such as a roof leader or catch basin. The downstream manhole is then observed to see if the dye is entering the wastewater system.

Nine catch basins smoked during smoke testing and were recommended for dye testing. The catch basins were located adjacent to the following properties with the sanitary manholes opened for observance testing:

- 2094 Post Rd.: MH-C3030
- 1827 Post Rd.: MH-C3021
- 360 Tunxis Hill Rd.: MH-G1112 & MH-G1113
- 421 Tunxis Hill Rd.: MH-G1112 & MH-G1113
- 430 Tunxis Hill Rd.: MH-G1112 & MH-G1113
- 447 Tunxis Hill Rd.: MH-G1112 & MH-G1113
- 813 Kings Highway E.: MH-T5044
- 85 Old Post Rd.: MH-T9025
- 111 Old Post Rd.: MH-T9025

Dye testing was performed on April 4, 2023, during daytime hours. For the catch basin located at 1827 Post Rd., while dye was not directly observed in the downstream manhole (MH-C3021), the flow before flushing the catch basin was negligible, and the flow during flushing of the catch basin filled the channel. Human error in releasing the dye simultaneously with the commencement of flushing is suspected as to why no dye was observed. Therefore, this catch basin is directly connected to the sanitary sewer system. In addition, dye was observed in MH-T5044 during flushing of the catch basin located on 813 Kings Highway E., indicating that this catch basin is also directly connected to the sanitary sewer system.

For the other seven catch basins, crews were not able to see any dye or greatly increased flows in the downstream manholes during testing. This suggests that smoke was able to enter these catch basins through an indirect connection, such as a defect in the storm drain or a defective capped pipe connection. While indirect, these catch basins can still contribute inflow to the sanitary sewer system.

4.7 Closed-Circuit Television (CCTV) Pipe Inspections

CCTV pipe inspections were performed by Vortex Services on approximately 50,000 LF of gravity sewer pipes ranging from 8-inches to 39-inches in diameter in the Town's sanitary sewer system. The chosen areas for CCTV were based on the results of the night flow isolations as well as locations the Fairfield collection system staff know to be problematic. The purpose of CCTV inspection is to determine the condition of the sewer pipes, as well as to locate and quantify any potential sources of I/I that may be entering the system. The inspections took place between May 31 and July 14, 2023, during daytime hours.

Pipe inspections were conducted by flushing the sewer pipes between manholes using a high-pressure jetter to loosen any debris and provide a clear view of the infrastructure. A camera was then run through the pipe, so the operator could see the entire pipe above the water line from the inside. The camera is mounted to a robotic vehicle, which can navigate through the sewer pipes and can rotate to almost any angle to get a closer look at any defects seen by the operator. The entire inspection was recorded on video for review. Any defect in the pipe was noted as well as the distance of the defect from the camera launching manhole. Wright-Pierce staff then reviewed each inspection report. The CCTV inspection reports and videos are included in **Appendix G.**

Approximately 450 LF of gravity sewer pipe could not be inspected by CCTV either due to site access limitations or due to intruding taps and debris preventing the camera from accessing the full pipe.

The results from the CCTV inspections are summarized in **Table 4-6**, with the total quantity of each defect type found during the inspections. The higher the grade, the more serious the defect is to the health of the sanitary sewer system.

Table 4-6 Defects Greater Than Grade Zero from CCTV Results

Defect Code	Number of Occurrences	Defect Grade Value Range
Broken	12	4
Crack Circumferential	2	1
Crack Longitudinal	5	2
Crack Multiple	2	3
Deposits – Encrustation	79	2 - 5
Deposits – Grease	28	2 - 5
Deposits – Fine Matter, Ingress	1	2 - 5
Deposits – Fine Matter, Settled	21	2 - 5
Deposits – Other, Settled	2	2 - 5
Fracture Circumferential	3	2
Fracture Longitudinal	5	3

Defect Code	Number of Occurrences	Defect Grade Value Range
Fracture Multiple	7	4
Hole	4	4 - 5
Hole – Soil Visible	9	5
Infiltration Dripper Barrel	6	3
Infiltration Dripper Joint	46	3
Infiltration Dripper Lateral	1	3
Infiltration Gusher Connection	4	5
Infiltration Gusher Joint	25	5
Infiltration Runner Barrel	4	4
Infiltration Runner Connection	3	4
Infiltration Runner Joint	48	4
Infiltration Runner Lateral	1	4
Intruding Sealing Material – Grout	127	2 - 5
Intruding Sealing Material – Sealing Ring	3	2 - 5
Joint Offset Large	1	2
Joint Offset Medium	6	1
Joint Separation Medium	2	1
Miscellaneous – Camera Underwater	2	4
Miscellaneous – Water Level Sag	647	2 - 5
Obstruction – Object Intruding Through Wall	1	5
Obstruction – Pipe Material in Invert	2	2 - 5
Obstruction – External Pipe Cable	1	2
Obstruction – Rocks	4	2 - 5
Obstruction – Other	2	4
Roots Ball Joint	2	4
Roots Fine Joint	27	1

Defect Code	Number of Occurrences	Defect Grade Value Range
Roots Medium Joint	13	3
Point Repair – Patch Defective	1	4
Point Repair – Replacement Defective	3	4
Roots Tap Joint	2	2
Surface Damage – Missing Wall	29	5
Surface Damage – Surface Spalling	17	2
Tap Break-In Defective	4	3
Tap Break-In Intruding	1	5
Tap Factory Made Defective	34	2 - 3
Total Defects	**1,121**	

Table 4-7 below lists the LF of sanitary pipe CCTV'd with the associated Likelihood of Failure (LoF) scores. LoF values denote the condition of the pipe and the probability of the pipe having structural or functional issues in the next few years. LoF scores of 3 or greater are of significant concern.

Table 4-7 Breakdown of CCTV'd Pipe by Likelihood of Failure (LoF) Scores

LoF Score	LF of CCTV'd Pipe
1	15,100
2	10,900
3	10,000
4	10,700
5	4,200
Total	50,900

4.8 Summary of SSES Activities and Findings

This SSES study consisted of approximately 90,000 LF of smoke testing, 237 manhole inspections, 238 building inspection, approximately 50,000 LF of CCTV pipe inspections, nine dyed-water tests, and 140,000 LF of night flow isolations. The field investigations resulted in identification of the following deficiencies with a high potential to contribute I/I in the sewer:

- 73 sanitary manholes requiring grouting to remediate I/I defects
- 14,900 LF of sewer pipes with an LoF of 3, 4, or 5
- Two catch basins with a direct connection to the sanitary sewer (catch basins adjacent to MH-C3021 and MH-T5044)
- Seven catch basins with a potential indirect connection to the sanitary sewer
- Eight buildings with sump pumps that are connected to the sanitary sewer
- Six missing cleanout caps
- Six broken or defective cleanout caps
- Nine buildings with a driveway or yard drain connected to the sanitary sewer
- Nine homes, structures, or buildings with a potential direct connection to the sanitary sewer
- Eight downspouts/rain gutters with a potential direct connection to the sanitary sewer
- Six downspouts with a potential direct connection to the sanitary sewer
- Six ground locations with a potential direct connection to the sanitary sewer

Addressing the issues that have been identified by field investigations should result in an overall reduction of I/I. All fieldwork results can be viewed in **Appendix A**.

Section 5 I/I Quantification Summary and Recommendations

This section provides the results of the infiltration and inflow (I/I) quantification and recommends improvements and other corrective actions to address the identified deficiencies. Improvements identified aim to reduce I/I in the sanitary sewer system. Proposed improvements are recommended for defects found during the fieldwork performed or based on regional experience and discussions with Town staff.

Wright-Pierce utilized InfoAsset Planner, an asset management software developed by Innovyze, to assist with assigning rehabilitation actions and associated rehabilitation costs to each individual asset inspected during this project. The software uses a customized decision tree to produce planning level rehabilitation recommendations based on GIS and inspection data. Wright-Pierce created the customized decision tree and reviewed the planning level rehabilitation recommendation outputs. The recommendations are for planning level purposes only and are not intended as final recommendations. Other factors, including operating scheme, transients, and natural impacts may impact the final recommendation.

5.1 I/I Quantification Summary

5.1.1 Infiltration Quantification

I/I quantification was determined using the 2016 flow monitoring results discussed in **Section 3.** An estimated total of 2,285 gallons per day per inch-diameter-mile (GPD/IDM) of infiltration was based on the 2016 flow monitoring results. In total, the Town has an estimated base infiltration of 4.677 MGD on average.

5.1.2 Inflow Quantification from Direct Connections

Potential direct connections were identified through smoke testing, manhole inspections, building inspections, and dyed-water testing. Typical direct inflow connections include defective cleanouts, rain gutters, yard drains, manhole defects, and sump pumps. The amount of inflow was quantified by assigning an overall inflow rate in gallons per minute (GPM) for each observation type. Inflow rates (i.e., gallons-per minute, gpm rates per inflow defect) were determined from the Environmental Protection Agency's (EPA) Handbook for Sewer System Evaluation and Rehabilitation (December 1975) which is the industry standard.

Table 5-1 provides an average inflow rate based on the observations made in the field. While these estimated values are assigned to all defects, some defects may contribute slightly larger amounts of inflow while others may contribute smaller amounts. An estimated total of 1,126 GPM or 1,639,300 GPD of inflow was identified from smoke testing, manhole inspections, dyed-water testing, and building inspections. The sewer manhole defects found during the smoke testing are addressed with the manhole recommendations from the manhole inspections.

Table 5-1 **Estimated Inflow by Direct Connections**

Observation	Estimated Unit Inflow Rate per Observations (GPM)[4]	Number of Occurrences	Total Estimated Inflow Rate per Observation (GPM)	Total Estimated Inflow Rate per Observation (GPD)
Catch Basin Direct Cross Connection[1]	25	2	50	72,000
Catch Basin Indirect Cross Connection	10	7	70	100,800
Defective/Broken Cleanout Cap	3	6	18	25,920
Missing Cleanout Cap	3	6	18	25,920
Vent Holes on Manhole Covers[2]	2.7	287	775	1,116,000
Sewer Manhole Frame/Missing Bolts	1	18	18	25,920
Potentially Direct Connections of Rain Gutters/Downspouts	3	8	24	34,560
Ground/Potential Lateral Defects	1	6	6	8,640
Driveway Drain/Yard Drain	3	9	27	38,880
Home/Structure/Building	3	20	60	86,400
Directly Connected Sump Pumps[3]	6	8	48	69,120
Drain Manhole	7.2	2	14	20,736
Other Manhole (electrical, etc.)	2	5	10	14,400
Total	-	384	1,126	1,639,300

Notes:

[1] Nine catch basins were identified as potential direct connections to the sewer system during smoke testing. Of these nine, two catch basins were confirmed as cross connections during dyed-water testing. The seven additional catch basins remain potential indirect cross connections.

[2] Manholes with no inflow potential from runoff as determined by NASSCO MACP inspections are assumed to have a negligible inflow rate. Manholes with either sheeting, ponding, or inundated inflow potential from runoff have an assumed inflow rate of 2.7 GPM, based on MassDEP Guidelines assuming a 1/2"-1" pick or vent hole.

[3] Four sump pumps were identified as being potentially directed connected to the sewer system. These four sump pumps were evaluated during the building inspections as well as others. In total, eight sump pumps were identified during the building inspections as being directly connected to the sewer system.

[4] Estimated unit inflow rates are based on a design storm with an average rainfall intensity of 0.29 inches per hour.

5.2 Proposed Improvements

Proposed improvements have been identified for manholes and pipes that will address both structural and operational and maintenance (O&M) issues and will help reduce the amount of I/I entering the sanitary sewer system and renew critical infrastructure. It is not typically cost-effective to try to remove I/I from every identified defect, nor is it likely that a repair will be able to remove 100 percent of the estimated I/I.

In accordance with the MassDEP Guidelines, a ratio greater than 1.0 comparing the treatment and transport (T&T) cost to the estimated rehabilitation cost is cost-effective to remove.

For this project, a cost of $0.002 per gallon was used to estimate the T&T cost. The Town's total annual sewer budget ($5,979,465) for 2022-2023 was used to calculate the daily sewer cost ($16,382). The daily cost was divided by the design flow of water treated (9 MGD) to get a T&T cost of $0.002/gallon.

A cost-effective analysis (C/E/A) was performed using T&T costs based on the 2016 flow monitoring data and the estimated rehabilitation costs. As stated in the MassDEP Guidelines, a life cycle evaluation of a 20-year planning period is suggested. **Table 5-2** summarizes the estimated T&T costs for both the present day and 20-year planning period and shows the projected 20-year C/E/A ratio. This C/E/A assumes that rehabilitation can remove 50 percent of the base infiltration. It should be noted that **Table 5-2** below does not include engineering design fees and construction contingencies in the estimated total rehabilitation costs.

Table 5-2 Summary of Infiltration and C/E/A Results

Project Area	Base Infiltration (MGD)	Estimated T&T Cost[1]	Estimated 20-Year T&T Cost	Estimated Total Rehab Cost[2]	20-Year C/E/A Ratio	Cost-Effective to Rehab?
A1003	0.046	$31,900	$638,000	$3,500	1.98	Yes
A1063	0.326	$225,700	$4,514,000	$-	-	-
A2002	0.124	$85,900	$1,718,000	$7,500	1.98	Yes
A3001	0.201	$139,200	$2,784,000	$-	-	-
B2004	0.103	$71,300	$1,426,000	$39,600	1.89	Yes
B3001	0.057	$39,500	$790,000	$39,600	1.82	Yes
C3017	0.201	$139,200	$2,784,000	$506,900	1.47	Yes
C4005	0	$-	$-	$-	-	-
C4011	0.02	$13,900	$278,000	$-	-	-
C5001	0	$-	$-	$26,000	0.00	No
C7004	0	$-	$-	$605,800	0.00	No
D5001	0.659	$456,100	$9,122,000	$10,000	2.00	Yes

Project Area	Base Infiltration (MGD)	Estimated T&T Cost[1]	Estimated 20-Year T&T Cost	Estimated Total Rehab Cost[2]	20-Year C/E/A Ratio	Cost-Effective to Rehab?
E1015	0.074	$51,300	1,026,000	$-	-	-
E1023	0.027	$18,700	$374,000	$-	-	-
E5001	0.142	$98,300	$1,966,000	$-	-	-
E9022	0.112	$77,600	$1,552,000	$-	-	-
F1007	0.13	$90,000	$1,800,000	$-	-	-
F2083	0.093	$64,400	$1,288,000	$69,100	1.81	Yes
G2015	0.166	$114,900	$2,298,000	$3,200	1.99	Yes
H1010	0.089	$61,600	$1,232,000	$145,900	1.62	Yes
H2040	0.043	$29,800	$596,000	$16,400	1.90	Yes
K1113	0.077	$53,300	$1,066,000	$332,300	1.23	Yes
K4002	0.018	$12,500	$250,000	$-	-	-
K4010	0.277	$191,800	$3,836,000	$-	-	-
L2057	0.203	$140,500	$2,810,000	$-	-	-
S1001	0.063	$43,700	$874,000	$-	-	-
S1071	0.023	$16,000	$320,000	$-	-	-
S3138	0.05	$34,700	$694,000	$-	-	-
S4108	0	$-	$-	$-	-	-
S5067	0.244	$168,900	$3,378,000	$-	-	-
T1005	0.511	$353,700	$7,074,000	$72,300	1.96	Yes
T4001	0	$-	$-	$28,600	-	No
T5013	0.196	$135,700	$2,714,000	$72,000	1.90	Yes
T5083	0	$-	$-	$-	-	-
T5089	0	$-	$-	$-	-	-
T6052	0.04	$27,700	$554,000	$-	-	-
T6090	0.189	$130,900	$2,618,000	$-	-	-

Project Area	Base Infiltration (MGD)	Estimated T&T Cost[1]	Estimated 20-Year T&T Cost	Estimated Total Rehab Cost[2]	20-Year C/E/A Ratio	Cost-Effective to Rehab?
U4014	0	$-	$-	$-	-	-
U4045	0.149	$103,200	$2,064,000	$-	-	-
U5053	0.024	$16,700	$334,000	$-	-	-
Total:	**4.677**	**$593,500**	**$11,870,000**	**$1,922,100**	-	-

Notes:

[1] Estimated T&T Cost is $0.002/gallon using the Town's design daily flow (ADF) and annual budget from 2022-2023.

[2] The Estimated Total Rehab Cost is the sum of expected manhole and pipe rehab costs. It does not include engineering design fees or construction contingency.

5.2.1 Proposed Pipe and Manhole Improvements

In making pipe and manhole rehabilitation recommendations, the type and severity of I/I evidence were considered. Because the C/E/A ratios for these basins are greater than 1.00, all the proposed pipe and manhole improvements for these basins are cost-effective:

- A1003
- A2002
- B2004
- B3001
- C3017
- D5001
- F2083
- G2015
- H1010
- H2040
- K1113
- T1004
- T5013

All proposed improvements were identified and categorized as "Priority 1 Improvements," "Priority 2 Improvements," and "Low Priority Improvements."

5.2.1.1 "Priority 1 Improvements"

Improvements noted as requiring immediate correction action are the less costly items of new cleanout caps, replacing vented manhole covers, etc. Pipes and manholes that received a LoF of 4 or higher have been identified as "Priority 1 Improvements" and are recommended for rehabilitation, repair, or replacement within one to two years. Further, the redirection of sump pumps, rain gutters, yard drains, etc. are included in the Priority 1 Improvements category.

5.2.1.2 "Priority 2 Improvements"

Pipes and manholes that received an LoF of less than 4 and a C/E/A ratio greater than 1 have been identified as "Priority 2 Improvements" and are recommended for rehabilitation, repair, or replacement within one to three years.

5.2.1.3 "Low Priority" Improvements

Pipes and manholes that received an LoF of less than 4 and a C/E/A ratio less than 1 have been identified as "Low Priority" improvements and are recommended for rehabilitation, repair, or replacement within three to five years.

Pipes and manholes that had no recommended improvements because no I/I defect were found during the inspections have been identified as "No Action."

5.2.2 Proposed Catch Basin Further Investigation

Nine catch basins smoked during smoke testing. Two of these catch basins (those adjacent to MH-C3021 and MH-T5044) were confirmed as being directly connected to the sanitary sewer system via dyed-water tested and should be rerouted. A hydraulic analysis is recommended to evaluate connecting these catch basins to nearby existing storm drain systems in the Town. The remaining seven catch basins are recommended for investigation to confirm whether they are directly or indirectly connected to the sewer system which could allow inflow to enter the system.

5.2.3 Proposed Disconnection and Redirection of Sump Pumps, Drains, Downspouts

Eight storm sump pumps, seven driveway and yard drains, and seven downspouts were identified as being directly connected to the sanitary sewer during smoke testing and building inspections. Redirection of the sump pumps, driveway drains, yard drains, and downspouts from the sanitary sewer is considered a Priority 1 Improvement.

Wright-Pierce recommends that the directly connected sump pumps, drains, and downspouts be disconnected from the Town's sewer system and redirected to a storm or surface discharge. Further, it is recommended that these sources of I/I be connected to the Town's storm drain system. This recommendation assumes that an existing storm sewer is available for the sump pumps, drains, and downspouts to be connected to and that the owners of the sump pumps are willing to disconnect their connection to the Town's sewer system. Plumbing and construction work inside the buildings may be necessary to disconnect sump pumps from the interior plumbing system and install a dedicated drainpipe exiting the building. This option to redirect the drains and downspouts will have construction costs for installing the new connections to the storm drain system but will reduce the burden and costs on the sanitary sewer system and treatment works. Further, one sump pump is potentially directly connected to the sanitary sewer system. A generic sump pump redirection detail is included in **Appendix F**.

5.2.4 Proposed Purchase of Cleanout Caps

Twelve cleanouts smoked during smoke testing. Six of these smoked due to missing cleanout caps and the other six smoked due to defective or broken cleanout caps.

Wright-Pierce recommends that twelve cleanout caps be purchased by the Town and distributed to the properties on which the smoked cleanouts reside. This recommendation assumes that the owners of the properties on which the defective cleanouts reside are willing to use the new Town-provided cleanout caps. This option will have capital costs for purchasing the new cleanout caps but will reduce the burden and costs on the sanitary sewer system and treatment works.

5.3 Planning Level Costs for the Proposed Improvements

5.3.1 Priority Improvements Program

Manholes that had significant structural and infiltration defects were identified as a Priority 1 Improvements. These manholes may contribute I/I in the system and have a higher likelihood of failure. They increase the possibility of an SSO occurrence and may cause a disruption in service and potentially impact the environment and/or public health if not addressed. Manholes with minor structural defects and significant root balls were identified as Priority 2 Improvements. Lastly, manholes that had minor infiltration defects, roots, as well as significant debris were identified as Low Priority Improvements.

Tables 5-3, 5-4, and **5-5** provide the total estimated rehabilitation, repair, and replacement costs for all manholes and pipes categorized as a Priority 1, Priority 2, or Low Priority Improvement. The removal of sump pumps, catch basins, etc. from sanitary sewers are also included in the Priority 1 Improvements category. It should be noted that while replacing manhole covers with vent holes and replacing broke and defective cleanout caps are considered Priority 1 Improvement items, they are not included in the cost tables below and on the following pages.

Table 5-3 Priority 1 Improvements Program Costs

Repair	Unit Cost	Quantity	Cost
Manholes			
Replace Manhole	$10,000 / EA	5	$50,000
Line Manhole	$4,000 / EA	8	$32,000
Line Chimney	$2,000 / EA	9	$18,000
Grout	$2,000 / EA	27	$54,000
Point Repair	$1,500 / EA	11	$16,500
Root Removal	$400 / EA	1	$400
Manhole Repair Subtotal	-	-	**$170,900**
Pipes			
Point Repair	$12,000 / EA	41	$492,000
Test & Seal	$300 / EA	4	$1,200
Line	$100 / LF	1,815	$181,500
Lateral Rehab	$4,500 / EA	1	$4,500
Pipe Repair Subtotal	-	-	**$679,000**
Redirection of Smoke Testing Defects			
Redirect Sump Pump	$8,000 / EA	5	$40,000

Repair	Unit Cost	Quantity	Cost
Redirect Rain Gutters/Downspouts	$8,000 / EA	7	$56,000
Redirect Driveway/Yard Drain	$8,000 / EA	10	$80,000
Redirection of Smoke Testing Defects	-	-	**$176,000**
Engineering Fees and Construction Contingency (45%)[2]			**$461,655**
Total Costs[1]			**$1,488,000**

Notes:

[1] Total costs are rounded.
[2] Engineering at 20% with the balance being construction contingencies, traffic control, permitting, etc.

Table 5-4 Priority 2 Improvements Program Costs

Repair	Unit Cost	Quantity	Cost
Manholes			
Grout	$2,000 / EA	2	$4,000
Point Repair	$1,500 / EA	5	$7,500
Root Removal	$400 / EA	10	$4,000
Manhole Repair Subtotal	-	-	**$15,500**
Pipes			
Point Repair	$12,000 / EA	80	$960,000
Test & Seal	$300 / EA	3	$900
Clean	$3 / LF	1,530	$4,600
Lateral Rehab	$4,500 / EA	2	$9,000
Root Removal	$3 / LF	170	$500
Pipe Repair Subtotal	-	-	**$975,000**
Engineering Fees and Construction Contingency (45%)[2]			**$446,000**
Total Costs[1]			**$1,437,000**

Notes:

[1] Total costs are rounded.
[2] Engineering at 20% with the balance being construction contingencies, traffic control, permitting, etc.

Table 5-5 Low Priority Improvements Program Costs

Repair	Unit Cost	Quantity	Cost
Manholes			
Grout	$2,000 / EA	39	$78,000
Root Removal	$400 / EA	9	$3,600
Clean[1]	$200 / EA	57	$11,400
Manhole Repair Subtotal	-	-	**$93,000**
Engineering Fees and Construction Contingency (45%)[3]			**$41,850**
Total Costs[2]			**$135,000**

Notes:

[1] Cleaning of the manholes can also be done through regular inspection of the Fairfield sewer system by operators instead of the work being contracted out.
[2] Total costs are rounded.
[3] Engineering at 20% with the balance being construction contingencies, traffic control, permitting, etc.

By implementing an annual program to detect and remediate sources of I/I, the Town can work proactively to continue to reduce excessive flows to the treatment plant. A recommended budgetary amount of $100,000 per year for this program can be seen in **Table 5-5** below:

Table 5-6 Annual Investigation Program Costs

Further Investigation	
Annual Sanitary System Defect Investigations Program	$100,000
Total Annual Costs	$100,000

5.3.2 No Action

Structures with no defects identified during inspections have been identified as requiring no action and are not recommended for improvements at this time. These structures include 160 inspected sanitary manholes and 91 televised sanitary sewer pipes.

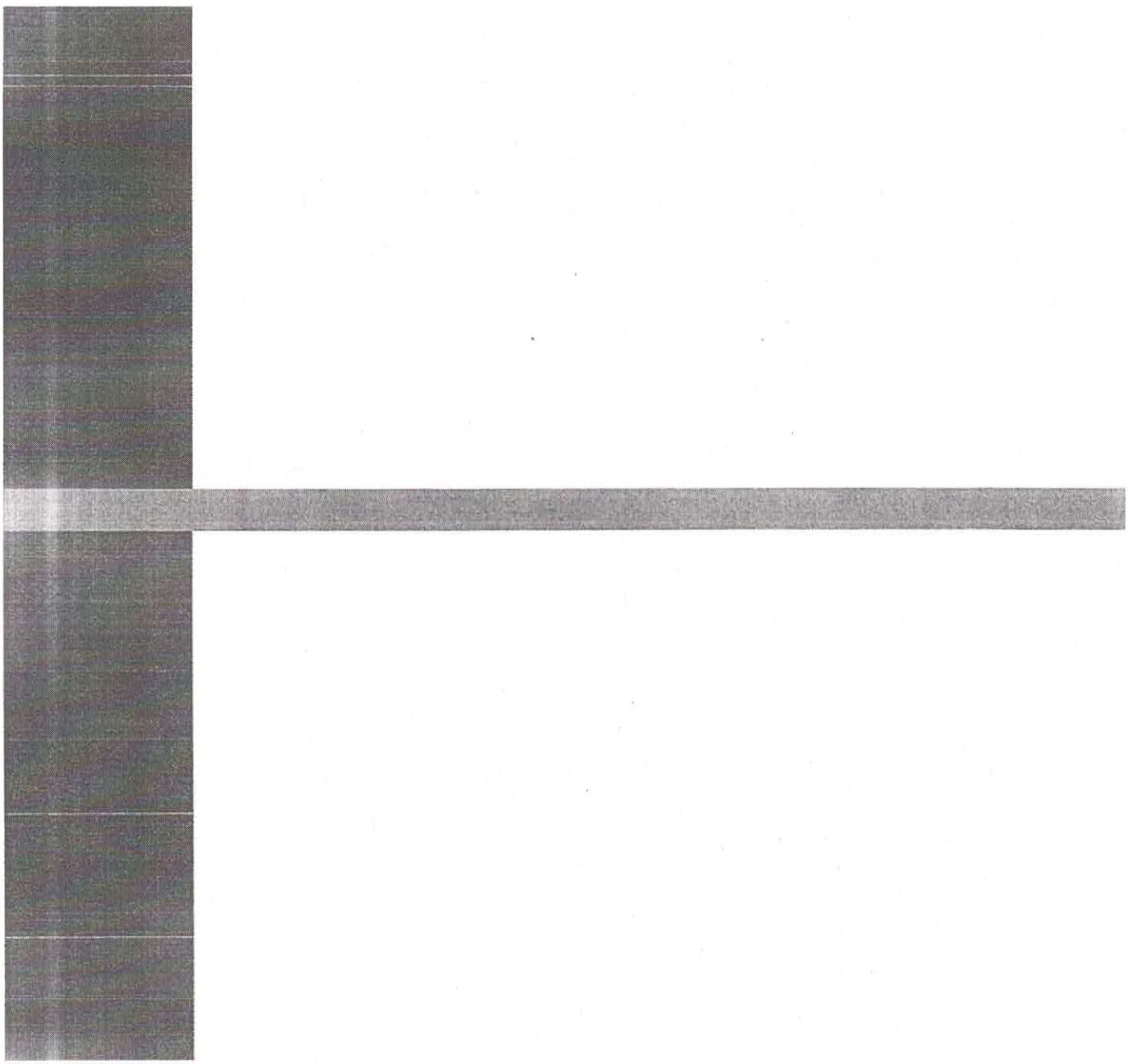
5.4 Proposed Implementation Schedule

The implementation schedule, shown in **Table 5-7**, includes provisions for the recommended Priority 1, Priority 2, and Low Priority Improvements. Wright-Pierce recommends that the Town address the Priority 1 improvements in the next one to two years, Priority 2 Improvements in the next one to three years, and Low Priority Improvements in the next three to five years. All recommended improvements can be further reviewed in **Appendix B**.

Table 5-7 Implementation Schedule

Phase	Start Date	Finish Date
Priority 1 Improvements		
Design	Winter 2024	Spring 2025
Construction	Summer 2025	Winter 2025
Priority 2 Improvements		
Design	Winter 2026	Spring 2027
Construction	Summer 2027	Winter 2027
Low Priority Improvements		
Design	Winter 2028	Spring 2029
Construction	Summer 2029	Winter 2029
Additional SSES Investigations	**Spring 2024**	**Annual Recurrence**

This schedule focuses on improving the sanitary sewer system based on defects found to date and removing sources of inflow and infiltration from the sewer system. Once Priority 1, Priority 2, and Low Priority Improvements are completed, the Town can develop a routine inspection program to assess the results of the rehabilitation programs and find additional defects throughout the sewer system.



WRIGHT-PIERCE
Engineering a Better Environment

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20 YEAR

A RESOLUTION APPROPRIATING $5,681,988 FOR THE COSTS OF THE FAIRFIELD BEACH ROAD PUMP STATION REPLACEMENT AND UPGRADES AND AUTHORIZING THE ISSUANCE OF BONDS AND/OR CLEAN WATER FUND OBLIGATIONS TO FINANCE SUCH APPROPRIATION

RESOLVED:

1. As requested by the Water Pollution Control Authority (the "WPCA") of the Town of Fairfield (the "Town") and as recommended by the Board of Finance and the Board of Selectmen, the Town hereby appropriates the sum of Five Million Six Hundred Eighty One Thousand Nine Hundred Eighty-Eight and 00/100 ($5,681,988) Dollars for costs associated with the replacement of, and upgrades to, the Fairfield Beach Road Pump Station including, but not limited to, construction, site work, electrical and mechanical work, equipment and materials, piping, engineering, inspection costs, as well as, all administrative, financing, legal, contingency and other soft costs related thereto (the "Project").

2. To finance such appropriation and in lieu of a tax therefor, and as recommended by the Board of Selectmen and the Board of Finance, the Town may issue (i) bonds under its corporate name and seal upon the full faith and credit of the Town, (ii) project loan obligations, interim funding obligations or other obligations (collectively, the "CWF Obligations") as described herein meeting the conditions prescribed in Sections 22a-475 to 22a-483, inclusive, of the Connecticut General Statutes (the "Clean Water Fund Statutes"), or (iii) any combination of bonds or CWF Obligations described in (i) and (ii) above, provided, in all cases, that the total, aggregate principal amount thereof outstanding at any time shall not exceed $5,681,988. The aggregate amount of bonds and CWF Obligations shall be issued in an amount necessary to meet the Town's share of Project costs determined after considering the estimated amounts of grants in aid of the Project.

3. The Board of Selectmen, the Treasurer and the Chief Fiscal Officer of the Town are hereby appointed a committee (the "Committee") with full power and authority to cause said bonds to be sold, issued and delivered; to determine their form and terms, including provision for redemption prior to maturity; to determine the aggregate principal amount thereof within the amount hereby authorized and the denominations and maturities thereof; to fix the time of issue of each series thereof and the rate or rates of interest thereon as herein provided; to determine whether the interest rate on any series will be fixed or variable and to determine the method by which the variable rate will be determined, the terms of conversion, if any, from one interest rate mode to another or from fixed to variable; to set whatever other terms of the bonds they deem necessary, desirable or appropriate; to designate the bank or trust company to certify the issuance thereof and to act as transfer agent, paying agent and as registrar for the bonds, and to designate bond counsel. The Committee shall have all appropriate powers under the Connecticut General Statutes, as amended (the "Statutes") including Chapter 748 (Registered Public Obligations Act) and

Chapter 109 (Municipal Bond Issues) to issue, sell and deliver the bonds and, further, shall have full power and authority to do all that is required under the Internal Revenue Code of 1986, as amended, and under rules of the Securities and Exchange Commission, and other applicable laws and regulations of the United States, to provide for issuance of the bonds in tax exempt form and to meet all requirements which are or may become necessary in and subsequent to the issuance and delivery of the bonds in order that the interest on the bonds be and remain exempt from Federal income taxes, including, without limitation, to covenant and agree to restriction on investment yield of bond proceeds, rebate of arbitrage earnings, expenditure of proceeds within required time limitations, the filing of information reports as and when required, and the execution of Continuing Disclosure Agreements for the benefit of the holders of the bonds and notes.

4. The First Selectman and Treasurer or Chief Fiscal Officer, on behalf of the Town, shall execute and deliver such bond purchase agreements, reimbursement agreements, line of credit agreement, credit facilities, remarketing agreement, standby marketing agreements, standby bond purchase agreements, and any other commercially necessary or appropriate agreements which the Committee determines are necessary, appropriate or desirable in connection with or incidental to the sale and issuance of bonds, and if the Committee determines that it is necessary, appropriate, or desirable, the obligations under such agreements shall be secured by the Town's full faith and credit.

5. The First Selectman and Treasurer or Chief Fiscal Officer shall execute on the Town's behalf such interest rate swap agreements or similar agreements related to the bonds for the purpose of managing interest rate risk which the Committee determines are necessary, appropriate or desirable in connection with or incidental to the carrying or selling and issuance of the bonds, and if the Committee determines that it is necessary, appropriate or desirable, the obligations under such interest rate swap agreements shall be secured by the Town's full faith and credit.

6. Any bonds may be designated "Public Improvement Bonds of the Town of Fairfield", series of the year of their issuance and may be issued in one or more series, and may be consolidated as part of the same issue with other bonds of the Town; shall be in serial form maturing in not more than twenty (20) annual installments of principal, the first installment to mature not later than three (3) years from the date of issue and the last installment to mature not later than twenty (20) years from the date of issuance or as otherwise provided by statute. The bonds may be sold at an aggregate sales price of not less than par and accrued interest at public sale upon invitation for bids to the responsible bidder submitting the bid resulting in the lowest true interest cost to the Town, provided that nothing herein shall prevent the Town from rejecting all bids submitted in response to any one invitation for bids and the right to so reject all bids is hereby reserved, and further provided that the Committee may sell the bonds on a negotiated basis, as provided by statute. Interest on the bonds shall be payable semi-annually or annually. The bonds shall be signed on behalf of the Town by at least a majority of the Board of Selectmen and the Treasurer, and shall bear the seal of the Town. The signing, sealing and certification of the bonds may be by facsimile as provided by statute.

7. The Committee is further authorized to make temporary borrowings as authorized by the Statutes and to issue temporary notes of the Town in anticipation of the receipt of proceeds from the sale of the bonds to be issued pursuant to this resolution or in anticipation of receipt of grants. Such notes shall be issued and renewed at such time and with such maturities, requirements and limitations as provided by the Statutes. Notes evidencing such borrowings shall be signed by the First Selectman and Treasurer or Chief Fiscal Officer, have the seal of the Town affixed, which signing and sealing may be by facsimile as provided by statute, be certified by and payable at a bank or trust company incorporated under the laws of this or any other state, or of the United States, be approved as to their legality by bond counsel and may be consolidated with the issuance of other Town bond anticipation notes. The Committee shall determine the date, maturity, interest rates, form and manner of sale, including negotiated sale, and other details of said notes consistent with the provisions of this resolution and the Statutes and shall have all powers and authority as set forth above in connection with the issuance of bonds and especially with respect to compliance with the requirements of the Internal Revenue Code of 1986, as amended, and regulations thereunder in order to obtain and maintain issuance of the notes in tax exempt form.

8. Pursuant to Section 1.150-2, as amended, of the Federal Income Tax Regulations the Town hereby declares its official intent to reimburse expenditures (if any) paid for the Project from its General or Capital Funds, such reimbursement to be made from the proceeds of the sale of bonds and notes authorized herein and in accordance with the time limitations and other requirements of said regulations.

9. The First Selectman, Chief Fiscal Officer and Town Treasurer are hereby authorized, on behalf of the Town, to enter into agreements or otherwise covenant for the benefit of bondholders to provide information on an annual or other periodic basis to the Municipal Securities Rulemaking Board (the "MSRB") and to provide notices to the MSRB of material events as enumerated in Securities and Exchange Commission Exchange Act Rule 15c2-12, as amended, as may be necessary, appropriate or desirable to effect the sale of the bonds and notes authorized by this resolution.

10. The Committee is hereby authorized to take all action necessary and proper for the sale, issuance and delivery of the bonds and notes in accordance with the provisions of the Statutes and the laws of the United States.

11. Any CWF Obligations shall be issued pursuant and subject to the Clean Water Fund Statutes. To meet any portion of the costs of the Project determined to be eligible for funding under said Clean Water Fund Statutes, the Town may issue its project loan obligations to the State of Connecticut (the "State") and may borrow pursuant to, and issue interim funding obligations in anticipation of such project loan obligations in such denominations as may be appropriate. Any such interim funding obligations may be renewed from time to time by the issuance of other notes, provided the final maturity of such notes do not exceed the maximum period permitted under Section 22a-479 of the Connecticut General Statutes. The CWF Obligations may be secured as to both principal and interest by a pledge of revenues to be derived by the WPCA from sewerage system use

and/or connection charges or benefit assessments or both. The CWF Obligations may also be secured by the full faith and credit of the Town. The First Selectman of the Town is authorized to sign such CWF Obligations by his manual or facsimile signature. The First Selectman is further authorized to execute and deliver to the State project funding agreements, project loan and project grant agreements and any other documents required by the State in connection with the CWF Obligations. The CWF Obligations shall bear the seal of the Town or a facsimile of the seal.

12. The First Selectman or other proper Town official is authorized to apply for and accept any available State or Federal grant in aid of the financing of the Project, including the grants set forth in section 3 herein, and to take all action necessary and proper in connection therewith. Any such grants or contribution received prior to the issuance of the Bonds authorized herein shall be applied to the costs of the Project or to pay at maturity the principal of any outstanding bond anticipation notes issued pursuant this resolution and shall reduce the amount of the Bonds that can be issued pursuant to this resolution. If such grants and contributions are received after the issuance of the Bonds, they shall be applied to pay the principal on the Bonds or as otherwise authorized by the Board of Selectmen, Board of Finance and Representative Town Meeting provided such application does not adversely affect the tax-exempt status of the Bonds or the Town's receipt of such grant or contribution.

SUPPLEMENTAL RESOLUTION

WHEREAS, the Town of Fairfield (the "Town") has adopted, at the request of the Water Pollution Control Authority ("WPCA"), a Resolution entitled "A RESOLUTION APPROPRIATING $5,681,988 FOR THE COSTS OF THE FAIRFIELD BEACH ROAD PUMP STATION REPLACEMENT AND UPGRADES AND AUTHORIZING THE ISSUANCE OF BONDS AND/OR CLEAN WATER FUND OBLIGATIONS TO FINANCE SUCH APPROPRIATION" (the "Resolution"); and

WHEREAS, the Resolution appropriated $5,681,988 for costs associated with upgrades to the Fairfield Beach Road pump station (the "Project") and authorized the issuance of bonds (the "Bonds") and/or Clean Water Fund obligations (the "CWF Obligations"); and

WHEREAS, while the Town is liable for the debt service on the Bonds and the CWF Obligations, for internal accounting purposes, it is appropriate that the costs of the Project including debt service on the Bonds and the CWF Obligations be allocated to the WPCA; and

WHEREAS, the Town's WPCA has agreed to pay for the costs of the Project and the debt service on the Bonds and the CWF Obligations authorized by the Resolution; and

NOW, THEREFORE, IT IS HEREBY:

RESOLVED,

1) That the debt service on the Bonds and the CWF Obligations as it becomes due shall be paid by the WPCA from its own funds and the obligation of the WPCA shall be set forth in a memorandum of understanding (the "MOU") with the Town satisfactory to First Selectman; and

2) That the First Selectman is hereby authorized to execute the MOU on behalf of the Town.

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding is made as of the ___ day of _____, 2024 by and between the Town of Fairfield, Connecticut (the "Town") and the Water Pollution Control Authority in the Town (the "WPCA").

WHEREAS, on _____, 2024, the Town's Representative Town Meeting ("RTM") approved a resolution related to the Fairfield Beach Road pump station upgrades project (the "Project") which resolution was entitled "A RESOLUTION APPROPRIATING $5,681,988 FOR THE COSTS OF THE FAIRFIELD BEACH ROAD PUMP STATION REPLACEMENT AND UPGRADES AND AUTHORIZING THE ISSUANCE OF BONDS AND/OR CLEAN WATER FUND OBLIGATIONS TO FINANCE SUCH APPROPRIATION" (the "Pump Station Resolution"); and

WHEREAS, on _____, 2024, the RTM also approved a Supplemental Resolution related to the Pump Station Resolution stating that the debt service on the bonds and the Clean Water Fund obligations (the "CWF Obligations") as such debt service becomes due shall be paid by the WPCA from its own funds, that the obligation of the WPCA shall be set forth in a memorandum of understanding ("MOU") with the Town satisfactory to the First Selectman, and that the First Selectman is authorized to execute the MOU on behalf of the Town; and

WHEREAS, the WPCA Board of Commissioners approved the Project and agreed to reimburse the Town for debt service on any bonds, CWF Obligations and notes issued by the Town in connection with the costs of the Project.

