

GPS MASTER PLAN APPENDIX

TABLE OF CONTENTS

APPENDIX A: DETAILED COST INFORMATION.....3

APPENDIX B: PROGRAM COST ESTIMATES.....45

APPENDIX C: ENROLLMENT PROJECTIONS.....57

APPENDIX D: MODEL PROGRAM.....85

APPENDIX E: CAPACITY CALCULATIONS.....91

APPENDIX F: ENGINEERING NARRATIVES.....121

APPENDIX G: ROOF REPORTS.....167

APPENDIX A

DETAILED COST INFORMATION

Master Plan Cost Summary (No Paving)

<u>Abbv</u>	<u>Building Name</u>	<u>Site</u>	<u>Paving</u>	<u>Infrastructure</u>	<u>Program</u>	<u>Total</u>
CC	Cos Cob School	\$410,626	\$0	\$10,792,175	\$0	\$11,202,801
GL	Glenville School	\$733,106	\$0	\$13,954,079	\$0	\$14,687,185
HA	Hamilton Avenue School	\$465,711	\$0	\$5,401,583	\$0	\$5,867,294
ISD	Int'l School at Dundee	\$721,281	\$0	\$9,664,750	\$0	\$10,386,032
JC	Julian Curtiss School	\$687,417	\$0	\$14,960,745	\$2,316,655	\$17,964,817
NL	New Lebanon School	\$0	\$0	\$0	\$0	\$0
NM	North Mianus School	\$518,667	\$0	\$17,340,263	\$0	\$17,858,930
NS	North Street School	\$750,466	\$0	\$20,419,222	\$2,905,655	\$24,075,343
OG	Old Greenwich School	\$444,705	\$0	\$17,990,877	\$2,518,235	\$20,953,817
PW	Parkway School	\$381,688	\$0	\$10,566,606	\$0	\$10,948,294
RV	Riverside School	\$1,282,898	\$0	\$22,073,016	\$2,324,524	\$25,680,438
	Elementary School Subtotal	\$6,396,566	\$0	\$143,163,316	\$10,065,069	\$159,624,951
<u>Abbv</u>	<u>Building Name</u>	<u>Site</u>	<u>Paving</u>	<u>Infrastructure</u>	<u>Program</u>	<u>Total</u>
CMS	Central Middle School	\$587,078	\$0	\$9,937,530	\$4,109,989	\$14,634,597
EMS	Eastern Middle School	\$471,504	\$0	\$34,054,546	\$3,663,930	\$38,189,980
WMS	Western Middle School	\$311,196	\$0	\$30,323,118	\$3,704,711	\$34,339,026
	Middle School Subtotal	\$1,369,779	\$0	\$74,315,195	\$11,478,629	\$87,163,603
GHS	Greenwich High School	\$690,699	\$0	\$76,180,609	\$24,389,345	\$101,260,654
1A	GHS Phase 1A	\$0		\$0	\$30,400,000	
1B	GHS Phase 1B	\$0		\$0	\$11,100,000	
2	GHS Phase 2	\$0		\$0	\$31,100,000	
3	GHS Phase 3	\$0		\$0	\$19,600,000	
DIST	Havemeyer Building	\$236,247	\$0	\$20,566,438	\$0	\$20,802,685
	Grand Total	\$8,693,291	\$0	\$314,225,558	\$45,933,044	\$368,851,892

Greenwich Public Schools Master Plan

Implementation Strategy A: Spread Work Equally

	<u>School Year</u>	<u>Site</u>	<u>Infrastructure</u>	<u>Program</u>	<u>Total</u>	<u>Escalation</u>
2018	2018-19	\$6,211,386	\$15,733,269	\$20,669,687	\$42,614,342	5%
2019	2019-20	\$6,490,899	\$16,441,266	\$21,599,823	\$44,531,988	9%
2020	2020-21	\$6,782,989	\$17,181,123	\$22,571,815	\$46,535,927	14%
2021	2021-22	\$7,088,224	\$17,954,274	\$23,587,546	\$48,630,044	19%
2022	2022-23	\$7,407,194	\$18,762,216	\$24,648,986	\$50,818,396	25%
	Subtotal	\$33,980,692	\$86,072,149	\$113,077,856	\$233,130,697	
2023	2023-24	\$7,740,518	\$19,606,516	\$25,758,190	\$53,105,224	30%
2024	2024-25	\$8,088,841	\$20,488,809	\$26,917,309	\$55,494,959	36%
2025	2025-26	\$8,452,839	\$21,410,806	\$28,128,588	\$57,992,232	42%
2026	2026-27	\$8,833,216	\$22,374,292	\$29,394,374	\$60,601,882	49%
2027	2027-28	\$9,230,711	\$23,381,135	\$30,717,121	\$63,328,967	55%
	Subtotal	\$42,346,125	\$107,261,558	\$140,915,581	\$290,523,264	
2028	2028-29	\$9,646,093	\$24,433,286	\$32,099,391	\$66,178,771	62%
2029	2029-30	\$10,080,167	\$25,532,784	\$33,543,864	\$69,156,815	70%
2030	2030-31	\$10,533,775	\$26,681,759	\$35,053,338	\$72,268,872	77%
2031	2031-32	\$11,007,795	\$27,882,438	\$36,630,738	\$75,520,971	85%
2032	2032-33	\$11,503,146	\$29,137,148	\$38,279,121	\$78,919,415	94%
	Subtotal	\$52,770,976	\$133,667,416	\$175,606,452	\$362,044,844	
	Grand Total	\$129,097,793	\$327,001,123	\$429,599,889	\$885,698,805	116%

Greenwich Public Schools Master Plan

Implementation Strategy B: Large First Phase

<u>Year</u>	<u>Building Name</u>	<u>Site</u>	<u>Infrastructure</u>	<u>Program</u>	<u>Total</u>	<u>Escalation</u>	<u>Phase</u>
2020	Greenwich High School	\$20,783,025	\$62,866,339	\$125,586,733	\$209,236,097	14%	1
2020	Central Middle School	\$10,361,040	\$9,420,504	\$105,365,240	\$125,146,785	14%	1
2020	Riverside School	\$5,864,463	\$18,286,869	\$28,588,698	\$52,740,030	14%	1
2020	North Mianus School	\$4,131,561	\$16,304,858	\$22,159,255	\$42,595,673	14%	1
2020	Julian Curtiss School	\$6,095,730	\$13,751,776	\$22,006,162	\$41,853,667	14%	1
2020	Old Greenwich School	\$3,025,309	\$15,848,542	\$19,760,904	\$38,634,754	14%	1
Subtotal		\$50,261,128	\$136,478,888	\$323,466,992	\$510,207,007		
2024	Eastern Middle School	\$10,444,779	\$33,283,745	\$8,172,906	\$51,901,430	36%	2
2024	Western Middle School	\$10,056,973	\$31,046,152	\$7,347,577	\$48,450,701	36%	2
2024	Int'l School at Dundee	\$4,931,648	\$8,969,656	\$41,642,383	\$55,543,688	36%	2
2024	North Street School	\$8,243,632	\$21,897,239	\$14,957,051	\$45,097,922	36%	2
2024	Havemeyer Building	\$185,560	\$17,889,368	\$11,269,623	\$29,344,551	36%	2
Subtotal		\$33,862,592	\$113,086,160	\$83,389,540	\$230,338,292		
2028	Glenville School	\$11,822,762	\$13,237,762	\$2,131,741	\$27,192,265	62%	3
2028	Parkway School	\$7,774,308	\$12,783,529	\$3,012,242	\$23,570,080	62%	3
2028	Cos Cob School	\$4,457,291	\$13,902,470	\$2,039,056	\$20,398,818	62%	3
2028	Hamilton Avenue School	\$8,778,885	\$6,635,508	\$1,112,213	\$16,526,605	62%	3
2028	New Lebanon School	\$0	\$0	\$0	\$0	62%	3
Subtotal		\$32,833,247	\$46,559,270	\$8,295,252	\$87,687,769		
Grand Total		\$116,956,967	\$296,124,317	\$415,151,784	\$828,233,068	108%	

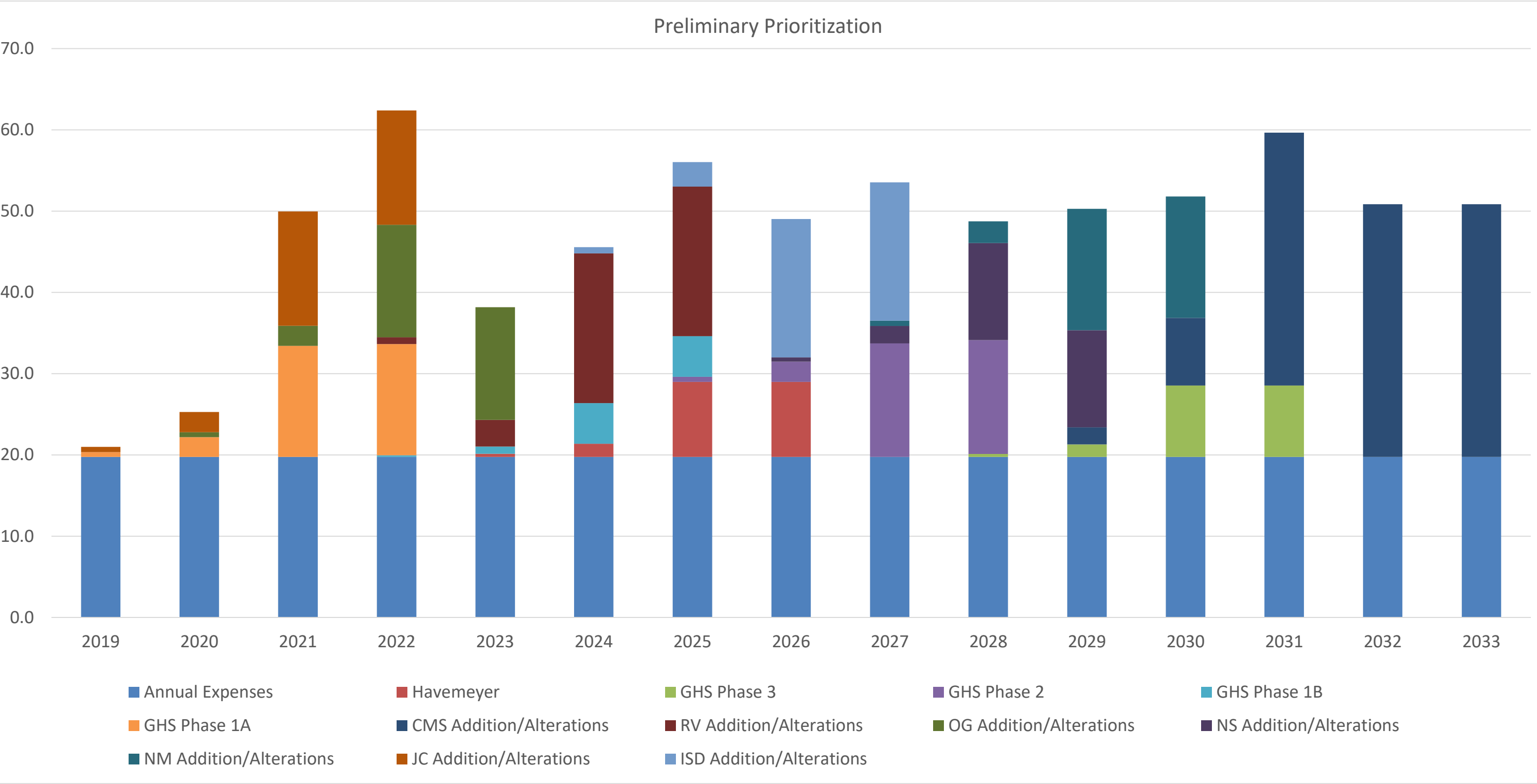
Greenwich Public Schools Master Plan

Implementation Option C: 5 Phases

<u>Year</u>	<u>Building Name</u>	<u>Site</u>	<u>Infrastructure</u>	<u>Program</u>	<u>Total</u>	<u>Escalation</u>	<u>Phase</u>
2020	Julian Curtiss School	\$6,095,730	\$13,751,776	\$22,006,162	\$41,853,667	14%	1
2020	Old Greenwich School	\$3,025,309	\$15,848,542	\$19,760,904	\$38,634,754	14%	1
2020	Riverside School	\$5,864,463	\$18,286,869	\$28,588,698	\$52,740,030	14%	1
2020	Central Middle School	\$10,361,040	\$9,420,504	\$105,365,240	\$125,146,785	14%	1
Subtotal		\$25,346,542	\$57,307,691	\$175,721,004	\$258,375,237		
2023	Greenwich High School	\$23,716,884	\$71,740,936	\$143,315,325	\$238,773,146	30%	2
Subtotal		\$23,716,884	\$71,740,936	\$143,315,325	\$238,773,146		
2026	Int'l School at Dundee	\$5,385,483	\$9,795,089	\$45,474,524	\$60,655,096	49%	3
2026	North Mianus School	\$5,380,367	\$21,233,166	\$28,857,114	\$55,470,647	49%	3
2026	North Street School	\$9,002,253	\$23,912,332	\$16,333,473	\$49,248,058	49%	3
Subtotal		\$19,768,102	\$54,940,588	\$90,665,111	\$165,373,801		
2029	Eastern Middle School	\$13,016,095	\$41,477,602	\$10,184,928	\$64,678,624	70%	4
2029	Western Middle School	\$12,532,818	\$38,689,153	\$9,156,417	\$60,378,389	70%	4
2029	Havemeyer Building	\$231,242	\$22,293,407	\$14,044,001	\$36,568,650	70%	4
Subtotal		\$25,780,155	\$102,460,162	\$33,385,346	\$161,625,663		
2032	Cos Cob School	\$5,315,403	\$16,578,954	\$2,431,613	\$24,325,970	94%	5
2032	Glenville School	\$14,098,864	\$15,786,278	\$2,542,141	\$32,427,282	94%	5
2032	Hamilton Avenue School	\$10,468,984	\$7,912,966	\$1,326,334	\$19,708,284	94%	5
2032	New Lebanon School	\$0	\$0	\$0	\$0	94%	5
2032	Parkway School	\$9,271,007	\$15,244,597	\$3,592,155	\$28,107,759	94%	5
Subtotal		\$33,838,855	\$38,943,841	\$7,460,630	\$80,243,325		
Grand Total		\$128,450,538	\$325,393,218	\$450,547,416	\$904,391,172	118%	

Greenwich Public Schools
Facilities Master Plan 2018

Preliminary Prioritization



Greenwich Public Schools
Facilities Master Plan 2018

Project Description	Project Costs (2020)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
CC	\$ -															
GL	\$ -															
HA	\$ -															
ISD Addition/Alterations	\$ 37,837,884						0.8M	3.0M	17.0M	17.0M						
JC Addition/Alterations	\$ 31,282,376	0.6M	2.5M	14.1M	14.1M											
NL	\$ -															
NM Addition/Alterations	\$ 33,197,794									0.7M	2.7M	14.9M	14.9M			
NS Addition/Alterations	\$ 26,580,915								0.5M	2.1M	12.0M	12.0M				
OG Addition/Alterations	\$ 30,793,608		0.6M	2.5M	13.9M	13.9M										
PW	\$ -															
RV Addition/Alterations	\$ 40,946,364				0.8M	3.3M	18.4M	18.4M								
Project Costs (2020)																
CMS Addition/Alterations	\$ 103,707,701											2.1M	8.3M	31.1M	31.1M	31.1M
EMS	\$ -															
WMS	\$ -															
Project Costs (2020)																
GHS Phase 1A	\$ 30,400,000	0.6M	2.4M	13.7M	13.7M											
GHS Phase 1B	\$ 11,100,000				0.2M	0.9M	5.0M	5.0M								
GHS Phase 2	\$ 31,100,000							0.6M	2.5M	14.0M	14.0M					
GHS Phase 3	\$ 19,600,000										0.4M	1.6M	8.8M	8.8M		
Havemeyer	\$ 20,537,430					0.4M	1.6M	9.2M	9.2M							
Total Annual (2020)																
Annual Expenses	\$ 296,112,314	19.7M	19.7M	19.7M	19.7M	19.7M	19.7M	19.7M	19.7M	19.7M	19.7M	19.7M	19.7M	19.7M	19.7M	19.7M
Total Costs		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Total Costs (2020)	\$ 713,196,386	20.97M	25.29M	49.96M	62.40M	38.17M	45.56M	56.05M	49.03M	53.55M	48.75M	50.28M	51.80M	59.67M	50.85M	50.85M
Escalation	Escalated Total	-4.5%	0.0%	4.5%	9.2%	14.1%	19.3%	24.6%	30.2%	36.1%	42.2%	48.6%	55.3%	62.3%	69.6%	77.2%
Total with Escalation	\$ 967,830,551	20.0M	25.3M	52.2M	68.1M	43.6M	54.3M	69.9M	63.8M	72.9M	69.3M	74.7M	80.4M	96.8M	86.2M	90.1M

Greenwich Public Schools Master Plan
Systems Cost Summary

Site Features										
System	Description	Greenwich High School	Western Middle School	Eastern Middle School	Central Middle School	Cos Cob School	Glenville School	Hamilton Avenue School	Int'l School at Dundee	Julian Curtiss School
1	Site Water	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2	Site Sanitary	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3	Site Gas	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
4	Site Fuel Oil	\$ 30,000	\$ 30,000	\$ 30,000	\$ -	\$ 45,000	\$ -	\$ -	\$ -	\$ -
5	Site Electrical	\$ 200,000	\$ 100,000	\$ 156,250	\$ 239,250	\$ -	\$ 155,000	\$ 80,000	\$ 205,250	\$ 169,600
6	Site Stormwater	\$ -	\$ -	\$ 6,000	\$ -	\$ 50,000	\$ 70,000	\$ 70,000	\$ 70,000	\$ 95,000
7	Pavement, Parking Lots & Curbs	\$ 6,908,500	\$ 2,203,500	\$ 1,676,000	\$ 2,239,000	\$ 985,500	\$ 3,932,000	\$ 1,268,500	\$ 1,332,500	\$ 2,282,300
8	Sidewalks & Hardscape	\$ 969,588	\$ 132,300	\$ 320,717	\$ 48,825	\$ 331,935	\$ 466,875	\$ 322,223	\$ 223,861	\$ 599,288
9	Site Amenities	\$ 45,000	\$ 68,600	\$ 58,400	\$ 208,400	\$ 75,000	\$ 25,000	\$ 50,000	\$ 150,000	\$ 50,000
10	Playgrounds & Equipment	\$ -	\$ -	\$ -	\$ -	\$ 225,000	\$ 250,000	\$ 700,000	\$ 325,000	\$ 325,000
11	Landscaping & Plantings	\$ 30,000	\$ 47,500	\$ 82,500	\$ 37,500	\$ 23,000	\$ 23,000	\$ 23,000	\$ 25,500	\$ -
12	Fields & Field Structures	\$ 3,907,500	\$ 2,540,000	\$ 2,927,000	\$ 3,536,000	\$ 20,000	\$ 20,000	\$ 985,000	\$ 20,000	\$ 20,000
13	Fences	\$ 592,500	\$ 54,000	\$ 112,500	\$ 50,000	\$ 100,000	\$ 160,500	\$ 290,000	\$ 186,000	\$ 200,000
14	Site Walls, Stairs & Railings	\$ 72,000	\$ -	\$ 6,120	\$ -	\$ 72,000	\$ -	\$ -	\$ -	\$ -
Site Features Subtotal		\$ 12,755,088	\$ 5,175,900	\$ 5,375,487	\$ 6,358,975	\$ 1,927,435	\$ 5,102,375	\$ 3,788,723	\$ 2,538,111	\$ 3,741,188

Building Envelope & Structure										
System	Description	Greenwich High School	Western Middle School	Eastern Middle School	Central Middle School	Cos Cob School	Glenville School	Hamilton Avenue School	Int'l School at Dundee	Julian Curtiss School
15	Foundation	\$ -	\$ -	\$ 3,500	\$ -	\$ 3,500	\$ -	\$ 3,000	\$ -	\$ -
16	Floor & Roof Structures	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 79,000
17	Exterior Walls & Columns	\$ 30,000	\$ 466,900	\$ 602,000	\$ 1,725,000	\$ 287,200	\$ 133,000	\$ 163,000	\$ 22,400	\$ 201,000
18	Chimneys	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
19	Roof/Skylights	\$ 5,227,500	\$ 1,367,500	\$ 2,062,500	\$ 1,892,500	\$ -	\$ -	\$ 250,000	\$ -	\$ 1,878,000
20	Parapets	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
21	Exterior Doors	\$ 288,000	\$ -	\$ 54,300	\$ 160,000	\$ -	\$ -	\$ 54,000	\$ 38,400	\$ 91,200
22	Exterior Stairs & Ramps	\$ 43,200	\$ 671,720	\$ 664,940	\$ 219,060	\$ -	\$ -	\$ -	\$ -	\$ 44,000
23	Fire Escapes	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
24	Windows	\$ 2,557,400	\$ 166,390	\$ 1,707,600	\$ 2,114,400	\$ -	\$ -	\$ 170,975	\$ -	\$ 1,220,500
Building Envelope & Structure Subtotal		\$ 8,146,100	\$ 2,672,510	\$ 5,094,840	\$ 6,110,960	\$ 290,700	\$ 133,000	\$ 640,975	\$ 60,800	\$ 3,513,700

Interior Spaces										
System	Description	Greenwich High School	Western Middle School	Eastern Middle School	Central Middle School	Cos Cob School	Glenville School	Hamilton Avenue School	Int'l School at Dundee	Julian Curtiss School
25	Interior Bearing & Fire Walls	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
26	Interior Walls & Renovation	\$ 6,600,000	\$ 1,936,000	\$ 1,655,000	\$ 2,225,000	\$ 1,031,920	\$ 855,000	\$ 381,000	\$ 885,000	\$ 510,000
27	Flooring	\$ 234,319	\$ -	\$ 291,672	\$ 334,722	\$ 269,994	\$ 202,654	\$ 75,000	\$ 110,140	\$ -
28	Ceilings	\$ 2,115,776	\$ 360,000	\$ 1,103,536	\$ 306,000	\$ -	\$ -	\$ -	\$ -	\$ 76,120
29	Casework, Lockers & Furnishings	\$ -	\$ 237,600	\$ 28,000	\$ 414,240	\$ -	\$ -	\$ -	\$ 201,600	\$ 228,000
30	Interior Doors & Windows	\$ -	\$ -	\$ 45,000	\$ 245,000	\$ -	\$ -	\$ -	\$ 70,400	\$ 110,000
31	Interior Stairs	\$ -	\$ -	\$ -	\$ 90,000	\$ -	\$ -	\$ -	\$ -	\$ -
32	Elevators, Lifts & ADA Access	\$ -	\$ 1,080,000	\$ 250,000	\$ 250,000	\$ -	\$ -	\$ -	\$ -	\$ 750,000
Interior Spaces Subtotal		\$ 8,950,095	\$ 3,613,600	\$ 3,373,208	\$ 3,864,962	\$ 1,301,914	\$ 1,057,654	\$ 456,000	\$ 1,267,140	\$ 1,674,120

Greenwich Public Schools Master Plan
Systems Cost Summary

Electrical/Fire Protection										
System	Description	Greenwich High School	Western Middle School	Eastern Middle School	Central Middle School	Cos Cob School	Glenville School	Hamilton Avenue School	Int'l School at Dundee	Julian Curtiss School
33	Int Electric Distribution	\$ 281,500	\$ 844,375	\$ 189,188	\$ 180,000	\$ -	\$ -	\$ 75,500	\$ -	\$ 151,875
34	Lighting Fixtures	\$ 3,187,749	\$ 920,766	\$ 1,129,786	\$ 1,113,781	\$ -	\$ -	\$ 619,195	\$ 543,175	\$ 442,724
35	PA/Comm/Security Systems	\$ 710,156	\$ 165,000	\$ 200,484	\$ 173,641	\$ 172,395	\$ 101,563	\$ 113,281	\$ 81,447	\$ 111,619
36	Fire Alarm & Smoke Detection	\$ 899,910	\$ 209,088	\$ 254,054	\$ 220,037	\$ 218,459	\$ 128,700	\$ 143,550	\$ 103,209	\$ 141,443
37	Fire Suppression Systems	\$ -	\$ 969,800	\$ 1,151,480	\$ 1,014,040	\$ -	\$ -	\$ -	\$ 56,600	\$ -
38	Emergency/Exit Lighting	\$ 154,672	\$ 71,874	\$ 87,331	\$ 75,625	\$ 103,522	\$ 22,120	\$ 37,009	\$ 35,478	\$ 48,621
39	Emergency/Standby Power	\$ 88,875	\$ 202,026	\$ 237,588	\$ 198,463	\$ 237,588	\$ 198,463	\$ 228,588	\$ 138,901	\$ 117,250
Electrical/Fire Protection Subtotal		\$ 5,322,863	\$ 3,382,929	\$ 3,249,911	\$ 2,975,587	\$ 731,964	\$ 450,846	\$ 1,217,124	\$ 958,810	\$ 1,013,532

Plumbing										
System	Description	Greenwich High School	Western Middle School	Eastern Middle School	Central Middle School	Cos Cob School	Glenville School	Hamilton Avenue School	Int'l School at Dundee	Julian Curtiss School
40	Water Distribution	\$ 121,500	\$ 10,500	\$ 29,125	\$ 45,500	\$ 5,250	\$ 10,250	\$ 38,500	\$ 5,250	\$ 5,250
41	Plumbing Drainage	\$ -	\$ -	\$ 30,000	\$ 30,000	\$ -	\$ 40,000	\$ -	\$ -	\$ -
42	Hot Water Heaters	\$ 79,800	\$ 5,000	\$ 116,000	\$ 115,000	\$ 21,800	\$ 40,100	\$ 21,800	\$ 40,100	\$ 21,800
43	Plumbing Fixtures	\$ 927,750	\$ 431,950	\$ 319,500	\$ 361,825	\$ 332,800	\$ 101,600	\$ 382,400	\$ 103,900	\$ 340,200
44	Swimming Pool	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Plumbing Subtotal		\$ 1,129,050	\$ 447,450	\$ 494,625	\$ 552,325	\$ 359,850	\$ 191,950	\$ 442,700	\$ 149,250	\$ 367,250

HVAC Systems										
System	Description	Greenwich High School	Western Middle School	Eastern Middle School	Central Middle School	Cos Cob School	Glenville School	Hamilton Avenue School	Int'l School at Dundee	Julian Curtiss School
45	Heating Systems	\$ 1,415,800	\$ 376,000	\$ 326,000	\$ 70,000	\$ 208,300	\$ 208,300	\$ -	\$ 166,300	\$ -
46	Ventilation Systems	\$ 231,200	\$ 152,200	\$ 97,200	\$ 106,600	\$ 142,500	\$ 35,000	\$ 70,000	\$ 61,000	\$ 105,000
47	Air Conditioning Systems	\$ 10,899,800	\$ 4,328,000	\$ 3,926,000	\$ 3,191,000	\$ 2,558,000	\$ 3,376,300	\$ -	\$ 1,739,600	\$ 1,484,000
48	HVAC Controls	\$ 2,656,750	\$ 580,800	\$ 705,705	\$ 611,215	\$ 275,833	\$ 260,000	\$ 30,000	\$ 182,441	\$ 285,744
HVAC Systems Subtotal		\$ 15,203,550	\$ 5,437,000	\$ 5,054,905	\$ 3,978,815	\$ 3,184,633	\$ 3,879,600	\$ 100,000	\$ 2,149,341	\$ 1,874,744

Other Work										
System	Description	Greenwich High School	Western Middle School	Eastern Middle School	Central Middle School	Cos Cob School	Glenville School	Hamilton Avenue School	Int'l School at Dundee	Julian Curtiss School
49	Program Enhancements	\$ 77,215,000	\$ 3,940,000	\$ 4,195,000	\$ 64,642,000	\$ 880,000	\$ 920,000	\$ 480,000	\$ 21,460,000	\$ 13,512,500
Other Work Subtotal		\$ 77,215,000	\$ 3,940,000	\$ 4,195,000	\$ 64,642,000	\$ 880,000	\$ 920,000	\$ 480,000	\$ 21,460,000	\$ 13,512,500

	Greenwich High School	Western Middle School	Eastern Middle School	Central Middle School	Cos Cob School	Glenville School	Hamilton Avenue School	Int'l School at Dundee	Julian Curtiss School
Total Direct Costs	\$128,721,745	\$24,669,389	\$26,837,976	\$88,483,623	\$8,676,496	\$11,735,425	\$7,125,521	\$28,583,453	\$25,697,034
Escalation	\$17,972,468	\$3,786,197	\$3,644,257	\$12,443,333	\$1,369,831	\$1,656,644	\$1,013,758	\$4,037,916	\$3,616,362
Other Project Costs	\$62,541,884	\$12,173,299	\$13,040,299	\$43,176,552	\$4,297,819	\$5,729,127	\$3,481,984	\$13,955,421	\$12,540,271
Total	\$209,236,097	\$40,628,885	\$43,522,533	\$144,103,509	\$14,344,145	\$19,121,196	\$11,621,263	\$46,576,789	\$41,853,667

Greenwich Public Schools Master Plan
Systems Cost Summary

Site Features									
System	Description	New Lebanon School	North Mianus School	North Street School	Old Greenwich School	Parkway School	Riverside School	Havemeyer Building	District Totals
1	Site Water	\$ -	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 100,000
2	Site Sanitary	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3	Site Gas	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
4	Site Fuel Oil	\$ -	\$ -	\$ 30,000	\$ 40,000	\$ 30,000	\$ -	\$ 15,000	\$ 250,000
5	Site Electrical	\$ -	\$ 30,000	\$ 245,000	\$ 130,600	\$ 120,000	\$ 135,000	\$ 80,500	\$ 2,046,450
6	Site Stormwater	\$ -	\$ 70,000	\$ 20,000	\$ -	\$ 20,000	\$ 400,000	\$ -	\$ 871,000
7	Pavement, Parking Lots & Curbs	\$ -	\$ 1,889,500	\$ 2,392,200	\$ 844,200	\$ 2,055,000	\$ 1,797,800	\$ -	\$ 31,806,500
8	Sidewalks & Hardscape	\$ -	\$ 315,700	\$ 557,900	\$ 53,450	\$ 378,875	\$ 282,400	\$ -	\$ 5,003,936
9	Site Amenities	\$ -	\$ -	\$ 54,800	\$ 256,000	\$ 4,800	\$ 154,800	\$ -	\$ 1,200,800
10	Playgrounds & Equipment	\$ -	\$ 25,000	\$ 433,000	\$ 325,000	\$ 300,000	\$ 405,000	\$ -	\$ 3,313,000
11	Landscaping & Plantings	\$ -	\$ 25,500	\$ 134,750	\$ 45,000	\$ 30,500	\$ 29,250	\$ -	\$ 557,000
12	Fields & Field Structures	\$ -	\$ 20,000	\$ 170,000	\$ 20,000	\$ 150,000	\$ 150,000	\$ -	\$ 14,485,500
13	Fences	\$ -	\$ 60,000	\$ 205,000	\$ 142,500	\$ 266,000	\$ 245,000	\$ -	\$ 2,664,000
14	Site Walls, Stairs & Railings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 150,120
Site Features Subtotal		\$ -	\$ 2,535,700	\$ 4,242,650	\$ 1,856,750	\$ 3,355,175	\$ 3,599,250	\$ 95,500	\$ 62,448,306

Building Envelope & Structure									
System	Description	New Lebanon School	North Mianus School	North Street School	Old Greenwich School	Parkway School	Riverside School	Havemeyer Building	District Totals
15	Foundation	\$ -	\$ -	\$ 24,000	\$ 7,000	\$ -	\$ 4,000	\$ -	\$ 45,000
16	Floor & Roof Structures	\$ -	\$ -	\$ -	\$ 114,750	\$ -	\$ -	\$ -	\$ 193,750
17	Exterior Walls & Columns	\$ -	\$ 128,000	\$ 60,000	\$ 143,500	\$ 60,000	\$ 1,274,800	\$ 325,000	\$ 5,621,800
18	Chimneys	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
19	Roof/Skylights	\$ -	\$ 2,507,500	\$ 1,557,500	\$ 937,500	\$ 1,370,000	\$ 1,432,500	\$ -	\$ 20,483,000
20	Parapets	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
21	Exterior Doors	\$ -	\$ 129,600	\$ -	\$ 19,200	\$ 48,000	\$ 96,000	\$ 48,000	\$ 1,026,700
22	Exterior Stairs & Ramps	\$ -	\$ 150,000	\$ -	\$ 197,820	\$ -	\$ 70,000	\$ 15,000	\$ 2,075,740
23	Fire Escapes	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 165,000	\$ 165,000
24	Windows	\$ -	\$ 1,261,575	\$ 1,980,125	\$ 1,371,300	\$ 213,500	\$ 912,275	\$ 127,500	\$ 13,803,540
Building Envelope & Structure Subtotal		\$ -	\$ 4,176,675	\$ 3,621,625	\$ 2,791,070	\$ 1,691,500	\$ 3,789,575	\$ 680,500	\$ 43,414,530

Interior Spaces									
System	Description	New Lebanon School	North Mianus School	North Street School	Old Greenwich School	Parkway School	Riverside School	Havemeyer Building	District Totals
25	Interior Bearing & Fire Walls	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
26	Interior Walls & Renovation	\$ -	\$ 805,000	\$ 1,119,320	\$ 783,625	\$ 805,000	\$ 1,080,000	\$ 1,546,250	\$ 22,218,115
27	Flooring	\$ -	\$ 177,535	\$ 128,700	\$ 211,874	\$ 161,261	\$ 47,466	\$ 157,938	\$ 2,403,274
28	Ceilings	\$ -	\$ -	\$ -	\$ 62,000	\$ -	\$ -	\$ -	\$ 4,023,432
29	Casework, Lockers & Furnishings	\$ -	\$ -	\$ 275,600	\$ 106,200	\$ -	\$ 267,600	\$ -	\$ 1,758,840
30	Interior Doors & Windows	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 180,400	\$ 650,800
31	Interior Stairs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 90,000
32	Elevators, Lifts & ADA Access	\$ -	\$ -	\$ -	\$ 450,000	\$ -	\$ 435,000	\$ 300,000	\$ 3,515,000
Interior Spaces Subtotal		\$ -	\$ 982,535	\$ 1,523,620	\$ 1,613,699	\$ 966,261	\$ 1,830,066	\$ 2,184,588	\$ 34,659,461

Greenwich Public Schools Master Plan
Systems Cost Summary

Electrical/Fire Protection									
System	Description	New Lebanon School	North Mianus School	North Street School	Old Greenwich School	Parkway School	Riverside School	Havemeyer Building	District Totals
33	Int Electric Distribution	\$ -	\$ 125,813	\$ 506,625	\$ 134,475	\$ -	\$ 125,813	\$ 70,781	\$ 2,685,944
34	Lighting Fixtures	\$ -	\$ 503,639	\$ 506,273	\$ 675,743	\$ 468,249	\$ 562,618	\$ 124,243	\$ 10,797,942
35	PA/Comm/Security Systems	\$ -	\$ -	\$ 90,723	\$ 120,000	\$ -	\$ 97,813	\$ 2,756,250	\$ 4,894,372
36	Fire Alarm & Smoke Detection	\$ -	\$ 117,062	\$ 114,965	\$ 150,000	\$ 128,948	\$ 123,948	\$ 71,280	\$ 3,024,653
37	Fire Suppression Systems	\$ -	\$ -	\$ 564,504	\$ 739,996	\$ -	\$ 600,800	\$ 413,000	\$ 5,510,220
38	Emergency/Exit Lighting	\$ -	\$ 40,240	\$ 39,519	\$ 51,174	\$ 35,461	\$ 42,607	\$ 24,503	\$ 869,756
39	Emergency/Standby Power	\$ -	\$ 198,463	\$ 198,463	\$ 250,000	\$ 55,125	\$ 198,463	\$ 117,250	\$ 2,665,505
Electrical/Fire Protection Subtotal		\$ -	\$ 985,216	\$ 2,021,072	\$ 2,121,388	\$ 687,782	\$ 1,752,061	\$ 3,577,307	\$ 30,448,391

Plumbing									
System	Description	New Lebanon School	North Mianus School	North Street School	Old Greenwich School	Parkway School	Riverside School	Havemeyer Building	District Totals
40	Water Distribution	\$ -	\$ 51,625	\$ 32,000	\$ 23,375	\$ 5,250	\$ 5,250	\$ 11,000	\$ 399,625
41	Plumbing Drainage	\$ -	\$ 70,000	\$ -	\$ 7,100	\$ -	\$ -	\$ 3,550	\$ 180,650
42	Hot Water Heaters	\$ -	\$ 21,800	\$ 21,800	\$ 40,100	\$ 30,000	\$ 21,800	\$ 18,800	\$ 615,700
43	Plumbing Fixtures	\$ -	\$ 320,900	\$ 173,750	\$ 312,600	\$ 182,750	\$ 272,150	\$ 77,750	\$ 4,641,825
44	Swimming Pool	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Plumbing Subtotal		\$ -	\$ 464,325	\$ 227,550	\$ 383,175	\$ 218,000	\$ 299,200	\$ 111,100	\$ 5,837,800

HVAC Systems									
System	Description	New Lebanon School	North Mianus School	North Street School	Old Greenwich School	Parkway School	Riverside School	Havemeyer Building	District Totals
45	Heating Systems	\$ -	\$ 355,750	\$ 228,900	\$ 213,300	\$ 60,000	\$ 273,300	\$ 453,500	\$ 4,355,450
46	Ventilation Systems	\$ -	\$ 336,900	\$ 1,022,100	\$ 181,600	\$ 62,000	\$ 117,400	\$ 35,000	\$ 2,755,700
47	Air Conditioning Systems	\$ -	\$ 1,834,500	\$ 1,470,000	\$ 2,156,000	\$ 1,440,000	\$ 2,560,000	\$ 1,380,500	\$ 42,343,700
48	HVAC Controls	\$ -	\$ 147,805	\$ 145,158	\$ 187,968	\$ 130,250	\$ 250,400	\$ 90,000	\$ 6,540,068
HVAC Systems Subtotal		\$ -	\$ 2,674,955	\$ 2,866,158	\$ 2,738,868	\$ 1,692,250	\$ 3,201,100	\$ 1,959,000	\$ 55,994,918

Other Work									
System	Description	New Lebanon School	North Mianus School	North Street School	Old Greenwich School	Parkway School	Riverside School	Havemeyer Building	District Totals
49	Program Enhancements	\$ -	\$ 13,600,000	\$ 7,800,000	\$ 12,150,000	\$ 1,300,000	\$ 17,510,000	\$ 5,800,000	\$ 245,404,500
Other Work Subtotal		\$ -	\$ 13,600,000	\$ 7,800,000	\$ 12,150,000	\$ 1,300,000	\$ 17,510,000	\$ 5,800,000	\$ 245,404,500

	New Lebanon School	North Mianus School	North Street School	Old Greenwich School	Parkway School	Riverside School	Havemeyer Building	<u>District Totals</u>
Total Direct Costs	\$0	\$25,419,406	\$22,302,675	\$23,654,950	\$9,910,968	\$31,981,252	\$14,407,994	\$478,207,906
Escalation	\$0	\$4,413,675	\$4,183,790	\$3,403,990	\$1,697,191	\$4,956,716	\$2,826,357	\$71,022,486
Other Project Costs	\$0	\$12,762,592	\$11,330,910	\$11,575,814	\$4,965,970	\$15,802,063	\$7,372,855	\$234,746,862
Total	\$0	\$42,595,673	\$37,817,374	\$38,634,754	\$16,574,130	\$52,740,030	\$24,607,206	\$845,200,378

Greenwich Public Schools Master Plan

Categorized Cost Summary by School

<u>Abbv</u>	<u>Building Name</u>	Category 1	Category 2	Category 3	Category 4	Grand Total
GHS	Greenwich High School	\$114,055	\$29,195,114	\$52,739,521	\$127,187,407	\$209,236,097
WMS	Western Middle School	\$431,781	\$11,265,880	\$22,549,394	\$6,381,830	\$40,628,885
EMS	Eastern Middle School	\$100,043	\$12,781,434	\$24,323,224	\$6,317,832	\$43,522,533
CMS	Central Middle School	\$42,200	\$1,244,829	\$9,604,119	\$104,835,132	\$125,146,785
CC	Cos Cob School	\$117,314	\$5,624,182	\$4,917,639	\$3,685,011	\$14,344,145
GL	Glenville School	\$401,576	\$984,246	\$3,092,058	\$14,643,316	\$19,121,196
HA	Hamilton Avenue School	\$86,356	\$2,404,674	\$5,112,691	\$4,017,542	\$11,621,263
ISD	Int'l School at Dundee	\$48,066	\$2,898,322	\$4,265,885	\$39,364,516	\$46,576,789
JC	Julian Curtiss School	\$1,642,497	\$5,524,729	\$9,181,974	\$25,504,468	\$41,853,667
NM	North Mianus School	\$3,473,866	\$3,984,227	\$6,173,723	\$28,963,857	\$42,595,673
NS	North Street School	\$100,287	\$2,288,799	\$20,220,623	\$15,207,665	\$37,817,374
OG	Old Greenwich School	\$1,291,265	\$2,782,603	\$15,769,938	\$18,790,948	\$38,634,754
PW	Parkway School	\$106,397	\$1,993,117	\$7,851,483	\$6,623,133	\$16,574,130
RV	Riverside School	\$833,672	\$2,180,961	\$15,991,108	\$33,734,289	\$52,740,030
DIST	Havemeyer Building	\$391,864	\$1,278,401	\$3,287,717	\$19,649,225	\$24,607,206

	<u>Category 1</u>	<u>Category 2</u>	<u>Category 3</u>	<u>Category 4</u>	<u>Grand Total</u>
Districtwide Totals	\$9,181,239	\$86,431,520	\$205,081,096	\$454,906,171	\$765,020,530

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
CC	Fuel Tank Replacement	4	Site Fuel Oil	Assumption - No info on tank size/year. (includes demo of existing and ir	\$45,000	\$ 61,093	\$67,142	GPS	Infrastructure		3	7	2018
CC	general site	5	Site Electrical	add bollards for walkway	\$0	\$ -	\$0	Parks	Site		3	4	2020
CC	back of school	6	Site Stormwater	add drainage near play area and ballfields, tie into parking system if possible	\$50,000	\$ 70,623	\$81,468	Parks	Site		3	4	2020
CC	general site	7	Pavement, Parking Lots & Curbs	replace full depth asphalt (within 5 years)	\$48,300	\$ 68,222	\$78,698	Public W	Site		3	4	2020
CC	general site	7	Pavement, Parking Lots & Curbs	replace concrete curbs with granite curbs	\$549,500	\$ 776,151	\$895,332	Public W	Site		4	4	2020
CC	back of school	7	Pavement, Parking Lots & Curbs	ballcourt included in asphalt parking	\$0	\$ -	\$0	Parks	Site		4	4	2020
CC	back of school	7	Pavement, Parking Lots & Curbs	replace full depth asphalt (within 10 years)	\$387,700	\$ 547,614	\$631,702	Public W	Site		4	7	2020
CC	front of school	8	Sidewalks & Hardscape	replace bluestone path adjacent to parking to 5" depth concrete walk	\$15,000	\$ 21,187	\$24,440	Parks	Site		4	4	2020
CC	general site	8	Sidewalks & Hardscape	replace 5" thick concrete walks (15 yr)	\$204,435	\$ 288,758	\$333,098	Parks	Site		4	7	2020
CC	general site	8	Sidewalks & Hardscape	replace asphalt path with 5" thick concrete walks (15 yr)	\$112,500	\$ 158,903	\$183,303	Parks	Site		4	7	2020
CC	front of school	9	Site Amenities	replace school billboard/sign with digital sign	\$50,000	\$ 70,623	\$81,468	Parks	Site		3	4	2020
CC	general site	9	Site Amenities	replace garbage cans and bike racks with Greenwich City Standard	\$25,000	\$ 35,312	\$40,734	Parks	Site		1	4	2020
CC	rear of building	10	Playgrounds & Equipment	replace one of the elevated play sets with an inclusive ramped set	\$200,000	\$ 282,494	\$325,871	Parks	Site		3	4	2020
CC	back of school	10	Playgrounds & Equipment	replacement of basketball hoops and other equipment	\$25,000	\$ 35,312	\$40,734	Parks	Site		4	7	2020
CC	general site	11	Landscaping & Plantings	replace deteriorating plants	\$10,000	\$ 14,125	\$16,294	Parks	Site		1	3	2020
CC	general site	11	Landscaping & Plantings	resod areas along sidewalk ruined by snow plow	\$8,000	\$ 11,300	\$13,035	Parks	Site		1	4	2020
CC	general site	11	Landscaping & Plantings	prune trees	\$5,000	\$ 7,062	\$8,147	Parks	Site		1	4	2020
CC	general field	12	Fields & Field Structures	replace batting cage on softball field	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	4	2020
CC	side and rear	13	Fences	replace chainlink fence	\$100,000	\$ 141,247	\$162,936	Parks	Site		3	3	2020
CC	rear entry	14	Site Walls, Stairs & Railings	repair bluestone steps/landing and provide new railings	\$72,000	\$ 101,698	\$117,314	Parks	Site		3	4	2020
CC	Bldg Exterior	15	Foundation	add outdoor classroom area with a covered area and seating	\$3,500	\$ 4,944	\$5,703	GPS	Program		3	4	2020
CC	Exterior Walls	17	Exterior Walls & Columns	Repair/paint Exterior cornice	\$29,200	\$ 41,244	\$47,577	GPS	Infrastructure		3	4	2020
CC	Exterior Walls	17	Exterior Walls & Columns	Replace window lintels	\$64,000	\$ 90,398	\$104,279	GPS	Infrastructure		3	4	2020
CC	Bldg Exterior	17	Exterior Walls & Columns	add outdoor classroom area with a covered area and seating	\$130,000	\$ 183,621	\$211,816	GPS	Program		3	4	2020
CC	Exterior Walls	17	Exterior Walls & Columns	Replace window lintels	\$64,000	\$ 90,398	\$104,279	GPS	Infrastructure		3	3	2020
CC	Roof	19	Roof/Skylights	Replace Shingle Roof (CIP) - \$200,000 Deleted	\$0	\$ -	\$0	GPS	Infrastructure		3	3	2018
CC	Roof	19	Roof/Skylights	Replace Flat Roofs (CIP) - \$800,000 Deleted	\$0	\$ -	\$0	GPS	Infrastructure		3	3	2021
CC	General Building	26	Interior Walls & Renovation	Install wall tile in all interior corridors	\$138,960	\$ 196,277	\$226,415	GPS	Infrastructure		3	6	2020
CC	General Building	26	Interior Walls & Renovation	Install new bathroom partitions	\$24,000	\$ 33,899	\$39,105	GPS	Infrastructure		1	6	2020
CC	General Building	26	Interior Walls & Renovation	Install wall tile in all interior corridors	\$138,960	\$ 196,277	\$226,415	GPS	Infrastructure		3	6	2020
CC	General Building	26	Interior Walls & Renovation	Architectural work related to HVAC Improvements	\$425,000	\$ 600,299	\$692,477	GPS	Infrastructure		3	5	2020
CC	General Building	26	Interior Walls & Renovation	Interior Renovations	\$300,000	\$ 423,740	\$488,807	GPS	Infrastructure		3	7	2020
CC	General Building	26	Interior Walls & Renovation	Interior Painting (CIP)	\$5,000	\$ 7,062	\$8,147	GPS	Infrastructure		3	2	2020
CC	General Building	27	Flooring	Replace carpet/flooring (CIP)	\$25,000	\$ 33,941	\$37,301	GPS	Infrastructure		3	2	2018
CC	General Building	27	Flooring	Replace carpet Media room	\$27,500	\$ 47,349	\$69,584	GPS	Infrastructure		3	7	2030
CC	General Building	27	Flooring	Replace VCT	\$177,990	\$ 306,461	\$450,375	GPS	Infrastructure		3	7	2030
CC	General Building	27	Flooring	Replace ramp VCT with non skid VCT	\$2,464	\$ 3,345	\$3,676	GPS	Infrastructure		3	2	2018
CC	Gymnasium	27	Flooring	Refinish wood flooring	\$37,040	\$ 63,775	\$93,724	GPS	Infrastructure		3	7	2030
CC	PA/Comm Systems	35	PA/Comm/Security Systems	Cost based on a 50 speaker PA system w/2 amplifiers and master clock system for 50 room elementary school from Costworks 2017 Elementary School square foot models.	\$172,395	\$ 243,503	\$280,894	GPS	Infrastructure		3	7	2020
CC	Fire Alarm & Smoke Detection (Full Upgrade)	36	Fire Alarm & Smoke Detection	Cost includes replacement of existing fire alarm system, based on recent SaxeMS Bids at approx. \$1.98/sqft, including conduit and wire.	\$218,459	\$ 308,567	\$355,948	GPS	Infrastructure		2	5	2020
CC	Emergency/Exit Lighting (Lighting Inverters)	38	Emergency/Exit Lighting	Cost taken from RS means Costworks 2017 Unit Costs -26 33 53 0230, \$23,600 for 15kVA 1 phase, 120V, voltage regulating, isolating transf., w/ inverter & 10 minute battery.	\$47,200	\$ 66,668	\$76,906	GPS	Infrastructure		2	2	2020
CC	Emergency/Exit Lighting (EM Wall packs)	38	Emergency/Exit Lighting	Cost taken from RS Means Costworks 2017 Square Footage Model for School in CT at \$605 each.	\$56,322	\$ 79,552	\$91,768	GPS	Infrastructure		2	2	2020
CC	Emergency/Standby Power	39	Emergency/Standby Power	Cost from Costworks 2017 D5090210 for new 750kW diesel, includes transfer switch. Includes pad at \$9000. Includes 600 lf of 4" PVC conduit and 2500 ft of 600MCM XHHW at \$47088.	\$237,588	\$ 335,585	\$387,116	GPS	Infrastructure		2	5	2020
CC	Lead Free Valves (Bldg)	40	Water Distribution	CCSD - NASCO	\$5,250	\$ 7,415	\$8,554	GPS	Infrastructure		2	5	2020
CC	Hot Water Heaters	42	Hot Water Heaters	Demo Hot Water Heaters	\$300	\$ 415	\$468	GPS	Infrastructure		2	7	2019
CC	Circulating Pump	42	Hot Water Heaters	Demo Circulating Pump	\$500	\$ 692	\$780	GPS	Infrastructure		2	7	2019
CC	Hot Water Heaters	42	Hot Water Heaters	New Hot Water Heaters	\$18,000	\$ 24,926	\$28,065	GPS	Infrastructure		2	7	2019
CC	Circulating Pump	42	Hot Water Heaters	New Circulating Pump	\$3,000	\$ 4,154	\$4,678	GPS	Infrastructure		2	7	2019