NOW THEREFORE, in consideration of the mutual agreements contained in this Memorandum of Understanding, the Town and the WPCA agree to the following:

1. To the extent the Town issues any bonds, CWF Obligations or notes on behalf of and at the request of the WPCA to fund any or all of the costs of the Project, the WPCA will be responsible for and pay the full debt service on such bonds, CWF Obligations or notes based on a schedule established by the Town for repayment of the bonds, the CWF Obligations or the notes; and

2. The WPCA agrees to use its reserves, assess user fees or raise other monies sufficient to fund the debt service on such bonds, CWF Obligations or notes.

IN WITNESS WHEREOF, each party intending to be bound, has executed this Memorandum of Understanding to reflect its agreement with the terms hereof.

TOWN OF FAIRFIELD

By: _____
William A. Gerber
First Selectman

WATER POLLUTION CONTROL AUTHORITY

By: _____

Its

Fairfield Beach Road Pump Station Upgrade

Project Cost: $5,681,988

1. **Background:** Fairfield Beach road pump station was constructed in 1959 and is the oldest pump station in the sanitary sewer collection system. Some minor updates have been performed over the years: pumps replaced in 2016 and the control panel updated in the late 1990's. The internal piping, electrical equipment and structural components for the stairs and ladders, as well as the hatches and the ventilation system are original. An exterior storm water pumping station was added to alleviate road flooding during high tides and storms, but it is not connected to the pump station. The station has an onsite generator that is at the end of its useful life. The pump station is located on a very narrow peninsula sandwiched between Long Island Sound and South Pine Creek within the FEMA coastal VE flood zone.

2. **Purpose and Justification:** To upgrade/replace aged equipment and structural components of the station. This upgrade will provide continued and uninterrupted service to a critical part of our system, especially being so close to Long Island Sound. The station is 65 years old and needs to be brought up to current building codes and mitigate flood damage during major weather events.

3. **Detailed Description of Proposal:** Comprehensive upgrade to the 64 year old Pump Station and force main including station hardening to protect it to 3-feet above the 100-year flood. The Due to the age of the facility, safety issues and flooding risk, significant rehabilitation is necessary to meet current building codes and ensure storm resiliency. It is anticipated the station will be demolished and rebuilt at an elevation to meet safety and flood proofing requirements, and all interior systems, including pumping and associated equipment, upgrade ventilation systems, and electrical infrastructure will be replaced. The force main will also be replaced, based on engineering analysis identifying concerns such as historical breaks, location, flow conditions and proximity to salt water. The condition of the Pump Station, flooding threat, and location adjacent to waterways pose a significant water quality concern.

4. **Reliability of Cost Estimate:** Based on a scale of 0 to 10, this is a 5. The design for this project is not complete and is still in the investigation phase.

5. **Increased Efficiency:** Building will be up to code with the latest energy efficient pumps and controls. Piping and structural upgrades will ensure long service life and protection from storms.

6. **Additional Long Range Costs:** Maintenance of the station will be bore by the WPCF out of the annual operating budget.

7. **Additional Use or Demand on Existing Facilities:** None

8. **Alternatives to this request:** None. The Do Nothing alternative means the station and system components continue to age and deteriorate, while keeping high risk for flood damage that could have potential environmental impacts.

9. **Safety and Loss Control:** Safety will be improved to the building, equipment, personnel, and the environment upon completion. The pump station will be constructed to TR-16 design standards as required by CT DEEP to withstand flooding during a major storm event.

10. **Environmental Considerations:** Will be addressed in the construction documents and plans to properly protect the Town and Long Island Sound. Federal, state and local permits will be required.

11. **Insurance:** Contractor will be required to carry the necessary insurance as directed by the Town of Fairfield Purchasing Department.

12. **Financing:** Funded by a 20 year bond. WPCA to pay debt service. However, all sources of funding will be researched and applied for to try to lessen the bonding impact on the Town. The scope of this project meets the eligibility criteria for Clean Water Fund (CWF) grant or loan. The new pump station will have a 50 year service life with proper maintenance and minor upgrades as equipment ages and is replaced.

13. **Other Considerations:** None

14. **Other Approvals:** WPCA Commission/BOS/BOF/RTM

Pump Station and Force main Opinion of Probable Construction Costs (Jan 2024)
Town of Fairfield, CT

Tighe&Bond

Pump Station & Force Main	2024 OPCC	Assumed year of Construction[6]	Escalation	Total	
Toll House Pump Station	$1,480,000	2031	$1,021,231	$2,501,231	5
Toll House Pump Station Force Main [1]	$1,400,000	2031	$966,030	$2,366,030	
Eastfield Drive Pump Station	$850,000	2031	$586,518	$1,436,518	7
Eastfield Drive Pump Station Force Main	$660,000	2031	$455,414	$1,115,414	
Mill Hill Pump Station [2]	$3,480,000	2033	$3,379,918	$6,859,918	4
Mill Hill Pump Station Force Main [3]	$4,270,000	2033	$4,147,198	$8,417,198	
Center Street Pump Station [4,5]	$3,670,000	2026	$551,234	$4,221,234	2
Center Street Pump Station Force Main	$2,811,240	2026	$422,248	$3,233,488	
Willow Street Pump Station	$1,251,720	2031	$863,713	$2,115,433	6
Willow Street Pump Station Force Main	$740,000	2031	$510,616	$1,250,616	
Pine Creek Pump Station	$3,460,000	2026	$519,692	$3,979,692	3
Pine Creek Pump Station Force Main	$890,000	2026	$133,678	$1,023,678	
Fairfield Beach Pump Station [4]	$4,940,000	2026	$741,988	$5,681,988	1
Fairfield Beach Pump Station Force Main	$2,400,000	2026	$360,480	$2,760,480	
	$32,302,960			**$46,962,917**	

Notes:

1 Assumes new FM under RT 15 will be installed via Horizontal Directional Drilling.
2 Structural evaluation of the building to counteract flood impacts are still ongoing and costs will vary based on results of the evaluatio
3 Assumes replacement of FM under river via open cut method. Used recent project costs at $ 8,500/lf for replacement of pipe under a 130 ft wide river
4 Assumes both Fairfield Beach and Center Street PS structures will need to be significantly reinforced to counteract flood impacts.
5 Assumes new structure to house Generator at Center Street PS to counteract flood impacts.
6 Assumes CTDOT Escalation of 6.5%

WRIGHT-PIERCE
Engineering a Better Environment

Memorandum

Date: **12/20/2022**

Project No.: **21271– Pump Station Evaluation Update**

To: **John Bodie, Superintendent**

From: **Dennis Dievert & Prashanth Emmanuel**

Subject: **Town of Fairfield, CT - Sewer Pump Station Evaluation Update - FINAL**

Background

In March 2018, Wright-Pierce (WP) finalized an evaluation of the eight remote pump stations in the Town of Fairfield, CT as part of a comprehensive wastewater facilities planning study utilizing a 55% Planning Grant through the Clean Water Fund (CWF) Program. The results of this evaluation are summarized in the *Pump Stations Evaluation for the Fairfield, CT Water Pollution Control Authority Report (March 2018)*. The evaluation for each pump station included an assessment of the existing pumping equipment, building structures, electrical equipment, controls, heating/ventilation equipment, resiliency, site access and beautification, code compliance, safety compliance and energy efficiency. The results of the evaluation was summarized in a 15-year Pump Station Capital Improvement Plan (CIP) to allow the Town to determine the basis and probable timing of future pump station capital expenditures, as well as to comply with the Environmental Protection Agency's (EPA) requirements for Capacity, Management, Operation and Maintenance (CMOM) regulations.

The following pump stations were evaluated as part of the 2018 Report:

- Toll House Pump Station
- Easton Turnpike Pump Station
- Eastfield Drive Pump Station
- Mill Hill Terrace Pump Station
- Center Street Pump Station
- Willow Street Pump Station
- Pine Creek Pump Station
- Fairfield Beach Road Pump Station

The 2018 Report recommended the following prioritized upgrades and additional inspections over the 15-year planning period (2018 – 2032) as summarized below and shown in Table 1:

- Immediate comprehensive upgrades to the Easton Turnpike, Center Street, Pine Creek, and Fairfield Beach Pump Stations
- Replacement of the Easton Turnpike, Center Street and Fairfield Beach force mains
- Partial upgrades to the Toll House, Eastfield, Mill Hill, and Willow Street Pump Station.
- Hardening of pump station structures against potential flooding and storm surges for the Center Street, Pine Creek, and Fairfield Beach Pump Stations
- Additional inspections of the Willow Street and Pine Creek force mains

TABLE 1
2018 PUMP STATION CAPITAL IMPROVEMENT PLAN

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Toll House											★					
Easton Turnpike & FM		★														
Eastfield Drive													★			
Mill Hill								★								
Center Street & FM				★												
Willow Street															★	
Pine Creek						★										
Fairfield Beach & FM			★													
FM Inspections					★											

Since the completion of the 2018 Report, the town has completed an upgrade to the Easton Turnpike Pump Station and force main in 2021 along with the replacement of the generator and associated electrical and instrumentation infrastructure at the Mill River Pump Station utilizing FEMA funding. Upgrades to the Fairfield Beach, Center Street and Pine Creek Pump Stations and associated force mains were scheduled for upgrades in 2019, 2020 and 2022 respectively. However, as of December 2022, these upgrades are still only in the planning stages. To ensure the town remains proactive in their planning for future capital expenditures related to their sewer pump stations, they have requested Wright-Pierce to update the 2018 recommendations, costs, current available funding opportunities and CIP. This memorandum shall serve to replace Section 7 of the March 2018 Report.

Project Approach

The project approach to update the 2018 evaluation included the following:

- Conduct a workshop with WPCF and collection systems staff to identify any additional operational challenges and equipment issues realized since the completion of the 2018 Report
- Update and amend the recommendations (Section 7) of the 2018 Report to include additional items identified during the workshop with Town Staff including:
    - Updated costs for each recommended improvement in 2022 construction dollars

  - Updated 15-year Pump Station CIP priorities from 2023 - 2038
- Investigate current available funding opportunities at the state and federal level for pump station and force main upgrades

Updated 2022 Recommendations

WP met with the Town of Fairfield treatment plant staff in November 2022 to review the existing recommendations and to identify any new operational challenges or equipment issues experienced since the completion of the 2018 Report. The section below summarizes the updated recommendations for each pump station.

Toll House Road Pump Station

The Toll House Road pump station was identified to be in fair condition in the 2018 Evaluation. Site visits conducted to this station in 2018 showed that the age and condition of various components have exceeded their useful life. The pump station was identified to be potentially impacted by flooding and upgrades should account for raising critical equipment to 3 feet above the 100-year floodplain elevation. The updated recommended improvements to the Toll House Road Pump Station are summarized below.

Process Improvements:

- Replace existing pumps, discharge piping, valves, and supports.
- Replace the wet well and valve vault access hatches.
- Install a wet well vent.

Electrical & Instrumentation Improvements:

- Upgrade electrical infrastructure and relocate wiring and junction boxes in wet well.
- Install new control panel and address communication and SCADA issues.
- Replace standby generator.

HVAC Improvements:

- Replace unit heaters.

Building & Site Improvements:

- Repair building cracks in the CMU walls and replace building siding and roofing.
- Replace the building entrance door and overhead roll up door.
- Repair damaged fence gate or replace fence.
- Replace railings to improve safety inside the pump station.
- Regrade existing site for improved access.
- Floodproof the station to 3-feet above the 100-year flood elevation by raising electrical equipment, installing flood doors, and sealing/patching any open penetrations below the flood elevation.

Force Main Improvements:

- Conduct inspection of the existing 6-inch force main that runs under Merritt Parkway and carry full replacement costs in the CIP.

Easton Turnpike Pump Station

This pump station was comprehensively upgraded in 2021 which included a new submersible station, valve vault, dual force mains, and a new masonry structure to house a new standby generator and electrical/instrumentation equipment. There is no action required for this pump station in the CIP. The station should be evaluated in 2045.

Eastfield Drive Pump Station

The Eastfield Drive pump station was identified to be in fair condition in the 2018 Evaluation. Site visits conducted to this pump station in 2018 recommended high priority safety improvements due to access concerns. The updated recommended improvements to the Eastfield Drive Pump Station are summarized below.

High Priority Improvements:

- Removal of the fencing and replacement with a design that provides adequate access that meets industry codes for safe access.

Process Improvements:

- Replace the pumps, discharge piping, pump guide rails and connection fittings to the pumps to provide for a complete seal to the discharge piping.
- Install a new pump station bypass connection and associated valves. The bypass connection should be accessible at ground level.

Electrical & Instrumentation Improvements:

- Upgrade electrical junction box in wet well to comply with new code requirements
- Install new control panel and address communication and SCADA issues.

Force Main Improvements:

- Inspect force main and carry full replacement costs in the CIP.
- Reconfigure force main piping in yard and add new valve vault to access valves.

Mill River Pump Station

The Mill River pump station was identified to be in fair condition in the 2018 Evaluation. Site visits conducted to this station in 2018 showed that the age and condition of various components exceeded their useful life and recommended improvements to the process, mechanical, electrical, and building/site components for the station. The updated recommended improvements to the Mill River Pump Station are summarized below.

Process Improvements:

- Replace Pump 1 and 3 to improve pumping efficiency and maintain capacity and redundancy per TR-16.
- Replace the pump suction and discharge piping and valves based on the age and condition.
- Replacement of check valves with weighted check valves on the pump discharge piping.
- Replace existing comminutor in the influent channel.

Mechanical Improvements:

- Upgrade/Replace wet well and dry well ventilation systems.

Electrical Improvements:

- Replace electrical equipment in its entirety.
- Install new variable frequency drives to improve efficiency of process pumps.

- Maintain generator installed in 2022 with FEMA funding.

Building & Site Improvements:

- Upgrade the building shell to meet current codes (doors, windows, roofing).
- Floodproof the station to 3-feet above the 100-year flood elevation by raising electrical equipment, installing flood doors, and sealing/patching any open penetrations below the flood elevation.
- Upgrade existing monorail system that is currently not adequately supported with new monorail beam and hoist.
- Add stiffener supports or replace existing grating in the wet well and based on a structural evaluation during design.

Force Main Improvements:

- Conduct investigation to verify structural integrity of the two force mains that run under Mill River.

Center Street Pump Station

The Center Street pump station was identified to be in fair condition in the 2018 Evaluation. Site visits conducted to this station in 2018 identified certain high priority improvements to address safety concerns observed. The pump station was identified to be impacted from flooding and upgrades should account for floodproofing the structure and raising critical equipment to 3 feet above the 100-year floodplain. The updated recommended improvements to the Center Street Pump Station are summarized below.

High Priority Improvements:

- Implement floodproofing measures, such as floodproof doors and access hatches to the building structure to protect critical equipment to 3-feet above the 100-year base flood elevation. During design, it may be realized that a new superstructure will be required to comply with FEMA.
- Replace wet well grating.

Process Improvements:

- Replace the pumps, valves and pump suction and discharge piping based on the age and condition.
- Repair/Replace the Parshall flume flow meter.

Mechanical Improvements

- Upgrade of the wet well and dry well ventilation systems.

Electrical Improvements:

- Replace all electrical infrastructure.
- Salvage existing generator that was replaced in 2012 for use elsewhere. Install a new natural gas generator to allow for operation in "island mode".

Force Main Improvements:

- Replace the existing 14-inch force diameter main with a new 14-inch diameter force main. The existing force main is difficult to access and has experienced breaks in the past.

Building & Site Improvements:

- Install a new pump station bypass connection and associated valves. The bypass connection will be accessed at grade level.
- Extend natural gas service to the site.
- Building improvements, including replacement of the ceiling and insulation and modifications to the generator building entrance step.

- Replace windows, doors and roof of the pump station structure.

Willow Street Pump Station

The Willow Street pump station identified to be in fair condition in the 2018 Evaluation. Site visits conducted to this station in 2018 identified high priority improvements to address safety and access concerns. The updated recommended improvements to the Willow Street Pump Station are summarized below.

High Priority Improvements:

- Installation or modification of the facilities to provide safe access to both the dry well, both wet wells, and electrical equipment enclosure.

Process Improvements:

- Replacement of can-style pump station with a packaged submersible style pump station to improve operator access and eliminate confined space requirements. Design and construct critical equipment to 3-feet above the 100-year base flood elevation.
- Install a new pump station bypass connection and associated valves.
- Relocate the control panel from the buried drywell to an above grade building or panel board to reduce potential confined space issues.

Force Main Improvements:

- Evaluate the condition of the force main. and carry full replacement costs in the CIP.

Pine Creek Pump Station

The Pine Creek pump station was identified to be in fair condition in the 2018 Evaluation. Site visits conducted to this station in 2018 identified certain high priority improvements to address safety concerns. The pump station was identified to be severely impacted from flooding and significant upgrades or replacements to the building will be required to protect the station components. The updated recommended improvements to the Pine Creek Pump Station are summarized below.

High Priority Improvements:

- Upgrade of the station to meet floodproofing requirements. Currently the 100 year flood elevation is 8-feet above current finished floor. Due to the 100-year flood elevation, this would require a new structure protected to 3-feet above the 100-year flood elevation with secondary access (up and over) to a dry side (Electrical/Generator Room) and wet side (submersible pump station wet well).

Process Improvements:

- Replacement of can-style pump station with a packaged submersible style pump station to improve operator access and eliminate confined space requirements. The new station will be accessed from the new building.

Electrical Improvements:

- Replace all electrical infrastructure and install a permanent standby generator to eliminate plant staff from needing to install a trailer mounted generator at this station prior to each flood event.

Force Main Improvements:

- Replace existing force main in its entirety.

Fairfield Beach Pump Station

The Fairfield Beach pump station was identified to need high priority improvements to address safety concerns in the 2018 Evaluation. The pump station was also identified to be severely impacted from flooding and significant upgrades or replacements to the building will be required to protect the station components. The updated recommended improvements to the Fairfield Beach Pump Station are summarized below.

High Priority Improvements:

- Upgrade of the station to meet floodproofing requirements. Currently the 100-year flood elevation is 6-feet above current finished floor. Due to the 100-year flood elevation, this would require a new structure protected to 3-feet above the 100-year flood elevation with secondary access (up and over) to a drywell, electrical gear and wet well.
- Replace the mid-level floor structure with steel framing and grating.
- Replace all hatches with hatches that have secondary fall protection.
- Replace access ladders in the dry well due to their severely corroded condition.

Process Improvements:

- Reevaluate pumps installed as part of the 2016 upgrade and install a third pump.
- Replace the piping in pump station due to its age and condition. The existing valves may be reinstalled since they are new. The new piping should be reconfigured to allow for better operator access and reduced bends.
- Install a new pump station bypass connection and associated valves. The bypass connection should be accessed at the ground surface.

Mechanical Improvements:

- Upgrade of the wet well and dry well ventilation systems.

Electrical Improvements:

- Replace all electrical infrastructure.
- Review of standby generator replacement and location due to its age.

Force Main Improvements:

- Replace the existing force in its entirety.

Force Mains

The 2018 Report identified the following force mains as suspect based on their location, proximity to salt water, age, recorded historical breaks, material of construction, and the identified flow conditions including velocity and residence time to determine their effective remaining service life and intended use.

- Easton Turnpike Pump Station Force main (Replacement)
- Center Street Pump Station Force main (Replacement)
- Fairfield Beach Pump Station Force main (Replacement)
- Willow Street Pump Station Force main (Inspection)
- Pine Street Pump Station Force main (Inspection)

In 2021, the Town completed replacement of the Easton Turnpike Pump Station and installed a new dual force main.

Based on discussion with Town staff in November 2022, the recommended force main replacements and investigations have been updated as follows:

- Center Street Pump Station Force main (Replacement)
- Fairfield Beach Pump Station Force main (Replacement)
- Pine Street Pump Station Force main (Replacement)
- Willow Street Pump Station Force main (Inspection)
- Toll House Road Pump Station (Inspection under Merritt Parkway)
- Eastfield Pump Station (Inspection)
- Mill River Pump Station (Inspection under Mill River)

For budgeting purposes, full replacement costs have been carried for all pump station force mains except for Easton Turnpike which was replaced in 2021.

Additionally, as part of this Report amendment, an evaluation was conducted based on the average daily flow for each pump station to estimate the number of trucks required to maintain station flow in an event a force main failure occurs (Table 2). This allows the Town to prioritize the force mains based on the ability to maintain flow during a failure. It is recommended that that town develop an emergency plan for each remote pump station that includes an adopted Standard Operating Procedure (SOP) in the event of a force main failure. This has been included in the CIP.

TABLE 2
NUMBER OF TRUCKS TO MAINTAIN STATION FLOW DURING FORCE MAIN FAILURE

Pump Station	2018 Average Daily Flow (GPD)	Number of Septic Trucks	Number of Tanker Truck
Toll House Pump Station	27,000	8	4
Easton Turnpike Pump Station	141,000	40	22
Eastfield Drive Pump Station	6,000	2	1
Mill River Pump Station	1,025,000	293	158
Center Street Pump Station	616,000	176	95
Willow Street Pump Station	24,000	7	4
Pine Creek Pump Station	20,000	6	3
Fairfield Beach Pump Station	199,000	57	31

As shown in Table 2, the number of trucks required for each pump station is based on a 3,500-gallon septage hauling truck and 6,500-gallon taker truck capacity. The table shows that a force main failure at the Easton Turnpike, Center Street, Mill River, and Fairfield Beach Pump Stations can result in significant environmental and cost impacts requiring the need to install a temporary force main to the nearest discharge manhole to maintain incoming flows while repairs to the force main are made. It should be noted that the Easton Turnpike and Mill River Pump Stations have dual force mains. The use of the second force main during the failure of the other should be included in the SOP and the need for a temporary force main may not be required. The remaining stations can be maintained with septage and/or tanker trucks. The SOP for these stations should include a site plan locating the staged trucks as well the discharge manhole the trucks can be discharged. There should also be an aerial overview of the force main route to identify areas of potential traffic, societal and environmental impacts along the pipe route in the event of a pipe failure.

As shown in Table 2, the number of trucks required for each pump station is based on a 3,500-gallon septage hauling truck and 6,500-gallon taker truck capacity. The table shows that a force main failure at the Easton Turnpike, Center Street, Mill River, and Fairfield Beach Pump Stations can result in significant environmental and cost impacts requiring the need to install a temporary force main to the nearest discharge manhole to maintain incoming flows while repairs to the force main are made. It should be noted that the Easton Turnpike and Mill River Pump Stations have dual force mains. The use of the second force main during the failure of the other should be included in the SOP and the need for a temporary force main may not be required. The remaining stations can be maintained with septage and/or tanker trucks. The SOP for these stations should include a site plan locating the staged trucks as well the discharge manhole the trucks can be discharged. There should also be an aerial overview of the force main route to identify areas of potential traffic, societal and environmental impacts along the pipe route in the event of a pipe failure.

2022 Updated Opinion of Probable Project Costs

The cost estimates prepared for the 2018 Evaluation were developed prior to the COVID-19 pandemic. Since this time, construction costs have been unpredictable and heavily impacted by supply chain issues and increased inflation. As part of this amendment, updated costs have been developed to reflect the updated recommendations by station as well the impacts of current economic conditions. A summary of the updated 2022 Opinion of Probable Costs is shown in Table 3, with detailed supporting breakdowns attached to his memorandum. The 2022 Opinion of Probable Costs utilize an ENR CCI Index factor of 13175 and includes the following components:

- Construction Costs in 2022 dollars accounting for cost impacts of extended material lead times
- 15% construction contingency (*includes some costs for hazardous materials & soils remediation*)
- 20% Technical services for preliminary, final design and construction phase services
- Force main costs assume $700/LF all-inclusive with a 15% contingency and 20% technical services. Additional contingencies were carried for the Toll House and Mill River Pump Station force mains as portions of the pipe run beneath Route 15 and the Mill River respectively.

TABLE 3
2022 OPINION OF PROBABLE PROJECT COSTS

Pump Station	Cost in 2022 Dollars
Toll House Pump Station	$1,150,000
Toll House Pump Station Force Main	$1,100,000
Eastfield Drive Pump Station	$683,000
Eastfield Drive Pump Station Force Main	$407,000
Mill River Pump Station	$2,640,000
Mill River Pump Station Force Main	$1,500,000
Center Street Pump Station	$1,410,000

See updated estimated from Tighe & Bond

Pump Station	Cost in 2022 Dollars
Center Street Pump Station Force Main	$2,740,000
Willow Street Pump Station	$1,220,000
Willow Street Pump Station Force Main	$530,000
Pine Creek Pump Station	$2,950,000
Pine Creek Pump Station Force Main	$750,000
Fairfield Beach Pump Station	$3,190,000
Fairfield Beach Pump Station Force Main	$2,360,000

2022 Updated 15-Year Capital Improvement Plan

A CIP is a planning tool that allows municipalities to prioritize upgrade projects based on changing conditions. The total estimated project costs from the 2018 CIP were updated to reflect the additional improvements identified as part of this study along with reprioritizing pump station and force main improvements based on current conditions. These recommendations are prioritized based upon age, criticality of failure, flood concerns, and general station reliability. In general, the priorities presented in the 2018 CIP were updated slightly pushing the timing of the Mill Hill River Pump Station from 2024 to 2031. This decision was based on the installation of a new generator at this station in 2021 utilizing FEMA funding. The total estimated project cost for the recommended pump station improvements, force main replacements and additional investigations is approximately $22.83M in 2022 dollars. The 2022 CIP includes an inflation rate of 8% per year for years 1 through 5, 6.5% for years 6 through 10, and 5% for years 11 through 15. This can be adjusted up or down each year based on the changes in the economy.

The CIP should be considered a working document that gets updated annually during the budget season. At this time, inflation can be adjusted as required. This Pump Station CIP has been developed to address the most critical pump station and force main upgrades first followed by partial and less critical upgrades second. The current CIP assumes that upgrades will be grouped together to save cost and time. The first grouping includes the Center Street, Pine Creek and Fairfield Beach Pump Stations and force mains. The second grouping includes the Toll House, Eastfield Drive and Willow Street Pump Station and force mains. The last group includes the Mill Hill River Pump Station and force main. Costs have been carried for full force main replacement at all pump stations with the same timing as the pump station upgrades. The timing of the force main replacements should be re-evaluated following the findings of the recommended 2023 force main inspections.

TABLE 3
PUMP STATION CAPITAL IMPROVEMENTS PLAN – TARGET REPLACEMENT/UPGRADE YEAR

Item/Equipment	2022 Budget Cost	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Inflation factor (See Note 1)	1.00	1.08	1.17	1.26	1.36	1.47	1.59	1.71	1.85	2.00	2.16	2.33	2.52	2.72	2.94	3.17	3.43
Pump Station Upgrades																	
Toll House	$1,150,000						$900,000	$960,000									
Eastfield Drive	$683,000						$534,000	$570,000									
Mill Hill	$2,640,000									$2,500,000	$2,660,000						
Center Street	$1,410,000		$548,000	$592,000	$640,000												
Willow Street	$1,220,000						$955,000	$1,020,000									
Pine Creek	$2,950,000		$1,147,000	$1,240,000	$1,338,000												
Fairfield Beach	$3,190,000		$1,240,000	$1,340,000	$1,447,000												
Force Main Replacements																	
Toll House	$1,100,000						$860,000	$917,000									
Eastfield Drive	$407,000						$318,000	$340,000									
Mill Hill	$1,500,000									$1,420,000	$1,510,000						
Center Street	$2,740,000		$1,065,000	$1,150,000	$1,243,000												
Willow Street	$530,000						$415,000	$442,000									
Pine Creek	$750,000		$292,000	$315,000	$340,000												
Fairfield Beach	$2,360,000		$918,000	$990,000	$1,070,000												
Additional Investigations																	
Force Main Inspections	$150,000	150,000															
Develop Pump Station SOPs	$50,000	50,000															
Total	$22,830,000	$200,000	$5,200,000	$5,630,000	$6,080,000	$0	$4,000,000	$4,240,000	$0	$4,000,000	$4,200,000	$0	$0	$0	$0	$0	$0

Note 1: Inflation is assumed to be 8% per year for years 1 through 5, 6.5% per year for years 6 through 10, and 5% per year for years 11 through 15.

Funding Opportunities for Improvement Projects

There could be several funding sources available to the Town of Fairfield for the design and construction of the recommended upgrades. The recommended improvements could be funded locally through bonding (if approved by the community) or through the new reserve for pump stations as part of the DEEP Clean Water (CWF) priority list, currently a 100% low interest loan program. Because the new reserve is "first-come, first served", there is no guarantee that this type of funding will be available when the Town moves forwards with any or all of these upgrades. Therefore, the full estimated costs of the recommended facilities should be budgeted for by the Town.

Another approach may be viable for obtaining additional funds, however. If the WPCA pursues the alternative, there may be some energy efficiency funding and grant monies available for the project. The DEEP and the electrical utilities in Connecticut have created programs that assist in projects that reduce energy demand and consumption. Eliminating the dual pumping of flows from pump station could qualify for participation in these programs, although the exact level of funding is difficult to determine at this time.

There are also several funding opportunities for projects that include flood mitigation. The current available programs are summarized below but are updated and new programs are added every year.

Funding Options for Flood Mitigation

Hazard Mitigation Grant Program (HMGP)

The Connecticut Division of Emergency Management Agency and Homeland Security administers the federal Hazard Mitigation Grant Program (HMGP). Funds may be available statewide following a Presidential Major Disaster Declaration as requested by the Governor, with priority given to projects in the area of the state affected by the disaster. These funds assist communities to enact mitigation measures that reduce the risk of loss of life and property from future disasters.

Building Resilient Infrastructure and Communities (BRIC)

The United States Federal Emergency Management Agency (FEMA) administers the Building Resilient Infrastructure and Communities (BRIC) to support states, local communities, tribes, and territories, with pre-disaster mitigation activities. Local governments, including cities, townships, counties, special district governments, and Native American tribal organizations are considered Sub-applicants and must submit sub-applications for mitigation planning and projects to their State/Territory applicant agency. Eligible projects include:

- Mitigation Projects: cost-effective projects designed to increase resilience and public safety; reduce injuries and loss of life; and reduce damage and destruction to property, critical services, facilities, and infrastructure.

Applications for the current fiscal cycle of this program are being accepted between September 30, 2022, and January 27, 2023.

CT DEEP Climate Resilience Fund

The CT DEEP Climate Resilience Fund provides grants to help Connecticut communities initiate planning and develop projects that will help communities become more resilient to the effects of climate change. The Fund specifically is intended to support climate resilience planning at regional, municipal, and neighborhood-level scales,

and to support resilience project scoping and development. DEEP intends to make available up to $10 million in this first round through the DEEP Climate Resilience Fund. DEEP Climate Resilience Fund (ct.gov)

Connecticut Institute for Resilience & Climate Adaptation (CIRCA)

In addition to possible FEMA grants that may be available depending upon current programs, the Connecticut Institute for Resilience & Climate Adaptation (CIRCA) offers funding options assist Connecticut towns and cities adapt to a changing climate and to enhance the resilience of their infrastructure. Under the Matching Funds Program, up to $100,000 is available to municipalities for projects that are in line with the institute's mission. This includes projects that 'foster resilient actions and sustainable communities, particularly along the Connecticut coastline and inland waterway, that can adapt to the impacts and hazards of climate change and reduce the loss of life and property, natural systems and ecological damage, and social disruption from high-impact events.

This CIRCA Matching Funds program and other potential funding opportunities can be found on their website at the University of Connecticut's website the institute: http://circa.uconn.edu/

Town of Fairfield
Pump Station Evaluation
Toll House Road Pump Station

Item Description	Quantity	Units	Unit Cost	Total Unit Cost	Labor Cost	Total Cost
Demolition						
Demolition	1	LS	$ 15,000	$ 15,000	$ -	$ 15,000
Temp. Emergency Power Provisions	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Temp. Bypass Pumping System	1	LS	$ 25,000	$ 25,000	$ -	$ 25,000
Subtotal						**$ 50,000**
Civil						
Site Mods for Access	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Chain Link Fence	80	LF	$ 100	$ 8,000	$ -	$ 8,000
Subtotal						**$ 58,000**
Architectural/Structural						
Building Repairs and Replacements	1	LS	$ 75,000	$ 75,000	$ -	$ 75,000
Wetwell Vent	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Alum. Access Hatch	2	EA	$ 12,500	$ 25,000	$ 7,500	$ 32,500
Concrete Pads	1	EA	$ 7,500	$ 7,500	$ -	$ 7,500
Railing	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Flood Proof PS	1	LS	$ 100,000	$ 100,000	$ -	$ 100,000
Painting	1	LS	$ 5,000	$ 5,000	$ -	$ 5,000
Subtotal						**$ 240,000**
Process & HVAC						
Submersible Pumps	2	EA	$ 12,000	$ 24,000	$ 6,750	$ 30,750
Plug Valves	2	EA	$ 1,500	$ 3,000	$ 2,250	$ 5,250
Check Valves	2	EA	$ 2,000	$ 4,000	$ 3,000	$ 7,000
Gate Valves	2	EA	$ 1,200	$ 2,400	$ 1,800	$ 4,200
6-in DIP & Fittings	1	LS	$ 20,000	$ 20,000	$ -	$ 20,000
Pipe Supports	1	LS	$ 5,000	$ 5,000	$ -	$ 5,000
Unit Heaters	1	EA	$ 5,000	$ 5,000	$ 3,750	$ 8,750
Subtotal						**$ 80,950**
Electrical/Instrumentation						
Misc Electrical Repairs/Upgrades	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
Power Company Fees	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Control Panel	1	EA	$ 25,000	$ 25,000	$ 7,500	$ 32,500
Pressure Transducer System	1	EA	$ 3,000	$ 3,000	$ 3,000	$ 6,000
Conduit/Wire/Grounding	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Flood Proof Transformer	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
30kW Generator ans Transfer Switch	1	LS	$ 60,000	$ 60,000	$ 30,000	$ 90,000
Subtotal						**$ 268,500**
Subtotal						**$ 697,450**
Miscellaneous Items						
Mobilization/Demobilization (5%)	1	LS				$ 34,873
Bonding (2%)	1	LS				$ 13,949
Overhead & Profit (15%)	1	LS				$ 104,618
Subtotal						**$ 153,439**
Subtotal Construction Costs						$ 850,889
Construction Contingency (15%)						**$ 127,633**
Technical Services (20%)						**$ 170,178**
Total Project Cost						**$ 1,150,000**

Town of Fairfield
Pump Station Evaluation
Eastfield Drive Pump Station

Item Description	Quantity	Units	Unit Cost	Total Unit Cost	Labor Cost	Total Cost
Demolition						
Demolition	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Temp. Emergency Power Provisions	1	LS	$ 5,000	$ 5,000	$ -	$ 5,000
Temp. Bypass Pumping System	1	LS	$ 20,000	$ 20,000	$ -	$ 20,000
Subtotal						$ 35,000
Civil						
Site Access Improvements	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Site Piping Modification	1	LS	$ 25,000	$ 25,000	$ -	$ 25,000
Valve Vault	1	EA	$ 15,000	$ 15,000	$ 15,000	$ 30,000
Vinyl Fence	50	LF	$ 80	$ 4,000	$ -	$ 4,000
Subtotal						$ 109,000
Architectural/Structural						
Valve Bypass Structure	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Alum. Flood Proof Access Hatch	1	EA	$ 25,000	$ 25,000	$ -	$ 25,000
Subtotal						$ 75,000
Process						
Submersible Pumps	2	EA	$ 10,000	$ 20,000	$ 5,750	$ 25,750
Plug Valves	2	EA	$ 1,500	$ 3,000	$ 2,250	$ 5,250
Check Valves	2	EA	$ 2,000	$ 4,000	$ 3,000	$ 7,000
Gate Valves	2	EA	$ 1,200	$ 2,400	$ 1,800	$ 4,200
4-in DIP & Fittings / Bypass Connection	1	LS	$ 15,000	$ 15,000	$ -	$ 15,000
Pipe Supports	1	LS	$ 5,000	$ 5,000	$ -	$ 5,000
Subtotal						$ 67,200
Electrical/Instrumentation						
Misc Electrical	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Power Company Fees	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Control Panel	1	EA	$ 25,000	$ 25,000	$ 7,500	$ 32,500
Pressure Transducer System	1	EA	$ 3,000	$ 3,000	$ 3,000	$ 6,000
Conduit/Wire/Grounding	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
Subtotal						$ 128,500
Subtotal						$ 414,700
Miscellaneous Items						
Mobilization/Demobilization (5%)	1	LS				$ 20,735
Bonding (2%)	1	LS				$ 8,294
Overhead & Profit (15%)	1	LS				$ 62,205
Subtotal						$ 91,234
Subtotal Construction Costs						$ 505,934
Construction Contingency (15%)						$ 75,890
Technical Services (20%)						$ 101,187
Total Project Cost						$ 683,000

Town of Fairfield
Pump Station Evaluation
Mill River Pump Station

Item Description	Quantity	Units	Unit Cost	Total Unit Cost	Labor Cost	Total Cost
Demolition						
Demolition	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Temp. Emergency Power Provisions	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Temp. Bypass Pumping System	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
Subtotal						**$ 90,000**
Architectural/Structural						
Building Shell & Flood Improvements	1	LS	$ 200,000	$ 200,000	$ -	$ 200,000
New Monorail	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
Wetwell Grating Repairs/Replacement	1	LS	$ 20,000	$ 20,000	$ -	$ 20,000
Subtotal						**$ 251,000**
Process & HVAC						
Pumps	2	EA	$ 75,000	$ 150,000	$ 45,000	$ 195,000
Communitor	1	EA	$ 50,000	$ 50,000	$ 15,000	$ 65,000
Plug Valves	3	EA	$ 3,500	$ 10,500	$ 7,875	$ 18,375
Check Valves	2	EA	$ 5,000	$ 10,000	$ 7,500	$ 17,500
14-in DIP & Fittings	1	LS	$ 75,000	$ 75,000	$ 37,500	$ 112,500
Pipe Supports	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
New HVAC System	1	LS	$ 150,000	$ 150,000		$ 150,000
Subtotal						**$ 588,375**
Electrical/Instrumentation						
Full Electrical Upgrade	1	LS	$ 350,000	$ 350,000	$ -	$ 350,000
CL&P Costs	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Control Panel	1	EA	$ 40,000	$ 40,000	$ 10,000	$ 50,000
Pressure Transducer System	1	EA	$ 3,000	$ 3,000	$ 3,000	$ 6,000
Variable Frequency Drives	3	EA	$ 15,000	$ 45,000	$ 11,250	$ 56,250
100KW Generator and Transfer Switch	1	LS	$ 200,000	$ 200,000	$ -	$ 200,000
Subtotal						**$ 672,250**
Subtotal						**$ 1,601,625**
Miscellaneous Items						
Mobilization/Demobilization (5%)		LS				$ 80,081
Bonding (2%)		LS				$ 32,033
Overhead & Profit (15%)		LS				$ 240,244
Subtotal						**$ 352,358**
Subtotal Construction Costs						$ 1,953,983
Construction Contingency (15%)						$ 293,097
Technical Services (20%)						$ 390,797
Total Project Cost						$ 2,640,000

Town of Fairfield
Pump Station Evaluation
Center Street Pump Station & Force Main

Item Description	Quantity	Units	Unit Cost	Total Unit Cost	Labor Cost	Total Cost
Demolition						
Demolition	1	LS	$ 20,000	$ 20,000	$ -	$ 20,000
Temp. Emergency Power Provisions	1	LS	$ 5,000	$ 5,000	$ -	$ 5,000
Temp. Bypass Pumping System	1	LS	$ 20,000	$ 20,000	$ -	$ 20,000
Subtotal						**$ 45,000**
Architectural/Structural						
Wetwell Grating Replacement	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
Main Improvements/Flood Protection	1	LS	$ 150,000	$ 150,000	$ -	$ 150,000
Gen Bldg Improvements/Flood Protection	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Painting	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Subtotal						**$ 240,000**
Process & HVAC System						
Pumps	2	EA	$ 25,000	$ 50,000	$ 15,000	$ 65,000
HVAC System Upgrade	1	LS	$ 100,000	$ 100,000	$ -	$ 100,000
Valves	6	EA	$ 3,000	$ 18,000	$ 5,400	$ 23,400
DI Pipe and Fittings	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Parshall Flume	1	LS	$ 15,000	$ 15,000	$ -	$ 15,000
Pipe Supports	1	LS	$ 15,000	$ 15,000	$ -	$ 15,000
Subtotal						**$ 203,400**
Electrical/Instrumentation						
Full Electrical Upgrade	1	LS	$ 300,000	$ 300,000	$ -	$ 300,000
CL&P Costs	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Control Panel	1	EA	$ 30,000	$ 30,000	$ 7,500	$ 37,500
Pressure Transducer System	1	EA	$ 3,000	$ 3,000	$ 3,000	$ 6,000
Generator Rebuild	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Subtotal						**$ 363,500**
Subtotal						**$ 853,900**
Miscellaneous Items						
Mobilization/Demobilization (5%)	1	LS				$ 42,695
Bonding (2%)	1	LS				$ 17,078
Overhead & Profit (15%)	1	LS				$ 128,085
Subtotal						**$ 187,858**
Subtotal Construction Costs						**$ 1,041,758**
Construction Contingency (15%)						**$ 156,264**
Technical Services (20%)						**$ 208,352**
Total Project Cost						**$ 1,410,000**

Town of Fairfield
Pump Station Evaluation
Pine Creek Pump Station

Item Description	Quantity	Units	Unit Cost	Total Unit Cost	Labor Cost	Total Cost
Demolition						
Demo Pump Station	1	LS	$ 75,000	$ 75,000	$ -	$ 75,000
Site Piping	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
Temp. Power Provisions	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Temp. Bypass Pumping System	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
Subtotal						**$ 145,000**
Civil						
Sitework	1	LS	$ 100,000	$ 100,000	$ -	$ 100,000
Bituminous Concrete Paving	100	Tons	$ 200	$ 20,000	$ -	$ 20,000
Chain Link Fence	120	LF	$ 80	$ 9,600	$ -	$ 9,600
Subtotal						**$ 129,600**
Architectural/Structural						
New Building with Secondary Access	400	SF	$ 500	$ 200,000	$ 100,000	$ 300,000
Building Foundation/Interior Flood Walls	1	LS	$ 300,000	$ 300,000	$ -	$ 300,000
Subtotal						**$ 600,000**
Process						
Packaged Submerible Pump Station	1	LS	$ 350,000	$ 350,000	$ 175,000	$ 525,000
Subtotal						**$ 526,500**
Electrical/Instrumentation						
Misc Electrical	1	LS	$ 250,000	$ 250,000	$ -	$ 250,000
Power Company Fees	1	LS	$ 15,000	$ 15,000	$ -	$ 15,000
Conduit/Wire/Grounding	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Generator & ATS	1	LS	$ 60,000	$ 60,000	$ 15,500	$ 75,500
Subtotal						**$ 390,500**
Subtotal						**$ 1,791,600**
Miscellaneous Items						
Mobilization/Demobilization (5%)	1	LS				$ 89,580
Bonding (2%)	1	LS				$ 35,832
Overhead (15%)	1	LS				$ 268,740
Subtotal						**$ 394,152**
Subtotal Construction Costs						**$ 2,185,752**
Construction Contingency (15%)						**$ 327,863**
Technical Services (20%)						**$ 437,150**
Total						**$ 2,950,000**

Town of Fairfield
Pump Station Evaluation
Fairfield Beach Pump Station

Item Description	Quantity	Units	Unit Cost	Total Unit Cost	Labor Cost	Total Cost
Demolition						
Demo Pump Station	1	LS	$ 100,000	$ 100,000	$ -	$ 100,000
Site Piping	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Temp. Power Provisions	1	LS	$ 15,000	$ 15,000	$ -	$ 15,000
Temp. Bypass Pumping System	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
Subtotal						$ 195,000
Civil						
Sitework	1	LS	$ 100,000	$ 100,000	$ -	$ 100,000
Bituminous Concrete Paving	50	Tons	$ 200	$ 10,000	$ -	$ 10,000
Chain Link Fence	120	LF	$ 80	$ 9,600	$ -	$ 9,600
Subtotal						$ 119,600
Architectural/Structural						
New Building with Secondary Access	400	SF	$ 500	$ 200,000	$ 100,000	$ 300,000
Building Foundation/Interior Flood Walls	1	LS	$ 300,000	$ 300,000	$ -	$ 300,000
Access Ladder	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Alum. Access Hatch	2	EA	$ 10,000	$ 20,000	$ 10,000	$ 30,000
Steel Frame Replacement (Mid Floor)	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Subtotal						$ 690,000
Process & HVAC System						
Submersible Pump Spare	1	EA	$ 25,000	$ 25,000	$ -	$ 25,000
Reinstall Existing Valves	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
10in DIP & Fittings	1	LS	$ 100,000	$ 100,000	$ -	$ 100,000
Pipe Supports	1	LS	$ 20,000	$ 20,000	$ 1,000	$ 21,000
Ventilation System Upgrade	1	LS	$ 250,000	$ 250,000	$ -	$ 250,000
Subtotal						$ 406,000
Electrical/Instrumentation						
Misc Electrical	1	LS	$ 250,000	$ 250,000	$ -	$ 250,000
Control Panel and Instrumentation	1	LS	$ 60,000	$ 60,000	$ -	$ 60,000
Power Company Fees	1	LS	$ 15,000	$ 15,000	$ -	$ 15,000
Conduit/Wire/Grounding	1	LS	$ 125,000	$ 125,000	$ -	$ 125,000
Generator & ATS	1	LS	$ 60,000	$ 60,000	$ 15,500	$ 75,500
Subtotal						$ 525,500
Subtotal						$ 1,936,100
Miscellaneous Items						
Mobilization/Demobilization (5%)	1	LS				$ 96,805
Bonding (2%)	1	LS				$ 38,722
Overhead & Profit (15%)	1	LS				$ 290,415
Subtotal						$ 425,942
Subtotal Construction Costs						$ 2,362,042
Construction Contingency (15%)						$ 354,306
Technical Services (20%)						$ 472,408
Total						$ 3,190,000

Town of Fairfield
Pump Station Evaluation
Willow Street Pump Station

Item Description	Quantity	Units	Unit Cost	Total Unit Cost	Labor Cost	Total Cost
Demolition						
Demo Pump Station	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Site Piping	1	LS	$ 25,000	$ 25,000	$ -	$ 25,000
Temp. Power Provisions	1	LS	$ 5,000	$ 5,000	$ -	$ 5,000
Temp. Bypass Pumping System	1	LS	$ 25,000	$ 25,000	$ -	$ 25,000
Subtotal						**$ 105,000**
Civil						
Sitework	1	LS	$ 50,000	$ 50,000	$ -	$ 50,000
Regrade Site for flood Elevation	1	LS	$ 5,000	$ 5,000	$ -	$ 5,000
Bituminous Concrete Paving	75	Tons	$ 200	$ 15,000	$ -	$ 15,000
Chain Link Fence	175	LF	$ 80	$ 14,000	$ -	$ 14,000
Landscaping	1	LS	$ 10,000	$ 10,000	$ -	$ 10,000
Subtotal						**$ 94,000**
Architectural/Structural						
Generator Pad	10	CY	$ 1,000	$ 10,000	$ -	$ 10,000
Subtotal						**$ 10,000**
Process						
Packaged Submerible Pump Station	1	LS	$ 300,000	$ 300,000	$ 150,000	$ 450,000
Subtotal						**$ 451,500**
Electrical/Instrumentation						
Tie in Packaged Equipment	1	LS	$ 30,000	$ 30,000	$ -	$ 30,000
Generator and ATS	1	LS	$ 40,000	$ 40,000	$ -	$ 40,000
Install Packaged Control Panel	1	LS	$ 12,000	$ 12,000	$ -	$ 12,000
Subtotal						**$ 82,003**
Subtotal						**$ 742,503**
Miscellaneous Items						
Mobilization/Demobilization (5%)	1	LS				$ 37,125
Bonding (2%)	1	LS				$ 14,850
Overhead & Profit (15%)	1	LS				$ 111,375
Subtotal						**$ 163,351**
Subtotal Construction Costs						**$ 905,854**
Construction Contingency (15%)						**$ 135,878**
Technical Services (20%)						**$ 181,171**
Total						**$ 1,220,000**

20 YEAR

A RESOLUTION APPROPRIATING $18,670,000 FOR THE COSTS OF WATER POLLUTION CONTROL FACILITY PLANT EQUIPMENT IMPROVEMENTS AND AUTHORIZING THE ISSUANCE OF BONDS AND/OR CLEAN WATER FUND OBLIGATIONS TO FINANCE SUCH APPROPRIATION.

Resolved:

1. As requested by the Water Pollution Control Authority (the "WPCA") of the Town of Fairfield (the "Town") and as recommended by the Board of Selectmen and the Board of Finance, the Town appropriates Eighteen Million Six Hundred Seventy Thousand and 00/100 ($18,670,000) Dollars to fund the costs of Water Pollution Control Facility plant equipment improvements, such costs to include, but not be limited to, the replacement of various types of equipment, planning, design, construction, materials, engineering, as well as, all administrative, financing, legal, contingency and other soft costs related thereto (the "Project").

2. To finance such appropriation and in lieu of a tax therefor, and as recommended by the Board of Selectmen and the Board of Finance, the Town may issue (i) bonds under its corporate name and seal upon the full faith and credit of the Town, (ii) project loan obligations, interim funding obligations or other obligations (collectively, the "CWF Obligations") as described herein meeting the conditions prescribed in Sections 22a-475 to 22a-483, inclusive, of the Connecticut General Statutes (the "Clean Water Fund Statutes"), or (iii) any combination of bonds or CWF Obligations described in (i) and (ii) above, provided, in all cases, that the total, aggregate principal amount thereof outstanding at any time shall not exceed $18,670,000. The aggregate amount of bonds and CWF Obligations shall be issued in an amount necessary to meet the Town's share of Project costs determined after considering the estimated amounts of grants in aid of the Project.

3. The Board of Selectmen, the Treasurer and the Chief Fiscal Officer of the Town are hereby appointed a committee (the "Committee") with full power and authority to cause said bonds to be sold, issued and delivered; to determine their form and terms, including provisions for redemption prior to maturity; to determine the aggregate principal amount thereof within the amount hereby authorized and the denominations and maturities thereof; to fix the time of issue of each series thereof and the rate or rates of interest thereon as herein provided; to determine whether the interest rate on any series will be fixed or variable and to determine the method by which the variable rate will be determined, the terms of conversion, if any, from one interest rate mode to another or from fixed to variable; to set whatever other terms of the bonds they deem necessary, desirable or appropriate; to designate the bank or trust company to certify the issuance thereof and to act as transfer agent, paying agent and as registrar for the bonds, and to designate bond counsel. The Committee shall have all appropriate powers under the

Connecticut General Statutes, as amended (the "Statutes") including Chapter 748 (Registered Public Obligations Act), and Chapter 109 (Municipal Bond Issues) to issue, sell and deliver the bonds and, further, shall have full power and authority to do all that is required under the Internal Revenue Code of 1986, as amended, and under rules of the Securities and Exchange Commission, and other applicable laws and regulations of the United States, to provide for issuance of the bonds in tax exempt form and to meet all requirements which are or may become necessary in and subsequent to the issuance and delivery of the bonds in order that the interest on the bonds be and remain exempt from Federal income taxes, including, without limitation, to covenant and agree to restriction on investment yield of bond proceeds, rebate of arbitrage earnings, expenditure of proceeds within required time limitations, the filing of information reports as and when required, and the execution of Continuing Disclosure Agreements for the benefit of the holders of the bonds and notes.

4. The First Selectman and Treasurer or Chief Fiscal Officer, on behalf of the Town, shall execute and deliver such bond purchase agreements, reimbursement agreements, line of credit agreement, credit facilities, remarketing agreement, standby marketing agreements, standby bond purchase agreements, and any other commercially necessary or appropriate agreements which the Committee determines are necessary, appropriate or desirable in connection with or incidental to the sale and issuance of bonds, and if the Committee determines that it is necessary, appropriate, or desirable, the obligations under such agreements shall be secured by the Town's full faith and credit.

5. The First Selectman and Treasurer or Chief Fiscal Officer shall execute on the Town's behalf such interest rate swap agreements or similar agreements related to the bonds for the purpose of managing interest rate risk which the Committee determines are necessary, appropriate or desirable in connection with or incidental to the carrying or selling and issuance of the bonds, and if the Committee determines that it is necessary, appropriate or desirable, the obligations under such interest rate swap agreements shall be secured by the Town's full faith and credit.

6. Any bonds may be designated "Public Improvement Bonds of the Town of Fairfield," series of the year of their issuance and may be issued in one or more series, and may be consolidated as part of the same issue with other bonds of the Town; shall be in serial form maturing in not more than twenty (20) annual installments of principal, the first installment to mature not later than three (3) years from the date of issue and the last installment to mature not later than twenty (20) years from the date of issuance or as otherwise provided by statute. The bonds may be sold at an aggregate sales price of not less than par and accrued interest at public sale upon invitation for bids to the responsible bidder submitting the bid resulting in the lowest true interest cost to the Town, provided that nothing herein shall prevent the Town from rejecting all bids submitted in response to any one invitation for bids and the right to so reject all bids is hereby reserved, and further provided that the Committee may sell the bonds on a negotiated basis, as provided by statute. Interest on the bonds shall be payable semi-

annually or annually. The bonds shall be signed on behalf of the Town by at least a majority of the Board of Selectmen and the Treasurer, and shall bear the seal of the Town. The signing, sealing and certification of the bonds may be by facsimile as provided by statute.

7. The Committee is further authorized to make temporary borrowings as authorized by the Statutes and to issue temporary notes of the Town in anticipation of the receipt of proceeds from the sale of the bonds to be issued pursuant to this resolution or in anticipation of the receipt of the Grants. Such notes shall be issued and renewed at such time and with such maturities, requirements and limitations as provided by the Statutes. Notes evidencing such borrowings shall be signed by the First Selectman and Treasurer or the Chief Fiscal Officer, have the seal of the Town affixed, which signing and sealing may be by facsimile as provided by statute, be certified by and payable at a bank or trust company incorporated under the laws of this or any other state, or of the United States, be approved as to their legality by bond counsel, and may be consolidated with the issuance of other Town bond anticipation notes. The Committee shall determine the date, maturity, interest rates, form and manner of sale, including negotiated sale, and other details of said notes consistent with the provisions of this resolution and the Statutes and shall have all powers and authority as set forth above in connection with the issuance of bonds and especially with respect to compliance with the requirements of the Internal Revenue Code of 1986, as amended, and regulations thereunder in order to obtain and maintain issuance of the notes in tax exempt form.

8. Pursuant to Section 1.150-2, as amended, of the Federal Income Tax Regulations the Town hereby declares its official intent to reimburse expenditures (if any) paid for the Project from its General or Capital Funds, such reimbursement to be made from the proceeds of the sale of bonds and notes authorized herein and in accordance with the time limitations and other requirements of said regulations.

9. The First Selectman, the Chief Fiscal Officer and Town Treasurer are hereby authorized, on behalf of the Town, to enter into agreements or otherwise covenant for the benefit of bondholders to provide information on an annual or other periodic basis to the Municipal Securities Rulemaking Board (the "MSRB") and to provide notices to the MSRB of material events as enumerated in Securities and Exchange Commission Exchange Act Rule 15c2-12, as amended, as may be necessary, appropriate or desirable to effect the sale of the bonds and notes authorized by this resolution.

10. The Committee is hereby authorized to take all action necessary and proper for the sale, issuance and delivery of the bonds and notes in accordance with the provisions of the Statutes and the laws of the United States.

11. Any CWF Obligations shall be issued pursuant and subject to the Clean Water Fund Statutes. To meet any portion of the costs of the Project determined to be eligible for funding under said Clean Water Fund Statutes, the Town may borrow pursuant to, and

issue its project loan obligations to the State of Connecticut (the "State") and may issue interim funding obligations in anticipation of such project loan obligations in such denominations as may be appropriate. Any such interim funding obligations may be renewed from time to time by the issuance of other notes, provided the final maturity of such notes do not exceed the maximum period permitted under Section 22a-479 of the Connecticut General Statutes. The CWF Obligations may be secured as to both principal and interest by a pledge of revenues to be derived by the WPCA from sewerage system use and/or connection charges or benefit assessments or both. The CWF Obligations may also be secured by the full faith and credit of the Town. The First Selectman of the Town is authorized to sign such CWF Obligations by his manual or facsimile signature. The First Selectman is further authorized to execute and deliver to the State project funding agreements, project loan and project grant agreements and any other documents required by the State in connection with the CWF Obligations. The CWF Obligations shall bear the seal of the Town or a facsimile of the seal.

12. The First Selectman or other proper Town official is authorized to apply for and accept any available State or Federal grant in aid of the financing of the Project, including the grants set forth in section 3 herein, and to take all action necessary and proper in connection therewith. Any such grants or contribution received prior to the issuance of the Bonds authorized herein shall be applied to the costs of the Project or to pay at maturity the principal of any outstanding bond anticipation notes issued pursuant this resolution and shall reduce the amount of the Bonds that can be issued pursuant to this resolution. If such grants and contributions are received after the issuance of the Bonds, they shall be applied to pay the principal on the Bonds or as otherwise authorized by the Board of Selectmen, Board of Finance and Representative Town Meeting provided such application does not adversely affect the tax-exempt status of the Bonds or the Town's receipt of such grant or contribution.

SUPPLEMENTAL RESOLUTION

WHEREAS, the Town of Fairfield (the "Town") has adopted at the request of the Water Pollution Control Authority ("WPCA") a Resolution entitled "A RESOLUTION APPROPRIATING $18,670,000 FOR THE COSTS OF WATER POLLUTION CONTROL FACILITY PLANT EQUIPMENT IMPROVEMENTS AND AUTHORIZING THE ISSUANCE OF BONDS AND/OR CLEAN WATER FUND OBLIGATIONS TO FINANCE SUCH APPROPRIATION" (the "Resolution"); and

WHEREAS, the Resolution appropriated $18,670,000 for costs associated with the Water Pollution Control Facility plant equipment improvements (the "Project") and authorized the issuance of bonds (the "Bonds") and/or Clean Water Fund obligations (the CWF Obligations"); and

WHEREAS, while the Town is liable for the debt service on the Bonds and the CWF Obligations, for internal accounting purposes, it is appropriate that the costs of the Project including debt service on the Bonds and the CWF Obligations be allocated to the WPCA; and

WHEREAS, the Town's WPCA has agreed to pay for the costs of the Project and the debt service on the Bonds and the CWF Obligations authorized by the Resolution; and

NOW, THEREFORE, IT IS HEREBY:

RESOLVED,

1) That the debt service on the Bonds and the CWF Obligations as it becomes due shall be paid by the WPCA from its own funds and the obligation of the WPCA shall be set forth in a memorandum of understanding (the "MOU") with the Town satisfactory to First Selectman; and

2) That the First Selectman is hereby authorized to execute the MOU on behalf of the Town.

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding is made as of the ___ day of _____, 2024 by and between the Town of Fairfield, Connecticut (the "Town") and the Water Pollution Control Authority in the Town (the "WPCA").

WHEREAS, on _____, 2024, the Town's Representative Town Meeting ("RTM") approved a resolution related to the Water Pollution Control Facility plant equipment improvements project (the "Project") which resolution was entitled "A RESOLUTION APPROPRIATING $18,670,000 FOR THE COSTS OF WATER POLLUTION CONTROL FACILITY PLANT EQUIPMENT IMPROVEMENTS AND AUTHORIZING THE ISSUANCE OF BONDS AND/OR CLEAN WATER FUND OBLIGATIONS TO FINANCE SUCH APPROPRIATION" (the "WPCF Equipment Resolution"); and

WHEREAS, on _____, 2024, the RTM also approved a Supplemental Resolution related to the WPCF Equipment Resolution stating that the debt service on the bonds and the Clean Water Fund obligations (the "CWF Obligations") as such debt service becomes due shall be paid by the WPCA from its own funds, that the obligation of the WPCA shall be set forth in a memorandum of understanding ("MOU") with the Town satisfactory to the First Selectman, and that the First Selectman is authorized to execute the MOU on behalf of the Town; and

WHEREAS, the WPCA Board of Commissioners approved the Project and agreed to reimburse the Town for debt service on any bonds, CWF Obligations and notes issued by the Town in connection with the costs of the Project.

NOW THEREFORE, in consideration of the mutual agreements contained in this Memorandum of Understanding, the Town and the WPCA agree to the following:

1. To the extent the Town issues any bonds, CWF Obligations or notes on behalf of and at the request of the WPCA to fund any or all of the costs of the Project, the WPCA will be responsible for and pay the full debt service on such bonds, CWF Obligations or notes based on a schedule established by the Town for repayment of the bonds, the CWF Obligations or the notes; and

2. The WPCA agrees to use its reserves, assess user fees or raise other monies sufficient to fund the debt service on such bonds, CWF Obligations or notes.

IN WITNESS WHEREOF, each party intending to be bound, has executed this Memorandum of Understanding to reflect its agreement with the terms hereof.

TOWN OF FAIRFIELD

By: _____
William A. Gerber
First Selectman

WATER POLLUTION CONTROL AUTHORITY

By: _____

Its

Plant Equipment Improvements

Three Year Authorization totaling: $18,670,000

1. **Background:** The Fairfield Water Pollution Control Facility (WPCF) was originally constructed in 1950 to provide secondary treatment of collected sewage flows from the Town. Treated effluent from the plant is discharged into Long Island Sound. The plant was expanded in 1968 and 1972 to meet the needs of the growing town and expansion of the sewer collection system. Additions were made in 1980 to improve biosolids dewatering and in 1988 a composting facility for beneficial reuse of the plant sludge was added. Biological process improvements for partial nitrogen removal were added in 1996. The last upgrade was completed in 2002, which included additional aeration tanks, new final settling tanks, UV disinfection, effluent pumping, and odor control biofilters.

   In 2014, utilizing a 55% Clean Water Fund planning Grant through the State of CT DEEP, the WPCA selected Wright-Pierce to develop a comprehensive evaluation of the WPCF with the goal of identifying much needed improvements to address aging, energy inefficient unit processes, equipment and building systems with increasing operating costs, and increasing corrective maintenance requirements. The final 2017 Facilities Plan Report recommended an estimated $63M (2017 dollars) in facility improvements. Plans to upgrade the facility did not advance.

   In 2022, the Primary digester unexpectedly failed, requiring emergency cleaning and repairs and causing significant odor control issues at the plant and surrounding neighborhoods. The incident cost the WPCF approximately $2.0M in unplanned construction costs to fix the damage and increased operational costs to process the undigested sludge and address the odor issues.

   In response, in 2023, the Town of Fairfield and WPCA selected Woodard & Curran to perform an operational audit of the WPCF. The purpose of the audit was to assess the condition of the major process equipment, assess the Likelihood of Failure and Consequence of Failure for each equipment asset, develop a short and long-term capital improvements plan to assist staff with prioritizing equipment repair and replacement, and estimate planning level costs for improvement. The Final WPCF Condition Assessment Report was submitted in February 2024 with recommended High, Medium, and Low Priority improvements. The estimated scope of improvements do not reflect the complete project scope in the 2017 Facilities Plan. Only equipment, related ancillary equipment, and necessary building improvements (structural modifications, piping, electrical, plumbing, etc.) were considered to upgrade the equipment.

2. **Purpose and Justification:** The WPCF Final Condition Assessment Report dated February 2024 recommends High, Medium, and Low Priority improvements. High Priority improvements should ideally be implemented in the near terms (0-3 years) to address redundancy, reliability, and safety issues, and to ensure ongoing permit compliance.

3. **Detailed Description of Proposal:** The proposed High Priority improvements includes upgrades and replacement of the following equipment:

- UV Disinfection
- Grit Removal System
- Primary Screen
- Carbon Feed (Methanol Tanks) as tank failure may pose significant safety hazards
- Blower Building Roof
- Plant Water System
- Compost Building Improvements
- Odor Control Systems, including Full Site Odor Study
- Gravity Belt Thickener
- Belt Filter Press
- Aeration Tank Diffusers
- Digester Heat Exchanger
- Raw Sewage Lift Pumps
- Structural, Electrical, and SCADA Investigations
- Design and Construction Engineering Services

4. **Reliability of Cost Estimate:** Cost on a scale of 1-10, reliability is 8. The cost estimates provided by the consultant are based on comparable construction project schedule values and equipment costs quotes, escalated to 2024 dollars using the Construction Cost Index (CCI) values.

5. **Increased Efficiency:** Replacement of aged and high maintenance equipment that is near the end of its useful service life with updated, energy efficient equipment where possible, will improve the plants efficiency in the treatment of sewage and productivity.

6. **Additional Long Range Costs:** None.

7. **Additional Use or Demand on Existing Facilities:** None.

8. **Alternatives to this request**: None. The Do nothing alternative will result in continued problems and most likely significant environmental violations. Failure of this high priority equipment could likely lead to permit violation, safety risks, and/or damage to other equipment within the timeframe required to restore failed equipment.

9. **Safety and Loss Control:** Failure of these high priority equipment could likely lead to permit violation, safety risks, and/or damage to other equipment within the timeframe required to restore equipment.

10. **Environmental Considerations:** The treatment plant will operate more efficiently to better process wastewater effluent discharged into Long Island Sound. Failure of these high priority equipment could likely lead to permit violation. Permits to be determined during preliminary design.

11. **Insurance:** Contractor and Consultants will be required to carry the necessary insurance as directed by the Town of Fairfield Purchasing Department.

12. **Financing:** Funded by a 20 year bond as part of a 5 year capital plan, with 3 year appropriation and authorization. WPCA to pay debt service.

13. **Other Considerations:** None.

14. **Other Approvals:** WPCA Commission/BOS/BOF/RTM

TABLE 14-1: CONDITION ASSESSMENT SUMMARY

Priority	Equipment	COF	LOF	Comment	Estimated Cost
High	UV Disinfection	3	3		$1,100,000
	Grit Removal System	3	3	Structural Inspection Recommended	$420,000
	Primary Screen	3	2		$660,000
	Carbon Feed (Methanol Tanks)	3	2	Tank failure may pose significant safety hazards	$540,000
	Blower Building Roof	2	3		$290,000
	Plant Water System	2	3		$490,000
	Compost Building Improvements	2	3		$250,000
	Odor Control Systems	2	3	Full Site Odor Study	$100,000
	Gravity Belt Thickener	3	2		$850,000
	Belt Filter Press	3	2		$2,490,000
	Aeration Tank Diffusers[2]	1	3	Diffuser membrane age is a concern	$590,000
	Digester Heat Exchanger[2]	2	2		$140,000
	Raw Sewage Lift Pumps[2]	2	2		$450,000
	Further Investigations (Structural/Electrical/SCADA)	-	-		$2,000,000
				Subtotal	**$10,370,000**
Medium	Secondary Clarifiers	2	2	Structural Inspection Recommended	$970,000
	Gravity Thickener Tank	2	2	Structural Inspection Recommended	$270,000
	Secondary Screen	1	2		$100,000
	Further Investigations (Structural/Electrical/SCADA)	-	-		$860,000
				Subtotal	**$2,200,000**

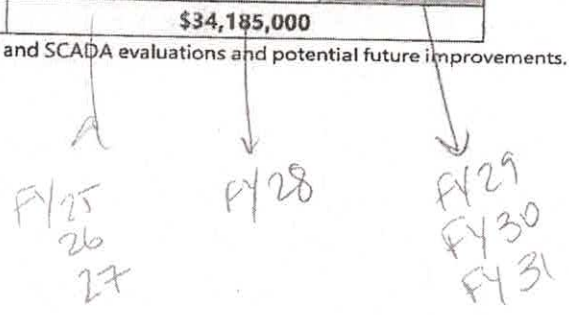
Low	Auxiliary Raw Sewage Pumps	1	2		$240,000
	Primary Clarifiers	1	1	Structural Inspection Recommended	$2,150,000
	Primary Sludge Pumps	1	1		$270,000
	Aeration Blowers	1	1		$720,000
	Secondary Scum Pumps	1	2		$210,000
	Belt Press Feed Pumps	1	2		$80,000
	Digesters	2	1	Recommend inspecting covers for gas leaks	$1,490,000
	Digester Recirculation Pumps	1	2		$30,000
	Digester Gas Compressors	1	2		$310,000
	TWAS pumps	1	2		$140,000
	Composting System	2	1	Further evaluation Recommended	$780,000
				Subtotal	**$6,420,000**

1. Cost estimates in this table include equipment replacement and appurtenances only.
2. Listed as 'Medium' priority, but these should be addressed as soon as possible as capital allows.

TABLE 14-2: PLANNING LEVEL COST ESTIMATE SUMMARY

Summary		High Priority	Medium Priority	Low Priority
Subtotal[1]		$10,370,000	$2,200,000	$6,420,000
Contractor Overhead, Insurance, Profit & General Conditions	25%	$2,600,000	$550,000	$1,605,000
Design and Construction Engineering Services	25%	$2,600,000	$550,000	$1,605,000
Contingency	30%	$3,100,000	$660,000	$1,925,000
Capital Sub-Total		**$18,670,000**	**$3,960,000**	**$11,555,000**
Combined Total		**$34,185,000**		

1. Includes a placeholder for Structural, Electrical and SCADA evaluations and potential future improvements.



TECHNICAL MEMO

WPCF Equipment Condition Assessment

DRAFT

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0235198.00
Town of Fairfield
October 2023

Woodard & Curran

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1. INTRODUCTION

1.1 Background

The Town of Fairfield is located on the coast of the Long Island Sound in Connecticut and is 60 miles south-west of the City of Hartford. The Town encompasses 31.38 square miles and has a population of approximately 63,000 according to the 2020 Census.

The Town's water pollution control facility (WPCF) was constructed in 1950 and expanded in 1968 and 1972. New processes were added or updated, including sludge dewatering equipment in 1980, a sludge composting facility in 1988, and biological process improvements for nitrogen removal in 1996. The last upgrade was completed in 2002, and included additional aeration tankage, new final settling tanks, UV disinfection, effluent pumping, and odor control biofilters. The WPCF discharges to the Long Island Sound.

The WPCF is rated for 10 MGD and is permitted for a maximum average monthly limit of 30 mg/L and a maximum daily limit of 50 mg/L for both BOD and TSS. Other effluent limits include fecal coliform and E-coli. Effluent nitrogen concentration is governed under the General Permit for Nitrogen Discharges regulated by the Connecticut Department of Energy and Environmental Protection's (DEEP) nitrogen credit trading program. Effluent phosphorus concentrations are reported but do not have permitted limits.

A wastewater Facilities Plan was developed for the WPCF in 2017 which recommended an estimated $63M in improvements (2017 dollars), but did not include a prioritized capital improvements plan, nor consider Fairfield's available operating budget.

1.2 Project Goals

This report is intended to serve the following purposes:

1. Assess the condition of major process equipment throughout the WPCF.
2. Assess the Likelihood of Failure (LOF) and Consequence of Failure (COF) for each equipment asset.
3. Develop a short- and long-term capital improvements plan (CIP) to assist staff with prioritizing equipment repair and replacement.
4. Estimate planning level costs for improvements.

1.3 Process Equipment Evaluation

The existing treatment processes at the WPCF consist of preliminary treatment (screening and grit removal), primary sedimentation, secondary treatment (consisting of a four-stage Bardenpho process and gravity sedimentation), and UV disinfection. Waste activated sludge is thickened, mixed with primary sludge, anaerobically digested and then dewatered. Dewatered sludge is composted onsite and provided to local industry at no cost. The Facility also has a septage receiving system that is currently out of service. Locations of all processes are shown in Figure 1-1.

An assessment of the physical condition of the existing WPCF equipment follows, and is based on a July 6, 2023, site visit by Woodard & Curran staff. The equipment summaries and prioritizations are organized into the following sections based on location or relation to the treatment processes. The CIP and costs are summarized in Section 14 at the end of this document and are categorized by priority. Some additional assessments are recommended beyond equipment replacement. The CIP costs noted herein only include equipment and appurtenance replacement. Further assessments and costs are discussed separately at the end of this document. No alternatives analyses were performed as part of this effort. In general, the upgrade recommendations used for the cost estimates align with those described in the 2017 Facilities Plan except in a few specific areas described below.

Prioritization for upgrade to each equipment item is based on a scoring matrix procedure, where the equipment is assigned a score for both likelihood of failure (LOF) and consequence of failure (COF). The scoring matrix (Table 1-1) is then used to assign a recommended priority for upgrade, as described below. For example, equipment assigned an LOF of 3 and COF of 2 would result in that equipment being classified High Priority. Rationale for the LOF and COF scoring is as follows:

Likelihood of Failure (LOF)

1. Failure unlikely. Equipment is new or nearly so and reliable.
2. Failure possible. Equipment aged but working well, may have minor reliability issues.
3. Failure likely. Equipment is near end of life and/or known to be unreliable.

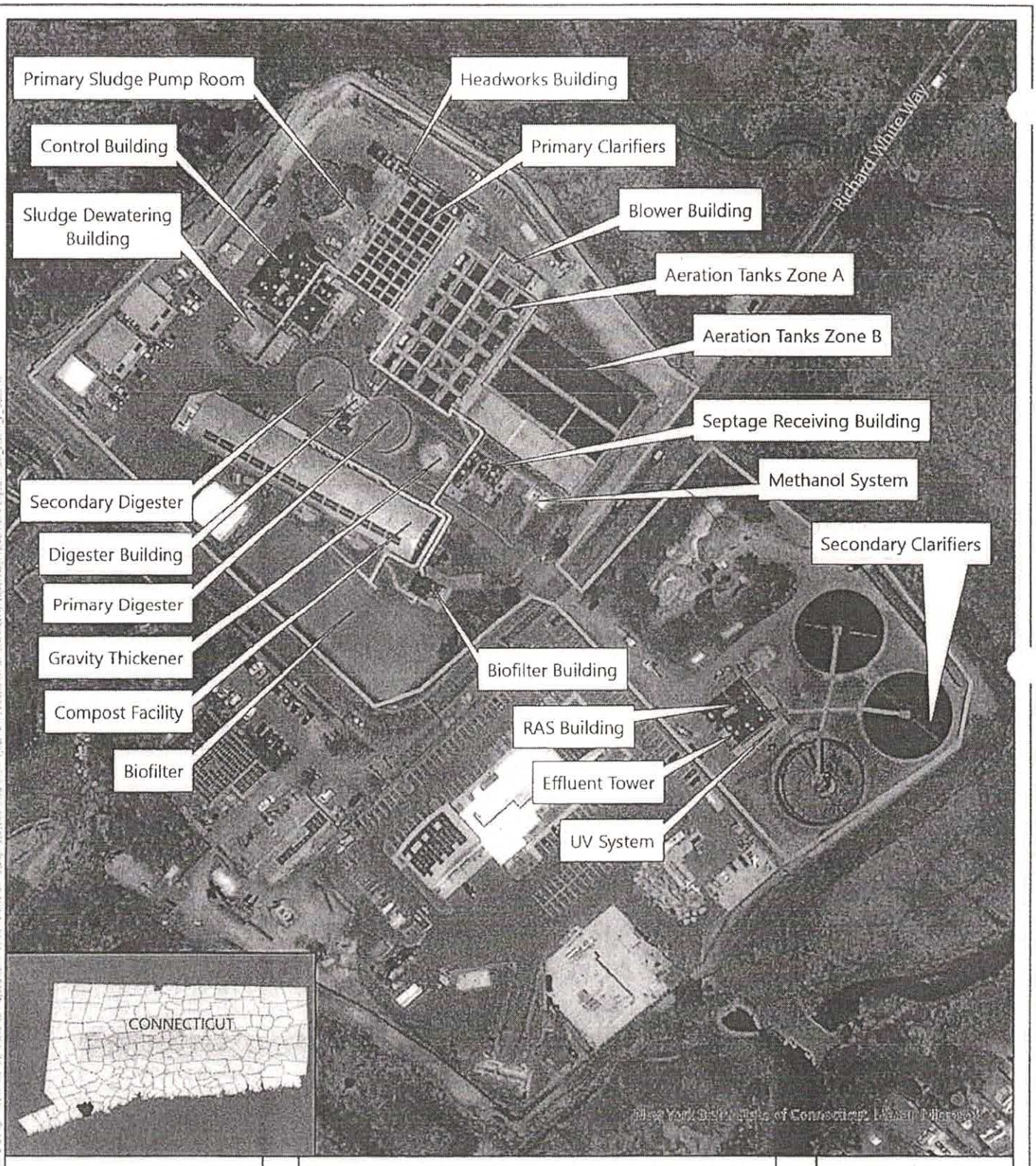
Consequence of Failure (COF)

1. Low consequence. Failure would not result in a safety issue or permit violation or impact other processes. Redundant units or simple workarounds exist and the plant can run indefinitely with one unit out of service. Failure poses a minor inconvenience only.
2. Medium consequence. Failure could result in a permit violation or damage to other critical equipment, but not within the timeframe it would take to restore the equipment or establish a workaround. Workaround may require a significant operator effort. Failure would not lead to a safety issue.
3. High consequence. Failure would likely lead to permit violation and/or damage to other equipment within timeframe required to restore equipment. No viable workaround exists, or workaround is costly (such as bypass pumping). Failure poses a safety risk.

Table 1-1: Scoring Matrix

COF \ LOF	1	2	3
1	Low priority for replacement *	Low priority for replacement *	Medium priority *
2	Low priority for replacement *	Medium priority *	High priority
3	Medium priority for replacement * Consider project to reduce COF (i.e. add redundant unit)	High priority	High priority

* Unless replacement can be combined with a higher priority project.



Fairfield WPCF

Figure 1-1: Site Map

330 Richard White Way
Fairfield, CT 06824

Legend
- Fairfield
- Town Boundary
- Site_Boundary

1 inch = 200 feet

0 50 100 200 300 Feet

N

Woodard & Curran

Project #: 0235198.00
Map Created: August 2023

Third Party GIS Disclaimer. This map is for reference and graphical purposes only and should not be relied upon by third parties for any legal decisions. Any reliance upon the map or data contained herein shall be at the users' sole risk. Data Sources: Inset: CT DEEP GIS Data

2. HEADWORKS

The Headworks building houses pretreatment equipment including the primary screening system, grit removal system, and secondary screening system as well as the auxiliary raw sewage pumps.

2.1 Primary Screen

The primary screen is a mechanically cleaned climber type bar screen installed in the basement of the Headworks Building. Cleanings are initiated by level differential upstream and downstream of the screen utilizing ultrasonic level sensors or by an adjustable operator-set timed interval. The Screen was installed in 2002 and rebuilt in 2013. Material larger than 5/8" of an inch is removed, discharged into a washer compactor on the ground floor, and carried on a conveyor into containers.

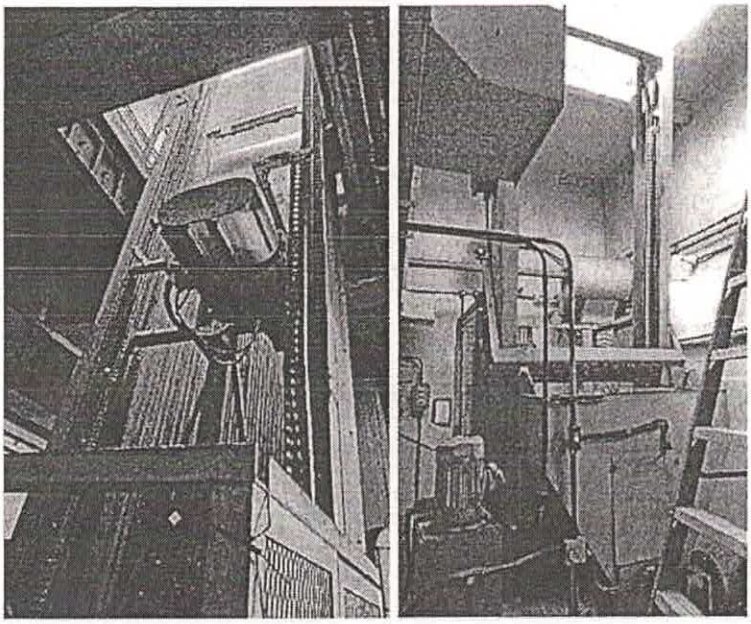
Table 2-1: Primary Screen Summary

Parameter	Design
Type	Mechanical Climber Screen
Make/Model	Infilco Degremont Inc. / Type II Screen
Channel Width	4'
Bar Spacing	5/8"
Manual Bypass Bar Spacing	1"
Design Approach Velocity	1.9 fps @ 10 MGD
Peak Approach Velocity	4.5 fps @ 24 MGD
Drive Motor	2 HP
Compactor Motor	5 HP
Compactor Make	Waterlink
Year Installed	2002 (rebuilt 2013)

The Primary Screen has reached the end of its intended design life but is in generally good working condition. The outdated mechanical climber type screen is limited in the rate of cleaning due to its single reciprocating rake design coupled with the height of the screen. There is a manually cleaned bypass screen, however, this is not utilized as it is very difficult to keep clean, resulting in rapid blinding which can cause backups into the collection system, and sudden surges of flow from a cleaned screen into the plant.

	Score	Rationale / Comments
COF	3	If the primary screen is out of service, the manual bypass screen must be used which results in increased manual labor and potential flow surges and/or backups into the collection system. Additional rags and debris will also pass through the manual screen and reach the grit tank and secondary screen.
LOF	2	Design life surpassed, in good working order.
Priority	High	The primary screen is classified as High Priority because there is no backup system with equivalent performance, such as a second mechanical screen. While the replacement system is recommended to include two mechanically cleaned screens TR-16 suggests either a backup manual screen or a second mechanical screen may be used. The cost estimate assumes one replacement mechanical screen.

Figure 2-1: Primary Screen and Compactor



2.2 Grit Removal System

After primary screening, the screened influent flows into the grit chamber in the Headworks basement, where dense material settles to the tank bottom. Settled material is removed by a chain and bucket collector to the ground floor, washed to remove organics, and discharged into containers for disposal. The grit washer utilizes plant water.