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
CC	Plumbing Fixtures	43	Plumbing Fixtures	Replace Plumbing Fixtures	\$33,300	\$ 47,035	\$54,258	GPS	Infrastructure		2	5	2020
CC	Lead Free Valves (Fixtures)	43	Plumbing Fixtures	CCSD - NASCO	\$21,250	\$ 30,015	\$34,624	GPS	Infrastructure		2	5	2020
CC	Toilets	43	Plumbing Fixtures	Replace Toilets	\$164,500	\$ 232,351	\$268,029	GPS	Infrastructure		2	5	2020
CC	Urinals	43	Plumbing Fixtures	Replace Urinals	\$14,000	\$ 19,775	\$22,811	GPS	Infrastructure		2	5	2020
CC	Sinks	43	Plumbing Fixtures	Replace Lavatories / Sinks	\$99,750	\$ 140,894	\$162,528	GPS	Infrastructure		2	5	2020
CC	Boilers	45	Heating Systems	Demo Boilers	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure	Energy	2	5	2020
CC	HW Heating Pumps	45	Heating Systems	Demo HW Heating Pumps	\$1,300	\$ 1,836	\$2,118	GPS	Infrastructure	Energy	2	5	2020
CC	Boilers	45	Heating Systems	Costworks (3,000 MBH Gas Boiler - Condensing)	\$160,000	\$ 225,995	\$260,697	GPS	Infrastructure	Energy	2	5	2020
CC	HW Heating Pumps	45	Heating Systems	Costworks (7.5 HP Basemounted)	\$32,000	\$ 45,199	\$52,139	GPS	Infrastructure	Energy	2	5	2020
CC	Kitchen Make-Up Air Unit	46	Ventilation Systems	Costworks (MAU thru 6,000 CFM)	\$1,000	\$ 1,412	\$1,629	GPS	Infrastructure		2	8	2020
CC	Kitchen Make-Up Air Unit	46	Ventilation Systems	Costworks	\$18,000	\$ 25,424	\$29,328	GPS	Infrastructure		2	8	2020
CC	Classroom, Corridors, etc	46	Ventilation Systems	Costworks (AHU and ACCU) 50 Tons each	\$18,000	\$ 25,424	\$29,328	GPS	Infrastructure		2	8	2020
CC	Gymnasium	46	Ventilation Systems	Costworks (AHU and ACCU) 50 Tons each	\$18,000	\$ 25,424	\$29,328	GPS	Infrastructure		2	8	2020
CC	Rooftop Exhaust Fans	46	Ventilation Systems	Costworks	\$87,500	\$ 123,591	\$142,569	GPS	Infrastructure		4	8	2020
CC	Classrooms	47	Air Conditioning Systems	VRF @ \$12k / Ton	\$1,080,000	\$ 1,525,465	\$1,759,706	GPS	Infrastructure		2	8	2020
CC	Corridors	47	Air Conditioning Systems	Replacement HVAC system @ \$25 / SF	\$350,000	\$ 494,364	\$570,275	GPS	Infrastructure		2	8	2020
CC	Gymnasium	47	Air Conditioning Systems	Replacement HVAC system @ \$25 / SF	\$125,000	\$ 176,558	\$203,670	GPS	Infrastructure		2	8	2020
CC	Kitchen	47	Air Conditioning Systems	Replacement HVAC system @ \$25 / SF	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure		3	8	2020
CC	Cafeteria	47	Air Conditioning Systems	Replacement HVAC system @ \$25 / SF	\$80,000	\$ 112,997	\$130,349	GPS	Infrastructure		3	8	2020
CC	Main Office	47	Air Conditioning Systems	Replacement HVAC system @ \$25 / SF	\$37,500	\$ 52,968	\$61,101	GPS	Infrastructure		3	8	2020
CC	Nurse's Office	47	Air Conditioning Systems	Replacement HVAC system @ \$25 / SF	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure		3	8	2020
CC	Media Center	47	Air Conditioning Systems	Replacement HVAC system @ \$25 / SF	\$87,500	\$ 123,591	\$142,569	GPS	Infrastructure		3	8	2020
CC	Variable Air Volume Units	47	Air Conditioning Systems	Variable Air Volume Units	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure		2	8	2020
CC	Classrooms, Corridors, Etc	47	Air Conditioning Systems	50 Ton AHU's and Associated ACCU	\$330,000	\$ 466,114	\$537,688	GPS	Infrastructure		2	8	2020
CC	Gymnasium	47	Air Conditioning Systems	51 Ton AHU's and Associated ACCU	\$330,000	\$ 466,114	\$537,688	GPS	Infrastructure		2	8	2020
CC	Kitchen	47	Air Conditioning Systems	Costworks (5-Ton Dedicated Outdoor Unit)	\$8,000	\$ 11,300	\$13,035	GPS	Infrastructure		3	8	2020
CC	Main Office	47	Air Conditioning Systems	Costworks	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure		3	8	2020
CC	Nurse's Office	47	Air Conditioning Systems	Costworks	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure		3	8	2020
CC	Variable Air Volume Units	47	Air Conditioning Systems	Costworks	\$25,000	\$ 35,312	\$40,734	GPS	Infrastructure		2	8	2020
CC	HVAC Controls	48	HVAC Controls	HVAC Controls	\$275,833	\$ 389,605	\$449,430	GPS	Infrastructure	Energy	3	5	2020
CC	Classrooms	49	Program Enhancements	Update Classroom Furniture	\$880,000	\$ 1,242,972	\$1,433,834	GPS	Infrastructure		4	7	2020
CMS	general site	5	Site Electrical	add site lighting-bollards for walkway,overhead for parking areas	\$100,000	\$ 141,247	\$162,936	GPS	Site		3	4	2020
CMS	Site Electrical	5	Site Electrical	Cost includes excavation, backfill and compaction. Includes feeders and conduit for new 2000 amp service, taken from Costworks 2017 D5010130 underground electric service. Includes \$10,000 temp generator.	\$139,250	\$ 196,686	\$226,888	GPS	Infrastructure		3	5	2020
CMS	handicap parking	7	Pavement, Parking Lots & Curbs	add handicap curb cuts in parking lot near gym in closer proximity	\$5,000	\$ 7,062	\$8,147	Public W	Site		2	4	2020
CMS	staff parking	7	Pavement, Parking Lots & Curbs	replace asphalt/full depth (5 yr)	\$290,000	\$ 409,616	\$472,514	Public W	Site		2	4	2020
CMS	entry drive	7	Pavement, Parking Lots & Curbs	add curb cut for handicap drop off access	\$5,000	\$ 7,062	\$8,147	Public W	Site		2	4	2020
CMS	main entry drive	7	Pavement, Parking Lots & Curbs	replace asphalt/full depth (10 yr)	\$130,000	\$ 183,621	\$211,816	Public W	Site		4	4	2020
CMS	side of gym	7	Pavement, Parking Lots & Curbs	replace asphalt/full depth /basket ball area (sport surface?)	\$25,000	\$ 35,312	\$40,734	Public W	Site		4	4	2020
CMS	general site	7	Pavement, Parking Lots & Curbs	replace all concrete curbs with granite curbs	\$360,000	\$ 508,488	\$586,569	Public W	Site		4	4	2020
CMS	general site	7	Pavement, Parking Lots & Curbs	replace asphalt walks/plaza areas with concrete walks/plaza (5 yr)	\$440,000	\$ 621,486	\$716,917	Public W	Site		2	4	2020
CMS	general site	7	Pavement, Parking Lots & Curbs	add concrete walkway near tennis court	\$24,000	\$ 33,899	\$39,105	Public W	Site		2	4	2020
CMS	ballfields	7	Pavement, Parking Lots & Curbs	replace or add drainage on athletic fields	\$150,000	\$ 211,870	\$244,404	Public W	Site		3	4	2020
CMS	east side/ accessible entry	7	Pavement, Parking Lots & Curbs	add entry canopy at visitor entry to gym (visual queue)	\$60,000	\$ 84,748	\$97,761	Public W	Site		3	4	2020
CMS	visitor parking	7	Pavement, Parking Lots & Curbs	replace asphalt/full depth (10 yr)	\$260,000	\$ 367,242	\$423,633	Public W	Site		3	7	2020
CMS	tennis courts	7	Pavement, Parking Lots & Curbs	replace sports surface on courts (15 yr)	\$490,000	\$ 692,109	\$798,385	Public W	Site		4	7	2020
CMS	general site	8	Sidewalks & Hardscape	replace deteriorating concrete sidewalk	\$7,875	\$ 11,123	\$12,831	Parks	Site		3	4	2020
CMS	general site	8	Sidewalks & Hardscape	replace existing concrete sidewalks in full	\$40,950	\$ 57,841	\$66,722	Parks	Site		4	4	2020
CMS	back of school	9	Site Amenities	add outdoor classroom area with a covered area and seating	\$100,000	\$ 141,247	\$162,936	GPS	Program		3	4	2020
CMS	general site	9	Site Amenities	replace garbage and recycle bins with trash/recycle enclosure	\$8,400	\$ 11,865	\$13,687	Parks	Site		1	4	2020
CMS	front of school	9	Site Amenities	replace school billboard/sign	\$50,000	\$ 70,623	\$81,468	Parks	Site		3	4	2020
CMS	front of school	9	Site Amenities	add outdoor classroom area with a covered area and seating	\$50,000	\$ 70,623	\$81,468	GPS	Program		3	4	2020
CMS	general site	11	Landscaping & Plantings	prune trees	\$7,500	\$ 10,594	\$12,220	Parks	Site		1	4	2020
CMS	general site	11	Landscaping & Plantings	resod areas along sidewalk ruined by snow plow	\$10,000	\$ 14,125	\$16,294	Parks	Site		1	4	2020
CMS	entry area	11	Landscaping & Plantings	formalize front garden area/foundation planting and seating area	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	4	2020
CMS	sports fields	12	Fields & Field Structures	replace sod fields with organic turf	\$2,916,000	\$ 4,118,756	\$4,751,205	GPS	Site		3	4	2020
CMS	sports fields	12	Fields & Field Structures	add sports performance lighting	\$600,000	\$ 847,481	\$977,614	GPS	Site		3	4	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
CMS	general field	12	Fields & Field Structures	replace batting cage on softball field	\$20,000	\$ 28,249	\$32,587	GPS	Site		3	4	2020
CMS	general site	13	Fences	repair fences along perimeter	\$50,000	\$ 70,623	\$81,468	Parks	Site		3	4	2020
CMS	Bldg Exterior	17	Exterior Walls & Columns	Structural Repairs to Address Cracking in Gym Area	\$50,000	\$ 70,623	\$81,468	GPS	Infrastructure		3	2	2020
CMS	Bldg Exterior	17	Exterior Walls & Columns	Structural Repair to Columns in Mechanical Space	\$400,000	\$ 564,987	\$651,743	GPS	Infrastructure		3	2	2020
CMS	Bldg Exterior	17	Exterior Walls & Columns	Structural Repairs - Separation of Existing Walls from Slab (Facilities)	\$500,000	\$ 706,234	\$814,678	GPS	Infrastructure		3	2	2020
CMS	Bldg Exterior	17	Exterior Walls & Columns	Exterior Painting (CIP)	\$50,000	\$ 70,623	\$81,468	GPS	Infrastructure		3	7	2020
CMS	Bldg Exterior	17	Exterior Walls & Columns	Exterior Painting & Restoration - Balance of Building (Facilities)	\$150,000	\$ 211,870	\$244,404	GPS	Program		3	4	2020
CMS	Bldg Exterior	17	Exterior Walls & Columns	add outdoor classroom area with a covered area and seating	\$225,000	\$ 317,805	\$366,605	GPS	Program		3	4	2020
CMS	Bldg Exterior	17	Exterior Walls & Columns	Façade/Facia/Cracks in Bldg	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure		3	4	2020
CMS	Bldg Exterior	17	Exterior Walls & Columns	Exterior Improvements	\$300,000	\$ 423,740	\$488,807	GPS	Infrastructure		3	7	2020
CMS	Bldg Exterior	17	Exterior Walls & Columns	Roof Access (Facilities)	\$35,000	\$ 49,436	\$57,027	GPS	Infrastructure		2	2	2020
CMS	Roof	19	Roof/Skylights	Roof Replacement on New Wing (CIP) - \$450,000 Deleted	\$0	\$ -	\$0	GPS	Infrastructure		3	3	2020
CMS	Roof	19	Roof/Skylights	Roof Replacement	\$247,500	\$ 349,586	\$403,266	GPS	Infrastructure		3	3	2020
CMS	Roof	19	Roof/Skylights	Upcoming Roof Replacement	\$1,645,000	\$ 2,323,510	\$2,680,292	GPS	Infrastructure		3	7	2020
CMS	Bldg Exterior	21	Exterior Doors	Replace Exterior Doors (CIP)	\$160,000	\$ 230,515	\$272,428	GPS	Infrastructure		3	4	2021
CMS	rear of building	22	Exterior Stairs & Ramps	repair concrete steps and replace railings	\$24,120	\$ 34,069	\$39,300	GPS	Infrastructure		3	4	2020
CMS	west side	22	Exterior Stairs & Ramps	replace concrete steps (10r) and railings (nearest to the addition)	\$69,120	\$ 97,630	\$112,621	GPS	Infrastructure		3	4	2020
CMS	west side	22	Exterior Stairs & Ramps	replace concrete steps and railings (near loading dock)	\$24,120	\$ 34,069	\$39,300	GPS	Infrastructure		3	4	2020
CMS	west side	22	Exterior Stairs & Ramps	replace concrete ramp and railings	\$25,200	\$ 35,594	\$41,060	GPS	Infrastructure		3	4	2020
CMS	south side	22	Exterior Stairs & Ramps	replace retaining wall/check drainage behind wall	\$31,500	\$ 44,493	\$51,325	GPS	Infrastructure		3	4	2020
CMS	east side/student drop off	22	Exterior Stairs & Ramps	replace railings on ramp on east side and add rails to stairs	\$45,000	\$ 63,561	\$73,321	GPS	Infrastructure		3	4	2020
CMS	Bldg Exterior	24	Windows	Replace exterior window system (CIP)	\$800,000	\$ 1,107,818	\$1,247,355	GPS	Infrastructure		3	7	2019
CMS	Bldg Exterior	24	Windows	Replace exterior window system (CIP)	\$900,000	\$ 1,271,221	\$1,466,421	GPS	Infrastructure		3	7	2020
CMS	Bldg Exterior	24	Windows	Remove and Install new store front windows	\$29,400	\$ 41,527	\$47,903	GPS	Infrastructure		3	4	2020
CMS	Bldg Exterior	24	Windows	Remove and install new windows in locker room	\$35,000	\$ 49,436	\$57,027	GPS	Infrastructure		3	4	2020
CMS	Bldg Exterior	24	Windows	Replace exterior storefront and windows	\$350,000	\$ 494,364	\$570,275	GPS	Infrastructure		3	7	2020
CMS	General Building	26	Interior Walls & Renovation	Renovate Locker Rooms (CIP)	\$400,000	\$ 543,048	\$596,820	GPS	Infrastructure		3	2	2018
CMS	General Building	26	Interior Walls & Renovation	Interior Painting (CIP)	\$15,000	\$ 20,364	\$22,381	GPS	Infrastructure		3	2	2018
CMS	General Building	26	Interior Walls & Renovation	Replace Gym Wall Pads (Facilities)	\$50,000	\$ 67,881	\$74,603	GPS	Infrastructure		3	2	2018
CMS	General Building	26	Interior Walls & Renovation	Replace Gym Bleachers (Facilities)	\$200,000	\$ 282,494	\$325,871	GPS	Infrastructure		3	6	2020
CMS	General Building	26	Interior Walls & Renovation	Remove and install new shower rooms/bath rooms	\$60,000	\$ 84,748	\$97,761	GPS	Infrastructure		3	6	2020
CMS	General Building	26	Interior Walls & Renovation	Architectural work related to HVAC Improvements	\$1,500,000	\$ 2,118,702	\$2,444,035	GPS	Infrastructure		3	8	2020
CMS	Bldg Interior	27	Flooring	Remove and install new ACT in corridors	\$56,074	\$ 79,203	\$91,365	GPS	Infrastructure		3	6	2020
CMS	Bldg Interior	27	Flooring	Remove and install new ACT in classrooms	\$105,188	\$ 148,574	\$171,388	GPS	Infrastructure		3	6	2020
CMS	Bldg Interior	27	Flooring	Remove and install new Carpet in Media room	\$27,860	\$ 39,351	\$45,394	GPS	Infrastructure		3	6	2020
CMS	Bldg Interior	27	Flooring	Remove and install new Wood Flooring in Gymnasium	\$128,900	\$ 182,067	\$210,024	GPS	Infrastructure		2	2	2020
CMS	Bldg Interior	27	Flooring	Install new epoxy floor	\$16,700	\$ 23,588	\$27,210	GPS	Infrastructure		3	6	2020
CMS	Bldg Interior	28	Ceilings	Remove and install new ACT in corridors	\$108,000	\$ 152,547	\$175,971	GPS	Infrastructure		3	6	2020
CMS	Bldg Interior	28	Ceilings	Remove and install new ACT in class rooms-allowance	\$198,000	\$ 279,669	\$322,613	GPS	Infrastructure		3	6	2020
CMS	Classrooms	49	Program Enhancements	Update Classroom Furniture	\$1,160,000	\$ 1,606,336	\$1,808,664	GPS	Program		3	9	2019
CMS	Learning Commons	49	Program Enhancements	Learning Commons Furniture Allowance	\$250,000	\$ 360,179	\$425,670	GPS	Program		3	9	2021
CMS	Bldg Interior	29	Casework, Lockers & Furnishings	Remove and install new lockers	\$36,000	\$ 50,849	\$58,657	GPS	Infrastructure		3	6	2020
CMS	Bldg Interior	29	Casework, Lockers & Furnishings	Remove and install new Benches	\$3,240	\$ 4,576	\$5,279	GPS	Infrastructure		3	6	2020
CMS	Bldg Interior	29	Casework, Lockers & Furnishings	Remove and install new casework	\$375,000	\$ 529,675	\$611,009	GPS	Infrastructure		3	6	2020
CMS	Ground Floor	30	Interior Doors & Windows	Replace corridor doors and hardware in original building	\$55,000	\$ 77,686	\$89,615	GPS	Infrastructure		3	6	2020
CMS	First Floor	30	Interior Doors & Windows	Replace corridor doors and hardware in original building	\$190,000	\$ 268,369	\$309,578	GPS	Infrastructure		3	6	2020
CMS	Bldg Interior	31	Interior Stairs	Replace noncompliant guardrails and handrails in original building	\$90,000	\$ 127,122	\$146,642	GPS	Infrastructure		2	2	2020
CMS	Classrooms	32	Elevators, Lifts & ADA Access	Replace Elevator (CIP)	\$250,000	\$ 353,117	\$407,339	GPS	Infrastructure		3	7	2020
CMS	Interior Electric Distribution	33	Int Electric Distribution	Cost includes upgrade to 2000A switchgear,includes (1)-800 dist panel for AC. Taken from CostworksAssembly costs 2017- D5010 240 and D5010250 3000. Cost also includes (5) - 225Amp panelboards for a building up to 5 stories, 50 ft horizontal run of conduit and conductors.	\$180,000	\$ 254,244	\$293,284	GPS	Infrastructure		2	5	2020
CMS	Lighting Fixtures	34	Lighting Fixtures	Exterior Building Lighting Improvements (CIP)	\$35,000	\$ 49,436	\$57,027	GPS	Infrastructure	Energy	2	4	2020
CMS	Lighting Fixtures	34	Lighting Fixtures	Replace existing fixtures with LED. Cost based on Westlake CM 2017 cost to remove and replace w/LED is \$7.2/sqft including removals.	\$800,136	\$ 1,130,166	\$1,303,707	GPS	Infrastructure	Energy	2	5	2020
CMS	Lighting Fixtures	34	Lighting Fixtures	Exterior Building Lighting Improvements (CIP)	\$80,000	\$ 112,997	\$130,349	GPS	Infrastructure	Energy	3	4	2020
CMS	Lighting Controls	34	Lighting Fixtures	Replace Lighting Controls	\$198,645	\$ 280,579	\$323,663	GPS	Infrastructure	Energy	2	5	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
CMS	PA/Comm Systems	35	PA/Comm/Security Systems	Cost based on a 50 speaker PA system w/2 amplifiers and master clock system for 50 room elementary school from Costworks 2017 Elementary School square foot models.	\$173,641	\$ 245,262	\$282,923	GPS	Infrastructure		3	7	2020
CMS	Fire Alarm & Smoke Detection	36	Fire Alarm & Smoke Detection	Cost includes replacement of existing fire alarm system, based on recent SaxeMS Bids at approx. \$1.98/sqft, including conduit and wire.	\$220,037	\$ 310,796	\$358,519	GPS	Infrastructure		2	5	2020
CMS	New Fire Protection water service	37	Fire Suppression Systems	New Fire Protection water service	\$25,000	\$ 35,312	\$40,734	GPS	Infrastructure		3	5	2020
CMS	Full Building Sprinkler System	37	Fire Suppression Systems	Full Building Sprinkler System	\$889,040	\$ 1,255,740	\$1,448,564	GPS	Infrastructure		3	5	2020
CMS	New Fire Pump	37	Fire Suppression Systems	New Fire Pump	\$100,000	\$ 141,247	\$162,936	GPS	Infrastructure		3	5	2020
CMS	Emergency/Exit Lighting	38	Emergency/Exit Lighting	Cost taken from RS Means Costworks 2017 Square Footage Model for School in CT at \$605.00 each.	\$75,625	\$ 106,818	\$123,220	GPS	Infrastructure		2	2	2020
CMS	Emergency/Standby Power (New Generator to Power Entire Facility)	39	Emergency/Standby Power	Cost includes new 500kW diesel generator, transfer switch, batteries, charger, muffler, and fuel tank. Cost is based on RS Means Costworks Assembly Costs 2017 - D5090 210 Generators (by kW). Includes 600 lf of 4" PVC conduit and 2500 ft of 600MCM XHHW at \$47088.	\$198,463	\$ 280,323	\$323,367	GPS	Infrastructure		2	5	2020
CMS	Lead Free Valves (Bldg)	40	Water Distribution	CCSD - NASCO	\$10,500	\$ 14,831	\$17,108	GPS	Infrastructure		2	2	2020
CMS	Sump Pumps	40	Water Distribution	Sump Pumps	\$35,000	\$ 49,436	\$57,027	GPS	Infrastructure		2	2	2020
CMS	Sump Pumps	41	Plumbing Drainage	Sump Pumps Demolition	\$0	\$ -	\$0	GPS	Infrastructure		3	7	2020
CMS	Sump Pumps	41	Plumbing Drainage	Grease Trap (Facilities)	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure		3	2	2020
CMS	Hot Water Heaters	42	Hot Water Heaters	Hot Water Heaters Demolition	\$0	\$ -	\$0	GPS	Infrastructure		2	7	2020
CMS	Circulating Pump	42	Hot Water Heaters	Circulating Pump Demolition	\$0	\$ -	\$0	GPS	Infrastructure		2	7	2020
CMS	Hot Water Heaters	42	Hot Water Heaters	Hot Water Heaters	\$110,000	\$ 155,371	\$179,229	GPS	Infrastructure		2	2	2020
CMS	Circulating Pump	42	Hot Water Heaters	Circulating Pump	\$5,000	\$ 7,062	\$8,147	GPS	Infrastructure		2	2	2020
CMS	Plumbing Fixtures	43	Plumbing Fixtures	Plumbing Fixtures	\$35,700	\$ 50,425	\$58,168	GPS	Infrastructure		2	5	2020
CMS	Lead Free Valves (Fixtures)	43	Plumbing Fixtures	Lead Free Valves (Fixtures)	\$21,125	\$ 29,838	\$34,420	GPS	Infrastructure		2	5	2020
CMS	Toilets	43	Plumbing Fixtures	Toilets	\$185,500	\$ 262,013	\$302,246	GPS	Infrastructure		2	5	2020
CMS	Urinals	43	Plumbing Fixtures	Urinals	\$32,000	\$ 45,199	\$52,139	GPS	Infrastructure		2	5	2020
CMS	Lavatories	43	Plumbing Fixtures	Lavatories	\$87,500	\$ 123,591	\$142,569	GPS	Infrastructure		2	5	2020
CMS	HV Units: not new wing	45	Heating Systems	HV Units: not new wing	\$70,000	\$ 98,873	\$114,055	GPS	Infrastructure	Energy	2	5	2020
CMS	Auditorium	46	Ventilation Systems	Auditorium	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure		2	8	2020
CMS	Unit Ventilators New Wing	46	Ventilation Systems	Unit Ventilators New Wing	\$6,600	\$ 9,322	\$10,754	GPS	Infrastructure		2	8	2020
CMS	Gymnasium	46	Ventilation Systems	Gymnasium	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure		2	8	2020
CMS	Library	46	Ventilation Systems	Library	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure		2	8	2020
CMS	Rooftop Exhaust Fans	46	Ventilation Systems	Costworks, including Science Rooms	\$70,000	\$ 98,873	\$114,055	GPS	Infrastructure		3	8	2020
CMS	Auditorium	47	Air Conditioning Systems	Replacement HVAC system @ \$40/ SF; no existing ductwork	\$294,000	\$ 415,266	\$479,031	GPS	Infrastructure		2	8	2020
CMS	Classrooms	47	Air Conditioning Systems	Packaged/Central sytem @ \$12k / Ton; mix with VRF	\$1,800,000	\$ 2,542,442	\$2,932,843	GPS	Infrastructure		2	8	2020
CMS	Corridors	47	Air Conditioning Systems	Replacement HVAC system @ \$40/ SF; no existing ductwork	\$564,000	\$ 796,632	\$918,957	GPS	Infrastructure		2	8	2020
CMS	Gymnasium	47	Air Conditioning Systems	Replacement HVAC system @ \$40/ SF; no existing ductwork	\$140,000	\$ 197,745	\$228,110	GPS	Infrastructure		2	8	2020
CMS	Cafeteria	47	Air Conditioning Systems	Replacement HVAC system @ \$40/ SF; no existing ductwork	\$68,000	\$ 96,048	\$110,796	GPS	Infrastructure		2	8	2020
CMS	Kitchen	47	Air Conditioning Systems	Replacement HVAC system @ \$40/ SF; no existing ductwork	\$60,000	\$ 84,748	\$97,761	GPS	Infrastructure		2	8	2020
CMS	Media / Computer Lab	47	Air Conditioning Systems	Replacement HVAC system @ \$40/ SF; no existing ductwork	\$160,000	\$ 225,995	\$260,697	GPS	Infrastructure		2	8	2020
CMS	Variable Air Volume Units	47	Air Conditioning Systems	Variable Air Volume Units	\$105,000	\$ 148,309	\$171,082	GPS	Infrastructure		2	8	2020
CMS	HVAC Controls	48	HVAC Controls	HVAC Controls	\$611,215	\$ 863,322	\$995,887	GPS	Infrastructure	Energy	3	5	2020
CMS	Classrooms	49	Program Enhancements	Renovate Science Labs (CIP)	\$469,000	\$ 649,458	\$731,262	GPS	Program		4	7	2019
CMS	Classrooms	49	Program Enhancements	Renovate Science Labs (CIP)	\$469,000	\$ 662,447	\$764,168	GPS	Program		4	7	2020
CMS	Learning Commons	49	Program Enhancements	Learning Commons Renovation	\$800,000	\$ 1,152,574	\$1,362,142	GPS	Program		4	9	2021
CMS	Front Entry	49	Program Enhancements	Construct Main Entrance Canopy	\$100,000	\$ 144,072	\$170,268	GPS	Program		4	9	2021
CMS	Classrooms	49	Program Enhancements	Renovate Science Labs (CIP)	\$469,000	\$ 689,210	\$834,491	GPS	Program		4	7	2022
CMS	Classrooms	49	Program Enhancements	Renovate Science Classrooms	\$600,000	\$ 847,481	\$977,614	GPS	Program		4	7	2020
CMS	Classrooms	49	Program Enhancements	Family and Consumer Science Classroom (CIP)	\$275,000	\$ 388,429	\$448,073	GPS	Program		4	7	2020
CMS	Bldg Exterior	49	Program Enhancements	Remove and install new canopy	\$50,000	\$ 70,623	\$81,468	GPS	Program		4	7	2020
CMS	Building Replacement Project	49	Program Enhancements	Building Replacement Project	\$60,000,000	\$ 84,748,071	\$97,761,420	GPS	Infrastructure		4	7	2020
DIST	Demolition of UG Fuel Tank	4	Site Fuel Oil	Demolition of UG Fuel Tank	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure		1	2	2020
DIST	Site Electrical	5	Site Electrical	Site Electrical	\$80,500	\$ 113,704	\$131,163	GPS	Infrastructure		3	5	2020
DIST	Fencing	17	Exterior Walls & Columns	Fencing Replacement (CIP)	\$50,000	\$ 67,881	\$74,603	Parks	Site		4	3	2018
DIST	Exterior Walls	17	Exterior Walls & Columns	Clean/Power wash exterior bldg	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure		4	3	2020
DIST	Exterior Walls	17	Exterior Walls & Columns	Pointing Brick	\$55,000	\$ 77,686	\$89,615	GPS	Infrastructure		4	3	2020
DIST	Exterior Walls	17	Exterior Walls & Columns	Repair Masonry/Concrete	\$125,000	\$ 176,558	\$203,670	GPS	Infrastructure		4	3	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
DIST	Exterior Walls	17	Exterior Walls & Columns	Exterior Painting/Window lintels	\$50,000	\$ 70,623	\$81,468	GPS	Infrastructure		4	3	2020
DIST	Millbank	17	Exterior Walls & Columns	Exterior Building Painting (Facilities)	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure		4	3	2020
DIST	Exterior Doors	21	Exterior Doors	Replace exterior doors	\$48,000	\$ 67,798	\$78,209	GPS	Infrastructure		4	3	2020
DIST	Exterior stairs/ramp	22	Exterior Stairs & Ramps	Replace wood deck /Stairs	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure		4	3	2020
DIST	Exterior Walls	23	Fire Escapes	Repair/Replace Fire Escapes (CIP)	\$165,000	\$ 228,487	\$257,267	GPS	Infrastructure		4	3	2019
DIST	Exterior Windows	24	Windows	Replace existing curved windows with insulated windows	\$127,500	\$ 180,090	\$207,743	GPS	Infrastructure		4	3	2020
DIST	Districtwide	26	Interior Walls & Renovation	Abatement (CIP)	\$150,000	\$ 203,643	\$223,808	GPS	Infrastructure		4	6	2018
DIST	Districtwide	26	Interior Walls & Renovation	Abatement (CIP)	\$100,000	\$ 138,477	\$155,919	GPS	Infrastructure		4	6	2019
DIST	Other Interior Walls	26	Interior Walls & Renovation	Repair existing Plaster/Brick interior	\$206,250	\$ 291,321	\$336,055	GPS	Infrastructure		4	6	2020
DIST	Other Interior Walls	26	Interior Walls & Renovation	Interior Painting	\$40,000	\$ 56,499	\$65,174	GPS	Infrastructure		4	6	2020
DIST	Districtwide	26	Interior Walls & Renovation	Abatement (CIP)	\$100,000	\$ 141,247	\$162,936	GPS	Infrastructure		4	6	2020
DIST	Districtwide	26	Interior Walls & Renovation	Abatement (CIP)	\$50,000	\$ 72,036	\$85,134	GPS	Infrastructure		4	6	2021
DIST	Districtwide	26	Interior Walls & Renovation	Abatement (CIP)	\$50,000	\$ 73,477	\$88,965	GPS	Infrastructure		4	6	2022
DIST	Districtwide	26	Interior Walls & Renovation	Abatement (CIP)	\$50,000	\$ 74,946	\$92,968	GPS	Infrastructure		4	6	2023
DIST	Districtwide	26	Interior Walls & Renovation	Abatement (CIP)	\$50,000	\$ 76,445	\$97,152	GPS	Infrastructure		4	6	2024
DIST	Districtwide	26	Interior Walls & Renovation	Abatement (CIP)	\$50,000	\$ 77,974	\$101,524	GPS	Infrastructure		4	6	2025
DIST	Districtwide	26	Interior Walls & Renovation	Abatement (CIP)	\$50,000	\$ 79,533	\$106,092	GPS	Infrastructure		4	6	2026
DIST	Districtwide	26	Interior Walls & Renovation	Abatement (CIP)	\$50,000	\$ 81,124	\$110,866	GPS	Infrastructure		4	6	2027
DIST	Districtwide	26	Interior Walls & Renovation	Abatement (CIP)	\$200,000	\$ 330,986	\$463,422	GPS	Infrastructure		4	6	2028
DIST	Districtwide	26	Interior Walls & Renovation	Abatement (CIP)	\$200,000	\$ 337,606	\$484,276	GPS	Infrastructure		4	6	2029
DIST	Districtwide	26	Interior Walls & Renovation	Abatement (CIP)	\$200,000	\$ 344,358	\$506,068	GPS	Infrastructure		4	6	2030
DIST	Districtwide	26	Interior Walls & Renovation	Abatement (CIP)	\$0	\$ -	\$0	GPS	Infrastructure		4	6	2031
DIST	Districtwide	26	Interior Walls & Renovation	Abatement (CIP)	\$0	\$ -	\$0	GPS	Infrastructure		4	6	2032
DIST	Flooring	27	Flooring	Replace VCT flooring	\$59,500	\$ 84,042	\$96,947	GPS	Infrastructure		4	7	2020
DIST	Flooring	27	Flooring	Replace Carpet flooring	\$98,438	\$ 139,040	\$160,390	GPS	Infrastructure		4	7	2020
DIST	Interior Doors and windows	30	Interior Doors & Windows	Replace interior doors and hardware	\$140,400	\$ 198,310	\$228,762	GPS	Infrastructure		4	2	2020
DIST	Interior Doors and windows	30	Interior Doors & Windows	Replace interior doors and hardware CIP	\$40,000	\$ 56,499	\$65,174	GPS	Infrastructure		4	6	2020
DIST	Elevator, Lifts & ADA Access	32	Elevators, Lifts & ADA Access	Install Elevator to all floors & related renovation	\$300,000	\$ 423,740	\$488,807	GPS	Accessibility		4	6	2020
DIST	Interior Electric Distribution	33	Int Electric Distribution	Cost includes replacement and upgrade to 1200A switchgear,includes (2) - 225Amp panelboards for a building up to 5 stories, 50 ft horizontal run of conduit and conductors.	\$70,781	\$ 99,976	\$115,328	GPS	Infrastructure		2	5	2020
DIST	Lighting Fixtures	34	Lighting Fixtures	Replace existing fixtures with LED. Cost based on Westlake CM 2017 cost to remove and replace w/LED is \$7.2/sqft including removals.	\$99,533	\$ 140,587	\$162,174	GPS	Infrastructure	Energy	2	5	2020
DIST	Lighting Controls	34	Lighting Fixtures	New Lighting Controls. Cost based on RS Means Costworks Assembly Costs 2017 - D5020 295 1000, \$1.43/sqft for Lighting On/Off Control System including occupancy and time switching, and conduit and wire. (All references to Costworks are based on Stamford, CT zip code and union pricing)	\$24,710	\$ 34,903	\$40,262	GPS	Infrastructure	Energy	2	5	2020
DIST	Entire Building	35	PA/Comm/Security Systems	Data Cabling (CIP)	\$120,000	\$ 162,914	\$179,046	GPS	Infrastructure		4	5	2018
DIST	Districtwide	35	PA/Comm/Security Systems	Network Infrastructure (CIP)	\$40,000	\$ 54,305	\$59,682	GPS	Infrastructure		4	5	2018
DIST	Districtwide	35	PA/Comm/Security Systems	Security-Capital Maintenance (CIP)	\$50,000	\$ 67,881	\$74,603	GPS	Infrastructure		4	5	2018
DIST	Districtwide	35	PA/Comm/Security Systems	Supporting Change of Practice (CIP)	\$170,000	\$ 230,795	\$253,649	GPS	Infrastructure		4	5	2018
DIST	Districtwide	35	PA/Comm/Security Systems	Various Desktop Switches (CIP)	\$42,000	\$ 57,020	\$62,666	GPS	Infrastructure		4	5	2018
DIST	Districtwide	35	PA/Comm/Security Systems	Wi-Fi Saturation (CIP)	\$75,000	\$ 101,822	\$111,904	GPS	Infrastructure		4	5	2018
DIST	Entire Building	35	PA/Comm/Security Systems	Data Cabling (CIP)	\$73,000	\$ 101,088	\$113,821	GPS	Infrastructure		4	5	2019
DIST	Districtwide	35	PA/Comm/Security Systems	Network Infrastructure (CIP)	\$92,000	\$ 127,399	\$143,446	GPS	Infrastructure		4	5	2019
DIST	Districtwide	35	PA/Comm/Security Systems	Security-Capital Maintenance (CIP)	\$50,000	\$ 69,239	\$77,960	GPS	Infrastructure		4	5	2019
DIST	Districtwide	35	PA/Comm/Security Systems	Various Desktop Switches (CIP)	\$73,000	\$ 101,088	\$113,821	GPS	Infrastructure		4	5	2019
DIST	Districtwide	35	PA/Comm/Security Systems	Wi-Fi Saturation (CIP)	\$92,000	\$ 127,399	\$143,446	GPS	Infrastructure		4	5	2019
DIST	Entire Building	35	PA/Comm/Security Systems	Data Cabling (CIP)	\$73,000	\$ 103,110	\$118,943	GPS	Infrastructure		4	5	2020
DIST	Districtwide	35	PA/Comm/Security Systems	Network Infrastructure (CIP)	\$92,000	\$ 129,947	\$149,901	GPS	Infrastructure		4	5	2020
DIST	Districtwide	35	PA/Comm/Security Systems	Security-Capital Maintenance (CIP)	\$50,000	\$ 70,623	\$81,468	GPS	Infrastructure		4	5	2020
DIST	Districtwide	35	PA/Comm/Security Systems	Various Desktop Switches (CIP)	\$73,000	\$ 103,110	\$118,943	GPS	Infrastructure		4	5	2020
DIST	Districtwide	35	PA/Comm/Security Systems	Wi-Fi Saturation (CIP)	\$92,000	\$ 129,947	\$149,901	GPS	Infrastructure		4	5	2020
DIST	Entire Building	35	PA/Comm/Security Systems	Data Cabling (CIP)	\$73,000	\$ 105,172	\$124,295	GPS	Infrastructure		4	5	2021
DIST	Districtwide	35	PA/Comm/Security Systems	Network Infrastructure (CIP)	\$92,000	\$ 132,546	\$156,646	GPS	Infrastructure		4	5	2021
DIST	Districtwide	35	PA/Comm/Security Systems	Security-Capital Maintenance (CIP)	\$35,000	\$ 50,425	\$59,594	GPS	Infrastructure		4	5	2021
DIST	Districtwide	35	PA/Comm/Security Systems	Various Desktop Switches (CIP)	\$73,000	\$ 105,172	\$124,295	GPS	Infrastructure		4	5	2021