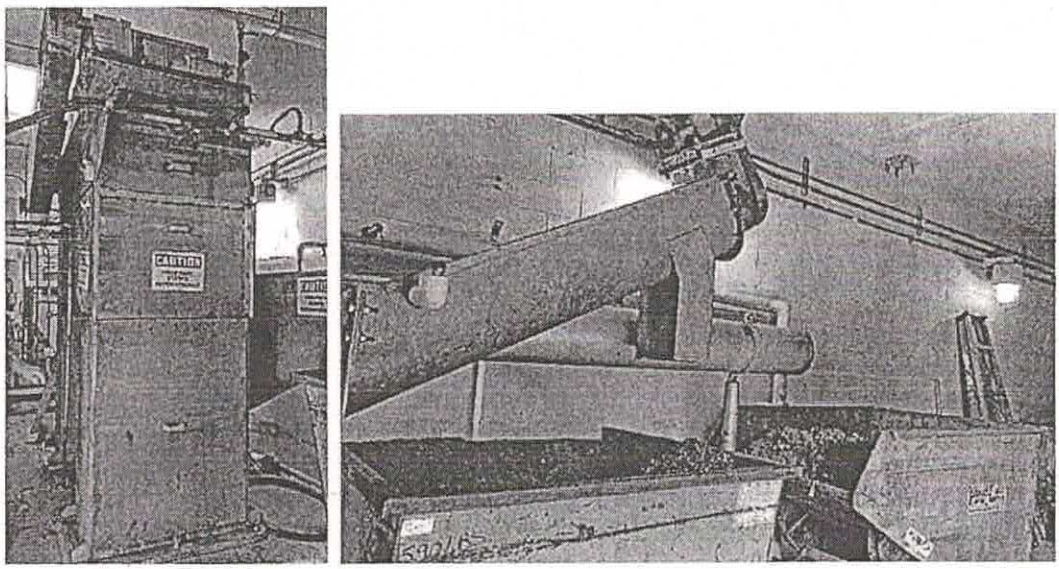
Table 2-2: Grit Removal Summary

Parameter	Design
Type	Gravity Grit Chamber
Installed	2002
Grit Channel	
Type	Horizontal flow
Length	40 ft
Top width	8 ft
Bottom width	3
Depth	4 – 6 ft
Detention time	100 sec at 10 MGD, 40 sec at 24 MGD
Grit Collector	
Type	Chain and Bucket
Make / Model	Amwell / VBE
Capacity	15 cf/hr
Motor	1.0 HP
Grit Conveyor	
Motor	1.5 HP

Staff report that the grit collector chain has broken in the past and presents a challenge to repair. The grit equipment has been rebuilt but replacement chains and buckets are expensive. The equipment is generally beyond its intended design life. The grit tank is completely covered by an aluminum cover system with a connection to odor control. While the visible concrete appeared to be in good condition, the condition of concrete below the covers is unknown. A structural inspection of the tank interior and cover system is recommended. Covered influent structures frequently contain hydrogen sulfide, which can cause significant concrete deterioration over time, weakening support of the covers, and presenting potential equipment damage and safety hazards for staff. The existing gas sensors in the headworks building are original to the 2002 upgrade and are beyond their original design life. However, they are calibrated regularly and appear to work well.

	Score	Rationale / Comments
COF	3	Failure of the grit system may result in grit being carried downstream. Grit settled in the primary clarifiers may result in wear and damage to the primary sludge grinder and pumps and possibly downstream sludge processing equipment. Additionally, grit may accumulate in tanks and would have to be manually removed.
LOF	3	Design life surpassed, repair challenges and history of failure.
Priority	High	The age of the grit system and the history and expense of repairs classify the grit system as High Priority for upgrade. Structural inspection of the tanks and evaluation of the gas sensors is also recommended to determine potential structural/safety concerns.

Figure 2-2: Grit Collector and Grit Washer



2.3 Secondary Screen and Conveyor

The secondary screen provides additional screening of influent following grit removal and is located in the basement of the Headworks building. A collector belt and conveyor carry screenings up to the ground floor where a washer compactor washes and discharges to a container. The secondary screen was originally installed to protect the downstream IFAS-type system, which is no longer used at the site.

Table 2-3: Secondary Screen and Conveyor Summary

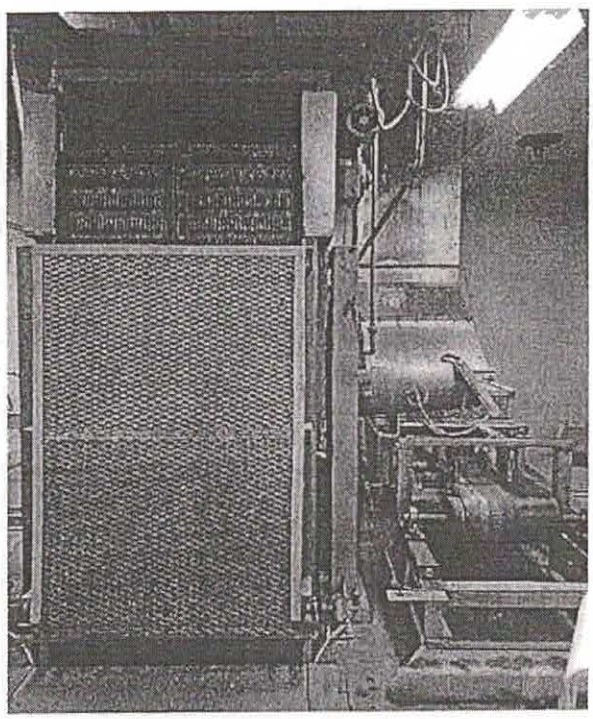
Parameter	Design
Installed	2002 (rebuilt in 2021)
Type	Belt and hook screen
Make/Model	Parkson
Width	3 ft 10.5 in
Bar Spacing	1/4" (6 mm)
Manual Bypass Bar Spacing	1"
Operating Points	1.9 fps at 10 MGD
Conveyor	
Type	Double Belt C-Curve
Motor	2 HP
Compactor	
Make	Parkson

Staff reported several issues with the secondary screen; it is continuously cleaned because of rapid blinding and the conveyor chain and belt require frequent maintenance. The conveyor has several moving parts including wheels and bearings that are potential points of failure. The screen was rebuilt in 2021.

The auger motor was rebuilt approximately 10 years ago. The backup manual bypass screen is not used because it is impractical to keep it clean.

	Score	Rationale / Comments
COF	1	Failure of the screen may result in overflow of the influent channel and flooding in the basement without rapid operator response to switch to the manual bypass bar rack. An increase in rags and debris may accumulate in downstream tanks and clog pumps, however the fine screening provided by this screen may be unnecessary since the IFAS-type system is no longer in service.
LOF	2	Design life surpassed, high rate of wear, repair challenges.
Priority	Low	The secondary screen is classified Low Priority. Although the screen has intensive maintenance requirements and no equivalent backup system, the screen appears to be redundant. The cost estimate for the secondary screen only includes demolition of the existing screen.

Figure 2-3: Secondary Screen and Conveyor



2.4 Auxiliary Raw Sewage Pumps

The Auxiliary Raw Sewage pumps are located in the basement of the Headworks building. When flow leaving the Headworks exceeds 20 MGD the Auxiliary Raw Sewage pumps pump the additional flow to the aeration tanks, bypassing primary treatment. The Auxiliary Raw Sewage pumps operate on high level in the raw sewage wet well in a lead/lag configuration. Flow may be diverted to either Zone A or B of the aeration tanks.

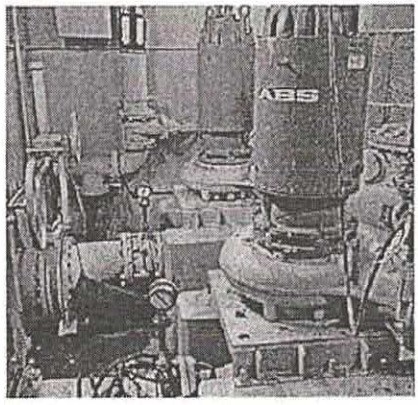
Table 2-4: Auxiliary Raw Sewage Pumps Summary

Parameter	Design
Quantity	2 (1 lead, 1 lag)
Type	Dry-pit Submersible Non-Clog Centrifugal
Make/Model	ABS Pumps
Motor	70 HP
RPM	1,180
Drive Type	VFD
Operating Point (each pump)	4,170 gpm @ 45 ft TDH
Suction Pipe Size	20"
Discharge Pipe Size	18"
Installed	2002

When in operation, flow is typically diverted to Aeration Zone B. Staff reported the Auxiliary Raw Sewage pumps are rarely used or exercised but are in generally good operating condition. The 2017 Facilities Plan indicated these pumps may be undersized in combination with the Raw Sewage Pumps for future flows. Therefore, replacement pumps should be sized to allow for one duty pump and one standby pump for redundancy, based on recent historical flow data and expected future flows. We recommend performing analysis of the historical influent flow data to confirm appropriate sizing of both sets of the raw sewage pumps, as approximately 6 years have elapsed since the 2017 Facilities Plan analysis was completed.

	Score	Rationale / Comments
COF	1	If both pumps were to fail during a high flow event flooding of the headworks and the collection system could occur. Given that there is a standby pump available, this is unlikely to occur.
LOF	2	Design life surpassed, generally good operating condition, but rarely exercised.
Priority	Low	The Auxiliary Raw Sewage Pumps may be classified as Low Priority due to generally good operating condition and the availability of a standby, however reprioritization may be warranted if the pumps are found to be undersized for future flow conditions.

Figure 2-4: Auxiliary Raw Sewage Pumps



3. CONTROL BUILDING

The control building houses the raw sewage lift pumps as well as offices, the lab, various electrical equipment, and maintenance areas.

3.1 Raw Sewage Lift Pumps

The Raw Sewage Lift pumps are located in a sub-basement dry well of the control building and utilize plant water to flush and lubricate the shaft seals. The pumps lift effluent from the Headworks up to the primary clarifiers.

Table 3-1: Raw Sewage Lift Pumps Summary

Parameter	Design
Quantity	3 (2 duty, 1 standby)
Type	Vertical Centrifugal Non-Clog
Make/Model	Ingersoll Dresser
Motor	100 HP at 1,185 RPM
Drive Type	VFD
Operating Point (each pump)	4,860 gpm at 55' TDH & 7 MGD
Suction Pipe Size	20"
Discharge Pipe Size	18"
Installed	2002, 2013, 2015

Pump 1 was recently replaced, while pump 2 was rebuilt in 2015, and pump 3 was replaced in 2013. Staff noted no concerns with the pumps, piping or valves. While the discharge plug and check valves were described as functional, some corrosion and leakage was noted during the July inspection. Future equipment replacement projects should include rehab or replacement of isolation and check valves.

	Score	Rationale / Comments
COF	2	In the event that one pump failed, the flow sent to the primary clarifiers would be limited to approximately 14 MGD, necessitating any additional flow bypassed to the aeration tanks via the auxiliary pumps which could lead to process upsets and/or permit compliance issues if loading is significant enough.
LOF	2	Design life surpassed, in good working order.
Priority	Medium	The raw sewage lift pumps are classified Medium Priority because of a lack of redundancy at peak flow conditions, however there were no significant maintenance or operational issues noted.

Figure 3-1.1: Raw Sewage Lift Pump

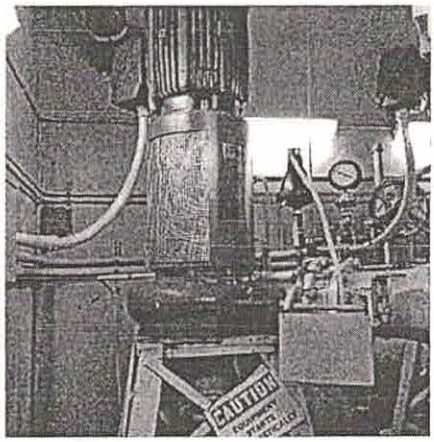
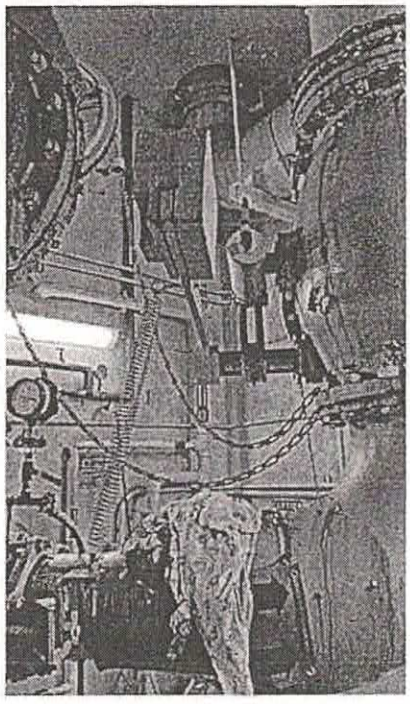


Figure 3-1.2: Raw Sewage Lift Pump Piping and Valve Corrosion



3.2 Generators/Electrical

The Facility has three emergency generators onsite with sufficient fuel storage for approximately five days, however, the septage receiving and composting buildings are not connected to the generators. This

renders the compost system, odor control fans, digester boilers, and digester feed pumps inoperable during a power outage. The Town is currently considering connecting the facility to a microgrid with solar, a single large generator, and incorporating the existing fuel cell system. The fuel cell serves the dual purpose of generating power and providing heat for the compost building during the winter months, however the heat generated is inadequate to heat the building. A review of the electrical distribution system including generators, switchgear, MCCs, and conduit/cables is recommended.

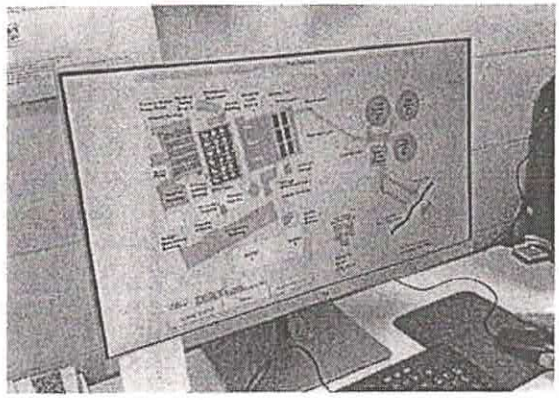
Table 3-2: Onsite Power Generation

Parameter	Design
Generators	
Quantity	3
Location / Size / Type	Admin Building / 750 kW / Natural Gas Influent Building / 500 kW / Diesel RAS Building / 1,300 kW / Natural Gas
Fuel Cell	
Quantity	1
Type	Natural Gas
Make	Doosan HyAxiom
Size	400 kW

3.3 SCADA

The supervisory control and data acquisition (SCADA) system hardware is over 20 years old. The control software may be outdated and is reportedly slow. Fiber optic cables are installed throughout the site which are generally more reliable than copper. At this time, remote pump station connectivity is not implemented. At present, spare parts are sourced at a regional supply house with access to parts for the aging system, but this is not a sound long-term solution. An assessment of the SCADA system is recommended for identifying reliability and security issues.

Figure 3-3: SCADA Terminal



3.4 HVAC

The HVAC systems in the Control, Headworks, and Sludge Dewatering Buildings are relatively new and reportedly work well with the exception that ventilation in the electrical room of the Control Building may be inadequate as the room is generally very warm. The condition of the electrical room should be evaluated as part of the recommended general site electrical assessment.

4. PRIMARY CLARIFIERS

4.1 Primary Clarifiers

Influent flow of up to 20 MGD is discharged from the raw sewage lift pumps into the five primary clarifiers for primary treatment. Influent is distributed by manually balancing plug valves. Sludge that settles is removed by a chain and flight system and pushed to the influent side of the tanks. Scum is collected at the downstream end and removed with manually rotated cylindrical scum troughs.

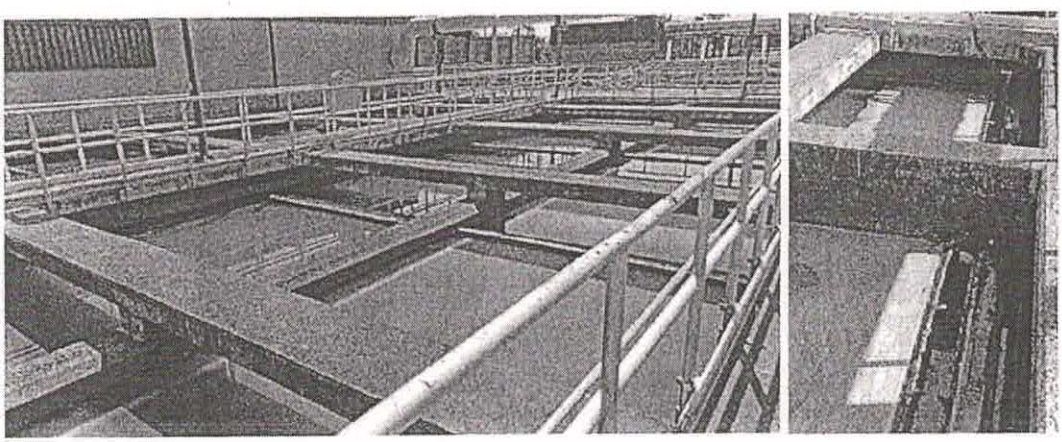
Table 4-1: Primary Clarifiers Summary

Parameter	Design
Type	Rectangular chain and flight
Number of tanks	4 in service & 1 standby
Tank Dimensions	85' long x 25' wide x10' depth
Tank Volume	143,000 gallons
Surface Overflow Rate	1,060 gpd/sq.ft. at 9 MGD 2,825 gpd/sq.ft. at 24 MGD

Staff reported no issues; however, the scum troughs may date back to 1995, are significantly deteriorated, and should be considered for replacement. The drives were replaced in 2012 and the chain and flight mechanisms were replaced in 2021. Settlement of concrete pads at the outlet end of the clarifiers was observed. The 2017 Facilities Plan noted possible differential settlement between the tanks constructed in 1950 and 1972. A structural evaluation of the construction joints, pads, and tanks is recommended.

	Score	Rationale / Comments
COF	1	If a primary clarifier failed, the remaining tanks have adequate capacity to accommodate the 20 MGD peak flow.
LOF	1	Majority of equipment replaced recently.
Priority	Low	The primary clarifiers are considered low priority for upgrade due to appropriate standby configuration and sizing and since they are in generally good condition.

Figure 4-1: Primary Clarifiers



4.2 Primary Sludge Pumps and Grinder

Sludge from the primary clarifiers is passed through a grinder and is then pumped to the primary digester or gravity through a 6-inch ductile-iron pipe. The pumps operate intermittently on a timer and draw sludge selectively from each clarifier through the use of motorized plug valves that operate in sequence so that one clarifier is pumped out at a time.

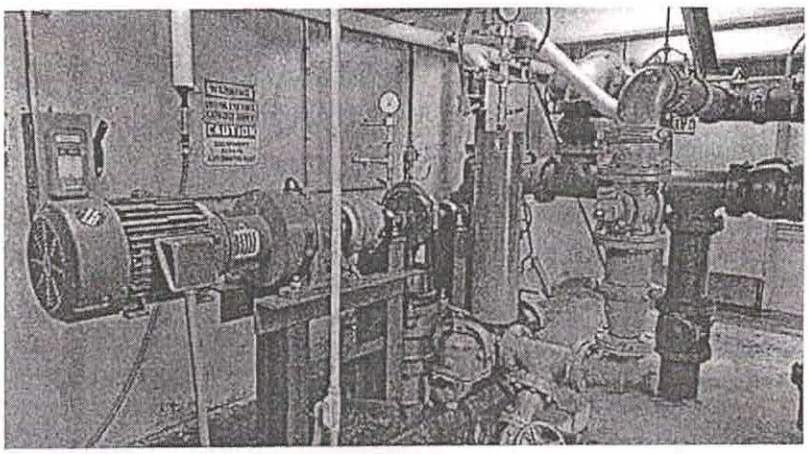
Table 4-2: Primary Sludge Pumps and Grinder Summary

Parameter	Design
Pumps	
Quantity	2 (1 duty, 1 standby)
Type	Duplex Plunger
Make/Model	Carter
Motor	15 HP
Design Point	245 gpm @ 120 ft TDH
Year Installed	2008
Grinder	
Quantity	1
Make/Model	JWC
Motor	5 HP
Capacity	600 gpm
Year Installed	2014

In general, the pumps and grinder work well, however, the grinder is 7 ft above the floor, which makes maintenance difficult. Pump 2 occasionally has issues with one piston. Sections of glass lined pipe have been installed to reduce clogging in the discharge pipe. The piping occasionally clogs from grease, and when solids reach a thickness of 4% or greater.

	Score	Rationale / Comments
COF	1	If the grinder fails, it may be bypassed, however clogging may increase. The pumps are configured in a duty/standby mode.
LOF	2	Nearing end of design life, minor reliability issues.
Priority	Low	The primary sludge pumps and grinder are classified Low Priority because of generally good condition and design redundancy.

Figure 4-2: Primary Sludge Pump



4.3 Waste Activated Sludge (WAS) Pumps

The waste activated sludge (WAS) pumps are located adjacent to the primary effluent channel in the waste sludge pump station wet well. The pumps send WAS to the gravity belt thickener.

Table 4-3: Waste Activated Sludge Pumps

Parameter	Pump Design
Number of Pumps	2 (1 duty, 1 standby)
Type	Submersible, Centrifugal
Drive Type	VFD
Motor	7.4 HP
Maximum Operating Point Minimum Operating Point	450 gpm @ 30 ft TDH 100 gpm @ 8 ft TDH
Year Installed	2002

Plant staff have indicated the need for frequent maintenance, however, no other issues were reported.

	Score	Rationale / Comments
COF	1	The pumps are configured in a duty/standby mode, therefore both pumps would have to fail to impact the ability to waste secondary sludge.
LOF	2	Design life surpassed, frequent maintenance required.
Priority	Low	The WAS pumps are classified Low Priority due to generally good operating condition and design redundancy.

5. AERATION TANKS

5.1 General

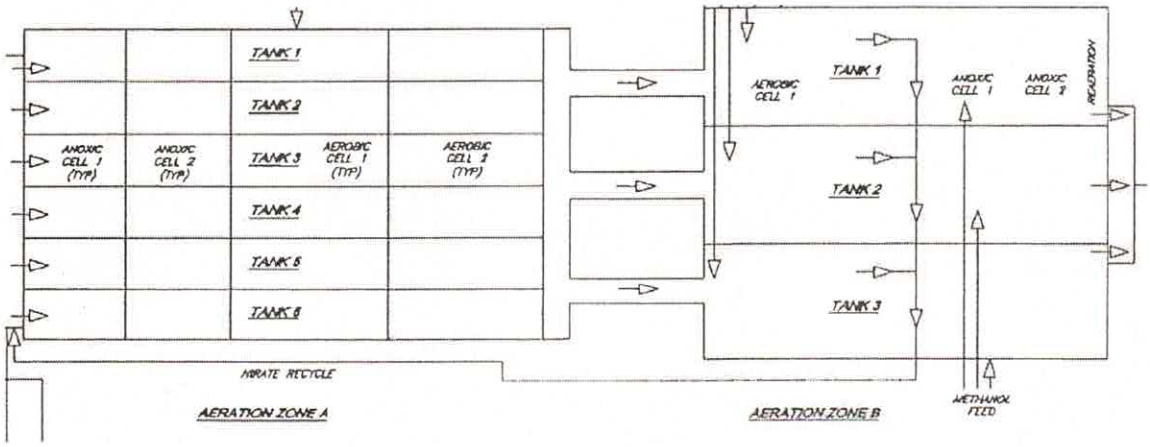
The aeration tanks consist of nine tanks divided into two zones: six tanks in zone A and three tanks in zone B (see diagram below). Zone A is adjacent to the primary clarifiers and receives the combined effluent from the primary effluent distribution channel. The combined effluent (or mixed liquor) is a mix of the effluent from the primary clarifiers, return activated sludge from the secondary settling tanks, and nitrate recycle from the zone B aeration tanks. Tanks in both zones are divided into cells based on the Four-Stage Bardenpho process. Each tank in zone A is divided into two anoxic cells and two aerobic cells, and each tank in zone B is divided into an aerobic cell, two anoxic cells, and a reaeration cell. After the reaeration cell, the mixed liquor flows to the secondary clarifiers. Based on the Four-stage Bardenpho process, nitrogen removal starts with microbial denitrification of nitrate into nitrogen gas in the anoxic cells, followed by microbial nitrification of ammonia into nitrite and nitrate in aerobic cells, then another anoxic stage, and a final reaeration stage.

Table 5-1: Aeration Tanks Summary

Parameter	Design	
	Zone A	Zone B
Quantity	6	3
Length	95 ft	160 ft
Width	27 ft	45 ft
Side Water Depth	14 ft	14 ft
Total Volume	269,000 gallons	750,000 gallons

Issues with flow meters, flow distribution, and scum formation were mentioned in the 2017 Facility Plan, however no issues were reported by staff.

Figure 5-1: Aeration Tanks Diagram



5.2 Anoxic Cells and Mixers

Mixed liquor spills from the primary effluent channel into the Zone A anoxic cells. Submersible mixers keep solids in suspension, with high rpm propellers for zone A and low rpm propellers for zone B.

Table 5-2: Anoxic Mixers

Parameter	Design
Zone A	
Type	High RPM Submersible Propeller Mixers
Motor Size	2.4 HP
Capacity	4,400 gpm
Zone B	
Type	Low RPM Submersible Propeller Mixers
Motor Size	2.7 HP
Capacity	11,100 gpm

Staff reported a concern with introducing dissolved oxygen (DO) into the anoxic zone from the hydraulic drop. Staff installed a system of chutes to minimize introduction of DO, which reportedly works well. The anoxic mixers have been replaced in the past six years and reportedly work well. Issues of trapped scum in zone A anoxic cells were mentioned in the 2017 Facility Plan, but no scum issues were observed during the site visit. No issues were reported for the anoxic cells and mixers of either zone.

	Score	Rationale / Comments
COF	2	In the event that a mixer fails, mixed liquor settling would occur, reducing treatment capacity, however one anoxic cell being unmixed is not expected to significantly impact overall process performance.
LOF	1	Relatively new equipment.
Priority	Low	The anoxic cell mixers are classified Low Priority due to generally good condition and recent replacements.

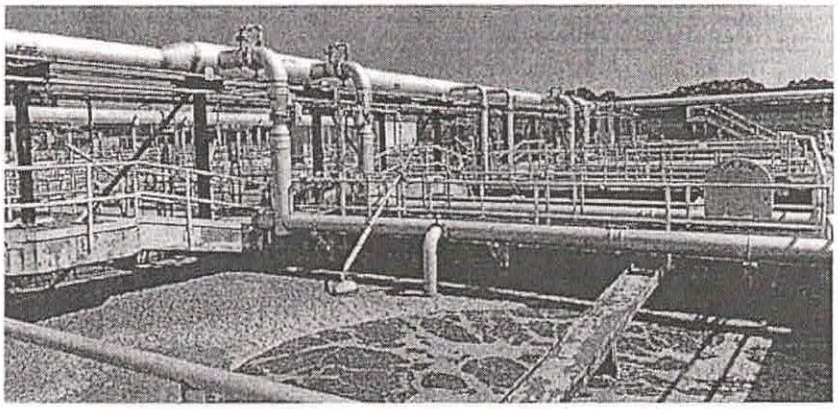
Figure 5-2: Aeration Tank – First Anoxic Cell in Zone A



5.3 Aerobic Cells

The aerobic cells in zones A and B provide nitrification and BOD removal in the presence of DO. The nitrate recycle pumps on the effluent end of zone B recycle nitrate rich mixed liquor to the primary effluent channel. Air is distributed by automated motor operated valves and air mass flows meters to a fine bubble diffuser system.

Figure 5-3: Aeration Tank - Aerobic Cell in Zone A



The diffusers are original from the 2002 upgrade and are past their intended service life. Membrane type diffusers can begin to fail after 10 to 15 years of operation; however no membrane diffuser failures were reported. Regular diffuser cleanings may extend the life of the material, but the rubber membrane typically degrades through continuous use and expansion.

	Score	Rationale / Comments
COF	1	The aging diffuser system could lead to reduced oxygen transfer efficiency, or pipe or membrane failures, all of which could reduce the plant's ability to meet permitted discharge limits for BOD and TSS. Additional trains are available should one be taken offline.
LOF	3	Design life of membrane diffusers has been surpassed; failure likely.
Priority	Medium	Since the diffusers are most likely at the end of their original service life, the aeration tank diffusers are classified Medium Priority for upgrade.

5.4 Nitrate Recycle Pumps

The nitrate recycle pumps move nitrate rich mixed liquor from the end of the aeration cells in zone B to the primary effluent channel. Each aeration cell has one submersible pump mounted on a guide rail system.

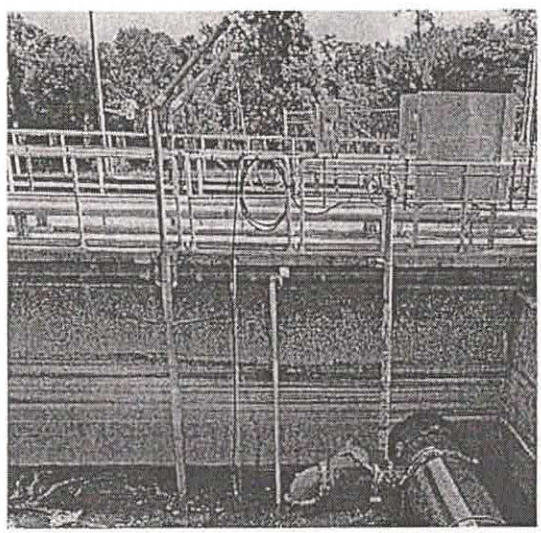
Table 5-4: Nitrate Recycle Pump Summary

Parameter	Design
Quantity	3
Type	Submersible Centrifugal Pumps
Location	Zone B – Aerobic Cell
Motor Size	2 @ 15 HP, 1 @ 14.1 HP
Capacity	2,750 gpm @ 14 ft TDH
Internal Recycle Rate	150% of ADF
Solids Passing Capacity	4 in.

Two pumps were recently replaced with new Flygt pumps. Staff reported no issues with maintenance or performance. Davit cranes are available for each pump.

	Score	Rationale / Comments
COF	1	If a pump were to fail the plant's ability to denitrify is expected to be reduced.
LOF	2	Mixed new and old equipment, generally work well.
Priority	Low	The Nitrate Recycle pumps are classified Low Priority, due to generally good operating condition and ability to continue maintenance.

Figure 5-4: Nitrate Recycle Pumps



5.5 Carbon Feed System

The Facility uses methanol to enhance nitrogen removal. Methanol is added into the first anoxic cell of each zone B aeration tank to provide additional carbon for denitrification. It is stored in two above-ground tanks and is fed to the process by peristaltic pumps. A nitrate analyzer is used to control the carbon dose.

Table 5-5: Carbon Feed System

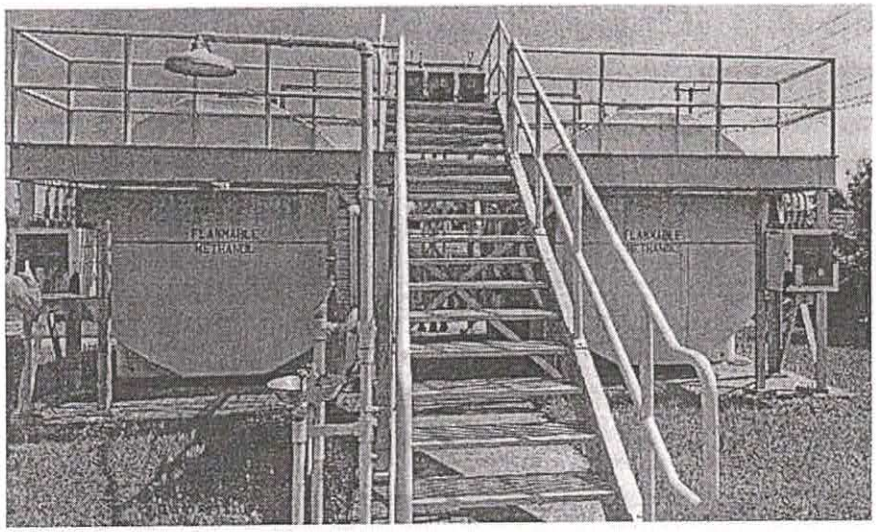
Parameter	Design
Tanks	
Type	Inner Tank: Steel Containment Tank: Concrete
Units	2
Carbon Source	Methanol
Tank Volume	3,250 gallons
Installed	2002
Carbon Feed Pumps	
Quantity	3
Type	Peristaltic
Feed Rate	180 gal/day
Make	Watson-Marlow
Installed	~2008 - 2011

Two issues were reported: the tank level sensors do not work and a leak through the exterior containment tank fills the space between the containment tank and the inner tank with rainwater, which may introduce

difficulty in identifying methanol leaks. Methanol is also a potential safety hazard as it is highly flammable and can cause eye damage and skin irritation.

	Score	Rationale / Comments
COF	3	The facility's ability to meet its effluent nitrogen goals may be impacted if the carbon feed system were to fail. Additionally, contact with methanol from a leaking tank poses a health and safety concern.
LOF	2	Tanks are past design life with known reliability issues.
Priority	High	The carbon feed system is classified High Priority due to tank failure being a potential safety hazard.

Figure 5-5: Methanol Tanks



6. BLOWER BUILDING

6.1 Aeration Blowers

The Aeration Blowers are located in the Blower Building and draw outside air for distribution to the fine bubble diffuser system in the aeration tanks. There is also a connection to a coarse bubble diffuser system in the primary effluent distribution channel and the channels between zone A and B, but this is not currently in use. The large and small turbo style blowers meet the plant's peak and minimum air flow requirements, respectively, while the multi-stage centrifugal blowers act as standby units. The two turbo blowers alternate operation daily to meet the diurnal DO demand. The multi-stage centrifugal blowers are rarely used.

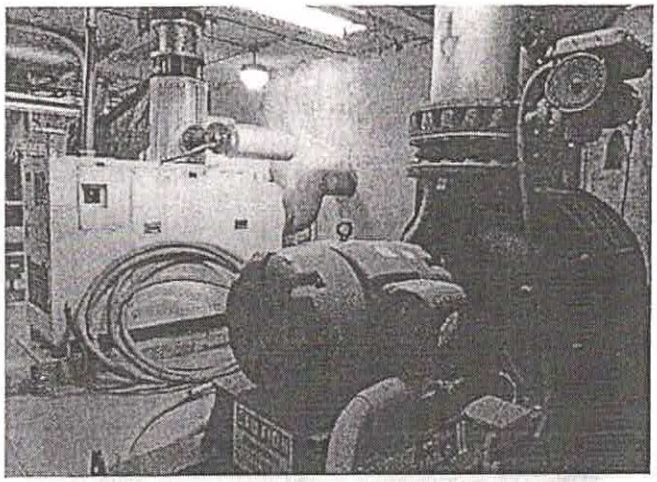
Table 6-1: Aeration Blowers Summary

Parameter	Blower Design	
Type	Turbo Blowers	Multi-stage Centrifugal
Make/Model	APG-Neuros / NX300 & NX150	Spencer Turbine Co./ Power Mizer
Units	2 duty	2 standby
Motor Size	300 and 150 HP	200 HP
Capacity	2,000 – 9,500 scfm combined	4,414 scfm
Installed	NX300 in 2011 & NX150 in 2013	1996

The blowers are in good condition and no issues were reported. Staff noted that an integrator had recently updated the blower control strategy and that the system generally works well at maintaining DO in the aerobic zones. The Town is considering replacing the multi-stage centrifugal blowers with turbo blowers similar to the existing blowers.

	Score	Rationale / Comments
COF	1	If the turbo blowers were to fail the multi-stage centrifugal blowers are available in standby for full redundancy. While unlikely, more than two blower units would have to fail before the plant's ability to aerate the biological process would be impacted.
LOF	1	Duty blowers relatively new and reliable.
Priority	Low	The blowers in general are in good condition and have appropriate redundancy and are therefore classified as Low Priority. The standby multi-stage blowers should be exercised and maintained regularly to ensure they are available when needed in an emergency. However, should the Town decide to install two additional turbo blowers they may want to consider doing so sooner before the existing turbo blowers become obsolete, which may require separate spare parts, control systems, etc.

Figure 6-1: Aeration Blowers



6.2 Structural / Architectural

Roof leaks were noted in the Blower Building, which has the potential to damage equipment in the building, primarily the blowers and the motor control center (MCC). Currently a tarp is used to protect the large turbo blower, however this should not be considered a long-term solution. Staff reported patches of the roof were performed, however a structural evaluation of the roof is recommended and roof repair or replacement should be considered.

Figure 6-2: Roof Leak

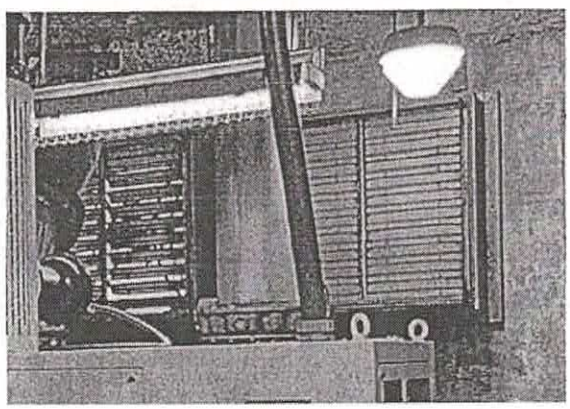


	Score	Rationale / Comments
COF	2	Damage to equipment including the blowers or MCC is possible.
LOF	3	Roof is past design life and currently leaking.
Priority	High	Repair or replacement of the roof is classified as High Priority to ensure adequate protection of and avoid costly repairs to equipment.

6.3 HVAC

The ventilation equipment in the blower building, including an intake louver and exhaust fans, are in poor condition. The motorized intake louver is corroded and stuck open and the exhaust fans are unreliable.

Figure 6-3: Exhaust Fans



7. SECONDARY CLARIFIERS

7.1 Secondary Clarifiers

The secondary clarifiers separate the biomass from the aeration tank effluent via gravity sedimentation. The RAS pumps remove the settled sludge from the bottom of the tank. Effluent flows over the weir plates and continues to UV disinfection. The clarifiers are located on the south end of the site adjacent to the Return Sludge Building. Each clarifier is equipped with energy dissipating inlets (EDI), mid-radius baffles, and Stamford baffles to improve settling and capacity.

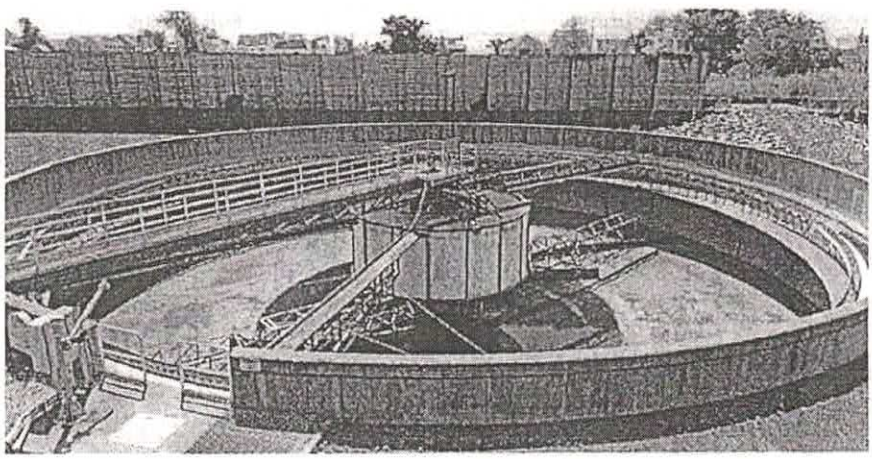
Table 7-1: Secondary Clarifier Summary

Parameter	Design
Make	WesTech-Inc.
Type	Spiral Blade
Units	3
Scum Troughs	Full Radius
Side Water Depth	14 ft
Diameter	105 ft
Surface Area	8,655 sqft each
Motor Size	0.75 HP
Year Installed	2002

The clarifiers are described as being in serviceable condition with no issues reported. The drive mechanisms for units 1 and 3 were replaced in 2018, and the drive on unit 2 was replaced in 2016. However, the algae brushes need to be replaced every six months or so and do not work well. The launder coating in clarifier 3 was poorly installed but no concrete damage was observed. Surface corrosion was observed on the offline clarifier 3 mechanism. The 2017 Facilities Plan indicated that several issues were identified by WesTech in 2013 including rusting on the lower gear housing, deteriorated dust seals, and grit under the seals. An annual maintenance program was recommended to monitor for corrosion and ensure the gears are clear of debris. New coatings may extend the life of the existing mechanisms along with ongoing maintenance. The existing EDI design has a known flaw which may induce swirling, reducing settling performance, however no capacity or performance issues were noted. Replacement mechanisms should utilize an opposing nozzle EDI design for better performance. Alternately, new EDIs could be installed as part of a clarifier maintenance project. A structural evaluation of the mechanisms is recommended to identify any more recent corrosion concerns.

	Score	Rationale / Comments
COF	2	Should one of the clarifiers fail, there may be a risk of solids overload at future peak flow conditions (27 MGD) according to the 2017 Facilities Plan, which may result in effluent TSS permit non-compliance. All three clarifiers are expected to be necessary to meet the future peak flow condition assuming the maximum MLSS concentration of 2,750 mg/L.
LOF	2	Design life surpassed, high maintenance requirements.
Priority	Medium	The Secondary Clarifiers are classified as Medium Priority for upgrade, due to the age of the equipment and maintenance program recommended by the manufacturer to ensure the gears do not become fouled. The life of the clarifiers may be extended with new coatings and appropriate maintenance.

Figure 7-1: Secondary Clarifier



7.2 Secondary Scum Pumps

Surface scum is collected by the secondary clarifier scum skimmers and drained by gravity into each clarifier's adjacent covered scum pit. The secondary scum pumps move scum to the primary clarifier scum tank, where the mixture is decanted and then pumped to the primary digester.

Table 7-2: Secondary Scum Pump Summary

Parameter	Design
Quantity	3
Type	Submersible solids handling pump
Make/Model	Wilo/Flygts
Year Installed	2002

Staff noted the pumps and piping in the pit are in poor condition, but that the pumps are easy to replace. There also appears to be a lack of mixing within the scum pits, however no issues with scum build up in the pit were noted.

	Score	Rationale / Comments
COF	1	No significant consequences of failure are noted as there are workarounds should a scum pump or piping fail, such as direct vactoring of scum out of the pit.
LOF	2	Design life surpassed, poor piping condition.
Priority	Low	The secondary scum pumps are classified Low Priority due to available workarounds and straightforward replacement procedures.

8. RAS BUILDING

8.1 Return Activated Sludge (RAS) Pumps

Activated sludge settled in the Secondary Clarifiers is removed by the RAS Pumps and returned to the process at the Primary Clarifier effluent channel where it is mixed with primary effluent upstream of the Aeration Tanks. The RAS Pumps are installed in the basement of the RAS Building and are also used for draining the Secondary Clarifier tanks. Each pump is equipped with a dedicated magnetic flow meter and utilizes seal water for the shaft seals.

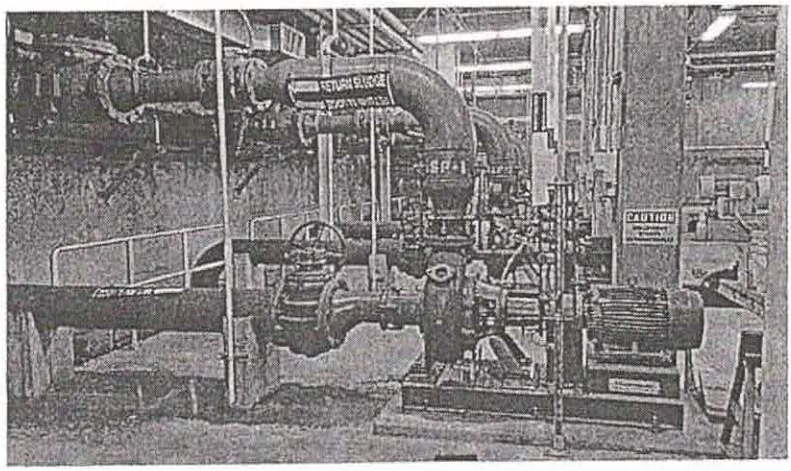
Table 8-1: RAS Pumps Summary

Parameter	Design
Type	Non-clog horizontal dry-pit centrifugal
Units	4 (3 duty, 1 stand-by)
Make/Model	Ingersoll-Dresser Pump Co. / 8MF13-FR5T
Design Point	2,311 gpm @ 32 ft TDH
Pump RPM	1,177
Motor RPM	1,175
Motor Size	30 HP
Drive	VFD
Power	460 V / 3 phase / 60 Hz
Year Installed	2002

While at the end of their intended service life, the RAS Pumps are in serviceable condition. The operators have noted no issues with the equipment, however, several equipment rebuilds have occurred.

	Score	Rationale / Comments
COF	1	Should one of the three duty RAS pumps fail a fourth standby pump is available, however if two pumps are offline only two clarifiers would be available, or three with limited RAS capacity.
LOF	2	Design life surpassed, serviceable condition.
Priority	Low	The RAS pumps are considered Low Priority for upgrade due to the relatively good condition of the equipment, appropriate standby configuration, and ability for operators to continue maintenance.

Figure 8-1: RAS Pumps



8.2 UV Disinfection

Secondary Clarifier effluent is disinfected using ultraviolet (UV) light. Two UV disinfection system banks are located in a single concrete channel adjacent to the RAS Building. Each bank is rated to provide disinfection at peak flows with the second out of service. A Parshall flume is located downstream of the UV system to measure effluent flow and maintain submergence for the UV system.

Table 8-2: UV Disinfection System Summary

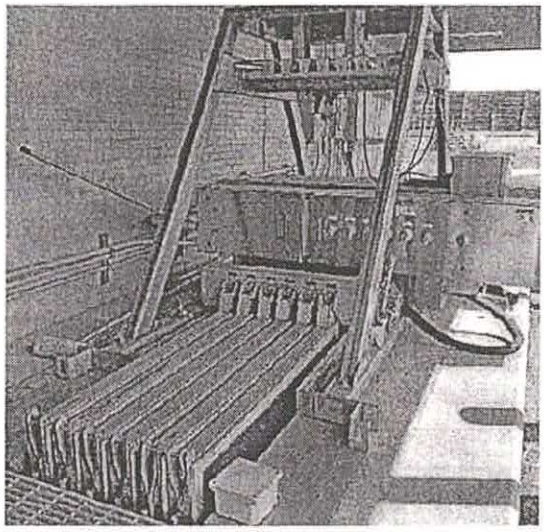
Parameter	Design
Type	Medium pressure, high intensity, horizontal
Make/Model	Trojan / UV-4000
Units	Two banks mounted in a single channel
Configuration	2 Banks, 6 modules each, 12 lamps each, (144 lamps total)
Design Peak Flow	28 MGD
Peak Plant Flow	24 MGD
Average Annual Flow	8.6 MGD
Minimum Flow	4 MGD
Retention Time	0.175 Seconds
Disinfection Dose	≥24 mW-s/cm^2
UV Intensity	≥6.1 mW/cm^2
Cleaning	Automatic wipers
Year Installed	2002

Staff have noted that both UV system banks share a common cooling system which cannot be repaired or otherwise maintained without shutting down the entire UV system. Shutting down the system is not feasible since the NPDES permit requires continuous disinfection year-round. As noted in the 2017 Facilities Plan this installation does not provide true redundancy as recommended by TR-16 – *Guides for*

the Design of Wastewater Treatment Works. The cooling system, controls, power, and any other shared components are a single point of failure for the entire disinfection system. Additionally, staff have noted that when operating in automatic mode, the system sometimes shuts down and must be operated manually. Additionally, the 2017 facilities plan notes that the UV system is inefficient and operates at a higher dosage rate than needed.

	Score	Rationale / Comments
COF	3	Should the UV system fail permit non-compliance is expected until the unit is repaired or replaced.
LOF	3	Design life has been surpassed, and the common cooling system is a likely point of failure for both UV units.
Priority	High	Due to the age of the UV system, the need for maintenance of the cooling system, and likely impact on permit compliance the UV system is considered a High Priority item for replacement.

Figure 8-2: UV Disinfection System



8.3 Outfall Pumps

Following UV disinfection, plant effluent typically flows through the effluent wet well, then through a 36-inch flap gate, by gravity to Long Island Sound through a 4,300 foot long, 48-inch pipe. When the tide is high, or other high head conditions in the Sound occur, the flap gate closes, and the Outfall Pumps maintain level in the effluent wet well and pump disinfected effluent to the effluent tower on the downstream side of the flap gate. The pumps maintain head in the effluent tower sufficient to allow gravity flow to Long Island Sound under elevated sea levels. The Outfall Pumps are installed in the basement of the RAS Building adjacent to the effluent wet well and UV channel, and typically operate each day at high tide conditions. The pumps operate in a lead/lag configuration based on level in the effluent wet well using a bubbler system with a backup pressure transducer. An ultrasonic transducer monitors the level in the effluent tower.

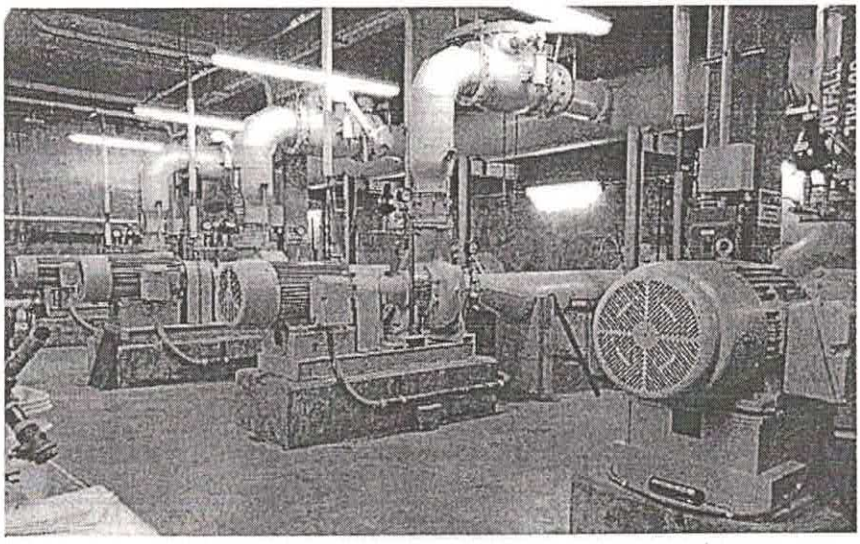
Table 8-3: Outfall Pumps Summary

Parameter	Design
Type	Non-clog horizontal dry pit centrifugal pumps
Units	2 Small, 2 Large
Make/Model	Ingersoll-Dresser Pump Co.
Drive	VFD
Power	460 V / 3 phase / 60 Hz
Year Installed	2002
Small Pumps	
RPM	1185
Motor Size	125 HP
Capacity	5,550 gpm @ 44 ft TDH
Large Pumps	
RPM	1190
Motor Size	150 HP
Capacity	8,330 gpm @ 44 ft TDH

The small pumps (Pumps 1 & 2) were recently replaced. However, the large pumps (Pumps 3 & 4) are at the end of their intended service life but remain in serviceable condition. The operators have noted no issues with the equipment however several equipment rebuilds have occurred. According to the 2017 Facilities Plan, the pumps appear to be adequately sized for the existing range of flows (minimum and maximum with one large pump out of service) and total dynamic head conditions, however the projected future flows appear to require higher capacity pumps.

	Score	Rationale / Comments
COF	1	Should one of the two large pumps fail, the remaining three pumps are indicated to have adequate capacity for the existing peak flows. Should flows to the plant increase beyond the existing peak flow design, however, the ability of the Outfall pump station to maintain adequate discharge may be compromised.
LOF	2	The design life is surpassed for the larger pumps, serviceable condition.
Priority	Low	The Outfall pumps are considered Low Priority for upgrade due to the relatively good condition of the equipment, appropriate standby configuration, and ability for operators to continue maintenance. However, if plant flows increase beyond the peak flow capacity of the Outfall Pump configuration, greater prioritization may be warranted.

Figure 8-3: Outfall Pumps



8.4 Plant Water System

The Plant Water System is located in the basement of the RAS Building and draws disinfected effluent from the effluent wet well and distributes plant water throughout the site for reuse as seal water, wash down water, and surface spray, and to hydrants, hose bibs, and various other equipment. The Plant Water System consists of a manually cleaned basket strainer to protect the pumps and downstream equipment, three pumps, and an expansion tank to maintain system pressure at low demand, reduce pump cycling, and reduce risk of water hammer. A clamp-on type flow meter was installed on the suction pipe to totalize usage and monitor flow. The plant water control system is designed to maintain a setpoint system pressure while operating the pumps in a lead/lag sequence.

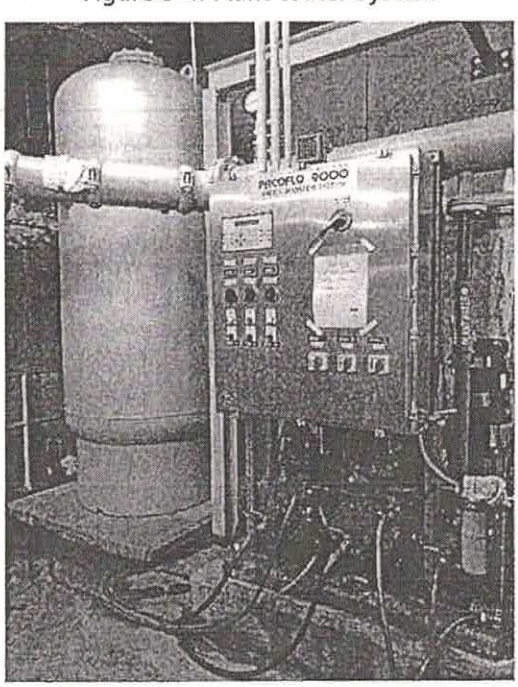
Table 8-4: Plant Water System Summary

Parameter	Design
Pump Type	Vertical Multistage Centrifugal
Quantity	1 Jockey Pump, 2 Large Pumps
Make/Model	Skid: PACOFLO 9000 Jockey Pump: Grundfos Large Pumps: Paco
Motor Size	Jockey Pump: 7.5 HP Large Pumps: 20 HP
Power	460 V / 3 phase / 60 Hz
Operating Points	Jockey Pump: 40-90 gpm @ 66 to 85 psi TDH Large Pumps: 180-287 gpm @ 66 to 85 psi TDH 600 gpm total
Strainer	Manual Dual basket
Expansion Tank Volume	790 gallons
Flow Meter	Flexim clamp-on Ultrasonic
Year Installed	2002

Staff have noted several concerns with the Plant Water pumps. Among the issues reported, the pumps require frequent pump impeller stack replacement, which is an expensive undertaking, the expansion tank does not function as intended, the strainer is undersized and has too fine of openings therefore clogging frequently, and that the control system is problematic. The system is typically operated in manual mode to maintain constant flow because the automatic control does not provide the needed flow and/or pressure. The lack of VFDs severely limits the ability of the pumps to match the flow demand at any given time. The jockey pump configuration introduces uneven pump wear due to the tendency of the jockey pump to operate more frequently than the two larger pumps. Typical plant water skid systems are designed to maintain system pressure by varying pump speed according to the difference in the pressure versus the setpoint and bring additional pumps online as needed to match demand. Providing equally sized pumps also simplifies control sequencing and allows for even wear by rotating through a lead/lag/standby sequence based on hours automatically, as well as reducing the quantity of spare parts. Overall, the system is in poor condition and design improvements could be made, but the system is maintainable for the time being. A potable water connection was not observed, which could act as a backup if needed.

	Score	Rationale / Comments
COF	2	Should one of the large pumps fail, the two remaining pumps (large and jockey) appear capable of meeting typical demands. However, complete failure of the plant water system would render the Influent, RAS and Outfall pump systems inoperable due to lack of seal water. High priority plant water demands such as seal water may be preferentially prioritized over non-critical uses such as surface spraying if needed for short periods.
LOF	3	Design life surpassed, frequent and expensive maintenance.
Priority	High	Due to the poor condition, potential/opportunity for design improvement, and the potential for failure of the plant water system to affect the RAS and Outfall pump systems, the Plant Water System is considered High Priority for upgrade. If potable water is available as a backup, plant water may be considered lower priority.

Figure 8-4: Plant Water System



9. SLUDGE DEWATERING BUILDING

9.1 Gravity Belt Thickener

Waste Activated Sludge (WAS) is pumped directly to the Gravity Belt Thickener (GBT) by the submersible WAS Pumps. The GBT was installed in 2002 on the second floor of the Sludge Dewatering Building. Liquid emulsion polymer is injected into the feed sludge line to aid in coagulation and thickening. The original dry polymer system was abandoned and replaced with the current emulsion system approximately 7 years ago. Filtrate drains by gravity back to the influent wet well. Thickened Waste Activated Sludge (TWAS) is funneled into the TWAS Pump at the outlet end of the GBT and is either pumped directly to the Primary Digester or mixed with Primary Sludge in the Gravity Thickener tank.

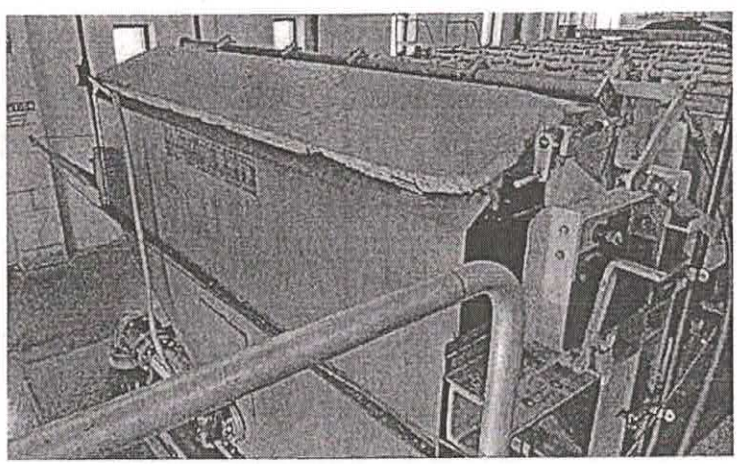
Table 9-1: Gravity Belt Thickener Summary

Parameter	Design
Year Installed	2002
Thickener	
Make/Model	Ashbrook Corporation
Quantity	1
Belt Motor Size	7.5 HP
Hydraulic Loading	220 gpm
Solids Loading	700 lb DS/hr
Feed Solids	0.5 – 1.0%
Thickened Sludge Solids	4.0 – 5.0%
Typical Hours of Operation	8 Hours/day, 7 days/week
TWAS Pump	
Type	Progressive Cavity
Make/Model	Netzsch
Quantity	1
Capacity	20-125 gpm @ 14 ft TDH
Motor Size	10 HP
Plant Water Booster Pump	
Type	End Suction Centrifugal
Quantity	1
Capacity	40 gpm @ 117 ft TDH
Motor Size	5 HP
Polymer Feed and Make Down System	
Type	Liquid Emulsion
Make/Model	Burt Process/Polymer Plus
Mixing	In-Line Static Mixer
Neat Polymer Feed Pump	Peristaltic
Neat Polymer Storage	275 Gal Totes
Polymer	Praestol K 136 L

Staff reported that the GBT generally functions well and operates approximately 8 hours a day, 7 days a week. TR-16 recommends providing multiple units for redundancy unless another similar equipment is available such as a gravity thickener (GT) tank. In this case the GT tank is available but is currently used to store TWAS and meter it into the Primary Digester.

	Score	Rationale / Comments
COF	3	Should the GBT fail staff would have to utilize the GT tank until the GBT is repaired, which may impact overall thickening performance, and likely digester capacity.
LOF	2	Design life surpassed, serviceable condition.
Priority	High	The GBT is rated High Priority for upgrade due to the age of the system, high weekly operational hours, and lack of redundancy.

Figure 9-1: Gravity Belt Thickener



9.2 Gravity Thickener Tank

TWAS is typically pumped to the Gravity Thickener (GT) tank for storage and to allow metering into the Primary Digester. The GT is a circular concrete tank that utilizes gravity sedimentation to thicken sludge and is equipped with a mechanism with picket arms to direct sludge to the outlet pipe at the bottom of the tank. Supernatent overflows the weirs and drains by gravity back to the influent wet well. The GT tank is enclosed with an FRP cover system to contain odors, which is also connected to the plant odor control system.

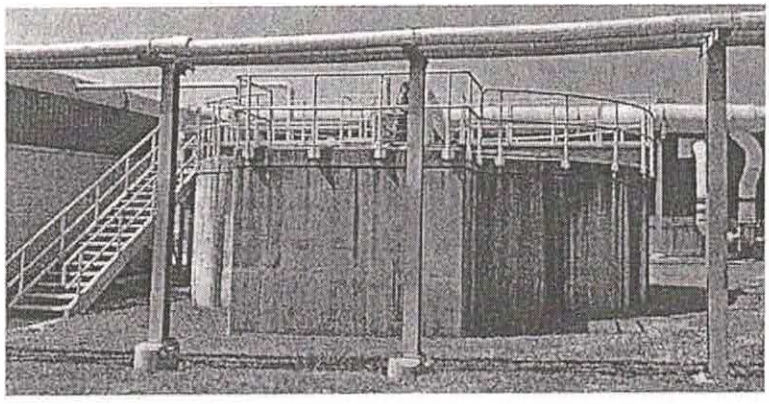
Table 9-2: Gravity Thickener Summary

Parameter	Design
Make/Model	WesTech
Motor Size	0.5 HP
Power	230 V / 3 phase / 60 Hz
Side Water Depth	12 ft
Diameter	30 ft
Tank Volume	63,000 gallons
Year Installed	2002

Staff reported few issues with the GT mechanism, with the exception of a cold weather event in 2017 when the mechanism tripped due to high torque. Regular maintenance including oil changes and greasing have kept the mechanism in good operating condition, but the condition of the mechanism and concrete below the cover is unknown. Covered wastewater structures often accumulate hydrogen sulfide which has the potential to cause corrosion and structural damage when not appropriately vented.

	Score	Rationale / Comments
COF	2	Should the GT mechanism fail the plant would lose the ability to store TWAS prior to digestion and meter TWAS into the digesters. Although this may impact digester performance, the consequences are relatively low.
LOF	2	Design life surpassed, serviceable condition.
Priority	Medium	W&C recommends structural inspection of the concrete tank interior and mechanism to determine if any repairs are warranted given the unknown conditions below the cover. If significant damage is discovered the Town should consider prioritizing repair. The GT is classified as Medium Priority for improvement.

Figure 9-2: Gravity Thickener Tank



9.3 Belt Filter Press

Digested sludge is pumped by the Belt Press Feed Pumps to the Belt Filter Press (BFP) for dewatering. Liquid emulsion polymer is injected into the digested sludge feed line upstream of the BFP to improve

dewaterability. A weighted mixing valve in the feed line provides turbulence for imparting mixing energy for coagulation. Filtrate drains by gravity back to the influent wet well. The BFP is equipped with a vapor misting type odor control system to reduce odors emanating from the press. A shaftless screw conveyor transports dewatered sludge to a container on the floor below. When full the container is trucked to the Compost Facility.

Table 9-3: Belt Filter Press Summary

Parameter	Design
Year Installed	2002
Press	
Make/Model	Ashbrook Corporation
Quantity	1
Belt Motor Size	5 HP
Hydraulic Loading	220 gpm
Solids Loading	1,815 lb DS/hr
Feed Solids	2.5 – 5.0%
Dewatered Sludge Solids	15 - 19%
Typical Hours of Operation	8 Hours/day, 6 days/week
Conveyor	
Type	Shaftless Spiral
Length	15 ft
Width	350 mm
Solids Loading Rate	2,000 lb DS/hr
Design Material % Solids	15 – 30%
Motor Size	5 HP
Odor Control System	
Type	Vapor Odor Neutralizer
Make/Model	Bio Triad Environmental / VaporDOX-Elite
Plant Water Booster Pumps	
Type	Horizontal End Suction Centrifugal
Quantity	2
Capacity	40 gpm @ 85 psi TDH
Motor Size	5 HP
Polymer Feed and Make Down System	
Type	Liquid Emulsion
Make/Model	Burt Process/Polymer Plus
Mixing	In-Line Static Mixer
Neat Polymer Feed Pump	Peristaltic
Neat Polymer Storage	275 Gal Totes
Polymer	Praestol K 148L

The BFP is original to the 2002 upgrade and is beyond its intended design life. Staff have noted that the conveyor liner wears out quickly and is frequently replaced, but the BFP and associated odor control system work well. According to the 2017 Facilities Plan, the BFP has experienced issues with clogging due to struvite precipitation. TR-16 recommends standby equipment for sludge feed, belt wash, and chemical feed where one BFP unit is used. While there are two sludge feed and wash water booster pumps available (1 duty/1 standby), only one emulsion polymer system appears to be dedicated to the BFP. A third polymer feed system could be installed to act as a standby for either the GBT or BFP. The 2017 Facilities Plan recommended replacing the BFP with two screw presses, however the proposed layout may make maintenance and access to the presses difficult. The Town may wish to evaluate centrifuges which typically have a more compact footprint for the same sludge throughput.

	Score	Rationale / Comments
COF	3	Should the BFP fail, such as a belt break, the plant would not have the ability to dewater sludge until the unit was repaired. Additionally, failure of the BFP polymer system would similarly impact dewatering operations. Given that the BFP typically operates 6 days a week, this may necessitate trucking of thickened sludge offsite, significantly increasing disposal costs. A disruption in sludge dewatering would also disrupt the composting process.
LOF	2	Design life surpassed, serviceable condition.
Priority	High	The BFP is rated High Priority for upgrade due to the age of the system, high weekly operational hours, lack of redundancy, and potential impact to disposal costs and composting.

Figure 9-3.1: Belt Filter Press

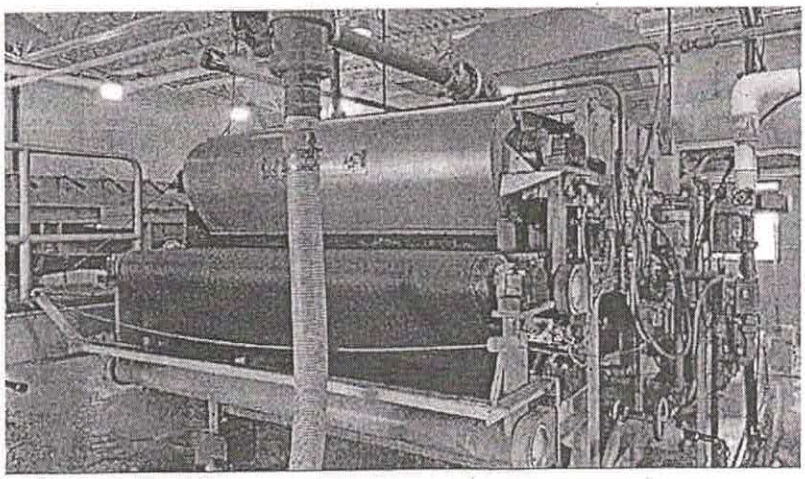
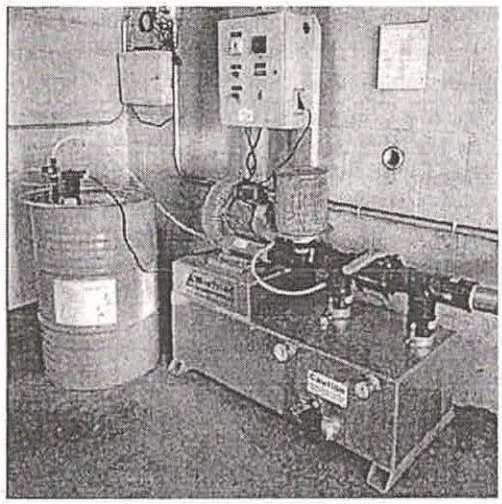


Figure 9-3.2: Belt Filter Press Odor Control System



9.4 Belt Press Feed Pumps

The Belt Press Feed Pumps typically draw digested sludge from the Secondary Digester and pump it to the BFP. The Polymer injection ring and mixing valve are located on the discharge side piping of the Belt Press Feed Pumps, and the pumps provide the energy needed for mixing and polymer activation. The pumps may be bypassed by the existing bypass line to allow use of alternate pumps in the Digester Building for feed.

Table 9-4: Belt Press Feed Pumps Summary

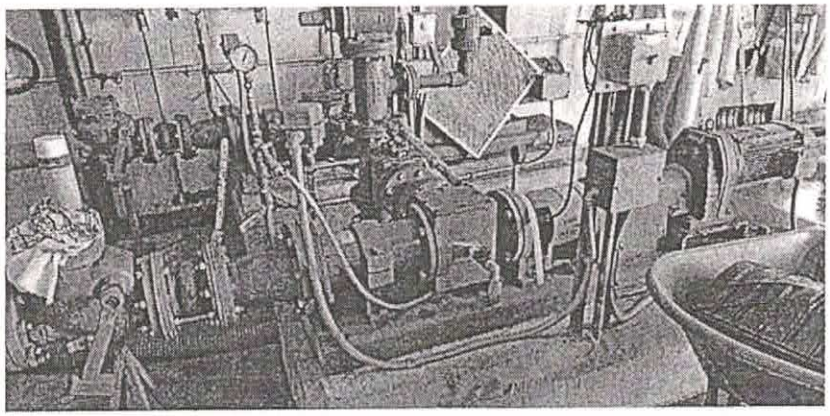
Parameter	Design
Type	Progressive Cavity
Units	(1 duty, 1 stand-by)
Make/Model	Tarby
Motor RPM	1,740
Motor Size	10 HP
Power	460 V / 3 phase / 60 Hz
Year Installed	2002

Staff noted that in general the Belt Press Feed Pumps work well and that the stator of one pump was replaced in March of 2023, indicating that spare parts are readily available. While at the end of their intended service life, in general, the Belt Press Feed Pumps are in serviceable condition.

	Score	Rationale / Comments
COF	1	Should one of the two pumps fail a standby pump is available, in addition to a bypass line.
LOF	2	Design life surpassed, serviceable condition.
Priority	Low	The Belt Press Feed Pumps are considered Low Priority for upgrade due to the relatively good condition of the equipment, appropriate standby configuration,

		and availability of spare parts.

Figure 9-4: Belt Press Feed Pumps



10. DIGESTER BUILDING

10.1 Digesters

Thickened waste active sludge (TWAS) and primary sludge are pumped to the Primary Digester for stabilization. The digested sludge is mixed by a confined gas mixing system with a residence time of 20 days in the digester. Digested sludge flows by gravity from the Primary Digester overflow line to the Secondary Digester for storage prior to dewatering. The head space of both digesters are linked together for gas storage.

Table 10-1: Digesters Summary

Parameter	Design
Primary Digester	
Type	Two-Stage High-Rate Digestion
Units	1
Make/Model	Envirodyne
Diameter	60 ft
Side Water Depth	28 ft Max
Cover	Fixed, uninsulated
Mixing	Draft Tube Eductors
Tank Volume	600,000 gal./ 1,760 gal. Per inch of depth
Residence Time	20 Days
Temperature	90 to 95 deg F (mesophilic)
Year Installed	2003
Secondary Digester	
Units	1
Diameter	60 ft
Side Water Depth	26 ft Max
Cover	Floating Cover, uninsulated
Mixing	None
Tank Volume	550,000 gal./ 1,760 gal. Per inch of depth

Primary Digester- The primary digester failed in early 2022. Staff suspect the failure was likely due to a clogged outlet pipe, which displaced the fixed cover. The unit was then taken offline and cleaned as part of the rebuilding improvements. There have been historical foaming issues and some corrosion in the digester valves. The pressure relief valve was recently replaced, and the original flame arrestor was replaced with two smaller units. The digester was restarted and acclimated beginning in July of 2023 and is now operating at normal capacity.

Secondary digester- The Secondary Digester has not been cleaned in over 20 years and staff have preliminarily scheduled a cleaning in the Spring 2024. Currently, the secondary digester cannot act as a standby for the primary digester but only as storage due to the lack of mixing and heat exchange. The

gravity overflow lines also occasionally clog. Staff noted that the odor control piping installed around the Secondary Digester likely has limited effectiveness.

	Score	Rationale / Comments
COF	2	Should the Primary Digester fail, digestion would not be able to continue, increasing the overall volume of sludge to dewater and compost. This would also have a negative impact on odor control.
LOF	1	Recent and scheduled cleanings, recent equipment replacement.
Priority	Low	The digesters are classified as Low Priority for upgrade due to recent and ongoing maintenance, however the secondary digester is in need of cleaning. We recommend performing checks for gas leaks around the Secondary Digester floating cover and evaluation of the cover condition due to the age of the installation.

Figure 10-1.1: Primary Digester

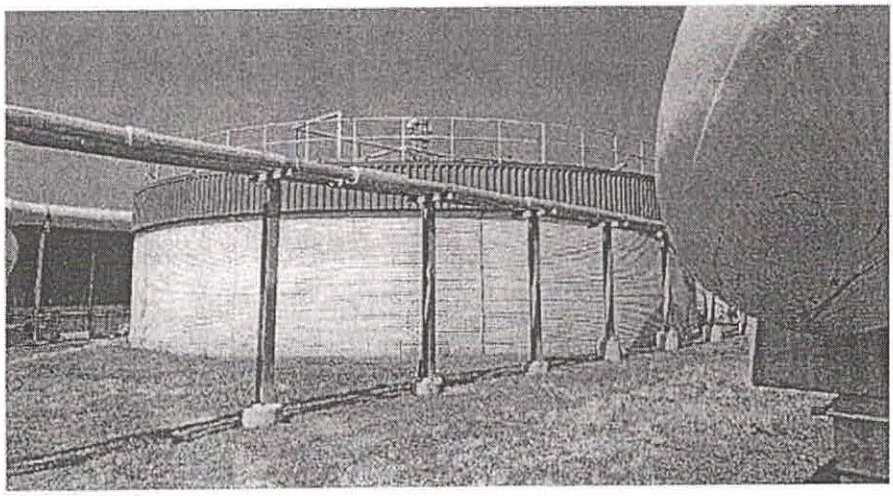
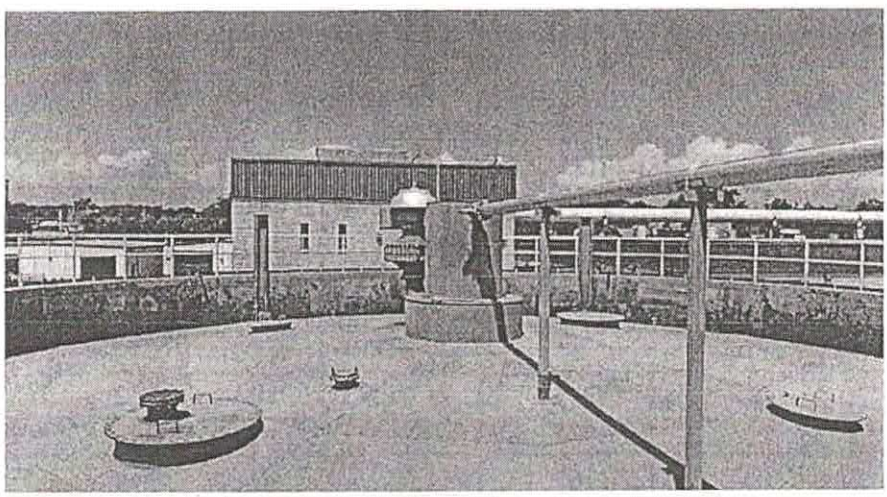


Figure 10-1.2: Secondary Digester



10.2 Digester Compressors

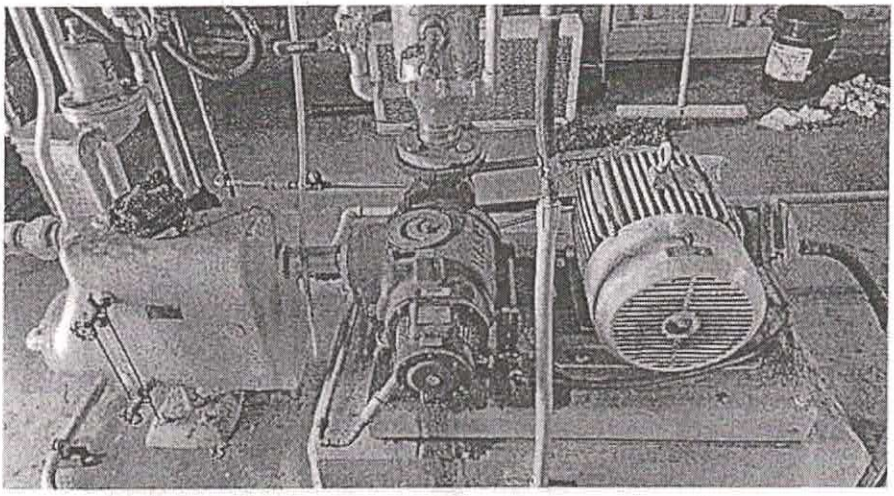
The compressors are located on the first floor of the Intermediate Building between the digesters and recirculate digester gas and provide mixing of the Primary Digester in concert with the back pressure valves and eductor tubes. The compressor blocks were replaced in 2019 and generally function well.

Table 10-2: Digester Compressors Summary

Parameter	Design
Quantity	2 (1 duty/ 1 spare)
Make/Model	Nash SC2/5
Motor Size	20 HP
Power	460 V / 3 phase / 60 Hz
Motor RPM	1,760

	Score	Rationale / Comments
COF	1	There is a spare compressor, however, should both fail the Primary Digester would have to be taken offline, or it would experience stratification and reduced efficiency of digestion.
LOF	2	Design life surpassed, good operating condition.
Priority	Low	The compressors are classified Low priority due to redundancy, recent maintenance and spare availability.

Figure 10-2: Digester Compressor



10.3 Recirculation Pumps and Grinder

Recirculation Pump - The recirculation pumps provide heat to the primary digester by circulating the digester contents through the heat exchanger. The recirculation pumps are located inside the Intermediate Building basement.

Grinder - The sludge grinder is located in line on the suction side of the Recirculation Pumps and is also located in the basement of the Intermediate Building.

Table 10-3: Recirculation Pumps and Grinder Summary

Parameter	Design
Digester Grinder	
Make/Model	JWC Environmental
Units	1
Motor Size	5 HP
Recirculation Pump	
Type	Recessed Impeller
Units	2
Make/Model	Hayward Gordon
Motor Size	5 HP
Operating Points	170 gpm

Generally, the pumps and grinder function well. Staff reported no issues and generally replace the grinder as needed.

	Score	Rationale / Comments
COF	1	Should the recirculation pumps fail, the digestion process will eventually fail from die off of mesophilic microbes. The pumps may function without the grinder as there is a bypass and grinding of primary sludge upstream.
LOF	2	Design life surpassed, serviceable condition.
Priority	Low	The Pumps and Grinder are classified Low Priority for the ability to bypass the grinder, redundancy of the pumps and generally good condition and ongoing maintenance.

Figure 10-3.1: Recirculation Pumps

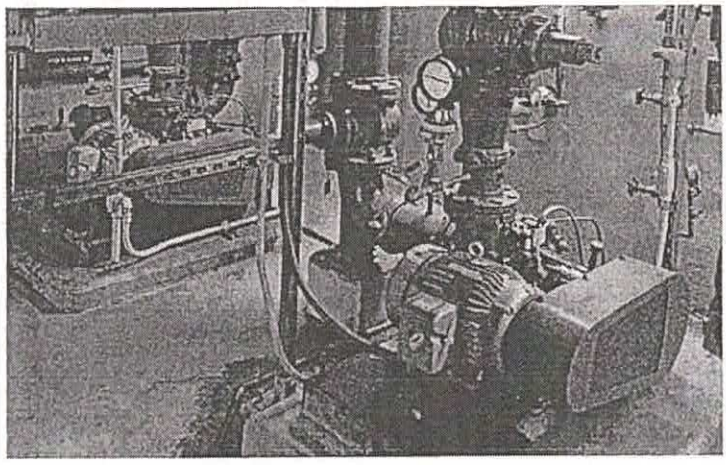


Figure 10-3.2: Sludge Grinder



10.4 Heat Exchanger

The digester boilers burn either natural gas or methane gas generated by the digesters providing heat to the Primary Digester in order to maintain a mesophilic environment for anaerobic sludge stabilization. The heat exchanger is located inside the digester building as the boilers are located in the septage receiving building.

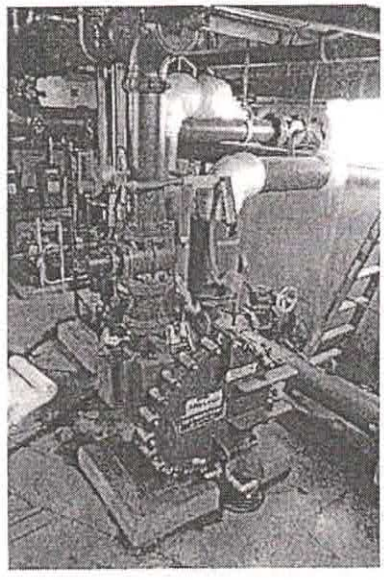
Table 10-4: Heat Exchanger Summary

Parameter	Design
Units	1
Type	Spiral
Make/Model	Alfa Laval
Year Installed	2002

The heat exchanger has reached the end of its intended design life, however staff have reported no issues and the heat exchanger requires little maintenance. There is no standby heat exchanger, however the lack of moving parts reduces the likelihood of equipment failure.

	Score	Rationale / Comments
COF	2	Should the heat exchanger fail the ability of the Primary Digester to maintain a mesophilic operating environment would be impacted.
LOF	2	Design life surpassed, serviceable condition.
Priority	Medium	The heat exchanger is classified as Medium Priority as it is in generally good operating condition and requires little maintenance, but lacks redundancy.

Figure 10-4: Heat Exchanger



11. SEPTAGE RECEIVING BUILDING

11.1 Septage Receiving System

The septage receiving system is an automated all in one package for off-loading of septage from hauling trucks and provides screening, washing, and compaction of screened solids. Organics and liquids are kept in a storage tank below the unit, and are metered to the headworks by the transfer pump, which also provides mixing of the storage tank. Screened solids are deposited into a cart for disposal as solid waste. The system includes an exterior control panel with a keypad and flow meter for tracking volume of septage deposited by each hauler.