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
DIST	Districtwide	35	PA/Comm/Security Systems	Wi-Fi Saturation (CIP)	\$92,000	\$ 132,546	\$156,646	GPS	Infrastructure		4	5	2021
DIST	Districtwide	35	PA/Comm/Security Systems	Security-Capital Maintenance (CIP)	\$30,000	\$ 44,086	\$53,379	GPS	Infrastructure		4	5	2022
DIST	Districtwide	35	PA/Comm/Security Systems	Supporting Change of Practice (CIP)	\$68,000	\$ 99,928	\$120,992	GPS	Infrastructure		4	5	2022
DIST	Districtwide	35	PA/Comm/Security Systems	Security-Capital Maintenance (CIP)	\$30,000	\$ 44,968	\$55,781	GPS	Infrastructure		4	5	2023
DIST	Districtwide	35	PA/Comm/Security Systems	Supporting Change of Practice (CIP)	\$68,000	\$ 101,927	\$126,437	GPS	Infrastructure		4	5	2023
DIST	Districtwide	35	PA/Comm/Security Systems	Security-Capital Maintenance (CIP)	\$30,000	\$ 45,867	\$58,291	GPS	Infrastructure		4	5	2024
DIST	Districtwide	35	PA/Comm/Security Systems	Supporting Change of Practice (CIP)	\$68,000	\$ 103,965	\$132,127	GPS	Infrastructure		4	5	2024
DIST	Districtwide	35	PA/Comm/Security Systems	Security-Capital Maintenance (CIP)	\$30,000	\$ 46,784	\$60,914	GPS	Infrastructure		4	5	2025
DIST	Districtwide	35	PA/Comm/Security Systems	Supporting Change of Practice (CIP)	\$68,000	\$ 106,045	\$138,072	GPS	Infrastructure		4	5	2025
DIST	Districtwide	35	PA/Comm/Security Systems	Security-Capital Maintenance (CIP)	\$30,000	\$ 47,720	\$63,655	GPS	Infrastructure		4	5	2026
DIST	Districtwide	35	PA/Comm/Security Systems	Supporting Change of Practice (CIP)	\$68,000	\$ 108,165	\$144,286	GPS	Infrastructure		4	5	2026
DIST	Districtwide	35	PA/Comm/Security Systems	Security-Capital Maintenance (CIP)	\$30,000	\$ 48,674	\$66,520	GPS	Infrastructure		4	5	2027
DIST	Districtwide	35	PA/Comm/Security Systems	Supporting Change of Practice (CIP)	\$68,000	\$ 110,329	\$150,778	GPS	Infrastructure		4	5	2027
DIST	Districtwide	35	PA/Comm/Security Systems	Security-Capital Maintenance (CIP)	\$30,000	\$ 49,648	\$69,513	GPS	Infrastructure		4	5	2028
DIST	Districtwide	35	PA/Comm/Security Systems	Supporting Change of Practice (CIP)	\$68,000	\$ 112,535	\$157,563	GPS	Infrastructure		4	5	2028
DIST	Districtwide	35	PA/Comm/Security Systems	Security-Capital Maintenance (CIP)	\$30,000	\$ 50,641	\$72,641	GPS	Infrastructure		4	5	2029
DIST	Districtwide	35	PA/Comm/Security Systems	Supporting Change of Practice (CIP)	\$68,000	\$ 114,786	\$164,654	GPS	Infrastructure		4	5	2029
DIST	Districtwide	35	PA/Comm/Security Systems	Security-Capital Maintenance (CIP)	\$30,000	\$ 51,654	\$75,910	GPS	Infrastructure		4	5	2030
DIST	Districtwide	35	PA/Comm/Security Systems	Supporting Change of Practice (CIP)	\$68,000	\$ 117,082	\$172,063	GPS	Infrastructure		4	5	2030
DIST	PA/Comm/Security Systems	35	PA/Comm/Security Systems	Cost based on a 50 speaker PA system w/2 amplifiers and master clock system for 50 room elementary school from Costworks 2017 Elementary School square foot models.	\$56,250	\$ 79,451	\$91,651	GPS	Infrastructure		3	7	2020
DIST	Districtwide	35	PA/Comm/Security Systems	Security-Capital Maintenance (CIP)	\$30,000	\$ 52,687	\$79,326	GPS	Infrastructure		4	5	2031
DIST	Districtwide	35	PA/Comm/Security Systems	Supporting Change of Practice (CIP)	\$68,000	\$ 119,423	\$179,806	GPS	Infrastructure		4	5	2031
DIST	Districtwide	35	PA/Comm/Security Systems	Security-Capital Maintenance (CIP)	\$30,000	\$ 53,741	\$82,896	GPS	Infrastructure		4	5	2032
DIST	Districtwide	35	PA/Comm/Security Systems	Supporting Change of Practice (CIP)	\$68,000	\$ 121,812	\$187,897	GPS	Infrastructure		4	5	2032
DIST	Fire Alarm & Smoke Detection	36	Fire Alarm & Smoke Detection	Cost includes replacement of existing fire alarm devices and addition of strobes in all classrooms, based on recent SaxeMS Bids at approx. \$1.98/sqft, including conduit and wire.	\$71,280	\$ 100,681	\$116,141	GPS	Infrastructure		2	5	2020
DIST	New Fire Protection water service	37	Fire Suppression Systems	New Fire Protection water service	\$25,000	\$ 35,312	\$40,734	GPS	Infrastructure		3	5	2020
DIST	Full Building Sprinkler System	37	Fire Suppression Systems	Full Building Sprinkler System	\$288,000	\$ 406,791	\$469,255	GPS	Infrastructure		3	5	2020
DIST	New Fire Pump	37	Fire Suppression Systems	New Fire Pump	\$100,000	\$ 141,247	\$162,936	GPS	Infrastructure		3	5	2020
DIST	Emergency/Exit Lighting	38	Emergency/Exit Lighting	Cost taken from RS Means Costworks 2017 Square Footage Model for Elementary School in CT at \$605 each.	\$24,503	\$ 34,609	\$39,923	GPS	Infrastructure		1	2	2020
DIST	Emergency/Standby Power	39	Emergency/Standby Power	Cost includes new 500kW diesel generator, transfer switch, batteries, charger, muffler, and fuel tank. Cost is based on RS Means Costworks Assembly Costs 2017 - D5090 210 Generators (by kW). Assumes replacement in kind with existing buried conduit and wire, and pad to remain.	\$117,250	\$ 165,612	\$191,042	GPS	Infrastructure		2	5	2020
DIST	Lead Free Valves (Fixtures)	40	Water Distribution	Lead Free Valves (Fixtures)	\$7,500	\$ 10,594	\$12,220	GPS	Infrastructure		1	5	2020
DIST	Lead Free Valves (Bldg)	40	Water Distribution	Lead Free Valves (Bldg)	\$3,500	\$ 4,944	\$5,703	GPS	Infrastructure		1	5	2020
DIST	Demolish Existing Sump Pumps	41	Plumbing Drainage	Demolish Existing Sump Pumps	\$550	\$ 777	\$896	GPS	Infrastructure		3	7	2020
DIST	Sump Pumps	41	Plumbing Drainage	Sump Pumps	\$3,000	\$ 4,237	\$4,888	GPS	Infrastructure		2	7	2020
DIST	Demo Existing Hot Water Heaters	42	Hot Water Heaters	Demo Existing Hot Water Heaters	\$300	\$ 424	\$489	GPS	Infrastructure		2	7	2020
DIST	Demo Existing Circulating Pump	42	Hot Water Heaters	Demo Existing Circulating Pump	\$500	\$ 706	\$815	GPS	Infrastructure		2	7	2020
DIST	Hot Water Heaters	42	Hot Water Heaters	Hot Water Heaters	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure		2	7	2020
DIST	Circulating Pump	42	Hot Water Heaters	Circulating Pump	\$3,000	\$ 4,237	\$4,888	GPS	Infrastructure		2	7	2020
DIST	Demo Existing Plumbing Fixtures	43	Plumbing Fixtures	Demo Existing Plumbing Fixtures	\$9,000	\$ 12,712	\$14,664	GPS	Infrastructure		2	5	2020
DIST	Toilets	43	Plumbing Fixtures	Replace Toilets	\$35,000	\$ 49,436	\$57,027	GPS	Infrastructure		2	5	2020
DIST	Urinals	43	Plumbing Fixtures	Replace Urinals	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure		2	5	2020
DIST	Lavatories	43	Plumbing Fixtures	Replace Lavatories	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure		2	5	2020
DIST	Sinks	43	Plumbing Fixtures	Replace Sinks	\$8,750	\$ 12,359	\$14,257	GPS	Infrastructure		2	5	2020
DIST	Fuel Oil System	45	Heating Systems	Demo Fuel Oil System	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure	Energy	1	5	2020
DIST	Steam Unit Heaters	45	Heating Systems	Demo Steam Unit Heaters	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure	Energy	2	7	2020
DIST	Boilers	45	Heating Systems	Demo Boilers	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure	Energy	2	7	2020
DIST	Condensate Return Pumps	45	Heating Systems	Demo Condensate Return Pumps	\$3,500	\$ 4,944	\$5,703	GPS	Infrastructure	Energy	2	7	2020
DIST	Boilers	45	Heating Systems	Costworks (3,000 MBH Steam Boiler)	\$170,000	\$ 240,120	\$276,991	GPS	Infrastructure	Energy	2	7	2020
DIST	Condensate Return Pumps	45	Heating Systems	Condensate Return Pumps	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure	Energy	3	7	2020
DIST	Steam Unit Heaters	45	Heating Systems	Steam Unit Heaters	\$45,000	\$ 63,561	\$73,321	GPS	Infrastructure	Energy	2	7	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
DIST	Millbank	45	Heating Systems	New HVAC system (Facilities)	\$180,000	\$ 254,244	\$293,284	GPS	Infrastructure	Energy	1	5	2020
DIST	Exhaust Fans	46	Ventilation Systems	Exhaust Fans	\$35,000	\$ 49,436	\$57,027	GPS	Infrastructure		2	8	2020
DIST	Air Conditioning Building	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$1,200,000	\$ 1,694,961	\$1,955,228	GPS	Infrastructure		3	8	2020
DIST	MDF 5-Ton Unit	47	Air Conditioning Systems	Demo MDF 5-Ton Unit	\$3,000	\$ 4,237	\$4,888	GPS	Infrastructure		2	8	2020
DIST	Departmental Corridors	47	Air Conditioning Systems	Replacement HVAC System @ \$25 / SF	\$37,500	\$ 52,968	\$61,101	GPS	Infrastructure		3	8	2020
DIST	IT and Staff Development Offices	47	Air Conditioning Systems	Replacement HVAC System @ \$25 / SF	\$125,000	\$ 176,558	\$203,670	GPS	Infrastructure		3	8	2020
DIST	MDF AC Unit	47	Air Conditioning Systems	5-Ton Replacement Unit	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure		2	8	2020
DIST	HVAC Controls	48	HVAC Controls	HVAC Controls	\$90,000	\$ 127,122	\$146,642	GPS	Infrastructure		3	5	2020
DIST	Interior Renovation Project	49	Program Enhancements	Havemeyer Renovation Project	\$5,800,000	\$ 8,192,314	\$9,450,271	GPS	Infrastructure		4	7	2020
EMS	Demolition of UG Fuel Tank	4	Site Fuel Oil	Demolition of UG Fuel Tank	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure		1	5	2020
EMS	general site	5	Site Electrical	add site lighting-bollards for walkway,overhead for parking areas	\$0	\$ -	\$0	Parks	Site		3	4	2020
EMS	Site Electrical	5	Site Electrical	Cost includes excavation, backfill and compaction. Includes feeders and conduit for new 2500 amp service, interpolated from Costworks 2017 D5010130 underground electric service. Includes \$10,000 temp generator.	\$156,250	\$ 220,698	\$254,587	GPS	Infrastructure		3	5	2020
EMS	west/central courtyard	6	Site Stormwater	lower drains in courtyard	\$6,000	\$ 8,475	\$9,776	Parks	Site		3	4	2020
EMS	handicap parking	7	Pavement, Parking Lots & Curbs	add handicap curb cuts in parking lot near gym in closer proximity	\$5,000	\$ 7,062	\$8,147	Public W	Site		2	4	2020
EMS	parking	7	Pavement, Parking Lots & Curbs	replace asphalt/full depth (5 yr)	\$500,000	\$ 706,234	\$814,678	Public W	Site		2	4	2020
EMS	entry	7	Pavement, Parking Lots & Curbs	add curb cut for handicap drop off access	\$5,000	\$ 7,062	\$8,147	Public W	Site		3	4	2020
EMS	front and side of school	7	Pavement, Parking Lots & Curbs	replace all concrete curbs with granite curbs (5 yr)	\$300,000	\$ 423,740	\$488,807	Public W	Site		3	4	2020
EMS	general site	7	Pavement, Parking Lots & Curbs	replace asphalt walks with concrete walks	\$56,000	\$ 79,098	\$91,244	Public W	Site		3	4	2020
EMS	ballfields	7	Pavement, Parking Lots & Curbs	replace or add drainage on athletic fields	\$150,000	\$ 211,870	\$244,404	Public W	Site		3	4	2020
EMS	parking	7	Pavement, Parking Lots & Curbs	replace asphalt/full depth (15 yr)	\$320,000	\$ 451,990	\$521,394	Public W	Site		4	7	2020
EMS	side of gym	7	Pavement, Parking Lots & Curbs	replace asphalt/full depth //basket ball area (sport surface?) (10 yr)	\$40,000	\$ 56,499	\$65,174	Public W	Site		3	7	2020
EMS	general site	7	Pavement, Parking Lots & Curbs	replace all concrete curbs with granite curbs (15 yr)	\$300,000	\$ 423,740	\$488,807	Public W	Site		4	7	2020
EMS	general site	8	Sidewalks & Hardscape	replace deteriorating concrete sidewalk	\$7,875	\$ 11,123	\$12,831	Parks	Site		3	4	2020
EMS	general site	8	Sidewalks & Hardscape	replace existing concrete sidewalks in full (5 yr)	\$181,125	\$ 255,833	\$295,117	Parks	Site		2	4	2020
EMS	general site	8	Sidewalks & Hardscape	replace existing concrete sidewalks in full (10 yr)	\$131,717	\$ 186,046	\$214,614	Parks	Site		3	7	2020
EMS	general site	9	Site Amenities	replace garbage and recycle bins with trash/recycle enclosure	\$8,400	\$ 11,865	\$13,687	Parks	Site		1	4	2020
EMS	front of school	9	Site Amenities	replace school billboard/sign with digital	\$50,000	\$ 70,623	\$81,468	Parks	Site		3	4	2020
EMS	general site	11	Landscaping & Plantings	prune trees	\$7,500	\$ 10,594	\$12,220	Parks	Site		1	4	2020
EMS	general site	11	Landscaping & Plantings	resod areas along sidewalk ruined by snow plow	\$10,000	\$ 14,125	\$16,294	Parks	Site		1	4	2020
EMS	entry area	11	Landscaping & Plantings	formalize front garden area/foundation planting and seating area	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	4	2020
EMS	west/central courtyard	11	Landscaping & Plantings	create rain garden to help with drainage issue	\$45,000	\$ 63,561	\$73,321	Parks	Site		3	4	2020
EMS	sports field	12	Fields & Field Structures	replace sod sports field to organic turf	\$2,907,000	\$ 4,106,044	\$4,736,541	Parks	Site		3	4	2020
EMS	general field	12	Fields & Field Structures	replace batting cage on softball field	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	4	2020
EMS	general site	13	Fences	repair fences along perimeter	\$112,500	\$ 158,903	\$183,303	Parks	Site		4	4	2020
EMS	Bldg Exterior	14	Site Walls, Stairs & Railings	Replace Bluestone caps	\$6,120	\$ 8,644	\$9,972	Parks	Site		3	4	2020
EMS	Bldg Exterior	15	Foundation	add outdoor classroom area with a covered area and seating	\$3,500	\$ 4,944	\$5,703	GPS	Program		3	4	2020
EMS	Bldg Exterior	17	Exterior Walls & Columns	add outdoor classroom area with a covered area and seating	\$22,000	\$ 31,074	\$35,846	GPS	Program		3	4	2020
EMS	Bldg Exterior	17	Exterior Walls & Columns	add outdoor classroom area with a covered area and seating	\$60,000	\$ 84,748	\$97,761	GPS	Program		3	4	2020
EMS	Bldg Exterior	17	Exterior Walls & Columns	add outdoor classroom area with a covered area and seating	\$7,500	\$ 10,594	\$12,220	GPS	Program		3	4	2020
EMS	Bldg Exterior	17	Exterior Walls & Columns	add outdoor classroom area with a covered area and seating	\$5,000	\$ 7,062	\$8,147	GPS	Program		3	4	2020
EMS	Bldg Exterior	17	Exterior Walls & Columns	add outdoor classroom area with a covered area and seating	\$35,000	\$ 49,436	\$57,027	GPS	Program		3	4	2020
EMS	Bldg Exterior	17	Exterior Walls & Columns	Facia/brick repair/pointing/replace steel lintel	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure		3	4	2020
EMS	Bldg Exterior	17	Exterior Walls & Columns	Repair Stucco	\$3,500	\$ 4,944	\$5,703	GPS	Infrastructure		3	4	2020
EMS	Bldg Exterior	17	Exterior Walls & Columns	loading dock-replace steel angel	\$4,000	\$ 5,650	\$6,517	GPS	Infrastructure		1	4	2020
EMS	Bldg Exterior	17	Exterior Walls & Columns	Exterior Improvements	\$300,000	\$ 423,740	\$488,807	GPS	Infrastructure		4	7	2020
EMS	Boiler Room	17	Exterior Walls & Columns	Structural Masonry Repair (Facilities)	\$150,000	\$ 211,870	\$244,404	GPS	Infrastructure		4	7	2020
EMS	Roof	19	Roof/Skylights	Roof Replacement - Davenport (CIP)	\$450,000	\$ 623,148	\$701,637	GPS	Infrastructure		3	3	2019
EMS	Roof	19	Roof/Skylights	Roof Replacement	\$270,000	\$ 381,366	\$439,926	GPS	Infrastructure		3	3	2020
EMS	Roof	19	Roof/Skylights	Upcoming Roof Replacement (LESS Davenport (CIP)	\$1,342,500	\$ 1,896,238	\$2,187,412	GPS	Infrastructure		3	7	2020
EMS	Bldg Exterior	21	Exterior Doors	Remove and install new doors	\$52,800	\$ 74,578	\$86,030	GPS	Infrastructure		3	4	2020
EMS	Bldg Exterior	21	Exterior Doors	loading dock-paint over head door jamb	\$1,500	\$ 2,119	\$2,444	GPS	Infrastructure		1	4	2020
EMS	rear of building	22	Exterior Stairs & Ramps	repair concrete steps and replace railings	\$24,120	\$ 34,069	\$39,300	GPS	Infrastructure		3	4	2020
EMS	west side	22	Exterior Stairs & Ramps	replace concrete steps and railings (near loading dock)	\$24,120	\$ 34,069	\$39,300	GPS	Infrastructure		3	4	2020
EMS	west side	22	Exterior Stairs & Ramps	replace concrete ramp and railings	\$25,200	\$ 35,594	\$41,060	GPS	Infrastructure		3	4	2020
EMS	east side	22	Exterior Stairs & Ramps	replace retaining wall/check drainage behind wall	\$31,500	\$ 44,493	\$51,325	GPS	Infrastructure		3	4	2020
EMS	main entry	22	Exterior Stairs & Ramps	accessible entry (sidewalk,ramps and new canopy)	\$500,000	\$ 706,234	\$814,678	GPS	Accessibility		2	2	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
EMS	main entry	22	Exterior Stairs & Ramps	replace railings and mesh infill at main entrance (facilities)	\$15,000	\$ 21,187	\$24,440	GPS	Accessibility		2	2	2020
EMS	east side/student drop off	22	Exterior Stairs & Ramps	replace railings on ramp on east side and add rails to stairs	\$45,000	\$ 63,561	\$73,321	GPS	Infrastructure		3	4	2020
EMS	Bldg Exterior	24	Windows	Window Replacement (CIP)	\$900,000	\$ 1,221,858	\$1,342,846	GPS	Infrastructure		3	4	2018
EMS	Bldg Exterior	24	Windows	Window Replacement (CIP)	\$750,000	\$ 1,038,579	\$1,169,395	GPS	Infrastructure		3	4	2019
EMS	Bldg Exterior	24	Windows	Remove and install new sprandel panel/metal frames	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure		3	4	2020
EMS	Bldg Exterior	24	Windows	Remove and install new windows in corridor Gym	\$47,600	\$ 67,233	\$77,557	GPS	Infrastructure		3	4	2020
EMS	Main Lobby	26	Interior Walls & Renovation	Renovate Staff Toilet Rooms (Facilities)	\$100,000	\$ 141,247	\$162,936	GPS	Infrastructure		3	3	2020
EMS	Main Lobby	26	Interior Walls & Renovation	Remove and install new wood paneling main lobby	\$45,000	\$ 63,561	\$73,321	GPS	Infrastructure		3	3	2020
EMS	General Building	26	Interior Walls & Renovation	Architectural work related to HVAC Improvements	\$1,200,000	\$ 1,694,961	\$1,955,228	GPS	Infrastructure		3	5	2020
EMS	General Building	26	Interior Walls & Renovation	Interior Painting (Facilities)	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure		2	2	2020
EMS	General Building	26	Interior Walls & Renovation	Architectural work related to Fire Protection System	\$300,000	\$ 423,740	\$488,807	GPS	Infrastructure		3	5	2020
EMS	General Building	26	Interior Walls & Renovation	Abatement Allowance - TBD	\$0	\$ -	\$0	GPS	Infrastructure		3	5	2020
EMS	Bldg Interior	27	Flooring	Remove and install new VCT in corridor	\$73,597	\$ 103,954	\$119,916	GPS	Infrastructure		3	6	2020
EMS	Bldg Interior	27	Flooring	Remove and install new in classrooms	\$85,000	\$ 120,060	\$138,495	GPS	Infrastructure		3	6	2020
EMS	Bldg Interior	27	Flooring	Replace flooring in two Music Rooms	\$10,675	\$ 15,078	\$17,393	GPS	Infrastructure		3	6	2020
EMS	Bldg Interior	27	Flooring	Remove and install new in Gymnasium	\$122,400	\$ 172,886	\$199,433	GPS	Infrastructure		3	6	2020
EMS	Bldg Interior	28	Ceilings	Replace Corridor Ceilings	\$138,536	\$ 195,678	\$225,725	GPS	Infrastructure		3	6	2020
EMS	Bldg Interior	28	Ceilings	Replace Classroom Ceilings	\$325,000	\$ 459,052	\$529,541	GPS	Infrastructure		3	6	2020
EMS	General Building	28	Ceilings	ACT Ceiling Replacement as part of Lighting Infrastructure Work	\$640,000	\$ 903,979	\$1,042,788	GPS	Infrastructure		3	5	2020
EMS	Classrooms	49	Program Enhancements	Update Classroom Furniture	\$1,320,000	\$ 1,864,458	\$2,150,751	GPS	Program		3	9	2020
EMS	Learning Commons	49	Program Enhancements	Learning Commons Furniture Allowance	\$250,000	\$ 360,179	\$425,670	GPS	Program		3	9	2021
EMS	Bldg Interior	29	Casework, Lockers & Furnishings	Remove and install new lockers in women locker room	\$28,000	\$ 39,549	\$45,622	GPS	Infrastructure		3	6	2020
EMS	Classrooms	30	Interior Doors & Windows	Replace interior doors and hardware (CIP)	\$45,000	\$ 63,561	\$73,321	GPS	Infrastructure		3	7	2020
EMS	Classrooms	32	Elevators, Lifts & ADA Access	Replace Elevator (CIP)	\$250,000	\$ 353,117	\$407,339	GPS	Infrastructure		3	7	2020
EMS	Interior Electric Distribution	33	Int Electric Distribution	Cost includes replacement and upgrade to 2500A switchgear,includes (1)-800 dist panel for AC. Taken from CostworksAssembly costs 2017-D5010 240 and D5010250 3000. Cost also includes (5) - 225Amp panelboards for a building up to 5 stories, 50 ft horizontal run of conduit and conductors.	\$189,188	\$ 267,221	\$308,254	GPS	Infrastructure		2	5	2020
EMS	Lighting Fixtures	34	Lighting Fixtures	Replace existing fixtures with LED. Cost based on Westlake CM 2017 cost to remove and replace w/LED is \$7.2/sqft including removals.	\$900,432	\$ 1,271,831	\$1,467,125	GPS	Infrastructure	Energy	2	5	2020
EMS	Lighting Controls	34	Lighting Fixtures	Replace Lighting Controls.	\$229,354	\$ 323,955	\$373,700	GPS	Infrastructure	Energy	2	5	2020
EMS	PA/Comm/Security Systems	35	PA/Comm/Security Systems	Cost based on a 50 speaker PA system w/2 amplifiers and master clock system for 50 room elementary school from Costworks 2017 Elementary School square foot models.	\$200,484	\$ 283,178	\$326,661	GPS	Infrastructure		3	5	2020
EMS	Fire Alarm & Smoke Detection	36	Fire Alarm & Smoke Detection	Cost includes replacement of existing fire alarm devices and addition of strobes in all classrooms, based on recent SaxeMS Bids at approx. \$1.98/sqft, including conduit and wire.	\$254,054	\$ 358,843	\$413,944	GPS	Infrastructure		2	5	2020
EMS	New Fire Protection water service	37	Fire Suppression Systems	New Fire Protection water service	\$25,000	\$ 35,312	\$40,734	GPS	Infrastructure		3	5	2020
EMS	Full Building Sprinkler System	37	Fire Suppression Systems	Full Building Sprinkler System	\$1,026,480	\$ 1,449,870	\$1,672,502	GPS	Infrastructure		3	5	2020
EMS	New Fire Pump	37	Fire Suppression Systems	New Fire Pump	\$100,000	\$ 141,247	\$162,936	GPS	Infrastructure		3	5	2020
EMS	Emergency/Exit Lighting	38	Emergency/Exit Lighting	Cost taken from RS Means Costworks 2017 Square Footage Model for Elementary School in CT at \$605 each.	\$87,331	\$ 123,352	\$142,293	GPS	Infrastructure		2	5	2020
EMS	Emergency/Standby Power	39	Emergency/Standby Power	Cost from Costworks 2017 D5090210 for new 750kW diesel, includes transfer switch. Includes pad at \$9000. Includes 600 lf of 4" PVC conduit and 2500 ft of 600MCM XHHW at \$47088.	\$237,588	\$ 329,005	\$370,446	GPS	Infrastructure		2	2	2019
EMS	Lead Free Valves (Bldg)	40	Water Distribution	CCSD - NASCO	\$10,500	\$ 14,831	\$17,108	GPS	Infrastructure		2	2	2020
EMS	Lead Free Valves (Fixtures)	40	Water Distribution	CCSD - NASCO	\$18,625	\$ 26,307	\$30,347	GPS	Infrastructure		2	2	2020
EMS	Lead Free Valves (Fixtures)	41	Plumbing Drainage	Mechanical Grease Trap (Facilities)	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure		2	2	2020
EMS	Hot Water Heaters	42	Hot Water Heaters	Hot Water Heater Demolition	\$1,000	\$ 1,412	\$1,629	GPS	Infrastructure		2	2	2020
EMS	Hot Water Heaters	42	Hot Water Heaters	New Hot Water Heaters	\$110,000	\$ 155,371	\$179,229	GPS	Infrastructure		2	2	2020
EMS	Circulating Pump	42	Hot Water Heaters	New Circulating Pump	\$5,000	\$ 7,062	\$8,147	GPS	Infrastructure		2	2	2020
EMS	Plumbing Fixtures	43	Plumbing Fixtures	Plumbing Fixture Demo	\$33,000	\$ 46,611	\$53,769	GPS	Infrastructure		2	2	2020
EMS	Toilets	43	Plumbing Fixtures	Replace Toilets	\$182,000	\$ 257,069	\$296,543	GPS	Infrastructure		2	2	2020
EMS	Urinals	43	Plumbing Fixtures	Replace Urinals	\$38,000	\$ 53,674	\$61,916	GPS	Infrastructure		2	2	2020
EMS	Lavatories / Sinks	43	Plumbing Fixtures	Replace Lavatories / Sinks	\$66,500	\$ 93,929	\$108,352	GPS	Infrastructure		2	2	2020
EMS	Fuel Oil Pumps	45	Heating Systems	Fuel Oil Pumps	\$1,000	\$ 1,412	\$1,629	GPS	Infrastructure	Energy	3	5	2020
EMS	Fuel Oil System (tank and pump set)	45	Heating Systems	Fuel Oil System (tank and pump set)	\$325,000	\$ 459,052	\$529,541	GPS	Infrastructure	Energy	2	5	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
EMS	Unit Ventilators New Wing	46	Ventilation Systems	Unit Ventilators New Wing	\$7,200	\$ 10,170	\$11,731	GPS	Infrastructure		3	8	2020
EMS	Gymnasium	46	Ventilation Systems	Unit Ventilators - Gymnasium	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure		3	8	2020
EMS	Library	46	Ventilation Systems	Unit Ventilators - Library	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure		3	8	2020
EMS	Rooftop Exhaust Fans	46	Ventilation Systems	Replace Rooftop Exhaust Fans, including Science Rooms	\$70,000	\$ 98,873	\$114,055	GPS	Infrastructure		4	8	2020
EMS	Gymnasium	47	Air Conditioning Systems	Replacement HVAC system @ \$40/ SF; no existing ductwork	\$260,000	\$ 367,242	\$423,633	GPS	Infrastructure		2	8	2020
EMS	Cafeteria	47	Air Conditioning Systems	Replacement HVAC system @ \$40/ SF; no existing ductwork	\$172,000	\$ 242,944	\$280,249	GPS	Infrastructure		2	8	2020
EMS	Kitchen	47	Air Conditioning Systems	Replacement HVAC system @ \$40/ SF; no existing ductwork	\$56,000	\$ 79,098	\$91,244	GPS	Infrastructure		2	8	2020
EMS	Media / Computer Lab	47	Air Conditioning Systems	Replacement HVAC system @ \$40/ SF; no existing ductwork	\$204,000	\$ 288,143	\$332,389	GPS	Infrastructure		2	8	2020
EMS	Corridors	47	Air Conditioning Systems	Replacement HVAC system @ \$40/ SF; no existing ductwork	\$744,000	\$ 1,050,876	\$1,212,242	GPS	Infrastructure		2	8	2020
EMS	Classrooms	47	Air Conditioning Systems	Packaged/Central system @ \$12k / Ton; mix with VRF	\$2,340,000	\$ 3,305,175	\$3,812,695	GPS	Infrastructure		2	8	2020
EMS	Variable Air Volume Units	47	Air Conditioning Systems	Variable Air Volume Units	\$150,000	\$ 211,870	\$244,404	GPS	Infrastructure		2	8	2020
EMS	HVAC Controls	48	HVAC Controls	HVAC Controls	\$705,705	\$ 996,786	\$1,149,845	GPS	Infrastructure		3	5	2020
EMS	Learning Commons	49	Program Enhancements	Learning Commons Renovation	\$1,000,000	\$ 1,412,468	\$1,629,357	GPS	Program		4	2	2020
EMS	Classrooms	49	Program Enhancements	Renovate Science Classrooms	\$800,000	\$ 1,129,974	\$1,303,486	GPS	Infrastructure		4	7	2020
EMS	Classrooms	49	Program Enhancements	Family and Consumer Science Classroom (CIP)	\$275,000	\$ 388,429	\$448,073	GPS	Infrastructure		4	7	2020
EMS	Tech Spaces	49	Program Enhancements	Upgrade VoTech Spaces (CIP)	\$300,000	\$ 423,740	\$488,807	GPS	Infrastructure		4	7	2020
EMS	Cafeteria	49	Program Enhancements	Remodel Cafeteria (CIP)	\$250,000	\$ 353,117	\$407,339	GPS	Infrastructure		4	7	2020
GHS	Demolition of UG Fuel Tank	4	Site Fuel Oil	Demolition of UG Fuel Tank	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure		1	2	2020
GHS	north side parking and main entry area	5	Site Electrical	Temporary performance lighting for two fields	\$200,000	\$ 282,494	\$325,871	GPS	Site		3	2	2020
GHS	north side parking and main entry area	7	Pavement, Parking Lots & Curbs	Replace parking lot in full with full depth pavement (5 yr)	\$880,000	\$ 1,242,972	\$1,433,834	Public W	Site		3	2	2020
GHS	front and side of school	7	Pavement, Parking Lots & Curbs	replace all curbing with granite curbing (5 yr)	\$542,250	\$ 765,911	\$883,519	Public W	Site		4	4	2020
GHS	general site parking	7	Pavement, Parking Lots & Curbs	replace deteriorating concrete curbing with new concrete curbing	\$98,750	\$ 139,481	\$160,899	Public W	Site		3	4	2020
GHS	front plaza	7	Pavement, Parking Lots & Curbs	replace all curbing with granite curbing (5 yr)	\$64,500	\$ 91,104	\$105,094	Public W	Site		4	4	2020
GHS	additional parking	7	Pavement, Parking Lots & Curbs	add 156 parking spaces	\$1,092,000	\$ 1,542,415	\$1,779,258	Public W	Site		3	4	2020
GHS	Front parking	7	Pavement, Parking Lots & Curbs	Replace parking lot in full with full depth pavement (15 yr)	\$200,000	\$ 282,494	\$325,871	Public W	Site		3	7	2020
GHS	south side parking	7	Pavement, Parking Lots & Curbs	Replace parking lot in full with full depth pavement (15 yr)	\$321,000	\$ 453,402	\$523,024	Public W	Site		4	7	2020
GHS	Rear parking	7	Pavement, Parking Lots & Curbs	Replace parking lot in full with full depth pavement (15 yr)	\$1,112,000	\$ 1,570,664	\$1,811,845	Public W	Site		4	7	2020
GHS	rear road	7	Pavement, Parking Lots & Curbs	Replace parking lot in full with full depth pavement (15 yr)	\$150,000	\$ 211,870	\$244,404	Public W	Site		4	7	2020
GHS	side and back of site	7	Pavement, Parking Lots & Curbs	replace all curbing with granite curbing (15 yr)	\$757,500	\$ 1,069,944	\$1,234,238	Public W	Site		4	7	2020
GHS	side and back of site	7	Pavement, Parking Lots & Curbs	intermediate paving (per capital budget 2016-18)	\$115,000	\$ 162,434	\$187,376	Public W	Site		4	7	2020
GHS	front of buildng	8	Sidewalks & Hardscape	replace sidewalks in full, replace with 5" thick concrete walks	\$65,835	\$ 92,990	\$107,269	Parks	Site		3	4	2020
GHS	side of school	8	Sidewalks & Hardscape	replace asphalt path with 5" thick concrete walks	\$155,000	\$ 218,933	\$252,550	Parks	Site		3	3	2020
GHS	back/courtyard	8	Sidewalks & Hardscape	replace asphalt path with 5" thick concrete walks	\$75,000	\$ 105,935	\$122,202	Parks	Site		3	4	2020
GHS	front of building	8	Sidewalks & Hardscape	replace sidewalks in full, replace with 5" thick concrete walks (15yr)	\$98,753	\$ 139,485	\$160,903	Parks	Site		4	7	2020
GHS	front plaza	8	Sidewalks & Hardscape	site improvements tbd (per capital budget for 2021-2022)	\$300,000	\$ 423,740	\$488,807	Parks	Site		4	7	2020
GHS	front plaza	8	Sidewalks & Hardscape	Refurbish/replace damaged pavers (10 yr)	\$275,000	\$ 388,429	\$448,073	Parks	Site		4	7	2020
GHS	back/courtyard	9	Site Amenities	add site furniture	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	4	2020
GHS	general site	9	Site Amenities	replace garbage cans and bike racks with Greenwich City Standard	\$25,000	\$ 35,312	\$40,734	Parks	Site		1	7	2020
GHS	general site	11	Landscaping & Plantings	resod areas along sidewalk ruined by snow plow	\$15,000	\$ 21,187	\$24,440	Parks	Site		3	4	2020
GHS	general site	11	Landscaping & Plantings	prune trees	\$15,000	\$ 21,187	\$24,440	Parks	Site		1	4	2020
GHS	Cardinal Stadium	12	Fields & Field Structures	Cardinal Stadium Feasibility Study	\$500,000	\$ 678,810	\$500,000	Building	New Bldg		3	1	2018
GHS	tennis courts	7	Pavement, Parking Lots & Curbs	replace fencing around courts	\$140,000	\$ 197,745	\$228,110	Parks	Site		3	4	2020
GHS	tennis courts	7	Pavement, Parking Lots & Curbs	replace sports surface on courts (15 yr)	\$1,435,500	\$ 2,027,598	\$2,338,942	Parks	Site		3	4	2020
GHS	sports fields	12	Fields & Field Structures	Refurbish Track (CIP)	\$100,000	\$ 138,477	\$155,919	Parks	Site		3	4	2019
GHS	sports fields	12	Fields & Field Structures	refurbish sports field 3	\$712,500	\$ 1,006,383	\$1,160,917	Parks	Site		3	4	2020
GHS	sports fields	12	Fields & Field Structures	refurbish sports field 4	\$652,500	\$ 940,068	\$1,110,997	Parks	Site		3	4	2021
GHS	sports fields	12	Fields & Field Structures	replace sod sports fields (2 baseball fields)	\$750,000	\$ 1,059,351	\$1,222,018	Parks	Site		3	4	2020
GHS	sports fields	12	Fields & Field Structures	refurbish sports field 6	\$510,000	\$ 764,450	\$948,277	Parks	Site		3	4	2023
GHS	sports fields	12	Fields & Field Structures	refurbish sports field 7	\$682,500	\$ 1,023,014	\$1,269,018	Parks	Site		3	4	2023
GHS	north parking lot	13	Fences	repair and install new wood guard rail	\$30,000	\$ 42,374	\$48,881	Parks	Site		3	4	2020
GHS	general site	13	Fences	repair or replace chain link fencing (15 yr)	\$562,500	\$ 794,513	\$916,513	Parks	Site		3	7	2020
GHS	front plaza	14	Site Walls, Stairs & Railings	repair stair and provide new railings	\$72,000	\$ 101,698	\$117,314	GPS	Site		3	4	2020
GHS	Exterior Bldg	17	Exterior Walls & Columns	Repair concrete columns/parge foundation walls/stucco repair/painting	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure		3	3	2020
GHS	Roof	19	Roof/Skylights	Roof Replacement - Q, S, & T Buildings (CIP)	\$2,250,000	\$ 3,241,614	\$3,831,026	GPS	Infrastructure		3	3	2021
GHS	Roof	19	Roof/Skylights	Roof Replacement	\$1,265,000	\$ 1,786,772	\$2,061,137	GPS	Infrastructure		3	3	2020
GHS	Roof	19	Roof/Skylights	Upcoming Roof Replacement - LESS QST (CIP)	\$1,712,500	\$ 2,418,851	\$2,790,274	GPS	Infrastructure		3	7	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
GHS	Exterior Bldg	21	Exterior Doors	Replace Exterior Doors & Frames (Facilities)	\$288,000	\$ 406,791	\$469,255	GPS	Infrastructure		3	5	2020
GHS	back/courtyard	22	Exterior Stairs & Ramps	repair stair and provide new railings	\$43,200	\$ 61,019	\$70,388	GPS	Infrastructure		3	3	2020
GHS	Exterior Bldg Bella Wing	24	Windows	Replace install new frames and windows with insulated glass	\$315,000	\$ 427,650	\$469,996	GPS	Infrastructure		3	3	2018
GHS	Bldg Exterior	24	Windows	Replacement of other windows in Main Entry Corridor	\$371,000	\$ 524,026	\$604,491	GPS	Infrastructure		3	3	2020
GHS	Bldg Exterior	24	Windows	Replace Exterior Doors in Main Entry Corridor	\$67,200	\$ 94,918	\$109,493	GPS	Infrastructure		3	3	2020
GHS	Bldg Exterior	24	Windows	Replace install new frames and windows with insulated glass	\$140,000	\$ 197,745	\$228,110	GPS	Infrastructure		3	3	2020
GHS	Exterior Bldg - Media Arched Windows	24	Windows	Replace store front frames and arched windows with insulated glass	\$105,000	\$ 148,309	\$171,082	GPS	Infrastructure		3	3	2020
GHS	Exterior Bldg Media Wing	24	Windows	Replace install new frames and windows with insulated glass	\$507,500	\$ 716,827	\$826,899	GPS	Infrastructure		3	3	2020
GHS	Exterior Bldg Folsom Wing	24	Windows	Replace install new frames and windows with insulated glass	\$245,000	\$ 346,055	\$399,192	GPS	Infrastructure		3	3	2020
GHS	Exterior Bldg Cantor Wing	24	Windows	Replace install new frames and windows with insulated glass	\$262,500	\$ 370,773	\$427,706	GPS	Infrastructure		3	3	2020
GHS	Exterior Bldg Cantor Wing	24	Windows	Replace install new Exterior Doors	\$19,200	\$ 27,119	\$31,284	GPS	Infrastructure		3	3	2020
GHS	Exterior Bldg Science Wing	24	Windows	Replace install new frames and windows with insulated glass	\$525,000	\$ 741,546	\$855,412	GPS	Infrastructure		3	3	2020
GHS	General Building	26	Interior Walls & Renovation	Replace Pool Bleachers (CIP)	\$65,000	\$ 88,245	\$96,983	GPS	Infrastructure		3	7	2018
GHS	Pool	26	Interior Walls & Renovation	RegROUT Pool and Deck (Facilities)	\$100,000	\$ 135,762	\$149,205	GPS	Infrastructure		3	7	2018
GHS	General Building	26	Interior Walls & Renovation	Interior Painting (Facilities)	\$8,000	\$ 10,861	\$11,936	GPS	Infrastructure		3	2	2018
GHS	Locker Rooms	26	Interior Walls & Renovation	Renovate Locker Rooms - Full Area	\$2,737,000	\$ 3,715,806	\$4,083,744	GPS	Infrastructure		3	2	2018
GHS	B Wing	26	Interior Walls & Renovation	Toilet Renovations, B-wing (CIP)	\$300,000	\$ 423,740	\$488,807	GPS	Infrastructure		3	7	2020
GHS	C Wing	26	Interior Walls & Renovation	Toilet Renovations, C-wing (CIP)	\$200,000	\$ 288,143	\$340,536	GPS	Infrastructure		3	7	2021
GHS	General Building	26	Interior Walls & Renovation	Architectural work required by AC Infrastructure Work	\$2,500,000	\$ 3,531,170	\$4,073,392	GPS	Infrastructure		3	8	2020
GHS	General Building	26	Interior Walls & Renovation	Bulletin Boards (CIP)	\$40,000	\$ 59,957	\$74,375	GPS	Infrastructure		3	7	2023
GHS	Toilet Rooms	26	Interior Walls & Renovation	Renovate Administration Toilet Rooms (CIP)	\$350,000	\$ 494,364	\$570,275	GPS	Infrastructure		3	2	2020
GHS	Toilet Rooms	26	Interior Walls & Renovation	Renovate Toilet Rooms	\$300,000	\$ 423,740	\$488,807	GPS	Infrastructure		4	7	2020
GHS	Science Bldg 2nd Fl	27	Flooring	Replace Media Center Carpeting (CIP)	\$40,000	\$ 55,391	\$62,368	GPS	Infrastructure		3	6	2019
GHS	Science Bldg 1st Fl	27	Flooring	Replace install new VCT in corridor and classrooms	\$113,144	\$ 159,812	\$184,351	GPS	Infrastructure		3	6	2020
GHS	Science Bldg 2nd Fl	27	Flooring	Replace install new VCT in corridor and classrooms	\$81,175	\$ 114,657	\$132,263	GPS	Infrastructure		3	6	2020
GHS	Gym	27	Flooring	Replace Gym flooring - In progress	\$0	\$ -	\$0	GPS	Infrastructure		3	6	2020
GHS	Science Bldg 1st Fl	28	Ceilings	Replace install new ACT in corridor and classrooms	\$212,976	\$ 300,822	\$347,014	GPS	Infrastructure		3	6	2020
GHS	Science Bldg 2nd Fl	28	Ceilings	Replace install new ACT in corridor and classrooms	\$152,800	\$ 215,825	\$248,966	GPS	Infrastructure		3	6	2020
GHS	General Building	28	Ceilings	ACT Ceiling Replacement as part of Lighting Infrastructure Work	\$1,600,000	\$ 2,259,949	\$2,606,971	GPS	Infrastructure		3	5	2020
GHS	General Building	28	Ceilings	Ceiling Repair/Replacement as part of Fire Alarm Work	\$150,000	\$ 211,870	\$244,404	GPS	Infrastructure		3	2	2020
GHS	Furnishings	49	Program Enhancements	Update Classroom Furniture	\$1,080,000	\$ 1,466,230	\$1,611,415	GPS	Program		3	2	2018
GHS	Furnishings	49	Program Enhancements	Update Classroom Furniture	\$1,080,000	\$ 1,495,554	\$1,683,929	GPS	Program		3	2	2019
GHS	Furnishings	49	Program Enhancements	Update Classroom Furniture	\$1,120,000	\$ 1,581,964	\$1,824,880	GPS	Program		3	2	2020
GHS	Interior Electric Distribution	33	Int Electric Distribution	Cost includes replacement of main 2500A switchgear based on Costworks Assembly Costs 2017 D5010 240. Cost also includes addition of (15)-225A panelboards including conduit and wire up to 5 stories and 50' horizontal runs future IT /technology expansion. Costs are taken from RS Means Costworks Assembly Costs 2017 D5010 250.	\$281,500	\$ 397,610	\$458,664	GPS	Infrastructure		3	7	2020
GHS	Lighting Fixtures	34	Lighting Fixtures	Replace existing fixtures with LED. Cost based on Westlake CM 2017 cost to remove and replace w/LED is \$7.2/sqft including removals. Gym and student center excluded since recently upgraded to LED's. Used factor of 85% since some areas upgraded to LED. LESS Classroom light fixture replacements per CIP	\$2,781,540	\$ 3,928,836	\$4,532,122	GPS	Infrastructure	Energy	2	5	2020
GHS	Lighting Controls	34	Lighting Fixtures	Cost based on RS Means Costworks Assembly Costs 2017 - D5020 295 1000, \$1.43/sqft for Lighting On/Off Control System including occupancy and time switching, and conduit and wire. Some areas already have automatic controls, so only accounting for half the entire school SF.(All references to Costworks are based on Stamford, CT zip code and union pricing) Used factor of 50% since many areas had automatic control.	\$406,209	\$ 573,758	\$661,860	GPS	Infrastructure	Energy	2	5	2020
GHS	PA/Comm Systems	35	PA/Comm/Security Systems	Cost includes replacement of Security System head end equipment, (30)-proximity card readers, (20)-surveillance cameras (60)-door/window contacts, conduit and wire. Cost is based on RS Means Costworks Assembly Costs 2017 - D5030 810 Security and Detection Systems and 28 23 2200 Video Surveillance Control and Management Systems.	\$710,156	\$ 1,003,073	\$1,157,098	GPS	Infrastructure		3	7	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
GHS	Fire Alarm & Smoke Detection	36	Fire Alarm & Smoke Detection	Cost includes replacement of existing fire alarm system, based on recent SaxeMS Bids at approx. \$1.98/sqft, including conduit and wire.	\$899,910	\$ 1,271,094	\$1,466,275	GPS	Infrastructure		2	2	2020
GHS	Emergency/Exit Lighting	38	Emergency/Exit Lighting	Cost taken from RS Means Costworks 2017 Square Footage Model for School in CT at \$605 each. Used factor of 50% since EM lights on generator.	\$154,672	\$ 218,469	\$252,016	GPS	Infrastructure		2	5	2020
GHS	Emergency/Standby Power	39	Emergency/Standby Power	Cost includes replacement of existing 375kW diesel generator, transfer switch, batteries, charger, muffler, and fuel tank. Cost is based on RS Means Costworks Assembly Costs 2017 - D5090 210 Generators (by kW). Assumes replacement in kind with existing buried conduit and wire, and pad to remain.	\$88,875	\$ 125,533	\$144,809	GPS	Infrastructure		4	5	2020
GHS	Lead Free Valves (Fixtures)	40	Water Distribution	Lead Free Valves (Fixtures)	\$75,000	\$ 105,935	\$122,202	GPS	Infrastructure		2	5	2020
GHS	Lead Free Valves (Bldg)	40	Water Distribution	Lead Free Valves (Bldg)	\$31,500	\$ 44,493	\$51,325	GPS	Infrastructure		2	5	2020
GHS	RPZ/DCV	40	Water Distribution	RPZ/DCV	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure		2	5	2020
GHS	Hot Water Heaters	42	Hot Water Heaters	Hot Water Heater Demolition	\$2,000	\$ 2,825	\$3,259	GPS	Infrastructure		2	2	2020
GHS	Circulating Pump	42	Hot Water Heaters	Circulating Pump Demolition	\$300	\$ 424	\$489	GPS	Infrastructure		2	2	2020
GHS	Hot Water Heaters	42	Hot Water Heaters	Hot Water Heaters	\$70,000	\$ 98,873	\$114,055	GPS	Infrastructure		2	2	2020
GHS	Circulating Pump	42	Hot Water Heaters	Circulating Pump	\$7,500	\$ 10,594	\$12,220	GPS	Infrastructure		2	2	2020
GHS	Plumbing Fixtures	43	Plumbing Fixtures	Plumbing Fixtures	\$90,000	\$ 127,122	\$146,642	GPS	Infrastructure		2	5	2020
GHS	Toilets	43	Plumbing Fixtures	Toilets	\$490,000	\$ 692,109	\$798,385	GPS	Infrastructure		2	5	2020
GHS	Urinals	43	Plumbing Fixtures	Urinals	\$104,000	\$ 146,897	\$169,453	GPS	Infrastructure		2	5	2020
GHS	Lavatories	43	Plumbing Fixtures	Lavatories	\$165,000	\$ 233,057	\$268,844	GPS	Infrastructure		2	5	2020
GHS	Sinks	43	Plumbing Fixtures	Sinks	\$78,750	\$ 111,232	\$128,312	GPS	Infrastructure		2	5	2020
GHS	HW Heating Pumps	45	Heating Systems	HW Heating Pumps	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure	Energy	2	5	2020
GHS	Boilers	45	Heating Systems	Boiler Demolition	\$6,000	\$ 8,475	\$9,776	GPS	Infrastructure	Energy	2	5	2020
GHS	HVAC Pumps	45	Heating Systems	HVAC Pump Demolition	\$4,800	\$ 6,780	\$7,821	GPS	Infrastructure	Energy	2	5	2020
GHS	Boilers, breeching	45	Heating Systems	Boilers, breeching	\$1,050,000	\$ 1,483,091	\$1,710,825	GPS	Infrastructure	Energy	2	5	2020
GHS	Fuel Oil System (tank and pump set)	45	Heating Systems	Fuel Oil System (tank and pump set)	\$325,000	\$ 459,052	\$529,541	GPS	Infrastructure	Energy	2	5	2020
GHS	Kitchen Make-Up Air Unit	46	Ventilation Systems	Kitchen Make-Up Air Unit Demolition	\$1,200	\$ 1,695	\$1,955	GPS	Infrastructure		2	5	2020
GHS	Air Handling Units	46	Ventilation Systems	Air Handling Units	\$40,000	\$ 56,499	\$65,174	GPS	Infrastructure		2	5	2020
GHS	Kitchen Make-Up Air Unit	46	Ventilation Systems	Kitchen Make-Up Air Unit	\$50,000	\$ 70,623	\$81,468	GPS	Infrastructure		2	5	2020
GHS	Rooftop Exhaust Fans	46	Ventilation Systems	Rooftop Exhaust Fans	\$140,000	\$ 197,745	\$228,110	GPS	Infrastructure		2	5	2020
GHS	Chillers and Cooling Towers, Pumps	47	Air Conditioning Systems	Chillers and Cooling Towers, Pumps	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure		2	8	2020
GHS	Chillers, 600 Tons each	47	Air Conditioning Systems	Chillers, 600 Tons each	\$1,125,000	\$ 1,589,026	\$1,833,027	GPS	Infrastructure		2	8	2020
GHS	Cooling Towers, 600 Tons ea	47	Air Conditioning Systems	Cooling Towers, 600 Tons ea	\$420,000	\$ 593,236	\$684,330	GPS	Infrastructure		2	8	2020
GHS	Pumps (Chilled and Condenser)	47	Air Conditioning Systems	Pumps (Chilled and Condenser)	\$40,000	\$ 56,499	\$65,174	GPS	Infrastructure		2	8	2020
GHS	Piping	47	Air Conditioning Systems	Piping	\$100,000	\$ 141,247	\$162,936	GPS	Infrastructure		2	8	2020
GHS	Classrooms	47	Air Conditioning Systems	Classrooms	\$6,480,000	\$ 9,152,792	\$10,558,233	GPS	Infrastructure		2	8	2020
GHS	Corridors	47	Air Conditioning Systems	Corridors	\$1,215,000	\$ 1,716,148	\$1,979,669	GPS	Infrastructure		2	8	2020
GHS	Gymnasium	47	Air Conditioning Systems	Gymnasium	\$320,000	\$ 451,990	\$521,394	GPS	Infrastructure		2	8	2020
GHS	Cafeteria	47	Air Conditioning Systems	Cafeteria	\$469,800	\$ 663,577	\$765,472	GPS	Infrastructure		2	8	2020
GHS	Kitchen	47	Air Conditioning Systems	Kitchen	\$75,000	\$ 105,935	\$122,202	GPS	Infrastructure		2	8	2020
GHS	Auditorium	47	Air Conditioning Systems	Auditorium	\$320,000	\$ 451,990	\$521,394	GPS	Infrastructure		2	8	2020
GHS	Media / Computer Lab	47	Air Conditioning Systems	Media / Computer Lab	\$320,000	\$ 451,990	\$521,394	GPS	Infrastructure		2	8	2020
GHS	HVAC Controls	48	HVAC Controls	Upgrade BMS Controls (CIP)	\$125,000	\$ 169,703	\$186,506	GPS	Infrastructure	Energy	3	5	2018
GHS	HVAC Controls	48	HVAC Controls	HVAC Controls	\$2,499,750	\$ 3,530,817	\$4,072,985	GPS	Infrastructure	Energy	3	5	2020
GHS	Swimming Pool Spectator Area	48	HVAC Controls	Swimming Pool Spectator Area	\$32,000	\$ 45,199	\$52,139	GPS	Infrastructure	Energy	3	5	2020
GHS	Classrooms	49	Program Enhancements	Pilot Project: 4-5 Classrooms	\$750,000	\$ 1,059,351	\$1,222,018	GPS	Program		4	9	2020
GHS	Science Prep Rooms	49	Program Enhancements	Family and Consumer Science Classroom (CIP)	\$325,000	\$ 459,052	\$529,541	GPS	Infrastructure		4	6	2020
GHS	Lobby/Security	49	Program Enhancements	Lobby/Security Addition/Alteration	\$6,500,000	\$ 9,181,041	\$10,590,820	GPS	Infrastructure		4	7	2020
GHS	Student Center	49	Program Enhancements	Student Center Mezzanine Renovation	\$3,800,000	\$ 5,367,378	\$6,191,557	GPS	Infrastructure		4	7	2020
GHS	Media Center	49	Program Enhancements	Media Center Addition	\$14,000,000	\$ 19,774,550	\$22,810,998	GPS	Infrastructure		4	7	2020
GHS	Gymnasium	49	Program Enhancements	Field House/Athletics Addition/Alteration	\$17,300,000	\$ 24,435,694	\$28,187,876	GPS	Infrastructure		4	7	2020
GHS	Student Center	49	Program Enhancements	Special Education Renovations	\$3,000,000	\$ 4,237,404	\$4,888,071	GPS	Infrastructure		4	7	2020
GHS	Student Center	49	Program Enhancements	Science Wing Renovations - Furniture/Casework Improvements	\$12,000,000	\$ 16,949,614	\$19,552,284	GPS	Infrastructure		4	7	2020
GHS	Parking Area	49	Program Enhancements	New Parking Deck (80 Additional Spaces)	\$2,400,000	\$ 3,389,923	\$3,910,457	GPS	Infrastructure		4	7	2020
GHS	Cardinal Stadium	49	Program Enhancements	Cardinal Stadium Option B - Implementation	\$13,800,000	\$ 19,492,056	\$22,485,127	GPS	Infrastructure		4	7	2020
GHS	Front Entry	49	Program Enhancements	Temporary Security Vestibule (Facilities)	\$60,000	\$ 84,748	\$97,761	GPS	Infrastructure		4	7	2020
GL	back of school	5	Site Electrical	add bollards for walkway	\$30,000	\$ 42,374	\$48,881	Parks	Site		3	4	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
GL	back of school	5	Site Electrical	exterior lighting upgrade (per capital budget (2029-2030)	\$125,000	\$ 176,558	\$203,670	GPS	Site		3	4	2020
GL	courtyard	6	Site Stormwater	add drainage to courtyard patio and tie to roof drain system	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	3	2020
GL	back of school	6	Site Stormwater	add drainage near play area and ballfields, tie into parking system if possible	\$50,000	\$ 70,623	\$81,468	Parks	Site		3	4	2020
GL	back of school	7	Pavement, Parking Lots & Curbs	replace full depth asphalt (within 5 years)	\$1,197,500	\$ 1,691,430	\$1,951,155	Public W	Site		4	4	2020
GL	general site	7	Pavement, Parking Lots & Curbs	replace concrete curbs with granite curbs	\$2,404,500	\$ 3,396,279	\$3,917,789	Public W	Site		4	4	2020
GL	general site	7	Pavement, Parking Lots & Curbs	replace concrete curbing (per capital budget (2020-21)	\$60,000	\$ 84,748	\$97,761	Public W	Site		4	4	2020
GL	general site	7	Pavement, Parking Lots & Curbs	add concrete walkway near ball field	\$60,000	\$ 84,748	\$97,761	Public W	Site		4	4	2020
GL	back of school	7	Pavement, Parking Lots & Curbs	ballcourt included in asphalt parking	\$0	\$ -	\$0	Parks	Site		4	4	2020
GL	general site	7	Pavement, Parking Lots & Curbs	replace full depth asphalt (15 years)	\$210,000	\$ 296,618	\$342,165	Public W	Site		4	7	2020
GL	general site	8	Sidewalks & Hardscape	replace 5" thick concrete walks (5 years)	\$133,875	\$ 189,094	\$218,130	Parks	Site		4	4	2020
GL	front of school	8	Sidewalks & Hardscape	replace asphalt path with 5" thick concrete walks (10 years)	\$254,250	\$ 359,120	\$414,264	Parks	Site		4	7	2020
GL	front of school	8	Sidewalks & Hardscape	replace 5" thick concrete walks (15 years)	\$78,750	\$ 111,232	\$128,312	Parks	Site		4	7	2020
GL	general site	9	Site Amenities	replace garbage cans and bike racks with Greenwich City Standard	\$25,000	\$ 35,312	\$40,734	Parks	Site		1	4	2020
GL	rear of building	10	Playgrounds & Equipment	replace one of the elevated play sets with an inclusive ramped set	\$200,000	\$ 282,494	\$325,871	GPS	Site		3	4	2020
GL	rear of building	10	Playgrounds & Equipment	replacement of basketball hoops and other equipment	\$25,000	\$ 35,312	\$40,734	Parks	Site		4	7	2020
GL	new play area	10	Playgrounds & Equipment	new play area with poured in place surfacing	\$25,000	\$ 35,312	\$40,734	Parks	Site		4	7	2020
GL	courtyard	11	Landscaping & Plantings	replace deteriorating plants	\$10,000	\$ 14,125	\$16,294	Parks	Site		1	4	2020
GL	general site	11	Landscaping & Plantings	resod areas along sidewalk ruined by snow plow	\$8,000	\$ 11,300	\$13,035	Parks	Site		1	4	2020
GL	general site	11	Landscaping & Plantings	prune trees	\$5,000	\$ 7,062	\$8,147	Parks	Site		1	4	2020
GL	general field	12	Fields & Field Structures	replace batting cage on softball field	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	4	2020
GL	playground fencing	13	Fences	provide new 4' chain link security fence at playground w/ 2 gates	\$45,000	\$ 63,561	\$73,321	Parks	Site		3	4	2020
GL	back of school	13	Fences	repair/replace white decorative wood fence	\$115,500	\$ 163,140	\$188,191	Parks	Site		3	4	2020
GL	Bldg Exterior	17	Exterior Walls & Columns	add outdoor classroom area with a covered area and seating	\$133,000	\$ 187,858	\$216,704	GPS	Program		3	4	2020
GL	Roof	19	Roof/Skylights	Roof Replacement	\$0	\$ -	\$0	GPS	Infrastructure		3	3	2020
GL	Roof	19	Roof/Skylights	Roof Replacement (CIP) \$2,000,000 Deleted	\$0	\$ -	\$0	GPS	Infrastructure		3	3	2029
GL	Roof	19	Roof/Skylights	Upcoming Roof Replacement	\$0	\$ -	\$0	GPS	Infrastructure		3	7	2020
GL	General Building	26	Interior Walls & Renovation	Architectural work related to HVAC Improvements	\$850,000	\$ 1,200,598	\$1,384,953	GPS	Infrastructure		3	7	2020
GL	General Building	26	Interior Walls & Renovation	Interior Painting (Facilities)	\$5,000	\$ 7,062	\$8,147	GPS	Infrastructure		3	2	2020
GL	General Building	27	Flooring	Replace existing VCT	\$122,243	\$ 172,664	\$199,177	GPS	Infrastructure		3	7	2020
GL	Media	27	Flooring	Replace existing Carpet	\$22,531	\$ 31,825	\$36,711	GPS	Infrastructure		3	7	2020
GL	Gymnasium	27	Flooring	Refinish wood flooring	\$57,880	\$ 81,754	\$94,307	GPS	Infrastructure		3	7	2020
GL	PA/Comm/Security Systems	35	PA/Comm/Security Systems	Cost based on a 50 speaker PA system w/2 amplifiers and master clock system for 50 room elementary school from Costworks 2017 Elementary School square foot models.	\$101,563	\$ 143,454	\$165,482	GPS	Infrastructure		3	7	2020
GL	Fire Alarm and Smoke Detection	36	Fire Alarm & Smoke Detection	Cost includes replacement of existing fire alarm system, based on recent SaxeMS Bids at approx. \$1.98/sqft, including conduit and wire.	\$128,700	\$ 181,785	\$209,698	GPS	Infrastructure		2	2	2020
GL	Emergency/Exit Lighting	38	Emergency/Exit Lighting	Cost taken from RS Means Costworks 2017 Square Footage Model for Elementary School in CT at \$605 each. Used factor of .5 since em lighting accomplished by generator.	\$22,120	\$ 31,244	\$36,042	GPS	Infrastructure		2	2	2020
GL	Emergency/Standby Power (New Generator to Power Entire Facility)	39	Emergency/Standby Power	Cost includes new 500kW diesel generator, transfer switch, batteries, charger, muffler, and fuel tank. Cost is based on RS Means Costworks Assembly Costs 2017 - D5090 210 Generators (by kW). Includes 600 lf of 4" PVC conduit and 2500 ft of 600MCM XHHW at \$47088.	\$198,463	\$ 280,323	\$323,367	GPS	Infrastructure		1	2	2020
GL	Lead Free Valves (Bldg)	40	Water Distribution	New Lead Free Valves (Bldg)	\$5,250	\$ 7,415	\$8,554	GPS	Infrastructure		2	2	2020
GL	Lead Free Valves (Fixtures)	40	Water Distribution	New Lead Free Valves (Fixtures)	\$5,000	\$ 7,062	\$8,147	GPS	Infrastructure		2	2	2020
GL	Lead Free Valves (Fixtures)	41	Plumbing Drainage	Sump Pumps (Facilities)	\$40,000	\$ 56,499	\$65,174	GPS	Infrastructure		2	2	2020
GL	Hot Water Heaters	42	Hot Water Heaters	Hot Water Heater Demo	\$600	\$ 847	\$978	GPS	Infrastructure		2	2	2020
GL	Circulating Pump	42	Hot Water Heaters	Circulating Pump Demo	\$500	\$ 706	\$815	GPS	Infrastructure		2	2	2020
GL	Hot Water Heaters	42	Hot Water Heaters	New Hot Water Heaters	\$36,000	\$ 50,849	\$58,657	GPS	Infrastructure		2	2	2020
GL	Circulating Pump	42	Hot Water Heaters	New Circulating Pump	\$3,000	\$ 4,237	\$4,888	GPS	Infrastructure		2	2	2020
GL	Plumbing Fixtures	43	Plumbing Fixtures	Plumbing Fixtures	\$9,600	\$ 13,560	\$15,642	GPS	Infrastructure		2	5	2020
GL	Toilets	43	Plumbing Fixtures	New Toilets	\$70,000	\$ 98,873	\$114,055	GPS	Infrastructure		2	5	2020
GL	Urinals	43	Plumbing Fixtures	New Urinals	\$8,000	\$ 11,300	\$13,035	GPS	Infrastructure		2	5	2020
GL	Lavatories	43	Plumbing Fixtures	New Lavatories	\$14,000	\$ 19,775	\$22,811	GPS	Infrastructure		2	5	2020
GL	Boilers	45	Heating Systems	Boiler Demo	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure	Energy	4	5	2020
GL	HW Heating Pumps	45	Heating Systems	New HW Heating Pumps	\$1,300	\$ 1,836	\$2,118	GPS	Infrastructure	Energy	4	5	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
GL	Boilers	45	Heating Systems	New Boilers - 2,700 MBH Gas Boiler - Condensing	\$160,000	\$ 225,995	\$260,697	GPS	Infrastructure	Energy	4	5	2020
GL	HW Heating Pumps	45	Heating Systems	New Heat Pumps - 7.5 HP Basemounted	\$32,000	\$ 45,199	\$52,139	GPS	Infrastructure	Energy	4	5	2020
GL	Rooftop Exhaust Fans	46	Ventilation Systems	New Rooftop Exhaust Fans	\$35,000	\$ 49,436	\$57,027	GPS	Infrastructure		4	8	2020
GL	Chilled Water Pumps	47	Air Conditioning Systems	Chilled Water Pump Demo	\$1,300	\$ 1,836	\$2,118	GPS	Infrastructure		2	8	2020
GL	Air Handling Units	47	Air Conditioning Systems	Replacement HVAC system @ \$25 / SF	\$1,625,000	\$ 2,295,260	\$2,647,705	GPS	Infrastructure		4	8	2020
GL	Cooling Tower	47	Air Conditioning Systems	\$3,000 / Ton (125 Tons)	\$750,000	\$ 1,059,351	\$1,222,018	GPS	Infrastructure		4	8	2020
GL	Chiller	47	Air Conditioning Systems	\$4,000 / Ton (125 Tons)	\$1,000,000	\$ 1,412,468	\$1,629,357	GPS	Infrastructure		4	8	2020
GL	HVAC Controls	48	HVAC Controls	Replacement of Trane controls	\$260,000	\$ 367,242	\$423,633	GPS	Infrastructure	Energy	2	5	2020
GL	Classrooms	49	Program Enhancements	Update Classroom Furniture	\$920,000	\$ 1,299,470	\$1,499,008	GPS	Infrastructure		4	7	2020
HA	back of school	5	Site Electrical	add bollards for walkway	\$30,000	\$ 42,374	\$48,881	Parks	Site		3	4	2020
HA	back of school	5	Site Electrical	exterior lighting upgrade (per capital budget (2021-2022))	\$50,000	\$ 70,623	\$81,468	GPS	Site		3	4	2020
HA	courtyard	6	Site Stormwater	add drainage to courtyard patio and tie to roof drain system	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	4	2020
HA	back of school	6	Site Stormwater	add drainage near play area and ballfields, tie into parking system if possible	\$50,000	\$ 70,623	\$81,468	Parks	Site		3	4	2020
HA	general site	7	Pavement, Parking Lots & Curbs	replace concrete curbs with granite curbs	\$665,000	\$ 939,291	\$1,083,522	Public W	Site		4	4	2020
HA	back of school	7	Pavement, Parking Lots & Curbs	replace asphalt ball court in kind (5 yr)	\$50,000	\$ 70,623	\$81,468	Public W	Site		4	4	2020
HA	back of school	7	Pavement, Parking Lots & Curbs	replace full depth asphalt (10 yr)	\$312,500	\$ 441,396	\$509,174	Public W	Site		4	7	2020
HA	back of school	7	Pavement, Parking Lots & Curbs	replace full depth concrete deck (10 yr)	\$241,000	\$ 340,405	\$392,675	Public W	Site		4	7	2020
HA	front of school	8	Sidewalks & Hardscape	remediate safety concern (curved wall) in front play area (2018-2019)	\$10,000	\$ 14,125	\$16,294	Parks	Site		4	7	2020
HA	front of school	8	Sidewalks & Hardscape	add asphalt area in playground	\$6,300	\$ 8,899	\$10,265	Parks	Site		4	7	2020
HA	front of school	8	Sidewalks & Hardscape	replace 5" thick concrete walks (10 yr)	\$167,423	\$ 236,479	\$272,791	Parks	Site		4	7	2020
HA	general site	8	Sidewalks & Hardscape	replace asphalt path with 5" thick concrete walks (10 yr)	\$138,500	\$ 195,627	\$225,666	Parks	Site		4	7	2020
HA	front of school	9	Site Amenities	replace school billboard/sign with digital sign	\$50,000	\$ 70,623	\$81,468	Parks	Site		3	4	2020
HA	rear of building	10	Playgrounds & Equipment	replace one of the elevated play sets with an inclusive ramped set	\$200,000	\$ 282,494	\$325,871	GPS	Site		3	4	2020
HA	new play area	10	Playgrounds & Equipment	new play area with poured in place surfacing	\$100,000	\$ 141,247	\$162,936	Parks	Site		3	4	2020
HA	rear of building	10	Playgrounds & Equipment	replace play surfacing with poured in place	\$75,000	\$ 105,935	\$122,202	Parks	Site		3	4	2020
HA	rear of building	10	Playgrounds & Equipment	replacement of basketball hoops and other equipment	\$25,000	\$ 35,312	\$40,734	Parks	Site		4	7	2020
HA	rear of building	10	Playgrounds & Equipment	Renovate Courtyard Play Area (CIP)	\$300,000	\$ 423,740	\$488,807	Parks	Site		4	2	2020
HA	courtyard	11	Landscaping & Plantings	replace deteriorating plants	\$10,000	\$ 14,125	\$16,294	Parks	Site		1	4	2020
HA	general site	11	Landscaping & Plantings	resod areas along sidewalk ruined by snow plow	\$8,000	\$ 11,300	\$13,035	Parks	Site		1	4	2020
HA	general site	11	Landscaping & Plantings	prune trees	\$5,000	\$ 7,062	\$8,147	Parks	Site		1	4	2020
HA	general field	12	Fields & Field Structures	remove trip hazards to improve grading - ELIMINATED FROM PLAN	\$0	\$ -	\$0	Parks	Site		3	2	2020
HA	general field	12	Fields & Field Structures	replace batting cage on softball field	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	4	2020
HA	general field	12	Fields & Field Structures	Ball field grade improvements and walkways (Facilities)	\$965,000	\$ 1,363,031	\$1,572,329	Parks	Site		3	2	2020
HA	playground fencing	13	Fences	provide new 4' chain link security fence at playground w/ 2 gates	\$45,000	\$ 63,561	\$73,321	Parks	Site		3	4	2020
HA	back of school	13	Fences	repair/replace white decorative wood fence	\$245,000	\$ 346,055	\$399,192	Parks	Site		3	4	2020
HA	Exterior Building	15	Foundation	Repair concrete loading dock	\$3,000	\$ 4,237	\$4,888	Parks	Site		3	4	2020
HA	Exterior Walls	17	Exterior Walls & Columns	Paint Cupola and exterior trim	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure		1	4	2020
HA	Exterior Walls	17	Exterior Walls & Columns	Masonry Repairs at Roof Line (Facilities)	\$20,000	\$ 28,249	\$32,587	GPS	Infrastructure		1	4	2020
HA	Bldg Exterior	17	Exterior Walls & Columns	add outdoor classroom area with a covered area and seating	\$133,000	\$ 187,858	\$216,704	GPS	Program		3	3	2020
HA	Roof	19	Roof/Skylights	Install snow guards and gutter diverters	\$250,000	\$ 353,117	\$407,339	GPS	Infrastructure		3	3	2020
HA	Roof	19	Roof/Skylights	Roof, older building (CIP) \$500,000 Deleted	\$0	\$ -	\$0	GPS	Infrastructure		3	3	2028
HA	Roof	19	Roof/Skylights	Upcoming Roof Replacement	\$0	\$ -	\$0	GPS	Infrastructure		3	7	2020
HA	Exterior Doors	21	Exterior Doors	Replace wood exterior doors (Facilities)	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure		3	3	2020
HA	Exterior Doors	21	Exterior Doors	Install new doors	\$24,000	\$ 33,899	\$39,105	GPS	Infrastructure		3	3	2020
HA	Exterior Building	24	Windows	Install new Windows second floor rooms	\$170,975	\$ 241,497	\$278,579	GPS	Infrastructure		3	4	2020
HA	General Building	26	Interior Walls & Renovation	Equipment Access to Lower Level - Trolley Beam (Facilities)	\$75,000	\$ 105,935	\$122,202	GPS	Infrastructure		3	2	2020
HA	General Building	26	Interior Walls & Renovation	Interior Painting (Facilities)	\$6,000	\$ 8,475	\$9,776	GPS	Infrastructure		3	2	2020
HA	General Building	26	Interior Walls & Renovation	Interior Renovations	\$300,000	\$ 423,740	\$488,807	GPS	Infrastructure		3	7	2020
HA	Cafeteria	27	Flooring	Replace cafeteria flooring (CIP)	\$75,000	\$ 110,215	\$133,447	GPS	Infrastructure		3	3	2022
HA	Interior Electric Distribution	33	Int Electric Distribution	Cost includes addition of (4)-225A panelboards including conduit and wire up to 5 stories and 50' horizontal runs future IT /technology expansion. Costs are taken from RS Means Costworks Assembly Costs 2017 D5010 250.	\$75,500	\$ 106,641	\$123,016	GPS	Infrastructure		3	7	2020
HA	Lighting Fixtures	34	Lighting Fixtures	Replace existing fixtures with LED. Cost based on Westlake CM 2017 cost to remove and replace w/LED is \$7.2/sqft including removals.	\$522,000	\$ 737,308	\$850,524	GPS	Infrastructure	Energy	2	2	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
HA	Lighting Controls	34	Lighting Fixtures	New Lighting Controls. Cost based on RS Means Costworks Assembly Costs 2017 - D5020 295 1000, \$1.43/sqft for Lighting On/Off Control System including occupancy and time switching, and conduit and wire. (All references to Costworks are based on Stamford, CT zip code and union pricing). Used 75% factor since some rooms have automatic controls.	\$97,195	\$ 137,285	\$158,366	GPS	Infrastructure	Energy	2	2	2020
HA	PA/Comm/Security Systems	35	PA/Comm/Security Systems	Cost based on a 50 speaker PA system w/2 amplifiers and master clock system for 50 room elementary school from Costworks 2017 Elementary School square foot models.	\$113,281	\$ 160,006	\$184,576	GPS	Infrastructure		3	7	2020
HA	Fire Alarm & Smoke Detection	36	Fire Alarm & Smoke Detection	Cost includes addition/extension of system, based on recent SaxeMS Bids at approx. \$1.98/sqft, including conduit and wire.	\$143,550	\$ 202,760	\$233,894	GPS	Infrastructure		2	5	2020
HA	Emergency/Exit Lighting	38	Emergency/Exit Lighting	Cost taken from RS Means Costworks 2017 Square Footage Model for School in CT at \$605.00 each.	\$37,009	\$ 52,274	\$60,301	GPS	Infrastructure		2	5	2020
HA	Emergency/Standby Power	39	Emergency/Standby Power	Cost from Costworks 2017 D5090210 for new 750kW diesel, includes transfer switch. Includes 600 lf of 4" PVC conduit and 2500 ft of 600MCM XHHW at \$47088.	\$228,588	\$ 322,873	\$372,451	GPS	Infrastructure		2	5	2020
HA	Lead Free Valves (Bldg)	40	Water Distribution	Install new lead free valves	\$10,500	\$ 14,831	\$17,108	GPS	Infrastructure		2	2	2020
HA	Lead Free Valves (Fixtures)	40	Water Distribution	Lead Free Valves (Fixtures)	\$28,000	\$ 39,549	\$45,622	GPS	Infrastructure		2	2	2020
HA	Sump Pumps	41	Plumbing Drainage	Sump Pump Demo	\$0	\$ -	\$0	GPS	Infrastructure		3	2	2020
HA	Hot Water Heaters	42	Hot Water Heaters	Hot Water Heater Demo	\$300	\$ 424	\$489	GPS	Infrastructure		2	2	2020
HA	Circulating Pump	42	Hot Water Heaters	Circulating Pump Demo	\$500	\$ 706	\$815	GPS	Infrastructure		2	2	2020
HA	Hot Water Heaters	42	Hot Water Heaters	New Hot Water Heaters	\$18,000	\$ 25,424	\$29,328	GPS	Infrastructure		2	2	2020
HA	Circulating Pump	42	Hot Water Heaters	New Circulating Pump	\$3,000	\$ 4,237	\$4,888	GPS	Infrastructure		2	2	2020
HA	Plumbing Fixtures	43	Plumbing Fixtures	Plumbing Fixture Demolition	\$46,200	\$ 65,256	\$75,276	GPS	Infrastructure		2	2	2020
HA	Toilets	43	Plumbing Fixtures	New Toilets	\$206,500	\$ 291,675	\$336,462	GPS	Infrastructure		2	2	2020
HA	Urinals	43	Plumbing Fixtures	New Urinals	\$22,000	\$ 31,074	\$35,846	GPS	Infrastructure		2	2	2020
HA	Lavatories	43	Plumbing Fixtures	New Lavatories	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure		2	2	2020
HA	Sinks	43	Plumbing Fixtures	Sinks	\$52,500	\$ 74,155	\$85,541	GPS	Infrastructure		2	2	2020
HA	Drinking Fountains	43	Plumbing Fixtures	New Drinking Fountains	\$25,200	\$ 35,594	\$41,060	GPS	Infrastructure		3	2	2020
HA	Rooftop Exhaust Fans	46	Ventilation Systems	New Rooftop Exhaust Fans	\$70,000	\$ 98,873	\$114,055	GPS	Infrastructure		4	7	2020
HA	HVAC Controls	48	HVAC Controls	HVAC Controls	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure	Energy	2	5	2020
HA	Classrooms	49	Program Enhancements	Update Classroom Furniture - Half Classrooms	\$480,000	\$ 677,985	\$782,091	GPS	Infrastructure		4	7	2020
ISD	front of school	5	Site Electrical	add bollards for walkway	\$75,000	\$ 105,935	\$122,202	GPS	Site		3	4	2020
ISD	front of school	5	Site Electrical	add three lights at parking area	\$30,000	\$ 42,374	\$48,881	GPS	Site		3	4	2020
ISD	Site Electrical	5	Site Electrical	Cost includes excavation, backfill and compaction. Includes feeders and conduit for new 1200 amp service, taken from Costworks 2017 D5010130 underground electric service. Includes \$10,000 temp generator.	\$100,250	\$ 141,600	\$163,343	GPS	Infrastructure		3	5	2020
ISD	courtyard	6	Site Stormwater	add drainage to courtyard patio and tie to roof drain system	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	3	2020
ISD	back of school	6	Site Stormwater	add drainage near play area and ballfields, tie into parking system if possible	\$50,000	\$ 70,623	\$81,468	Parks	Site		3	4	2020
ISD	back of school	7	Pavement, Parking Lots & Curbs	replace asphalt ball court in kind	\$35,000	\$ 49,436	\$57,027	Public W	Site		4	4	2020
ISD	back of school	7	Pavement, Parking Lots & Curbs	replace full depth asphalt (15 yr)	\$412,000	\$ 581,937	\$671,295	Public W	Site		4	7	2020
ISD	general site	7	Pavement, Parking Lots & Curbs	replace concrete curbs with granite curbs (10 yr)	\$885,500	\$ 1,250,740	\$1,442,796	Public W	Site		4	7	2020
ISD	front of school	8	Sidewalks & Hardscape	replace 5" thick concrete walks (10 yr)	\$86,861	\$ 122,689	\$141,528	Parks	Site		4	7	2020
ISD	general site	8	Sidewalks & Hardscape	replace asphalt path with 5" thick concrete walks (15 yr)	\$137,000	\$ 193,508	\$223,222	Parks	Site		4	7	2020
ISD	front of school	9	Site Amenities	replace school billboard/sign	\$50,000	\$ 70,623	\$81,468	Parks	Site		3	4	2020
ISD	side of school	9	Site Amenities	add outdoor classroom area/incorporate seating into the hillside and create a ramp for access to the play area	\$100,000	\$ 141,247	\$162,936	GPS	Program		3	4	2020
ISD	new play area	10	Playgrounds & Equipment	new play area with poured in place surfacing	\$100,000	\$ 141,247	\$162,936	GPS	Site		3	4	2020
ISD	rear of building	10	Playgrounds & Equipment	replace one of the elevated play sets with an inclusive ramped set	\$200,000	\$ 282,494	\$325,871	GPS	Site		3	4	2020
ISD	rear of building	10	Playgrounds & Equipment	replacement of basketball hoops and other equipment	\$25,000	\$ 35,312	\$40,734	Parks	Site		4	7	2020
ISD	courtyard	11	Landscaping & Plantings	replace deteriorating plants	\$10,000	\$ 14,125	\$16,294	Parks	Site		1	3	2020
ISD	general site	11	Landscaping & Plantings	resod areas along sidewalk ruined by snow plow	\$8,000	\$ 11,300	\$13,035	Parks	Site		1	4	2020
ISD	general site	11	Landscaping & Plantings	prune trees	\$7,500	\$ 10,594	\$12,220	Parks	Site		1	4	2020
ISD	general field	12	Fields & Field Structures	replace batting cage on softball field	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	4	2020
ISD	playground fencing	13	Fences	provide new 4' chain link security fence at playground w/ 2 gates	\$45,000	\$ 63,561	\$73,321	Parks	Site		3	3	2020
ISD	back of school	13	Fences	replace chainlink fence	\$141,000	\$ 199,158	\$229,739	Parks	Site		3	3	2020
ISD	Exterior Kitchen wall	17	Exterior Walls & Columns	replace rusted Exterior metal wall panels	\$22,400	\$ 31,639	\$36,498	Parks	Site		3	3	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
ISD	Roof	19	Roof/Skylights	Roof Replacement (CIP) \$750,000 Deleted	\$0	\$ -	\$0	GPS	Infrastructure		3	3	2027
ISD	Roof	19	Roof/Skylights	Upcoming Roof Replacement	\$0	\$ -	\$0	GPS	Infrastructure		3	7	2020
ISD	Exterior Building	21	Exterior Doors	Replace Main Entry Doors	\$38,400	\$ 54,239	\$62,567	GPS	Infrastructure		3	7	2020
ISD	Toilet Rooms	26	Interior Walls & Renovation	Toilet Room Renovations (CIP)	\$185,000	\$ 256,183	\$288,451	GPS	Infrastructure		3	7	2019
ISD	General Building	26	Interior Walls & Renovation	Architectural work related to HVAC Improvements	\$400,000	\$ 564,987	\$651,743	GPS	Infrastructure		3	8	2020
ISD	General Building	26	Interior Walls & Renovation	Interior Renovations	\$300,000	\$ 423,740	\$488,807	GPS	Infrastructure		3	7	2020
ISD	Ramp	27	Flooring	Install new non slip flooring	\$4,000	\$ 5,650	\$6,517	GPS	Infrastructure		1	4	2020
ISD	Bathroom	27	Flooring	Install new ceramic floor and wall tile	\$13,800	\$ 19,492	\$22,485	GPS	Infrastructure		3	4	2020
ISD	Classrooms	27	Flooring	Remove install new VCT	\$17,000	\$ 24,012	\$27,699	GPS	Infrastructure		3	4	2020
ISD	Cafeteria	27	Flooring	Remove wood floor install new ceramic floor tile	\$47,600	\$ 67,233	\$77,557	GPS	Infrastructure		3	4	2020
ISD	Library computer rooms	27	Flooring	Replace Carpet with new	\$24,500	\$ 34,605	\$39,919	GPS	Infrastructure		3	4	2020
ISD	Entry Lobby	27	Flooring	Install new non skid flooring	\$3,240	\$ 4,576	\$5,279	GPS	Infrastructure		3	4	2020
ISD	Classrooms	29	Casework, Lockers & Furnishings	Replace existing Casework	\$201,600	\$ 284,754	\$328,478	GPS	Infrastructure		3	4	2020
ISD	Classrooms and others	30	Interior Doors & Windows	Replace Interior Doors	\$70,400	\$ 121,214	\$178,136	GPS	Infrastructure		3	7	2030
ISD	Classrooms	34	Lighting Fixtures	Upgrade classroom lighting fixtures (CIP)	\$450,000	\$ 635,611	\$733,211	GPS	Infrastructure	Energy	2	2	2020
ISD	Lighting Fixtures	34	Lighting Fixtures	Replace existing fixtures with LED. Cost based on Westlake CM 2017 cost to remove and replace w/LED is \$7.2/sqft including removals. ENTIRE COST INCLUDED IN CIP UPGRADES	\$0	\$ -	\$0	GPS	Infrastructure	Energy	2	2	2020
ISD	Lighting Controls	34	Lighting Fixtures	Lighting Controls. Cost based on RS Means Costworks Assembly Costs 2017 - D5020 295 1000, \$1.43/sqft for Lighting On/Off Control System including occupancy and time switching, and conduit and wire. (All references to Costworks are based on Stamford, CT zip code and union pricing)	\$93,175	\$ 131,607	\$151,816	GPS	Infrastructure	Energy	2	2	2020
ISD	PA/Comm/Security Systems	35	PA/Comm/Security Systems	Cost based on a 50 speaker PA system w/2 amplifiers and master clock system for 50 room elementary school from Costworks 2017 Elementary School square foot models.	\$81,447	\$ 115,041	\$132,706	GPS	Infrastructure		3	7	2020
ISD	Fire Alarm & Smoke Detection	36	Fire Alarm & Smoke Detection	Cost includes replacement of existing fire alarm system, based on recent SaxeMS Bids at approx. \$1.98/sqft, including conduit and wire.	\$103,209	\$ 145,780	\$168,165	GPS	Infrastructure		2	5	2020
ISD	Expansion of Sprinkler System to Gym	37	Fire Suppression Systems	Expansion of Sprinkler System to Gym	\$41,600	\$ 58,759	\$67,781	GPS	Infrastructure		2	5	2020
ISD	Separation of Sprinkler from Domestic	37	Fire Suppression Systems	Separation of Sprinkler from Domestic	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure		2	5	2020
ISD	Emergency/Exit Lighting	38	Emergency/Exit Lighting	Cost taken from RS Means Costworks 2017 Square Footage Model for School in CT at \$605.00 each.	\$35,478	\$ 50,112	\$57,807	GPS	Infrastructure		2	2	2020
ISD	Emergency/Standby Power	39	Emergency/Standby Power	Cost from Costworks 2017 D5090210 for 250kW diesel, includes transfer switch. Includes pad at \$9000. Includes 600 lf of 4" PVC conduit and 2500 ft of 600MCM XHHW at \$47088.	\$138,901	\$ 196,192	\$226,319	GPS	Infrastructure		2	5	2020
ISD	Lead Free Valves (Bldg)	40	Water Distribution	CCSD - NASCO	\$5,250	\$ 7,415	\$8,554	GPS	Infrastructure		2	5	2020
ISD	Hot Water Heaters	42	Hot Water Heaters	Costworks	\$36,000	\$ 50,849	\$58,657	GPS	Infrastructure		2	5	2020
ISD	Circulating Pump	42	Hot Water Heaters	Costworks	\$3,000	\$ 4,237	\$4,888	GPS	Infrastructure		2	5	2020
ISD	Hot Water Heaters	42	Hot Water Heaters	Demo Hot Water Heaters	\$600	\$ 847	\$978	GPS	Infrastructure		3	7	2020
ISD	Circulating Pump	42	Hot Water Heaters	Demo Circulating Pump	\$500	\$ 706	\$815	GPS	Infrastructure		3	7	2020
ISD	Plumbing Fixtures	43	Plumbing Fixtures	CCSD - SCC Estimate	\$9,900	\$ 13,983	\$16,131	GPS	Infrastructure		2	5	2020
ISD	Lead Free Valves (Fixtures)	43	Plumbing Fixtures	CCSD - NASCO	\$5,750	\$ 8,122	\$9,369	GPS	Infrastructure		2	5	2020
ISD	Toilets	43	Plumbing Fixtures	Replace Toilets	\$59,500	\$ 84,042	\$96,947	GPS	Infrastructure		2	5	2020
ISD	Urinals	43	Plumbing Fixtures	Replace Urinals	\$6,000	\$ 8,475	\$9,776	GPS	Infrastructure		2	5	2020
ISD	Lavatories / Sinks	43	Plumbing Fixtures	Replace Lavatories / Sinks	\$22,750	\$ 32,134	\$37,068	GPS	Infrastructure		2	5	2020
ISD	Boilers	45	Heating Systems	Demo Boilers	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure	Energy	2	7	2020
ISD	HW Heating Pumps	45	Heating Systems	Demo HW Heating Pumps	\$1,300	\$ 1,836	\$2,118	GPS	Infrastructure	Energy	2	7	2020
ISD	Boilers	45	Heating Systems	Costworks (1,000 MBH Gas Boiler - Condensing)	\$130,000	\$ 183,621	\$211,816	GPS	Infrastructure	Energy	4	7	2020
ISD	HW Heating Pumps	45	Heating Systems	Costworks (5 HP Basemounted)	\$20,000	\$ 28,249	\$32,587	GPS	Infrastructure	Energy	4	7	2020
ISD	Kitchen Make-Up Air Unit	46	Ventilation Systems	Demo Kitchen Make-Up Air Unit	\$1,000	\$ 1,412	\$1,629	GPS	Infrastructure		2	8	2020
ISD	Kitchen Make-Up Air Unit	46	Ventilation Systems	New Kitchen Make-Up Air Unit	\$18,000	\$ 25,424	\$29,328	GPS	Infrastructure		2	8	2020
ISD	Rooftop Exhaust Fans	46	Ventilation Systems	New Rooftop Exhaust Fans	\$42,000	\$ 59,324	\$68,433	GPS	Infrastructure		3	8	2020
ISD	Cooling Tower	47	Air Conditioning Systems	Demo Cooling Tower	\$12,000	\$ 16,950	\$19,552	GPS	Infrastructure		4	2	2020
ISD	Chiller	47	Air Conditioning Systems	Demo Chiller	\$12,000	\$ 16,950	\$19,552	GPS	Infrastructure		4	8	2020
ISD	Condenser Water Pumps	47	Air Conditioning Systems	Demo Condenser Water Pumps	\$1,300	\$ 1,836	\$2,118	GPS	Infrastructure		4	8	2020
ISD	Chilled Water Pumps	47	Air Conditioning Systems	Demo Chilled Water Pumps	\$1,300	\$ 1,836	\$2,118	GPS	Infrastructure		4	8	2020
ISD	Cooling Tower	47	Air Conditioning Systems	New Cooling Tower - \$3,000 / Ton (130 Tons)	\$390,000	\$ 550,862	\$635,449	GPS	Infrastructure		4	8	2020
ISD	Chiller	47	Air Conditioning Systems	New Chiller - \$4,000 / Ton (130 Tons)	\$520,000	\$ 734,483	\$847,266	GPS	Infrastructure		4	8	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
ISD	Condenser Water Pumps	47	Air Conditioning Systems	New Condenser Water Pumps	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure		4	8	2020
ISD	Chilled Water Pumps	47	Air Conditioning Systems	New Chilled Water Pumps	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure		4	8	2020
ISD	Electrical Room M-25	47	Air Conditioning Systems	AC for Electrical Room M-25	\$25,000	\$ 35,312	\$40,734	GPS	Infrastructure		3	8	2020
ISD	Corridors	47	Air Conditioning Systems	Replacement HVAC system @ \$25 / SF	\$230,000	\$ 324,868	\$374,752	GPS	Infrastructure		2	8	2020
ISD	Gymnasium	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$208,000	\$ 293,793	\$338,906	GPS	Infrastructure		2	8	2020
ISD	Auditorium	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$240,000	\$ 338,992	\$391,046	GPS	Infrastructure		2	8	2020
ISD	Kitchen	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$40,000	\$ 56,499	\$65,174	GPS	Infrastructure		2	8	2020
ISD	Old Pneumatics	48	HVAC Controls	Old Pneumatics	\$52,126	\$ 73,626	\$84,932	GPS	Infrastructure	Energy	3	5	2020
ISD	HVAC Controls	48	HVAC Controls	HVAC Controls	\$130,315	\$ 184,066	\$212,330	GPS	Infrastructure	Energy	3	5	2020
ISD	Learning Commons	49	Program Enhancements	Learning Commons Renovation	\$660,000	\$ 913,950	\$1,029,068	GPS	Program		4	2	2019
ISD	Addition/Alteration Project	49	Program Enhancements	Addition/Alteration Project	\$20,800,000	\$ 29,379,331	\$33,890,625	GPS	Infrastructure		4	7	2020
JC	Site Electrical	5	Site Electrical	Cost includes excavation, backfill and compaction. Includes feeders and conduit for new 1600 amp service , taken from Costworks 2017 D5010130 underground electric service. Included temp generator at \$10,000.	\$94,600	\$ 133,619	\$154,137	GPS	Infrastructure		3	5	2020
JC	Site Electrical	5	Site Electrical	upgrade exterior lighting (per capital budget 2022-23)	\$75,000	\$ 105,935	\$122,202	GPS	Site		3	5	2020
JC	side of school	6	Site Stormwater	add drainage (2cb) to grassed play area/regrade to optimize drainage	\$80,000	\$ 112,997	\$130,349	Parks	Site		3	3	2020
JC	back of school	6	Site Stormwater	replace asphalt swale with concrete swale	\$15,000	\$ 21,187	\$24,440	Parks	Site		3	4	2020
JC	general site	7	Pavement, Parking Lots & Curbs	replace full depth asphalt (5 yr)	\$35,000	\$ 49,436	\$57,027	Public W	Site		4	4	2020
JC	general site	7	Pavement, Parking Lots & Curbs	replace full depth asphalt (10 yr)	\$61,000	\$ 86,161	\$99,391	Public W	Site		4	4	2020
JC	general site	7	Pavement, Parking Lots & Curbs	replace concrete curbs with granite curbs	\$1,225,000	\$ 1,730,273	\$1,995,962	Public W	Site		4	4	2020
JC	side of school	7	Pavement, Parking Lots & Curbs	replace asphalt ball court in kind	\$61,000	\$ 86,161	\$99,391	Public W	Site		4	4	2020
JC	general site	7	Pavement, Parking Lots & Curbs	replace full depth asphalt (15 yr)	\$900,300	\$ 1,271,645	\$1,466,910	Public W	Site		4	7	2020
JC	side of school	8	Sidewalks & Hardscape	replace asphalt path with 5" thick concrete walks	\$87,500	\$ 123,591	\$142,569	Parks	Site		4	4	2020
JC	side of school	8	Sidewalks & Hardscape	replace brick terraces with pavers	\$85,000	\$ 120,060	\$138,495	Parks	Site		3	4	2020
JC	general site	8	Sidewalks & Hardscape	replace 5" concrete sidewalks (10 yr)	\$126,788	\$ 179,083	\$206,582	Parks	Site		4	7	2020
JC	general site	8	Sidewalks & Hardscape	Repair masonry at steps and patio areas (Facilities)	\$300,000	\$ 423,740	\$488,807	Parks	Site		4	7	2020
JC	front of school	9	Site Amenities	replace school billboard/sign	\$50,000	\$ 70,623	\$81,468	Parks	Site		3	4	2020
JC	new play area	10	Playgrounds & Equipment	new play area with poured in place surfacing	\$100,000	\$ 141,247	\$162,936	GPS	Site		3	4	2020
JC	rear of building	10	Playgrounds & Equipment	replace one of the elevated play sets with an inclusive ramped set	\$200,000	\$ 282,494	\$325,871	GPS	Site		3	4	2020
JC	rear of building	10	Playgrounds & Equipment	replacement of basketball hoops and other equipment	\$25,000	\$ 35,312	\$40,734	Parks	Site		4	7	2020
JC	general field	12	Fields & Field Structures	replace batting cage on softball field	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	4	2020
JC	playground fencing	13	Fences	provide new 4' chain link security fence at playground w/ 2 gates	\$45,000	\$ 63,561	\$73,321	Parks	Site		3	3	2020
JC	back of school	13	Fences	replace chainlink fence (per capital budget 2017-18)	\$35,000	\$ 49,436	\$57,027	Parks	Site		3	3	2020
JC	front of school	13	Fences	replace split rail system	\$30,000	\$ 42,374	\$48,881	Parks	Site		4	4	2020
JC	side of school	13	Fences	replace/repair white panel fencing	\$45,000	\$ 63,561	\$73,321	Parks	Site		4	4	2020
JC	ballfields	13	Fences	replace/repair chain link fence	\$45,000	\$ 63,561	\$73,321	Parks	Site		4	4	2020
JC	Gymnasium	16	Floor & Roof Structures	Replace Gymnasium wood floor	\$79,000	\$ 111,585	\$128,719	Parks	Site		4	4	2020
JC	Exterior walls	17	Exterior Walls & Columns	Exterior Brick pointing	\$8,000	\$ 11,300	\$13,035	GPS	Infrastructure		1	4	2020
JC	Exterior walls	17	Exterior Walls & Columns	Exterior Building Painting (Facilities)	\$60,000	\$ 84,748	\$97,761	GPS	Infrastructure		1	4	2020
JC	Bldg Exterior	17	Exterior Walls & Columns	add outdoor classroom area with a covered area and seating	\$133,000	\$ 187,858	\$216,704	GPS	Program		3	4	2020
JC	Roof	19	Roof/Skylights	Roof Replacement (in progress - delete upon completion)	\$1,491,000	\$ 2,105,990	\$2,429,371	GPS	Infrastructure		3	3	2020
JC	Roof	19	Roof/Skylights	Roof Replacement - Milbank School	\$62,000	\$ 89,324	\$105,566	GPS	Infrastructure		3	3	2021
JC	Roof	19	Roof/Skylights	Upcoming Roof Replacement	\$325,000	\$ 459,052	\$529,541	GPS	Infrastructure		3	7	2020
JC	Exterior	21	Exterior Doors	Replace exterior doors (CIP)	\$36,000	\$ 48,874	\$53,714	GPS	Infrastructure		3	3	2018
JC	Exterior	21	Exterior Doors	Replace exterior doors - LESS CIP Work	\$55,200	\$ 77,968	\$89,941	GPS	Infrastructure		3	3	2020
JC	Exterior	22	Exterior Stairs & Ramps	replace granite steps (Facilities)	\$44,000	\$ 62,149	\$71,692	GPS	Infrastructure		3	3	2020
JC	Exterior	24	Windows	Replace Windows with new	\$1,220,500	\$ 1,723,917	\$1,988,630	GPS	Infrastructure		3	7	2020
JC	General Building	26	Interior Walls & Renovation	Replace blinds/shades (CIP)	\$15,000	\$ 20,364	\$22,381	GPS	Infrastructure		2	8	2018
JC	General Building	26	Interior Walls & Renovation	construction of new electrical equipment room (required for AC)	\$100,000	\$ 141,247	\$162,936	GPS	Infrastructure		2	8	2020
JC	General Building	26	Interior Walls & Renovation	Convert Attic Space to Conference Room (Facilities)	\$45,000	\$ 63,561	\$73,321	GPS	Infrastructure		2	2	2020
JC	General Building	26	Interior Walls & Renovation	Architectural work related to HVAC Improvements	\$350,000	\$ 494,364	\$570,275	GPS	Infrastructure		2	8	2020
JC	Ceilings	28	Ceilings	Remove install new ACT	\$76,120	\$ 107,517	\$124,027	GPS	Infrastructure		3	4	2020
JC	Classrooms	49	Program Enhancements	Update Classroom Furniture	\$800,000	\$ 1,129,974	\$1,303,486	GPS	Program		3	9	2020
JC	Learning Commons	49	Program Enhancements	Learning Commons Furniture Allowance	\$150,000	\$ 207,716	\$233,879	GPS	Program		3	9	2019
JC	Casework	29	Casework, Lockers & Furnishings	Replace Casework in Classrooms	\$228,000	\$ 322,043	\$371,493	GPS	Infrastructure		3	4	2020
JC	Interior Doors and windows	30	Interior Doors & Windows	Replace Interior doors	\$110,000	\$ 155,371	\$179,229	GPS	Infrastructure		3	4	2020
JC	SW Entrance	32	Elevators, Lifts & ADA Access	ADA Ramp	\$30,000	\$ 42,374	\$48,881	GPS	Accessibility		1	6	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
JC	All Floors	32	Elevators, Lifts & ADA Access	Install New Elevator	\$225,000	\$ 317,805	\$366,605	GPS	Accessibility		1	6	2020
JC	All Floors	32	Elevators, Lifts & ADA Access	Elevator Vestibule Addition/Renovation	\$270,000	\$ 381,366	\$439,926	GPS	Accessibility		1	6	2020
JC	First Floor	32	Elevators, Lifts & ADA Access	ADA Toilet Room Renovations	\$105,000	\$ 148,309	\$171,082	GPS	Accessibility		1	6	2020
JC	Second Floor	32	Elevators, Lifts & ADA Access	ADA Toilet Room Renovations	\$60,000	\$ 84,748	\$97,761	GPS	Accessibility		1	6	2020
JC	Third Floor	32	Elevators, Lifts & ADA Access	ADA Toilet Room Renovations	\$60,000	\$ 84,748	\$97,761	GPS	Accessibility		1	6	2020
JC	Interior Electric Distribution	33	Int Electric Distribution	Cost includes replacement and upgrade to 1600A switchgear,includes (1)-800 dist panel for AC. Taken from CostworksAssembly costs 2017-D5010 240 and D5010250 3000. Cost also includes (4) - 225Amp panelboards for a building up to 5 stories, 50 ft horizontal run of conduit and conductors.	\$151,875	\$ 214,519	\$247,459	GPS	Infrastructure		2	5	2020
JC	Lighting Fixtures	34	Lighting Fixtures	Replace existing fixtures with LED. Cost based on Westlake CM 2017 cost to remove and replace w/LED is \$7.2/sqft including removals.	\$354,672	\$ 500,963	\$577,887	GPS	Infrastructure	Energy	2	5	2020
JC	Lighting Controls	34	Lighting Fixtures	New lighting controls. Cost based on RS Means Costworks Assembly Costs 2017 - D5020 295 1000, \$1.43/sqft for Lighting On/Off Control System including occupancy and time switching, and conduit and wire. (All references to Costworks are based on Stamford, CT zip code and union pricing)	\$88,052	\$ 124,371	\$143,469	GPS	Infrastructure	Energy	2	5	2020
JC	PA/Comm Systems	35	PA/Comm/Security Systems	Cost based on a 50 speaker PA system w/2 amplifiers and master clock system for 50 room elementary school from Costworks 2017 Elementary School square foot models.	\$111,619	\$ 157,658	\$181,867	GPS	Infrastructure		3	7	2020
JC	Fire Alarm & Smoke Detection	36	Fire Alarm & Smoke Detection	Cost includes replacement of existing fire alarm devices and addition of strobes in all classrooms, based on recent SaxeMS Bids at approx. \$1.98/sqft, including conduit and wire.	\$141,443	\$ 199,784	\$230,462	GPS	Infrastructure		1	5	2020
JC	Emergency/Exit Lighting	38	Emergency/Exit Lighting	Cost taken from RS Means Costworks 2017 Square Footage Model for Elementary School in CT at \$605 each.	\$48,621	\$ 68,676	\$79,221	GPS	Infrastructure		1	5	2020
JC	Emergency/Standby Power	39	Emergency/Standby Power	Cost includes new 500kW diesel generator, transfer switch, batteries, charger, muffler, and fuel tank. Cost is based on RS Means Costworks Assembly Costs 2017 - D5090 210 Generators (by kW). Assumes replacement in kind with existing buried conduit and wire, and pad to remain.	\$117,250	\$ 165,612	\$191,042	GPS	Infrastructure		2	5	2020
JC	Lead Free Valves (Bldg)	40	Water Distribution	New Lead Free Valves at Building Locations	\$5,250	\$ 7,415	\$8,554	GPS	Infrastructure		2	5	2020
JC	Sump Pumps	41	Plumbing Drainage	Sump Pumps	\$0	\$ -	\$0	GPS	Infrastructure		3	7	2020
JC	Hot Water Heaters	42	Hot Water Heaters	New Hot Water Heaters	\$18,000	\$ 24,437	\$26,857	GPS	Infrastructure		2	2	2018
JC	Circulating Pump	42	Hot Water Heaters	New Circulating Pump	\$3,000	\$ 4,073	\$4,476	GPS	Infrastructure		2	2	2018
JC	Hot Water Heaters	42	Hot Water Heaters	Demo Hot Water Heaters	\$300	\$ 407	\$448	GPS	Infrastructure		2	2	2018
JC	Circulating Pump	42	Hot Water Heaters	Demo Circulating Pump	\$500	\$ 679	\$746	GPS	Infrastructure		2	2	2018
JC	Plumbing Fixtures	43	Plumbing Fixtures	Demo Plumbing Fixtures	\$35,700	\$ 50,425	\$58,168	GPS	Infrastructure		2	5	2020
JC	Lead Free Valves (Fixtures)	43	Plumbing Fixtures	New Lead Free Valves at Plumbing Fixtures	\$22,500	\$ 31,781	\$36,661	GPS	Infrastructure		2	5	2020
JC	Toilets	43	Plumbing Fixtures	New Toilets	\$154,000	\$ 217,520	\$250,921	GPS	Infrastructure		2	5	2020
JC	Urinals	43	Plumbing Fixtures	New Urinals	\$28,000	\$ 39,549	\$45,622	GPS	Infrastructure		2	5	2020
JC	Lavatories	43	Plumbing Fixtures	New Lavatories	\$66,000	\$ 93,223	\$107,538	GPS	Infrastructure		2	5	2020
JC	Showers	43	Plumbing Fixtures	Replace Showers	\$34,000	\$ 48,024	\$55,398	GPS	Infrastructure		2	5	2020
JC	Unit Ventilators/ Fan Coil Units	46	Ventilation Systems	Unit Ventilators/ Fan Coil Units	\$35,000	\$ 49,436	\$57,027	GPS	Infrastructure		2	8	2020
JC	Rooftop Exhaust Fans	46	Ventilation Systems	Costworks	\$70,000	\$ 98,873	\$114,055	GPS	Infrastructure		4	8	2020
JC	Classrooms	47	Air Conditioning Systems	VRF @ \$12k / Ton	\$828,000	\$ 1,169,523	\$1,349,108	GPS	Infrastructure		2	8	2020
JC	Corridors	47	Air Conditioning Systems	Replacement HVAC system @ \$25 / SF; no existing ductwork	\$384,000	\$ 542,388	\$625,673	GPS	Infrastructure		2	8	2020
JC	Gymnasium & Stage	47	Air Conditioning Systems	Replacement HVAC system @ \$25 / SF; no existing ductwork	\$184,000	\$ 259,894	\$299,802	GPS	Infrastructure		2	8	2020
JC	Kitchen	47	Air Conditioning Systems	Replacement HVAC system @ \$25 / SF; no existing ductwork	\$58,000	\$ 81,923	\$94,503	GPS	Infrastructure		2	8	2020
JC	Variable Air Volume Units	47	Air Conditioning Systems	Variable Air Volume Units	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure		2	8	2020
JC	HVAC Controls	48	HVAC Controls	HVAC Controls	\$285,744	\$ 403,604	\$465,579	GPS	Infrastructure	Energy	2	5	2020
JC	Learning Commons	49	Program Enhancements	Learning Commons Renovation	\$680,000	\$ 960,478	\$1,107,963	GPS	Program		4	2	2020
JC	Classrooms	49	Program Enhancements	Pilot Project: 2-3 Classrooms	\$382,500	\$ 540,269	\$623,229	GPS	Program		4	9	2020
JC	Addition/Alteration Project	49	Program Enhancements	Addition/Alteration Project	\$11,500,000	\$ 16,243,380	\$18,737,605	GPS	Infrastructure		4	7	2020
NL	general field	12	Fields & Field Structures	regrade and resod playing field (IN CURRENT PROJECT)	\$0	\$ -	\$0	Parks	Site		3	4	2020
NM	front of school	1	Site Water	Water Service and Distribution (Facilities)	\$100,000	\$ 141,247	\$162,936	Parks	Site		3	2	2020
NM	front of school	5	Site Electrical	add bollards for walkway	\$30,000	\$ 42,374	\$48,881	Parks	Site		3	4	2020
NM	courtyard	6	Site Stormwater	add drainage to courtyard patio and tie to roof drain system	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	3	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
NM	back of school	6	Site Stormwater	add drainage near play area and ballfields, tie into parking system if possible	\$50,000	\$ 70,623	\$81,468	Parks	Site		3	4	2020
NM	front and side of school	7	Pavement, Parking Lots & Curbs	replace full depth asphalt (5 yr)	\$146,000	\$ 206,220	\$237,886	Public W	Site		3	4	2020
NM	general site	7	Pavement, Parking Lots & Curbs	replace concrete curbs with granite curbs	\$1,067,500	\$ 1,507,809	\$1,739,339	Public W	Site		4	4	2020
NM	back of school	7	Pavement, Parking Lots & Curbs	replace full depth asphalt (15 yr)	\$588,000	\$ 830,531	\$958,062	Public W	Site		4	7	2020
NM	back of school	7	Pavement, Parking Lots & Curbs	replace asphalt ball court in kind (10 yr)	\$88,000	\$ 124,297	\$143,383	Public W	Site		4	7	2020
NM	general site	8	Sidewalks & Hardscape	replace asphalt path with 5" thick concrete walks (5 yr)	\$147,500	\$ 208,339	\$240,330	Parks	Site		4	4	2020
NM	adjacent to large parking area	8	Sidewalks & Hardscape	replace asphalt path with 5" thick concrete walks (5 yr)	\$80,000	\$ 112,997	\$130,349	Parks	Site		4	4	2020
NM	front of school	8	Sidewalks & Hardscape	replace 5" thick concrete walks (10 yr)	\$88,200	\$ 124,580	\$143,709	Parks	Site		3	7	2020
NM	rear of building	10	Playgrounds & Equipment	replacement of basketball hoops and other equipment	\$25,000	\$ 35,312	\$40,734	Parks	Site		4	7	2020
NM	courtyard	11	Landscaping & Plantings	replace deteriorating plants	\$10,000	\$ 14,125	\$16,294	Parks	Site		1	3	2020
NM	general site	11	Landscaping & Plantings	resod areas along sidewalk ruined by snow plow	\$8,000	\$ 11,300	\$13,035	Parks	Site		1	4	2020
NM	general site	11	Landscaping & Plantings	prune trees	\$7,500	\$ 10,594	\$12,220	Parks	Site		1	4	2020
NM	general field	12	Fields & Field Structures	replace batting cage on softball field	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	4	2020
NM	back of school	13	Fences	replace chainlink fence	\$60,000	\$ 84,748	\$97,761	Parks	Site		3	3	2020
NM	Exterior Walls	17	Exterior Walls & Columns	Replace install new window lintels	\$45,600	\$ 64,409	\$74,299	GPS	Infrastructure		3	4	2020
NM	Exterior Walls	17	Exterior Walls & Columns	Exterior Brick pointing	\$22,400	\$ 31,639	\$36,498	GPS	Infrastructure		3	4	2020
NM	Exterior Walls	17	Exterior Walls & Columns	Exterior Building Painting (Facilities)	\$60,000	\$ 84,748	\$97,761	GPS	Infrastructure		3	4	2020
NM	Roof Structure	19	Roof/Skylights	Roof Structure Replacement (Facilities)	\$1,000,000	\$ 1,412,468	\$1,629,357	GPS	Infrastructure		3	2	2020
NM	Roof	19	Roof/Skylights	Roof Replacement	\$360,000	\$ 508,488	\$586,569	GPS	Infrastructure		3	3	2020
NM	Roof	19	Roof/Skylights	Roof Replacement - Addition (CIP)	\$500,000	\$ 720,359	\$851,339	GPS	Infrastructure		3	3	2021
NM	Roof	19	Roof/Skylights	Roof Replacement - Gym (CIP)	\$350,000	\$ 504,251	\$595,937	GPS	Infrastructure		3	3	2021
NM	Roof	19	Roof/Skylights	Upcoming Roof Replacement	\$297,500	\$ 420,209	\$484,734	GPS	Infrastructure		3	7	2020
NM	Exterior	21	Exterior Doors	Replace install new doors	\$129,600	\$ 183,056	\$211,165	GPS	Infrastructure		3	4	2020
NM	main entry	22	Exterior Stairs & Ramps	accessible entry (sidewalk,ramps)	\$150,000	\$ 203,643	\$223,808	GPS	Accessibility		1	2	2018
NM	Exterior Building	24	Windows	Replace Windows with new	\$1,261,575	\$ 2,172,168	\$3,192,216	GPS	Infrastructure		1	7	2030
NM	General Building	26	Interior Walls & Renovation	Abatement Allowance (Facilities)	\$200,000	\$ 282,494	\$325,871	GPS	Infrastructure		2	2	2020
NM	General Building	26	Interior Walls & Renovation	Architectural work related to HVAC Improvements	\$600,000	\$ 847,481	\$977,614	GPS	Infrastructure		2	8	2020
NM	General Building	26	Interior Walls & Renovation	Interior Painting (Facilities)	\$5,000	\$ 7,062	\$8,147	GPS	Infrastructure		2	2	2020
NM	Classrooms Corridors	27	Flooring	Replace with new VCT	\$158,886	\$ 224,422	\$258,882	GPS	Infrastructure		2	2	2020
NM	Library	27	Flooring	Replace with new Carpet	\$16,969	\$ 23,968	\$27,648	GPS	Infrastructure		2	2	2020
NM	Corridor	27	Flooring	Replace VCT with non skid flooring on ramp	\$1,680	\$ 2,373	\$2,737	GPS	Infrastructure		2	2	2020
NM	Interior Electric Distribution	33	Int Electric Distribution	Cost includes replacing 1600A switchgear based on Costworks Assembly Costs 2017 D5010 240. Cost also includes addition of (4)-225A panelboards including conduit and wire up to 5 stories and 50' horizontal runs future IT /technology expansion. Costs are taken from RS Means Costworks Assembly Costs 2017 D5010 250.	\$125,813	\$ 177,706	\$204,993	GPS	Infrastructure		2	5	2020
NM	Lighting Fixtures	34	Lighting Fixtures	Replace existing fixtures with LED. Cost based on Westlake CM 2017 cost to remove and replace w/LED is \$7.2/sqft including removals.	\$397,958	\$ 562,103	\$648,416	GPS	Infrastructure	Energy	2	5	2020
NM	Lighting Controls	34	Lighting Fixtures	New Lighting Controls. Cost based on RS Means Costworks Assembly Costs 2017 - D5020 295 1000, \$1.43/sqft for Lighting On/Off Control System including occupancy and time switching, and conduit and wire. (All references to Costworks are based on Stamford, CT zip code and union pricing)	\$105,681	\$ 149,270	\$172,191	GPS	Infrastructure	Energy	2	5	2020
NM	Fire Alarm & Smoke Detection	36	Fire Alarm & Smoke Detection	Cost includes replacement of existing fire alarm devices and addition of strobes in all classrooms, based on recent SaxeMS Bids at approx. \$1.98/sqft, including conduit and wire.	\$117,062	\$ 165,346	\$190,735	GPS	Infrastructure		2	2	2020
NM	Emergency/Exit Lighting	38	Emergency/Exit Lighting	Cost taken from RS Means Costworks 2017 Square Footage Model for Elementary School in CT at \$605 each.	\$40,240	\$ 56,838	\$65,565	GPS	Infrastructure		2	2	2020
NM	Emergency/Standby Power	39	Emergency/Standby Power	Cost includes new 500kW diesel generator, transfer switch, batteries, charger, muffler, and fuel tank. Cost is based on RS Means Costworks Assembly Costs 2017 - D5090 210 Generators (by kW). Includes 600 lf of 4" PVC conduit and 2500 ft of 600MCM XHHW at \$47088.	\$198,463	\$ 280,323	\$323,367	GPS	Infrastructure		2	5	2020
NM	Lead Free Valves (Bldg)	40	Water Distribution	CCSD - NASCO	\$7,875	\$ 11,123	\$12,831	GPS	Infrastructure		2	2	2020
NM	Lead Free Valves (Fixtures)	40	Water Distribution	CCSD - NASCO	\$25,875	\$ 36,548	\$42,160	GPS	Infrastructure		2	2	2020
NM	Lead Free Valves (Bldg)	40	Water Distribution	CCSD - NASCO	\$7,875	\$ 11,123	\$12,831	GPS	Infrastructure		2	2	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
NM	Backflow Preventer	40	Water Distribution		\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure		2	2	2020
NM	Backflow Preventer	41	Plumbing Drainage	Sump Pumps	\$70,000	\$ 98,873	\$114,055	GPS	Infrastructure		2	2	2020
NM	Hot Water Heaters	42	Hot Water Heaters	Costworks	\$300	\$ 424	\$489	GPS	Infrastructure		3	5	2020
NM	Circulating Pump	42	Hot Water Heaters	Costworks	\$500	\$ 706	\$815	GPS	Infrastructure		3	5	2020
NM	Hot Water Heaters	42	Hot Water Heaters		\$18,000	\$ 25,424	\$29,328	GPS	Infrastructure		3	5	2020
NM	Circulating Pump	42	Hot Water Heaters		\$3,000	\$ 4,237	\$4,888	GPS	Infrastructure		3	5	2020
NM	Plumbing Fixtures	43	Plumbing Fixtures	CCSD - SCC Estimate	\$38,400	\$ 54,239	\$62,567	GPS	Infrastructure		2	5	2020
NM	Toilets	43	Plumbing Fixtures	CCSD - SCC Estimate / Means (Averaged)	\$133,000	\$ 187,858	\$216,704	GPS	Infrastructure		2	5	2020
NM	Urinals	43	Plumbing Fixtures	CCSD - SCC Estimate / Means (Averaged)	\$22,000	\$ 31,074	\$35,846	GPS	Infrastructure		2	5	2020
NM	Lavatories	43	Plumbing Fixtures	CCSD - SCC Estimate / Means (Averaged)	\$64,500	\$ 91,104	\$105,094	GPS	Infrastructure		2	5	2020
NM	Sinks	43	Plumbing Fixtures	CCSD - SCC Estimate / Means (Averaged)	\$63,000	\$ 88,985	\$102,649	GPS	Infrastructure		2	5	2020
NM	Demolition of Indoor Fuel Tank	45	Heating Systems	Demolition of Indoor Fuel Tank	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure		1	2	2020
NM	Boilers	45	Heating Systems	Costworks	\$22,500	\$ 31,781	\$36,661	GPS	Infrastructure	Energy	4	7	2020
NM	HW Heating Pumps	45	Heating Systems	Costworks	\$3,250	\$ 4,591	\$5,295	GPS	Infrastructure	Energy	4	7	2020
NM	Boilers	45	Heating Systems	Costworks (2,000 MBH Gas Boiler - Condensing)	\$240,000	\$ 338,992	\$391,046	GPS	Infrastructure	Energy	4	7	2020
NM	HW Heating Pumps	45	Heating Systems	Costworks (7.5 HP Basemounted)	\$80,000	\$ 112,997	\$130,349	GPS	Infrastructure	Energy	4	7	2020
NM	HVAC System	46	Ventilation Systems	Replace/upgrade AC & Ventilation (CIP)	\$250,000	\$ 353,117	\$407,339	GPS	Infrastructure		3	8	2020
NM	Kitchen Exhaust Fan	46	Ventilation Systems	Kitchen Exhaust Fan	\$1,500	\$ 2,119	\$2,444	GPS	Infrastructure		3	8	2020
NM	Kitchen Make-Up Air Unit	46	Ventilation Systems	Costworks	\$18,000	\$ 25,424	\$29,328	GPS	Infrastructure		3	8	2020
NM	Unit Ventilator	46	Ventilation Systems	Costworks (3-Ton Unit)	\$32,400	\$ 45,764	\$52,791	GPS	Infrastructure		3	7	2020
NM	Rooftop Exhaust Fans	46	Ventilation Systems	Costworks	\$35,000	\$ 49,436	\$57,027	GPS	Infrastructure		2	7	2020
NM	Classrooms	47	Air Conditioning Systems	VRF @ \$12k / Ton	\$972,000	\$ 1,372,919	\$1,583,735	GPS	Infrastructure		4	8	2020
NM	Corridors	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$420,000	\$ 593,236	\$684,330	GPS	Infrastructure		4	8	2020
NM	Gymnasium & Stage	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$160,000	\$ 225,995	\$260,697	GPS	Infrastructure		4	7	2020
NM	Cafeteria	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$70,000	\$ 98,873	\$114,055	GPS	Infrastructure		4	7	2020
NM	Kitchen	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure		4	7	2020
NM	Library	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$80,000	\$ 112,997	\$130,349	GPS	Infrastructure		4	7	2020
NM	Computer Lab	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$102,500	\$ 144,778	\$167,009	GPS	Infrastructure		4	7	2020
NM	HVAC Controls	48	HVAC Controls	HVAC Controls - (Includes CIP work)	\$147,805	\$ 208,770	\$240,827	GPS	Infrastructure	Energy	3	2	2020
NM	Learning Commons	49	Program Enhancements	Learning Commons Renovation	\$400,000	\$ 564,987	\$651,743	GPS	Program		4	2	2020
NM	Addition/Alteration Project	49	Program Enhancements	Addition/Alteration Project	\$13,200,000	\$ 18,644,576	\$21,507,512	GPS	Infrastructure		4	7	2020
NS	Demolition of UG Fuel Tank	4	Site Fuel Oil	Demolition of UG Fuel Tank	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure		1	2	2020
NS	general site	5	Site Electrical	add bollards for walkway	\$45,000	\$ 63,561	\$73,321	Parks	Site		3	4	2020
NS	general site	5	Site Electrical	Electrical Service Upgrade (Facilities)	\$200,000	\$ 282,494	\$325,871	GPS	Infrastructure		3	4	2020
NS	general site	6	Site Stormwater	add drainage to courtyard patio and tie to roof drain system	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	3	2020
NS	general site	6	Site Stormwater	add drainage near play area and ballfields, tie into parking system if possible	\$0	\$ -	\$0	Parks	Site		3	4	2020
NS	general site	7	Pavement, Parking Lots & Curbs	replace concrete curbs with granite curbs	\$1,614,200	\$ 2,280,006	\$2,630,108	Public W	Site		4	4	2020
NS	rear	7	Pavement, Parking Lots & Curbs	replace asphalt ball court in kind	\$24,000	\$ 33,899	\$39,105	Public W	Site		4	4	2020
NS	front	7	Pavement, Parking Lots & Curbs	replace full depth asphalt (10 yr)	\$341,000	\$ 481,652	\$555,611	Public W	Site		3	7	2020
NS	front	7	Pavement, Parking Lots & Curbs	replace full depth asphalt (15 yr)	\$413,000	\$ 583,349	\$672,924	Public W	Site		4	7	2020
NS	general site	8	Sidewalks & Hardscape	replace asphalt path with 5" thick concrete walks	\$507,500	\$ 716,827	\$826,899	Parks	Site		4	4	2020
NS	front	8	Sidewalks & Hardscape	replace 5" thick concrete walks (10 yr)	\$50,400	\$ 71,188	\$82,120	Parks	Site		4	7	2020
NS	front of school	9	Site Amenities	replace school billboard/sign	\$50,000	\$ 70,623	\$81,468	Parks	Site		3	4	2020
NS	general site	9	Site Amenities	replace garbage and recycle bins with trash/recycle enclosure	\$4,800	\$ 6,780	\$7,821	Parks	Site		1	4	2020
NS	side and rear	10	Playgrounds & Equipment	replace chip play surface with permanent playsurface in play area closest to back of property	\$108,000	\$ 152,547	\$175,971	Parks	Site		3	3	2020
NS	new play area	10	Playgrounds & Equipment	new play area with poured in place surfacing	\$100,000	\$ 141,247	\$162,936	Parks	Site		3	3	2020
NS	rear of building	10	Playgrounds & Equipment	replace one of the elevated play sets with an inclusive ramped set	\$200,000	\$ 282,494	\$325,871	GPS	Site		3	4	2020
NS	rear of building	10	Playgrounds & Equipment	replacement of basketball hoops and other equipment	\$25,000	\$ 35,312	\$40,734	Parks	Site		4	7	2020
NS	front and rear	11	Landscaping & Plantings	replace deteriorating plants	\$15,000	\$ 21,187	\$24,440	Parks	Site		1	3	2020
NS	side and rear	11	Landscaping & Plantings	remove invasive knot weed from play area and adjacent area	\$108,000	\$ 152,547	\$175,971	Parks	Site		3	3	2020
NS	general site	11	Landscaping & Plantings	resod areas along sidewalk ruined by snow plow	\$8,000	\$ 11,300	\$13,035	Parks	Site		1	4	2020
NS	general site	11	Landscaping & Plantings	prune trees	\$3,750	\$ 5,297	\$6,110	Parks	Site		1	4	2020
NS	general field	12	Fields & Field Structures	replace batting cage on softball field	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	4	2020
NS	ballfields	12	Fields & Field Structures	replace or add drainage on athletic fields/regrade fields	\$150,000	\$ 211,870	\$244,404	Parks	Site		3	4	2020
NS	playground fencing	13	Fences	provide new 4' chain link security fence at playground w/ 2 gates	\$45,000	\$ 63,561	\$73,321	Parks	Site		3	3	2020
NS	rear	13	Fences	replace chainlink fence	\$160,000	\$ 225,995	\$260,697	Parks	Site		3	3	2020
NS	Exterior Walls	17	Exterior Walls & Columns	Repair exterior brick and concrete loading dock	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure		3	4	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
NS	Exterior Walls	17	Exterior Walls & Columns	Roof Access (Facilities)	\$50,000	\$ 70,623	\$81,468	GPS	Infrastructure		3	2	2020
NS	Roof	19	Roof/Skylights	Roof Replacement	\$0	\$ -	\$0	GPS	Infrastructure		3	3	2020
NS	Roof	19	Roof/Skylights	Upcoming Roof Replacement	\$1,557,500	\$ 2,477,466	\$3,304,776	GPS	Infrastructure		3	7	2026
NS	Replace Windows	24	Windows	Replace Windows	\$1,980,125	\$ 3,149,722	\$4,201,522	GPS	Infrastructure		3	7	2026
NS	Loading Dock	15	Foundation	Reair Concrete Loading Dock	\$24,000	\$ 38,176	\$50,924	GPS	Infrastructure		3	7	2026
NS	General Building	26	Interior Walls & Renovation	Replace install new wood paneling front lobby	\$139,320	\$ 196,785	\$227,002	GPS	Infrastructure		3	4	2020
NS	General Building	26	Interior Walls & Renovation	construction of new electrical equipment room (required for AC)	\$150,000	\$ 211,870	\$244,404	GPS	Infrastructure		4	8	2020
NS	General Building	26	Interior Walls & Renovation	Architectural work related to HVAC Improvements	\$450,000	\$ 635,611	\$733,211	GPS	Infrastructure		3	8	2020
NS	General Building	26	Interior Walls & Renovation	Interior Renovations	\$300,000	\$ 423,740	\$488,807	GPS	Infrastructure		3	7	2020
NS	General Building	26	Interior Walls & Renovation	Interior Painting (Facilities)	\$5,000	\$ 7,062	\$8,147	GPS	Infrastructure		3	2	2020
NS	General Building	26	Interior Walls & Renovation	Abatement - Boiler Room (Facilities)	\$75,000	\$ 105,935	\$122,202	GPS	Infrastructure		3	2	2020
NS	Gymnasium	27	Flooring	Replace gymnasium floor (Facilities)	\$86,500	\$ 122,178	\$140,939	GPS	Infrastructure		3	2	2020
NS	Flooring	27	Flooring	Replace install new VCT in cafeteria repair expansion joints	\$24,800	\$ 35,029	\$40,408	GPS	Infrastructure		3	4	2020
NS	Flooring	27	Flooring	Replace Media Center Carpeting (CIP)	\$17,400	\$ 24,577	\$28,351	GPS	Infrastructure		3	4	2020
NS	Classrooms	49	Program Enhancements	Update Classroom Furniture	\$1,200,000	\$ 1,661,727	\$1,871,032	GPS	Program		3	9	2019
NS	Classrooms	29	Casework, Lockers & Furnishings	Update Classroom Casework	\$275,600	\$ 381,643	\$429,714	GPS	Program		3	9	2019
NS	Interior Electric Distribution	33	Int Electric Distribution	Upgrade Electrical Distribution (CIP)	\$450,000	\$ 635,611	\$733,211	GPS	Infrastructure		3	7	2020
NS	Interior Electric Distribution	33	Int Electric Distribution	Cost includes addition of (3)-225A panelboards including conduit and wire up to 5 stories and 50' horizontal runs future IT /technology expansion. Costs are taken from RS Means Costworks Assembly Costs 2017 D5010 250.	\$56,625	\$ 79,981	\$92,262	GPS	Infrastructure		2	5	2020
NS	Lighting Fixtures	34	Lighting Fixtures	Replace existing fixtures with LED. Cost based on Westlake CM 2017 cost to remove and replace w/LED is \$7.2/sqft including removals.	\$418,054	\$ 590,487	\$681,159	GPS	Infrastructure	Energy	2	5	2020
NS	Lighting Controls	34	Lighting Fixtures	Lighting Controls. Cost based on RS Means Costworks Assembly Costs 2017 - D5020 295 1000, \$1.43/sqft for Lighting On/Off Control System including occupancy and time switching, and conduit and wire. (All references to Costworks are based on Stamford, CT zip code and union pricing). Used 85% factor since some areas have automatic control.	\$88,219	\$ 124,607	\$143,741	GPS	Infrastructure	Energy	2	5	2020
NS	PA/Comm Systems	35	PA/Comm/Security Systems	Cost based on a 50 speaker PA system w/2 amplifiers and master clock system for 50 room elementary school from Costworks 2017 Elementary School square foot models.	\$90,723	\$ 128,144	\$147,821	GPS	Infrastructure		3	7	2020
NS	Fire Alarm & Smoke Detection	36	Fire Alarm & Smoke Detection	Cost includes replacement of existing fire alarm system, based on recent SaxeMS Bids at approx. \$1.98/sqft, including conduit and wire.	\$114,965	\$ 162,384	\$187,319	GPS	Infrastructure		2	5	2020
NS	New Fire Protection water service	37	Fire Suppression Systems	New Fire Protection water service	\$25,000	\$ 35,312	\$40,734	GPS	Infrastructure		3	5	2020
NS	Full Building Sprinkler System	37	Fire Suppression Systems	Full Building Sprinkler System	\$464,504	\$ 656,097	\$756,843	GPS	Infrastructure		3	5	2020
NS	New Fire Pump	37	Fire Suppression Systems	New Fire Pump	\$75,000	\$ 105,935	\$122,202	GPS	Infrastructure		3	5	2020
NS	Emergency/Exit Lighting	38	Emergency/Exit Lighting	Cost taken from RS Means Costworks 2017 Square Footage Model for School in CT at \$605.00 each.	\$39,519	\$ 55,819	\$64,391	GPS	Infrastructure		2	2	2020
NS	Emergency/Standby Power (New Generator to Power Entire Facility)	39	Emergency/Standby Power	Cost includes new 500kW diesel generator, transfer switch, batteries, charger, muffler, and fuel tank. Cost is based on RS Means Costworks Assembly Costs 2017 - D5090 210 Generators (by kW). Includes 600 lf of 4" PVC conduit and 2500 ft of 600MCM XHHW at \$47088.	\$198,463	\$ 280,323	\$323,367	GPS	Infrastructure		2	5	2020
NS	Lead Free Valves (Fixtures)	40	Water Distribution	Lead Free Valves (Fixtures)	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure		2	5	2020
NS	Lead Free Valves (Bldg)	40	Water Distribution	Lead Free Valves (Bldg)	\$7,000	\$ 9,887	\$11,405	GPS	Infrastructure		2	5	2020
NS	Backflow Preventer	40	Water Distribution	Backflow Preventer	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure		2	5	2020
NS	Hot Water Heaters	42	Hot Water Heaters	Hot Water Heater Demo	\$300	\$ 407	\$448	GPS	Infrastructure		3	5	2018
NS	Circulating Pump	42	Hot Water Heaters	Circulating Pump Demo	\$500	\$ 679	\$746	GPS	Infrastructure		3	5	2018
NS	Hot Water Heaters	42	Hot Water Heaters	New Hot Water Heater	\$18,000	\$ 24,437	\$26,857	GPS	Infrastructure		2	7	2018
NS	Circulating Pump	42	Hot Water Heaters	New Circulating Pump	\$3,000	\$ 4,073	\$4,476	GPS	Infrastructure		2	7	2018
NS	Plumbing Fixtures	43	Plumbing Fixtures	Plumbing Fixture Demolition	\$18,000	\$ 25,424	\$29,328	GPS	Infrastructure		2	5	2020
NS	Toilets	43	Plumbing Fixtures	New Toilets	\$98,000	\$ 138,422	\$159,677	GPS	Infrastructure		2	5	2020
NS	Urinals	43	Plumbing Fixtures	New Urinals	\$14,000	\$ 19,775	\$22,811	GPS	Infrastructure		2	5	2020
NS	Sinks	43	Plumbing Fixtures	New Sinks	\$43,750	\$ 61,795	\$71,284	GPS	Infrastructure		2	5	2020
NS	Fuel Oil System	45	Heating Systems	Fuel Oil System	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure	Energy	2	5	2020
NS	Boilers	45	Heating Systems	Costworks	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure	Energy	2	7	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
NS	HW Heating Pumps	45	Heating Systems	Costworks	\$3,900	\$ 5,509	\$6,354	GPS	Infrastructure	Energy	2	7	2020
NS	Boilers	45	Heating Systems	New 5,000 MBH Gas Boiler - Condensing	\$200,000	\$ 282,494	\$325,871	GPS	Infrastructure	Energy	2	7	2020
NS	General Building	46	Ventilation Systems	Upgrade Existing HVAC (CIP)	\$300,000	\$ 407,286	\$447,615	GPS	Infrastructure		3	2	2018
NS	General Building	46	Ventilation Systems	Upgrade Existing HVAC (CIP)	\$650,000	\$ 900,102	\$1,013,476	GPS	Infrastructure		3	2	2019
NS	Kitchen Exhaust Fan	46	Ventilation Systems	Kitchen Exhaust Fan Demolition	\$1,500	\$ 2,119	\$2,444	GPS	Infrastructure		3	8	2020
NS	Kitchen Make-Up Air Unit	46	Ventilation Systems	New Kitchen Make-Up Air Unit	\$18,000	\$ 25,424	\$29,328	GPS	Infrastructure		3	8	2020
NS	Unit Ventilator	46	Ventilation Systems	UV Demolition (3-Ton Unit)	\$9,600	\$ 13,560	\$15,642	GPS	Infrastructure		3	8	2020
NS	Gymnasium	46	Ventilation Systems	Gymnasium HVAC Demo	\$8,000	\$ 11,300	\$13,035	GPS	Infrastructure		3	8	2020
NS	Rooftop Exhaust Fans	46	Ventilation Systems	New Rooftop Exhaust Fans	\$35,000	\$ 49,436	\$57,027	GPS	Infrastructure		2	8	2020
NS	Split Systems	47	Air Conditioning Systems	Split System Demolition	\$40,000	\$ 56,499	\$65,174	GPS	Infrastructure		3	8	2020
NS	Classrooms	47	Air Conditioning Systems	New VRF system @ \$12k / Ton	\$720,000	\$ 1,016,977	\$1,173,137	GPS	Infrastructure		3	8	2020
NS	Corridors	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$320,000	\$ 451,990	\$521,394	GPS	Infrastructure		3	8	2020
NS	Auditorium	47	Air Conditioning Systems	Replacement HVAC system @ \$25 / SF	\$100,000	\$ 141,247	\$162,936	GPS	Infrastructure		3	8	2020
NS	Gymnasium	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$160,000	\$ 225,995	\$260,697	GPS	Infrastructure		3	8	2020
NS	Gymnasium Office	47	Air Conditioning Systems	Gym office ventilation (Facilities)	\$50,000	\$ 70,623	\$81,468	GPS	Infrastructure		3	8	2020
NS	Cafeteria	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$60,000	\$ 84,748	\$97,761	GPS	Infrastructure		3	8	2020
NS	Kitchen	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$20,000	\$ 28,249	\$32,587	GPS	Infrastructure		3	8	2020
NS	HVAC Controls	48	HVAC Controls	HVAC Controls	\$145,158	\$ 205,030	\$236,513	GPS	Infrastructure	Energy	3	5	2020
NS	Learning Commons	49	Program Enhancements	Learning Commons Renovation	\$600,000	\$ 814,572	\$895,231	GPS	Program		4	2	2018
NS	Addition/Alteration Project	49	Program Enhancements	Addition/Alteration Project	\$6,000,000	\$ 8,474,807	\$9,776,142	GPS	Infrastructure		4	7	2020
OG	general site	4	Site Fuel Oil	Demolition of underground fuel tank & related sitework	\$30,000	\$ 42,374	\$48,881	GPS	Site		1	2	2020
OG	Demolition of UG Fuel Tank	4	Site Fuel Oil	Doubled pricing from Durst for smaller tank removal (DUR0003.00)	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure		1	2	2020
OG	Site Electrical	5	Site Electrical	Cost includes excavation, backfill and compaction. Includes service feeders and conduit for 2000 Amps upgrade, taken from Costworks 2017 D5010130 underground electric service. Included temp generator at \$10,000.	\$94,600	\$ 133,619	\$154,137	GPS	Infrastructure		3	5	2020
OG	general site	5	Site Electrical	add walkway lighting	\$36,000	\$ 50,849	\$58,657	Parks	Site		3	4	2020
OG	front of school	7	Pavement, Parking Lots & Curbs	renovate sound beach entry plaza for accessibility to main entry	\$150,000	\$ 211,870	\$244,404	Public W	Accessibility		2	6	2020
OG	handicap parking	7	Pavement, Parking Lots & Curbs	replace asphalt/ full depth asphalt	\$30,000	\$ 42,374	\$48,881	Public W	Site		4	4	2020
OG	staff parking	7	Pavement, Parking Lots & Curbs	replace asphalt/ full depth asphalt	\$48,000	\$ 67,798	\$78,209	Public W	Site		3	4	2020
OG	rear of school	7	Pavement, Parking Lots & Curbs	replace asphalt with concrete pads for bike racks	\$10,000	\$ 14,125	\$16,294	Public W	Site		4	4	2020
OG	north main parking	7	Pavement, Parking Lots & Curbs	replace asphalt/full depth	\$270,000	\$ 381,366	\$439,926	Public W	Site		4	4	2020
OG	main entry drive	7	Pavement, Parking Lots & Curbs	replace asphalt /full depth	\$57,200	\$ 80,793	\$93,199	Public W	Site		4	4	2020
OG	rear of building	7	Pavement, Parking Lots & Curbs	replace asphalt play area with new full depth asphalt	\$97,750	\$ 138,069	\$159,270	Public W	Site		3	4	2020
OG	general site	7	Pavement, Parking Lots & Curbs	replace concrete curbs with granite curbs	\$165,000	\$ 233,057	\$268,844	Public W	Site		3	4	2020
OG	north side/ accessible entry	7	Pavement, Parking Lots & Curbs	replace asphalt with concrete walk	\$16,250	\$ 22,953	\$26,477	Public W	Site		3	4	2020
OG	north side	8	Sidewalks & Hardscape	replace existing sidewalk along main entrance drive	\$40,950	\$ 57,841	\$66,722	Parks	Site		3	4	2020
OG	north side	8	Sidewalks & Hardscape	replace handicap curb cuts	\$12,500	\$ 17,656	\$20,367	Parks	Site		2	4	2020
OG	general site	9	Site Amenities	replace garbage cans and bike racks with Greenwich City Standard	\$25,000	\$ 35,312	\$40,734	Parks	Site		1	4	2020
OG	back of school	9	Site Amenities	add outdoor classroom area with a covered area and seating	\$100,000	\$ 141,247	\$162,936	GPS	Program		3	4	2020
OG	general site	9	Site Amenities	replace bollards	\$21,000	\$ 29,662	\$34,216	Parks	Site		3	4	2020
OG	front of school	9	Site Amenities	replace school billboard/sign on sound beach drive	\$50,000	\$ 70,623	\$81,468	Parks	Site		3	4	2020
OG	north side/student drop off	9	Site Amenities	add entry canopy	\$60,000	\$ 84,748	\$97,761	Parks	Site		3	4	2020
OG	new play area	10	Playgrounds & Equipment	new play area with poured in place surfacing	\$100,000	\$ 141,247	\$162,936	GPS	Site		3	4	2020
OG	rear of building	10	Playgrounds & Equipment	replace one of the elevated play sets with an inclusive ramped set	\$200,000	\$ 282,494	\$325,871	GPS	Site		3	4	2020
OG	rear of building	10	Playgrounds & Equipment	replacement of basketball hoops and other equipment	\$25,000	\$ 35,312	\$40,734	Parks	Site		4	7	2020
OG	general site	11	Landscaping & Plantings	tree removal and trimming	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	4	2020
OG	south side of school	11	Landscaping & Plantings	formalize landscape garden	\$25,000	\$ 35,312	\$40,734	Parks	Site		3	4	2020
OG	general field	12	Fields & Field Structures	replace batting cage on softball field	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	4	2020
OG	playground fencing	13	Fences	provide new 4' chain link security fence at playground w/ 2 gates	\$45,000	\$ 63,561	\$73,321	Parks	Site		3	4	2020
OG	general site	13	Fences	replace existing chain link fence with new 6' high	\$97,500	\$ 137,716	\$158,862	Parks	Site		3	4	2020
OG	Bldg Exterior	15	Foundation	Repair Parge Foundation	\$7,000	\$ 9,887	\$11,405	GPS	Infrastructure		3	3	2020
OG	Gymnasium	16	Floor & Roof Structures	Replace gymnasium floor	\$114,750	\$ 162,081	\$186,969	GPS	Infrastructure		3	3	2020
OG	Bldg Exterior	17	Exterior Walls & Columns	Replace Window lintels	\$60,000	\$ 84,748	\$97,761	GPS	Infrastructure		3	3	2020
OG	Bldg Exterior	17	Exterior Walls & Columns	Replace Leaders	\$7,500	\$ 10,594	\$12,220	GPS	Infrastructure		1	3	2020
OG	Bldg Exterior	17	Exterior Walls & Columns	Replace UV Grilles	\$5,000	\$ 7,062	\$8,147	GPS	Infrastructure		3	3	2020
OG	Bldg Exterior	17	Exterior Walls & Columns	Minor repairs to cornice and paint	\$21,000	\$ 29,662	\$34,216	GPS	Infrastructure		3	3	2020
OG	Bldg Exterior	17	Exterior Walls & Columns	Exterior Building Painting (Facilities)	\$50,000	\$ 70,623	\$81,468	GPS	Infrastructure		3	3	2020
OG	Roof	19	Roof/Skylights	New Section Roof (CIP)	\$160,000	\$ 217,219	\$238,728	GPS	Infrastructure		3	2	2018