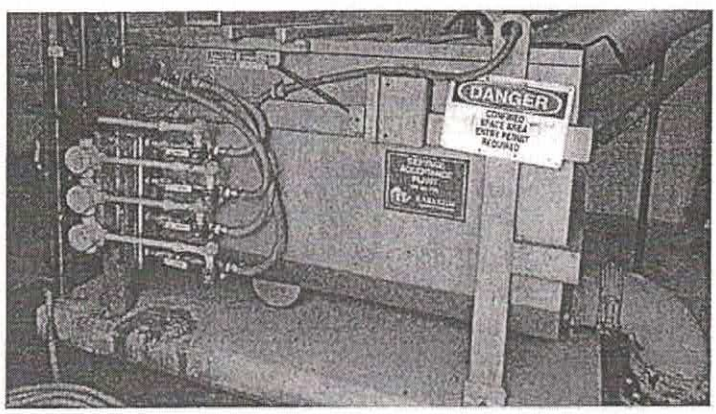
Table 11-1: Septage Receiving System Summary

Parameter	Design
Units	1
Make/Model	Lakeside
Bar Spacing	¼"
Total Solids	4 – 6%
Design Acceptance Flow	400 gpm
Wash Water Flow	20 gpm
Pump Design Point	330 gpm @ 40 ft TDH
Pump Motor Size	7.3 HP
Drive Motor Size	2 HP
Power	460 V / 3 phase / 60 Hz
Year Installed	2002

According to staff, the Septage Receiving System is currently not in use and has been in a state of disrepair since 2019. The original PLC was damaged and replaced, however staff elected not to replace the lost control programming due to the cost proposed by the manufacturer. At this time septage is dumped into a manhole upstream of the headworks and volumes are estimated based on what the haulers report. Staff report that the plant does not receive significant volumes of septage and therefore have no desire to repair or replace the Septage Receiving System.

	Score	Rationale / Comments
COF	1	No significant consequences of failure are likely given that the septage unit is not needed, and the benefits of use are limited.
LOF	1	Control system is non-functional however it may be repaired if desired.
Priority	Low	The Septage Receiving System is considered Low Priority for upgrade due to lack of use of the equipment and low consequences of failure.

Figure 11-1: Septage Receiving System



11.2 Digester Boilers and Circulators

The digester boilers burn either natural gas or methane gas generated by the digesters to provide heat to the Primary Digester. The circulators pump heated water through a loop between the heat exchanger in the Digester Building and the boilers.

Table 11-2: Digester Boilers and Circulators Summary

Parameter	Design
Year Installed	2002
Boilers	
Type	Dual Fuel, Gas Fired
Make/Model	H.B. Smith Cast Iron Boiler / 19 Series-6 with PowerFlame Burner
Quantity	2 (1 Duty, 1 Standby)
Fuel	Natural Gas or Digester Gas
Burner Capacity	801 MBH
Boiler Capacity	560,000 BTU/Hr
Motor Size	1/3 HP
Power	115 V / 1 phase / 60 Hz
Circulator Pumps	
Units	4 (2 Large, 2 Small)
Type	Horizontal End Suction Centrifugal
Make/Model	TACO
Small Pump Capacity	40 gpm @ 30 ft TDH
Small Pump Impeller Diameter	5.9 inches
Small Pump Motor Size	1 HP
RPM	1750
Power	450 V / 3 phase / 60 Hz

Staff noted that the boilers operate on digester gas 75 to 80% of the time, and they typically switch to natural gas during cold weather when heating demand increases. Staff also noted that the boilers are outdated and require frequent maintenance. The circulator pumps were recently replaced.

	Score	Rationale / Comments
COF	2	Should one boiler fail, standby capacity is available. It also appears that there are standby circulators available. Were the digester heating system to fail as a whole, the digester's ability to maintain a mesophilic microbe population, and thus gas production, would be compromised. As a result, additional solids would need to be processed on the Belt Filter Press, increasing operating time and use of polymer. The digester would likely need to be taken offline and restarted following the heating system repair which may lead to increased odors from sludge processing in the interim.
LOF	2	Boilers are past design life and require frequent maintenance.
Priority	Medium	The boilers are classified Medium Priority for upgrade due to the potential impact on the digestion process. The circulators are classified Low Priority due to the pumps having been replaced recently.

Figure 11-2: Digester Boilers and Circulators



11.3 TWAS Pumps and Grinder

The TWAS Pumps transfer sludge stored in the Gravity Thickener tank to the Primary Digester. The TWAS Grinder is installed on the suction side of the TWAS pumps to homogenize sludge solids and protect downstream equipment. A progressive cavity pump was later installed by staff to supplement the existing plunger pumps but is not currently in use.

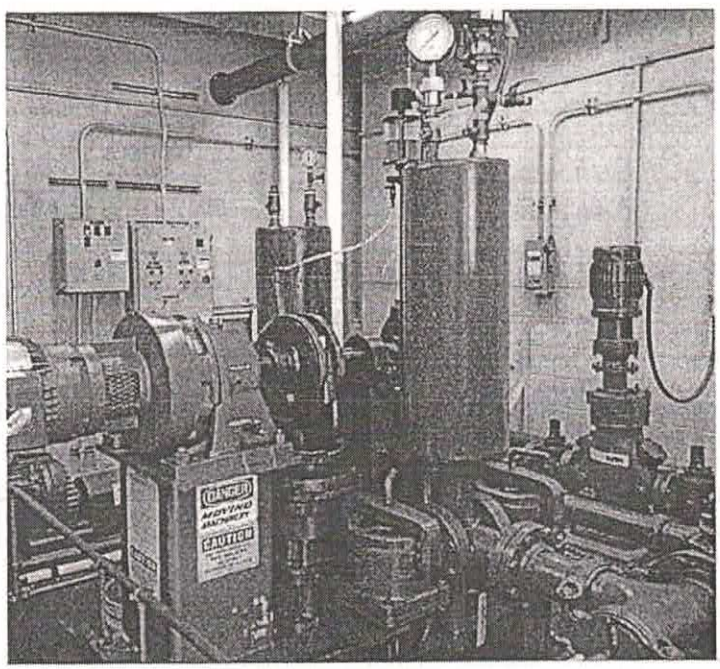
Table 11-3: TWAS Pumps and Grinder Summary

Parameter	Design
Year Installed	2002
Pumps	
Type	Duplex Plunger
Units	2 (1 duty, 1 stand-by)
Make/Model	Komline-Sanderson / KSS-9-2
Design Point	100 gpm @ 50 ft TDH
Pump RPM	50
Gear Reducer	Sumitomo
Motor RPM	1,770
Motor Size	7.5 HP
Power	460 V / 3 phase / 60 Hz
Out of Service Pump	
Type	Progressive Cavity
Units	1 standby
Make/Model	Tarby / 1061036 CDO
Motor RPM	1,740
Motor Size	10 HP
Power	460 V / 3 phase / 60 Hz
Grinder	
Units	1
Make/Model	JWC Environmental / 30004-1204
Capacity	600 gpm
Motor RPM	1,750
Motor Size	5 HP
Power	460 V / 3 phase / 60 Hz

While at the end of their intended service life, in general, the TWAS Pumps are in serviceable condition and work well. The operators have noted no issues with the equipment. The grinder is rebuilt or replaced as needed and may not be essential to operation due to preliminary treatment and upstream grinding of solids.

	Score	Rationale / Comments
COF	1	Should one of the TWAS pumps fail two standby pumps are available. While unlikely, if all three pumps failed the Gravity Thickener tank would not be available for storage of sludge prior to digestion. The grinder may be bypassed if needed.
LOF	2	Design life surpassed, serviceable condition.
Priority	Low	The TWAS pumps and grinder are considered Low Priority for upgrade due to the relatively good condition of the equipment, appropriate standby configuration, and ability for operators to continue maintenance.

Figure 11-3: TWAS Pumps and Grinder



12. COMPOST BUILDING

12.1 Composting System

Dewatered sludge is brought to the Compost Building and mixed with wood chips produced at the privately owned yard waste facility across the street from the WPCF. A skid steer is used to load each compost bay with the sludge and wood chip mixture. The Composting system consists of six compost bays and a traveling agitator to mix the compost, and an aeration system. The aeration system maintains temperature in the compost bays, supplies oxygen for the microbes, and removes excess moisture. Following composting, the material is sent to a private reseller for beneficial reuse. Temperature probes mounted along the length of the walls in each bay monitor the pathogen kill and are used by the control system.

Table 12-1: Composting System Summary

Parameter	Design
Year Installed	1989, replaced 2008, agitator 2023
Units	6 compost bays, 1 agitator, 30 blowers
Make/Model	Siemens IPS composting system (updated BDP controls)
Year Installed	1989 (upgrade 2002/2006), management system 2017
Bay Dimension	210 feet long
Temperature setpoints	60C in first 3 zones, 50C in 4th zone, 40C in last zone
Mixing	Traveling agitator, 10ft/day
Residence Time	21 days
Blower Size	5 Hp

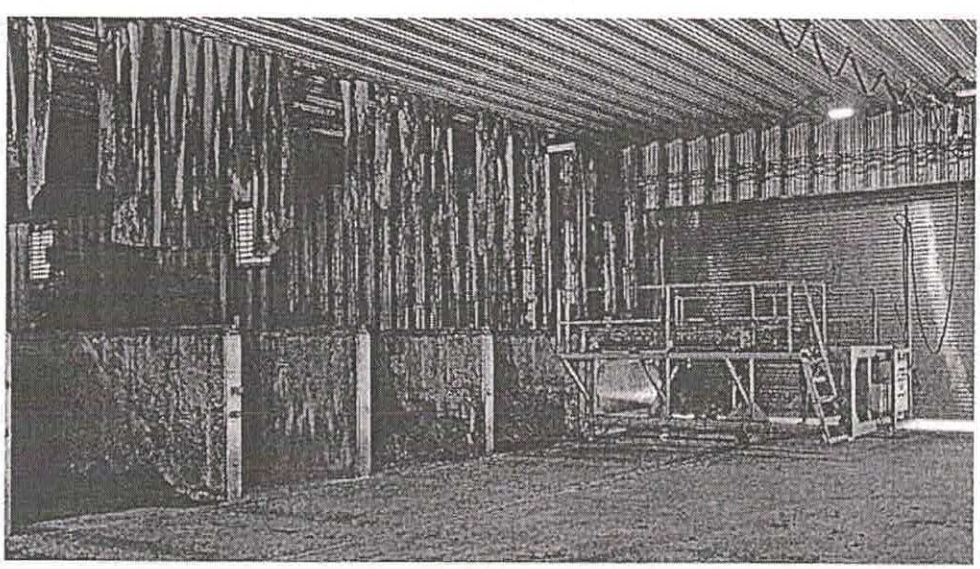
The composting system generally functions well and is maintained by staff. The agitator was replaced in July 2023, however, there is no standby available. Despite several replacements of the building lighting system, fixtures continue to fail due to high humidity and potential corrosion. It appears the fixtures are not designed for the harsh environment of the compost building and they are in poor condition. Additionally, given the highly odorous nature of the building/process, fast closing roll-up doors may be an improvement to help mitigate the potential for offsite odors.

	Score	Compost System Rationale / Comments
COF	2	Should the agitator break down, turning over and removing the material from the facility becomes significantly more difficult. If composting cannot continue the Town must store dewatered solids onsite until a suitable disposal method can be found. Alternative methods of disposal may incur significant fees. Since the WPCF does not appear to have a location to store dewatered solids onsite, dewatering operations may have to be temporarily halted so that solids may be stored elsewhere, such as the GT or process tanks, which could negatively impact the biological process performance.
LOF	1	Recent replacement of agitator.

Priority	Low	The Composting system has been classified Low Priority due to the recent agitator replacement, but lack of a standby unit. We recommend further study to evaluate alternative configurations for the compost system to address redundancy and/or develop a backup plan for solids storage should the system fail.

	Score	Building Improvements (Lighting, Rollup Doors) Rationale / Comments
COF	2	Failure of the lighting system could require the doors to be opened to allow sufficient light to the facility. This could impact offsite odor concerns, and the plant is currently receiving odor complaints.
LOF	3	Lighting frequently fails and the plant has received odor complaints.
Priority	High	General Compost Building improvements are classified High Priority due to working conditions and potential impacts on odor control.

Figure 12-1: Composting System



13. ODOR CONTROL

A separate Odor Control System evaluation is recommended to identify short term solutions to odor mitigation beyond the scope of this equipment evaluation. This section identifies noted issues and prioritization of upgrades only.

13.1 Biofilters

The facility's odor control system consists of two open-bed biofilters with underdrain systems. One system is dedicated to the Compost Building while the other is for the remaining processes throughout the site: including the Headworks, Primary Effluent Distribution Channel, RAS chamber, Septage Receiving Station, Gravity Thickener Tank, and the Sludge Dewatering Building. Two separate duct networks transport the odorous air into the bottom of each biofilter. Each biofilter is lined with an impermeable synthetic membrane to retain drained liquids. The biofilter media is changed every 3 to 5 years and consists of hardwood chips and yard waste compost. The media was recently changed in March 2023.

Table 13-1: Biofilter Systems

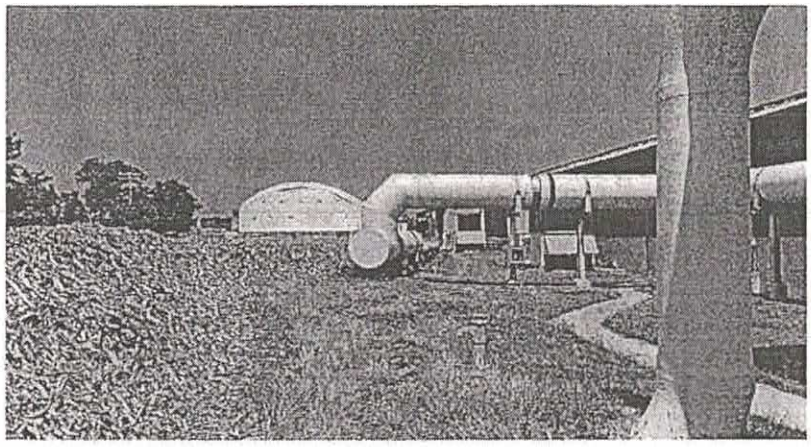
Parameter	Design
Compost Facility Biofilter	
Media Depth	4 ft
Surface Area	13,920 sqft
Design Air Flow Rate	37,625 cfm
Design Air Loading Rate	2.7 cfm/sqft
Detention Time at Max Air Flow	89 min
Wastewater Processes Biofilter	
Media Depth	4 ft
Surface Area	6,240 sqft
Design Air Flow Rate	20,160 cfm
Design Air Loading Rate	3.2 cfm/sqft
Detention Time at Max Air Flow	68 min

Both odor control systems are functioning, but the facility has received odor complaints from surrounding receptors. There are several factors that can impact the performance of an odor control system, including undersized fans (i.e. inadequate ventilation), poor air balancing, improper irrigation, poor air distribution to the beds, and/or media size/type, in addition to minimum design parameters to ensure performance.

Given the recent issues with odor complaints while the digester was offline for repairs, coupled with the understanding that odor complaints have persisted both prior to the digester failure and since its reestablishment, a separate odor control evaluation should be performed to identify potential shortcomings of the existing odor control systems and propose upgrades and/or corrections to mitigate future offsite odor concerns.

	Score	Rationale / Comments
COF	2	Failure of either of the odor control systems is expected to exacerbate existing odor complaints.
LOF	3	The odor control system as a whole is currently considered in a state of failure due to ongoing odor complaints.
Priority	High	The biofilters are classified as high priority item for the WPCA. An LOF of 3 was assigned due to ongoing odor complaints. An evaluation of the odor control systems is recommended to be conducted in the near term.

Figure 13-1: Biofilters and Odorous Air Duct



13.2 Underdrain Pump Station

Each biofilter is equipped with an underdrain system that collects leachate and sends it to the underdrain pump station adjacent to the Compost Building (shown next to the catchbasin in the figure below). The underdrain pump station additionally captures rain and drainage from the compost building.

Figure 13-2: Underdrain Pump Station



The underdrain systems work, but during heavy rain the sump pit overflows into the unloading area of the compost building. Staff noted the pumps and force main seem undersized to accommodate heavy flows.

	Score	Rationale / Comments
COF	2	Failure of the pump station affects operations of the compost facility, including potential flooding of the offloading area and adds to odor concerns.
LOF	3	System is currently considered in a state of failure due to poor performance.
Priority	High	The underdrain system is classified as a High Priority and should be assessed as part of the biofilter system evaluation.

13.3 Odor Control Ventilation Systems

The odor control ventilation system consists of five two-speed, centrifugal fans for the Compost Facility and two VFD driven centrifugal fans for the remaining processes. All five fans for the Compost Facility operate at the same time; there is no redundant fan. For the remaining processes, only one fan operates while one is in standby. The process fans are located in the biofilter building and their maintenance is outsourced through Flowtech. The Compost fans are located on the northeast side of the compost building exterior.

Table 13-3: Odor Control Ventilation Systems

Parameter	Design
Compost Building Odor Ventilation System	
No. of Fans	5 duty (no standby)
Type	Two-speed Centrifugal
Motor Size	25 HP
Capacity (each)	7,525 CFM
Installed	1989
Wastewater Processes Odor Ventilation System	
No. of Fans	2 (1 duty, 1 standby)
Type	Variable Speed Centrifugal
Motor Size	75 HP
Capacity (each)	20,160 CFM
Installed	2003

Both sets of fans function inefficiently and are past their design life of service. Additionally, spare parts for the compost building fans are difficult to find. The containment curtains between the compost bays and loading area are in very poor condition which effectively increases the volume of space for the exhaust fans to treat. The doors are typically open which allows odors to exit freely. The multiple exhaust fan configuration may contribute to poor ventilation of the building. Typically, odor ventilation systems rely on a single fan with dampers to ensure balanced draw off from each area. Staff have noted that the compost building exhaust fans cost approximately $16,000 to rebuild.

	Score	Rationale / Comments
COF	3	Failure of the odor control system fans will increase escape of nuisance odors to the site and nearby receptors. The lack of adequate ventilation could also increase hydrogen sulfide concentrations at the plant posing a potential worker safety issue.
LOF	3	Design life surpassed, maintenance and performance issues.
Priority	High	Due to their age, design configuration, lack of backup units (compost building units only), and ongoing odor complaints, both ventilation system fans are classified as High Priority and should be assessed as part of the biofilter system evaluation.

Figure 13-3: Wastewater Processes Odor Control Fan

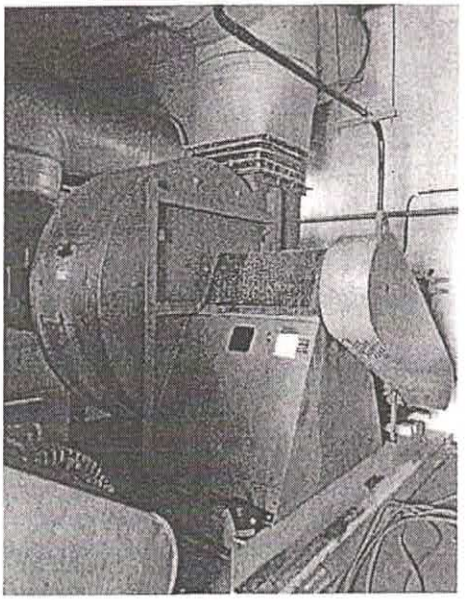
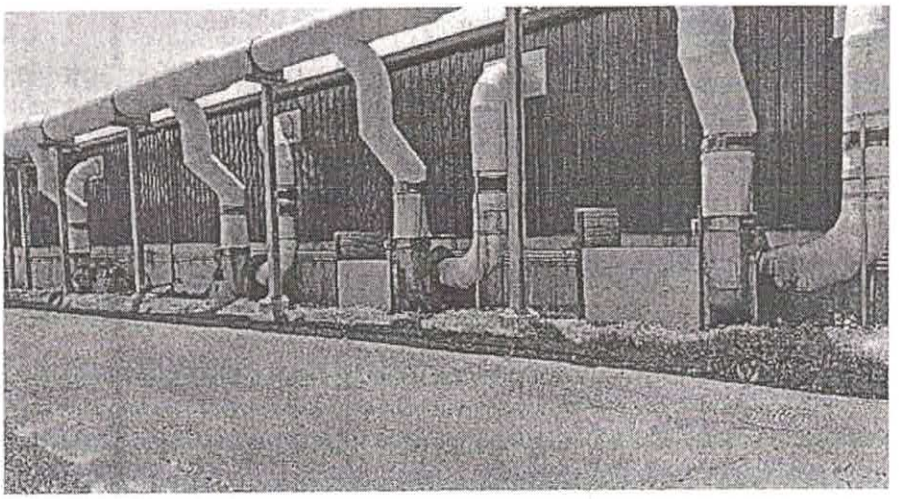


Figure 13-4: Compost Building Odor Control Fans



14. RECOMMENDATIONS

14.1 Summary of Conditions

A summary of the condition assessment results is presented in Table 14-1 below, with the recommended prioritization of each equipment noted. Additional recommendations are noted in the "Comment" column. Findings of such inspections may warrant re-prioritization of related equipment, systems, or buildings. The "Cost" column presents the estimated opinion of probable cost to replace that specific equipment item.

Prioritization of improvements are organized as follows:

- High Priority improvements should ideally be implemented in the near term (0-3 years) to address redundancy, reliability, and safety issues and to ensure ongoing permit compliance.
- Medium Priority improvements are expected to be implemented in the next 5 years to address issues that may affect equipment reliability long term but are not expected to result in near term damage to equipment or non-permit compliance.
- Low Priority improvements may be deferred to the next 5 years or later to address longer term and potential future concerns. The Town may wish to include these improvements in a future major WPCF upgrade project.

14.2 Capital Improvements Plan

The capital improvements plan (CIP) includes planning level cost estimates for each equipment item evaluated (summarized in Table 14-1). Table 14-2 summarizes the total cost of improvements categorized by priority including expected contractor and engineering fees, estimated as 25% and 15% of the subtotal respectively. A 30% contingency is assumed to account for required costs and related work not considered in a planning level cost estimate. No alternatives analysis was performed as part of this effort.

The cost estimates are based on comparable construction project scheduled values and equipment cost quotes, escalated to 2023 dollars using Construction Cost Index (CCI) values. The estimated scope of improvements do not reflect the complete project scope recommended in the 2017 Facilities Plan. Only equipment, related ancillary equipment, and necessary building improvements (such as structural modifications, piping, electrical, plumbing, etc.) were considered to upgrade the equipment. In general, the assumed upgrades align with the 2017 Facilities Plan recommendations except where noted. When scheduling projects, the Town may wish to group together work in common areas to minimize costs, e.g. implementing all the Headworks improvements as a common project.

Table 14-1: Condition Assessment Summary

Priority	Equipment	COF	LOF	Comment[1]	Cost
High	UV Disinfection	3	3		$1,100,000
	Grit Removal System	3	3	Structural Inspection Recommended	$410,000
	Primary Screen	3	2		$660,000
	Carbon Feed (Methanol Tanks)	3	2	Tank failure may pose significant safety hazards	$540,000
	Blower Building Roof	2	3		$290,000
	Plant Water System	2	3		$490,000
	Compost Building Improvements	2	3		$250,000
	Odor Control Systems	2	3	Full Site Odor Study	$100,000
	Gravity Belt Thickener	3	2		$850,000
	Belt Filter Press	3	2		$2,480,000
				Subtotal	**$7,170,000**
Medium	Aeration Tank Diffusers	1	3	Diffuser membrane age is a concern	$590,000
	Secondary Clarifiers	2	2	Structural Inspection Recommended	$970,000
	Gravity Thickener Tank	2	2	Structural Inspection Recommended	$270,000
	Digester Boilers and Circulators	2	2		$410,000
	Digester Heat Exchanger	2	2		$140,000
	Raw Sewage Lift Pumps	2	2		$450,000
				Subtotal	**$2,830,000**

Low	Secondary Screen	1	2		$100,000
	Auxiliary Raw Sewage Pumps	1	2		$210,000
	Primary Clarifiers	1	1	Structural Inspection Recommended	$2,150,000
	Primary Sludge Pumps	1	1		$270,000
	WAS Pumps	1	2		$20,000
	Anoxic Mixers	2	1		$1,110,000
	Nitrate Recycle Pumps	1	2		$230,000
	Aeration Blowers	1	1		$720,000
	Secondary Scum Pumps	1	2		$210,000
	RAS Pumps	1	2		$160,000
	Outfall Pumps	1	2		$530,000
	Belt Press Feed Pumps	1	2		$80,000
	Digesters	2	1	Recommend inspecting covers for gas leaks	$1,480,000
	Digester Recirculation Pumps	1	2		$30,000
	Digester Gas Compressors	1	2		$310,000
	Septage Receiving System	1	1		$520,000
	TWAS pumps	1	2		$140,000
	Composting System	2	1	Further evaluation Recommended	$780,000
				Subtotal	**$9,100,000**

1. Further evaluations recommended are discussed in section 14.3 below. Cost estimates in this table include equipment replacement and appurtenances only and do not include costs for additional evaluations.

Table 14-2: Planning Level Cost Estimate Summary

Summary		High Priority	Medium Priority	Low Priority
Subtotal		$7,170,000	$2,830,000	$9,100,000
Contractor Overhead, Insurance, Profit & General Conditions	25%	$1,800,000	$710,000	$2,280,000
Design & Construction Engineering	15%	$1,100,000	$425,000	$1,370,000
Contingency	30%	$2,150,000	$850,000	$2,730,000
Total		**$12,220,000**	**$4,815,000**	**$15,500,000**
Combined Total			**$32,535,000**	

17,035,000
2.4 - 36 mo's
Plant upgrade

14.3 Recommended Additional Assessments

In addition to the equipment upgrade/replacement recommendations outlined above, there are several areas that merit further evaluation before recommendations for improvements can be identified. These are discussed below.

14.3.1 Structural Evaluation

Many of the tanks at the site are completely covered which can concentrate hydrogen sulfide concentrations leading to corrosion and premature failure. In addition, the blower building roof is actively leaking which has the potential to impact the lifespan and performance of the blowers. A full-site structural analysis is warranted to determine necessary improvements to the process tankage and structures.

14.3.2 SCADA Evaluation

The existing SCADA system is over 20 years old and parts are becoming increasingly harder to find. Advancements in technology over this time have also occurred and a full SCADA analysis of the plant is warranted to determine and plan for an upgrade to the facility's SCADA system to improve operations and reliability at the plant.

14.3.3 Electrical Evaluation

The existing electrical system at the WPCF is original to the plant. An electrical evaluation is recommended to ensure the adequacy and safety of the rated electrical service and confirm that all critical process equipment is adequately protected by backup power.



Woodard
& Curran

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20 YEAR

A RESOLUTION APPROPRIATING $1,923,000 FOR THE COSTS OF THE TIDEGATES REPAIR AND REPLACEMENT PROJECT AND AUTHORIZING THE ISSUANCE OF BONDS TO FINANCE SUCH APPROPRIATION.

Resolved:

1. As recommended by the Board of Selectmen and the Board of Finance, the Town of Fairfield appropriates One Million Nine Hundred Twenty-Three Thousand and 00/100 ($1,923,000) Dollars to fund the costs to repair or replace various tidegates throughout the Town, such costs to include, but not be limited to, planning, design, construction, materials, engineering, as well as, all administrative, financing, legal, contingency and other soft costs related thereto (the "Project").

2. To finance such appropriation and in lieu of a tax thereof, and as recommended by the Board of Finance and the Board of Selectmen, the Town shall borrow a sum not to exceed One Million Nine Hundred Twenty-Three Thousand and 00/100 ($1,923,000) Dollars and issue bonds for such indebtedness under its corporate name and seal and upon the full faith and credit of the Town in an amount not to exceed said sum for the purpose of financing the portion of the appropriation for the Project not paid for by the Grants.

3. The Board of Selectmen, the Treasurer and the Chief Fiscal Officer of the Town are hereby appointed a committee (the "Committee") with full power and authority to cause said bonds to be sold, issued and delivered; to determine their form and terms, including provisions for redemption prior to maturity; to determine the aggregate principal amount thereof within the amount hereby authorized and the denominations and maturities thereof; to fix the time of issue of each series thereof and the rate or rates of interest thereon as herein provided; to determine whether the interest rate on any series will be fixed or variable and to determine the method by which the variable rate will be determined, the terms of conversion, if any, from one interest rate mode to another or from fixed to variable; to set whatever other terms of the bonds they deem necessary, desirable or appropriate; to designate the bank or trust company to certify the issuance thereof and to act as transfer agent, paying agent and as registrar for the bonds, and to designate bond counsel. The Committee shall have all appropriate powers under the Connecticut General Statutes, as amended (the "Statutes") including Chapter 748 (Registered Public Obligations Act), and Chapter 109 (Municipal Bond Issues) to issue, sell and deliver the bonds and, further, shall have full power and authority to do all that is required under the Internal Revenue Code of 1986, as amended, and under rules of the Securities and Exchange Commission, and other applicable laws and regulations of the United States, to provide for issuance of the bonds in tax exempt form and to meet all requirements which are or may become necessary in and subsequent to the issuance and delivery of the bonds in order that the interest on the bonds be and remain exempt from

Federal income taxes, including, without limitation, to covenant and agree to restriction on investment yield of bond proceeds, rebate of arbitrage earnings, expenditure of proceeds within required time limitations, the filing of information reports as and when required, and the execution of Continuing Disclosure Agreements for the benefit of the holders of the bonds and notes.

4. The First Selectman and Treasurer or Chief Fiscal Officer, on behalf of the Town, shall execute and deliver such bond purchase agreements, reimbursement agreements, line of credit agreement, credit facilities, remarketing agreement, standby marketing agreements, standby bond purchase agreements, and any other commercially necessary or appropriate agreements which the Committee determines are necessary, appropriate or desirable in connection with or incidental to the sale and issuance of bonds, and if the Committee determines that it is necessary, appropriate, or desirable, the obligations under such agreements shall be secured by the Town's full faith and credit.

5. The First Selectman and Treasurer or Chief Fiscal Officer shall execute on the Town's behalf such interest rate swap agreements or similar agreements related to the bonds for the purpose of managing interest rate risk which the Committee determines are necessary, appropriate or desirable in connection with or incidental to the carrying or selling and issuance of the bonds, and if the Committee determines that it is necessary, appropriate or desirable, the obligations under such interest rate swap agreements shall be secured by the Town's full faith and credit.

6. The bonds may be designated "Public Improvement Bonds of the Town of Fairfield," series of the year of their issuance and may be issued in one or more series, and may be consolidated as part of the same issue with other bonds of the Town; shall be in serial form maturing in not more than twenty (20) annual installments of principal, the first installment to mature not later than three (3) years from the date of issue and the last installment to mature not later than twenty (20) years from the date of issuance or as otherwise provided by statute. The bonds may be sold at an aggregate sales price of not less than par and accrued interest at public sale upon invitation for bids to the responsible bidder submitting the bid resulting in the lowest true interest cost to the Town, provided that nothing herein shall prevent the Town from rejecting all bids submitted in response to any one invitation for bids and the right to so reject all bids is hereby reserved, and further provided that the Committee may sell the bonds on a negotiated basis, as provided by statute. Interest on the bonds shall be payable semi-annually or annually. The bonds shall be signed on behalf of the Town by at least a majority of the Board of Selectmen and the Treasurer, and shall bear the seal of the Town. The signing, sealing and certification of the bonds may be by facsimile as provided by statute.

7. The Committee is further authorized to make temporary borrowings as authorized by the Statutes and to issue temporary notes of the Town in anticipation of the receipt of proceeds from the sale of the bonds to be issued pursuant to this resolution or in

anticipation of the receipt of the Grants. Such notes shall be issued and renewed at such time and with such maturities, requirements and limitations as provided by the Statutes. Notes evidencing such borrowings shall be signed by the First Selectman and Treasurer or the Chief Fiscal Officer, have the seal of the Town affixed, which signing and sealing may be by facsimile as provided by statute, be certified by and payable at a bank or trust company incorporated under the laws of this or any other state, or of the United States, be approved as to their legality by bond counsel, and may be consolidated with the issuance of other Town bond anticipation notes. The Committee shall determine the date, maturity, interest rates, form and manner of sale, including negotiated sale, and other details of said notes consistent with the provisions of this resolution and the Statutes and shall have all powers and authority as set forth above in connection with the issuance of bonds and especially with respect to compliance with the requirements of the Internal Revenue Code of 1986, as amended, and regulations thereunder in order to obtain and maintain issuance of the notes in tax exempt form.

8. Pursuant to Section 1.150-2, as amended, of the Federal Income Tax Regulations the Town hereby declares its official intent to reimburse expenditures (if any) paid for the Project from its General or Capital Funds, such reimbursement to be made from the proceeds of the sale of bonds and notes authorized herein and in accordance with the time limitations and other requirements of said regulations.

9. The First Selectman, the Chief Fiscal Officer and Town Treasurer are hereby authorized, on behalf of the Town, to enter into agreements or otherwise covenant for the benefit of bondholders to provide information on an annual or other periodic basis to the Municipal Securities Rulemaking Board (the "MSRB") and to provide notices to the MSRB of material events as enumerated in Securities and Exchange Commission Exchange Act Rule 15c2-12, as amended, as may be necessary, appropriate or desirable to effect the sale of the bonds and notes authorized by this resolution.

10. The Committee is hereby authorized to take all action necessary and proper for the sale, issuance and delivery of the bonds and notes in accordance with the provisions of the Statutes and the laws of the United States.

11. The First Selectman or other proper Town official is authorized to apply for and accept any available State or Federal grant in aid of the financing of the Project, and to take all action necessary and proper in connection therewith. Any such grants or contribution received prior to the issuance of the Bonds authorized herein shall be applied to the costs of the Project or to pay at maturity the principal of any outstanding bond anticipation notes issued pursuant this resolution and shall reduce the amount of the Bonds that can be issued pursuant to this resolution. If such grants and contributions are received after the issuance of the Bonds, they shall be applied to pay the principal on the Bonds or as otherwise authorized by the Board of Selectmen, Board of Finance and Representative Town Meeting provided such application does not adversely affect the tax-exempt status of the Bonds or the Town's receipt of such grant or contribution.

Tidegates Repair and replacements. = Three Year Authorization totaling $1,923,000r Design/Repair/ Construction Improvements.

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1. **Background** – The Town of Fairfield infrastructure is aging and there are flood control structures that need repair or replacement. The Town has hired a Consultant to perform a townwide inventory and condition assessment for all tidegates, flap gates and other structures related to flood control with exception of Large Dike Systems. Conservation and DPW have performed minor to moderate repairs on some of these structures during the past few years but now the tidegate and flap gate condition have worsened and require more than standard maintenance, and must be repaired or replaced. Based on these reports and inspections, The Town and Consultant have compiled a priority list for repairs and replacements for the next 5 years. Some flood control projects are already approved and included in the Capital Improvement plan, so they are not included in the study. (example: Perry's Green bulkhead and tidegate repair, Turney Creek Culverts/Tidegates and Old Dam Road tidegates behind Kiwanis field).

2. **Purpose and Justification** – The purpose of the project is to repair or replace flood control structures. These structures are imperative in keeping tidal waters out the Town' storm system and the self regulating tidegates have provided flood control and environmental benefits in reducing phragmite fires and growth while reestablishing wetland vegetation. Leaking and/or non functioning structures can cause moderate to severe flooding, tidal surges and create blockages in preventing water from coming in (when desired) or coming out (to drain roads and neighborhoods).

3. **Detailed Description of Proposal** – The proposal includes repairs and replacements of the existing flood control structures as recommended by the Town's Coastal Consultant. Conservation will continue preventative maintenance and upkeep with the help of DPW and Engineering (for smaller project plans). For moderate or major projects, a Consultant will provide plans and specifications for contract bid. Preliminary Soil testing has been performed to determine if proposed excavated material require special handling. Unfortunately there are a few locations that require environmental controls and handling. Engineering anticipates having to obtain a certificate of permission from the DEEP for specific sites. See appendix for summary of tidegates.

4. **Reliability of Cost Estimate** – The request is based on Consultant's past project cost estimates and include materials, labor, equipment, general design (10%) and 20-30 % contingency. The reliability of costs on a scale of 0 to 10 is estimated at 7.5 based on Consultant's experience. Testing/sediment removal may also impacts costs as 6 of the sites are still under investigation, pending final soil results and soil management plans.

5. **Increased Efficiency or Productivity** – Allow the traveling public and commerce safer access on roadways and provide additional environmental improvements through tidal conveyance than without repairs/replacements.

6. **Additional Long Range Costs** – Typical Maintenance costs. Short and moderate term maintenance costs should be reduced with replacement.

7. **Additional Use or Demand on Existing Facilities** –None.

8. **Alternatives to this Request** –Currently no true alternatives to repair and replacements. Town can expect Increase flooding and loss of wetland function and habitat if nothing is done. Delay is an undesirable option but priorities are based on condition, function and risk management. There is a little flexibility based on priorities.

9. **Safety and Loss Control** – Allow the traveling public and commerce safer access. Additional testing soil samples for proposed excavated materials in 6 locations. Propose work during favorable tides. Reduce flooding due to leaking or malfunctioning tidegates.

10. **Environmental Considerations** – As mentioned previously, some of the projects will require an environmental permit. Engineering anticipates a Certificate of permission requirement based on similar work unless significant improvements are proposed, in which full DEEP permit is required. (USACE?) Plan proposes to collect soil samples for testing and proper disposal, for specific locations. Soil and erosion control measures are required.

11. **Insurance** –Selected contractors will be required to carry the necessary insurance prescribed by the Purchasing Department.

12. **Financing** – Project will be bonded as part of 5 year capital Plan with 3 year appropriation and authorization.

13. **Other Considerations**: Access to some of the sites may require easement. Environmental issues for 2-6 sites.

14. **Other Approvals**:
    Board of Selectman
    Board of Finance
    RTM

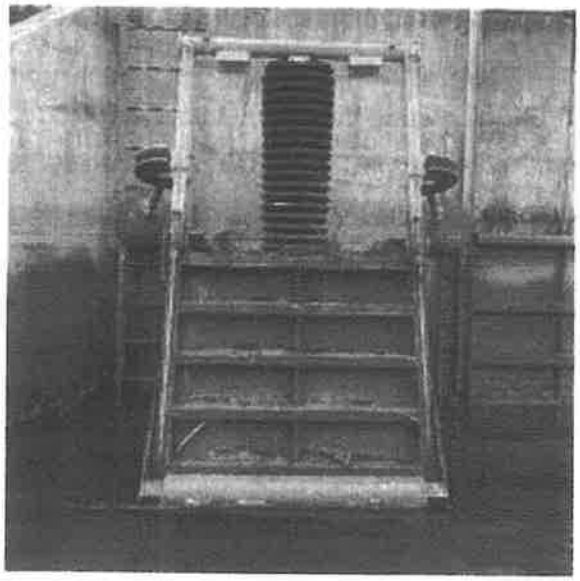
TIDE GATE AND FLOOD CONTROL STRUCTURE CONDITION REPORT

Town of Fairfield Tide Gate & Flood Control Structure Condition Report

Prepared for:

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SEPTEMBER 8, 2023

Project No. 2023059

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- **Appendix A – Figure 1 (Location Map)**
- **Appendix B – Summary Table of Existing Conditions**
- **Appendix C – Tide Gate Individual Reports**
- **Appendix D – Tide Gate Individual Opinion of Probable Cost (OPC)**
- **Appendix E – Existing Permits**
- **Appendix F – KMZ file (to be transmitted electronically)**

1. GENERAL INTRODUCTION

RACE COASTAL ENGINEERING, Inc. (RACE), at the request of the **Town of Fairfield,** conducted visual inspections Town maintained tide gates located in and around Fairfield, Connecticut. The approximate location of each individual tide gate is shown on Figure 1 in Appendix A. Of the inspected tide gates, twenty-two are located along Pine Creek, six are located along Ash Creek/Rooster River, two are located along Horse Tavern Creek, and one is located along Sasco Creek.

Investigations were lead by a Professional Engineer in the State of CT. Inspections were conducted during periods of low tide to maximize visible components. No underwater investigations were performed.

As of August 8, 2023, **RACE** inspected twenty-six (26) tide gates. Six (6) tide gates were not available for inspection (reported to be buried or not found). This report addresses the twenty-six (26) inspected tide gates.

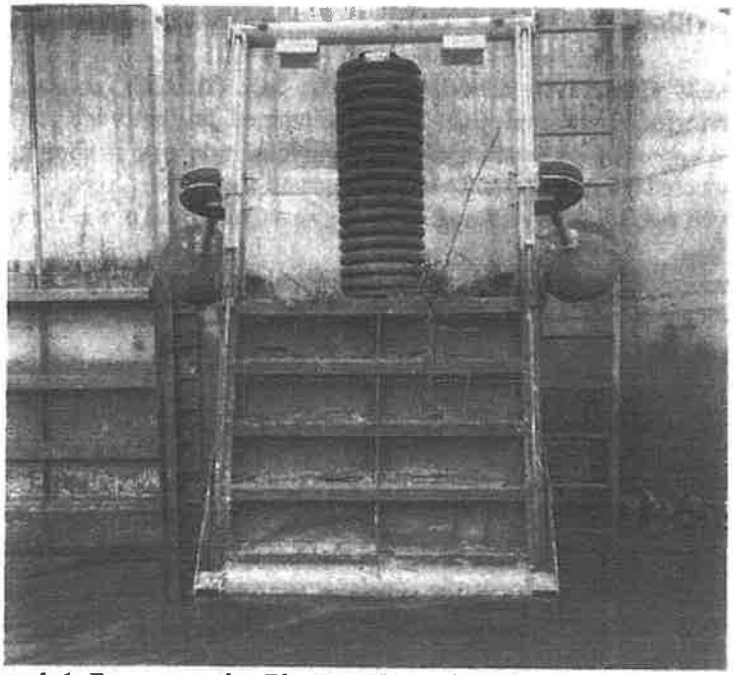
2. DESCRIPTION OF TIDE GATES

Tide gates are structures used to prevent flooding due to extreme tides and storm surges by restricting tidal flow. Typically, a tide gate consists of a door, flap, or valve mounted on the downstream end of a culvert. Tide gates open during ebb (low) tide, when there is a positive hydraulic head (i.e., when the water elevation on the upstream side is higher than on the downstream side). Conversely, they will close with negative hydraulic head (i.e. when the water elevation is higher on the downstream side).