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
OG	Roof	19	Roof/Skylights	Roof Replacement - LESS \$160000 CIP	\$167,500	\$ 236,588	\$272,917	GPS	Infrastructure		3	3	2020
OG	Roof	19	Roof/Skylights	Roof Replacement - Gym (CIP)	\$400,000	\$ 623,791	\$812,190	GPS	Infrastructure		3	3	2025
OG	Roof	19	Roof/Skylights	Upcoming Roof Replacement	\$210,000	\$ 296,618	\$342,165	GPS	Infrastructure		3	7	2020
OG	Lobby	21	Exterior Doors	Install New Exterior Doors	\$19,200	\$ 27,119	\$31,284	GPS	Infrastructure		3	3	2020
OG	Rear of building	22	Exterior Stairs & Ramps	replace railings on steps and landing	\$24,120	\$ 34,069	\$39,300	GPS	Infrastructure		3	4	2020
OG	Rear of building	22	Exterior Stairs & Ramps	Masonry/concrete repair at rear entry (Facilities)	\$25,000	\$ 35,312	\$40,734	GPS	Infrastructure		3	4	2020
OG	front entry stair	22	Exterior Stairs & Ramps	repair existing concrete stair and install stone treads and risers	\$37,500	\$ 52,968	\$61,101	GPS	Infrastructure		3	4	2020
OG	front entry stair	22	Exterior Stairs & Ramps	masonry cleaning and repointing	\$20,000	\$ 28,249	\$32,587	GPS	Infrastructure		1	4	2020
OG	front entry stair	22	Exterior Stairs & Ramps	replace railing	\$25,200	\$ 35,594	\$41,060	GPS	Infrastructure		3	4	2020
OG	Bidg Exterior	24	Windows	Replace Windows with new	\$1,371,300	\$ 1,936,917	\$2,234,337	GPS	Infrastructure		3	7	2020
OG	area near ball field	22	Exterior Stairs & Ramps	replace asphalt walk with concrete walk (5' wide)	\$16,000	\$ 22,599	\$26,070	GPS	Infrastructure		3	4	2020
OG	north side/student drop off	22	Exterior Stairs & Ramps	replace granite steps with new entry design with handicap ramp and steps	\$50,000	\$ 70,623	\$81,468	GPS	Accessibility		3	6	2020
OG	New Wing Hall	26	Interior Walls & Renovation	Replace Tiling - New Wing Hall (CIP)	\$75,000	\$ 101,822	\$111,904	GPS	Infrastructure		3	8	2018
OG	New Wing Hall	26	Interior Walls & Renovation	Abatement - Boiler Room (Facilities)	\$0	\$ -	\$0	GPS	Infrastructure		3	2	2020
OG	General Building	26	Interior Walls & Renovation	construction of new electrical equipment room (required for AC)	\$150,000	\$ 211,870	\$244,404	GPS	Infrastructure		3	2	2020
OG	Cafeteria/Corridor	26	Interior Walls & Renovation	Repair Damaged Wall Tile	\$2,625	\$ 3,708	\$4,277	GPS	Infrastructure		3	1	2020
OG	General Building	26	Interior Walls & Renovation	Interior Painting (Facilities)	\$5,000	\$ 7,062	\$8,147	GPS	Infrastructure		3	2	2020
OG	PK-K Classrooms	26	Interior Walls & Renovation	Replace lockers in PK-K Classrooms	\$35,000	\$ 49,436	\$57,027	GPS	Infrastructure		3	6	2020
OG	General Building	26	Interior Walls & Renovation	Architectural work related to HVAC Improvements	\$450,000	\$ 635,611	\$733,211	GPS	Infrastructure		3	8	2020
OG	Classrooms	26	Interior Walls & Renovation	Interior wall patching and casework related to UV replacements	\$66,000	\$ 93,223	\$107,538	GPS	Infrastructure		3	5	2020
OG	Classrooms	27	Flooring	Replace VCT Flooring	\$170,000	\$ 240,120	\$276,991	GPS	Infrastructure		3	6	2020
OG	Cafeteria	27	Flooring	Replace VCT Flooring	\$9,860	\$ 13,927	\$16,065	GPS	Infrastructure		3	6	2020
OG	Art room	27	Flooring	Replace VCT Flooring	\$3,995	\$ 5,643	\$6,509	GPS	Infrastructure		3	6	2020
OG	Music Room	27	Flooring	Install New Carpet	\$6,363	\$ 8,987	\$10,367	GPS	Infrastructure		3	6	2020
OG	Media Room	27	Flooring	Install New Carpet	\$21,656	\$ 30,589	\$35,286	GPS	Infrastructure		3	6	2020
OG	General	28	Ceilings	Ceiling repairs and patching at valve replacements	\$12,000	\$ 16,950	\$19,552	GPS	Infrastructure		3	5	2020
OG	Entire Building	28	Ceilings	Replace Ceilings as part of light fixture replacement	\$50,000	\$ 70,623	\$81,468	GPS	Infrastructure		3	5	2020
OG	Classrooms	49	Program Enhancements	Update Classroom Furniture	\$1,040,000	\$ 1,468,967	\$1,694,531	GPS	Program		3	9	2020
OG	Cafeteria	29	Casework, Lockers & Furnishings	Replace Cabinets	\$5,400	\$ 7,627	\$8,799	GPS	Infrastructure		3	6	2020
OG	Classrooms	29	Casework, Lockers & Furnishings	Replace Cabinets	\$100,800	\$ 142,377	\$164,239	GPS	Infrastructure		3	6	2020
OG	ESL/Kindergarden Rooms	32	Elevators, Lifts & ADA Access	Install ADA Lifts	\$70,000	\$ 98,873	\$114,055	GPS	Accessibility		1	6	2020
OG	Gym/Stage	32	Elevators, Lifts & ADA Access	Install ADA Lift	\$35,000	\$ 49,436	\$57,027	GPS	Accessibility		1	6	2020
OG	General	32	Elevators, Lifts & ADA Access	Install New Elevator	\$225,000	\$ 317,805	\$366,605	GPS	Accessibility		1	6	2020
OG	General	32	Elevators, Lifts & ADA Access	Elevator related renovations	\$120,000	\$ 169,496	\$195,523	GPS	Accessibility		1	6	2020
OG	Interior Electric Distribution	33	Int Electric Distribution	Upgrade to 2000A switchgear new distribution & panelboards	\$134,475	\$ 189,942	\$219,108	GPS	Infrastructure		2	5	2020
OG	Lighting Fixtures	34	Lighting Fixtures	Remove and replace all light fixtures with new LED	\$541,346	\$ 764,634	\$882,047	GPS	Infrastructure	Energy	2	5	2020
OG	Lighting Controls	34	Lighting Fixtures	New Lighting Controls. Cost based on RS Means Costworks Assembly Costs 2017 - D5020 295 1000, \$1.43/sqft for Lighting On/Off Control System including occupancy and time switching, and conduit and wire.	\$134,397	\$ 189,831	\$218,980	GPS	Infrastructure	Energy	2	5	2020
OG	PA/Comm Systems	35	PA/Comm/Security Systems	Replace existing PA system and master clock systems	\$120,000	\$ 169,496	\$195,523	GPS	Infrastructure		3	5	2020
OG	Fire Alarm & Smoke Detection	36	Fire Alarm & Smoke Detection	Replace fire alarm system - 100 detectors and wiring included	\$150,000	\$ 211,870	\$244,404	GPS	Infrastructure		2	5	2020
OG	Corridor Each Floor	37	Fire Suppression Systems	Install Fire Extinguishers (three per floor)	\$13,500	\$ 19,068	\$21,996	GPS	Infrastructure		3	2	2020
OG	New Fire Protection water service	37	Fire Suppression Systems	New Fire Protection water service	\$25,000	\$ 35,312	\$40,734	GPS	Infrastructure		3	2	2020
OG	Full Building Sprinkler System	37	Fire Suppression Systems	Full Building Sprinkler System	\$601,496	\$ 849,594	\$980,052	GPS	Infrastructure		3	2	2020
OG	New Fire Pump	37	Fire Suppression Systems	New Fire Pump	\$100,000	\$ 141,247	\$162,936	GPS	Infrastructure		3	2	2020
OG	Emergency/Exit Lighting	38	Emergency/Exit Lighting	Cost taken from RS Means Costworks 2017 Square Footage Model for School in CT at \$605 each.	\$51,174	\$ 72,282	\$83,381	GPS	Infrastructure		2	5	2020
OG	Emergency/Standby Power	39	Emergency/Standby Power	Provide new 750kW diesel generator and tarnsfer switch	\$250,000	\$ 353,117	\$407,339	GPS	Infrastructure		1	5	2020
OG	General Building	40	Water Distribution	Lead free valves at fixtures	\$18,125	\$ 25,601	\$29,532	GPS	Infrastructure		3	2	2020
OG	General Building	40	Water Distribution	Lead free valves at general locations	\$5,250	\$ 7,415	\$8,554	GPS	Infrastructure		3	2	2020
OG	General Building	41	Plumbing Drainage	Sump Pump demo	\$1,100	\$ 1,554	\$1,792	GPS	Infrastructure		3	2	2020
OG	General Building	41	Plumbing Drainage	Installation of new sump pumps	\$6,000	\$ 8,475	\$9,776	GPS	Infrastructure		3	2	2020
OG	General Building	42	Hot Water Heaters	Hot water heater demo	\$600	\$ 847	\$978	GPS	Infrastructure	Energy	2	2	2020
OG	General Building	42	Hot Water Heaters	Circulating pump demo	\$500	\$ 706	\$815	GPS	Infrastructure	Energy	2	2	2020
OG	General Building	42	Hot Water Heaters	Installation of new hot water heaters	\$36,000	\$ 50,849	\$58,657	GPS	Infrastructure	Energy	2	2	2020
OG	General Building	42	Hot Water Heaters	Installation of new circulating pump	\$3,000	\$ 4,237	\$4,888	GPS	Infrastructure	Energy	2	2	2020
OG	Corridor	43	Plumbing Fixtures	Install New Water Fountains	\$17,100	\$ 24,153	\$27,862	GPS	Infrastructure		3	6	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
OG	General Building	43	Plumbing Fixtures	Plumbing Fixture demo	\$31,500	\$ 44,493	\$51,325	GPS	Infrastructure		2	5	2020
OG	General Building	43	Plumbing Fixtures	Installation of new toilets	\$185,500	\$ 262,013	\$302,246	GPS	Infrastructure		2	5	2020
OG	General Building	43	Plumbing Fixtures	Installation of new urinals	\$16,000	\$ 22,599	\$26,070	GPS	Infrastructure		2	5	2020
OG	General Building	43	Plumbing Fixtures	Installation of new lavatories	\$45,000	\$ 63,561	\$73,321	GPS	Infrastructure		2	5	2020
OG	General Building	43	Plumbing Fixtures	Installation of new sinks	\$17,500	\$ 24,718	\$28,514	GPS	Infrastructure		2	5	2020
OG	Gym and Stage	45	Heating Systems	Gym and stage HVAC unit demolition	\$5,000	\$ 7,062	\$8,147	GPS	Infrastructure	Energy	3	2	2020
OG	Fuel Oil System	45	Heating Systems	Fuel Oil System demolition	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure	Energy	3	2	2020
OG	Boilers	45	Heating Systems	Boiler demolition	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure	Energy	2	2	2020
OG	HW Heating Pumps	45	Heating Systems	Heating Pump demolition	\$1,300	\$ 1,836	\$2,118	GPS	Infrastructure	Energy	2	2	2020
OG	Boilers	45	Heating Systems	Installation of new 2,000 MBH Gas Boiler - Condensing	\$150,000	\$ 211,870	\$244,404	GPS	Infrastructure	Energy	2	2	2020
OG	HW Heating Pumps	45	Heating Systems	Installation of new HW Heating Pumps - 7.5 HP Basemounted	\$32,000	\$ 45,199	\$52,139	GPS	Infrastructure	Energy	2	2	2020
OG	Unit Ventilator demo	46	Ventilation Systems	Unit Ventilator demo	\$39,600	\$ 55,934	\$64,523	GPS	Infrastructure		3	8	2020
OG	Kitchen Makeup Air demolition	46	Ventilation Systems	Kitchen Makeup Air demolition	\$1,000	\$ 1,412	\$1,629	GPS	Infrastructure		3	8	2020
OG	Kitchen makeup air unit	46	Ventilation Systems	Kitchen makeup air unit	\$18,000	\$ 25,424	\$29,328	GPS	Infrastructure		3	8	2020
OG	New rooftop exhaust fans	46	Ventilation Systems	New rooftop exhaust fans	\$52,500	\$ 74,155	\$85,541	GPS	Infrastructure		3	8	2020
OG	Kitchen Make-Up Air Unit	46	Ventilation Systems	Kitchen Make-Up Air Unit	\$18,000	\$ 25,424	\$29,328	GPS	Infrastructure		3	8	2020
OG	Rooftop Exhaust Fans	46	Ventilation Systems	Rooftop Exhaust Fans	\$52,500	\$ 74,155	\$85,541	GPS	Infrastructure		4	8	2020
OG	Classrooms	47	Air Conditioning Systems	VRF @ \$12k / Ton	\$1,188,000	\$ 1,678,012	\$1,935,676	GPS	Infrastructure		3	8	2020
OG	Corridors	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$400,000	\$ 564,987	\$651,743	GPS	Infrastructure		3	8	2020
OG	Gymnasium & Stage	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$240,000	\$ 338,992	\$391,046	GPS	Infrastructure		3	8	2020
OG	Cafeteria	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$88,000	\$ 124,297	\$143,383	GPS	Infrastructure		3	8	2020
OG	Kitchen	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$52,000	\$ 73,448	\$84,727	GPS	Infrastructure		3	8	2020
OG	Media / Story Area	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$140,000	\$ 197,745	\$228,110	GPS	Infrastructure		3	8	2020
OG	Media / Computer Lab	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$48,000	\$ 67,798	\$78,209	GPS	Infrastructure		3	8	2020
OG	HVAC Controls	48	HVAC Controls	HVAC Controls	\$187,968	\$ 265,498	\$306,266	GPS	Infrastructure		3	5	2020
OG	Classrooms	49	Program Enhancements	Pilot Project: 3-4 Classrooms	\$510,000	\$ 706,234	\$795,189	GPS	Program		4	9	2019
OG	Addition/Alteration Project	49	Program Enhancements	Addition/Alteration Project	\$10,600,000	\$ 14,972,159	\$17,271,184	GPS	Infrastructure		4	7	2020
PW	Demolition of UG Fuel Tank	4	Site Fuel Oil	Demolition of UG Fuel Tank	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure		1	2	2020
PW	general site	5	Site Electrical	add bollards for walkway	\$120,000	\$ 169,496	\$195,523	Parks	Site		3	4	2020
PW	general site	6	Site Stormwater	add drainage to courtyard patio and tie to roof drain system	\$20,000	\$ 28,249	\$32,587	Parks	Site		3	3	2020
PW	general site	7	Pavement, Parking Lots & Curbs	replace full depth asphalt (5 yr)	\$90,000	\$ 127,122	\$146,642	Public W	Site		3	4	2020
PW	general site	7	Pavement, Parking Lots & Curbs	replace concrete curbs with granite curbs	\$1,155,000	\$ 1,631,400	\$1,881,907	Public W	Site		4	4	2020
PW	rear	7	Pavement, Parking Lots & Curbs	replace asphalt ball court in kind	\$90,000	\$ 127,122	\$146,642	Public W	Site		4	4	2020
PW	general site	7	Pavement, Parking Lots & Curbs	replace full depth asphalt (10 yr)	\$720,000	\$ 1,016,977	\$1,173,137	Public W	Site		3	7	2020
PW	front	8	Sidewalks & Hardscape	replace 5" thick concrete walks (5 yr)	\$133,875	\$ 189,094	\$218,130	Parks	Site		4	4	2020
PW	general site	8	Sidewalks & Hardscape	replace asphalt path with 5" thick concrete walks	\$245,000	\$ 346,055	\$399,192	Parks	Site		4	4	2020
PW	general site	9	Site Amenities	replace garbage and recycle bins with trash/recycle enclosure	\$4,800	\$ 6,780	\$7,821	Parks	Site		1	4	2020
PW	new play area	10	Playgrounds & Equipment	new play area with poured in place surfacing	\$100,000	\$ 141,247	\$162,936	GPS	Site		3	4	2020
PW	rear of building	10	Playgrounds & Equipment	replace one of the elevated play sets with an inclusive ramped set	\$200,000	\$ 282,494	\$325,871	GPS	Site		3	4	2020
PW	front and rear	11	Landscaping & Plantings	replace deteriorating plants	\$15,000	\$ 21,187	\$24,440	Parks	Site		1	3	2020
PW	general site	11	Landscaping & Plantings	resod areas along sidewalk ruined by snow plow	\$8,000	\$ 11,300	\$13,035	Parks	Site		1	4	2020
PW	general site	11	Landscaping & Plantings	prune trees	\$7,500	\$ 10,594	\$12,220	Parks	Site		1	4	2020
PW	ballfields	12	Fields & Field Structures	replace or add drainage on athletic fields/regrade fields	\$150,000	\$ 211,870	\$244,404	Parks	Site		3	4	2020
PW	playground fencing	13	Fences	provide new 4' chain link security fence at playground w/ 2 gates	\$45,000	\$ 63,561	\$73,321	Parks	Site		3	3	2020
PW	rear and side	13	Fences	replace chainlink fence	\$221,000	\$ 312,155	\$360,088	Parks	Site		3	3	2020
PW	Exterior	17	Exterior Walls & Columns	Exterior Building Painting (Facilities)	\$60,000	\$ 84,748	\$97,761	GPS	Infrastructure		3	3	2020
PW	Roof	19	Roof/Skylights	Roof Replacement	\$0	\$ -	\$0	GPS	Infrastructure		3	3	2020
PW	Roof	19	Roof/Skylights	Upcoming Roof Replacement	\$1,370,000	\$ 2,094,594	\$2,661,963	GPS	Infrastructure		3	7	2024
PW	Exterior	21	Exterior Doors	Replace existing doors install new doors	\$48,000	\$ 67,798	\$78,209	GPS	Infrastructure		3	4	2020
PW	Media Room	24	Windows	Replace existing windows with insulated glazing windows	\$213,500	\$ 301,562	\$347,868	GPS	Infrastructure		3	4	2020
PW	General Building	26	Interior Walls & Renovation	Architectural work required by HVAC Infrastructure Work	\$450,000	\$ 635,611	\$733,211	GPS	Infrastructure		3	8	2020
PW	Roof Access	26	Interior Walls & Renovation	Roof Access (Facilities)	\$50,000	\$ 70,623	\$81,468	GPS	Infrastructure		3	2	2020
PW	General Building	26	Interior Walls & Renovation	Interior Renovations	\$300,000	\$ 423,740	\$488,807	GPS	Infrastructure		3	7	2020
PW	Gymnasium	26	Interior Walls & Renovation	Interior Painting (Facilities)	\$5,000	\$ 7,062	\$8,147	GPS	Infrastructure		3	2	2020
PW	Gymnasium	27	Flooring	Refinish wood flooring	\$27,480	\$ 38,815	\$44,775	GPS	Infrastructure		3	7	2020
PW	General Building	27	Flooring	Replace existing VCT	\$112,625	\$ 159,079	\$183,506	GPS	Infrastructure		3	7	2020
PW	Media Room	27	Flooring	Replace existing Carpet	\$21,156	\$ 29,883	\$34,471	GPS	Infrastructure		3	7	2020
PW	Lighting Fixtures	34	Lighting Fixtures	Upgrade classroom lighting fixtures (CIP)	\$250,000	\$ 353,117	\$407,339	GPS	Infrastructure	Energy	2	2	2020
PW	Lighting Fixtures	34	Lighting Fixtures	Upgrade gym lighting (CIP)	\$80,000	\$ 112,997	\$130,349	GPS	Infrastructure	Energy	2	2	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
PW	Lighting Fixtures	34	Lighting Fixtures	Replace existing fixtures with LED. Cost based on Westlake CM 2017 cost to remove and replace w/LED is \$7.2/sqft including removals. LESS \$250,000 Classroom Fixtures and \$80,000 Gymnasium Fixtures per CIP	\$45,120	\$ 63,731	\$73,517	GPS	Infrastructure	Energy	2	2	2020
PW	Lighting Controls	34	Lighting Fixtures	New Lighting Controls. Cost based on RS Means Costworks Assembly Costs 2017 - D5020 295 1000, \$1.43/sqft for Lighting On/Off Control System including occupancy and time switching, and conduit and wire. (All references to Costworks are based on Stamford, CT zip code and union pricing)	\$93,129	\$ 131,541	\$151,740	GPS	Infrastructure	Energy	2	2	2020
PW	PA/Comm Systems	35	PA/Comm/Security Systems	PA/Comm Systems		\$ -	\$0	GPS	Infrastructure		3	5	2020
PW	Fire Alarm & Smoke Detection	36	Fire Alarm & Smoke Detection	Cost includes replacement of existing fire alarm devices and addition of strobes in all classrooms, based on recent SaxeMS Bids at approx. \$1.98/sqft, including conduit and wire.	\$128,948	\$ 182,134	\$210,102	GPS	Infrastructure		2	5	2020
PW	Emergency/Exit Lighting	38	Emergency/Exit Lighting	Cost taken from RS Means Costworks 2017 Square Footage Model for Elementary School in CT at \$605 each.	\$35,461	\$ 50,087	\$57,778	GPS	Infrastructure		2	2	2020
PW	Emergency/Standby Power	39	Emergency/Standby Power	Cost includes replacement of existing 150kW diesel generator, transfer switch, batteries, charger, muffler, and fuel tank. Cost is based on RS Means Costworks Assembly Costs 2017 - D5090 210 Generators (by kW). Assumes replacement in kind with existing buried conduit and wire, and pad to remain.	\$55,125	\$ 77,862	\$89,818	GPS	Infrastructure		2	5	2020
PW	Lead Free Valves (Bldg)	40	Water Distribution	CCSD - NASCO	\$5,250	\$ 7,415	\$8,554	GPS	Infrastructure		2	2	2020
PW	Sump Pumps	41	Plumbing Drainage	Sump Pumps Demo	\$0	\$ -	\$0	GPS	Infrastructure		3	2	2020
PW	Hot Water Heaters	42	Hot Water Heaters	Replace domestic hot water heater (CIP)	\$30,000	\$ 40,729	\$44,762	GPS	Infrastructure	Energy	2	2	2018
PW	Hot Water Heaters	42	Hot Water Heaters	Hot Water Heaters Demo	\$0	\$ -	\$0	GPS	Infrastructure	Energy	2	2	2020
PW	Circulating Pump	42	Hot Water Heaters	Circulating Pump Demo	\$0	\$ -	\$0	GPS	Infrastructure	Energy	2	2	2020
PW	Plumbing Fixtures	43	Plumbing Fixtures	CCSD - SCC Estimate	\$18,000	\$ 25,424	\$29,328	GPS	Infrastructure		2	2	2020
PW	Lead Free Valves (Fixtures)	43	Plumbing Fixtures	CCSD - NASCO	\$10,750	\$ 15,184	\$17,516	GPS	Infrastructure		2	2	2020
PW	Toilets	43	Plumbing Fixtures	CCSD - SCC Estimate / Means (Averaged)	\$94,500	\$ 133,478	\$153,974	GPS	Infrastructure		2	2	2020
PW	Urinals	43	Plumbing Fixtures	CCSD - SCC Estimate / Means (Averaged)	\$14,000	\$ 19,775	\$22,811	GPS	Infrastructure		2	2	2020
PW	Lavatories	43	Plumbing Fixtures	CCSD - SCC Estimate / Means (Averaged)	\$45,500	\$ 64,267	\$74,136	GPS	Infrastructure		2	2	2020
PW	Fuel Oil System	45	Heating Systems	Fuel Oil System	\$60,000	\$ 84,748	\$97,761	GPS	Infrastructure	Energy	3	5	2020
PW	Unit Ventilator	46	Ventilation Systems	Costworks (3-Ton Unit)	\$36,000	\$ 50,849	\$58,657	GPS	Infrastructure		3	8	2020
PW	Gymnasium & Stage	46	Ventilation Systems	Costworks (AHU 17.5 - 30 Ton)	\$5,000	\$ 7,062	\$8,147	GPS	Infrastructure		3	8	2020
PW	Rooftop Exhaust Fans	46	Ventilation Systems	Costworks	\$21,000	\$ 29,662	\$34,216	GPS	Infrastructure		4	8	2020
PW	Classrooms	47	Air Conditioning Systems	Classrooms AC	\$1,080,000	\$ 1,525,465	\$1,759,706	GPS	Infrastructure		4	8	2020
PW	Corridors	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$320,000	\$ 451,990	\$521,394	GPS	Infrastructure		2	8	2020
PW	Gymnasium & Stage	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$40,000	\$ 56,499	\$65,174	GPS	Infrastructure		4	8	2020
PW	HVAC Controls	48	HVAC Controls	New HVAC Controls	\$130,250	\$ 183,974	\$212,224	GPS	Infrastructure		3	5	2020
PW	Renovation Project	49	Program Enhancements	Renovation Project	\$1,300,000	\$ 1,836,208	\$2,118,164	GPS	Infrastructure		4	7	2020
RV	Site Fuel Oil	4	Site Fuel Oil			\$ -	\$0	GPS	Infrastructure		2	4	2020
RV	general site	5	Site Electrical	add bollards for walkway	\$135,000	\$ 190,683	\$219,963	Parks	Site		3	4	2020
RV	general site	6	Site Stormwater	regrade field to improve drainage and tie in to rain garden	\$400,000	\$ 564,987	\$651,743	Parks	Site		3	7	2020
RV	general site	7	Pavement, Parking Lots & Curbs	replace concrete curbs with granite curbs	\$1,172,500	\$ 1,656,119	\$1,910,421	Public W	Site		4	4	2020
RV	rear	7	Pavement, Parking Lots & Curbs	replace asphalt ball court in kind	\$81,300	\$ 114,834	\$132,467	Public W	Site		4	4	2020
RV	general site	7	Pavement, Parking Lots & Curbs	replace full depth asphalt (15 yr)	\$544,000	\$ 768,383	\$886,370	Public W	Site		3	7	2020
RV	front	8	Sidewalks & Hardscape	replace 5" thick concrete walks (5 yr)	\$3,150	\$ 4,449	\$5,132	Parks	Site		3	4	2020
RV	front	8	Sidewalks & Hardscape	replace 5" thick concrete walks (15 yr)	\$141,750	\$ 200,217	\$230,961	Parks	Site		4	7	2020
RV	general site	8	Sidewalks & Hardscape	replace asphalt path with 5" thick concrete walks (15 yr)	\$137,500	\$ 194,214	\$224,037	Parks	Site		4	7	2020
RV	front of school	9	Site Amenities	replace school billboard/sign	\$50,000	\$ 70,623	\$81,468	Parks	Site		3	4	2020
RV	general site	9	Site Amenities	replace garbage and recycle bins with trash/recycle enclosure	\$4,800	\$ 6,780	\$7,821	Parks	Site		1	4	2020
RV	back of school	9	Site Amenities	add outdoor classroom area with a covered area and seating	\$100,000	\$ 141,247	\$162,936	GPS	Program		3	4	2020
RV	rear of building	10	Playgrounds & Equipment	replace one of the elevated play sets with a ramped inclusive set	\$200,000	\$ 282,494	\$325,871	GPS	Site		3	4	2020
RV	new play area	10	Playgrounds & Equipment	new play area with poured in place surfacing	\$100,000	\$ 141,247	\$162,936	Parks	Site		3	4	2020
RV	challenge course	10	Playgrounds & Equipment	improve surfacing material and general maintenance	\$80,000	\$ 112,997	\$130,349	Parks	Site		3	4	2020
RV	rear of building	10	Playgrounds & Equipment	replacement of basketball hoops and other equipment	\$25,000	\$ 35,312	\$40,734	Parks	Site		4	7	2020
RV	front and rear	11	Landscaping & Plantings	replace deteriorating plants	\$15,000	\$ 21,187	\$24,440	Parks	Site		1	3	2020
RV	general site	11	Landscaping & Plantings	resod areas along sidewalk ruined by snow plow	\$8,000	\$ 11,300	\$13,035	Parks	Site		1	4	2020
RV	general site	11	Landscaping & Plantings	prune trees	\$6,250	\$ 8,828	\$10,183	Parks	Site		1	4	2020
RV	ballfields	12	Fields & Field Structures	replace or add drainage on athletic fields/regrade fields	\$150,000	\$ 211,870	\$244,404	Parks	Site		3	4	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
RV	playground fencing	13	Fences	provide new 4' chain link security fence at playground w/ 2 gates	\$45,000	\$ 63,561	\$73,321	Parks	Site		3	3	2020
RV	South side of property	13	Fences	replace chainlink fence at property line	\$80,000	\$ 112,997	\$130,349	Parks	Site		3	3	2020
RV	South side of property	13	Fences	replace chainlink fence at fields per School Safety Standards	\$120,000	\$ 169,496	\$195,523	Parks	Site		3	3	2020
RV	Foundation	15	Foundation	Repair foundation wall/parge	\$4,000	\$ 5,650	\$6,517	GPS	Infrastructure		3	4	2020
RV	Exterior Walls	17	Exterior Walls & Columns	Replace install new window lintels	\$24,800	\$ 35,029	\$40,408	GPS	Infrastructure		3	4	2020
RV	Exterior Walls	17	Exterior Walls & Columns	Roof Access (Facilities)	\$50,000	\$ 70,623	\$81,468	GPS	Infrastructure		3	2	2020
RV	Exterior Walls	17	Exterior Walls & Columns	Replace Exterior Louver at Gymnasium	\$1,200,000	\$ 1,694,961	\$1,955,228	GPS	Infrastructure		3	2	2020
RV	Roof	19	Roof/Skylights	Upcoming Roof Replacement	\$1,432,500	\$ 2,233,953	\$2,908,656	GPS	Infrastructure		3	7	2025
RV	Exterior	21	Exterior Doors	Replace existing doors install new doors	\$96,000	\$ 135,597	\$156,418	GPS	Infrastructure		3	4	2020
RV	Exterior	22	Exterior Stairs & Ramps	Repair/replace exterior granite stair (Facilities)	\$45,000	\$ 63,561	\$73,321	GPS	Infrastructure		3	4	2020
RV	Exterior	22	Exterior Stairs & Ramps	Repair/replace exterior fire escape (Facilities)	\$25,000	\$ 35,312	\$40,734	GPS	Infrastructure		3	4	2020
RV	Exterior Building	24	Windows	Replace existing Windows with new windows	\$912,275	\$ 1,288,559	\$1,486,422	GPS	Infrastructure		3	7	2020
RV	General Building	26	Interior Walls & Renovation	Architectural work required by AC Infrastructure work	\$600,000	\$ 847,481	\$977,614	GPS	Infrastructure		3	8	2020
RV	Stage	26	Interior Walls & Renovation	Replace Stage Curtains (CIP)	\$30,000	\$ 41,543	\$46,776	GPS	Infrastructure		3	7	2019
RV	General Building	26	Interior Walls & Renovation	Architectural work required by Fire Protection System	\$150,000	\$ 211,870	\$244,404	GPS	Infrastructure		3	5	2020
RV	General Building	26	Interior Walls & Renovation	Interior Renovations	\$300,000	\$ 423,740	\$488,807	GPS	Infrastructure		3	7	2020
RV	Flooring	27	Flooring	Replace VCT flooring install new VCT	\$23,248	\$ 32,836	\$37,878	GPS	Infrastructure		3	4	2020
RV	Media Room	27	Flooring	Replace Carpet	\$24,219	\$ 34,208	\$39,461	GPS	Infrastructure		3	4	2020
RV	Classrooms	49	Program Enhancements	Update Classroom Furniture	\$960,000	\$ 1,355,969	\$1,564,183	GPS	Program		3	9	2020
RV	Classrooms	29	Casework, Lockers & Furnishings	Update Classroom Casework	\$267,600	\$ 377,976	\$436,016	GPS	Program		3	9	2020
RV	Gym/Auditorium	32	Elevators, Lifts & ADA Access	Install ADA Lift	\$35,000	\$ 49,436	\$57,027	GPS	Accessibility		1	6	2020
RV	SW Entrance	32	Elevators, Lifts & ADA Access	ADA Ramp	\$30,000	\$ 42,374	\$48,881	GPS	Accessibility		1	6	2020
RV	All Floors	32	Elevators, Lifts & ADA Access	Install New Elevator	\$175,000	\$ 247,182	\$285,137	GPS	Accessibility		1	6	2020
RV	All Floors	32	Elevators, Lifts & ADA Access	Elevator Vestibule Addition/Renovation	\$135,000	\$ 190,683	\$219,963	GPS	Accessibility		1	6	2020
RV	First Floor	32	Elevators, Lifts & ADA Access	ADA Toilet Room Renovations	\$30,000	\$ 42,374	\$48,881	GPS	Accessibility		1	6	2020
RV	Second Floor	32	Elevators, Lifts & ADA Access	ADA Toilet Room Renovations	\$30,000	\$ 42,374	\$48,881	GPS	Accessibility		1	6	2020
RV	Interior Electric Distribution	33	Int Electric Distribution	Cost includes replacing 1600A switchgear based on Costworks Assembly Costs 2017 D5010 240. Cost also includes addition of (4)-225A panelboards including conduit and wire up to 5 stories and 50' horizontal runs future IT /technology expansion. Costs are taken from RS Means Costworks Assembly Costs 2017 D5010 250.	\$125,813	\$ 177,706	\$204,993	GPS	Infrastructure		2	5	2020
RV	Lighting Fixtures	34	Lighting Fixtures	Replace existing fixtures with LED. Cost based on Westlake CM 2017 cost to remove and replace w/LED is \$7.2/sqft including removals.	\$450,720	\$ 636,628	\$734,384	GPS	Infrastructure	Energy	2	5	2020
RV	Lighting Controls	34	Lighting Fixtures	New Lighting Controls. Cost based on RS Means Costworks Assembly Costs 2017 - D5020 295 1000, \$1.43/sqft for Lighting On/Off Control System including occupancy and time switching, and conduit and wire. (All references to Costworks are based on Stamford, CT zip code and union pricing)	\$111,898	\$ 158,052	\$182,321	GPS	Infrastructure	Energy	2	5	2020
RV	PA/Comm Systems	35	PA/Comm/Security Systems	Cost based on a 50 speaker PA system w/2 amplifiers and master clock system for 50 room elementary school from Costworks 2017 Elementary School square foot models.	\$97,813	\$ 138,157	\$159,371	GPS	Infrastructure		3	7	2020
RV	Fire Alarm & Smoke Detection	36	Fire Alarm & Smoke Detection	Cost includes replacement of existing fire alarm system, based on recent SaxeMS Bids at approx. \$1.98/sqft, including conduit and wire.	\$123,948	\$ 175,073	\$201,956	GPS	Infrastructure		2	5	2020
RV	New Fire Protection water service	37	Fire Suppression Systems	New Fire Protection water service		\$ -	\$0	GPS	Infrastructure		3	2	2020
RV	Building Sprinkler System - Expansion	37	Fire Suppression Systems	Building Sprinkler System - Expansion	\$500,800	\$ 707,364	\$815,982	GPS	Infrastructure		3	2	2020
RV	New Fire Pump	37	Fire Suppression Systems	New Fire Pump	\$100,000	\$ 141,247	\$162,936	GPS	Infrastructure		3	2	2020
RV	Emergency/Exit Lighting	38	Emergency/Exit Lighting	Cost taken from RS Means Costworks 2017 Square Footage Model for School in CT at \$605.00 each.	\$42,607	\$ 60,181	\$69,422	GPS	Infrastructure		1	5	2020
RV	Emergency/Standby Power	39	Emergency/Standby Power	Cost includes new 500kW diesel generator, transfer switch, batteries, charger, muffler, and fuel tank. Cost is based on RS Means Costworks Assembly Costs 2017 - D5090 210 Generators (by kW). Includes 600 lf of 4" PVC conduit and 2500 ft of 600MCM XHHW at \$47088.	\$198,463	\$ 280,323	\$323,367	GPS	Infrastructure		2	5	2020
RV	Lead Free Valves (Bldg)	40	Water Distribution	CCSD - NASCO	\$5,250	\$ 7,415	\$8,554	GPS	Infrastructure		3	5	2020
RV	Hot Water Heaters	42	Hot Water Heaters	Hot Water Heaters Demo	\$300	\$ 424	\$489	GPS	Infrastructure		3	5	2020
RV	Circulating Pump	42	Hot Water Heaters	Circulating Pump Demo	\$500	\$ 706	\$815	GPS	Infrastructure		3	5	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
RV	Hot Water Heaters	42	Hot Water Heaters	Costworks	\$18,000	\$ 25,424	\$29,328	GPS	Infrastructure		3	5	2020
RV	Circulating Pump	42	Hot Water Heaters	Costworks	\$3,000	\$ 4,237	\$4,888	GPS	Infrastructure		3	5	2020
RV	Plumbing Fixtures	43	Plumbing Fixtures	CCSD - SCC Estimate	\$27,900	\$ 39,408	\$45,459	GPS	Infrastructure		2	5	2020
RV	Lead Free Valves (Fixtures)	43	Plumbing Fixtures	CCSD - NASCO	\$16,750	\$ 23,659	\$27,292	GPS	Infrastructure		3	5	2020
RV	Toilets	43	Plumbing Fixtures	CCSD - SCC Estimate / Means (Averaged)	\$133,000	\$ 187,858	\$216,704	GPS	Infrastructure		2	5	2020
RV	Urinals	43	Plumbing Fixtures	CCSD - SCC Estimate / Means (Averaged)	\$28,000	\$ 39,549	\$45,622	GPS	Infrastructure		2	5	2020
RV	Lavatories	43	Plumbing Fixtures	CCSD - SCC Estimate / Means (Averaged)	\$31,500	\$ 44,493	\$51,325	GPS	Infrastructure		2	5	2020
RV	Sinks	43	Plumbing Fixtures	CCSD - SCC Estimate / Means (Averaged)	\$35,000	\$ 49,436	\$57,027	GPS	Infrastructure		2	5	2020
RV	Boilers	45	Heating Systems	Boiler demolition	\$15,000	\$ 21,187	\$24,440	GPS	Infrastructure	Energy	2	7	2020
RV	HW Heating Pumps	45	Heating Systems	HW Heating Pump demolition	\$1,300	\$ 1,836	\$2,118	GPS	Infrastructure	Energy	2	7	2020
RV	Boilers	45	Heating Systems	Costworks (2,000 MBH Gas Boiler - Condensing)	\$225,000	\$ 317,805	\$366,605	GPS	Infrastructure	Energy	3	7	2020
RV	HW Heating Pumps	45	Heating Systems	Costworks (7.5 HP Basemounted)	\$32,000	\$ 45,199	\$52,139	GPS	Infrastructure	Energy	3	7	2020
RV	Unit Ventilator	46	Ventilation Systems	Costworks (3-Ton Unit)	\$32,400	\$ 45,764	\$52,791	GPS	Infrastructure		3	8	2020
RV	Kitchen Make-Up Air Unit	46	Ventilation Systems	Costworks (MAU thru 6,000 CFM)	\$1,000	\$ 1,412	\$1,629	GPS	Infrastructure		3	8	2020
RV	Gymnasium & Stage Fans	46	Ventilation Systems	Gymnasium & Stage Fans	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure		3	8	2020
RV	Kitchen Make-Up Air Unit	46	Ventilation Systems	Kitchen Make-Up Air Unit	\$18,000	\$ 25,424	\$29,328	GPS	Infrastructure		3	8	2020
RV	Rooftop Exhaust Fans	46	Ventilation Systems	Rooftop Exhaust Fans	\$56,000	\$ 79,098	\$91,244	GPS	Infrastructure		2	8	2020
RV	Cooling Tower Demolition	47	Air Conditioning Systems	Cooling Tower Demolition	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure		4	8	2020
RV	Cooling Tower	47	Air Conditioning Systems	New Cooling Tower - \$3,000 / Ton (130 Tons)	\$300,000	\$ 423,740	\$488,807	GPS	Infrastructure		4	2	2020
RV	Classrooms	47	Air Conditioning Systems	VRF @ \$12k / Ton	\$1,188,000	\$ 1,678,012	\$1,935,676	GPS	Infrastructure		4	8	2020
RV	Corridors	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$400,000	\$ 564,987	\$651,743	GPS	Infrastructure		4	8	2020
RV	Gymnasium / Stage	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$220,000	\$ 310,743	\$358,459	GPS	Infrastructure		4	8	2020
RV	Cafeteria	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$72,000	\$ 101,698	\$117,314	GPS	Infrastructure		4	8	2020
RV	Kitchen	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure		4	8	2020
RV	Media Center	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$260,000	\$ 367,242	\$423,633	GPS	Infrastructure		4	8	2020
RV	Art	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$40,000	\$ 56,499	\$65,174	GPS	Infrastructure		4	8	2020
RV	Music	47	Air Conditioning Systems	New HVAC system @ \$40 / SF	\$40,000	\$ 56,499	\$65,174	GPS	Infrastructure		4	8	2020
RV	HVAC Controls	48	HVAC Controls	HVAC Controls	\$250,400	\$ 353,682	\$407,991	GPS	Infrastructure	Energy	3	5	2020
RV	Classrooms	49	Program Enhancements	Pilot Project: 3-4 Classrooms	\$450,000	\$ 635,611	\$733,211	GPS	Program		4	9	2020
RV	Learning Commons	49	Program Enhancements	Learning Commons Renovation	\$800,000	\$ 1,152,574	\$1,362,142	GPS	Program		4	2	2021
RV	Addition/Alteration Project	49	Program Enhancements	Addition/Alteration Project	\$15,300,000	\$ 21,610,758	\$24,929,162	GPS	Infrastructure		4	7	2020
WMS	Demolition of UG Fuel Tank	4	Site Fuel Oil	Demolition of UG Fuel Tank	\$30,000	\$ 42,374	\$48,881	GPS	Infrastructure		1	2	2020
WMS	general site	5	Site Electrical	add site lighting-bollards for walkway,overhead for parking areas	\$100,000	\$ 141,247	\$162,936	Parks	Site		3	4	2020
WMS	southeast corner	7	Pavement, Parking Lots & Curbs	paving access to the field (per capital budget 2017-18)	\$50,000	\$ 70,623	\$81,468	Public W	Site		3	4	2020
WMS	southeast corner	7	Pavement, Parking Lots & Curbs	replace asphalt tennis court with sport court (5 yr)	\$360,000	\$ 508,488	\$586,569	Public W	Site		3	4	2020
WMS	general site	7	Pavement, Parking Lots & Curbs	replace asphalt walks with concrete walks	\$123,000	\$ 173,734	\$200,411	Public W	Site		3	4	2020
WMS	ballfields	7	Pavement, Parking Lots & Curbs	replace or add drainage on athletic fields	\$150,000	\$ 211,870	\$244,404	Public W	Site		3	4	2020
WMS	parking	7	Pavement, Parking Lots & Curbs	replace asphalt/full depth (15 yr)	\$1,063,000	\$ 1,501,453	\$1,732,006	Public W	Site		4	7	2020
WMS	general site	7	Pavement, Parking Lots & Curbs	replace all concrete curbs with granite curbs (15 yr)	\$457,500	\$ 646,204	\$745,431	Public W	Site		3	7	2020
WMS	general site	8	Sidewalks & Hardscape	replace deteriorating concrete sidewalk	\$7,875	\$ 11,123	\$12,831	Parks	Site		3	4	2020
WMS	general site	8	Sidewalks & Hardscape	replace existing concrete sidewalks in full (15 yr)	\$124,425	\$ 175,746	\$202,733	Parks	Site		4	7	2020
WMS	general site	9	Site Amenities	replace garbage and recycle bins with trash/recycle enclosure	\$3,600	\$ 5,085	\$5,866	Parks	Site		1	4	2020
WMS	general site	9	Site Amenities	replace bike racks and add full concrete pad	\$15,000	\$ 21,187	\$24,440	Parks	Site		1	4	2020
WMS	general site	9	Site Amenities	replace front sign to a digital sign	\$50,000	\$ 70,623	\$81,468	Parks	Site		3	4	2020
WMS	general site	11	Landscaping & Plantings	prune trees	\$7,500	\$ 10,594	\$12,220	Parks	Site		1	4	2020
WMS	general site	11	Landscaping & Plantings	resod areas along sidewalk ruined by snow plow	\$10,000	\$ 14,125	\$16,294	Parks	Site		1	4	2020
WMS	entry area	11	Landscaping & Plantings	foundation planting	\$30,000	\$ 42,374	\$48,881	Parks	Site		3	4	2020
WMS	general field	12	Fields & Field Structures	replace batting cage on softball field	\$20,000	\$ 28,249	\$32,587	GPS	Site		3	4	2020
WMS	sports fields	12	Fields & Field Structures	replace sod fields with organic turf	\$2,520,000	\$ 3,559,419	\$4,105,980	GPS	Site		3	4	2020
WMS	general site	13	Fences	replace fence around tennis court (10' high)	\$54,000	\$ 76,273	\$87,985	Parks	Site		3	4	2020
WMS	Bldg Exterior	17	Exterior Walls & Columns	add outdoor classroom area with a covered area and seating	\$133,000	\$ 187,858	\$216,704	GPS	Program		3	4	2020
WMS	Bldg Exterior	17	Exterior Walls & Columns	Replace brick lintels (room E-7b)	\$6,400	\$ 9,040	\$10,428	GPS	Infrastructure		1	4	2020
WMS	Bldg Exterior	17	Exterior Walls & Columns	Brick pointing/concrete repair	\$20,000	\$ 28,249	\$32,587	GPS	Infrastructure		3	4	2020
WMS	Bldg Exterior	17	Exterior Walls & Columns	Parge foundation walls	\$7,500	\$ 10,594	\$12,220	GPS	Infrastructure		1	4	2020
WMS	Bldg Exterior	17	Exterior Walls & Columns	Exterior Improvements	\$300,000	\$ 423,740	\$488,807	GPS	Infrastructure		4	7	2020
WMS	Roof	19	Roof/Skylights	Roof Replacement	\$0	\$ -	\$0	GPS	Infrastructure		3	3	2020
WMS	Roof	19	Roof/Skylights	Upcoming Roof Replacement	\$1,367,500	\$ 2,175,239	\$2,901,625	GPS	Infrastructure		3	7	2026
WMS	main entry	22	Exterior Stairs & Ramps	accessible entry (sidewalk,ramps and new canopy)	\$500,000	\$ 706,234	\$814,678	GPS	Accessibility		2	2	2020
WMS	side and rear	22	Exterior Stairs & Ramps	repair concrete steps and replace railings	\$66,960	\$ 94,579	\$109,102	GPS	Infrastructure		3	4	2020