Four types of tide gates were inspected over the course of this project: Self-Regulating Tide Gates (SRT's), Sluice Gates, Flap Gates, and Duckbills.

2.1 Self-Regulating Tide Gate

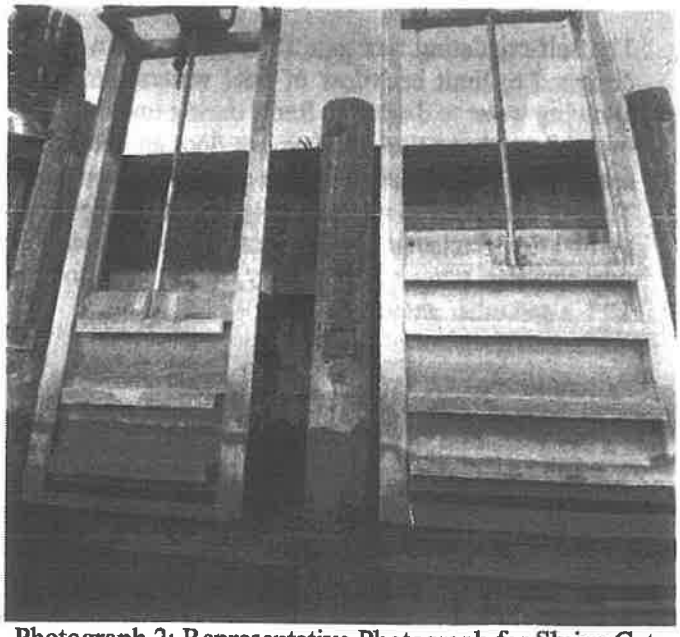
The self-regulating tide gate (SRT), also known as a buoyant lid or automatic tide gate, is designed to limit backflow of tidal waters into the protected area during high tides, while allowing water to discharge freely during low tides or during storm events to prevent flooding. In the neutral position, the buoyant door and door float keep the gate open. When flood tides reach a pre-determined level, the counterbalancing arms and back floats force the gate closed. The pre-determined level for tide gate closure can be adjusted to allow for tidal flushing during normal tidal exchange but can close when this range is exceeded. The ability to allow for this tidal flushing, while automatically closing for flood events is a primary difference between the SRT's and other gate types.



Photograph 1: Representative Photograph for Self-Regulated Tide Gate (SRT)

2.2 Sluice Gate

The sluice gate is the only type of tide gate inspected that requires manual operation. The sluice gates inspected in Fairfield were identified as vertical sluice gates controlled by a hand crank mechanism. Sluice gates can be kept open for extended periods of time, and manually closed when flood events are predicted.



Photograph 2: Representative Photograph for Sluice Gate

2.3 Flap Gate

The flap gate consists of a flap door on hinges fixed to the outlet of a culvert. All the flap gates inspected in Fairfield have a top-hinged lid made of steel, wood, or aluminum. The gates are not designed to be buoyant, so the hydraulic head needed to open them is greater than other types of tide gates. These differ from the SRT's as they will close with any negative hydraulic head thereby limiting ability to flush adjacent upland areas.



Photograph 3: Representative Photograph for Flap Gate

2.4 Duckbill

The rubber duckbill consists of a molded piece of rubber or synthetic material with a vertical slot, fit over the end of a culvert. Relative to other types of tide gates, less hydraulic head is needed to open a duckbill.



Photograph 4: Representative Photograph for Duck Bill

3. INVESTIGATION PROCEDURES

On 06/01/2023, the **RACE** team, accompanied by Thomas Coarse, Town of Fairfield Conservation Manager, reviewed the location and accessibility of each of the 32 tide gates. 2 tide gates were not able to be found during this effort. Field investigations took place between 06/07/2023 and 8/8/2023.

The initial phase of the investigation involved conducting a low-water visual review. This included the identification of each structure and a comprehensive visual assessment of the readily visible components, including the culvert, headwall, and berm (where applicable). Evidence of sinkholes, erosion, or sedimentation was also documented. No underwater, subsurface, or pipe penetration investigations were performed.

The condition of hardware items was noted and the culvert dimensions were measured. The tide gates were photographically documented both from upland and in-water inspections. A Trimble SPS 986 Real Time Kinematic (RTK) GPS was used to record the approximate invert elevation of each culvert where satellite coverage and cellular data reception was available..

All findings, including photographs and any noted damages or deficiencies of the tide gates, were documented. To conclude each inspection, the engineering team assigned a Condition Assessment Rating (CAR) to certain elements of each tide gate per ASCE No. 130. Elements that were assigned a CAR were defined as Hinge/Gate Assembly, Flap, Floats, Bio-Fouling, Pipe, Headwall/Wingwalls, and Screen. All these elements are not present for all tide gates (for example, duckbills do not have a Hinge/Gate Assembly nor Floats), so those elements were rated as 'Not Applicable' and were not factored into the overall system rating.

The impact of each elements' condition on the functionality of each tide gate was not equal. For example, a flap gate that is stuck in the closed position due to rusted hinges and a flap gate that is missing hinges would not have an equal CAR (the flap gate with rusted hinges would likely be rated either 2 – Serious or 3 – Poor, whereas the flap gate with missing hinges would likely be rated 1 – Critical). In both cases, the condition of the hinges renders both tide gates nonfunctional, but the CAR would not reflect this. To account for this, **RACE** developed a System Impact Rating (See Table 2 in Section 5) for each element to quantify the impact that each element has on the overall functionality of the tide gate. The System Impact Rating (addressing system performance) and CAR (addressing component condition) were both considered to generate an overall System Rating for each tide gate. The System Rating of each tide gate was used as a basis for prioritization of maintenance.

4. EXISTING CONDITIONS OF TIDE GATES

RACE performed the inspection of 26 tide gates as of August 8, 2023. **RACE** used the ID showed in the 2023 Inventory of Tide Gates and Flood Control Structures. Several tide gates structures are composed of two or more individual tide gates. To facilitate notation of tide gates, **RACE** added a letter after Tide Gate Number (TG#) to indicate that there are multiple tide gates in the single designated structure. For example, Tide Gate No. 9 is composed of 2 individual tide gates. Therefore, Tide Gates were listed as TG #9A and TG #9B.

A detailed individual Report of each tide gate is shown in Appendix C. Individual reports include detailed description of findings, condition ratings and impact rating of elements, and representative photographs.

It is important to note that several of the tide gates indicated on the Town of Fairfield 2022 inventory were described as being a Flap Gate. However, during investigations there was no indication that a flap gate had ever been in place. This situation occurred on Tide Gates TG2, TG16, TG24, TG26, TG34.

5. METHODOLOGY TO PRIORITIZE TIDE GATES

5.1 Methodology

During field investigations, **RACE** assigned a Condition Assessment Rating (CAR) to each element per ASCE Manuals and Reports on Engineering Practice No. 130, Waterfront Facilities Inspection and Assessment. These ranged from Good (6) to Critical (1).

Rating	Description
6 Good	No visible damage or only minor damage noted. Structural elements may show very minor deterioration, but no overstressing observed. No repairs are required.
5 Satisfactory	Limited minor to moderate defects or deterioration observed but no overstressing observed. No repairs are required.
4 Fair	All primary structural elements are sound but minor to moderate defects or deterioration observed. Localized areas of moderate to advanced deterioration may be present but do not significantly reduce the load-bearing capacity of the structure.
3 Poor	Advanced deterioration or overstressing observed on widespread portions of the structure but does not significantly reduce the load-bearing capacity of the structure. Repairs may need to be carried out with moderate urgency.
2 Serious	Advanced deterioration, overstressing, or breakage may have significantly affected the load-bearing capacity of primary structural components. Local failures are possible, and loading restrictions may be necessary. Repairs may need to be carried out on a high-priority basis with urgency.
1 Critical	Very advanced deterioration, overstressing, or breakage has resulted in localized failure(s) of primary structural components. More widespread failures are possible or likely to occur, and load restrictions should be implemented as necessary. Repairs may need to be carried out on a very high-priority basis with strong urgency.

Table 1: Condition Assessment Rating (CAR) Per ASCE No. 130

The CAR per ASCE-130 alone does not provide enough information to prioritize tide gate repairs. Therefore, **RACE** additionally assigned a System Impact Rating to each element, which ranged from Negligible (5) to Critical (1). The System Impact Rating is used to quantify the effect that each element of the tide gate has on the overall functionality of the tide gate. This rating system was presented to the Town of Fairfield on July 13, 2023 and approved for

use in evaluation and prioritization of inspected tide gates. The System Impact Rating is defined in the table below.

Rating	Description
5 Negligible	Unlikely to impact function of system.
4 Minor	Possible impact on function of system.
3 Marginal	Likely to impact function of system.
2 Severe	Very likely to impact function of system.
1 Critical	Extremely likely to impact function of system.

Table 2: System Impact Rating

RACE used the System Impact Rating and Condition Assessment Rating to develop the Tide Gate System Rating (TGSR). The TGSR is the average of the ratings for each individual tide gate element. Each element rating is the product of the Condition Assessment Rating and System Impact Rating divided by the total possible product of the two. The total possible rating for each element is 30/30 (the highest Condition Assessment Rating is 6 and the highest System Impact Rating is 5). A newly installed tide gate would likely have a Condition Assessment Rating of Good (6) for all elements as they are all new components and a System Impact Rating of Negligible (5) for all elements because all the elements are unlikely to cause failure of the tide gate system. This score results in a rating of 1.000 for all elements, averaging to a System Rating of 1.000. Alternatively, a failed tide gate with missing elements, failed pipe, and failed headwall would likely be rated in Critical (1) condition with Critical (1) impact for all elements, resulting in a rating of 0.033 for each element, averaging to a System Rating of 0.033

Using TG#19 as an example, the Hinge Assembly was rated in Fair (4) condition because the hinge is moderately deteriorated with some corrosion observed around the stainless-steel fasteners. The Hinge Assembly was rated with a Severe (2) impact due to the growth on the hinge assembly and the corrosion observed around the fasteners which is causing the hinge to lock up (the cast iron flap was rated Marginal [3] impact due to the use of dissimilar metals for the Hinge Assembly and Flap). The product of Fair (4) condition and Severe (2) impact is 8 (4*2=8). Therefore, the Hinge Assembly Relative Rating is 8/30 or 0.267. This process was repeated for each of the elements inspected (Flap [0.500], Bio-Fouling [0.300], Pipe [0.533], and Headwall/Wingwalls [0.200]) and the Relative Ratings were averaged for an overall System Rating of 0.360.

5.2 System Rating Bounds

The System Ratings are representative of the overall functionality of the flood control structure and are generally indicative of the level of maintenance required to restore the structure to functional condition. Structures with a System Rating less than 0.334 were grouped into High priority, structures with a System Rating between 0.334 and 0.666 were grouped into Medium priority, and structures with a System Rating over 0.666 were grouped into Low priority. Although the priority level was determined by bounds on the System Rating, flood control structures with different priority levels may require maintenance with similar urgency.

Using TG#19 as an example again, the TG#19 has an overall system of 0.360. This Tide Gate falls under the "Medium" System Level Category. This means that this flood control structure shall be maintained within 5 years.

System Level Rating	System Rating Bounds
High – Maintain within 1 year	0.000 - 0.333
Medium - Maintain within 5 years	**0.334 – 0.666**
Low - Maintain within 10 years	0.667 – 1.000

Table 3: Tide Gate System Rating Bounds

6. PRIORITIZATION, RECOMMENDATIONS, AND OPINION OF PROBABLE COSTS (OPC) OF TIDE GATES

6.1 Prioritization of Tide Gates

After all flood control structures were inspected, the System Ratings of each were compared to develop relative priority of maintenance for each flood control structure. Tide Gates were grouped as per Table 4.

The priority level of maintenance for each flood control structure is helpful, but the System Rating is a more useful metric to determine which flood control structures require the most urgency for maintenance. In summary, there are eight (8) High priority flood control structures, seventeen (17) Medium priority flood control structures, seven (7) Low priority flood control structures, and six (6) flood control structures that have not been inspected at the time of issuance of this report.

Note that the Tide Gates that were indicated by the Town of Fairfield as being Flap Gates but did not show indication of having a flap gate were shown as high priority due to the "missing" flap gate element. This occurred on TG2, TG16, TG24, TG26, and TG34. If it is determined by the Town that no Flap Gate is to be incorporated then this prioritization would need to be adjusted.

6.2 Recommendations and Opinion of Probable Cost (OPC)

Recommendations for repair and maintenance are summarized in the tables below. Recommendations were compiled for each type of flood control structure. The estimated cost of repairs to each of the flood control structures was determined through equipment and labor costs from 2023 RS Means Database for Commercial New Construction Costs. Material costs were determined by **RACE**'s experience and the most recent material pricing provided by manufacturers. The work was then estimated using customized crews for the repair recommendations, broken into five Categories: Hardware, Cleaning & Coating, Earthwork, Foundation, and Concrete. Additional costs associated with the work were also included in the OPC including Mobilization/Demobilization (10%) Engineering fees (10%), and additional 30% design level contingency for each category. In addition to these costs, a 20% construction contingency fee was added to the overall OPC. The design level contingency is included to recognize that the proposed repair work is at a very high level and not based on a specific, engineered design. It would be anticipated that this contingency would reduce as design advancement for the repair proceeded. In contract, the construction contingency is included to

address uncertainties inherent with the construction phase of the project and is recommended to remain included throughout the design cycle. Individual OPCs for each tide gate are included in Appendix D.

6.3 Prioritization Table of Tide Gates

The following table prioritize the tide gate by System Rating.

Note that the Tide Gates marked with " * " were indicated by the Town of Fairfield as being Flap Gates but did not show indication of having a flap gate and were shown as high priority due to the "missing" flap gate element. If it is determined by the Town that no Flap Gate is to be incorporated then this prioritization would need to be adjusted.

Priority Level	Tide Gate No.	Type of Tide Gate	System Rating	Recommendations	OPC
	24	Flap*	0.122	Add door and hinges (if this is determined by the Town to be req'd). Clean culvert pipe. Fill sinkhole. Add riprap slope protection at culvert outlet.	$53,000
High (0-0.333)	34	Flap*	0.147	Cut and replace pipe outlet with collar. Add door and hinges (if this is determined by the Town to be req'd). Clear sediment and debris. Clean catch basin. Add riprap slope protection to inlet. Remove debris. Install deep foundation for collar. Install concrete wall in front of headwall.	$105,000
	26	Flap*	0.192	Add door and hinges (if this is determined by the Town to be req'd). Clear sediment and debris. Clean catch basin. Demolish concrete headwalls. Fill sinkholes. Install deep foundation. Replace concrete headwall. Repair failed landscape wall.	$99,000
	31	Flap	0.300	Replace aluminum door and hinges. Clean marine growth. Strip cast iron door and coat with epoxy. Add riprap slope protection. Remove sediment buildup.	$52,000
	16	Flap*	0.307	Add door and hinges (if this is determined by the Town to be req'd). Repair HDPE pipe.	$66,000

				Clean sediment and debris. Clean catch basin Reset stones around pipe Install deep foundation collar Install concrete collar to attach flap	
	12	Duckbill	0.317	**Replace duckbill and fasteners. Clear sediment and marine growth. Clean catch basin. Add riprap slope protection.**	**$42,000**
	9B	SRT	0.300	Replace door float and eastern back float. Slipline pipe with PVC pipe. Clean marine growth, vegetation, and debris. Regrade riprap at SRT outlet. Add riprap slope protection to SRT inlet.	$154,000
	9A	**SRT**	**0.317**	**Replace door float and eastern back float. Slipline pipe with PVC pipe. Clean marine growth, vegetation, and debris. Regrade riprap at SRT outlet. Add riprap slope protection to SRT inlet.**	**See TG #9B for Total OPC for TG #9**
	2	Flap*	0.320	Add door and hinges (if this is determined by the Town to be req'd). Clean sediment and debris. Clean catch basin. Regrade riprap slope protection. Deep foundation for concrete collar. Concrete Collar to attach flap Wingwall pile foundation	$70,000
	29	Flap	0.327	**Replace cast iron flap door. Clean marine growth, vegetation, and debris. Demolish deteriorated timber bulkhead. Add riprap slope protection. Remove sediment build up. Install deep foundation for concrete wall. Replace concrete headwall.**	**$98,000**
Medium (0.333-0.666)	18	Duckbill	0.350	Replace duckbill and fasteners. Clean sediment and marine growth. Grout seal pipe penetration though bulkhead.	$23,000
	19	Flap	0.360	Clean marine growth and debris. Clean catch basin Fill sinkhole. Replace/reinforce timber bulkhead	$54,000

Sum of High Priority repairs = 739K

				Seal pipe penetration though bulkhead	
	17	Duckbill	0.383	Replace duckbill and fasteners. Clean sediment and marine growth.	$23,000
	23	Flap	0.400	Replace door and hinges. Clean culvert pipe. Clear sediment and debris. Add riprap slope protection along drainage path. Add riprap slope protection around headwall.	$58,000
	10B	Flap	0.508	Clear debris Clean catch basin Grout seal flap to RCP Regrade riprap at outlet	$24,000
	27A	SRT	0.525	Replace SRT/Flap with 48" SRT. Slipline pipe with PVC pipe. Clean marine growth, vegetation and debris. Regrade riprap at SRT outlet. Replace piles and pile cap in kind	$339,000
	27B	Flap	0.533	Replace SRT/Flap with 48" SRT. Slipline pipe with PVC pipe. Clean marine growth, vegetation and debris. Regrade riprap at SRT outlet. Replace piles and pile cap in kind	See TG #27B for Total OPC for TG #27
	13	Flap	0.553	Replace door and hinges. Clean sediment and debris. Clean catch basin	$14,000
	22A	Sluice	0.571	Replace steel screen and fasteners. Reseal HDPE pipe Clean sediment and debris. Lubricate threaded rod. Grout seal pipe penetration through bulkhead	$17,000
	3	Flap	0.587	Slipline deteriorated MCP. Clean sediment and debris. Grout seal HDPE pipe to MCP pipe. Add riprap slope protection to inlet.	$54,000
	32	SRT	0.590	Replace door floats. Slipline deteriorated MCP. Clean growth, sedimentation, and debris. Riprap slope protection at inlet.	$63,000
	10A	Flap	0.600	Clear debris Clean catch basin Grout seal flap to RCP Regrade riprap at outlet	See TG #10B for Total OPC for TG #10
	20	Flap	0.620	Replace stainless steel clamp fastener.	$34,000

				Clean marine growth and debris. Clean catch basin. Regrade riprap around outlet.	
	22B	**Sluice**	**0.629**	**Replace steel screen and fasteners. Reseal HDPE pipe Clean sediment and debris. Lubricate threaded rod. Grout seal pipe penetration through bulkhead**	**See TG #22A for Total OPC for TG #22**
Low (0.667-1.00)	36	SRT	0.667	Reattach door floats. Clean marine growth, sediment, and debris. Excavate sediment.	$105,000
	6	**Flap**	**0.673**	**Replace washer and cotter pin on east hinge. Clear vegetation and debris. Grout seal HDPE to MCP.**	**$18,000**
	21	Flap	0.673	Clean marine growth and debris. Clean catch basin.	$12,000
	30	**Flap**	**0.713**	**Clean marine growth. Strip cast iron door and coat with epoxy. Add riprap slope protection. Remove sediment build up.**	**$52,000**
	15A	Sluice	0.786	Replace polyurethane gasket. Clean marine growth, vegetation, and sediment.	$15,000
	15B	**Sluice**	**0.786**	**Replace polyurethane gasket. Clean marine growth, vegetation, and sediment.**	**See TG #15A for Total OPC for TG #15**
	14A	SRT	0.790	Replace polyurethane gasket. Clean marine growth, vegetation, and debris. Strip door coating and re-apply.	$15,000
	14B	**SRT**	**0.790**	**Replace polyurethane gasket. Clean marine growth, vegetation, and debris. Strip door coating and re-apply.**	**See TG #14A for Total OPC for TG #14**
Not Inspected as of 8/9/2023	4	36" - Flap	-	Across Kiwanis field-	-
	5	18" - Flap	-	behind 80 old Dam Rd	-
	7	36" - Flap	-	1039 So. Pine Creek	-
	11	24" - Flap	-	80 Salt meadow culvert	-
	25	24" - Flap	-	1004 Reef Rd - Winquall Flap?	-
	28	30" - Flap	-	Near Mewing Guard shack	-

Sum of Medium priority = 703 K

Sum of lower priority = 217 K

Unknown

Table 4: Prioritization Table with Recommendations and OPC

7. REGULATORY

The locations of the flood control structures are within a highly regulated area by a number of Federal, State and Local agencies. In many cases, as in this case, jurisdictions overlap. These agencies include the following:

- U.S. Army Corps of Engineers (USACE)
- State of Connecticut Department of Energy and Environmental Protection (DEEP)
- Town of Fairfield

Additionally, each agency may have multiple internal departments that will provide some level of review to an application (such as the Shellfish Commission, Harbor Management Commission, Conservation & Inland Wetlands Commission, Harbor Master, etc.).

The proposed work consists of substantial modifications to the flood control structures which impacts the type of permit that would be required. Based on **RACE**'s experience, it is expected that the recommended repairs and maintenance noted in Section 6 would most likely fall under a Structures, Dredging, and Fill in Tidal Wetlands Permit or a Certificate of Permission from the DEEP and a General Permit from the USACE, and possibly falling under a CT-General Permit from the CT-DEEP.

7.1 Existing Permits

Existing permits from the DEEP were found for TG#3, TG#6, TG#8NIC, TG#9, TG#12, TG#13, TG#14, TG#15, TG#27, TG#31, and TG#33NIC. Depending on the degree of maintenance and repairs proposed, the DEEP authorized the work under a Certificate of Permission, a Structures, Dredging, and Fill in Tidal Wetlands permit, or a General Permit. Substantial maintenance to TG#6 was authorized under a Certificate of Permission in 2018 to sleeve the corroded corrugated metal pipe with a HDPE pipe and replace the cast iron flap with a non-corrosive flap. Replacement of TG#14 and TG#15 was authorized under a General Permit in 2015. The existing permits are included in Appendix D. Based on the recommendations noted in Section 6 above, it is anticipated that the recommended repairs and maintenance will require a Structures, Dredging, and Fill in Tidal Wetlands permit or a Certificate of Permission.

7.2 United States Army Corps of Engineers

The proposed structures fall within the jurisdiction of the USACE New England District which is the High Tide Line (HTL). The HTL is equivalent to the 1-year frequency tidal flood that has an elevation for this area is El. +5.2' (NAVD-88 Datum). Work and structures located in, under or over any navigable water of the U.S. that affect the course, location, condition, or capacity of such waters; or the excavating from or depositing material in navigable waters are regulated by the USACE under Section 10 of the Rivers and Harbors Act of 1899.

The recommended repairs provided would likely fall under a Connecticut General Permit (GP) from the USACE. The GP process involves submitting a copy of the CT-DEEP Application to the USACE for review.

7.3 CT Department of Energy and Environmental Protection

Flood control structures within the jurisdiction of the CT Department of Energy and Environmental Protection ("CT DEEP") are located waterward of the CT Coastal Jurisdiction Line (CJL). The CJL at in the Town of Fairfield is El. +5.2' (NAVD-88 Datum). Any structure or construction activity waterward of the CJL is within the CT DEEP jurisdiction.

The recommended repairs involving new work would likely require a Structures, Dredge, and Fill in Tidal Wetlands Permit (SDF). It is anticipated that the State will take 6 to 24 months to review the SDF Application. The recommended repairs involving exclusively maintenance of the existing structures would likely require a Certificate of Permission. The State has 90 days to review and respond to a COP application. The State's review will begin once necessary pre-application consultations are completed. At minimum, the proposed work will need to be reviewed by the Town of Fairfield Planning and Zoning Commission, Shellfish Management Commission, and Harbor Management Commission. These pre-application consultations do not have a time limit for review; however, it is anticipated that these reviews can take up to 2 months.

7.4 Town of Fairfield

The Town of Fairfield will assume regulatory responsibility for projects proposed in the coastal area under the Coastal Site Plan Review as authorized under the CT Coastal Area Management (CAM) Act and detailed in the local Zoning Regulations.

The Coastal Site Plan Review by the Planning and Zoning Commission is performed under the authorization and per the requirements of Sections 105 through 22a-109 of the CAM Act and applicable sections of the local Zoning Regulations. Since the recommended repairs and maintenance are for flood control structures, it is anticipated that the Coastal Site Plan Application will require a full review.

8. SUMMARY

RACE COASTAL ENGINEERING, Inc. (RACE) at the Request of Town of Fairfield, completed a condition assessment of twenty-six (26) of the 32 tide gates listed in the September 2022 Inventory of Tide Gates and Flood Control Structures. The remaining six (6) tide gates were not available for inspection as of August 9, 2023. Summary of Existing Conditions of inspected in Tide Gates are listed in Table 1. Detailed observations are listed in Appendix C.

Based on our observations and methodology discussed in Section 5.1, **RACE** prioritized maintenance of tide gates in three categories (low, medium, and high). **RACE** recommends Town of Fairfield to maintain tide gates with low system level rating within next 1 year, medium level rating within next 5 years, and low level rating within next 10 years.

In addition, **RACE** provided recommendations and Opinion of Probable Cost (OPC) to facilitate Town of Fairfield with the budget needed to repair flood control structures included in this report.

The observations and recommendations are based on RACE's collected data and corresponds to the date when the report was issued. RACE reserves the right to modify or amend this Report if additional information becomes available.

CISCO LLC

20 NE Industrial Rd.
Branford, CT 06405

March 5, 2024

Mr. Malcolm Beeler
Weston and Sampson
712 Brook Street, Suite 103
Rocky Hill CT 06067
860-986-7929
BeelerM@WSEInc.com

RE: Proposal – Town of Fairfield Sediment and Stockpile removal and disposal

Dear Mr. Beeler,

Cisco LLC is pleased to submit this proposal for the soil and sediment removal from various sites and tide gates / culverts. Cisco will provide labor, materials and equipment to perform the following scope of work:

SCOPE

Provide vac truck and operator, labor, utility truck, dewatering box, triaxles, soil transportation and disposal, supervision and documentation of disposal activities.

ESTIMATED COSTS

Owens Fish Pond soil pile:
The stockpile will need to be raked through to remove rocks prior to disposal at Manchester Landfill. Cisco will provide a rubber track excavator and skid steer with skeleton bucket to remove rocks from the pile. The rocks will be loaded onto a truck for recycling at a facility that accepts concrete, asphalt and rock for road base manufacturing. The remaining soil will be profiled and shipped to Manchester Landfill. Estimated pile 27'x 24' x 6' = 144 CY = 216 tons of material. Minus ±25% rock = roughly 162 tons non haz soil disposal. Assumes two days of work.

$3,200.00 per day x 2 day estimate=	$6,400.00
162 Tons soil x 120/ ton=	$19,440.00
54 tons of rock x $30/ton =	$1,620.00
TASK TOTAL	$27,460.00

Owens Fish Pond Park Sediment Bay
Vac truck / operator and laborer to set up turbidity curtain and vac 59.3 CY (88.9 tons) of sandy sediment from sediment fore bay (40'x20'x2'). Set up coffer dam in river with jersey barriers. Vac and decant in dewatering box. Trans and Disposal of soil, Manchester Landfill. Dump water at Fairfield WPCA.

$4,250.00 per day x 4 days estimated=	$17,000.00
88.95 tons non-haz soil x $125/ton =	$11,118.75
TASK TOTAL=	$28,118.75

Valley Road Bridge sand bar

Vac truck / operator and laborer to set up turbidity curtain and vac 3.7 CY (5.55 tons) of sandy sediment from sand bar in river (20'x5'x1'). Vac and decant in dewatering box. Dump water at Fairfield WPCA. Trans and Disposal of soil, Manchester Landfill.

$4,250.00 per day x 1 day estimated =	$4,250.00
5.55 tons non-haz soil x $120/ton =	$666.00
TASK TOTAL=	$4,916.00

Investigation work to find culverts

Hourly rates will apply to this investigation work. Excavator, operator, laborer and utility truck for a day would be provided at a cost of $2,500.00 plus mobilization fees for equipment.

Mob/demob=	$1,350.00
2 days x $2,500.00/ day=	$5,000.00
TASK TOTAL=	$6,350.00

Miscellaneous Culverts at TG4, TG5, TG7, TG25, RRC-1N and RRC-2S

Hourly rates will apply to this work. 98.86 CY = 148.29 tons. Estimated costs for Vac truck, operator, support truck, laborer, dewatering box, non-haz soil disposal and water disposal at Fairfield WPCA are:

$4,250.00 per day for above x 6 days (1 day per site) =	$25,500.00
148.29 tons non-haz soil disposal x $120/ton =	$17,794.80
TASK TOTAL =	$43,294.80

PCB Impacted sites TG11 and TG28

Hourly rates will apply to this work. TG11 and TG28 locations will be disposed as PCB remediation waste and water generated at these sites will be treated and sampled for PCB prior to disposal through Globalcycle. TG11 is approx. 29.6CY. TG28 is approx. 11.27 CY. Estimated costs for this task are:

Labor and Equip.$4,250 per day x 4 days=	$17,000.00
Soil Dispoal 61.30 Tons PCB waste x $415/ton=	$25,398.00
Water treatment system	$6,500.00
Water treatment and disposal $4.85/gal x 3000gal=	$14,550.00
Decontamination efforts=	$3,500.00
TASK TOTAL=	$66,948.00

UNIT RATES

Vac truck with operator	$250.00 per hour, 4-hour Minimum
Dewatering box	$1200 mob/demob plus $70 per day
Roll off service	$150 per hour
Laborer	$85 per hour – straight time
Equipment operator	$100 per hour – straight time
Rubber track excavator (test pits)	$85 per hour
Skid Steer with skeleton bucket	$65 per hour
Non-Haz soil disposal	$120 per ton
PCB soil disposal (TSCA)	$415 per ton
Rock disposal (recycle for process)	$30 per ton
Mobilize/demobilize treatment system	$6,500.00 LS
PCB impacted water treatment and disposal	$4.85 per gallon

CT STATE SALES TAX NOT INCLUDED

Terms and Conditions

- Cisco LLC will have free and easy access to the site.
- Permits are by others.
- Waste characterization and closure samples are by others.
- Cancellations require 24 hours notice to avoid being charged the scheduled day's rate.
- A signed Cisco LLC agreement is required.
- Cisco LLC's payment terms to established customers are 30 Days NET upon receipt of invoice. All overdue invoices will accrue interest at a rate 1.5%.
- This proposal is subject to additional charges for concealed or unknown conditions

Proposal Acceptance

The above project scope, pricing and conditions are satisfactory and hereby accepted. I am commissioning this work as an authorized representative of Weston and Sampson. Payment will be made as outlined in this proposal. My signature denotes a legal and binding contract. Client assumes full responsibility for all payment collection actions and associated fees.

Acknowledge and Agree

_____ _____

Signature Date

_____ _____

Title Purchase Order

Thank you for the opportunity to provide this proposal. Please contact me at 203-804-3180 should you have any question.

Sincerely,

Todd Weldon

Todd Weldon
Project Manager

20 YEAR

A RESOLUTION APPROPRIATING $3,770,000 FOR THE COSTS OF THE TRAFFIC SIGNAL IMPROVEMENT PROJECT AND AUTHORIZING THE ISSUANCE OF BONDS TO FINANCE SUCH APPROPRIATION.

Resolved:

1. As recommended by the Board of Selectmen and the Board of Finance, the Town of Fairfield appropriates Three Million Seven Hundred Seventy Thousand and 00/100 ($3,770,000) Dollars to fund the costs of a traffic signal improvement project, such costs to include, but not be limited to, planning, design, surveying, construction and installation, materials, equipment, engineering, as well as, all administrative, financing, legal, contingency and other soft costs related thereto (the "Project").

2. To finance such appropriation and in lieu of a tax thereof, and as recommended by the Board of Finance and the Board of Selectmen, the Town shall borrow a sum not to exceed Three Million Seven Hundred Seventy Thousand and 00/100 ($3,770,000) Dollars and issue bonds for such indebtedness under its corporate name and seal and upon the full faith and credit of the Town in an amount not to exceed said sum for the purpose of financing the portion of the appropriation for the Project not paid for by the Grants.

3. The Board of Selectmen, the Treasurer and the Chief Fiscal Officer of the Town are hereby appointed a committee (the "Committee") with full power and authority to cause said bonds to be sold, issued and delivered; to determine their form and terms, including provisions for redemption prior to maturity; to determine the aggregate principal amount thereof within the amount hereby authorized and the denominations and maturities thereof; to fix the time of issue of each series thereof and the rate or rates of interest thereon as herein provided; to determine whether the interest rate on any series will be fixed or variable and to determine the method by which the variable rate will be determined, the terms of conversion, if any, from one interest rate mode to another or from fixed to variable; to set whatever other terms of the bonds they deem necessary, desirable or appropriate; to designate the bank or trust company to certify the issuance thereof and to act as transfer agent, paying agent and as registrar for the bonds, and to designate bond counsel. The Committee shall have all appropriate powers under the Connecticut General Statutes, as amended (the "Statutes") including Chapter 748 (Registered Public Obligations Act), and Chapter 109 (Municipal Bond Issues) to issue, sell and deliver the bonds and, further, shall have full power and authority to do all that is required under the Internal Revenue Code of 1986, as amended, and under rules of the Securities and Exchange Commission, and other applicable laws and regulations of the United States, to provide for issuance of the bonds in tax exempt form and to meet all requirements which are or may become necessary in and subsequent to the issuance and delivery of the bonds in order that the interest on the bonds be and remain exempt from

Federal income taxes, including, without limitation, to covenant and agree to restriction on investment yield of bond proceeds, rebate of arbitrage earnings, expenditure of proceeds within required time limitations, the filing of information reports as and when required, and the execution of Continuing Disclosure Agreements for the benefit of the holders of the bonds and notes.

4. The First Selectman and Treasurer or Chief Fiscal Officer, on behalf of the Town, shall execute and deliver such bond purchase agreements, reimbursement agreements, line of credit agreement, credit facilities, remarketing agreement, standby marketing agreements, standby bond purchase agreements, and any other commercially necessary or appropriate agreements which the Committee determines are necessary, appropriate or desirable in connection with or incidental to the sale and issuance of bonds, and if the Committee determines that it is necessary, appropriate, or desirable, the obligations under such agreements shall be secured by the Town's full faith and credit.

5. The First Selectman and Treasurer or Chief Fiscal Officer shall execute on the Town's behalf such interest rate swap agreements or similar agreements related to the bonds for the purpose of managing interest rate risk which the Committee determines are necessary, appropriate or desirable in connection with or incidental to the carrying or selling and issuance of the bonds, and if the Committee determines that it is necessary, appropriate or desirable, the obligations under such interest rate swap agreements shall be secured by the Town's full faith and credit.

6. The bonds may be designated "Public Improvement Bonds of the Town of Fairfield," series of the year of their issuance and may be issued in one or more series, and may be consolidated as part of the same issue with other bonds of the Town; shall be in serial form maturing in not more than twenty (20) annual installments of principal, the first installment to mature not later than three (3) years from the date of issue and the last installment to mature not later than twenty (20) years from the date of issuance or as otherwise provided by statute. The bonds may be sold at an aggregate sales price of not less than par and accrued interest at public sale upon invitation for bids to the responsible bidder submitting the bid resulting in the lowest true interest cost to the Town, provided that nothing herein shall prevent the Town from rejecting all bids submitted in response to any one invitation for bids and the right to so reject all bids is hereby reserved, and further provided that the Committee may sell the bonds on a negotiated basis, as provided by statute. Interest on the bonds shall be payable semi-annually or annually. The bonds shall be signed on behalf of the Town by at least a majority of the Board of Selectmen and the Treasurer, and shall bear the seal of the Town. The signing, sealing and certification of the bonds may be by facsimile as provided by statute.

7. The Committee is further authorized to make temporary borrowings as authorized by the Statutes and to issue temporary notes of the Town in anticipation of the receipt of proceeds from the sale of the bonds to be issued pursuant to this resolution or in

anticipation of the receipt of the Grants. Such notes shall be issued and renewed at such time and with such maturities, requirements and limitations as provided by the Statutes. Notes evidencing such borrowings shall be signed by the First Selectman and Treasurer or the Chief Fiscal Officer, have the seal of the Town affixed, which signing and sealing may be by facsimile as provided by statute, be certified by and payable at a bank or trust company incorporated under the laws of this or any other state, or of the United States, be approved as to their legality by bond counsel, and may be consolidated with the issuance of other Town bond anticipation notes. The Committee shall determine the date, maturity, interest rates, form and manner of sale, including negotiated sale, and other details of said notes consistent with the provisions of this resolution and the Statutes and shall have all powers and authority as set forth above in connection with the issuance of bonds and especially with respect to compliance with the requirements of the Internal Revenue Code of 1986, as amended, and regulations thereunder in order to obtain and maintain issuance of the notes in tax exempt form.

8. Pursuant to Section 1.150-2, as amended, of the Federal Income Tax Regulations the Town hereby declares its official intent to reimburse expenditures (if any) paid for the Project from its General or Capital Funds, such reimbursement to be made from the proceeds of the sale of bonds and notes authorized herein and in accordance with the time limitations and other requirements of said regulations.

9. The First Selectman, the Chief Fiscal Officer and Town Treasurer are hereby authorized, on behalf of the Town, to enter into agreements or otherwise covenant for the benefit of bondholders to provide information on an annual or other periodic basis to the Municipal Securities Rulemaking Board (the "MSRB") and to provide notices to the MSRB of material events as enumerated in Securities and Exchange Commission Exchange Act Rule 15c2-12, as amended, as may be necessary, appropriate or desirable to effect the sale of the bonds and notes authorized by this resolution.

10. The Committee is hereby authorized to take all action necessary and proper for the sale, issuance and delivery of the bonds and notes in accordance with the provisions of the Statutes and the laws of the United States.

11. The First Selectman or other proper Town official is authorized to apply for and accept any available State or Federal grant in aid of the financing of the Project, and to take all action necessary and proper in connection therewith. Any such grants or contribution received prior to the issuance of the Bonds authorized herein shall be applied to the costs of the Project or to pay at maturity the principal of any outstanding bond anticipation notes issued pursuant this resolution and shall reduce the amount of the Bonds that can be issued pursuant to this resolution. If such grants and contributions are received after the issuance of the Bonds, they shall be applied to pay the principal on the Bonds or as otherwise authorized by the Board of Selectmen, Board of Finance and Representative Town Meeting provided such application does not adversely affect the tax-exempt status of the Bonds or the Town's receipt of such grant or contribution.

Traffic Signal Improvements = Three Year Authorization totaling $3,770,000
for New Signal and repairs, upgrades and ADA Compliance. To Be continued. There may be grant opportunities.
Year 1 (FY 24) was funded by ARPA ($1,000,000)

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1. **Background** –The Town hired a Consultant (AKRF) to provide Traffic and Transportation Services that covered performing a Town wide Traffic Signal Improvement and Management Program. This included signal inventory, operation evaluation, equipment function and Emergency Pre-Emption evaluations. See AKRF 5 year Plan.

2. **Purpose and Justification** – The Town receives semi frequent complaints about traffic signal operations, waiting too long for lights to turn green, signal repair requests such as loop detectors/cameras out, bulb outages, non functioning push buttons and safety concerns regarding pedestrian crossings. Occasionally people will complain a signal is out or blinking for a length of time. The Traffic Signal Program includes maintenance and replacement recommendations.

3. **Detailed Description of Proposal** –This proposal request is based on the 5 year plan (Recommended long range improvements and replacements)provide by the Consultants to the Town. It covers installing 360 degree cameras, signal replacements, new controllers and taking steps to install a cloud based central control system. Included in the request are some design fees. Complete design fees for new signal may result in added scope or fees.

4. **Reliability of Cost Estimate** – The costs were determined using DOT cost estimating guide, for summer 2023 and by Consultants based on their experience of local pricing. The reliability of costs on a scale of 0 to 10 is estimated at 8.

5. **Increased Efficiency or Productivity** – Improve overall traffic, public and pedestrian safety.

6. **Additional Long Range Costs** – Typical Maintenance costs. Short and longer term maintenance costs should be reduced with repair and replacements.

7. **Additional Use or Demand on Existing Facilities** –An increase pedestrian activity is expected. Safer travel conditions with improvements.

8. **Alternatives to this Request** –The "Do nothing" option won't improve safety or reduce liability.

9. **Safety and Loss Control** – Allow pedestrians safer access.

10. **Environmental Considerations** – All projects will investigate environmental impacts. Although for most cases, little or no impacts expected. No environmental permits are anticipated unless soil conditions warrant further testing. More people walking can improve individual health and reduce carbon emissions etc

11. **Insurance** – Any selected contractors will be required to carry the necessary insurance prescribed by the Purchasing Department.