Greenwich Public Schools Master Plan

Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
WMS	front east side	22	Exterior Stairs & Ramps	replace concrete steps and railings	\$34,560	\$ 48,815	\$56,311	GPS	Infrastructure		3	4	2020
WMS	west side	22	Exterior Stairs & Ramps	replace concrete ramp and railings	\$25,200	\$ 35,594	\$41,060	GPS	Infrastructure		3	4	2020
WMS	east side/student drop off	22	Exterior Stairs & Ramps	replace railings on ramp on east side and add rails to stairs	\$45,000	\$ 63,561	\$73,321	GPS	Infrastructure		3	4	2020
WMS	Bldg Exterior	24	Windows	Wing-W Remove and replace with insulated glass	\$153,090	\$ 216,235	\$249,438	GPS	Infrastructure		3	4	2020
WMS	Bldg Exterior	24	Windows	Wing-W Remove and replace with insulated glass	\$7,300	\$ 10,311	\$11,894	GPS	Infrastructure		3	4	2020
WMS	Bldg Exterior	24	Windows	Remove and install new windows in room E-7b	\$6,000	\$ 8,475	\$9,776	GPS	Infrastructure		3	4	2020
WMS	General Building	26	Interior Walls & Renovation	Abatement Allowance (completed 2017 per CIP)	\$0	\$ -	\$0	GPS	Infrastructure		3	2	2020
WMS	Gymnasium	26	Interior Walls & Renovation	Gymnasium wall padding (CIP)	\$70,000	\$ 98,873	\$114,055	GPS	Infrastructure		3	2	2020
WMS	Gymnasium	26	Interior Walls & Renovation	Interior Painting (CIP)	\$8,000	\$ 11,300	\$13,035	GPS	Infrastructure		3	2	2020
WMS	Gymnasium	26	Interior Walls & Renovation	Replace Gym Bleachers (Facilities)	\$8,000	\$ 11,300	\$13,035	GPS	Infrastructure		3	2	2020
WMS	General Building	26	Interior Walls & Renovation	Architectural work required by AC Infrastructure work	\$1,500,000	\$ 2,118,702	\$2,444,035	GPS	Infrastructure		3	8	2020
WMS	General Building	26	Interior Walls & Renovation	Architectural work required by New Fire Protection System	\$350,000	\$ 494,364	\$570,275	GPS	Infrastructure		3	5	2020
WMS	General Building	28	Ceilings	ACT Ceiling Replacement as part of Lighting Infrastructure Work	\$320,000	\$ 451,990	\$521,394	GPS	Infrastructure		3	5	2020
WMS	General Building	28	Ceilings	Ceiling Repair/Replacement as part of Fire Alarm Work	\$40,000	\$ 56,499	\$65,174	GPS	Infrastructure		3	5	2020
WMS	Classrooms	49	Program Enhancements	Update Classroom Furniture	\$1,280,000	\$ 1,737,754	\$1,909,825	GPS	Program		3	9	2018
WMS	Classrooms	29	Casework, Lockers & Furnishings	Replace/install new casework in classrooms	\$237,600	\$ 335,602	\$387,135	GPS	Program		3	9	2020
WMS	Learning Commons	49	Program Enhancements	Learning Commons Furniture Allowance	\$250,000	\$ 353,117	\$407,339	GPS	Program		3	9	2020
WMS	All Floors	32	Elevators, Lifts & ADA Access	New Elevator	\$450,000	\$ 635,611	\$733,211	GPS	Accessibility		3	6	2020
WMS	All Floors	32	Elevators, Lifts & ADA Access	Elevator Related Renovation	\$180,000	\$ 254,244	\$293,284	GPS	Accessibility		3	6	2020
WMS	Elevator	32	Elevators, Lifts & ADA Access	Elevator Replacement (CIP)	\$350,000	\$ 524,623	\$650,778	GPS	Infrastructure		3	6	2023
WMS	Elevator	32	Elevators, Lifts & ADA Access	Replace LU/LA Lift (Facilities)	\$100,000	\$ 141,247	\$162,936	GPS	Infrastructure		3	2	2020
WMS	Interior Electric Distribution	33	Int Electric Distribution	Upgrade electrical panels and distribution (CIP)	\$750,000	\$ 1,059,351	\$1,222,018	GPS	Infrastructure		3	7	2020
WMS	Interior Electric Distribution	33	Int Electric Distribution	Cost includes (5) - 225Amp panelboards for a building up to 5 stories, 50 ft horizontal run of conduit and conductors.	\$94,375	\$ 133,302	\$153,771	GPS	Infrastructure		3	5	2020
WMS	Lighting Fixtures	34	Lighting Fixtures	Replace existing fixtures with LED. Cost based on Westlake CM 2017 cost to remove and replace w/LED is \$7.2/sqft including removals.	\$760,320	\$ 1,073,928	\$1,238,833	GPS	Infrastructure	Energy	2	5	2020
WMS	Lighting Controls	34	Lighting Fixtures	Cost based on RS Means Costworks Assembly Costs 2017 - D5020 295 1000, \$1.43/sqft for Lighting On/Off Control System including occupancy and time switching, and conduit and wire. (All references to Costworks are based on Stamford, CT zip code and union pricing). Some areas have automatic lighting, so used factor of 85%.	\$160,446	\$ 226,625	\$261,424	GPS	Infrastructure	Energy	2	5	2020
WMS	PA/Comm Systems	35	PA/Comm/Security Systems	Cost based on a 50 speaker PA system w/2 amplifiers and master clock system for 50 room elementary school from Costworks 2017 Elementary School square foot models.	\$165,000	\$ 233,057	\$268,844	GPS	Infrastructure		3	7	2020
WMS	Fire Alarm & Smoke Detection	36	Fire Alarm & Smoke Detection	Cost includes replacement of existing fire alarm system, based on recent SaxeMS Bids at approx. \$1.98/sqft, including conduit and wire.	\$209,088	\$ 295,330	\$340,679	GPS	Infrastructure		2	5	2020
WMS	New Fire Protection water service	37	Fire Suppression Systems	New Fire Protection water service	\$25,000	\$ 35,312	\$40,734	GPS	Infrastructure		3	5	2020
WMS	Full Building Sprinkler System	37	Fire Suppression Systems	Full Building Sprinkler System	\$844,800	\$ 1,193,253	\$1,376,481	GPS	Infrastructure		3	5	2020
WMS	New Fire Pump	37	Fire Suppression Systems	New Fire Pump	\$100,000	\$ 141,247	\$162,936	GPS	Infrastructure		3	5	2020
WMS	Emergency/Exit Lighting	38	Emergency/Exit Lighting	Cost taken from RS Means Costworks 2017 Square Footage Model for Elementary School in CT at \$605 each.	\$71,874	\$ 101,520	\$117,108	GPS	Infrastructure		2	2	2020
WMS	Emergency/Standby Power (New Generator to Power Entire Facility)	39	Emergency/Standby Power	Cost from Costworks 2017 D5090210 for 500kW diesel, includes transfer switch. Includes pad at \$9000. Includes 600 lf of 4" PVC conduit and 2500 ft of 600MCM XHHW at \$47088. (\$100,000 in CIP)	\$202,026	\$ 274,274	\$301,432	GPS	Infrastructure		1	2	2018
WMS	Lead Free Valves (Bldg)	40	Water Distribution	CCSD - NASCO	\$10,500	\$ 14,831	\$17,108	GPS	Infrastructure		2	5	2020
WMS	Mixing Valve	42	Hot Water Heaters		\$5,000	\$ 7,062	\$8,147	GPS	Infrastructure		2	5	2020
WMS	Plumbing Fixtures	43	Plumbing Fixtures	CCSD - SCC Estimate	\$46,200	\$ 65,256	\$75,276	GPS	Infrastructure		2	5	2020
WMS	Lead Free Valves (Fixtures)	43	Plumbing Fixtures	CCSD - NASCO	\$29,000	\$ 40,962	\$47,251	GPS	Infrastructure		2	5	2020
WMS	Toilets	43	Plumbing Fixtures	CCSD - SCC Estimate / Means (Averaged)	\$189,000	\$ 266,956	\$307,948	GPS	Infrastructure		2	5	2020
WMS	Urinals	43	Plumbing Fixtures	CCSD - SCC Estimate / Means (Averaged)	\$44,000	\$ 62,149	\$71,692	GPS	Infrastructure		2	5	2020
WMS	Lavatories	43	Plumbing Fixtures	CCSD - SCC Estimate / Means (Averaged)	\$76,500	\$ 108,054	\$124,646	GPS	Infrastructure		2	5	2020
WMS	Sinks	43	Plumbing Fixtures	CCSD - SCC Estimate / Means (Averaged)	\$47,250	\$ 66,739	\$76,987	GPS	Infrastructure		2	5	2020
WMS	Fuel Oil Pumps	45	Heating Systems	Fuel Oil Pumps	\$1,000	\$ 1,412	\$1,629	GPS	Infrastructure	Energy	2	5	2020
WMS	Condensate Pump	45	Heating Systems	Condensate Pump	\$50,000	\$ 70,623	\$81,468	GPS	Infrastructure	Energy	2	5	2020
WMS	Fuel Oil System (tank and pump set)	45	Heating Systems	Fuel Oil System (tank and pump set)	\$325,000	\$ 459,052	\$529,541	GPS	Infrastructure	Energy	2	5	2020

Greenwich Public Schools Master Plan
Infrastructure Work Items

Abbv	Location	System	System Name	Description	Direct Cost	GPS Budget	Total Cost	Funding	Type	Energy	Category	Project	Year
WMS	Unit Ventilators New Wing	46	Ventilation Systems	Unit Ventilators New Wing	\$7,200	\$ 10,170	\$11,731	GPS	Infrastructure		2	8	2020
WMS	Gymnasium	46	Ventilation Systems	Unit Ventilators Gymnasium	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure		2	8	2020
WMS	Library	46	Ventilation Systems	Unit Ventilators Library	\$10,000	\$ 14,125	\$16,294	GPS	Infrastructure		2	8	2020
WMS	Rooftop Exhaust Fans	46	Ventilation Systems	Costworks, including Science Rooms: Fume Hoods	\$70,000	\$ 98,873	\$114,055	GPS	Infrastructure		4	8	2020
WMS	Kitchen Exhaust System	46	Ventilation Systems	Costworks	\$55,000	\$ 77,686	\$89,615	GPS	Infrastructure		2	8	2020
WMS	Auditorium	47	Air Conditioning Systems	Upgrade Auditorium AC (CIP)	\$250,000	\$ 339,405	\$373,013	GPS	Infrastructure		2	2	2018
WMS	Classrooms	47	Air Conditioning Systems	Packaged/Central sytem @ \$12k / Ton; mix with VRF	\$2,340,000	\$ 3,305,175	\$3,812,695	GPS	Infrastructure		2	8	2020
WMS	Corridors	47	Air Conditioning Systems	Replacement HVAC system @ \$40/ SF; no existing ductwork	\$660,000	\$ 932,229	\$1,075,376	GPS	Infrastructure		2	8	2020
WMS	Gymnasium	47	Air Conditioning Systems	Replacement HVAC system @ \$40/ SF; no existing ductwork	\$244,000	\$ 344,642	\$397,563	GPS	Infrastructure		2	8	2020
WMS	Cafeteria	47	Air Conditioning Systems	Replacement HVAC system @ \$40/ SF; no existing ductwork	\$232,000	\$ 327,693	\$378,011	GPS	Infrastructure		2	8	2020
WMS	Kitchen	47	Air Conditioning Systems	Replacement HVAC system @ \$40/ SF; no existing ductwork	\$56,000	\$ 79,098	\$91,244	GPS	Infrastructure		2	8	2020
WMS	Media / Computer Lab	47	Air Conditioning Systems	Replacement HVAC system @ \$40/ SF; no existing ductwork	\$168,000	\$ 237,295	\$273,732	GPS	Infrastructure		2	8	2020
WMS	Auditorium	47	Air Conditioning Systems	Replacement HVAC system - already in CIP	\$228,000	\$ 322,043	\$371,493	GPS	Infrastructure		2	8	2020
WMS	Variable Air Volume Units	47	Air Conditioning Systems	Variable Air Volume Units	\$150,000	\$ 211,870	\$244,404	GPS	Infrastructure		2	8	2020
WMS	HVAC Controls	48	HVAC Controls	HVAC Controls	\$580,800	\$ 820,361	\$946,331	GPS	Infrastructure	Energy	3	5	2020
WMS	Science Labs	49	Program Enhancements	Renovate Science Labs (CIP)	\$40,000	\$ 54,305	\$59,682	GPS	Infrastructure		4	7	2018
WMS	Tech Lab	49	Program Enhancements	Renovate Tech Lab (Facilities)	\$50,000	\$ 67,881	\$74,603	GPS	Infrastructure		4	7	2018
WMS	Classrooms	49	Program Enhancements	Pilot Project: 4-5 Classrooms	\$600,000	\$ 830,863	\$935,516	GPS	Program		4	9	2019
WMS	Science Labs	49	Program Enhancements	Renovate Science Labs (CIP)	\$400,000	\$ 553,909	\$623,677	GPS	Infrastructure		4	7	2019
WMS	Science Labs	49	Program Enhancements	Renovate Science Labs (CIP)	\$400,000	\$ 564,987	\$651,743	GPS	Infrastructure		4	7	2020
WMS	Learning Commons	49	Program Enhancements	Learning Commons Renovation	\$920,000	\$ 1,299,470	\$1,499,008	GPS	Program		4	2	2020
WMS	Science Labs	49	Program Enhancements	Science Lab Renovation (already in CIP)	\$0	\$ -	\$0	GPS	Infrastructure		4	7	2020

High Priority \$ 9,420,504
Low Priority \$ 21,191,058
 \$ 30,611,562

Greenwich Public Schools Master Plan

Cost Assumptions

Build Year	Escalation	
	Per Year*	Cumulative
2018	4.5%	0.045
2019	4.5%	0.092
2020	4.5%	0.141
2021	4.5%	0.193
2022	4.5%	0.246
2023	4.5%	0.302
2024	4.5%	0.361
2025	4.5%	0.422
2026	4.5%	0.486
2027	4.5%	0.553
2028	4.5%	0.623
2029	4.5%	0.696
2030	4.5%	0.772
2031	4.5%	0.852
2032	4.5%	0.935

Project Costs		
Item	%	Cumulative
General Conditions	10%	0.100
Contingency	10%	0.210
Project Soft Costs	18%	0.428

Additions and Alterations Costs			
New Construction - mulit-story additior	gsf	\$	400
New Construction - Build Over	gsf	\$	350
Demolition - Building	gsf	\$	25
Demolition	gsf	\$	75
Light Renovation	nsf	\$	150
Medium Renovation	nsf	\$	200
Heavy Renovation	nsf	\$	250

APPENDIX B

PROGRAM COST ESTIMATES

Greenwich Public School Master Plan - Project Budgets

International School at Dundee Addition/Alteration Project

<u>Description</u>	<u>Qty.</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Subtotal</u>
Demolition	-	gsf	\$ 75	\$ -
Renovation - First Floor Sp. Ed	5,100	gsf	\$ 250	\$ 1,275,000
Renovation - First Floor K-1	8,200	gsf	\$ 250	\$ 2,050,000
Renovation - First Floor Connector	500	gsf	\$ 250	\$ 125,000
Renovation - Second Floor	8,700	gsf	\$ 250	\$ 2,175,000
New Addition - Lower Level	16,260	gsf	\$ 400	\$ 6,504,000
New Addition - Upper Level	15,600	gsf	\$ 400	\$ 6,240,000
New Addition - Stage Platform	1,500	gsf	\$ 400	\$ 600,000
New Asphalt Play/Basketball Area	4,200	sf	\$ 20	\$ 84,000
New concrete walks	10,500	sf	\$ 25	\$ 262,500
New Asphalt Drive and Parking	23,400	allowance	\$ 15	\$ 351,000
Retaining Walls	1	allowance	\$ 250,000	\$ 250,000
New Lighting - Bollards	20	ea	\$ 2,000	\$ 40,000
New Lighting - Overhead Poles	14	ea	\$ 5,000	\$ 70,000
Entry Canopy	1	allowance	\$ 120,000	\$ 120,000
Site/lawn restoration	28,300	sf	\$ 6	\$ 169,800
General Sitework	1	allowance	\$ 500,000	\$ 500,000
			Subtotal	\$ 20,816,300

Greenwich Public School Master Plan - Project Budgets

Julian Curtiss Elementary School Addition/Alteration Addition/Alteration Project

<u>Description</u>	<u>Qty.</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Subtotal</u>
Renovation - First Floor	15,000	gsf	\$ 250	\$ 3,750,000
Renovation - Second Floor	1,700	gsf	\$ 250	\$ 425,000
New Addition - First Floor	15,000	gsf	\$ 400	\$ 6,000,000
New Addition - Second Floor	400	gsf	\$ 400	\$ 160,000
New 3 Stop Elevator	1	allowance	\$ 200,000	\$ 200,000
New Renovated Courtyard	1	allowance	\$ 220,000	\$ 220,000
Pre-K Play Area Terrace	1	allowance	\$ 180,000	\$ 180,000
New Accessible Playground	1	allowance	\$ 250,000	\$ 250,000
New Asphalt Play Area	8,800	sf	\$ 10	\$ 88,000
Concrete Walkways & Entry	1,810	sf	\$ 25	\$ 45,250
Retaining Wall (5')	150	lf	\$ 750	\$ 112,500
New Asphalt Driveway	1	allowance	\$ 60,000	\$ 60,000
Subtotal				\$ 11,490,750

Greenwich Public School Master Plan - Project Budgets

North Mianus Elementary School Addition/Alteration
Addition/Alteration Project

<u>Description</u>	<u>Qty.</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Subtotal</u>
Renovation - First Floor	16,500	gsf	\$ 250	\$ 4,125,000
Renovation - Second Floor	6,600	gsf	\$ 250	\$ 1,650,000
New Addition - First Floor Program	12,000	gsf	\$ 400	\$ 4,800,000
New Addition - First Floor Circulation	5,000	gsf	\$ 400	\$ 2,000,000
New asphalt play area	8,700	sf	\$ 10	\$ 87,000
New entry play area w/seating	4,100	sf	\$ 20	\$ 82,000
Courtyard Renovation	1	allowance	\$ 200,000	\$ 200,000
New Accessible Playground	7,000	sf	\$ 25	\$ 175,000
Concrete Walkways	2,700	sf	\$ 25	\$ 67,500
New fencing around fields	250	lf	\$ 100	\$ 25,000
Subtotal				\$ 13,211,500

Greenwich Public School Master Plan - Project Budgets

North Street Elementary School Addition/Alteration Addition/Alteration Project

<u>Description</u>	<u>Qty.</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Subtotal</u>
Renovation	10,500	gsf	\$ 250	\$ 2,625,000
New Addition	6,800	gsf	\$ 400	\$ 2,720,000
New asphalt path	2,500	sf	\$ 10	\$ 25,000
Pre-K Play Area Terrace	1	allowance	\$ 180,000	\$ 180,000
New Accessible Playground	1	allowance	\$ 250,000	\$ 250,000
New fencing around fields	1,100	lf	\$ 100	\$ 110,000
New fencing around PK area	200	lf	\$ 100	\$ 20,000
New softball field	24,000	sf	\$ 12	\$ 288,000
New sod field for young children	10,000	sf	\$ 12	\$ 120,000
New asphalt play area (basketball)	5,000	lf	\$ 10	\$ 50,000
New concrete walkways	1,900	sf	\$ 20	\$ 38,000
Landscaped area around building	2,200	sf	\$ 20	\$ 44,000
Subtotal				\$ 5,910,000

Greenwich Public School Master Plan - Project Budgets

Old Greenwich Elementary School Addition/Alteration Project

<u>Description</u>	<u>Qty.</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Subtotal</u>
Demolition	6,000	gsf	\$ 75	\$ 450,000
Renovation - Ground Floor	4,840	gsf	\$ 250	\$ 1,210,000
Renovation - First Floor	2,000	gsf	\$ 250	\$ 500,000
Renovation - Second Floor	1,400	gsf	\$ 250	\$ 350,000
New Addition - New Entrance	720	gsf	\$ 400	\$ 288,000
New Addition - Ground Floor	5,925	gsf	\$ 400	\$ 2,370,000
New Addition - First Floor	5,570	gsf	\$ 400	\$ 2,228,000
New Addition - Second Floor	5,570	gsf	\$ 400	\$ 2,228,000
New 4 Stop Elevator	1	allowance	\$ 250,000	\$ 250,000
Relocate Basketball Court	3,500	sf	\$ 20	\$ 70,000
Recreate Paved Play Area	6,500	sf	\$ 10	\$ 65,000
Replace Playground Area w/Fence	1	allowance	\$ 175,000	\$ 175,000
Courtyard Renovation	1	allowance	\$ 150,000	\$ 150,000
Entry Area Sitework	1	allowance	\$ 60,000	\$ 60,000
General Sitework	1	allowance	\$ 200,000	\$ 200,000
			Subtotal	\$ 10,594,000

Greenwich Public School Master Plan - Project Budgets

Riverside Elementary School Addition/Alteration Addition/Alteration Project

<u>Description</u>	<u>Qty.</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Subtotal</u>
Demolition	-	gsf	\$ 75	\$ -
Renovation - First Floor	12,000	gsf	\$ 250	\$ 3,000,000
Renovation - Second Floor	7,000	gsf	\$ 250	\$ 1,750,000
New Addition - First Floor	13,200	gsf	\$ 400	\$ 5,280,000
New Addition - Second Floor	8,300	gsf	\$ 400	\$ 3,320,000
New 3 Stop Elevator	1	allowance	\$ 200,000	\$ 200,000
Asphalt Drive	1,600	sf	\$ 10	\$ 16,000
Concrete Walkways	2,300	sf	\$ 25	\$ 57,500
Landscaping Allowance	1	allowance	\$ 40,000	\$ 40,000
Reconfigure field area	89,000	sf	\$ 10	\$ 890,000
Site Fencing at field	700	lf	\$ 100	\$ 70,000
New Renovated Courtyard	1	allowance	\$ 220,000	\$ 220,000
New Kindergarten Playground	1	allowance	\$ 180,000	\$ 180,000
New Accessible Playground	1	allowance	\$ 200,000	\$ 200,000
New Asphalt Play Area	10,000	sf	\$ 10	\$ 100,000
			Subtotal	\$ 15,323,500

Greenwich Public School Master Plan - Project Budgets

Central Middle School Building Replacement Project

<u>Description</u>	<u>Qty.</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Subtotal</u>
Demolition-Ground Floor	24,244	gsf	\$ 25	\$ 606,100
Demolition-First Floor	100,000	gsf	\$ 25	\$ 2,500,000
Renovation-Ground Floor	9,650	gsf	\$ 250	\$ 2,412,500
Renovation-First Floor	9,650	gsf	\$ 250	\$ 2,412,500
New Construction	120,000	gsf	\$ 400	\$ 48,000,000
New Playing Field	90,000	sf	\$ 22	\$ 1,980,000
General Sitework	1	allowance	\$ 750,000	\$ 750,000
			Subtotal	\$ 58,661,100
Design Contingency	10%			\$ 5,866,110
Subtotal				\$ 64,527,210
Construction Contingency	10%			\$ 6,452,721
Construction Subtotal				\$ 70,979,931
Project Costs	18%			\$ 12,776,388
Project Total				\$ 83,756,319
			Round To	\$ 83,760,000

Greenwich Public School Master Plan - Project Budgets

Eastern Middle School Addition/Alteration Project

<u>Description</u>	<u>Qty.</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Subtotal</u>
Renovation - First Floor	1,000	gsf	\$ 250	\$ 250,000
Renovation - Second Floor	1,000	gsf	\$ 250	\$ 250,000
New Addition - First Floor	10,000	gsf	\$ 400	\$ 4,000,000
New Addition - Second Floor	12,000	gsf	\$ 400	\$ 4,800,000
Asphalt Drive	6,000	sf	\$ 10	\$ 60,000
Asphalt Parking Area	20,000	sf	\$ 10	\$ 200,000
Concrete Walkways	2,400	sf	\$ 25	\$ 60,000
Landscaping Allowance	1	allowance	\$ 60,000	\$ 60,000
General Sitework	1	allowance	\$ 400,000	\$ 400,000
			Subtotal	\$ 10,080,000
Design Contingency	10%			\$ 1,008,000
Subtotal				\$ 11,088,000
Escalation - 2020	14.1%			\$ 1,565,250
Subtotal				\$ 12,653,250
Construction Contingency	10%			\$ 1,265,325
Construction Subtotal				\$ 13,918,575
Project Costs	18%			\$ 2,505,343
Project Total				\$ 16,423,918
			Round To	\$ 16,420,000

Greenwich Public School Master Plan - Project Budgets

Western Middle School Addition/Alteration Project

<u>Description</u>	<u>Qty.</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Subtotal</u>
Renovation - First Floor	18,000	gsf	\$ 250	\$ 4,500,000
Renovation - Second Floor	1,000	gsf	\$ 250	\$ 250,000
New Addition - First Floor Classrooms	17,600	gsf	\$ 400	\$ 7,040,000
New Addition - Second Floor Classrooms	17,600	gsf	\$ 400	\$ 7,040,000
New Addition - Gym	6,300	gsf	\$ 400	\$ 2,520,000
General Sitework	1	allowance	\$ 750,000	\$ 750,000
			Subtotal	\$ 22,100,000
Design Contingency	10%			\$ 2,210,000
Subtotal				\$ 24,310,000
Escalation - 2020	14.1%			\$ 3,431,748
Subtotal				\$ 27,741,748
Construction Contingency	10%			\$ 2,774,175
Construction Subtotal				\$ 30,515,923
Project Costs	18%			\$ 5,492,866
Project Total				\$ 36,008,790
			Round To	\$ 36,010,000

Greenwich Public School Master Plan - Project Budgets

Greenwich High School
Addition/Alteration Project

<u>Description</u>	<u>Qty.</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Subtotal</u>	<u>Phase 1</u>	<u>Phase 2</u>	<u>Phase 3</u>	<u>Total</u>
Demolition - Main Corridor Entry	5,400	gsf	\$ 75	\$ 405,000	\$ 405,000	\$ -	\$ -	\$ 405,000
New Corridor - First Floor	5,200	gsf	\$ 400	\$ 2,080,000	\$ 2,080,000	\$ -	\$ -	\$ 2,080,000
New Corridor - Second Floor	5,700	gsf	\$ 350	\$ 1,995,000	\$ 1,995,000	\$ -	\$ -	\$ 1,995,000
New Lobby/Security Vestibule	3,250	gsf	\$ 400	\$ 1,300,000	\$ 1,300,000	\$ -	\$ -	\$ 1,300,000
New Entrance Plaza	25,000	sf	\$ 22	\$ 550,000	\$ 550,000	\$ -	\$ -	\$ 550,000
Front Entry Sitework Allowance	1	allow.	\$ 160,000	\$ 160,000	\$ 160,000	\$ -	\$ -	\$ 160,000
Renovation - First Floor Innovation	6,100	gsf	\$ 250	\$ 1,525,000	\$ 1,525,000	\$ -	\$ -	\$ 1,525,000
New Student Center Mezzanines	5,300	gsf	\$ 400	\$ 2,120,000	\$ 2,120,000	\$ -	\$ -	\$ 2,120,000
New Learning Stair	1,200	sf	\$ 150	\$ 180,000	\$ 180,000	\$ -	\$ -	\$ 180,000
Renovation - Second Floor Classrms	23,330	gsf	\$ 200	\$ 4,666,000	\$ 4,666,000	\$ -	\$ -	\$ 4,666,000
New Media Center-First Floor	12,000	gsf	\$ 400	\$ 4,800,000	\$ 4,800,000	\$ -	\$ -	\$ 4,800,000
New Media Center-Second Floor	10,250	gsf	\$ 400	\$ 4,100,000	\$ 4,100,000	\$ -	\$ -	\$ 4,100,000
New 3 Stop Elevator	1	allow.	\$ 200,000	\$ 200,000	\$ 200,000	\$ -	\$ -	\$ 200,000
Media Center Sitework Allowance	1	allow.	\$ 80,000	\$ 80,000	\$ 80,000	\$ -	\$ -	\$ 80,000