12. **Financing** –Project bonding based on 5 year capital plan. Seeking 3 year appropriation and authorization.

13. **Other Considerations**: Signal improvements to side streets with State intersections. In some cases DOT is improving specific intersections including Town side streets BUT in other locations (example Reef Rd, is NOT in DOT plans or currently listed in 5 year plan based on signal condition). Town should seek assistance with Local State Officials to seek DOT commitment, grants or extra funding?

14. **Other Approvals**:
    Board of Selectman
    Board of Finance
    RTM

Long Range Traffic Signal Replacements
Fairfield, CT

DESCRIPTION	UNIT	TOTAL QUANTITY	ENGINEER'S ESTIMATE	
			COST/UNIT	AMOUNT
YEAR 1				
360 DEGREE CAMERAS[1]				
Kings Highway East and Commerce Drive				
Mill Plain Road and Ludlowe Road	EA	4	$ 29,250.00	$ 117,000.00
Commerce Drive and Brentwood Avenue				
Commerce Drive and Chambers Street				
SIGNAL REPLACEMENTS[2]				
Sacred Heart Driveway and Park Avenue	EA	1	$ 650,000.00	$ 650,000.00
Park Avenue Pedestrian Crossing	EA	1	$ 200,000.00	$ 200,000.00
CONTROLLERS[3]				
Commerce Drive and Brentwood Avenue				
Commerce Drive and Chambers Street	EA	4	$ 6,000.00	$ 24,000.00
Kings Highway East and Commerce Drive				
Mill Plain Road and Ludlowe Road				
CENTRAL SYSTEM IN CLOUD BASED[5]				
Commerce Drive and Brentwood Avenue				
Commerce Drive and Chambers Street				
Park Avenue and Sacred Heart Driveway	EA	1	$ 27,200.00	$ 27,200.00
Park Avenue Pedestrian Crossing				
Black Rock Turnpike and Commerce Drive				
Jefferson Street and Park Avenue				
Fairfield Woods Road at Library				
TRAFFIC ENGINEERING CONSULTING FEES[6]	EA	1	$ 15,000.00	$ 15,000.00
			Subtotal (With Central 1 year)	**$ 1,033,200.00**
			With 15% Contingency for Incidentals	**$ 1,188,180.00**

YEAR 2				
360 DEGREE CAMERAS[1]				
Grasmere Avenue and Kings Highway (N/S of Tracks)				
Grasmere Avenue and Home Depot/ Whole Foods Driveway	EA	4	$ 32,625.00	$ 130,500.00
Black Rock Turnpike and BJ's/Ash Creek Boulevard				
Fairfield Woods Road and Melville Avenue				
SIGNAL REPLACEMENTS[7]				
Mill Plain Road and Ludlowe Road	EA	1	$ 650,000.00	$ 650,000.00
CONTROLLERS[3]				
Black Rock Turnpike and BJ's/Ash Creek Boulevard				
Fairfield Woods Road and Melville Avenue	EA	4	$ 6,000.00	$ 24,000.00
Gasmere Avenue and Kings Highway (N/S of Tracks)				
Grasmere Avenue and Home Depot/Whole Foods Driveway				
CENTRAL SYSTEM IN CLOUD BASED[5]				
Black Rock Turnpike and BJ's/Ash Creek Boulevard				
Fairfield Woods Road and Melville Avenue				
Gasmere Avenue and Kings Highway (N/S of Tracks)	EA	1	$ 40,400.00	$ 40,400.00
Grasmere Avenue and Home Depot/Whole Foods Driveway				
Kings Highway and Ash Creek Boulevard				
Kings Highway East and Commerce Drive				
Mill Plain Road and Ludlowe Road				
PEDESTRIAN SIGNAL UPGRADES (3 INTERSECTIONS)[4]	EA	3	$ 85,000.00	$ 255,000.00
ADA SIDEWALK IMPROVEMENTS[11] (3 INTERSECTIONS)	EA	3	$ 55,000.00	$ 165,000.00
TRAFFIC ENGINEERING CONSULTING FEES[6]	EA	1	$ 50,000.00	$ 50,000.00
			Subtotal (With Central 1 year)	**$ 1,314,900.00**
			Inflation Contingency (4%/year)	**$ 1,367,496.00**
			With 15% Contingency for Incidentals	**$ 1,572,620.40**

Long Range Traffic Signal Replacements
Fairfield, CT

DESCRIPTION	UNIT	TOTAL QUANTITY	ENGINEER'S ESTIMATE	
			COST/UNIT	AMOUNT
YEAR 3				
360 DEGREE CAMERAS[1] *Kings Highway and Ash Creek Boulevard* *Fairfield Woods Road and Library* *Black Rock Turnpike and Commerce Drive*	EA	3	$ 31,000.00	$ 93,000.00
SIGNAL REPLACEMENTS[7]				
Commerce Drive and Brentwood Avenue	EA	1	$ 650,000.00	$ 600,000.00
Commerce Drive and Chambers Street	EA	1	$ 650,000.00	$ 650,000.00
CONTROLLERS[3] *Black Rock Turnpike and Commerce Drive* *Fairfield Woods Road and Library* *Jefferson Street and Park Avenue* *Kings Highway and Ash Creek Boulevard*	EA	4	$ 6,000.00	$ 24,000.00
CENTRAL SYSTEM IN CLOUD BASED[10]	EA	1	$ 26,400.00	$ 26,400.00
TRAFFIC ENGINEERING CONSULTING FEES[6]	EA	1	$ 25,000.00	$ 25,000.00
			Subtotal (With Central 1 year)	**$ 1,418,400.00**
			Inflation Contingency (4%/year)	**$ 1,531,872.00**
			With 15% Contingency for Incidentals	**$ 1,761,652.80**
YEAR 4				
CENTRAL SYSTEM IN CLOUD BASED[10]	EA	1	$ 26,400.00	$ 26,400.00
GENERAL TRAFFIC SIGNAL REPLACEMENT EQUIPMENT AND REPAIRS	EA	1	$ 50,000.00	$ 50,000.00
PEDESTRIAN SIGNAL UPGRADES (3 INTERSECTIONS)[4]	EA	3	$ 85,000.00	$ 255,000.00
ADA SIDEWALK IMPROVEMENTS[11] (3 INTERSECTIONS)	EA	3	$ 55,000.00	$ 165,000.00
TRAFFIC ENGINEERING CONSULTING FEES[6]	EA	1	$ 25,000.00	$ 25,000.00
			Subtotal (With Central 1 year)	**$ 521,400.00**
			Inflation Contingency (4%/year)	**$ 583,968.00**
			With 15% Contingency for Incidentals	**$ 671,563.20**
YEAR 5				
CENTRAL SYSTEM IN CLOUD BASED[10]	EA	1	$ 26,400.00	$ 26,400.00
GENERAL TRAFFIC SIGNAL REPLACEMENT EQUIPMENT AND REPAIRS	EA	1	$ 50,000.00	$ 50,000.00
PEDESTRIAN SIGNAL UPGRADES (3 INTERSECTIONS)[4]	EA	3	$ 85,000.00	$ 255,000.00
ADA SIDEWALK IMPROVEMENTS[11] (3 INTERSECTIONS)	EA	3	$ 55,000.00	$ 165,000.00
TRAFFIC ENGINEERING CONSULTING FEES[6]	EA	1	$ 25,000.00	$ 25,000.00
			Subtotal (With Central 1 year)	**$ 521,400.00**
			Inflation Contingency (4%/year)	**$ 604,824.00**
			With 15% Contingency for Incidentals	**$ 695,547.60**

NOTES:

1. Includes materials, installation and consultant fees
2. Includes survey, design, materials and installation. Assumes no contribution from Sacred Heart University
3. Includes materials and installation
4. Includes survey, design, materials and installation. Assumes pedestrian signal replacement or installation on 4 corners.
5. Includes materials, licenses for intersections listed, modems (buy and install), 1 year of cell service, and access to ATMS central server for 1 year
6. Operational analyses of the Home Depot and Kings Highway at Grasmere Avenue (N/S of Tracks) (year 1) and Commerce Drive corridor (year 2) excluded from the consultant fees for design items above. Years 3 through 5 are an estimate for ongoing technical support.
7. Includes survey, design, materials and installation.
8. Includes materials, licenses, modems (buy and install), 1 year of cell service and access to the ATMS central server for 1 year for all intersections listed above in years 1 and 2
9. All fees paid in previous years covering the system for 10 years
10. 1 years of cell service and ATMS central server access. Will be a reoccuring fee for the life of the system.

11. Includes all materials to remove and replace existing sidewalks with new ADA ramps, detectable warning strips, pavement patches, topsoil and turf establishment, surveying, and engineering fees.

20 YEAR

A RESOLUTION APPROPRIATING $4,760,000 FOR THE COSTS OF THE SIDEWALK ACCESSIBILITY UPGRADES PROJECT AND AUTHORIZING THE ISSUANCE OF BONDS TO FINANCE SUCH APPROPRIATION.

Resolved:

1. As recommended by the Board of Selectmen and the Board of Finance, the Town of Fairfield appropriates Four Million Seven Hundred Sixty Thousand and 00/100 ($4,760,000) Dollars to fund costs of a sidewalk accessibility upgrades project, such costs to include, but not be limited to, improvements to existing sidewalks that are in poor condition and not included in the Town's five year paving plan to install handicap accessible ramps, tactile warning strips and signal improvements to meet current American Disabilities Act requirements, design, materials, oversight, as well as, all administrative, financing, legal, contingency and other soft costs related thereto (the "Project").

2. To finance such appropriation and in lieu of a tax thereof, and as recommended by the Board of Finance and the Board of Selectmen, the Town shall borrow a sum not to exceed Four Million Seven Hundred Sixty Thousand and 00/100 ($4,760,000) Dollars and issue bonds for such indebtedness under its corporate name and seal and upon the full faith and credit of the Town in an amount not to exceed said sum for the purpose of financing the portion of the appropriation for the Project not paid for by the Grants.

3. The Board of Selectmen, the Treasurer and the Chief Fiscal Officer of the Town are hereby appointed a committee (the "Committee") with full power and authority to cause said bonds to be sold, issued and delivered; to determine their form and terms, including provisions for redemption prior to maturity; to determine the aggregate principal amount thereof within the amount hereby authorized and the denominations and maturities thereof; to fix the time of issue of each series thereof and the rate or rates of interest thereon as herein provided; to determine whether the interest rate on any series will be fixed or variable and to determine the method by which the variable rate will be determined, the terms of conversion, if any, from one interest rate mode to another or from fixed to variable; to set whatever other terms of the bonds they deem necessary, desirable or appropriate; to designate the bank or trust company to certify the issuance thereof and to act as transfer agent, paying agent and as registrar for the bonds, and to designate bond counsel. The Committee shall have all appropriate powers under the Connecticut General Statutes, as amended (the "Statutes") including Chapter 748 (Registered Public Obligations Act), and Chapter 109 (Municipal Bond Issues) to issue, sell and deliver the bonds and, further, shall have full power and authority to do all that is required under the Internal Revenue Code of 1986, as amended, and under rules of the Securities and Exchange Commission, and other applicable laws and regulations of the United States, to provide for issuance of the bonds in tax exempt form and to meet all

requirements which are or may become necessary in and subsequent to the issuance and delivery of the bonds in order that the interest on the bonds be and remain exempt from Federal income taxes, including, without limitation, to covenant and agree to restriction on investment yield of bond proceeds, rebate of arbitrage earnings, expenditure of proceeds within required time limitations, the filing of information reports as and when required, and the execution of Continuing Disclosure Agreements for the benefit of the holders of the bonds and notes.

4. The First Selectman and Treasurer or Chief Fiscal Officer, on behalf of the Town, shall execute and deliver such bond purchase agreements, reimbursement agreements, line of credit agreement, credit facilities, remarketing agreement, standby marketing agreements, standby bond purchase agreements, and any other commercially necessary or appropriate agreements which the Committee determines are necessary, appropriate or desirable in connection with or incidental to the sale and issuance of bonds, and if the Committee determines that it is necessary, appropriate, or desirable, the obligations under such agreements shall be secured by the Town's full faith and credit.

5. The First Selectman and Treasurer or Chief Fiscal Officer shall execute on the Town's behalf such interest rate swap agreements or similar agreements related to the bonds for the purpose of managing interest rate risk which the Committee determines are necessary, appropriate or desirable in connection with or incidental to the carrying or selling and issuance of the bonds, and if the Committee determines that it is necessary, appropriate or desirable, the obligations under such interest rate swap agreements shall be secured by the Town's full faith and credit.

6. The bonds may be designated "Public Improvement Bonds of the Town of Fairfield," series of the year of their issuance and may be issued in one or more series, and may be consolidated as part of the same issue with other bonds of the Town; shall be in serial form maturing in not more than twenty (20) annual installments of principal, the first installment to mature not later than three (3) years from the date of issue and the last installment to mature not later than twenty (20) years from the date of issuance or as otherwise provided by statute. The bonds may be sold at an aggregate sales price of not less than par and accrued interest at public sale upon invitation for bids to the responsible bidder submitting the bid resulting in the lowest true interest cost to the Town, provided that nothing herein shall prevent the Town from rejecting all bids submitted in response to any one invitation for bids and the right to so reject all bids is hereby reserved, and further provided that the Committee may sell the bonds on a negotiated basis, as provided by statute. Interest on the bonds shall be payable semi-annually or annually. The bonds shall be signed on behalf of the Town by at least a majority of the Board of Selectmen and the Treasurer, and shall bear the seal of the Town. The signing, sealing and certification of the bonds may be by facsimile as provided by statute.

7. The Committee is further authorized to make temporary borrowings as authorized by the Statutes and to issue temporary notes of the Town in anticipation of the receipt of proceeds from the sale of the bonds to be issued pursuant to this resolution or in anticipation of the receipt of the Grants. Such notes shall be issued and renewed at such time and with such maturities, requirements and limitations as provided by the Statutes. Notes evidencing such borrowings shall be signed by the First Selectman and Treasurer or the Chief Fiscal Officer, have the seal of the Town affixed, which signing and sealing may be by facsimile as provided by statute, be certified by and payable at a bank or trust company incorporated under the laws of this or any other state, or of the United States, be approved as to their legality by bond counsel, and may be consolidated with the issuance of other Town bond anticipation notes. The Committee shall determine the date, maturity, interest rates, form and manner of sale, including negotiated sale, and other details of said notes consistent with the provisions of this resolution and the Statutes and shall have all powers and authority as set forth above in connection with the issuance of bonds and especially with respect to compliance with the requirements of the Internal Revenue Code of 1986, as amended, and regulations thereunder in order to obtain and maintain issuance of the notes in tax exempt form.

8. Pursuant to Section 1.150-2, as amended, of the Federal Income Tax Regulations the Town hereby declares its official intent to reimburse expenditures (if any) paid for the Project from its General or Capital Funds, such reimbursement to be made from the proceeds of the sale of bonds and notes authorized herein and in accordance with the time limitations and other requirements of said regulations.

9. The First Selectman, the Chief Fiscal Officer and Town Treasurer are hereby authorized, on behalf of the Town, to enter into agreements or otherwise covenant for the benefit of bondholders to provide information on an annual or other periodic basis to the Municipal Securities Rulemaking Board (the "MSRB") and to provide notices to the MSRB of material events as enumerated in Securities and Exchange Commission Exchange Act Rule 15c2-12, as amended, as may be necessary, appropriate or desirable to effect the sale of the bonds and notes authorized by this resolution.

10. The Committee is hereby authorized to take all action necessary and proper for the sale, issuance and delivery of the bonds and notes in accordance with the provisions of the Statutes and the laws of the United States.

11. The First Selectman or other proper Town official is authorized to apply for and accept any available State or Federal grant in aid of the financing of the Project, and to take all action necessary and proper in connection therewith. Any such grants or contribution received prior to the issuance of the Bonds authorized herein shall be applied to the costs of the Project or to pay at maturity the principal of any outstanding bond anticipation notes issued pursuant this resolution and shall reduce the amount of the Bonds that can be issued pursuant to this resolution. If such grants and contributions are received after the issuance of the Bonds, they shall be applied to pay the principal on the

Bonds or as otherwise authorized by the Board of Selectmen, Board of Finance and Representative Town Meeting provided such application does not adversely affect the tax-exempt status of the Bonds or the Town's receipt of such grant or contribution.

BETA SIDEWALK Capital Improvement Plan = Three Year Authorization totaling $4,760,000 for Sidewalk Repairs, upgrades and ADA Compliance for EXISTING Sidewalks, Not on the Paving Plan.

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1. **Background** – The Town has received several complaints from the public regarding condition of sidewalks throughout Town. Last year and continuing this year, the Town's Consultant (BETA) has composed a sidewalk assessment program relating to Fairfield's 125 mile + sidewalk network. The Town and Consultant have devised a comprehensive 5 year program related to sidewalk improvements. This program is very similar to the pavement management program that BETA also developed. The program rates SEGMENTS of sidewalk based on condition along the Town's and State's roadways. Preliminary information reveals that the Town has over 65 miles of sidewalks rated in fair condition with an additional 10 miles rated in poor/replace condition. This does not cover isolated panels or sections due to tree uproots, failed utility trench, parked vehicle damage, etc.

2. **Purpose and Justification** – In the interest of public safety, the Town has an obligation to improve safety for pedestrians, cyclists and motorists. Almost every week, through the public complaint system, emails or phone calls, DPW, Police and Engineering receive requests to improve or repair sidewalks. The Town has seen a tremendous increase in pedestrian activity and many neighborhoods are demanding the Town upgrade the sidewalks. Such costs to include, but not be limited to, improvements to existing sidewalks that are in poor condition and not included in the Town's five year paving plan to install handicap accessible ramps, tactile warning strips and signal improvements to meet current American Disabilities Act requirements, design, materials, oversight, as well as, all administrative, financing, legal, contingency and other soft costs related thereto.

3. **Detailed Description of Proposal** –The past year and a half, the Town has been using ARPA funds to make these improvements. Unfortunately, ARPA funding is running out, hence the request to continue implementing the 5 year sidewalk restoration program. Priority will be given to sidewalks listed in poor and replace condition. Concurrently, as the Town performs paving (via Pavement management Program), repairs and/or replacement segments will be implemented- this will create a cost savings through economies of scale.

4. **Reliability of Cost Estimate** – The costs were determined by the BETA report and reflect 2022 prices. Every year asphalt prices are generally based on petroleum prices and concrete prices usually follow suit as cement, stone and other building materials usually increase as well. Based on recent Department of Transportation cost estimates and recent improvements in the Town and region. The reliability of costs on a scale of 0 to 10 is estimated at 8 based on BETA program numbers that mirror over a dozen reports in CT/Mass area.

5. **Increased Efficiency or Productivity** – Improve overall pedestrian safety. Reduce potential trip and fall accidents and improve conditions for all users. By implementing sidewalk inventory and Assessment recommendations, safety will be improved along with increased efficiency and reduced liability.

6. **Additional Long Range Costs** – Typical Maintenance costs. Short and longer term maintenance costs should be reduced with repair and replacements.

7. **Additional Use or Demand on Existing Facilities** –An increase pedestrian activity is expected. Safer travel conditions with improvements.

8. **Alternatives to this Request** –The "Do nothing" option won't improve safety or reduce liability. DPW will continue to perform sidewalk restorations, using in house labor but taking them away from other projects. Although they can work in tandem with contractors or "divide" areas to cover more neighborhoods. Reduction in amount requested will reduce amount of work and installations performed or spread out.

9. **Safety and Loss Control** – Allow pedestrians safer access.

10. **Environmental Considerations** – All projects will investigate environmental impacts. Although for most cases, little or no impacts expected. No environmental permits are anticipated unless a special condition structure or encroachment beyond right of way that impacts wetlands or watercourses. More people walking can improve individual health and reduce carbon emissions etc

11. **Insurance** – Selected contractors will be required to carry the necessary insurance prescribed by the Purchasing Department.

12. **Financing** – Project bonded as part of the 5 year capital plan, seeking 3 year appropriation and authorization. FY25-27.

13. **Other Considerations**: This request is for EXISTING Sidewalk Restoration based on BETA report and doesn't involve pedestrian signal improvements or NEW sidewalk or complete street requests.

14. **Other Approvals**:
    Board of Selectman
    Board of Finance
    RTM

Fairfield, CT

Proposed 2024-2028 Sidewalk Capital Improvement Plan Summary

*Costs Serve For Estimating Purposes Only. Not to be used for Bidding/Construction.

DRAFT - 10/30/2023	Length (Miles)	Est. Repair Cost	20% Contingency	Est. Total
2024 SW				
Asphalt	1.89	$279,316	$55,863	$335,179
Brick	0.01	$2,741	$548	$3,289
Concrete	1.10	$279,414	$55,883	$335,297
Paver	3.04	$1,155,805	$231,161	$1,386,966
Year Total:	**6.04**	**$1,717,275**	**$343,455**	**$2,060,730**
2025 SW				
Asphalt	6.03	$891,970	$178,394	$1,070,364
Concrete	2.02	$512,890	$102,578	$615,469
Mix Materials	1.24	$313,005	$62,601	$375,606
Year Total:	**9.29**	**$1,717,865**	**$343,573**	**$2,061,438**
2026 SW				
Asphalt	5.00	$739,009	$147,802	$886,811
Concrete	2.35	$594,841	$118,968	$713,810
Mix Materials	1.57	$397,851	$79,570	$477,422
Year Total:	**8.92**	**$1,731,702**	**$346,340**	**$2,078,042**
2027 SW				
Asphalt	2.86	$423,281	$84,656	$507,937
Concrete	1.51	$383,761	$76,752	$460,513
Mix Materials	0.26	$66,393	$13,279	$79,672
Year Total:	**4.64**	**$873,435**	**$174,687**	**$1,048,122**
2028 SW				
Asphalt	0.74	$109,607	$21,921	$131,528
Concrete	2.85	$722,167	$144,433	$866,600
Mix Materials	0.12	$31,323	$6,265	$37,588
Year Total:	**3.71**	**$863,097**	**$172,619**	**$1,035,716**
CIP Total:	**32.60**	**$6,903,373**	**$1,380,675**	**$8,284,048**

20 YEAR

A RESOLUTION APPROPRIATING $4,921,761 FOR THE COSTS OF THE ROADWAY ACCESSIBILITY UPGRADES PROJECT AND AUTHORIZING THE ISSUANCE OF BONDS TO FINANCE SUCH APPROPRIATION.

Resolved:

1. As recommended by the Board of Selectmen and the Board of Finance, the Town of Fairfield appropriates Four Million Nine Hundred Twenty-One Thousand Seven Hundred Sixty-One and 00/100 ($4,921,761) Dollars to fund costs of a roadway accessibility upgrades project, such costs to include, but not be limited to, improvements to the paved roads and associated existing sidewalks to install handicap accessible ramps, tactile warning strips and signal improvements to meet current American Disabilities Act requirements, design, materials, oversight, as well as, all administrative, financing, legal, contingency and other soft costs related thereto (the "Project").

2. To finance such appropriation and in lieu of a tax thereof, and as recommended by the Board of Finance and the Board of Selectmen, the Town shall borrow a sum not to exceed Four Million Nine Hundred Twenty-One Thousand Seven Hundred Sixty-One and 00/100 ($4,921,761) Dollars and issue bonds for such indebtedness under its corporate name and seal and upon the full faith and credit of the Town in an amount not to exceed said sum for the purpose of financing the portion of the appropriation for the Project not paid for by the Grants.

3. The Board of Selectmen, the Treasurer and the Chief Fiscal Officer of the Town are hereby appointed a committee (the "Committee") with full power and authority to cause said bonds to be sold, issued and delivered; to determine their form and terms, including provisions for redemption prior to maturity; to determine the aggregate principal amount thereof within the amount hereby authorized and the denominations and maturities thereof; to fix the time of issue of each series thereof and the rate or rates of interest thereon as herein provided; to determine whether the interest rate on any series will be fixed or variable and to determine the method by which the variable rate will be determined, the terms of conversion, if any, from one interest rate mode to another or from fixed to variable; to set whatever other terms of the bonds they deem necessary, desirable or appropriate; to designate the bank or trust company to certify the issuance thereof and to act as transfer agent, paying agent and as registrar for the bonds, and to designate bond counsel. The Committee shall have all appropriate powers under the Connecticut General Statutes, as amended (the "Statutes") including Chapter 748 (Registered Public Obligations Act), and Chapter 109 (Municipal Bond Issues) to issue, sell and deliver the bonds and, further, shall have full power and authority to do all that is required under the Internal Revenue Code of 1986, as amended, and under rules of the Securities and Exchange Commission, and other applicable laws and regulations of the United States, to provide for issuance of the bonds in tax exempt form and to meet all

requirements which are or may become necessary in and subsequent to the issuance and delivery of the bonds in order that the interest on the bonds be and remain exempt from Federal income taxes, including, without limitation, to covenant and agree to restriction on investment yield of bond proceeds, rebate of arbitrage earnings, expenditure of proceeds within required time limitations, the filing of information reports as and when required, and the execution of Continuing Disclosure Agreements for the benefit of the holders of the bonds and notes.

4. The First Selectman and Treasurer or Chief Fiscal Officer, on behalf of the Town, shall execute and deliver such bond purchase agreements, reimbursement agreements, line of credit agreement, credit facilities, remarketing agreement, standby marketing agreements, standby bond purchase agreements, and any other commercially necessary or appropriate agreements which the Committee determines are necessary, appropriate or desirable in connection with or incidental to the sale and issuance of bonds, and if the Committee determines that it is necessary, appropriate, or desirable, the obligations under such agreements shall be secured by the Town's full faith and credit.

5. The First Selectman and Treasurer or Chief Fiscal Officer shall execute on the Town's behalf such interest rate swap agreements or similar agreements related to the bonds for the purpose of managing interest rate risk which the Committee determines are necessary, appropriate or desirable in connection with or incidental to the carrying or selling and issuance of the bonds, and if the Committee determines that it is necessary, appropriate or desirable, the obligations under such interest rate swap agreements shall be secured by the Town's full faith and credit.

6. The bonds may be designated "Public Improvement Bonds of the Town of Fairfield," series of the year of their issuance and may be issued in one or more series, and may be consolidated as part of the same issue with other bonds of the Town; shall be in serial form maturing in not more than twenty (20) annual installments of principal, the first installment to mature not later than three (3) years from the date of issue and the last installment to mature not later than twenty (20) years from the date of issuance or as otherwise provided by statute. The bonds may be sold at an aggregate sales price of not less than par and accrued interest at public sale upon invitation for bids to the responsible bidder submitting the bid resulting in the lowest true interest cost to the Town, provided that nothing herein shall prevent the Town from rejecting all bids submitted in response to any one invitation for bids and the right to so reject all bids is hereby reserved, and further provided that the Committee may sell the bonds on a negotiated basis, as provided by statute. Interest on the bonds shall be payable semi-annually or annually. The bonds shall be signed on behalf of the Town by at least a majority of the Board of Selectmen and the Treasurer, and shall bear the seal of the Town. The signing, sealing and certification of the bonds may be by facsimile as provided by statute.

7. The Committee is further authorized to make temporary borrowings as authorized by the Statutes and to issue temporary notes of the Town in anticipation of the receipt of proceeds from the sale of the bonds to be issued pursuant to this resolution or in anticipation of the receipt of the Grants. Such notes shall be issued and renewed at such time and with such maturities, requirements and limitations as provided by the Statutes. Notes evidencing such borrowings shall be signed by the First Selectman and Treasurer or the Chief Fiscal Officer, have the seal of the Town affixed, which signing and sealing may be by facsimile as provided by statute, be certified by and payable at a bank or trust company incorporated under the laws of this or any other state, or of the United States, be approved as to their legality by bond counsel, and may be consolidated with the issuance of other Town bond anticipation notes. The Committee shall determine the date, maturity, interest rates, form and manner of sale, including negotiated sale, and other details of said notes consistent with the provisions of this resolution and the Statutes and shall have all powers and authority as set forth above in connection with the issuance of bonds and especially with respect to compliance with the requirements of the Internal Revenue Code of 1986, as amended, and regulations thereunder in order to obtain and maintain issuance of the notes in tax exempt form.

8. Pursuant to Section 1.150-2, as amended, of the Federal Income Tax Regulations the Town hereby declares its official intent to reimburse expenditures (if any) paid for the Project from its General or Capital Funds, such reimbursement to be made from the proceeds of the sale of bonds and notes authorized herein and in accordance with the time limitations and other requirements of said regulations.

9. The First Selectman, the Chief Fiscal Officer and Town Treasurer are hereby authorized, on behalf of the Town, to enter into agreements or otherwise covenant for the benefit of bondholders to provide information on an annual or other periodic basis to the Municipal Securities Rulemaking Board (the "MSRB") and to provide notices to the MSRB of material events as enumerated in Securities and Exchange Commission Exchange Act Rule 15c2-12, as amended, as may be necessary, appropriate or desirable to effect the sale of the bonds and notes authorized by this resolution.

10. The Committee is hereby authorized to take all action necessary and proper for the sale, issuance and delivery of the bonds and notes in accordance with the provisions of the Statutes and the laws of the United States.

11. The First Selectman or other proper Town official is authorized to apply for and accept any available State or Federal grant in aid of the financing of the Project, and to take all action necessary and proper in connection therewith. Any such grants or contribution received prior to the issuance of the Bonds authorized herein shall be applied to the costs of the Project or to pay at maturity the principal of any outstanding bond anticipation notes issued pursuant this resolution and shall reduce the amount of the Bonds that can be issued pursuant to this resolution. If such grants and contributions are received after the issuance of the Bonds, they shall be applied to pay the principal on the

Bonds or as otherwise authorized by the Board of Selectmen, Board of Finance and Representative Town Meeting provided such application does not adversely affect the tax-exempt status of the Bonds or the Town's receipt of such grant or contribution.

BETA ROADWAY Capital Improvement, Upgrade Existing Sidewalks and ADA Compliance Plan = Three Year Authorization totaling $4,921,761
for Roadway Paving and Existing Sidewalk Improvements Meeting ADA Compliance

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1. **Background** – The Town has received regular complaints from the public regarding condition of roadways throughout Town. For past few years and continuing the next few years, the Town's Consultant (BETA) has composed a road assessment/pavement management program relating to Fairfield's approximately 275 mile roadway network. The Town and Consultant have devised a comprehensive 5 year program related to roadway capital improvements. This program was presented, approved and adopted by all applicable Town Boards and Commissions.

2. **Purpose and Justification** – In the interest of public safety, the Town has a legal obligation to maintain its roadway network. Based on condition assessment, repair categories, Road Surface Ratings (RSR), and cost benefit values, the Consultant developed reports creating the roadway capital improvement plan. Such costs to include, but not be limited to, improvements to the paved roads and associated existing sidewalks to install handicap accessible ramps, tactile warning strips and signal improvements to meet current American Disabilities Act requirements, design, materials, oversight, as well as, all administrative, financing, legal, contingency and other soft costs related thereto (the "Project"). Basically, when a street is paved, BETA plan incorporates repairing (upgrading) sidewalks and ADA ramps adjacent to the roadway.

3. **Detailed Description of Proposal** –The past year and a half, the Town has been using ARPA funds to make these improvements. Unfortunately, ARPA funding is running out, hence the request to continue implementing the 5 year Roadway Capital Improvement program. Priority will be given to functional classification and RSR scores. Paving several streets in the same neighbors create a cost savings through economies of scale.

4. **Reliability of Cost Estimate** – The costs were determined by the BETA report and reflect 2023 prices. Every year asphalt prices are generally based on petroleum prices and fluctuate accordingly. Request is based on recent Department of Transportation and Consultant cost estimates. Future years contain inflation factor. The reliability of costs on a scale of 0 to 10 is estimated at 8 based on BETA program numbers that mirror over a dozen reports in CT/Mass area.

5. **Increased Efficiency or Productivity** – Improve overall safety, improve efficient transportation and mitigate risk and liability.

6. **Additional Long Range Costs** – Typical Maintenance costs, which can be reduced by following preservation program.

7. **Additional Use or Demand on Existing Facilities**- Slight increase in use based on condition of roadway and sidewalks improved.

8. **Alternatives to this Request** –The "Do nothing" option won't improve safety or reduce liability, increasing future costs.

9. **Safety and Loss Control** – Allow vehicular and pedestrians (with improved sidewalks) safer access.

10. **Environmental Considerations** – All projects will investigate environmental impacts. Although for most cases, no impacts expected. No environmental permits are needed. More people walking/biking can improve individual health and reduce carbon emissions etc

11. **Insurance** – Selected contractors will be required to carry the necessary insurance prescribed by the Purchasing Department.

12. **Financing** – Project bonded as part of 5 year Capital Plan, Seeking 3 year authorization/appropriation. FY 25-27.

13. **Other Considerations**: This request is for paving roadways and associated EXISTING Sidewalk Restoration/ADA improvements. It does not include repairs for streets absent from paving/roadway capital improvement Plan (list). Nor does it include NEW sidewalk or complete street requests.

14. **Other Approvals**:
    Board of Selectman
    Board of Finance
    RTM

Fairfield, CT

Proposed 2024-2028 Roadway Capital Improvement Plan Summary

*Costs Serve For Estimating Purposes Only. Not to be used for Bidding/Construction.

DRAFT - 10/13/2023	Length (Miles)	Square Yards	Repair	Sidewalk	Contingency	Supplemental	Total
2024							
Operational							
Crack Seal	0.00	0.00	$0.00	$0.00	$0.00	$50,000.00	$50,000.00
Chip Seal	2.09	26,754.66	$66,886.65	$0.00	$13,377.33	$0.00	$80,263.98
Paving (Bond)							
Mill and Overlay (2"/2") w/Gas	2.99	50,341.84	$402,734.74	$0.00	$88,123.95	$0.00	$490,858.70
Mill and Overlay (2"/2") w/Gas & Drainage	1.61	27,744.65	$221,957.20	$0.00	$44,391.44	$0.00	$266,348.64
Mill and Overlay (2"/2")	3.63	61,853.07	$989,649.17	$0.00	$198,720.38	$0.00	$1,188,369.55
Mill and Overlay (2"/2") w/SW	1.81	35,284.92	$564,558.69	$200,369.00	$124,922.43	$0.00	$889,850.12
Year Total:	**12.13**	**201,979.14**	**$2,245,786.45**	**$200,369.00**	**$469,535.53**	**$50,000.00**	**$2,965,690.99**
2025							
Operational							
Chip Seal	0.00	0.00	$0.00	$0.00	$0.00	$100,000.00	$100,000.00
Crack Seal	0.00	0.00	$0.00	$0.00	$0.00	$50,000.00	$50,000.00
Paving (Bond)							
Mill and Overlay (2"/2")	5.22	85,307.79	$1,364,924.69	$0.00	$272,984.94	$0.00	$1,637,909.62
Mill and Overlay (2"/2") w/SW	3.96	70,283.19	$1,124,531.00	$622,980.00	$241,532.34	$0.00	$1,989,043.34
Year Total:	**9.18**	**155,590.98**	**$2,489,455.68**	**$622,980.00**	**$514,517.28**	**$150,000.00**	**$3,776,952.96**
2026							
Operational							
Chip Seal	0.00	0.00	$0.00	$0.00	$0.00	$100,000.00	$100,000.00
Crack Seal	0.00	0.00	$0.00	$0.00	$0.00	$50,000.00	$50,000.00
Paving (Bond)							
Mill and Overlay (2"/2")	2.94	49,022.52	$784,360.27	$0.00	$171,676.23	$0.00	$956,036.50
Mill and Overlay (2"/2") w/SW	5.81	97,470.39	$1,559,526.20	$666,930.00	$316,644.88	$0.00	$2,543,101.08
Year Total:	**8.75**	**146,492.90**	**$2,343,886.47**	**$666,930.00**	**$488,321.11**	**$150,000.00**	**$3,649,137.58**
2027							
Operational							

DRAFT - 10/13/2023	Length (Miles)	Square Yards	Repair	Sidewalk	Contingency	Supplemental	Total
Chip Seal	0.00	0.00	$0.00	$0.00	$0.00	$100,000.00	$100,000.00
Crack Seal	0.00	0.00	$0.00	$0.00	$0.00	$50,000.00	$50,000.00
Paving (Bond)							
Mill and Overlay (2"/2")	5.27	85,275.96	$1,364,415.39	$0.00	$272,883.08	$4,340.00	$1,641,638.47
Mill and Overlay (2"/2") w/SW	3.30	59,615.15	$953,842.43	$532,435.00	$217,754.32	$0.00	$1,704,031.75
Year Total:	**8.57**	**144,891.11**	**$2,318,257.82**	**$532,435.00**	**$490,637.40**	**$154,340.00**	**$3,495,670.21**
2028							
Operational							
Chip Seal	0.00	0.00	$0.00	$0.00	$0.00	$100,000.00	$100,000.00
Crack Seal	0.00	0.00	$0.00	$0.00	$0.00	$50,000.00	$50,000.00
Paving (Bond)							
Mill and Overlay (2"/2")	4.44	77,917.13	$1,246,674.10	$0.00	$249,334.82	$0.00	$1,496,008.92
Mill and Overlay (2"/2") w/SW	3.39	66,069.29	$1,057,108.63	$704,790.00	$226,127.92	$0.00	$1,988,026.54
Year Total:	**7.83**	**143,986.42**	**$2,303,782.73**	**$704,790.00**	**$475,462.74**	**$150,000.00**	**$3,634,035.47**
CIP Total:	**46.46**	**792,940.56**	**$11,701,169.15**	**$2,727,504.00**	**$2,438,474.06**	**$654,340.00**	**$17,521,487.21**

Board of Finance Regular Meeting
Tuesday, March 5, 2024, 7:30 pm
Via Webex And In Person at the
BOE Offices, Room 295 A/B
501 Kings Highway East, Fairfield, CT 06824

A recording of this meeting can be found here: BOF Regular Meeting 3/5/2024.

DRAFT MINUTES

MEMBERS PRESENT: Chairwoman Lori Charlton, Vice-Chair John Mitola, Secretary Craig Curley, Mary LeClerc, Shane Pendley, Amy Ruggiero, Kevin Starke, Jack Testani, James Walsh
OTHERS PRESENT: Internal Auditor Connie Saxl, FPS CFO Courtney LeBorious, FairTV, members of the public

1) Call to Order
Chairwoman Lori Charlton called the meeting to order at 7:30 pm.

2) Pledge of Allegiance
Amy Ruggiero led the Pledge of Allegiance.

3) To hear and discuss an update from the BOE's Chief Fiscal Officer and the Town's Internal Auditor related to audits completed during the period January 1 through December 31, 2023

BOE CFO Courtney LeBorious discussed audit findings by outside auditor Joseph Centofanti of PKF O'Connor Davies that the BOE agreed needed remediation. Corrective action plans were put in place. Ms. LeBorious referred to the backup documents to follow her explanation of the audit findings and how they were corrected with procedures put in place. The accounts discussed: Education Grants Fund, Self-Insured Fund, Excess Cost Grant Reporting Form. The Board presented questions to Ms. LeBorious and discussions followed.

James Walsh was concerned with the fact that the BOS received an email today prior to the meeting containing six Town audits needing correction. Some of the other members agreed that they didn't have time to read them and suggested those six audits be presented at a later meeting. Chairwoman Charlton thought it would be easier to review them at this meeting and if the members had follow-up questions, they could be added to the agenda of a later meeting. The discussion continued.

Town Internal Auditor Connie Saxl discussed her audit findings when performing an audit of Town of Fairfield practices. These audits are also in the backup packet. Ms. Saxl discussed her findings and her recommendations for correcting the issues. In most cases, the issues were corrected, and new procedures were implemented. Some of the audits are newer and might not have new systems implemented yet. The findings were: Cash/Check Deposits-P&R, CardConnect processing fees-Purchasing, GovDeals revenue-Purchasing, ODM-Outside Police Services-Police, Petty Cash/Checking acct-P&R, Cash Count Transfer Station-DPW, Value Payment Systems-multiple departments.

There was a detailed discussion about contract renewals through the Purchasing Department and that some contracts had not been renewed and pricing had increased with no acknowledgement from Department Heads. Software packages will be looked into for the credit card payments within the Town departments that accept these transactions. The IT director along with other department heads will be asked to attend a future meeting to discuss these audit issues.

4) To Hear, Consider and Act Upon the Draft Minutes of February 6, 2024 and February 20, 2024

Amy Ruggiero made a motion to approve the minutes of 2/6/24 and 2/20/24 as written. John Mitola seconded the motion.

2/6/24 – carried 8-0-1 (Walsh abstained)
2/20/24 – Craig Curley made a motion to amend item 11, third paragraph to read – "After discussion and a lack of consensus for requested change #5, Mr. Curley made an amendment to strike language for change #5 from the document. Ms. Ruggiero seconded the amendment which carried unanimously."

Lori Charlton seconded the amendment to the minutes which carried unanimously.

The main motion to approve the minutes as amended carried 8-0-1 (Testani abstained).

5) To Hear, Consider and Act Upon Any Communications
Mr. Walsh asked about the agenda for the first budget meeting on 3/6/24. An item he would like to discuss at tomorrow's meeting will be added through a motion and vote. Any other questions can be added to the google sheet.

6) Adjourn
Chairwoman Charlton made a motion to adjourn. Mr. Walsh seconded the motion which carried unanimously.

The meeting adjourned at 10:28 pm.

Respectfully submitted,

Pru O'Brien
Recording Secretary