<u>Description</u>	<u>Qty.</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Subtotal</u>	<u>Phase 1</u>	<u>Phase 2</u>	<u>Phase 3</u>	<u>Phase 4</u>
Demolition - Team Room Area	6,000	gsf	\$ 75	\$ 450,000	\$ -	\$ 450,000	\$ -	\$ 450,000
Renovation - Second Floor Hallway	1,000	gsf	\$ 150	\$ 150,000	\$ -	\$ 150,000	\$ -	\$ 150,000
New Field House - First Floor	24,000	gsf	\$ 400	\$ 9,600,000	\$ -	\$ 9,600,000	\$ -	\$ 9,600,000
New Field House - Second Floor	14,000	gsf	\$ 400	\$ 5,600,000	\$ -	\$ 5,600,000	\$ -	\$ 5,600,000
New Athletic Offices & Storage	3,400	gsf	\$ 400	\$ 1,360,000	\$ -	\$ 1,360,000	\$ -	\$ 1,360,000
New Gym Entry Canopy	800	sf	\$ 80	\$ 64,000	\$ -	\$ 64,000	\$ -	\$ 64,000
Gym Area Sitework	1	allow.	\$ 80,000	\$ 80,000	\$ -	\$ 80,000	\$ -	\$ 80,000
Renovation - Special Education	15,000	gsf	\$ 200	\$ 3,000,000	\$ 3,000,000	\$ -	\$ -	\$ 3,000,000
Renovation - Science Wing	60,000	gsf	\$ 200	\$ 12,000,000	\$ -	\$ -	\$ 12,000,000	\$ 12,000,000
New Parking Deck	80	spaces	\$ 30,000	\$ 2,400,000	\$ -	\$ 2,400,000	\$ -	\$ 2,400,000

				<u>Phase 1</u>	<u>Phase 2</u>	<u>Phase 3</u>	<u>Total</u>
		Subtotal	\$ 58,865,000	\$ 27,161,000	\$ 19,704,000	\$ 12,000,000	\$ 58,865,000
Design Contingency	10%		\$ 5,886,500	\$ 2,716,100	\$ 1,970,400	\$ 1,200,000	\$ 5,886,500
Subtotal			\$ 64,751,500	\$ 29,877,100	\$ 21,674,400	\$ 13,200,000	\$ 64,751,500
Proposed Build Year			2020	2020	2020	2020	
Escalation			14.1%	14.1%	14.1%	14.1%	
Escalation Increase			\$ 9,140,718	\$ 4,217,634	\$ 3,059,691	\$ 1,863,393	\$ 9,140,718
Subtotal			\$ 73,892,218	\$ 34,094,734	\$ 24,734,091	\$ 15,063,393	\$ 73,892,218
Construction Contingency	10%		\$ 7,389,222	\$ 3,409,473	\$ 2,473,409	\$ 1,506,339	\$ 7,389,222
Construction Subtotal			\$ 81,281,440	\$ 37,504,208	\$ 27,207,500	\$ 16,569,732	\$ 81,281,440
Project Costs	18%		\$ 14,630,659	\$ 6,750,757	\$ 4,897,350	\$ 2,982,552	\$ 14,630,659
Project Total			\$ 95,912,099	\$ 44,254,965	\$ 32,104,850	\$ 19,552,284	\$ 95,912,099
		Round To	\$ 95,910,000	\$ 44,250,000	\$ 32,100,000	\$ 19,550,000	\$ 95,900,000

Greenwich Public School Master Plan - Project Budgets

Greenwich High School
Addition/Alteration Project - OPTION A

Description	Qty.	Unit	Unit Price	Subtotal	Phase 1A	Phase 1B	Phase 2	Phase 3	Total
Demolition - Main Corridor Entry	5,400	gsf	\$ 75	\$ 405,000	\$ 405,000	\$ -	\$ -	\$ -	\$ 405,000
New Corridor - First Floor	5,200	gsf	\$ 400	\$ 2,080,000	\$ 2,080,000	\$ -	\$ -	\$ -	\$ 2,080,000
New Corridor - Second Floor	5,700	gsf	\$ 350	\$ 1,995,000	\$ 1,995,000	\$ -	\$ -	\$ -	\$ 1,995,000
New Lobby/Security Vestibule	3,250	gsf	\$ 400	\$ 1,300,000	\$ 1,300,000	\$ -	\$ -	\$ -	\$ 1,300,000
New Entrance Plaza	25,000	sf	\$ 22	\$ 550,000	\$ 550,000	\$ -	\$ -	\$ -	\$ 550,000
Front Entry Sitework Allowance	1	allow.	\$ 160,000	\$ 160,000	\$ 160,000	\$ -	\$ -	\$ -	\$ 160,000
Renovation - First Floor Innovation	6,100	gsf	\$ 250	\$ 1,525,000	\$ -	\$ 1,525,000	\$ -	\$ -	\$ 1,525,000
New Student Center Mezzanines	5,300	gsf	\$ 400	\$ 2,120,000	\$ -	\$ 2,120,000	\$ -	\$ -	\$ 2,120,000
New Learning Stair	1,200	sf	\$ 150	\$ 180,000	\$ -	\$ 180,000	\$ -	\$ -	\$ 180,000
Renovation - Second Floor Classrms	23,330	gsf	\$ 200	\$ 4,666,000	\$ 4,666,000	\$ -	\$ -	\$ -	\$ 4,666,000
New Media Center-First Floor	10,000	gsf	\$ 400	\$ 4,000,000	\$ 4,000,000	\$ -	\$ -	\$ -	\$ 4,000,000
New Media Center-Second Floor	8,000	gsf	\$ 400	\$ 3,200,000	\$ 3,200,000	\$ -	\$ -	\$ -	\$ 3,200,000
New 3 Stop Elevator	1	allow.	\$ 200,000	\$ 200,000	\$ 200,000	\$ -	\$ -	\$ -	\$ 200,000
Media Center Sitework Allowance	1	allow.	\$ 80,000	\$ 80,000	\$ 80,000	\$ -	\$ -	\$ -	\$ 80,000
Description	Qty.	Unit	Unit Price	Subtotal	Phase 1A	Phase 1B	Phase 2	Phase 3	Phase 4
Demolition - Team Room Area	6,000	gsf	\$ 75	\$ 450,000	\$ -	\$ -	\$ 450,000	\$ -	\$ 450,000
Renovation - Second Floor Hallway	1,000	gsf	\$ 150	\$ 150,000	\$ -	\$ -	\$ 150,000	\$ -	\$ 150,000
New Field House - First Floor	24,000	gsf	\$ 400	\$ 9,600,000	\$ -	\$ -	\$ 9,600,000	\$ -	\$ 9,600,000
New Field House - Second Floor	14,000	gsf	\$ 400	\$ 5,600,000	\$ -	\$ -	\$ 5,600,000	\$ -	\$ 5,600,000
New Athletic Offices & Storage	3,400	gsf	\$ 400	\$ 1,360,000	\$ -	\$ -	\$ 1,360,000	\$ -	\$ 1,360,000
New Gym Entry Canopy	800	sf	\$ 80	\$ 64,000	\$ -	\$ -	\$ 64,000	\$ -	\$ 64,000
Gym Area Sitework	1	allow.	\$ 80,000	\$ 80,000	\$ -	\$ -	\$ 80,000	\$ -	\$ 80,000
Renovation - Special Education	15,000	gsf	\$ 200	\$ 3,000,000	\$ -	\$ 3,000,000	\$ -	\$ -	\$ 3,000,000
Renovation - Science Wing	60,000	gsf	\$ 200	\$ 12,000,000	\$ -	\$ -	\$ -	\$ 12,000,000	\$ 12,000,000
New Parking Deck	80	spaces	\$ 30,000	\$ 2,400,000	\$ -	\$ -	\$ 2,400,000	\$ -	\$ 2,400,000
					Phase 1A	Phase 1B	Phase 2	Phase 3	Total
			Subtotal	\$ 57,165,000	\$ 18,636,000	\$ 6,825,000	\$ 19,704,000	\$ 12,000,000	\$ 57,165,000
Design Contingency	10%			\$ 5,716,500	\$ 1,863,600	\$ 682,500	\$ 1,970,400	\$ 1,200,000	\$ 5,716,500
Subtotal				\$ 62,881,500	\$ 20,499,600	\$ 7,507,500	\$ 21,674,400	\$ 13,200,000	\$ 62,881,500
Proposed Build Year				2020	2020	2020	2020	2020	
Escalation				14.1%	14.1%	14.1%	14.1%	14.1%	
Escalation Increase				\$ 8,876,738	\$ 2,893,849	\$ 1,059,805	\$ 3,059,691	\$ 1,863,393	\$ 8,876,738
Subtotal				\$ 71,758,238	\$ 23,393,449	\$ 8,567,305	\$ 24,734,091	\$ 15,063,393	\$ 71,758,238
Construction Contingency	10%			\$ 7,175,824	\$ 2,339,345	\$ 856,730	\$ 2,473,409	\$ 1,506,339	\$ 7,175,824
Construction Subtotal				\$ 78,934,061	\$ 25,732,794	\$ 9,424,035	\$ 27,207,500	\$ 16,569,732	\$ 78,934,061
Project Costs	18%			\$ 14,208,131	\$ 4,631,903	\$ 1,696,326	\$ 4,897,350	\$ 2,982,552	\$ 14,208,131
Project Total				\$ 93,142,193	\$ 30,364,697	\$ 11,120,361	\$ 32,104,850	\$ 19,552,284	\$ 93,142,193
			Round To	\$ 93,140,000	\$ 30,360,000	\$ 11,120,000	\$ 32,100,000	\$ 19,550,000	\$ 93,130,000

APPENDIX C

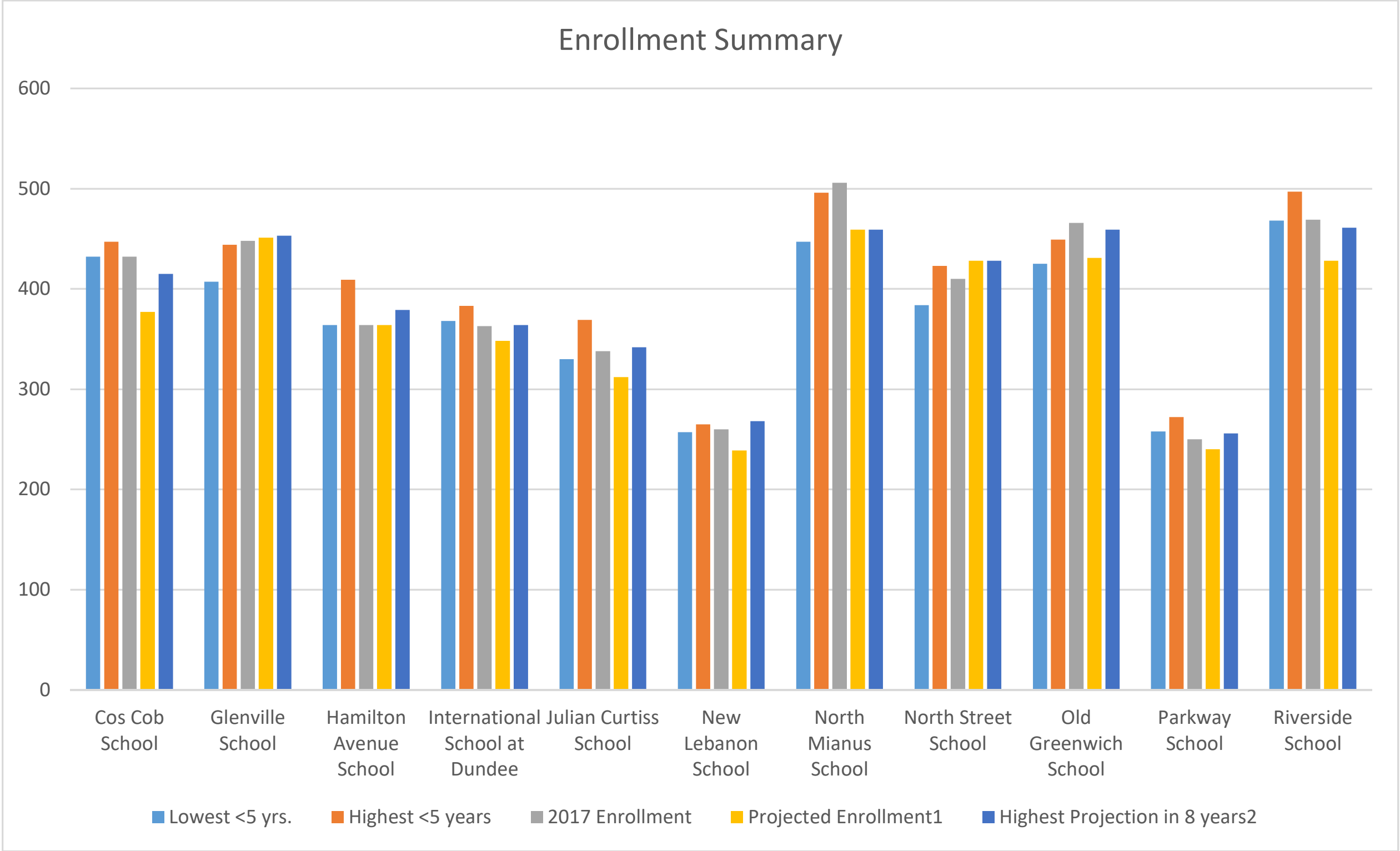
ENROLLMENT PROJECTIONS

Greenwich Public Schools Master Plan

Enrollment Planning Summary

		Lowest <5 yrs.	Highest <5 years	2017 Enrollment	Projected Enrollment ₁	Highest Projection in 8 years ₂	Planning Target
Elementary	Cos Cob School	432	447	432	377	415	415
	Glenville School	407	444	448	451	453	453
	Hamilton Avenue School	364	409	364	364	379	379
	International School at Dundee	368	383	363	348	364	364
	Julian Curtiss School	330	369	338	312	342	342
	New Lebanon School	257	265	260	239	268	268
	North Mianus School	447	496	506	459	459	459
	North Street School	384	423	410	428	428	428
	Old Greenwich School	425	449	466	431	459	459
	Parkway School	258	272	250	240	256	256
	Riverside School	468	497	469	428	461	461
	Subtotal Elementary	4140	4454	4306	4077	4284	4284
						Change	-22
Middle	Central Middle School	558	599	582	531	588	588
	Eastern Middle School	779	846	842	789	885	885
	Western Middle School	504	558	593	572	645	645
	Subtotal Middle	1841	2003	2017	1892	2118	2118
						Change	101
High	Greenwich High School	2547	2677	2694	2757	2951	2951
						Change	257
	Grand Total	8528	9134	9017	8726	9353	9353
						Change	336
	1 - Projected dates are for 5 yrs. for elementaries (2022), 8 yrs. for Middle (2025) and 10 yrs. for High School (2027)						3.7%
	2 - CT. uses the highest enrollment in 8 yrs. as a benchmark or target for future planning						
	All figures are from Demographic Study by Statistical Forecasting - September 2017						

Greenwich Master Plan





Demographic Study

for the

Greenwich Public Schools

September 2017

Prepared By:
Richard S. Grip, Ed.D.

Table of Contents	
	Page
Executive Summary	3
Introduction	6
Population Trends in the Town of Greenwich	6
Town of Greenwich Demographic Profile.....	8
District Overview	10
Explanation of the Cohort-Survival Ratio Method	13
Historical Enrollment Trends.....	14
Kindergarten Replacement	18
Birth Data	20
New Housing in Greenwich	29
Student Yields	30
Historical Residential Construction	31
Home Sales	31
Distribution of Homes by Decade Built	32
Enrollment Projections	33
Projected Enrollments by Grade Configuration	35
Projections by School	36
Cos Cob School	36
Glenville School	37
Hamilton Avenue School	38
International School at Dundee.....	39
Julian Curtiss School	40
New Lebanon School	41
North Mianus School	42
North Street School	43
Old Greenwich School	44
Parkway School	45
Riverside School	46
Central Middle School	47
Eastern Middle School	48
Western Middle School	49
Greenwich High School	50

Executive Summary

Statistical Forecasting LLC (“Statistical Forecasting”) completed a demographic study for the Greenwich Public Schools, projecting enrollments from 2018-19 through 2027-28, a ten-year period. Information was also collected regarding community population trends and age structure, birth and fertility rates, and new housing starts.

Community Overview

In the Town of Greenwich (“Greenwich”), the population grew steadily from 1940-1970, with its greatest gain occurring in the 1950s (+31.7%). After small declines in the 1970s and 1980s, Greenwich’s population increased in 2000 before remaining nearly constant in 2010. In 2015, Greenwich’s population was estimated to be 62,434.

Regarding race, Whites are the largest race in Greenwich and consisted of 86.7% of the population in 2010. Asians were the second-largest race at 6.6%. In general, the community’s racial distribution has changed little from 2000 to 2010.

With respect to nativity, 23.0% of Greenwich residents are foreign-born. Japan and China are the largest sources of the foreign-born population.

Historical Enrollment Trends

Historical enrollments were analyzed from 2007-08 through 2017-18. In general, enrollment declined from 2007-08 to 2013-14, losing 203 students over this time period. However, enrollment has reversed trend and has increased by a total of 252 students in the last four years. Enrollment is 9,017 in 2017-18, which is a gain of 49 students from the 2007-08 enrollment of 8,968.

Kindergarten replacements were analyzed to determine whether there was any relationship between overall enrollment change and kindergarten replacement, which is the numerical difference between the number of graduating 12th graders and the number of entering kindergarten students. Positive kindergarten replacement occurs when the number of graduating 12th grade students is less than the number of kindergarten students entering the district in the next year. Negative kindergarten replacement occurs when the number of graduating 12th grade students is larger than the number of kindergarten students replacing them in the next year. In 2017-18, there was a loss of 16 students due to kindergarten replacement, as 646 twelfth graders graduated in 2016-17 and were replaced by 630 kindergarten students in 2017-18.

Birth Counts

The number of births in Greenwich was used to project kindergarten enrollments. The number of births in the town has been generally declining. Births declined from 753 in 2002 to 593 in 2014, which is a 21.2% loss. In comparing both 2002 and 2014 at the elementary attendance area level, the greatest number of births in 2002 occurred in the Julian Curtiss attendance area while the New Lebanon attendance area had the greatest number in 2014. With the exception of the Glenville and New Lebanon attendance areas, each area had fewer births in 2014 as compared to 2002.

Regarding fertility rates, Greenwich’s rate is slightly above the fertility rate in both Fairfield County and the State of Connecticut.

The 2000 and 2010 age-sex diagrams for Greenwich were created to show the percentage of males and females in each age class. The largest number of individuals in 2000 was aged 35-39 for females and 5-9 for males (35-39 was second-largest for males). As these individuals advance in age, the largest cohort in 2010 was aged 45-49 for females and 10-14 for males. From 2000 to 2010, the greatest declines occurred in the 35-39 age group for both males and females. There was also a significant decline in the 30-34 age group, which corresponds to the ages when many females have their children. It is likely that the declining number of females in the 30-34 and 35-39 age groups has led to the declining birth rate in Greenwich.

Potential New Housing

Greenwich municipal representatives provided information regarding current and future residential development in the community. There is the potential for 69 apartment units and 28 townhouse/condo units in seven separate developments, which is a total of 97 units. None of the developments are currently under construction. In total, 16 public school children (K-12) are projected to be generated from the new housing developments.

Enrollment Projections

Enrollments were projected at the school level and were computed for each grade from the 2018-19 school year through the 2027-28 school year, a period of ten years. It should be noted that a five-year projection is more reliable than a ten-year projection. Since birth data are used to project kindergarten students five years later, the ten-year projection in years 6-10 relies on estimated birth counts in order to project the number of kindergarten students. For this reason, elementary projections are much more susceptible to higher error rates in a ten-year projection as compared to middle or high school projections, which rely on either children that have already been born or that are currently enrolled in the district.

Total enrollment is projected to be fairly stable in the next five years before declining. In 2022-23, which is the fifth year of the projection period, enrollment is projected to be 9,039, which would be a gain of 22 students from the 2017-18 enrollment of 9,017. In 2027-28, which is the tenth year of the projection period, enrollment is projected to be 8,772, which would be a loss of 245 students from the 2017-18 enrollment.

At the elementary level containing grades PK-5, enrollment is projected to decline for the first five years of the projection period. In 2022-23, enrollment is projected to be 4,077, which would represent a decline of 229 students from the 2017-18 enrollment of 4,306. Enrollment is projected to be fairly stable in the last five years of the projection period. The stabilization in enrollment is related to holding the projected number of births from 2015-2022 nearly constant, which results in constant kindergarten counts five years later and subsequent elementary grades. In 2027-28, enrollment is projected to be 4,088, which would be a decline of 218 students from the 2017-18 enrollment.

For grades 6-8, enrollment is projected to increase through 2019-20 before reversing trend. Enrollment is projected to be 2,011 in 2022-23, which would represent a decline of six (6) students from the 2017-18 enrollment of 2,017. In the last five years of the projection period, enrollments are projected to decline before reversing trend near the end of the projection period. In 2027-28, enrollment is projected to be 1,927, which would be a decline of 90 students from the 2017-18 enrollment.

For grades 9-12 at Greenwich High School, enrollment is projected to increase through 2022-23 before reversing trend. In 2022-23, enrollment is projected to be 2,951, which would be a gain of 257 students from the 2017-18 enrollment. In 2027-28, enrollment is projected to be 2,757, which would be a gain of 63 students from the 2017-18 enrollment.

Introduction

Statistical Forecasting LLC (“Statistical Forecasting”) completed a demographic study for the Greenwich Public Schools, projecting enrollments from 2018-19 through 2027-28, a ten-year period. Information was also collected regarding community population trends and age structure, birth and fertility rates, and new housing starts.

Population Trends in the Town of Greenwich

Located in Fairfield County, the Town of Greenwich (“Greenwich”) contains a land area of approximately 47.62 square miles, with an additional 19.67 square miles of water area. In the 2010 Census, Greenwich had 61,171 residents, which is approximately 1,284.6 persons per square mile. Historical populations for Greenwich from 1940-2010 are shown in Table 1 and Figure 1. Greenwich’s population grew steadily from 1940-1970, with its greatest gain occurring in the 1950s (+31.7%). After small declines in the 1970s and 1980s, Greenwich’s population increased in 2000 before remaining nearly constant in 2010.

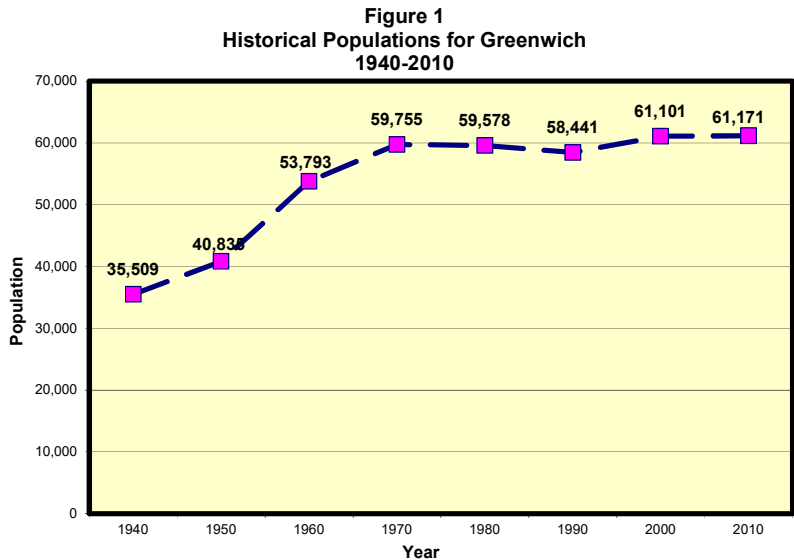
While not shown in the table, Greenwich’s estimated population in 2015 was 62,434 persons, which would be a gain of more than 1,200 persons from 2010. The Census Bureau publishes estimates every July 1st following the last decennial census and are computed using the decennial census base counts, number of births and deaths in a community, and migration data (both domestic and international).

Table 1
Historical Populations for Greenwich
1940-2010

Year	Population	Percent Change
1940	35,509	N/A
1950	40,835	+15.0%
1960	53,793	+31.7%
1970	59,755	+11.1%
1980	59,578	-0.3%
1990	58,441	-1.9%
2000	61,101	+4.6%
2010	61,171	+0.1%

Source: United States Census Bureau

Population projections for 2020 and 2025¹ indicate that the population in Greenwich is expected to decline to 58,274 by 2025. However, since Greenwich’s population continues to increase, that projection is likely in error and is not shown in either Table 1 or Figure 1.



¹ Connecticut Open Data (2017). Retrieved June 26, 2017 from <https://data.ct.gov/Government/Connecticut-Town-Population-Projections-2015-2025/mze8-865g> data.ct.gov

Town of Greenwich Demographic Profile

In Table 2 following, selected demographic characteristics of Greenwich are compared from the 2000 and 2010 Censuses and the 2011-2015 American Community Survey (“ACS”). While some Census variables account for everyone in the population (e.g., age and race), other variables are collected from a sample (e.g., median family income, educational attainment, poverty status, etc.). The ACS replaced the long form of the Census, last administered in 2000 to approximately 16% of the population in the United States. For small municipalities such as Greenwich, ACS data represent a sample collected over a five-year time period, where the estimates represent the average characteristics between January 2011 and December 2015. This information does not represent a single point in time like the long form of earlier Censuses. The five-year ACS contains 1% annual samples from all households and persons from 2011-2015, resulting in a 5% sample of the population. Due to the small sample size, the sampling error is quite large, which increases the degree of uncertainty of the estimated values. Therefore, the forthcoming ACS data should be interpreted with caution.

Whites are the largest race in Greenwich, consisting of 86.7% of the population in 2010, which is a decline of 3.3 percentage points from the 2000 percentage (90.0%). Asians were the second-largest race at 6.6%. In general, the community’s racial distribution has changed little from 2000 to 2010. The Census Bureau does not consider Hispanic as a separate race; rather it identifies the percent of people having Hispanic origin. Hispanics in the Census population can be part of the White, Black, Asian, or any of the other race categories. It is not a mutually exclusive race category. The concentration of persons having Hispanic origin was 9.7% in 2010, which is a 3.4 percentage point increase from the 2000 percentage (6.3%).

Regarding nativity, 23.0% of Greenwich residents were foreign-born in the 2011-2015 ACS, which is greater than the 2000 percentage (19.0%). As a point of comparison, Connecticut’s foreign-born resident percentage was much lower at 13.9% in the 2011-2015 ACS. While not shown in the table, place of birth, which serves as a proxy for country of origin, indicates that Japan and the United Kingdom were the largest sources of immigrants in 2000, accounting for 10.2% and 9.4% respectively of the foreign-born population. In the 2011-2015 ACS, Japan remains the largest source but accounts for a smaller share (7.1%) of the foreign-born population, indicating a diverse population of immigrants. China is now the second-largest source (7.0%) of foreign-born persons.

The median age in Greenwich has increased from 40.2 years in 2000 to 42.8 years in 2010, which is slightly higher than the median age in Connecticut (40.0 years). During the same time period, the percentage of people under the age of 18 years increased slightly from 25.4% to 26.7%.

Regarding educational attainment for adults aged 25 and over, 64.8% of the population had a bachelor’s degree or higher in the 2011-2015 ACS as compared to 58.8% in 2000, which is a gain of 6.0 percentage points. Greenwich is a highly-educated population, as its percentage of persons having a bachelor’s degree or higher is much greater than the state of Connecticut (37.6%). Persons with graduate or professional degrees increased from 27.3% to 31.7% during this time period.

Table 2
Selected Demographic Characteristics of Greenwich

Race Origin	2000 Census	2010 Census 2011-2015 ACS
White	90.0%	86.7%
Black or African American	1.7%	2.1%
American Indian and Alaska Native	0.1%	0.1%
Asian	5.2%	6.6%
Native Hawaiian and Other Pacific Islander	0.0%	0.0%
Other Race	1.5%	2.4%
Two or more Races	1.6%	2.0%
Total	100.0% ¹	100.0% ¹
Hispanic Origin	6.3%	9.7%
Place of Birth		
Foreign-Born	19.0%	23.0%
Age		
Under 18	25.4%	26.7%
18-64	58.7%	56.8%
65 and over	15.9%	16.5%
Median age	40.2 years	42.8 years
Educational Attainment		
Bachelor's degree or higher	58.8%	64.8%
Graduate or professional degree	27.3%	31.7%
Income		
Median family income	\$122,719	\$170,970
% of Persons in Poverty aged 5-17	4.3%	4.9%
Housing Units		
Total number	24,511	25,631 ²
Occupied units	23,230 (94.8%)	23,076 (90.0%)
Owner-occupied units	15,990 (68.8%)	15,485 (67.1%)
Renter-occupied units	7,240 (31.2%)	7,591 (32.9%)
Median value of an owner-occupied unit	\$781,500	\$1,169,900
Average household size	2.60	2.62
Housing Type		
Total number	24,511	24,242 ²
1-unit, attached or detached	16,961 (69.2%)	17,237 (71.1%)
Two units	2,556 (10.4%)	2,516 (10.4%)
Three or four units	1,451 (5.9%)	1,337 (5.5%)
Five to nine units	1,002 (4.1%)	988 (4.1%)
10 to 19 units	614 (2.5%)	640 (2.6%)
20 or more units	1,912 (7.8%)	1,487 (6.1%)
Mobile home, Boat, Van, RV, etc.	0 (0.0%)	37 (0.2%)

Sources: American Community Survey (2011-2015), United States Census (2000 and 2010)
Notes: ¹Data may not sum to 100.0% due to rounding.
²Total number differs as Housing Units are from the 2010 Census while Housing Type data are from the 2011-2015 ACS.

Median family income increased from \$122,719 in 2000 to \$170,970 in the 2011-2015 ACS, a gain of 39.3%. By comparison, median family income in Connecticut is \$89,031, which is nearly half that of Greenwich’s. During this time period, the percentage of school-age children (5-17) that are in poverty increased slightly from 4.3% to 4.9%.

Regarding housing, there were 25,631 housing units in Greenwich in 2010, which is a gain of 1,120 housing units (+4.6%) from 2000. From 2000 to 2010, the overall occupancy rate declined from 94.8% to 90.0%, which may be a function of the housing market crash in the late 2000s. Renter-occupied units accounted for 32.9% of the occupied units in 2010, which is a small increase from the 2000 percentage (31.2%). In the last decade, the average household size increased slightly from 2.60 to 2.62 persons. Finally, the median home price of an owner-occupied unit in the 2011-2015 ACS was \$1,169,900, which is a gain of 49.7% from the value reported in 2000 (\$781,500).

With respect to housing type, 71.1% of the homes are one-unit, either attached or detached, which is a 1.9 percentage-point increase from 2000. Homes with two units were the second-largest type of housing in the 2011-2015 ACS and consisted of 10.4% of the housing stock.

District Overview

The Greenwich Public Schools has eleven (11) elementary schools that serve grades K-5, three middle schools that educate children in grades 6-8, and one high school educating children in grades 9-12. Pre-kindergarten programs exist at Hamilton Avenue, North Street, Old Greenwich, and Parkway Schools. An alternative high school program also exists at Greenwich High School. Four of the elementary schools are magnet schools (Hamilton Avenue, International School at Dundee, Julian Curtiss, and New Lebanon) as well as Western Middle School. In Figure 2, the location of each of the district’s schools is shown with respect to the municipal boundaries. Figure 3 shows only the elementary schools and their respective attendance areas.

In this study, historical enrollments from the Connecticut State Department of Education (“CSDE”) database were used to project enrollments for ten years into the future. Future enrollments were then projected using the Cohort-Survival Ratio method.

Figure 2
School Locations – Greenwich Public Schools

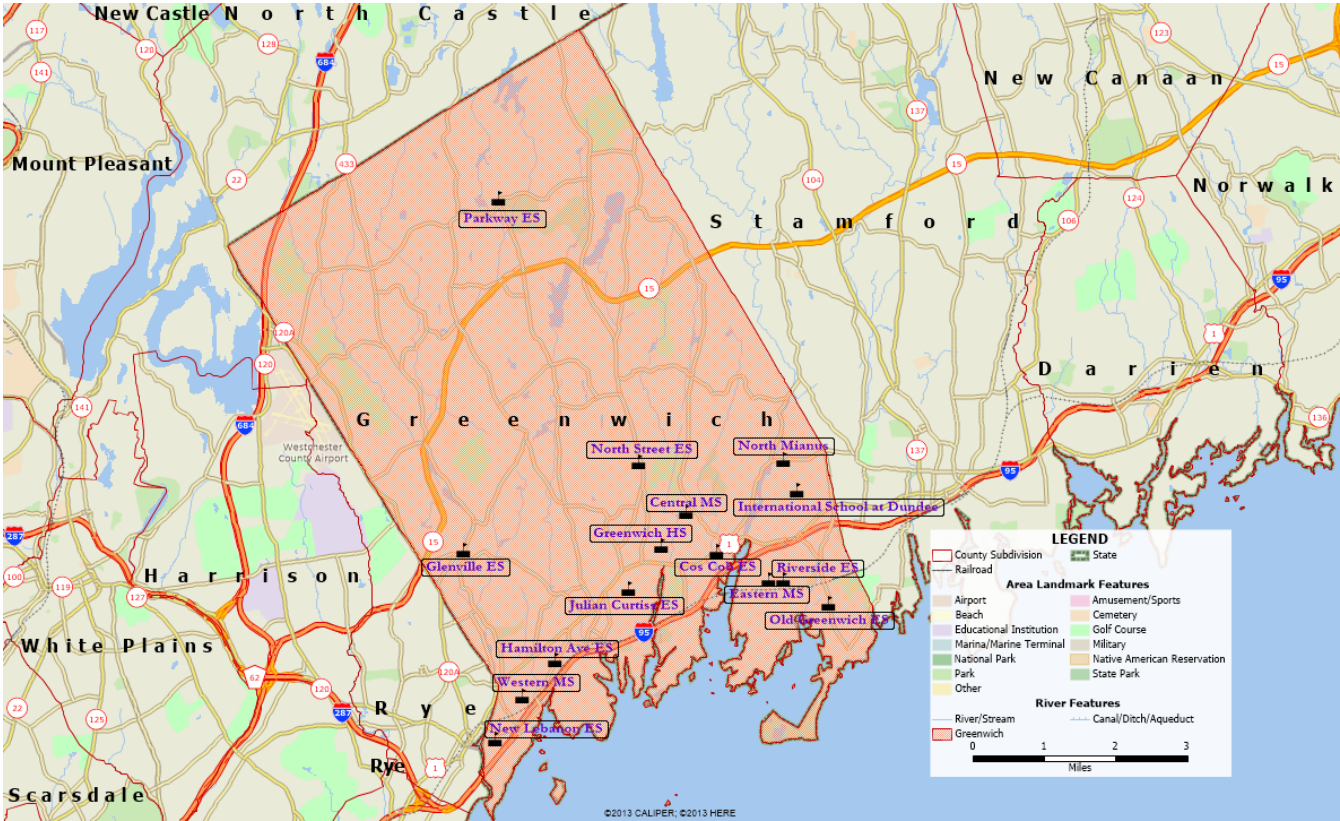
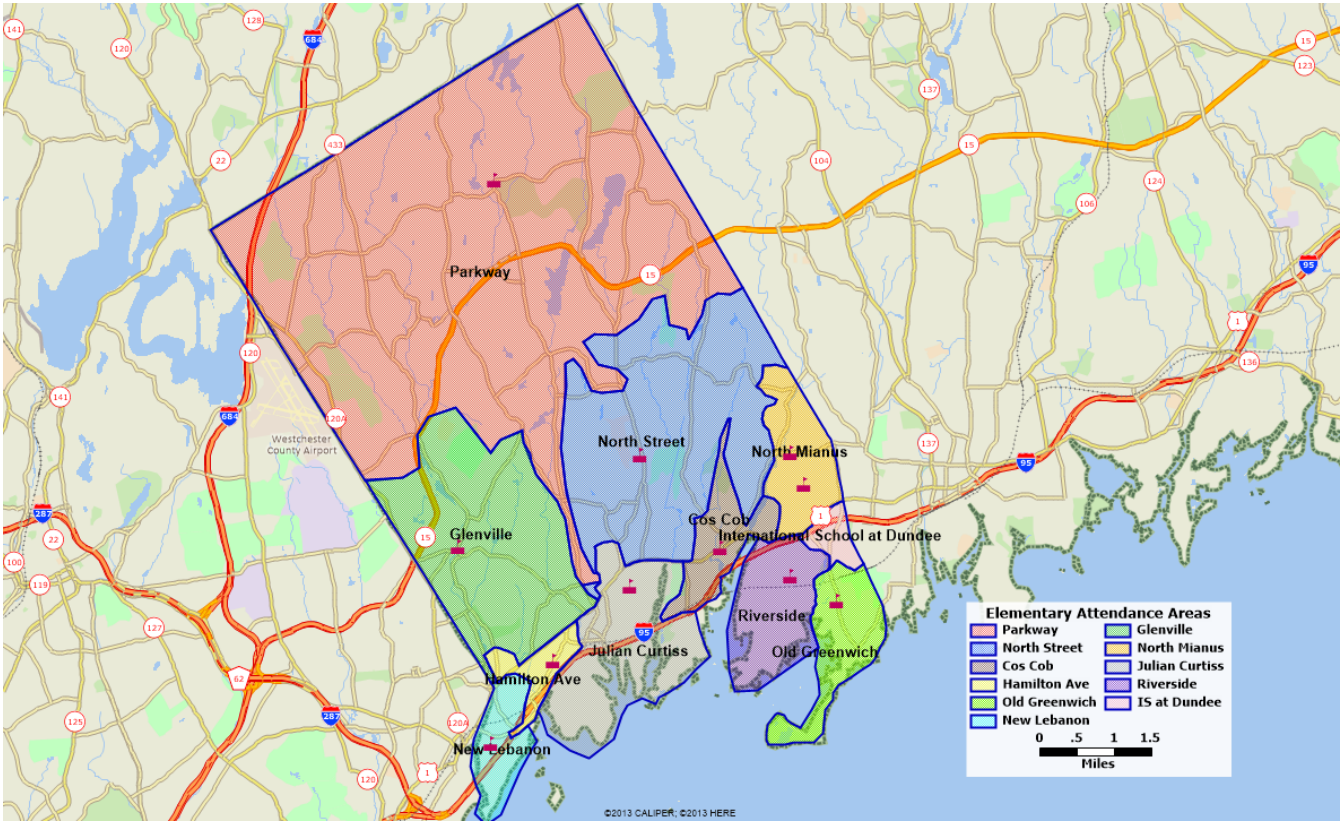


Figure 3
Elementary School Locations and Attendance Areas



Explanation of the Cohort-Survival Ratio Method

In 1930, Dublin and Lodka provided an explicit age breakdown, which enabled analysts to follow each cohort through its life stages and apply appropriate birth and death rates for each generation. A descendant of this process is the Cohort-Survival Ratio (“CSR”) method, which is used to project public school enrollments. In this method, a survival ratio is computed for each grade progression, which essentially compares the number of students in a particular grade to the number of students in the previous grade during the previous year. The survival ratio indicates whether the enrollment is stable, increasing, or decreasing. A survival ratio of one indicates stable enrollment, less than one indicates declining enrollment, while greater than one indicates increasing enrollment. If, for example, a school district had 100 fourth graders and the next year only had 95 fifth graders, the survival ratio would be 0.95.

The CSR method assumes that what happened in the past will also happen in the future. In essence, this method provides a linear projection of the population. The CSR method is most applicable for districts that have relatively stable increasing or decreasing trends without any major unpredictable fluctuations from year to year. In school districts encountering rapid growth not experienced historically (a change in the historical trend), the CSR method must be modified and supplemented with additional information. In this study, survival ratios were calculated using historical data for birth to kindergarten, kindergarten to first grade, first grade to second grade, etc. Due to the fluctuation in survival ratios from year to year, it is appropriate to calculate an average survival ratio, which is then used to calculate grade enrollments ten years into the future.

Historical Enrollment Trends

Historical enrollments for the Greenwich Public Schools from 2007-08 through 2017-18 are shown in Figure 4 and Table 3. In general, enrollment declined from 2007-08 to 2013-14, losing 203 students over this time period. However, enrollment has reversed trend and has increased by a total of 252 students in the last four years. Enrollment is 9,017 in 2017-18, which is a gain of 49 students from the 2007-08 enrollment of 8,968.

Table 3 following shows computed grade-by-grade survival ratios from 2007-08 to 2017-18. In addition, the average, minimum, and maximum survival ratios are shown for the past ten years along with the six-year averages, which were used to project enrollments. The average survival ratios also indicate the net migration by grade, where values over 1.000 reflect net inward migration and values below 1.000 reflect net outward migration. Nine of the thirteen average survival ratios (six-year average) were above 1.000, indicating a net inward migration of students. Most of the ratios that were above 1.000 were in the lower elementary grades. Factors related to inward migration include families with school-age children purchasing an existing home or new housing unit. The reasons for families moving into a community vary. For instance, a family could move into Greenwich for economic reasons and proximity to employment. Another plausible reason for inward migration is the reputation of the school district, as the appeal of a school district draws families into a community, resulting in the transfer of students into the district. On the flip side, outward migration is caused by families with children moving out of the community, perhaps due to difficulty in finding employment or affordable housing. Outward migration in the school district can also be caused by parents choosing to withdraw their children from public school to attend private or parochial schools. In the case of the Greenwich Public Schools, the reasons for migration are not explicitly known (such as for economic reasons or the appeal of the school district), as exit and entrance interviews would need to be conducted for all children leaving or entering the district.

Figure 4
Greenwich Public Schools Historical Enrollment
2007-08 to 2017-18

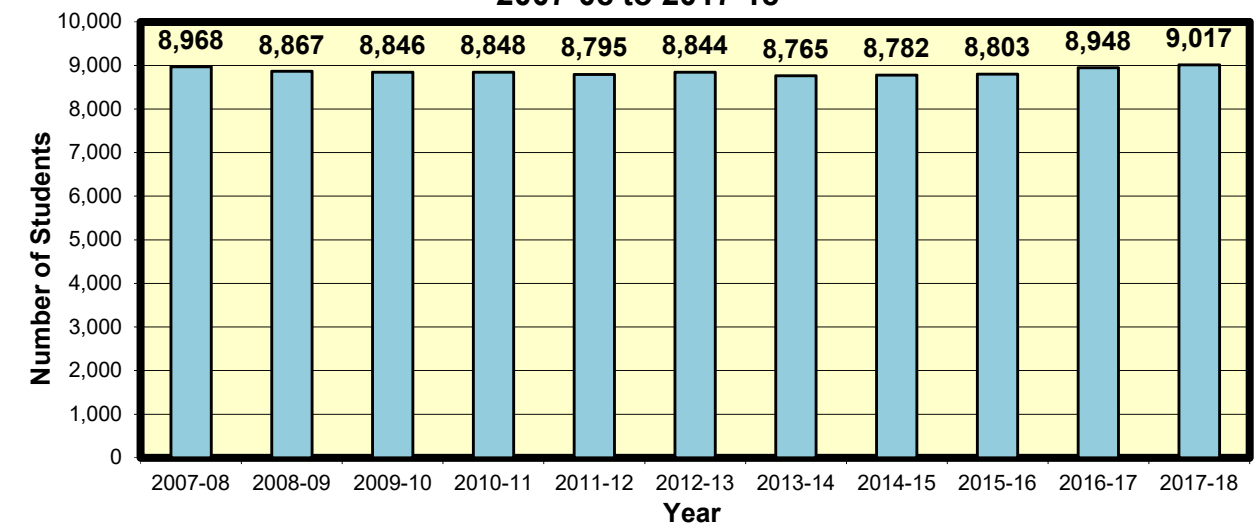


Table 3
Greenwich Public Schools Historical Enrollments
2007-08 to 2017-18

Year ¹	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	PK-5 Total	6-8 Total	9-12 Total	PK-12 Total ²
2007-08	160	694	734	663	704	709	646	649	669	647	653	679	681	680	4,310	1,965	2,693	8,968
2008-09	150	673	689	718	663	695	671	618	650	663	645	661	675	696	4,259	1,931	2,677	8,867
2009-10	145	696	686	671	720	658	687	631	620	644	710	650	633	695	4,263	1,895	2,688	8,846
2010-11	140	695	698	687	682	720	646	647	630	630	676	708	640	649	4,268	1,907	2,673	8,848
2011-12	139	663	729	685	683	683	705	597	637	618	652	669	695	640	4,287	1,852	2,656	8,795
2012-13	146	696	654	738	691	685	672	660	594	631	655	659	673	690	4,282	1,885	2,677	8,844
2013-14	149	690	704	650	713	674	671	635	658	585	654	648	653	681	4,251	1,878	2,636	8,765
2014-15	153	663	707	715	664	733	679	643	631	647	606	656	649	636	4,314	1,921	2,547	8,782
2015-16	163	679	667	728	707	672	697	641	643	640	667	614	660	625	4,313	1,924	2,566	8,803
2016-17	162	664	699	678	750	701	685	685	643	634	686	694	621	646	4,339	1,962	2,647	8,948
2017-18	154	630	678	696	684	749	715	682	692	643	672	706	690	626	4,306	2,017	2,694	9,017

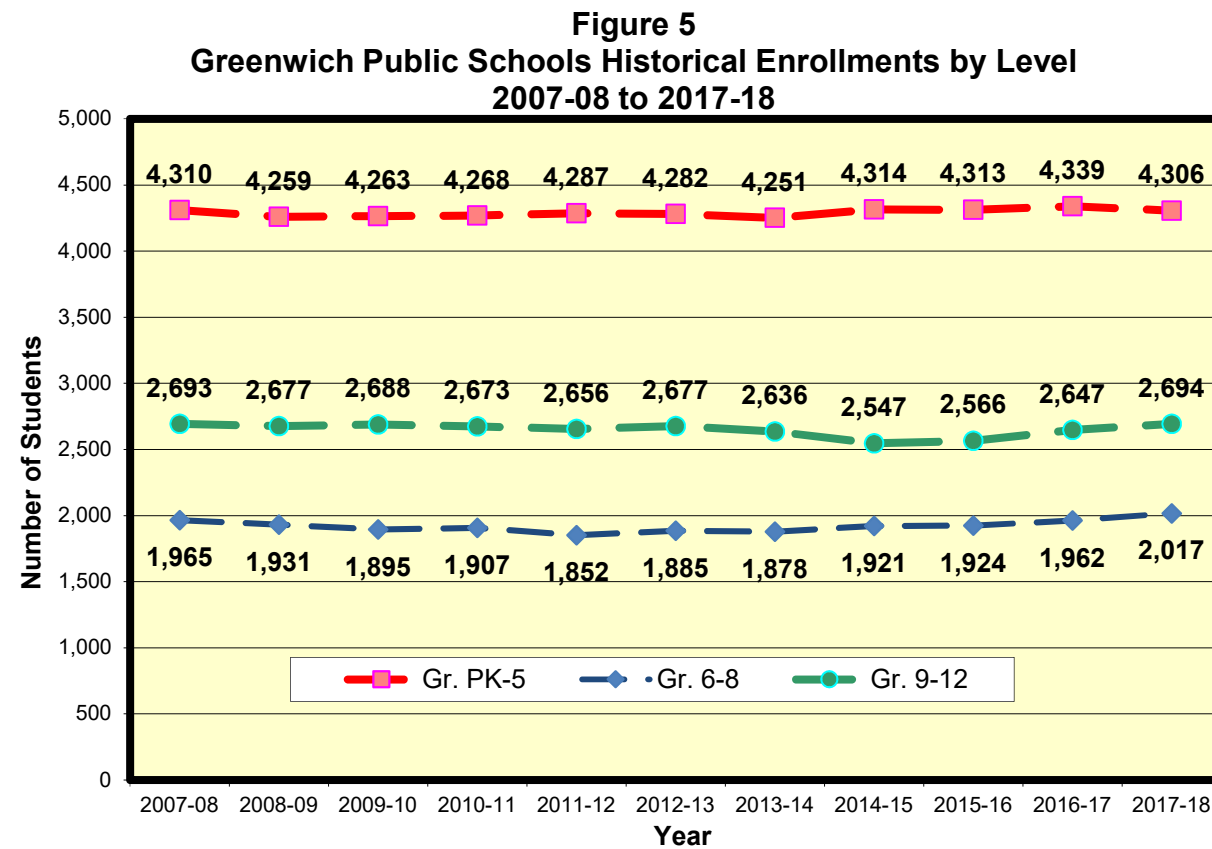
Notes: ¹Data were provided by the Connecticut State Department of Education (<http://edsight.ct.gov/SASPortal/main.do>) and the Greenwich Public Schools

²Does not include students from Community Connections

Table 4
Greenwich Public Schools Historical Survival Ratios
2007-08 to 2017-18

Progression Years	B-K	K-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
2007-08 to 2008-09	0.9399	0.9928	0.9782	1.0000	0.9872	0.9464	0.9567	1.0015	0.9910	0.9969	1.0123	0.9941	1.0220
2008-09 to 2009-10	0.9405	1.0193	0.9739	1.0028	0.9925	0.9885	0.9404	1.0032	0.9908	1.0709	1.0078	0.9576	1.0296
2009-10 to 2010-11	1.0373	1.0029	1.0015	1.0164	1.0000	0.9818	0.9418	0.9984	1.0161	1.0497	0.9972	0.9846	1.0253
2010-11 to 2011-12	0.9866	1.0489	0.9814	0.9942	1.0015	0.9792	0.9241	0.9845	0.9810	1.0349	0.9896	0.9816	1.0000
2011-12 to 2012-13	1.1504	0.9864	1.0123	1.0088	1.0029	0.9839	0.9362	0.9950	0.9906	1.0599	1.0107	1.0060	0.9928
2012-13 to 2013-14	1.0970	1.0115	0.9939	0.9661	0.9754	0.9796	0.9449	0.9970	0.9848	1.0365	0.9893	0.9909	1.0119
2013-14 to 2014-15	1.1162	1.0246	1.0156	1.0215	1.0281	1.0074	0.9583	0.9937	0.9833	1.0359	1.0031	1.0015	0.9740
2014-15 to 2015-16	1.0952	1.0060	1.0297	0.9888	1.0120	0.9509	0.9440	1.0000	1.0143	1.0309	1.0132	1.0061	0.9630
2015-16 to 2016-17	1.0295	1.0295	1.0165	1.0302	0.9915	1.0193	0.9828	1.0031	0.9860	1.0719	1.0405	1.0114	0.9788
2016-17 to 2017-18	0.9238	1.0211	0.9957	1.0088	0.9987	1.0200	0.9956	1.0102	1.0000	1.0599	1.0292	0.9942	1.0081
Maximum Ratio	1.1504	1.0489	1.0297	1.0302	1.0281	1.0200	0.9956	1.0102	1.0161	1.0719	1.0405	1.0114	1.0296
Minimum Ratio	0.9238	0.9864	0.9739	0.9661	0.9754	0.9464	0.9241	0.9845	0.9810	0.9969	0.9893	0.9576	0.9630
Avg. 6-Year Ratios	1.0687	1.0185	1.0103	1.0031	1.0011	0.9954	0.9651	1.0008	0.9937	1.0470	1.0150	1.0008	0.9871
Avg. 10-Year Ratios	1.0316	1.0143	0.9999	1.0038	0.9990	0.9857	0.9525	0.9987	0.9938	1.0447	1.0093	0.9928	1.0005

Historical enrollments are also shown in Table 3 and Figure 5 by grade configuration (PK-5, 6-8, and 9-12). For grades PK-5, enrollment has been fairly stable, varying from 4,251-4,339, a range of 88 students. In 2017-18, enrollment is 4,306, which is very similar to the 2007-08 enrollment of 4,310.



For grades 6-8, enrollment slowly declined through 2011-12 before reversing trend. In 2017-18, enrollment is 2,017, which represents an increase of 165 students from the 2011-12 trend reversal. However, from a long-term perspective, the 2017-18 enrollment is just slightly higher than that of 2007-08.

At Greenwich High School, which contains grades 9-12, enrollment had been fairly stable before declining in 2014-15. Since then, enrollment has slowly increased. In 2017-18, enrollment is 2,694 students, which is nearly identical to the 2007-08 enrollment of 2,693.

Kindergarten Replacement

Kindergarten replacements were analyzed to determine whether there was any relationship between overall enrollment change and kindergarten replacement, which is the numerical difference between the number of graduating 12th graders and the number of entering kindergarten students. The district experienced positive kindergarten replacement on four occasions, negative kindergarten replacement on three occasions, and zero kindergarten replacement on three occasions. Positive kindergarten replacement occurs when the number of graduating 12th grade students is less than the number of kindergarten students entering the district in the next year. Negative kindergarten replacement occurs when the number of graduating 12th grade students is larger than the number of kindergarten students replacing them in the next year. As shown in Figure 6, positive kindergarten replacement has ranged from 14-56 students per year. In 2017-18, there was a loss of 16 students due to kindergarten replacement, as 646 twelfth graders graduated in 2016-17 and were replaced by 630 kindergarten students in 2017-18.

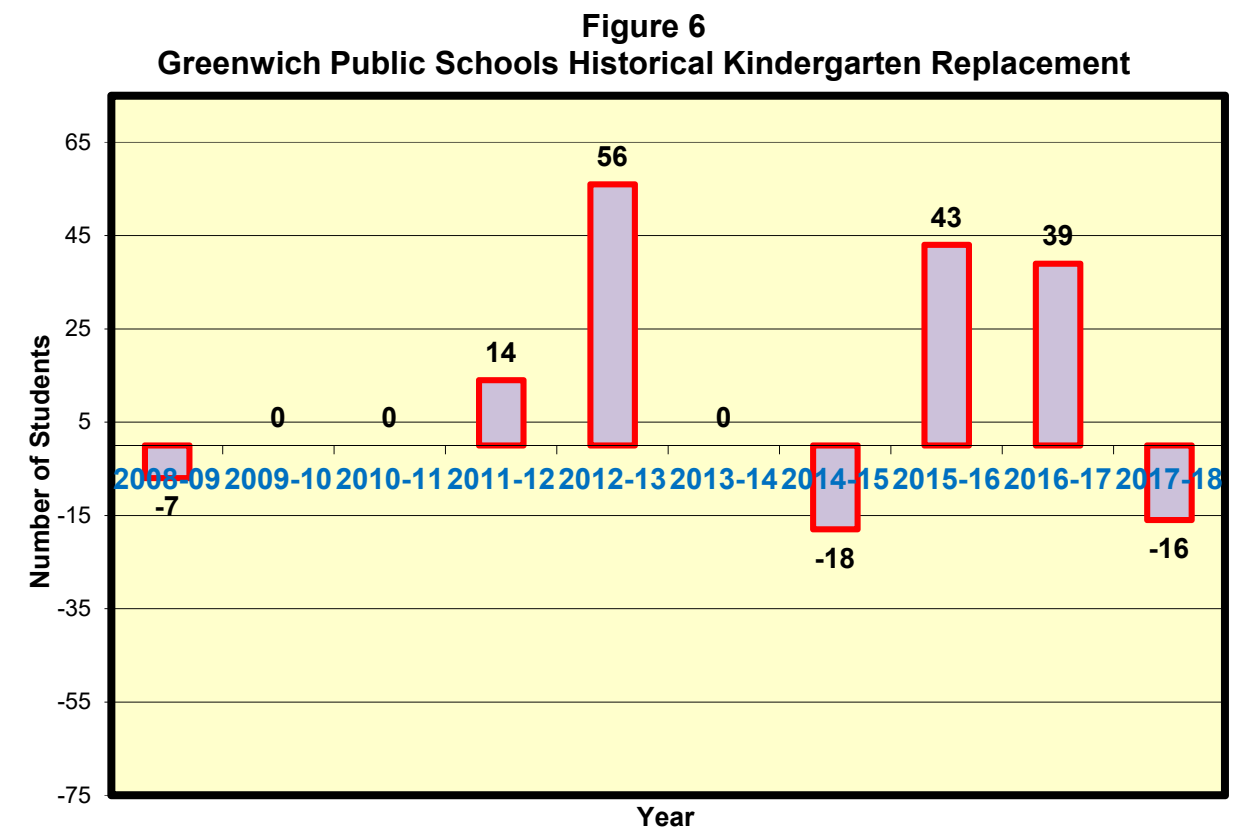
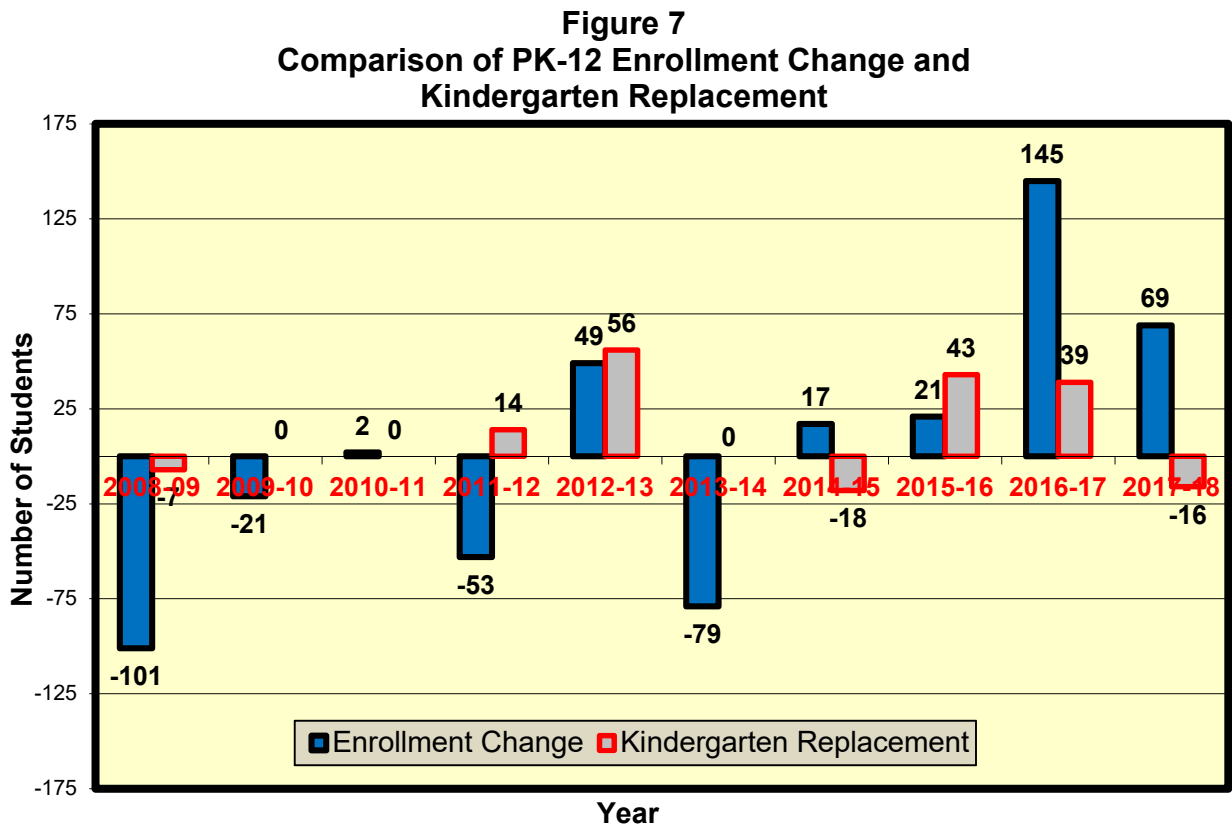


Figure 7 shows the annual change in total enrollment compared to kindergarten replacement. As the figure demonstrates, there appears to be a moderately strong relationship, statistically speaking, between the overall change in enrollment and kindergarten replacement. Although this data represents a small sample, the correlation coefficient between the two variables was 0.43. Correlation coefficients measure the relationship or association between two variables; this does not imply that there is cause and effect between the two variables. Other variables, known as lurking variables, may have an effect on the true relationship between kindergarten replacement and total enrollment change. Negative correlation coefficients indicate that as one variable is increasing (decreasing), the other variable is decreasing (increasing). Positive correlation coefficients indicate that as one of the variables increases (decreases), the other variable increases (decreases) as well. The computed linear correlation coefficient is always between -1 and +1. Values near -1 or +1 indicate a strong linear relationship between the variables while values near zero indicate a weak linear relationship. Based on the correlation of 0.43, there appears to be a moderately strong relationship between kindergarten replacement and enrollment change in the school district in the last nine years.

In the last two years, the magnitude of the overall enrollment change has been greater than the magnitude of the kindergarten replacement, indicating a net inward migration of students in the other grades (K to 1, 1 to 2, 2 to 3, etc.). This was confirmed previously as nine of the thirteen average survival ratios in the six-year trend were above 1.000.



Birth Data

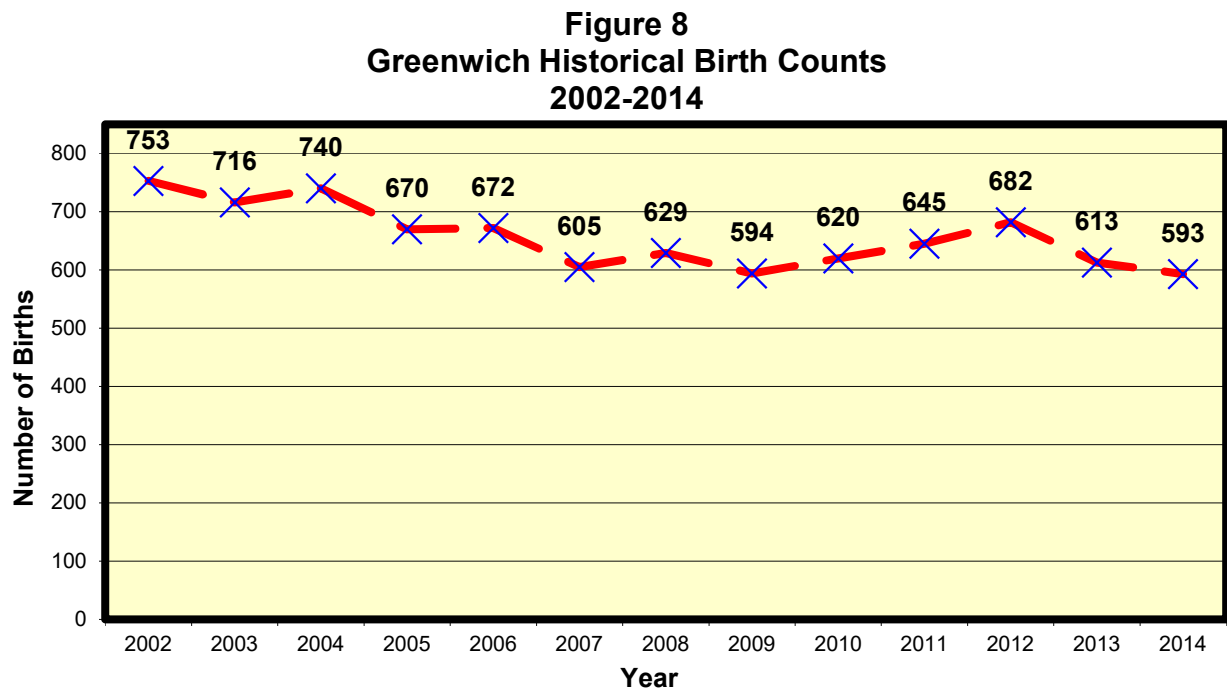
Birth data were needed to compute kindergarten enrollments, which were calculated as follows. Birth data, which are lagged five years behind their respective kindergarten classes, were used to calculate the survival ratio for each birth-to-kindergarten cohort. For instance, in 2012, there were a total of 682 births in Greenwich. Five years later (the 2017-18 school year), 630 children enrolled in kindergarten, which is equal to a survival ratio of 0.924 from birth to kindergarten. Birth counts and birth-to-kindergarten survival ratios are displayed in Table 5. Values greater than 1.000 indicate that some children are born outside of a community’s boundaries and are attending kindergarten in the school district five years later, i.e. an inward migration of children. This type of inward migration is typical in school districts with excellent reputations, because the appeal of a good school district draws families into the community. Inward migration is also seen in communities where there are a large number of new housing starts (or home resales), with families moving into the community having children of age to attend kindergarten. Birth-to-kindergarten survival ratios that are below 1.000 indicate that a number of children born within a community are not attending kindergarten in the school district five years later. This is common in communities where a high proportion of children attend private, parochial, or out-of-district special education facilities, or where there is a net migration of families moving out of the community. It is also common in school districts that have a half-day kindergarten program where parents choose to send their children to a private full-day kindergarten for the first year. Birth-to-kindergarten survival ratios have been above 1.000 in five of the last six years. Birth-to-kindergarten survival ratios have been fairly consistent in the district in the last eleven years, ranging from 0.922 to 1.150.

Table 5
Birth Counts and Historical Birth-to-Kindergarten Survival Ratios
in the Greenwich Public Schools

Birth Year	Number of Births Greenwich ¹	Kindergarten Students Five Years Later	Birth-to-Kindergarten Survival Ratio
2002	753	694	0.922
2003	716	673	0.940
2004	740	696	0.941
2005	670	695	1.037
2006	672	663	0.987
2007	605	696	1.150
2008	629	690	1.097
2009	594	663	1.116
2010	620	679	1.095
2011	645	664	1.029
2012	682	630	0.924
2013	613	N/A	N/A
2014	593	N/A	N/A

Note: ¹Birth data were provided by the Connecticut Department of Public Health.

Geocoded birth data were provided by the Connecticut Department of Public Health (“CTDPH”) from 2002-2014 by assigning geographic coordinates to a birth mother based on her street address. As shown in Figure 8, the number of births in Greenwich has been generally declining. Births declined from 753 in 2002 to 593 in 2014, which is a 21.2% loss.



Using mapping software, elementary school attendance area boundaries, and CTDPH geocoded birth data, the number of births from 2002-2014 was tabulated for each elementary school attendance area and is displayed in Table 6. In some instances, the address of the mother within Greenwich was unknown. For the purposes of projecting enrollment, the unknown births were redistributed into the elementary attendance areas using proportional allocations of the births in each school attendance area with respect to the total number of births.

For comparison purposes, Figures 9 and 10 show the number of births by elementary attendance area in 2002 and 2014. In 2002, the greatest number of births occurred in the Julian Curtiss attendance area while the New Lebanon attendance area had the greatest number in 2014. In both years, the International School at Dundee attendance area had the fewest number of births.

Figure 11 shows the differences in the birth counts by attendance area from 2002-2014. With the exception of the Glenville and New Lebanon attendance areas, each area had fewer births in 2014 as compared to 2002. The North Street area had the largest decline (-63) in the annual number of births over this time period followed by Julian Curtiss (-31). The New Lebanon attendance area had the greatest gain (+63) over this time period. Finally, Figure 12 shows the aggregated number of births by attendance area from 2002-2014. The Julian Curtiss attendance area had the greatest number of births over this time period while the International School at Dundee attendance area had the fewest.

Table 6
Births by Elementary School Attendance Area
in the Greenwich Public Schools
2002-2014

Birth Year	Cos Cob	Glenville	Hamilton Avenue	International School at Dundee	Julian Curtiss	New Lebanon	North Mianus	North Street	Old Greenwich	Parkway	Riverside	Unknown
2002	75	73	56	19	112	65	66	103	59	61	61	3
2003	98	90	44	19	80	53	69	73	55	76	58	1
2004	58	77	70	23	94	70	64	87	56	75	64	2
2005	65	83	56	17	80	56	60	66	62	73	50	2
2006	59	79	58	10	105	56	61	72	48	65	56	3
2007	61	77	62	21	76	53	48	48	48	54	56	1
2008	73	71	44	15	92	75	61	58	55	44	40	1
2009	60	59	73	14	80	90	64	54	32	34	34	0
2010	60	70	75	16	71	70	61	59	54	43	40	1
2011	64	75	59	8	119	59	64	71	46	42	38	0
2012	76	91	77	7	103	88	59	46	48	44	43	0
2013	61	83	65	19	86	61	51	55	43	50	38	1
2014	55	76	49	9	81	128	45	40	40	32	38	0
Total 2002-2014	865	1,004	788	197	1,179	924	773	832	646	693	616	
Difference 2002-2014	-20	+3	-7	-10	-31	+63	-21	-63	-19	-29	-23	

Figure 9
Greenwich Births by Elementary Attendance Area
2002

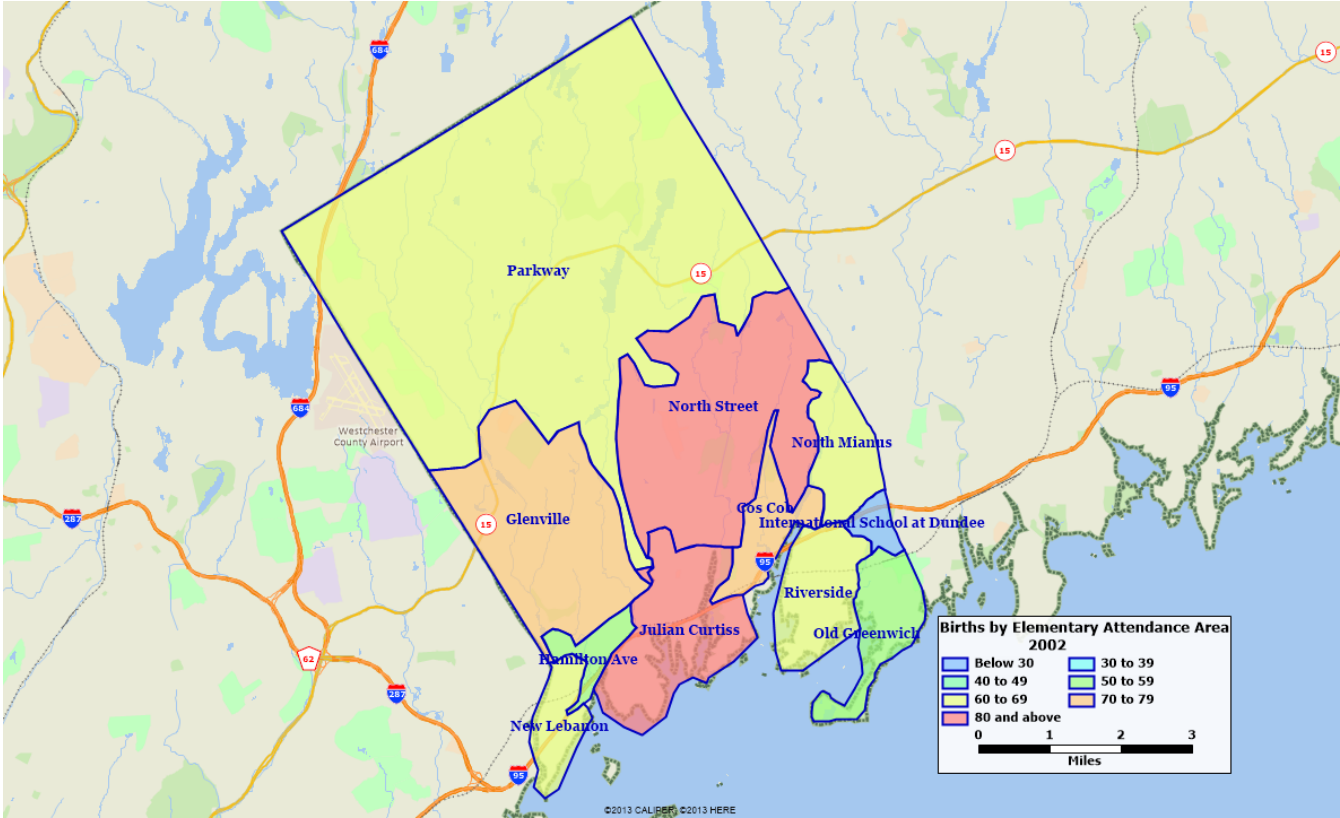


Figure 10
Greenwich Births by Elementary Attendance Area
2014

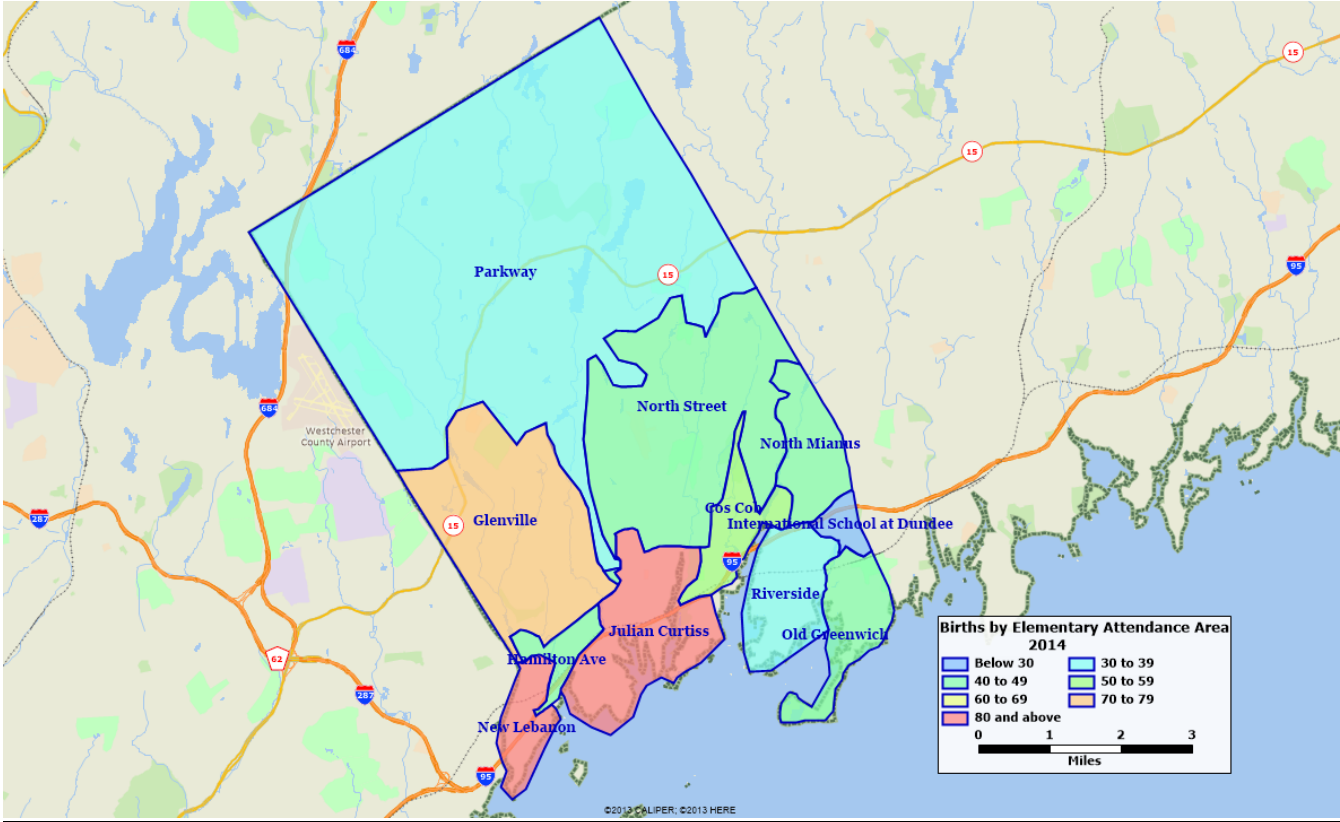


Figure 11
Change in the Number of Births by Elementary Attendance Area
2002-2014

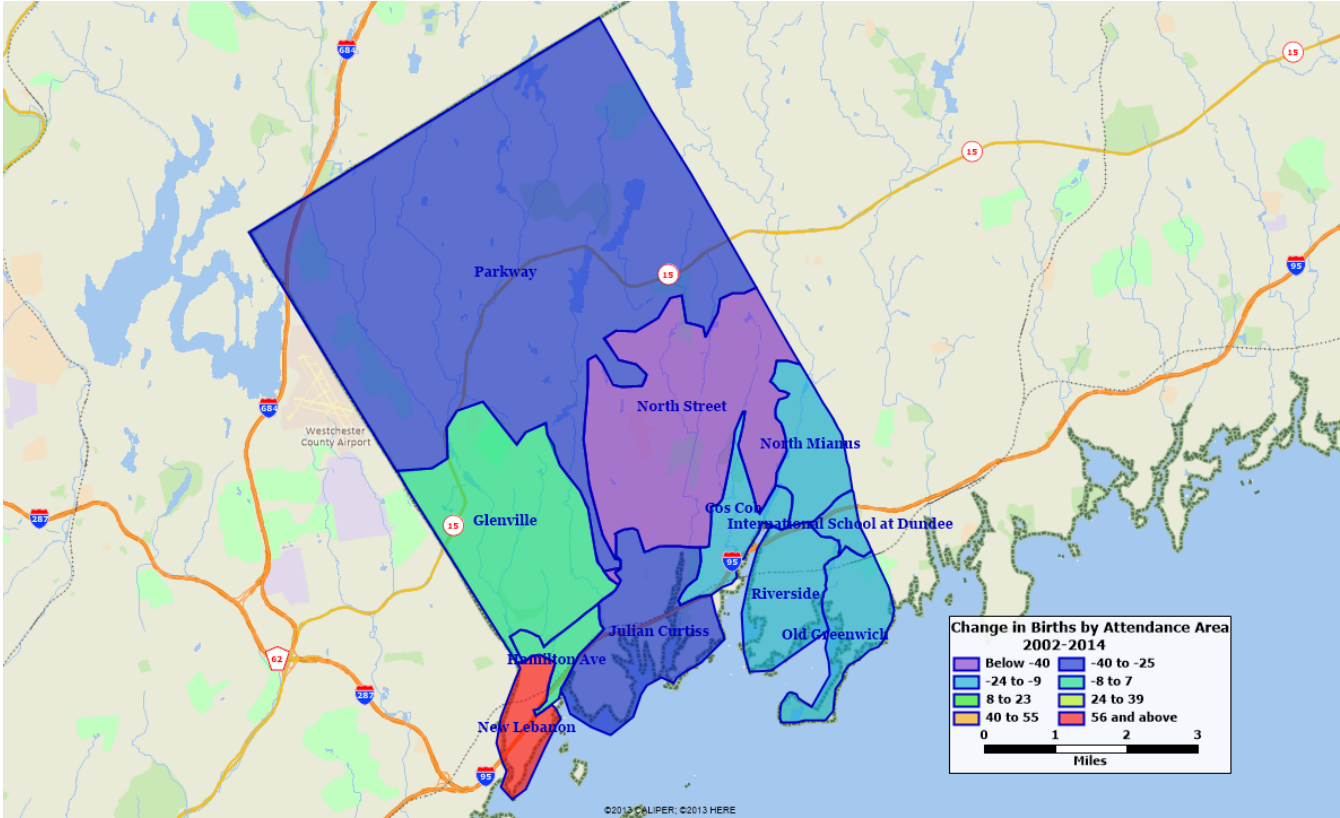
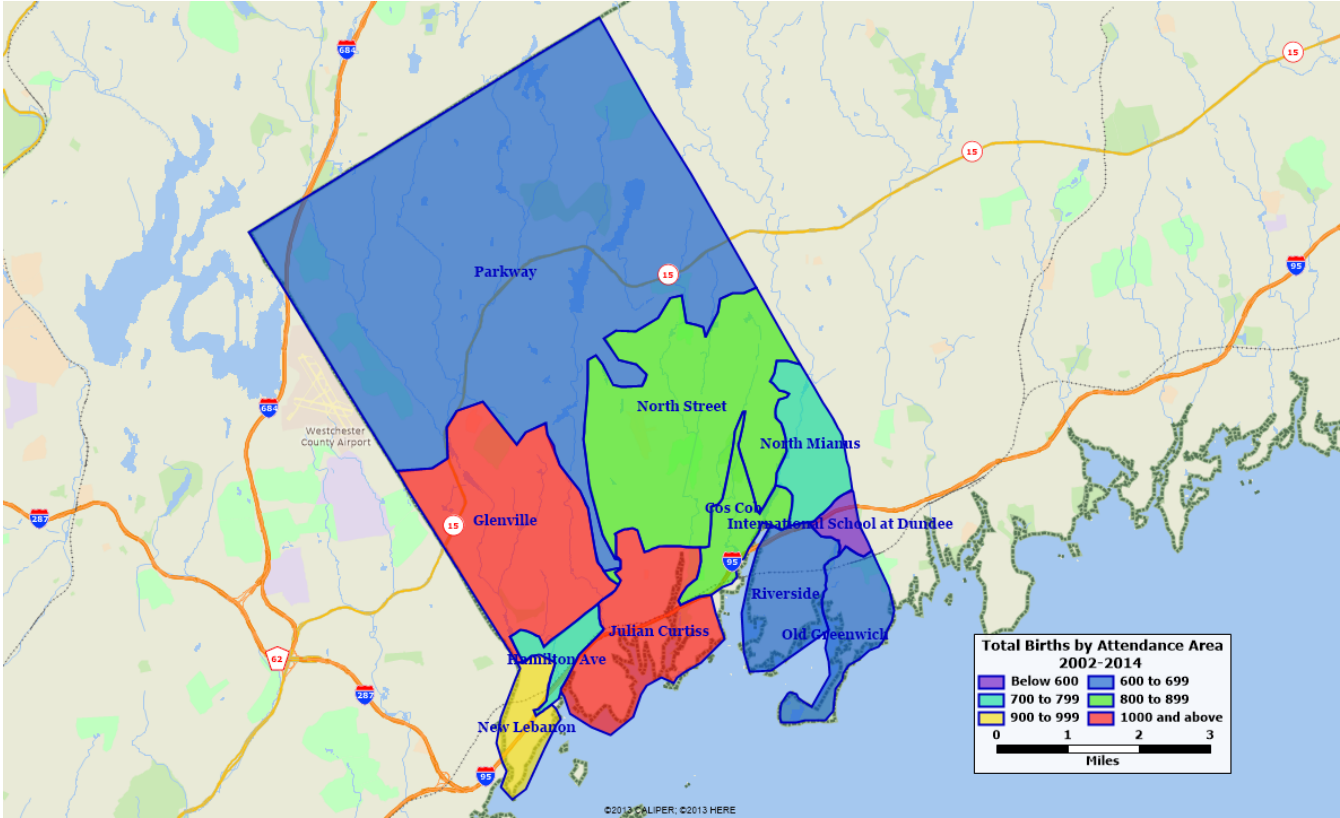


Figure 12
Greenwich Total Number of Births by Elementary Attendance Area
2002-2014



The fertility rate in Greenwich is above the rate in both Fairfield County and the State of Connecticut. According to the 2011-2015 ACS, the fertility rate of women aged 15 to 50 in Greenwich was 50 births per 1,000 women. In comparison, as reported in the 2015 ACS (1-year estimate), the fertility rate in Fairfield County was 46 births per 1,000 women and was 41 births per 1,000 women in Connecticut. However, it should be noted that while the municipal, county, and state data are all based on a sample, the municipal data has a margin of error that is much higher than the county and state data and may not reflect the “true” fertility rate in the community.

Figures 13 and 14 show the age pyramids of males and females in Greenwich from both the 2000 and 2010 Censuses. The largest number of individuals in 2000 was aged 35-39 for females and 5-9 for males (35-39 was second-largest for males). As these individuals advance in age, the largest cohort in 2010 was aged 45-49 for females and 10-14 for males. As shown in Table 7, the greatest declines (shaded red), both in number and percentage points, occurred in the 35-39 age group for both males and females. There was also a significant decline in the 30-34 age group, which corresponds to the ages when many females have their children. The greatest gains (shaded blue), both in number and percentage points, occurred in the 15-19 age group for both males and females. As this group represents high school and college age students, these persons would have already aged out of the school district. It is likely that the declining number of females in the 30-34 and 35-39 age groups has led to the declining birth rate in Greenwich.

Figure 13
Population Pyramid of Greenwich
2000 Census

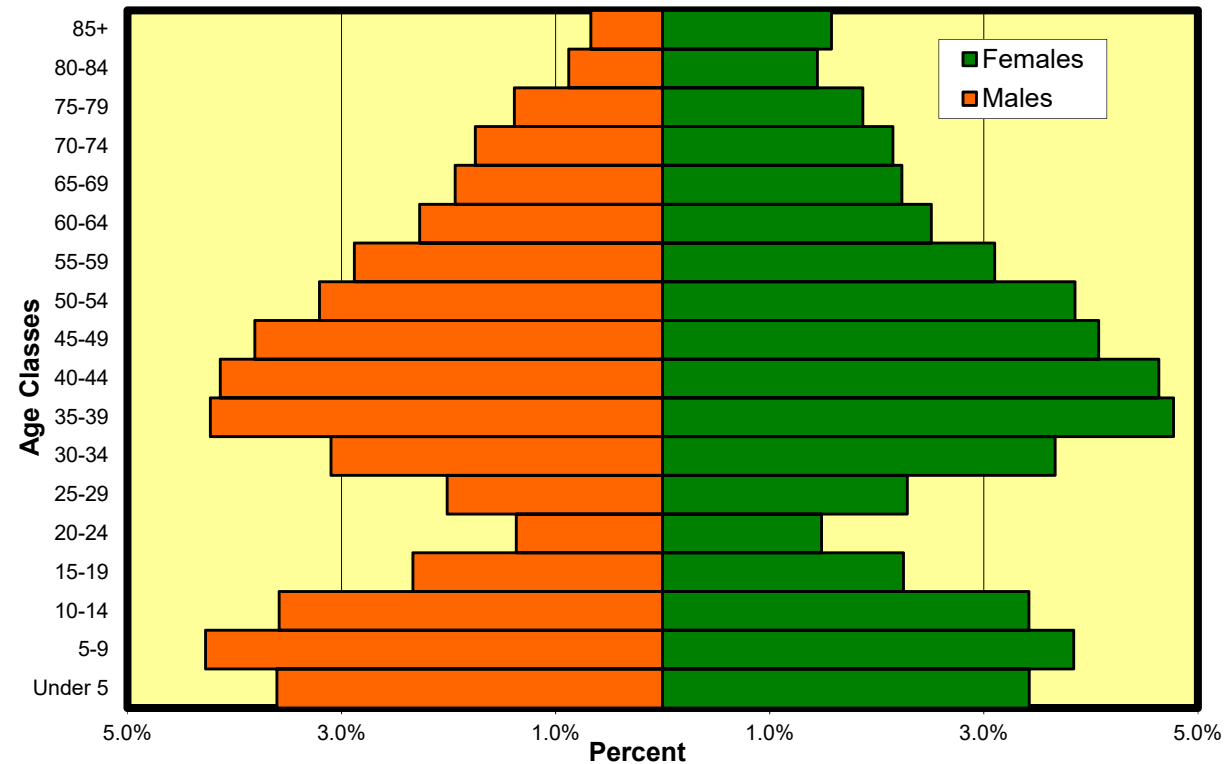


Figure 14
Population Pyramid of Greenwich
2010 Census

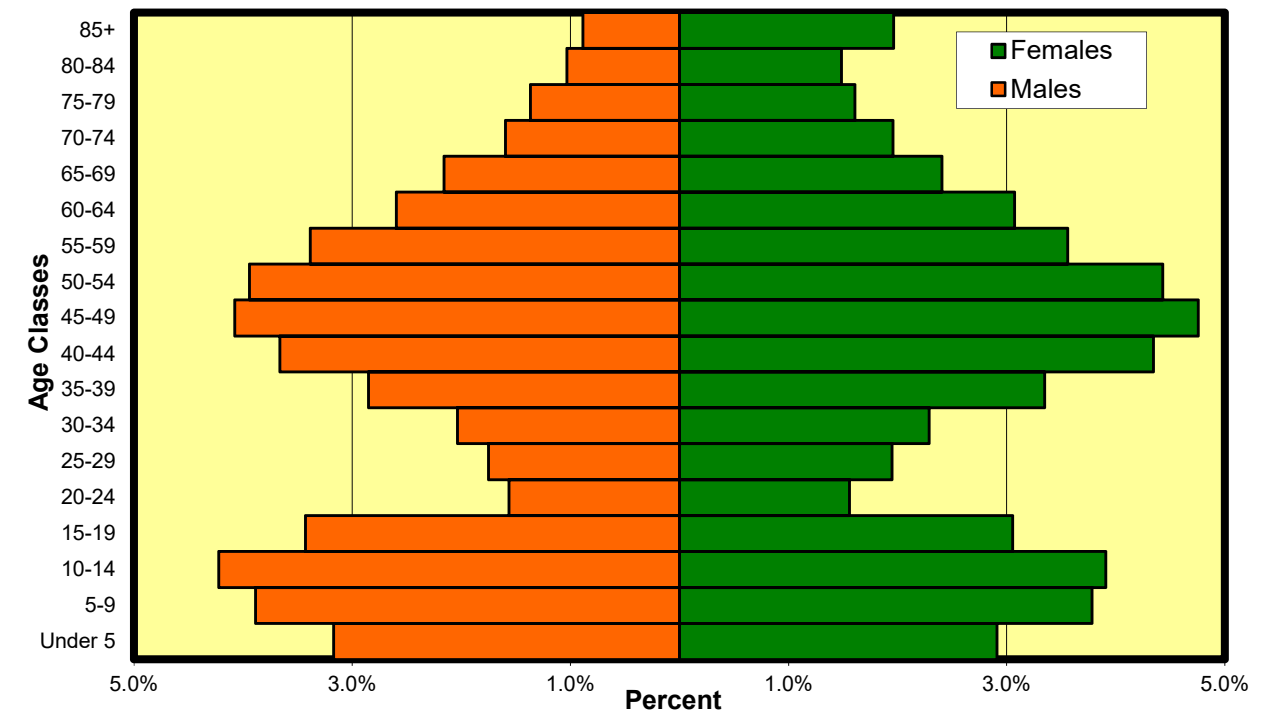


Table 7
Numerical and Percentage Point Change of Males and Females in Greenwich
2000 to 2010

Age Group	Males		Females	
	Numerical Change	Percentage Point Change	Numerical Change	Percentage Point Change
Under 5	-262	-0.4	-311	-0.5
5-9	-232	-0.4	-33	-0.1
10-14	+395	+0.6	+301	+0.5
15-19	+672	+1.1	+494	+0.8
20-24	+121	+0.2	+47	+0.1
25-29	-160	-0.3	-204	-0.3
30-34	-647	-1.1	-839	-1.4
35-39	-838	-1.4	-868	-1.4
40-44	-284	-0.5	-173	-0.3
45-49	+166	+0.3	+422	+0.7
50-54	+452	+0.7	+357	+0.6
55-59	+311	+0.5	+283	+0.5
60-64	+202	+0.3	+346	+0.6
65-69	+136	+0.2	+107	+0.2
70-74	-95	-0.2	-116	-0.2
75-79	-11	+0.0	-158	-0.3
80-84	+95	+0.2	+26	+0.0
85+	+131	+0.2	237	+0.4

Notes: Cells shaded blue reflect the greatest gains over the ten-year period.
Cells shaded red reflect the greatest losses over the ten-year period.

New Housing in Greenwich

Mr. Adam Pisarkiewicz, Planner I, of Greenwich Planning and Zoning provided information regarding current and future residential development in the community. As shown in Table 8, there is the potential for 69 apartment units and 28 townhouse/condo units in seven separate developments, which is a total of 97 units. None of the developments are currently under construction. The table does not include new houses built on single in-fill lots or homes that are built after the demolition of an existing older home. In the latter instances, there is no net gain in the number of housing units.

The largest of the developments, located at 143 Sound Beach Avenue, will consist of 44 market-rate and affordable apartment units. The timeline for construction and occupation of the units is unknown.

Table 8
Approved Residential Developments in Greenwich

Location	Elementary Attendance Area	Number of Units	Bedroom Distribution	Approval Status	Housing Type	Affordability
88 South Water St.	New Lebanon	14	10 2-BR 4 3-BR	Final Coastal Site Plan & Special Permit	Townhouse (Condo)	Market Rate
38 St. Roch Avenue	Hamilton Avenue	7	4 3-BR 3 4-BR	Final Site Plan & Special Permit	Townhouse (Condo)	Market Rate
20 Idar Court	Julian Curtiss	3	3-BR	Final Site Plan & Special Permit	Townhouse (Condo)	Market Rate
5 Sheephill Rd./ 1137 East Putnam Avenue	Cos Cob	17	1-BR	Final Site Plan & Special Permit	Apartments	Market Rate & Moderate Income
56 Old Field Point Road	Hamilton Avenue	8	2-BR	Final Site Plan & Special Permit	Apartments	Market Rate
143 Sound Beach Avenue	International School at Dundee	44	16 Studio 18 1-BR 9 2-BR 1 3-BR	Preliminary Site Plan & Special Permit	Apartments	Market Rate & Moderate Income
63 Church Street	Julian Curtiss	4	1-BR	Final Site Plan & Special Permit	Townhouse (Condo)	Market Rate
Total	69 Apartment Units 28 Townhouse/Condo Units					

Source: Mr. Adam Pisarkiewicz, Planner I, Greenwich Planning and Zoning

Student Yields

In the process of determining how many children will come from the new housing units, *Who Lives in New Jersey Housing?*², published by the Rutgers University Center for Urban Policy Research (“CUPR”), was utilized. Unfortunately, similar publications were not available for Connecticut municipalities. The CUPR resource provides housing multipliers (student yields) based on housing type, number of bedrooms, housing value, housing tenure (ownership versus rental), and whether the housing units are market-rate or affordable. The multipliers used in this report project the number of children attending public school based on 2000 Census information collected from a sample of households in northern New Jersey, which is in close proximity to Greenwich. Student yields are greatest for detached single-family homes and smallest for apartments, townhouses, and condominiums.

To project the number of public school children per housing unit, several assumptions were made:

1. The student yield multipliers used from CUPR would be from a sample of northern New Jersey households and these multipliers would be representative of the families moving into Greenwich.
2. All market-rate townhouses with 2-3 bedrooms were assumed to have the following student yield multiplier: 0.242.
3. All market-rate townhouses with four (4) bedrooms were assumed to have the following student yield multiplier: 0.908.
4. All market-rate apartment units were assumed to have the following student yield multipliers: Studio = 0.000, 1-bedroom = 0.073, 2-bedroom = 0.268.
5. All affordable apartment units were assumed to have the following student yield multipliers: Studio = 0.000, 1-bedroom = 0.14, 2-bedroom = 0.62.

Based on these student yields, the number of children in grades K-12 anticipated from each development is as follows:

- 88 South Water St.– 3
- 38 St. Roch Avenue – 4
- 20 Idar Court – 1
- 5 Sheephill Road/1137 East Putnam Avenue – 2
- 56 Old Field Point Road – 2
- 143 Sound Beach Avenue – 4
- 63 Church Street – 0

In total, 16 public school children in grades K-12 are projected to be generated from the new housing developments in Greenwich.

² Listokin, David, et al. (2006). Who Lives in Connecticut Housing?, Rutgers University Center for Urban Policy Research.

Historical Residential Construction

With respect to historical new construction, the total number of certificates of occupancy (“COs”) issued for new homes in Greenwich from 2012-2016 is shown in Table 9. During this timeframe, 345 COs were issued, which is an average of 69 new units per year. The majority of COs (94%) were issued for single-family homes.

Table 9
Number of Residential Certificates of Occupancy by Year
2012-2016

Year	Greenwich			
	Single-Family	Two-Family	Multi-Family	Total
Total	325	15	5	345

Source: Greenwich Building Inspection Division

Home Sales

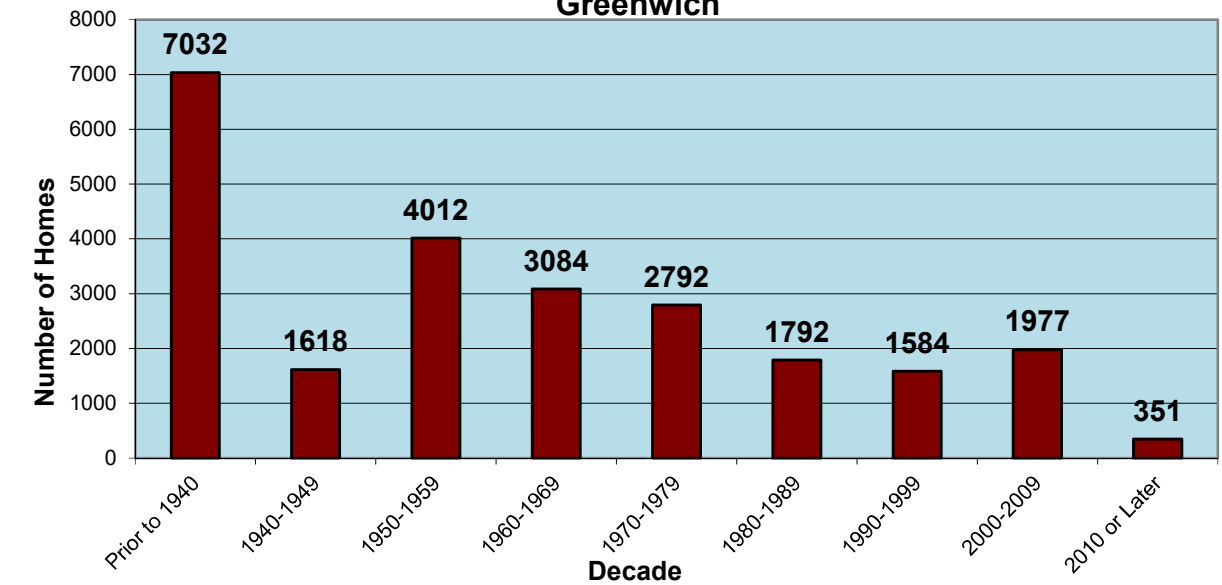
After 371 detached single-family home sales occurred in Greenwich in 2014, sales increased to 600 in 2015 and 571 in 2016 according to a report by Miller Samuel Inc.³ In the second quarter of 2017, the median sales price for detached single-family homes was \$1,742,250, which is a 0.8% decrease from one year ago. For townhouses/condos, the median sales price was \$760,000 in the second quarter of 2017, which is an 11.8% increase from one year ago. Based on the data in the report, there appears to be an ongoing recovery in the housing market in Greenwich, particularly for lower-priced homes.

³ Elliman Report, Greenwich CT Sales (2017), *Miller Samuel Inc.*, Retrieved July 21, 2017 from <http://www.millersamuel.com/reports/>

Distribution of Homes by Decade Built

Figure 15 shows the number of homes built by decade in Greenwich. As shown in the figure, Greenwich has an older housing stock, with more than half (52%) of the homes being built prior to 1960. Of the decades shown, Greenwich had the largest number of homes built in the 1950s, which corresponds to the sizable population gain in Greenwich (+31.7%) shown previously in Table 1.

Figure 15
Number of Homes by Decade Built
Greenwich



When determining the impact of future new housing, it should be clearly stated that enrollment projections utilize cohort survival ratios that do take into account prior new home construction growth. Children who move into new homes during the historical period are captured by the survival ratios. Therefore, it is not appropriate to add all of the new children generated from new housing units without considering the historical period, as double counting would occur. The baseline enrollment projections should only be adjusted if the projected housing growth is significantly greater than prior housing growth. From 2012-2016, a total of 345 new housing units were built in Greenwich. Based on this data and that 97 housing units are planned, it appears that future residential construction in Greenwich will be less than that which occurred since 2012. Therefore, the baseline enrollment projections were not modified to account for any additional children from new housing developments.

Enrollment Projections

Enrollments were projected at the school level using cohort-survival ratios based on the last six years of historical enrollment data. Enrollments were computed for each grade from 2018-19 through 2027-28, a ten-year period. It should be noted that a five-year projection is more reliable than a ten-year projection. Since birth data are used to project kindergarten students five years later, the ten-year projection in years 6-10 relies on estimated birth counts in order to project the number of kindergarten students. For instance, in the 6th year of the ten-year projection, which corresponds to 2023-24, birth data from 2018 would be used to project the number of kindergarten students, and would therefore need to be estimated. For this reason, elementary projections are much more susceptible to higher error rates in a ten-year projection as compared to middle or high school projections, which rely on either children that have already been born or that are currently enrolled in the district.

With respect to grade-level pre-kindergarten students, an average was used to estimate the future pre-kindergarten enrollment in each school. Districtwide, the number of pre-kindergarten students has been fairly consistent in the last five years, ranging from 149-163 students per year.

Projected PK-12 enrollments follow in Figure 16 and Table 10. Total enrollment is projected to be fairly stable in the next five years before declining. In 2022-23, which is the fifth year of the projection period, enrollment is projected to be 9,039, which would be a gain of 22 students from the 2017-18 enrollment of 9,017. In 2027-28, which is the tenth year of the projection period, enrollment is projected to be 8,772, which would be a loss of 245 students from the 2017-18 enrollment.

Figure 16
Greenwich Public Schools Projected Enrollment
2018-19 to 2027-28

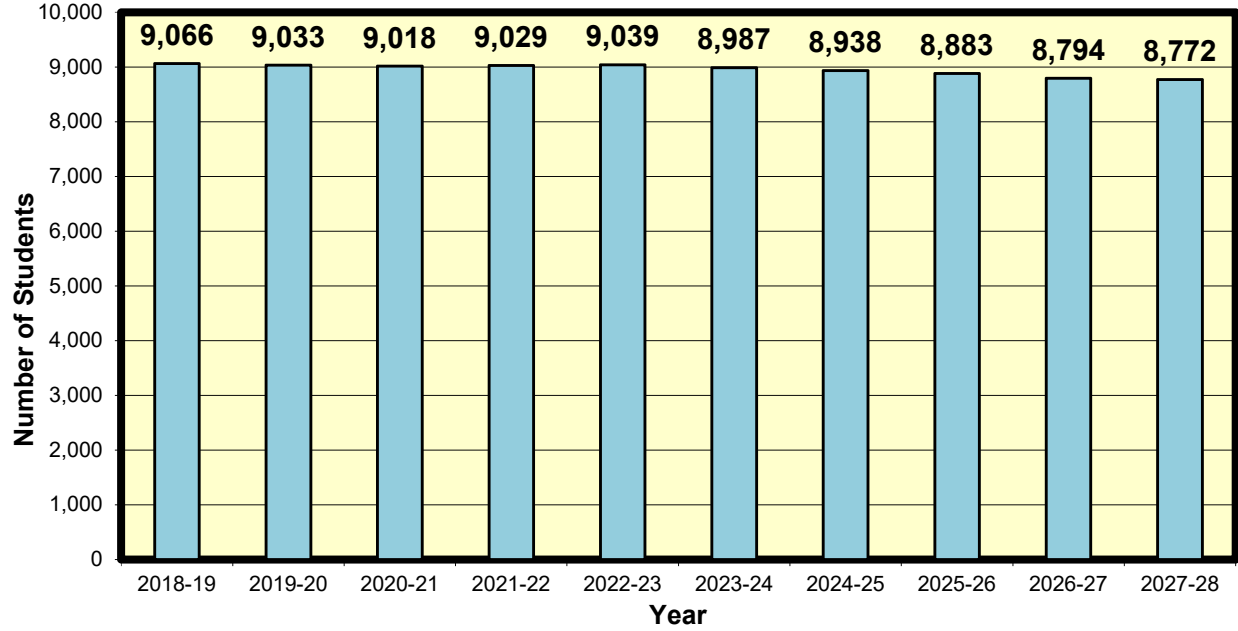


Table 10
Greenwich Public Schools Projected Enrollments
2018-19 to 2027-28

Year	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	PK-12 Total
2018-19	159	634	643	688	697	684	746	699	684	689	673	682	707	681	9,066
2019-20	159	616	646	651	688	697	681	728	701	681	721	683	683	698	9,033
2020-21	159	648	629	652	651	689	695	664	730	698	713	732	684	674	9,018
2021-22	159	650	661	636	652	652	687	678	665	726	731	724	733	675	9,029
2022-23	159	642	664	670	638	653	651	670	680	661	760	742	725	724	9,039
2023-24	159	633	656	673	671	638	651	636	671	677	692	771	743	716	8,987
2024-25	159	632	646	664	674	671	637	635	637	667	709	702	772	733	8,938
2025-26	159	643	645	654	665	674	668	622	637	633	698	720	703	762	8,883
2026-27	159	640	656	653	655	665	671	652	624	633	663	708	721	694	8,794
2027-28	159	639	653	665	655	655	662	654	653	620	663	673	709	712	8,772
3-Year Change															+1
5-Year Change															+22
10-Year Change															-245

Projected Enrollments by Grade Configuration

In Table 11 following, historical and projected enrollments are displayed by the current grade configurations (PK-5, 6-8, and 9-12) in Greenwich. At the elementary level containing grades PK-5, enrollment is projected to decline for the first five years of the projection period. In 2022-23, enrollment is projected to be 4,077, which would represent a decline of 229 students from the 2017-18 enrollment of 4,306. Enrollment is projected to be fairly stable in the last five years of the projection period. **The stabilization in enrollment is related to holding the projected number of births from 2015-2022 nearly constant, which results in constant kindergarten counts five years later and subsequent elementary grades.** In 2027-28, enrollment is projected to be 4,088, which would be a decline of 218 students from the 2017-18 enrollment.

For grades 6-8, enrollment is projected to increase through 2019-20 before reversing trend. Enrollment is projected to be 2,011 in 2022-23, which would represent a decline of six (6) students from the 2017-18 enrollment of 2,017. In the last five years of the projection period, enrollments are projected to decline before reversing trend near the end of the projection period. In 2027-28, enrollment is projected to be 1,927, which would be a decline of 90 students from the 2017-18 enrollment.

For grades 9-12 at Greenwich High School, enrollment is projected to increase through 2022-23 before reversing trend. In 2022-23, enrollment is projected to be 2,951, which would be a gain of 257 students from the 2017-18 enrollment. In 2027-28, enrollment is projected to be 2,757, which would be a gain of 63 students from the 2017-18 enrollment.

Table 11
Greenwich Public Schools Projected Enrollments for Grades PK-5, 6-8, and 9-12

Historical	PK-5	6-8	9-12
2017-18	4,306	2,017	2,694
Projected	PK-5	6-8	9-12
2018-19	4,251	2,072	2,743
2019-20	4,138	2,110	2,785
2020-21	4,123	2,092	2,803
2021-22	4,097	2,069	2,863
2022-23	4,077	2,011	2,951
2023-24	4,081	1,984	2,922
2024-25	4,083	1,939	2,916
2025-26	4,108	1,892	2,883
2026-27	4,099	1,909	2,786
2027-28	4,088	1,927	2,757
3-year Change	-183	+75	+109
5-year Change	-229	-6	+257
10-year Change	-218	-90	+63

Projections by School

Cos Cob School

Historical enrollments for Cos Cob School (“Cos Cob”) from 2012-13 to 2017-18, and projected enrollments from 2018-19 to 2027-28, are shown below in Table 12. Since 2012-13, enrollment has been fairly stable, ranging from 432-446 students per year. Enrollment is 432 in 2017-18. In the first five years of the projection period, enrollment is projected to decline. In 2022-23, enrollment is projected to be 377, which would be a decline of 55 students from the 2017-18 enrollment. In the last five years of the projection period, enrollment is projected to range from 373-381 students due to holding the projected number of births from 2015-2022 nearly constant, which results in constant kindergarten counts five years later and subsequent elementary grades.

Table 12
Historical and Projected Enrollments of Cos Cob School

Year	PK	K	1	2	3	4	5	PK-5 Total
Historical ¹								
2012-13	0	94	62	81	62	68	67	434
2013-14	0	83	94	69	73	59	66	444
2014-15	0	57	83	89	70	75	64	438
2015-16	0	68	58	81	86	72	72	437
2016-17	0	64	74	62	87	86	73	446
2017-18	0	64	70	69	63	86	80	432
CSR 6-Yr. Ratios		0.9814 ²	1.0399	1.0074	0.9944	0.9992	0.9919	
Projected								
2018-19	0	60	67	71	69	63	85	415
2019-20	0	54	62	67	71	69	62	385
2020-21	0	62	56	62	67	71	68	386
2021-22	0	63	64	56	62	67	70	382
2022-23	0	63	66	64	56	62	66	377
2023-24	0	60	66	66	64	56	61	373
2024-25	0	60	62	66	66	64	56	374
2025-26	0	62	62	62	66	66	63	381
2026-27	0	62	64	62	62	66	65	381
2027-28	0	61	64	64	62	62	65	378
3-Year Change								-46
5-Year Change								-55
10-Year Change								-54

Notes: ¹Data as provided by the Connecticut State Department of Education and the Greenwich Public Schools (<http://edsight.ct.gov/SASPortal/main.do>)
²Birth-to-kindergarten ratio based on the last four years of historical data

Glenville School

Historical enrollments for Glenville School (“Glenville”) from 2012-13 to 2017-18, and projected enrollments from 2018-19 to 2027-28, are shown below in Table 13. In general, enrollment has been increasing in the school. In 2017-18, enrollment is 448, which is a gain of 41 students from the 2012-13 enrollment of 407. In the first five years of the projection period, enrollment is projected to be fairly stable. In 2022-23, enrollment is projected to be 451, which would be a gain of three (3) students from the 2017-18 enrollment. In the last five years of the projection period, enrollment is projected to range from 448-453 students due to holding the projected number of births from 2015-2022 nearly constant, which results in constant kindergarten counts five years later and subsequent elementary grades.

Table 13
Historical and Projected Enrollments of Glenville School

Year	PK	K	1	2	3	4	5	PK-5 Total
Historical ¹								
2012-13	0	86	64	84	53	61	59	407
2013-14	0	66	85	58	81	53	62	405
2014-15	0	68	66	86	69	80	55	424
2015-16	0	73	69	69	86	74	80	451
2016-17	0	73	74	67	67	86	77	444
2017-18	0	76	73	73	62	73	91	448
CSR 6-Yr. Ratios		0.9505 ²	1.0034	0.9842	0.9652	1.0299	1.0306	
Projected								
2018-19	0	79	76	72	70	64	75	436
2019-20	0	72	79	75	69	72	66	433
2020-21	0	75	72	78	72	71	74	442
2021-22	0	77	75	71	75	74	73	445
2022-23	0	78	77	74	69	77	76	451
2023-24	0	76	78	76	71	71	79	451
2024-25	0	76	76	77	73	73	73	448
2025-26	0	76	76	75	74	75	75	451
2026-27	0	77	76	75	72	76	77	453
2027-28	0	77	77	75	72	74	78	453
3-Year Change								-6
5-Year Change								+3
10-Year Change								+5

Notes: ¹Data as provided by the Connecticut State Department of Education and the Greenwich Public Schools (<http://edsight.ct.gov/SASPortal/main.do>)
²Birth-to-kindergarten ratio based on the last three years of historical data

Hamilton Avenue School

Historical enrollments for Hamilton Avenue School (“Hamilton”) from 2012-13 to 2017-18, and projected enrollments from 2018-19 to 2027-28, are shown below in Table 14. Enrollment has been oscillating up and down in Hamilton with no discernible pattern. Enrollment is 364 in 2017-18, which is a loss of 45 students from the 2012-13 enrollment of 409. Enrollments are projected to be fairly stable in the next five years. In 2022-23, enrollment is projected to be 364, which is identical to the 2017-18 enrollment. In the last five years of the projection period, enrollment is projected to range from 348-357 students due to holding the projected number of births from 2015-2022 nearly constant, which results in constant kindergarten counts five years later and subsequent elementary grades.

Table 14
Historical and Projected Enrollments of Hamilton Avenue School

Year	PK	K	1	2	3	4	5	PK-5 Total
Historical ¹								
2012-13	56	55	64	56	70	54	54	409
2013-14	52	48	55	63	49	66	53	386
2014-15	50	59	50	55	61	52	64	391
2015-16	50	57	51	48	40	65	53	364
2016-17	56	64	60	49	60	41	67	397
2017-18	46	59	56	55	50	58	40	364
CSR 6-Yr. Ratios		0.8523 ²	0.9667	0.9644	0.9682	1.0123	0.9954	
Projected								
2018-19	51	55	57	54	53	51	58	379
2019-20	51	57	53	55	52	54	51	373
2020-21	51	55	55	51	53	53	54	372
2021-22	51	54	53	53	49	54	53	367
2022-23	51	55	52	51	51	50	54	364
2023-24	51	52	53	50	49	52	50	357
2024-25	51	51	50	51	48	50	52	353
2025-26	51	54	49	48	49	49	50	350
2026-27	51	53	52	47	46	50	49	348
2027-28	51	53	51	50	46	47	50	348
3-Year Change								+8
5-Year Change								0
10-Year Change								-16

Notes: ¹Data as provided by the Connecticut State Department of Education and the Greenwich Public Schools (<http://edsight.ct.gov/SASPortal/main.do>)
²Birth-to-kindergarten ratio based on the last four years of historical data

International School at Dundee

Historical enrollments for the International School at Dundee (“Dundee”) from 2012-13 to 2017-18, and projected enrollments from 2018-19 to 2027-28, are shown below in Table 15. Enrollment has been fairly stable, ranging from 363-383 students per year. Enrollment is 363 in 2017-18. As Dundee is a magnet school, birth-to-kindergarten ratios were not used to project kindergarten enrollments. Instead, a five-year rolling average was used to project kindergarten counts. Enrollments are projected to be fairly stable throughout the ten-year projection period, ranging from 348-364, due to holding the projected kindergarten counts nearly constant.

Table 15

Historical and Projected Enrollments of International School at Dundee

Year	PK	K	1	2	3	4	5	PK-5 Total
Historical¹								
2012-13	0	61	62	58	66	64	58	369
2013-14	0	62	63	62	60	65	66	378
2014-15	0	53	63	60	66	62	66	370
2015-16	0	57	59	63	61	66	62	368
2016-17	0	61	61	64	67	63	67	383
2017-18	0	50	60	57	65	70	61	363
CSR 6-Yr. Ratios		N/A	1.0432	0.9943	1.0390	1.0191	1.0060	
Projected								
2018-19	0	57	52	60	59	66	70	364
2019-20	0	56	59	52	62	60	66	355
2020-21	0	56	58	59	54	63	60	350
2021-22	0	56	58	58	61	55	63	351
2022-23	0	55	58	58	60	62	55	348
2023-24	0	56	57	58	60	61	62	354
2024-25	0	56	58	57	60	61	61	353
2025-26	0	56	58	58	59	61	61	353
2026-27	0	56	58	58	60	60	61	353
2027-28	0	56	58	58	60	61	60	353
3-Year Change								-13
5-Year Change								-15
10-Year Change								-10

Notes: ¹Data as provided by the Connecticut State Department of Education and the Greenwich Public Schools (<http://edsight.ct.gov/SASPortal/main.do>)

Julian Curtiss School

Historical enrollments for Julian Curtiss School (“Julian Curtiss”) from 2012-13 to 2017-18, and projected enrollments from 2018-19 to 2027-28, are shown below in Table 16. Enrollment has ranged from 330-369 in the last six years and is 338 in 2017-18. In the first five years of the projection period, enrollment is projected to slowly decline. In 2022-23, enrollment is projected to be 312, which would be a decline of 26 students from the 2017-18 enrollment. In the last five years of the projection period, enrollment is projected to range from 312-320 students due to holding the projected number of births from 2015-2022 nearly constant, which results in constant kindergarten counts five years later and subsequent elementary grades.

Table 16

Historical and Projected Enrollments of Julian Curtiss School

Year	PK	K	1	2	3	4	5	PK-5 Total
Historical¹								
2012-13	0	54	63	56	66	55	50	344
2013-14	0	57	48	61	53	67	58	344
2014-15	0	62	61	52	65	59	70	369
2015-16	0	65	63	60	51	65	57	361
2016-17	0	51	58	60	55	44	62	330
2017-18	0	52	59	61	64	55	47	338
CSR 6-Yr. Ratios		0.5803 ²	1.0049	1.0079	0.9952	0.9982	1.0175	
Projected								
2018-19	0	50	52	59	61	64	56	342
2019-20	0	47	50	52	59	61	65	334
2020-21	0	53	47	50	52	59	62	323
2021-22	0	56	53	47	50	52	60	318
2022-23	0	53	56	53	47	50	53	312
2023-24	0	52	53	56	53	47	51	312
2024-25	0	52	52	53	56	53	48	314
2025-26	0	53	52	52	53	56	54	320
2026-27	0	53	53	52	52	53	57	320
2027-28	0	53	53	53	52	52	54	317
3-Year Change								-15
5-Year Change								-26
10-Year Change								-21

Notes: ¹Data as provided by the Connecticut State Department of Education and the Greenwich Public Schools (<http://edsight.ct.gov/SASPortal/main.do>)

²Birth-to-kindergarten ratio based on the last five years of historical data with outlier removed

New Lebanon School

Historical enrollments for New Lebanon School (“New Lebanon”) from 2012-13 to 2017-18, and projected enrollments from 2018-19 to 2027-28, are shown below in Table 17. Enrollments have been very stable, ranging from 257-265 students per year. Enrollment is 260 in 2017-18. In the first five years of the projection period, enrollment is projected to slowly decline before stabilizing. In 2022-23, enrollment is projected to be 239, which would be a loss of 21 students from the 2017-18 enrollment. In the last five years of the projection period, enrollment is projected to range from 252-271 students due to holding the projected number of births from 2015-2022 nearly constant, which results in constant kindergarten counts five years later and subsequent elementary grades.

Table 17
Historical and Projected Enrollments of New Lebanon School

Year	PK	K	1	2	3	4	5	PK-5 Total
Historical ¹								
2012-13	0	43	49	47	38	38	46	261
2013-14	0	44	45	48	51	36	40	264
2014-15	0	42	49	48	39	50	36	264
2015-16	0	40	45	49	52	38	41	265
2016-17	0	32	43	43	51	51	37	257
2017-18	0	30	33	43	45	54	55	260
CSR 6-Yr. Ratios		0.4803 ²	1.0676	1.0004	1.0137	0.9883	0.9849	
Projected								
2018-19	0	29	32	33	44	44	53	235
2019-20	0	45	31	32	33	43	43	227
2020-21	0	39	48	31	32	33	42	225
2021-22	0	40	42	48	31	32	33	226
2022-23	0	42	43	42	49	31	32	239
2023-24	0	42	45	43	43	48	31	252
2024-25	0	45	45	45	44	42	47	268
2025-26	0	42	48	45	46	43	41	265
2026-27	0	42	45	48	46	45	42	268
2027-28	0	43	45	45	49	45	44	271
3-Year Change								-35
5-Year Change								-21
10-Year Change								+11

Notes: ¹Data as provided by the Connecticut State Department of Education and the Greenwich Public Schools (<http://edsight.ct.gov/SASPortal/main.do>)

²Birth-to-kindergarten ratio based on the last four years of historical data

North Mianus School

Historical enrollments for North Mianus School (“North Mianus”) from 2012-13 to 2017-18, and projected enrollments from 2018-19 to 2027-28, are shown below in Table 18. In general, enrollments have been slowly increasing in the school. In 2017-18, enrollment is 506, which is an increase of 41 students from the 2012-13 enrollment of 465. In the first five years of the projection period, enrollment is projected to decline. In 2022-23, enrollment is projected to be 459, which would be a decline of 47 students from the 2017-18 enrollment. In the last five years of the projection period, enrollment is projected to range from 443-452 students due to holding the projected number of births from 2015-2022 nearly constant, which results in constant kindergarten counts five years later and subsequent elementary grades.

Table 18
Historical and Projected Enrollments of North Mianus School

Year	PK	K	1	2	3	4	5	PK-5 Total
Historical ¹								
2012-13	0	84	71	76	81	77	76	465
2013-14	0	67	81	72	74	80	73	447
2014-15	0	93	71	86	76	76	85	487
2015-16	0	85	86	73	87	74	77	482
2016-17	0	78	88	90	75	89	76	496
2017-18	0	78	84	90	87	70	97	506
CSR 6-Yr. Ratios		1.3468 ²	1.0122	1.0346	1.0070	0.9889	1.0281	
Projected								
2018-19	0	69	79	87	91	86	72	484
2019-20	0	73	70	82	88	90	88	491
2020-21	0	75	74	72	83	87	93	484
2021-22	0	74	76	77	73	82	89	471
2022-23	0	71	75	79	78	72	84	459
2023-24	0	70	72	78	80	77	74	451
2024-25	0	70	71	74	79	79	79	452
2025-26	0	73	71	73	75	78	81	451
2026-27	0	71	74	73	74	74	80	446
2027-28	0	71	72	77	74	73	76	443
3-Year Change								-22
5-Year Change								-47
10-Year Change								-63

Notes: ¹Data as provided by the Connecticut State Department of Education and the Greenwich Public Schools (<http://edsight.ct.gov/SASPortal/main.do>)

²Birth-to-kindergarten ratio based on the last four years of historical data

North Street School

Historical enrollments for North Street School (“North Street”) from 2012-13 to 2017-18, and projected enrollments from 2018-19 to 2027-28, are shown below in Table 19. Enrollments declined through 2014-15 before reversing trend. Enrollment is 410 in 2017-18, which is very similar to the 2012-13 enrollment of 414. In the first five years of the projection period, enrollment is projected to slightly higher. In 2022-23, enrollment is projected to be 428, which would be a gain of 18 students from the 2017-18 enrollment. In the last five years of the projection period, enrollment is projected to range from 406-423 students due to holding the projected number of births from 2015-2022 nearly constant, which results in constant kindergarten counts five years later and subsequent elementary grades.

Table 19
Historical and Projected Enrollments of North Street School

Year	PK	K	1	2	3	4	5	PK-5 Total
Historical ¹								
2012-13	27	50	67	73	64	66	67	414
2013-14	26	64	50	63	68	59	64	394
2014-15	26	60	58	52	59	67	62	384
2015-16	38	53	64	66	52	60	59	392
2016-17	42	71	61	66	68	54	61	423
2017-18	38	66	61	60	61	67	57	410
CSR 6-Yr. Ratios		1.2174 ²	0.9966	1.0266	0.9645	0.9896	0.9947	
Projected								
2018-19	39	67	66	63	58	60	67	420
2019-20	39	64	67	68	61	57	60	416
2020-21	39	66	64	69	66	60	57	421
2021-22	39	65	66	66	67	65	60	428
2022-23	39	61	65	68	64	66	65	428
2023-24	39	61	61	67	66	63	66	423
2024-25	39	60	61	63	65	65	63	416
2025-26	39	62	60	63	61	64	65	414
2026-27	39	62	62	62	61	60	64	410
2027-28	39	61	62	64	60	60	60	406
3-Year Change								+11
5-Year Change								+18
10-Year Change								-4

Notes: ¹Data as provided by the Connecticut State Department of Education and the Greenwich Public Schools (<http://edsight.ct.gov/SASPortal/main.do>)
²Birth-to-kindergarten ratio based on the last two years of historical data

Old Greenwich School

Historical enrollments for Old Greenwich School (“Old Greenwich”) from 2012-13 to 2017-18, and projected enrollments from 2018-19 to 2027-28, are shown below in Table 20. Enrollments had been fairly stable before increasing to 466 in 2017-18, which is a gain of 41 students from the 2012-13 enrollment of 425. Enrollment is projected to slowly decline in the next five years. In 2022-23, enrollment is projected to be 431, which would be a loss of 35 students from the 2017-18 enrollment. In the last five years of the projection period, enrollment is projected to range from 428-438 students due to holding the projected number of births from 2015-2022 nearly constant, which results in constant kindergarten counts five years later and subsequent elementary grades.

Table 20
Historical and Projected Enrollments of Old Greenwich School

Year	PK	K	1	2	3	4	5	PK-5 Total
Historical ¹								
2012-13	30	63	57	74	69	74	58	425
2013-14	31	74	61	52	74	65	71	428
2014-15	32	53	78	69	56	81	63	432
2015-16	31	64	58	88	71	58	79	449
2016-17	28	60	66	60	90	70	61	435
2017-18	38	63	66	71	67	91	70	466
CSR 6-Yr. Ratios		1.3607 ²	1.0496	1.0564	1.0491	1.0139	0.9911	
Projected								
2018-19	32	59	66	70	74	68	90	459
2019-20	32	54	62	70	73	75	67	433
2020-21	32	63	57	65	73	74	74	438
2021-22	32	61	66	60	68	74	73	434
2022-23	32	60	64	70	63	69	73	431
2023-24	32	60	63	68	73	64	68	428
2024-25	32	60	63	67	71	74	63	430
2025-26	32	61	63	67	70	72	73	438
2026-27	32	60	64	67	70	71	71	435
2027-28	32	60	63	68	70	71	70	434
3-Year Change								-28
5-Year Change								-35
10-Year Change								-32

Notes: ¹Data as provided by the Connecticut State Department of Education and the Greenwich Public Schools (<http://edsight.ct.gov/SASPortal/main.do>)
²Birth-to-kindergarten ratio based on the last five years of historical data

Parkway School

Historical enrollments for Parkway School (“Parkway”) from 2012-13 to 2017-18, and projected enrollments from 2018-19 to 2027-28, are shown below in Table 21. Enrollment has been generally declining. Enrollment is 250 in 2017-18, which is a loss of 22 students from the 2012-13 enrollment of 272. In the first five years of the projection period, enrollment is projected to slowly decline. In 2022-23, enrollment is projected to be 240, which would be a loss of ten (10) students from the 2017-18 enrollment. In the last five years of the projection period, enrollment is projected to range from 236-244 students due to holding the projected number of births from 2015-2022 nearly constant, which results in constant kindergarten counts five years later and subsequent elementary grades.

Table 21
Historical and Projected Enrollments of Parkway School

Year	PK	K	1	2	3	4	5	PK-5 Total
Historical ¹								
2012-13	33	42	23	43	40	41	50	272
2013-14	40	41	46	23	39	40	36	265
2014-15	45	34	38	43	27	39	32	258
2015-16	44	38	39	37	42	27	34	261
2016-17	36	39	35	42	38	42	28	260
2017-18	32	30	37	40	40	33	38	250
CSR 6-Yr. Ratios		0.8314 ²	1.0078	1.0256	1.0074	0.9737	0.8983	
Projected								
2018-19	37	42	30	38	40	39	30	256
2019-20	37	27	42	31	38	39	35	249
2020-21	37	35	27	43	31	37	35	245
2021-22	37	35	35	28	43	30	33	241
2022-23	37	35	35	36	28	42	27	240
2023-24	37	35	35	36	36	27	38	244
2024-25	37	33	35	36	36	35	24	236
2025-26	37	35	33	36	36	35	31	243
2026-27	37	35	35	34	36	35	31	243
2027-28	37	35	35	36	34	35	31	243
3-Year Change								-5
5-Year Change								-10
10-Year Change								-7

Notes: ¹Data as provided by the Connecticut State Department of Education and the Greenwich Public Schools (<http://edsight.ct.gov/SASPortal/main.do>)
²Birth-to-kindergarten ratio based on the last three years of historical data

Riverside School

Historical enrollments for Riverside School (“Riverside”) from 2012-13 to 2017-18, and projected enrollments from 2018-19 to 2027-28, are shown below in Table 22. In general, enrollments had been fairly stable before declining to 469 in 2017-18, which is a loss of 13 students from the 2012-13 enrollment of 482. In the first five years of the projection period, enrollment is projected to decline further. In 2022-23, enrollment is projected to be 428, which would be a loss of 41 students form the 2017-18 enrollment. In the last five years of the projection period, enrollment is projected to range from 436-442 students due to holding the projected number of births from 2015-2022 nearly constant, which results in constant kindergarten counts five years later and subsequent elementary grades.

Table 22
Historical and Projected Enrollments of Riverside School

Year	PK	K	1	2	3	4	5	PK-5 Total
Historical ¹								
2012-13	0	64	72	90	82	87	87	482
2013-14	0	84	76	79	91	84	82	496
2014-15	0	82	90	75	76	92	82	497
2015-16	0	79	75	94	79	73	83	483
2016-17	0	71	79	75	92	75	76	468
2017-18	0	62	79	77	80	92	79	469
CSR 6-Yr. Ratios		1.7618 ²	1.0572	1.0206	1.0144	0.9891	0.9831	
Projected								
2018-19	0	67	66	81	78	79	90	461
2019-20	0	67	71	67	82	77	78	442
2020-21	0	69	71	72	68	81	76	437
2021-22	0	69	73	72	73	67	80	434
2022-23	0	69	73	75	73	72	66	428
2023-24	0	69	73	75	76	72	71	436
2024-25	0	69	73	75	76	75	71	439
2025-26	0	69	73	75	76	75	74	442
2026-27	0	69	73	75	76	75	74	442
2027-28	0	69	73	75	76	75	74	442
3-Year Change								-32
5-Year Change								-41
10-Year Change								-27

Notes: ¹Data as provided by the Connecticut State Department of Education and the Greenwich Public Schools (<http://edsight.ct.gov/SASPortal/main.do>)
²Birth-to-kindergarten ratio based on the last three years of historical data

Central Middle School

Historical enrollments for Central Middle School (“Central”), from 2012-13 to 2017-18, and projected enrollments from 2018-19 to 2027-28, are shown below in Table 23. Enrollment had been slowly declining in Central before increasing to 582 students in 2017-18, which is a loss of 17 students from the 2012-13 enrollment of 599. Enrollment is projected to be fairly stable through 2021-22 before declining. Enrollment is projected to be 570 in 2022-23, which would be a loss of twelve (12) students from the 2017-18 enrollment. In 2027-28, enrollment is projected to be 535, which would be a loss of 47 students from the 2017-18 enrollment.

Table 23
Historical and Projected Enrollments of Central Middle School

Year	6	7	8	Total
Historical ¹				
2012-13	186	206	207	599
2013-14	202	194	199	595
2014-15	197	190	191	578
2015-16	191	186	190	567
2016-17	194	182	182	558
2017-18	195	201	186	582
CSR 6-Yr. Ratios	0.9397 ²	0.9833	0.9902	
Projected				
2018-19	191	192	199	582
2019-20	210	188	190	588
2020-21	192	207	186	585
2021-22	192	189	205	586
2022-23	194	189	187	570
2023-24	186	191	187	564
2024-25	185	183	189	557
2025-26	168	182	181	531
2026-27	186	165	180	531
2027-28	189	183	163	535
3-Year Change				+3
5-Year Change				-12
10-Year Change				-47

Notes: ¹Data as provided by the Connecticut State Department of Education and the Greenwich Public Schools (<http://edsight.ct.gov/SASPortal/main.do>)

²Grade 5-6 ratio based on aggregated 5th grade enrollments of feeder schools

Eastern Middle School

Historical enrollments for Eastern Middle School (“Eastern”) from 2012-13 to 2017-18, and projected enrollments from 2018-19 to 2027-28, are shown below in Table 24. In general, enrollments have been increasing in Eastern. In 2017-18, enrollment is 842 students, which is a gain of 60 students from the 2012-13 enrollment of 782. Enrollment is projected to slowly increase through 2020-21 before reversing trend and declining. Enrollment is projected to be 865 in 2022-23, which would be a gain of 23 students from the 2017-18 enrollment. However, in 2027-28, enrollment is projected to be 809, which would be a loss of 33 students from the 2017-18 enrollment.

Table 24
Historical and Projected Enrollments of Eastern Middle School

Year	6	7	8	Total
Historical ¹				
2012-13	287	238	257	782
2013-14	264	274	241	779
2014-15	281	262	268	811
2015-16	277	282	263	822
2016-17	296	281	269	846
2017-18	281	287	274	842
CSR 6-Yr. Ratios	0.9663 ²	0.9869	0.9847	
Projected				
2018-19	297	277	283	857
2019-20	311	293	273	877
2020-21	289	307	289	885
2021-22	293	285	302	880
2022-23	295	289	281	865
2023-24	269	291	285	845
2024-25	266	265	287	818
2025-26	265	263	261	789
2026-27	279	262	259	800
2027-28	276	275	258	809
3-Year Change				+43
5-Year Change				+23
10-Year Change				-33

Notes: ¹Data as provided by the Connecticut State Department of Education and the Greenwich Public Schools (<http://edsight.ct.gov/SASPortal/main.do>)

²Grade 5-6 ratio based on aggregated 5th grade enrollments of feeder schools

Western Middle School

Historical enrollments for Western Middle School (“Western”) from 2012-13 to 2017-18, and projected enrollments from 2018-19 to 2027-28, are shown below in Table 25. In general, enrollments have been increasing in the school. In 2017-18, enrollment is 593 students, which is a gain of 89 students from the 2012-13 enrollment of 504. Enrollment is projected to increase through 2019-20 before reversing trend and then stabilizing. In 2022-23, enrollment is projected to be 576, which would be a decline of 17 students from the 2017-18 enrollment. In 2027-28, enrollment is projected to be 583, which would be a loss of ten (10) students from the 2017-18 enrollment.

Table 25
Historical and Projected Enrollments of Western Middle School

Year	6	7	8	Total
Historical ¹				
2012-13	187	150	167	504
2013-14	169	190	145	504
2014-15	165	179	188	532
2015-16	173	175	187	535
2016-17	195	180	183	558
2017-18	206	204	183	593
CSR 6-Yr. Ratios	1.0297 ²	1.0445	1.0126	
Projected				
2018-19	211	215	207	633
2019-20	207	220	218	645
2020-21	183	216	223	622
2021-22	193	191	219	603
2022-23	181	202	193	576
2023-24	181	189	205	575
2024-25	184	189	191	564
2025-26	189	192	191	572
2026-27	187	197	194	578
2027-28	189	195	199	583
3-Year Change				+29
5-Year Change				-17
10-Year Change				-10

Notes: ¹Data as provided by the Connecticut State Department of Education and the Greenwich Public Schools (<http://edsight.ct.gov/SASPortal/main.do>)
²Grade 5-6 ratio based on aggregated 5th grade enrollments of feeder schools using the last four years of historical data.

Greenwich High School

Historical enrollments for Greenwich High School from 2012-13 to 2017-18, and projected enrollments from 2018-19 to 2027-28, are shown below in Table 26. After declining to 2,547 students in 2014-15, enrollment has increased to 2,694 in 2017-18. Enrollment is projected to increase through 2022-23 before reversing trend. In 2022-23, enrollment is projected to be 2,951, which would be a gain of 257 students from the 2017-18 enrollment. In 2027-28, enrollment is projected to be 2,757, which would be a gain of 63 students from the 2017-18 enrollment.

Table 26
Historical and Projected Enrollments of Greenwich High School

Year	9	10	11	12	9-12 Total
Historical ^{1,2}					
2012-13	655	659	673	690	2,677
2013-14	654	648	653	681	2,636
2014-15	606	656	649	636	2,547
2015-16	667	614	660	625	2,566
2016-17	686	694	621	646	2,647
2017-18	672	706	690	626	2,694
CSR 6-Yr. Ratios	1.0470 ³	1.0150	1.0008	0.9871	
Projected					
2018-19	673	682	707	681	2,743
2019-20	721	683	683	698	2,785
2020-21	713	732	684	674	2,803
2021-22	731	724	733	675	2,863
2022-23	760	742	725	724	2,951
2023-24	692	771	743	716	2,922
2024-25	709	702	772	733	2,916
2025-26	698	720	703	762	2,883
2026-27	663	708	721	694	2,786
2027-28	663	673	709	712	2,757
3-Year Change					+109
5-Year Change					+257
10-Year Change					+63

Notes: ¹Data as provided by the Connecticut State Department of Education and the Greenwich Public Schools (<http://edsight.ct.gov/SASPortal/main.do>)
²Includes students at Greenwich Alternative High School
³Grade 8-9 ratio based on aggregated 8th grade enrollments

APPENDIX D

MODEL PROGRAM

Greenwich Public Schools
Elementary School Program Capacity Summary

Elementary School Model Program

2 Section

3 Section

4 Section

Pre-Kindergarten (Opt.)		
PK.01	CORE	PK Learning Studios
PK.02	GOAL	Small Group Rooms
PK.03	GOAL	Commons/Transition Area
PK.04	GOAL	PK Storage Room
PK.05	CORE	PK Toilets
Subtotals		

Qty	Avg. Size	Capacity	Total NSF
2	1,000	27	2,000
1	200		200
1	400		400
1	200		200
2	50		100
Subtotals		27	2,900

Qty	Avg. Size	Capacity	Total NSF
3	1,000	41	3,000
2	200		400
1	500		500
1	250		250
3	50		150
Subtotals		41	4,300

Qty	Avg. Size	Capacity	Total NSF
4	1,000	54	4,000
2	200		400
1	600		600
1	300		300
4	50		200
Subtotals		54	5,500

Instructional Core		
A.01	CORE	Kindergarten Learning Studios
A.01a	CORE	Kindergarten Toilets
A.01b	CORE	Kindergarten Storage
A.01c	CORE	First Grade Learning Studios
A.01d	CORE	First Grade Toilets
A.01e	CORE	First Grade Storage
A.02	CORE	2-5 Learning Studios
A.03	GOAL	FLEX Learning Studios
A.04	GOAL	Small Group Rooms
A.05	GOAL	Activity Commons
A.06	GOAL	Storage Rooms
A.07	CORE	Student Restrooms
A.08	CORE	Staff Restrooms
Subtotals		

Qty	Avg. Size	Capacity	Total NSF
2	1,000	36	2,000
2	50		100
1	100		100
2	1,000	36	2,000
2	50		100
1	100		100
8	850	173	6,800
2	850	43	1,700
4	100		400
1	400		400
1	100		100
6	150		900
6	50		300
Subtotals		288	15,000

Qty	Avg. Size	Capacity	Total NSF
3	1,000	54	3,000
3	50		150
1	100		100
3	1,000	54	3,000
3	50		150
3	100		300
12	850	259	10,200
0	850	-	-
6	100		600
1	400		400
1	100		100
8	150		1,200
8	50		400
Subtotals		367	19,600

Qty	Avg. Size	Capacity	Total NSF
4	1,000	72	4,000
4	50		200
1	100		100
4	1,000	72	4,000
4	50		200
4	50		200
16	850	346	13,600
0	850	-	-
8	100		800
1	400		400
1	100		100
10	150		1,500
10	50		500
Subtotals		490	25,600

Activities Programs		
B.01	CORE	Gymnasium
B.09	CORE	Gym Storage & Supports
B.02	CORE	Music Labs
B.03	CORE	Music Lab (Band/Orch)
B.04	CORE	Art Lab
B.04a	CORE	Art Kiln, Glazing & Storage Rooms
B.10	GOAL	Computer Lab
B.11	GOAL	World Language Lab
B.05	CORE	Science Lab w/Prep Room
B.05a	GOAL	Additional Science Lab w/Prep Room
B.06	GOAL	Project/Idea Lab
B.07	GOAL	Flex Lab
B.08	GOAL	Lab Storage Rooms
Subtotals		

Qty	Avg. Size	Capacity	Total NSF
1	3,500		3,500
1	300		300
1	1,000		1,000
1	850		850
1	1,000		1,000
2	100		200
0	850		-
0	850		-
1	1,200		1,200
1	1,200		1,200
1	850		850
1	500		500
4	100		400
Subtotals		-	11,000

Qty	Avg. Size	Capacity	Total NSF
1	4,500		4,500
1	300		300
1	1,000		1,000
1	1,000		1,000
1	1,000		1,000
2	150		300
0	850		-
0	850		-
1	1,200		1,200
1	1,200		1,200
1	850		850
1	650		650
4	100		400
Subtotals		-	12,400

Qty	Avg. Size	Capacity	Total NSF
1	5,500		5,500
1	500		500
1	1,200		1,200
1	1,000		1,000
1	1,000		1,000
2	150		300
0	850		-
0	850		-
1	1,200		1,200
1	1,200		1,200
1	850		850
1	850		850
4	100		400
Subtotals		-	14,000

Greenwich Public Schools
Elementary School Program Capacity Summary

Elementary School Model Program

2 Section

3 Section

4 Section

Special/Support Programs		
C.01	CORE	Accelerated Learning Program
C.02	CORE	Resource/Reading/Literacy/ESL
C.03	CORE	Special Ed Learning Studios
C.04	GOAL	Flex Special Programs Room
C.05	GOAL	Storage Room
C.06	CORE	Student Restroom/Changing
C.07	GOAL	Sensory Room
C.08	CORE	OT/PT
C.09	GOAL	Reflection/Small Group Room

Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	850		850
2	600		1,200
1	850		850
1	300		300
1	100		100
1	100		100
1	200		200
1	400		400
1	100		100

- 4,100

Qty	Avg. Size	Capacity	Total NSF
1	850		850
3	600		1,800
1	850		850
2	300		600
1	100		100
1	100		100
1	200		200
1	400		400
1	100		100

- 5,000

Qty	Avg. Size	Capacity	Total NSF
2	850		1,700
3	600		1,800
1	850		850
3	300		900
1	100		100
1	100		100
1	200		200
1	400		400
1	100		100

- 6,150

Community Commons		
D.01	CORE	Library/Media Center
D.02	GOAL	Media Support Spaces
D.03	CORE	Commons/Large Group Instruction
D.04	CORE	Cafeteria/Dining
D.05	CORE	Kitchen
D.06	CORE	Performance Platform
D.07	GOAL	Audience Seating (shared w/adj.)
D.08	GOAL	Parent Center/Community Room
D.09	GOAL	After School Programs

Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	2,400		2,400
1	400		400
1	1,000		1,000
1	2,000		2,000
1	600		600
1	1,200		1,200
0	-		-
1	400		400
1	400		400

- 8,400

Qty	Avg. Size	Capacity	Total NSF
1	2,700		2,700
1	400		400
1	1,000		1,000
1	3,000		3,000
1	800		800
1	1,400		1,400
0	-		-
1	400		400
1	400		400

- 10,100

Qty	Avg. Size	Capacity	Total NSF
1	3,000		3,000
1	600		600
1	2,000		2,000
1	4,000		4,000
1	1,000		1,000
1	1,600		1,600
0	-		-
1	400		400
1	400		400

- 13,000

Admin & Student Services		
E.01	GOAL	Welcome Center
E.02	CORE	Office Staff/Reception
E.03	CORE	Principal's Office
E.04	CORE	Admin Offices
E.05	CORE	Conference Room
E.06	GOAL	Work/Mail/Copy Room
E.07	CORE	Teacher's Lounge/Dining
E.08	CORE	Specialist Offices (Sp, Psy, Soc., etc)
E.09	GOAL	Small Conference Room
E.10	CORE	Nurse Suite

Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	200		200
1	200		200
1	200		200
2	150		300
1	300		300
2	200		400
1	400		400
3	150		450
1	150		150
1	400		400

- 3,000

Qty	Avg. Size	Capacity	Total NSF
1	400		400
1	200		200
1	200		200
3	150		450
1	300		300
2	250		500
1	600		600
4	150		600
1	150		150
1	500		500

- 3,900

Qty	Avg. Size	Capacity	Total NSF
1	600		600
1	200		200
1	200		200
4	150		600
1	300		300
2	300		600
1	800		800
5	150		750
1	150		150
1	600		600

- 4,800

Building/Facilities Support		
F.01	CORE	Receiving
F.02	CORE	Storage
F.03	CORE	Custodial
F.04	CORE	Security Vestibule

Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	200		200
1	800		800
2	100		200
1	200		200

- 1,400

Qty	Avg. Size	Capacity	Total NSF
1	200		200
1	1,000		1,000
2	100		200
1	200		200

- 1,600

Qty	Avg. Size	Capacity	Total NSF
1	200		200
1	1,200		1,200
2	100		200
1	200		200

- 1,800

Elementary School Model Program

2 Section

3 Section

4 Section

Elementary School Model Program Summary

2 Section

3 Section

4 Section

Target Enrollment	288
Actual Capacity	288
Net Square Ft	42,900
NSF/Student	149

Target Enrollment	367
Actual Capacity	367
Net Square Ft	52,600
NSF/Student	143

Target Enrollment	490
Actual Capacity	490
Net Square Ft	65,350
NSF/Student	133

CORE	34,700
GOAL	8,200

CORE	45,150
GOAL	7,450

CORE	56,700
GOAL	8,650

2 Section w/PK

3 Section w/PK

4 Section w/PK

Target Enrollment	315
Actual Capacity	315
Net Square Ft	45,800
SF/Student	145

Target Enrollment	408
Actual Capacity	408
Net Square Ft	56,900
SF/Student	140

Target Enrollment	544
Actual Capacity	544
Net Square Ft	70,850
SF/Student	130

CORE	36,800
GOAL	9,000

CORE	48,300
GOAL	8,600

CORE	60,900
GOAL	9,950

Greenwich Public Schools
Middle School Program Capacity Summary

Central Middle School
Model Program

Code	Class	Instructional Core
A.01	CORE	Core Learning Studios
A.02	CORE	Science Labs
A.03	CORE	Applied Learning/ LGI Labs
A.03a	GOAL	Applied Learning/ LGI Labs
A.04	CORE	Lab Prep Rooms
A.05	CORE	Small Group Rooms - Core
A.05a	GOAL	Small Group Rooms - Goal
A.06	GOAL	Activity Commons
A.07	CORE	Storage Rooms
A.08	CORE	Student Restrooms
A.09	GOAL	Student Lockers

Subtotals

Qty	Avg. Size	Capacity	Total NSF
18	850	338	15,300
5	1,200	86	6,000
1	1,200		1,200
2	1,200		2,400
3	200		600
3	100		300
2	100		200
1	400		400
5	100		500
10	150		1,500
6	200		1,200

425 29,600

Western Middle School
Model Program

Qty	Avg. Size	Capacity	Total NSF
20	850	376	17,000
6	1,200	104	7,200
1	1,200		1,200
2	1,200		2,400
4	200		800
3	100		300
3	100		300
1	400		400
5	100		500
12	150		1,800
7	200		1,400

480 33,300

Eastern Middle School
Model Program

Qty	Avg. Size	Capacity	Total NSF
28	850	526	23,800
7	1,200	121	8,400
1	1,200		1,200
3	1,200		3,600
6	200		1,200
4	100		400
4	100		400
1	400		400
6	100		600
14	150		2,100
8	200		1,600

647 43,700

Code	Class	Activities Programs
B.01	CORE	Art Labs
B.02	CORE	Art Kiln, Glazing & Storage Rooms
B.03	CORE	Music Labs (Vocal & Instrumental)
B.04	CORE	Practice Rooms
B.05	CORE	Music Storage Rooms
B.06	CORE	World Languages Classrooms
B.15	CORE	Computer Lab
B.07	GOAL	Collaboration /Idea Lab
B.08	CORE	CTE / Project Labs
B.09	CORE	CTE / FCS Labs
B.10	GOAL	Lab Storage Rooms
B.11	CORE	Gymnasium
B.12	CORE	Fitness/Health Lab
B.13	CORE	Gym Locker Rooms
B.14	CORE	Gym Storage & Supports

Subtotals

Qty	Avg. Size	Capacity	Total NSF
2	1,200	35	2,400
2	150		300
2	1,575	51	3,150
4	50		200
2	250		500
2	850	27	1,700
0	850	-	-
1	850	10	850
1	1,800	17	1,800
1	1,800	17	1,800
4	100		400
2	3,500	49	7,000
1	850	14	850
2	800		1,600
2	400		800

219 23,350

Qty	Avg. Size	Capacity	Total NSF
2	1,200	35	2,400
2	200		400
2	1,575	51	3,150
6	50		300
3	250		750
2	850	27	1,700
0	850	-	-
1	850	10	850
1	1,800	17	1,800
1	1,800	17	1,800
4	100		400
2	3,500	49	7,000
1	850	14	850
2	1,000		2,000
2	500		1,000

219 24,400

Qty	Avg. Size	Capacity	Total NSF
2	1,200	35	2,400
2	250		500
3	1,575	77	4,725
8	50		400
4	250		1,000
3	850	41	2,550
0	850	-	-
2	850	19	1,700
2	1,800	35	3,600
1	1,800	17	1,800
4	100		400
2	3,500	49	7,000
2	850	27	1,700
2	1,200		2,400
2	600		1,200

299 31,375

Code	Class	Special/Support Programs
C.01	CORE	Resource/Reading/Literacy/ESL
C.02	GOAL	Flex Special Programs Room
C.03	CORE	Special Ed Learning Studio
C.04	GOAL	Storage Rooms
C.05	CORE	Student Restroom/Changing
C.06	GOAL	Sensory Room
C.07	CORE	OT/PT
C.08	GOAL	Reflection / Small Group Room

Subtotals

Qty	Avg. Size	Capacity	Total NSF
3	600		1,800
1	300		300
1	800		800
1	100		100
1	100		100
1	200		200
1	400		400
1	100		100

- 3,800

Qty	Avg. Size	Capacity	Total NSF
4	600		2,400
2	300		600
1	800		800
1	100		100
1	100		100
1	200		200
1	400		400
1	100		100

- 4,700

Qty	Avg. Size	Capacity	Total NSF
5	600		3,000
3	300		900
1	800		800
1	100		100
1	100		100
1	200		200
1	400		400
1	100		100

- 5,600

Greenwich Public Schools
Middle School Program Capacity Summary

Central Middle School
Model Program

Code	Class	Community Commons
D.01	CORE	Library/Media Center
D.02	GOAL	Media Support Spaces
D.03	CORE	Commons/Large Group Instruction
D.04	CORE	Cafeteria/Dining
D.05	CORE	Kitchen
D.06	CORE	Auditorium Stage
D.07	CORE	Auditorium Seating
D.08	GOAL	Club Hub
D.09	GOAL	Community Room

Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	4,000		4,000
1	400		400
1	1,500		1,500
1	2,500		2,500
1	1,500		1,500
1	1,200		1,200
1	4,500		4,500
1	400		400
1	400		400

- 16,400

Western Middle School
Model Program

Qty	Avg. Size	Capacity	Total NSF
1	3,200		3,200
1	450		450
1	1,800		1,800
1	3,250		3,250
1	1,500		1,500
1	1,400		1,400
1	4,500		4,500
1	500		500
1	400		400

- 17,000

Eastern Middle School
Model Program

Qty	Avg. Size	Capacity	Total NSF
1	4,000		4,000
1	500		500
1	2,000		2,000
1	4,000		4,000
1	1,500		1,500
1	1,600		1,600
1	4,500		4,500
1	600		600
1	400		400

- 19,100

Code	Class	Admin & Student Services
E.01	GOAL	Welcome Center
E.02	CORE	Office Staff/Reception
E.03	CORE	Principal's Office
E.04	CORE	Asst. Principal Office
E.05	CORE	Admin Offices
E.06	CORE	Conference Room
E.07	GOAL	Workroom/Mailroom
E.08	CORE	Teachers' Lounge/Dining
E.09	CORE	Guidance Offices
E.10	CORE	Specialist Off. (Speech, Psych, etc.)
E.11	GOAL	Small Conference Room
E.12	CORE	Nurse Suite

Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	600		600
1	200		200
1	200		200
1	180		180
6	120		720
1	300		300
1	400		400
1	400		400
3	150		450
2	150		300
1	150		150
1	600		600

- 4,500

Qty	Avg. Size	Capacity	Total NSF
1	700		700
1	300		300
1	200		200
1	180		180
8	120		960
1	400		400
1	600		600
1	800		800
4	150		600
3	150		450
1	150		150
1	700		700

- 6,040

Qty	Avg. Size	Capacity	Total NSF
1	800		800
1	400		400
1	200		200
1	180		180
10	120		1,200
1	500		500
1	800		800
1	1,000		1,000
5	150		750
4	150		600
1	150		150
1	800		800

- 7,380

Code	Class	Building/Facilities Support
F.01	CORE	Receiving
F.02	CORE	Storage Rooms
F.03	CORE	Custodial
F.04	CORE	Security Vestibule

Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	200		200
1	800		800
2	100		200
1	400		400

- 1,600

Qty	Avg. Size	Capacity	Total NSF
1	200		200
1	1,000		1,000
4	100		400
1	400		400

- 2,000

Qty	Avg. Size	Capacity	Total NSF
1	200		200
1	1,200		1,200
6	100		600
1	400		400

- 2,400

Model Program

Target Enrollment	588
Actual Capacity	644
Net Square Footage	79,250
NSF/Student	135

CORE	70,750
GOAL	8,500

Model Program

Target Enrollment	645
Actual Capacity	699
Net Square Footage	87,440
NSF/Student	136

CORE	77,890
GOAL	9,550

Model Program

Target Enrollment	885
Actual Capacity	946
Net Square Footage	109,555
NSF/Student	124

CORE	96,905
GOAL	12,650

APPENDIX E

CAPACITY CALCULATIONS

Greenwich Public Schools Master Plan

Classroom Size Benchmark Analysis

Location or Standard	Grade Level	Net Square Footage	Class Size	SF/Student
GPS Master Plan Model Program	PK	1000	15	67
	K	1000	18	56
	1	850	22	39
	2-5	850	22	39
Connecticut Standard	PK	1200	20	60
	K	1200	20	60
	1	900	22	41
	2-5	900	22	41
New Lebanon School	PK	NA	18	
	K	1000	18	56
	1	900	22	41
	2-5	850	22	39
Glenville School	PK	NA	18	
	K	1080	18	60
	1	895	22	41
	2-5	895	22	41
Hamilton Avenue	PK	880	18	49
	K	895	18	50
	1	800	22	36
	2-5	800	22	36
New York State Standards	PK	900	23	39
	K	900	23	39
	1	770	23	33
	2-5	770	27	29
Massachusetts State Standards	PK	NA		
	K	NA		
	1	950	23	41
	2-5	950	23	41
California Standards	PK	NA		
	K	NA		
	1	960	22	44
	2-5	960	22	44
Florida Standards	PK	NA		
	K	NA		
	1	882	18	49
	2-5	882	18	49

Notes:

GPS Model Program is being established as part of the 2017 / 2018 Master Plan

Square Footages of classrooms at New Lebanon, Glenville and Hamilton Avenue is based on plans and Ed. Specs. provided by GPS

New York State Standards are based on NYSED Facilities Planning Documents

Massachusetts, California and Florida Standards are from a report entitled, "Building Accountability - A Review of State Standards and Requirements for K-12 Public School Facility Planning and Design" by Jeffrey M. Vincent, PhD at the Center for Cities + Schools - University of California Berkeley - Copyright 2016

Greenwich Public Schools

Model Program Data

Description	Grade	Class Size	Room Size	SF/Student	Programming Efficiency	Utilization Rate	Effective Capacity
Core Learning Studio	PK	15	1000	67	90%	100%	13.5
Core Learning Studio	K	20	1000	50	90%	100%	18.0
Core Learning Studio	1	20	1000	50	90%	100%	18.0
Core Learning Studio	2-5	24	850	35	90%	100%	21.6
Core Learning Studio	6-8	24	850	35	90%	87%	18.8
Core Learning Studio	9-12	24	675	28	90%	87%	18.8
Core Learning Studio	9-12	24	850	35	90%	87%	18.8
Core Learning Studio	9-12	24	1000	42	90%	87%	18.8
Core Learning Studio	9-12	48	1600	33	90%	87%	37.6

Description	Grade	Class Size	Room Size	SF/Student	Programming Efficiency	Utilization Rate	Effective Capacity
Instrumental Music	6-12	45	1575	35	90%	63%	25.5
Business/Computer	6-12	24	850	35	90%	63%	13.6
Fitness/Health	6-12	24	850	35	90%	63%	13.6
World Language	6-12	24	850	35	90%	63%	13.6
Collaboration/Idea	6-12	17	850	50	90%	63%	9.6
Science Lab	6-12	24	1200	50	90%	80%	17.3
Art Lab	6-12	24	1200	50	90%	80%	17.3
Tech/Shop/FCS	6-12	24	1800	75	90%	80%	17.3
MS Gymnasium	6-8	27	3500	130	100%	90%	24.3

Greenwich Public Schools

Model Program Data

Description	Grade	Class Size	Room Size	SF/Student	Programming Efficiency	Utilization Rate	Effective Capacity
Art Studio - 2D	9-12	24	1200	50	90%	80%	17.3
Art Studio - 3D	9-12	24	1600	67	90%	80%	17.3
Design / Idea Lab	9-12	24	1200	50	90%	80%	17.3
Photography Studio	9-12	24	1200	50	90%	80%	17.3
Band Room	9-12	60	2000	33	90%	63%	34.0
Orchestra Room	9-12	45	1600	36	90%	63%	25.5
Vocal Music	9-12	60	2000	33	90%	63%	34.0
Production Studio	9-12	24	1200	50	90%	63%	13.6
Theater Arts Classroom	9-12	24	1800	75	90%	63%	13.6
Competition Gym	9-12	72	12000	167	100%	90%	64.8
Aux Gym / Field House	9-12	48	5000	104	90%	90%	38.9
Dance/Fencing/Wrestling	9-12	24	2000	83	90%	90%	19.4
Fitness/Weight Room	9-12	48	2600	54	90%	90%	38.9
Natatorium	9-12	48	9000	188	90%	63%	27.2
Health Classroom	9-12	24	1200	50	90%	87%	18.8
Applied Learning Lab	9-12	24	1000	42	90%	80%	17.3
Construction Lab	9-12	24	2400	100	90%	80%	17.3
Transport/Energy Lab	9-12	24	2000	83	90%	80%	17.3
Human Development Lab	9-12	24	1600	67	90%	80%	17.3
Design / Idea Lab	9-12	24	1000	42	90%	80%	17.3

Greenwich Public Schools Master Plan

Capacity Summary

		2017 Enrollment	Target Enrollment	Actual Capacity	Capacity Difference	Proposed Enrollment	Proposed Capacity	Proposed Difference
Elementary	Cos Cob School	432	415	413	(2)	415	413	(2)
	Glenville School	448	453	500	47	453	500	47
	Hamilton Avenue School	364	379	394	15	379	394	15
	International School at Dundee	363	364	305	(59)	364	367	3
	Julian Curtiss School	338	342	306	(36)	342	324	(18)
	New Lebanon School	260	268	222	(46)	374	374	-
	North Mianus School	506	491	445	(46)	491	449	(42)
	North Street School	410	428	403	(25)	428	422	(6)
	Old Greenwich School	466	459	400	(59)	459	461	2
	Parkway School	250	256	259	3	256	259	3
	Riverside School	469	461	383	(78)	461	437	(24)
	Subtotal Elementary	4,306	4,316	4,028	(288)	4,422	4,400	(22)
Middle		2017 Enrollment	Target Enrollment	Actual Capacity	Difference	Proposed Enrollment	Proposed Capacity	Proposed Difference
	Central Middle School	582	588	734	146	588	661	73
	Eastern Middle School	842	885	904	19	885	904	19
	Western Middle School	593	645	696	51	645	696	51
	Subtotal Middle	2,017	2,118	2,334	216	2,118	2,261	143
High	Greenwich High School*	2,694	2,951	2,637	(314)	2,951	2,945	(6)
	Grand Total	9,017	9,385	8,998	(387)	9,491	9,605	114

*High School Capacity and Program Information based on Facility Space Program developed by Brain SPACES Benchmarks DRAFT 08.22.17

Greenwich Public Schools Master Plan

CORE vs. GOAL Space Comparison

		Actual Capacity	Building NSF		Model Program	Actual Core NSF	Model Core NSF	Shortfall Core NSF		Actual Goal NSF	Model Goal NSF	Shortfall Goal NSF
Elementary	Cos Cob School	413	46,750		4 Section	43,935	60,900	16,965		2,815	9,950	7,135
	Glenville School	500	49,970		4 Section	48,505	60,900	12,395		1,465	9,950	8,485
	Hamilton Avenue School	394	46,915		3 Section w/PK	44,115	45,150	1,035		2,800	7,450	4,650
	International School at Dundee	305	35,765		3 Section	34,750	48,300	13,550		1,015	8,600	7,585
	Julian Curtiss School	306	34,600		3 Section	33,190	36,800	3,610		1,410	9,000	7,590
	New Lebanon School	222	20,000		2 Section	19,605	36,800	17,195		395	9,000	8,605
	North Mianus School	445	40,147		4 Section	38,622	60,900	22,278		1,525	9,950	8,425
	North Street School	403	42,780		3 Section w/PK	42,490	45,150	2,660		290	7,450	7,160
	Old Greenwich School	400	44,055		3 Section w/PK	42,345	45,150	2,805		1,710	7,450	5,740
	Parkway School	259	36,365		2 Section w/PK	33,915	34,700	785		2,450	8,200	5,750
	Riverside School	383	41,010		4 Section	38,690	60,900	22,210		2,320	9,950	7,630
	Subtotal Elementary	4,028	438,357			420,162	535,650	115,488		18,195	96,950	78,755
Middle		Actual Capacity	Building NSF		Model Program	Actual Core NSF	Model Core NSF	Shortfall Core NSF		Actual Goal NSF	Model Goal NSF	Shortfall Goal NSF
	Central Middle School	734	76,692		Small	73,251	70,750	(2,501)		3,441	8,500	5,059
	Western Middle School	696	73,230		Medium	71,190	77,890	6,700		2,040	9,550	7,510
	Eastern Middle School	904	82,269		Large	81,689	96,905	15,216		580	12,650	12,070
	Subtotal Middle	2,334	232,191			226,130	245,545	19,415		6,061	30,700	24,639
High		Actual Capacity	Building NSF		Model Program	Actual Core NSF	Model Core NSF	Shortfall Core NSF		Actual Goal NSF	Model Goal NSF	Shortfall Goal NSF
	Greenwich High School*	2,637	325,364		High School	303,879	TBD	TBD		21,485	TBD	TBD
	Grand Total	8,998	995,912			950,171	TBD	TBD		45,741	TBD	TBD
	*High School Capacity and Program Information based on Facility Space Program developed by Brain SPACES Benchmarks DRAFT 08.22.17											

Greenwich Public Schools Master Plan

Capacity/NSF Analysis

		Target Enrollment	Target NSF/Student	Existing NSF	Existing NSF/Student	Proposed NSF	Proposed NSF/Student	Additional NSF
Elementary	Cos Cob School	415	133	46,750	108	46,750	113	-
	Glenville School	453	133	49,970	112	49,970	110	-
	Hamilton Avenue School	379	140	46,915	129	46,915	124	-
	International School at Dundee	364	143	35,765	99	47,960	132	12,195
	Julian Curtiss School	342	143	34,600	102	43,148	126	8,548
	New Lebanon School	374	140	20,000	77	46,581	125	26,581
	North Mianus School	491	133	40,147	79	53,203	108	13,056
	North Street School	428	140	42,780	104	46,505	109	3,725
	Old Greenwich School	459	140	44,055	95	50,960	111	6,905
	Parkway School	256	145	36,365	145	36,365	142	-
	Riverside School	461	133	41,010	87	54,460	118	13,450
	Subtotal Elementary	4422	139	438,357	102	522,817	118	84,460
Middle		Target Enrollment	Target NSF/Student	Existing NSF	Existing NSF/Student	Proposed NSF	Proposed NSF/Student	Additional NSF
	Central Middle School	588	135	76,692	132	78,850	134	155,542
	Western Middle School	645	136	73,230	123	73,230	114	-
	Eastern Middle School	885	124	82,269	98	82,269	93	-
Subtotal Middle		2,118	128	232,191	110	234,349	111	155,542
		Target Enrollment	Target NSF/Student	Existing NSF	Existing NSF/Student	Proposed NSF	Proposed NSF/Student	Additional NSF
Greenwich High School*		2,951	105	325,364	121	352,608	119	27,244
Grand Total		9,491	130	995,912	110	1,109,774	117	267,246

*High School Capacity and Program Information based on Facility Space Program developed by Brain SPACES Benchmarks DRAFT 08.22.17

Elementary School Model Program

2 Section

3 Section

4 Section

Pre-Kindergarten (Opt.)			
PK.01	CORE		
PK.02	GOAL		
PK.03	GOAL		
PK.04	GOAL		
PK.05	CORE		
Subtotals			

Qty	Avg. Size	Capacity	Total NSF
2	1,000	27	2,000
1	200		200
1	400		400
1	200		200
2	50		100
27			2,900

Instructional Core			
A.01	CORE		
A.01a	CORE		
A.01b	CORE		
A.01c	CORE		
A.01d	CORE		
A.01e	CORE		
A.02	CORE		
A.02	GOAL		
A.04	GOAL		
A.05	GOAL		
A.06	GOAL		
A.07	CORE		
A.08	CORE		
Subtotals			

Qty	Avg. Size	Capacity	Total NSF
3	1,000	41	3,000
2	200		400
1	500		500
1	250		250
3	50		150
41			4,300

Qty	Avg. Size	Capacity	Total NSF
3	1,000	54	3,000
3	50		150
1	100		100
3	1,000	54	3,000
3	50		150
3	100		300
12	850	259	10,200
0	850	-	-
6	100		600
1	400		400
1	100		100
8	150		1,200
8	50		400
367			19,600

Qty	Avg. Size	Capacity	Total NSF
4	1,000	54	4,000
2	200		400
1	600		600
1	300		300
4	50		200
54			5,500

Qty	Avg. Size	Capacity	Total NSF
4	1,000	72	4,000
4	50		200
1	100		100
4	1,000	72	4,000
4	50		200
4	50		200
16	850	346	13,600
0	850	-	-
8	100		800
1	400		400
1	100		100
10	150		1,500
10	50		500
490			25,600

Activities Programs			
B.01	CORE		
B.09	CORE		
B.02	CORE		
B.03	CORE		
B.04	CORE		
B.04a	CORE		
B.10	GOAL		
B.11	GOAL		
B.05	CORE		
B.05a	GOAL		
B.06	GOAL		
B.07	GOAL		
B.08	GOAL		
Subtotals			

Qty	Avg. Size	Capacity	Total NSF
1	3,500		3,500
1	300		300
1	1,000		1,000
1	850		850
1	1,000		1,000
2	100		200
0	850		-
0	850		-
1	1,200		1,200
1	1,200		1,200
1	850		850
1	500		500
4	100		400
-			11,000

Qty	Avg. Size	Capacity	Total NSF
1	5,500		5,500
1	500		500
1	1,200		1,200
1	1,000		1,000
1	1,000		1,000
2	150		300
0	850		-
0	850		-
1	1,200		1,200
1	1,200		1,200
1	850		850
1	850		850
4	100		400
-			14,000

Special/Support Programs			
C.01	CORE		
C.02	CORE		
C.03	CORE		
C.04	GOAL		
C.05	GOAL		
C.06	CORE		
C.07	GOAL		
C.08	CORE		
C.09	GOAL		
Subtotals			

Qty	Avg. Size	Capacity	Total NSF
1	850		850
2	600		1,200
1	850		850
1	300		300
1	100		100
1	100		100
1	200		200
1	400		400
1	100		100
-			4,100

Qty	Avg. Size	Capacity	Total NSF
2	850		1,700
3	600		1,800
1	850		850
3	300		900
1	100		100
1	100		100
1	200		200
1	400		400
1	100		100
-			6,150

Community Commons			
D.01	CORE		
D.02	GOAL		
D.03	CORE		
D.04	CORE		
D.05	CORE		
D.06	CORE		
D.07	GOAL		
D.08	GOAL		
D.09	GOAL		
Subtotals			

Qty	Avg. Size	Capacity	Total NSF
1	2,400		2,400
1	400		400
1	1,000		1,000
1	2,000		2,000
1	600		600
1	1,200		1,200
0	-		-
1	400		400
1	400		400
-			8,400

Qty	Avg. Size	Capacity	Total NSF
1	3,000		3,000
1	600		600
1	2,000		2,000
1	4,000		4,000
1	1,000		1,000
1	1,600		1,600
0	-		-
1	400		400
1	400		400
-			13,000

Admin & Student Services			
E.01	GOAL		
E.02	CORE		
E.03	CORE		
E.04	CORE		
E.05	CORE		
E.06	GOAL		
E.07	CORE		
E.08	CORE		
E.09	GOAL		
E.10	CORE		
Subtotals			

Qty	Avg. Size	Capacity	Total NSF
1	200		200
1	200		200
1	200		200
2	150		300
1	300		300
2	200		400
1	400		400
3	150		450
1	150		150
1	400		400
-			3,000

Qty	Avg. Size	Capacity	Total NSF
1	600		600
1	200		200
1	200		200
4	150		600
1	300		300
2	300		600
1	800		800
5	150		750
1	150		150
1	600		600
-			4,800

Building/Facilities Support			
F.01	CORE		
F.02	CORE		
F.03	CORE		
F.04	CORE		
Subtotals			

Qty	Avg. Size	Capacity	Total NSF
1	200		200
1	800		800
2	100		200
1	200		200
-			1,400

Qty	Avg. Size	Capacity	Total NSF
1	200		200
1	1,200		1,200
2	100		200
1	200		200
-			1,800

Elementary School Model Program Summary

2 Section

3 Section

4 Section

Target Enrollment	288
Actual Capacity	288
Net Square Ft	42,900
NSF/Student	149

Target Enrollment	367
Actual Capacity	367
Net Square Ft	52,600
NSF/Student	143

Target Enrollment	490
Actual Capacity	490
Net Square Ft	65,350
NSF/Student	133

CORE	34,700
GOAL	8,200

CORE	45,150
GOAL	7,450

CORE	56,700
GOAL	8,650

Greenwich Public Schools Elementary School Program Capacity Summary

Pre-Kindergarten (Opt.)		Qty	Avg. Size	Capacity	Total NSF
PK.01	CORE				
	PK Learning Studios				
PK.02	GOAL				
	Small Group Rooms				
PK.03	GOAL				
	Commons/Transition Area				
PK.04	GOAL				
	PK Storage Room				
PK.05	CORE				
	PK Toilets				
Subtotals					

Instructional Core	
A.01	CORE Kindergarten Learning Studios
A.01a	CORE Kindergarten Toilets
A.01b	CORE Kindergarten Storage
A.01c	CORE First Grade Learning Studios
A.01d	CORE First Grade Toilets
A.01e	CORE First Grade Storage
A.02	CORE 2-5 Learning Studios
A.03	GOAL FLEX Learning Studios
A.04	GOAL Small Group Rooms
A.05	GOAL Activity Commons
A.06	GOAL Storage Rooms
A.07	CORE Student Restrooms
A.08	CORE Staff Restrooms
Subtotals	

Activities Programs	
B.01	CORE
B.09	Gymnasium
	Gym Storage & Supports
B.02	CORE
	Music Labs
B.03	CORE
	Music Lab (Band/Orch)
B.04	CORE
	Art Lab
B.04a	CORE
	Art Kiln, Glazing & Storage Rooms
B.10	GOAL
	Computer Lab
B.11	GOAL
	World Language Lab
B.05	CORE
	Science Lab w/Prep Room
B.05a	GOAL
	Additional Science Lab w/Prep Room
B.06	GOAL
	Project/Idea Lab
B.07	GOAL
	Flex Lab
B.08	GOAL
	Lab Storage Rooms
Subtotals	

Special/Support Programs	
C.01	CORE Accelerated Learning Program
C.02	CORE Resource/Reading/Literacy/ESL
C.03	CORE Special Ed Learning Studios
C.04	GOAL Flex Special Programs Room
C.05	GOAL Storage Room
C.06	CORE Student Restroom/Changing
C.07	GOAL Sensory Room
C.08	CORE OT/PT
C.09	GOAL Reflection/Small Group Room
Subtotals	

	Community Commons	
D.01	CORE	Library/Media Center
D.02	GOAL	Media Support Spaces
D.03	CORE	Commons/Large Group Instruction
D.04	CORE	Cafeteria/Dining
D.05	CORE	Kitchen
D.06	CORE	Performance Platform
D.07	GOAL	Audience Seating (shared w/adj.)
D.08	GOAL	Parent Center/Community Room
D.09	GOAL	After School Programs
		Subtotals

Admin & Student Services	
E.01	GOAL
E.02	WELCOME CENTER
E.03	OFFICE STAFF/RECEPTION
E.04	PRINCIPAL'S OFFICE
E.05	ADMIN OFFICES
E.06	CONFERENCE ROOM
E.07	WORK/MAIL/COPY ROOM
E.08	TEACHER'S LOUNGE/DINING
E.09	SPECIALIST OFFICES (SP, PSY, SOC., ETC)
E.10	SMALL CONFERENCE ROOM
E.11	NURSE SUITE

Building/Facilities Support	
F.01	CORE Receiving
F.02	CORE Storage
F.03	CORE Custodial
F.04	CORE Security Vestibule
Subtotals	

Model Program			
Qty	Avg. Size	Capacity	Total NSF

Qty	Avg. Size	Capacity	Total NSF
4	1,000	72	4,000
4	50		200
1	100		100
4	1,000	72	4,000
4	50		200
4	50		200
16	850	346	13,600
0	850	-	-
8	100		800
1	400		400
1	100		100
10	150		1,500
10	50		500
			25,600

Qty	Avg. Size	Capacity	Total NSF
1	5,500		5,500
1	500		500
1	1,200		1,200
1	1,000		1,000
1	1,000		1,000
2	150		300
0	850		-
0	850		-
1	1,200		1,200
1	1,200		1,200
1	850		850
1	850		850
4	100		400
			14,000

Qty	Avg. Size	Capacity	Total NSF
2	850		1,700
3	600		1,800
1	850		850
3	300		900
1	100		100
1	100		100
1	200		200
1	400		400
1	100		100
			6,150

Qty	Avg. Size	Capacity	Total NSF
1	3,000		3,000
1	600		600
1	2,000		2,000
1	4,000		4,000
1	1,000		1,000
1	1,600		1,600
0	-		-
1	400		400
1	400		400
			13,000

Qty	Avg. Size	Capacity	Total NSF
1	600		600
1	200		200
1	200		200
4	150		600
1	300		300
2	300		600
1	800		800
5	150		750
1	150		150
1	600		600

Qty	Avg. Size	Capacity	Total NSF
1	200		200
1	1,200		1,200
2	100		200
1	200		200
			1,800

4 Section	
Target Enrollment	490
Actual Capacity	490
Net Square Ft	65,350
NSF/Student	133

CORE	56,700
GOAL	8,650

Current			
Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-

Qty	Avg. Size	Capacity	Total NSF
4	945	68	3,780
4	45		180
4	54		215
4	946	68	3,785
4	49		195
0	-		-
14	779	277	10,905
0	-	-	-
0	-		-
0	-		-
3	160		480
8	206		1,645
0	-		-
413			21,185

Qty	Avg. Size	Capacity	Total NSF
1	4,680		4,680
3	350		1,050
1	1,220		1,220
1	370		370
1	1,190		1,190
0	-		-
1	775		775
0	-		-
0	-		-
0	-		-
1	800		800
0	-		-
3	117		350
			10,435

Qty	Avg. Size	Capacity	Total NSF
2	463		925
3	577		1,730
1	790		790
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-
1	90		90
			3,535

Qty	Avg. Size	Capacity	Total NSF
1	2,715		2,715
1	160		160
0	-		-
1	3,130		3,130
4	348		1,390
1	800		800
0	-		-
0	-		-
0	-		-
			8,195

Qty	Avg. Size	Capacity	Total NSF
0	-		-
2	313		625
1	270		270
1	120		120
1	175		175
1	160		160
1	365		365
3	137		410
0	-		-
4	136		545

Qty	Avg. Size	Capacity	Total NSF
0	-		-
0	-		-
2	365		730
0	-		-
			730

Current	
Target Enrollment	415
Actual Capacity	413
Net Square Ft	46,750
NSF/Student	113

CORE	43,935
GOAL	2,815

Proposed			
Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-

Qty	Avg. Size	Capacity	Total NSF
4	945	68	3,780
4	45		180
4	54		215
4	946	68	3,785
4	49		195
0	-		-
14	779	277	10,905
0	-	-	-
0	-		-
0	-		-
3	160		480
8	206		1,645
0	-		-
413			21,185

Qty	Avg. Size	Capacity	Total NSF
1	4,680		4,680
3	350		1,050
1	1,220		1,220
1	370		370
1	1,190		1,190
0	-		-
1	775		775
0	-		-
0	-		-
0	-		-
1	800		800
0	-		-
3	117		350
			10,435

Qty	Avg. Size	Capacity	Total NSF
2	463		925
3	577		1,730
1	790		790
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-
1	90		90
			3,535

Qty	Avg. Size	Capacity	Total NSF
1	2,715		2,715
1	160		160
0	-		-
1	3,130		3,130
4	348		1,390
1	800		800
0	-		-
0	-		-
0	-		-
			8,195

Qty	Avg. Size	Capacity	Total NSF
0	-		-
2	313		625
1	270		270
1	120		120
1	175		175
1	160		160
1	365		365
3	137		410
0	-		-
4	136		545

Qty	Avg. Size	Capacity	Total NSF
0	-		-
0	-		-
2	365		730
0	-		-
			730

Proposed	
Target Enrollment	415
Actual Capacity	413
Net Square Ft	46,750
NSF/Student	113
CORE	43,935
GOAL	2,815

Greenwich Public Schools
Elementary School Program Capacity Summary

Model Program

Pre-Kindergarten (Opt.)			
PK.01	CORE	PK Learning Studios	
PK.02	GOAL	Small Group Rooms	
PK.03	GOAL	Commons/Transition Area	
PK.04	GOAL	PK Storage Room	
PK.05	CORE	PK Toilets	
Subtotals			

Instructional Core			
A.01	CORE	Kindergarten Learning Studios	
A.01a	CORE	Kindergarten Toilets	
A.01b	CORE	Kindergarten Storage	
A.01c	CORE	First Grade Learning Studios	
A.01d	CORE	First Grade Toilets	
A.01e	CORE	First Grade Storage	
A.02	CORE	2-5 Learning Studios	
A.03	GOAL	FLEX Learning Studios	
A.04	GOAL	Small Group Rooms	
A.05	GOAL	Activity Commons	
A.06	GOAL	Storage Rooms	
A.07	CORE	Student Restrooms	
A.08	CORE	Staff Restrooms	
Subtotals			

Activities Programs			
B.01	CORE	Gymnasium	
B.09	CORE	Gym Storage & Supports	
B.02	CORE	Music Labs	
B.03	CORE	Music Lab (Band/Orch)	
B.04	CORE	Art Lab	
B.04a	CORE	Art Kiln, Glazing & Storage Rooms	
B.10	GOAL	Computer Lab	
B.11	GOAL	World Language Lab	
B.05	CORE	Science Lab w/Prep Room	
B.05a	GOAL	Additional Science Lab w/Prep Room	
B.06	GOAL	Project/Idea Lab	
B.07	GOAL	Flex Lab	
B.08	GOAL	Lab Storage Rooms	
Subtotals			

Special/Support Programs			
C.01	CORE	Accelerated Learning Program	
C.02	CORE	Resource/Reading/Literacy/ESL	
C.03	CORE	Special Ed Learning Studios	
C.04	GOAL	Flex Special Programs Room	
C.05	GOAL	Storage Room	
C.06	CORE	Student Restroom/Changing	
C.07	GOAL	Sensory Room	
C.08	CORE	OT/PT	
C.09	GOAL	Reflection/Small Group Room	
Subtotals			

Community Commons			
D.01	CORE	Library/Media Center	
D.02	GOAL	Media Support Spaces	
D.03	CORE	Commons/Large Group Instruction	
D.04	CORE	Cafeteria/Dining	
D.05	CORE	Kitchen	
D.06	CORE	Performance Platform	
D.07	GOAL	Audience Seating (shared w/adj.)	
D.08	GOAL	Parent Center/Community Room	
D.09	GOAL	After School Programs	
Subtotals			

Admin & Student Services			
E.01	GOAL	Welcome Center	
E.02	CORE	Office Staff/Reception	
E.03	CORE	Principal's Office	
E.04	CORE	Admin Offices	
E.05	CORE	Conference Room	
E.06	GOAL	Work/Mail/Copy Room	
E.07	CORE	Teacher's Lounge/Dining	
E.08	CORE	Specialist Offices (Sp. Psy, Soc., etc)	
E.09	GOAL	Small Conference Room	
E.10	CORE	Nurse Suite	
Subtotals			

Building/Facilities Support			
F.01	CORE	Receiving	
F.02	CORE	Storage	
F.03	CORE	Custodial	
F.04	CORE	Security Vestibule	
Subtotals			

Glenville
Current

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-

Qty	Avg. Size	Capacity	Total NSF
4	1,064	77	4,255
4	35		140
0	-	-	-
3	1,110	60	3,330
3	38		115
0	-	-	-
16	894	364	14,305
0	-	-	-
0	-	-	-
0	-	-	-
1	35		35
8	183		1,460
0	-	-	-
500			23,640

Qty	Avg. Size	Capacity	Total NSF
1	7,170		7,170
2	525		1,050
2	853		1,705
0	-	-	-
2	600		1,200
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
1	65		65
-			11,190

Qty	Avg. Size	Capacity	Total NSF
2	475		950
2	515		1,030
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
1	485		485
0	-	-	-
-			2,465

Qty	Avg. Size	Capacity	Total NSF
1	2,900		2,900
2	280		560
0	-	-	-
1	2,660		2,660
1	515		515
1	845		845
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
-			7,480

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
1	630		630
1	230		230
4	220		880
1	260		260
2	403		805
4	231		925
1	180		180
0	-	-	-
3	130		390
-			4,300

Qty	Avg. Size	Capacity	Total NSF
1	605		605
0	-	-	-
1	290		290
0	-	-	-
-			895

Glenville
Current

Target Enrollment	490
Actual Capacity	490
Net Square Ft	65,350
NSF/Student	133
CORE	56,700
GOAL	8,650

4 Section

Target Enrollment	453
Actual Capacity	500
Net Square Ft	49,970
NSF/Student	110
CORE	48,505
GOAL	1,465

Proposed

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-

Qty	Avg. Size	Capacity	Total NSF
4	1,064	77	4,255
4	35		140
0	-	-	-
3	1,110	60	3,330
3	38		115
0	-	-	-
16	894	364	14,305
0	-	-	-
0	-	-	-
0	-	-	-
1	35		35
8	183		1,460
0	-	-	-
500			23,640

Qty	Avg. Size	Capacity	Total NSF
1	7,170		7,170
2	525		1,050
2	853		1,705
0	-	-	-
2	600		1,200
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
1	65		65
-			11,190

Qty	Avg. Size	Capacity	Total NSF
2	475		950
2	515		1,030
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
1	485		485
0	-	-	-
-			2,465

Qty	Avg. Size	Capacity	Total NSF
1	2,900		2,900
2	280		560
0	-	-	-
1	2,660		2,660
1	515		515
1	845		845
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
-			7,480

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
1	630		630
1	230		230
4	220		880
1	260		260
2	403		805
4	231		925
1	180		180
0	-	-	-
3	130		390
-			4,300

Qty	Avg. Size	Capacity	Total NSF
1	605		605
0	-	-	-
1	290		290
0	-	-	-
-			895

Proposed

Target Enrollment	453
Actual Capacity	500
Net Square Ft	49,970
NSF/Student	110
CORE	48,505
GOAL	1,465

Hamilton Avenue

Model Program

Pre-Kindergarten (Opt.)			
PK.01	CORE	1,000	41
PK.02	GOAL	200	-
PK.03	GOAL	500	-
PK.04	GOAL	250	-
PK.05	CORE	50	-
Subtotals		41	4,300

Instructional Core			
A.01	CORE	1,000	54
A.01a	CORE	50	-
A.01b	CORE	100	-
A.01c	CORE	1,000	54
A.01d	CORE	50	-
A.01e	CORE	100	-
A.02	CORE	850	259
A.02c	GOAL	850	-
A.04	GOAL	100	-
A.05	GOAL	400	-
A.06	GOAL	100	-
A.07	CORE	150	-
A.08	CORE	50	-
Subtotals		367	19,600

Activities Programs			
B.01	CORE	4,500	-
B.09	CORE	300	-
B.02	CORE	1,000	-
B.03	CORE	1,000	-
B.04	CORE	1,000	-
B.04a	CORE	150	-
B.10	GOAL	850	-
B.11	GOAL	850	-
B.05	CORE	1,200	-
B.05a	GOAL	1,200	-
B.06	GOAL	850	-
B.07	GOAL	650	-
B.08	GOAL	100	-
Subtotals		-	12,400

Special/Support Programs			
C.01	CORE	2,700	-
C.02	CORE	400	-
C.03	CORE	1,000	-
C.04	GOAL	300	-
C.05	GOAL	100	-
C.06	CORE	100	-
C.07	GOAL	200	-
C.08	CORE	400	-
C.09	GOAL	100	-
Subtotals		-	5,000

Community Commons			
D.01	CORE	2,700	-
D.02	GOAL	400	-
D.03	CORE	1,000	-
D.04	CORE	3,000	-
D.05	CORE	800	-
D.06	CORE	1,400	-
D.07	GOAL	-	-
D.08	GOAL	400	-
D.09	GOAL	400	-
Subtotals		-	10,100

Admin & Student Services			
E.01	GOAL	400	-
E.02	CORE	200	-
E.03	CORE	200	-
E.04	CORE	150	-
E.05	CORE	300	-
E.06	GOAL	250	-
E.07	CORE	600	-
E.08	CORE	150	-
E.09	GOAL	150	-
E.10	CORE	500	-
Subtotals		-	3,900

Building/Facilities Support			
F.01	CORE	200	-
F.02	CORE	1,000	-
F.03	CORE	100	-
F.04	CORE	200	-
Subtotals		-	1,600

3 Section w/PK

Target Enrollment	408
Actual Capacity	408
Net Square Ft	56,900
NSF/Student	140
CORE	48,300
GOAL	8,600

Model Program

Qty	Avg. Size	Capacity	Total NSF
3	1,000	41	3,000
2	200	-	400
1	500	-	500
1	250	-	250
3	50	-	150
		41	4,300

Qty	Avg. Size	Capacity	Total NSF
3	1,000	54	3,000
3	50	-	150
1	100	-	100
3	1,000	54	3,000
3	50	-	150
3	100	-	300
12	850	259	10,200
0	850	-	-
6	100	-	600
1	400	-	400
1	100	-	100
8	150	-	1,200
8	50	-	400
		367	19,600

Qty	Avg. Size	Capacity	Total NSF
1	4,500	-	4,500
1	300	-	300
1	1,000	-	1,000
1	1,000	-	1,000
1	1,000	-	1,000
2	150	-	300
0	850	-	-
0	850	-	-
1	1,200	-	1,200
1	1,200	-	1,200
1	850	-	850
1	650	-	650
4	100	-	400
		-	12,400

Qty	Avg. Size	Capacity	Total NSF
1	850	-	850
3	600	-	1,800
1	850	-	850
2	300	-	600
1	100	-	100
1	100	-	100
1	200	-	200
1	400	-	400
1	100	-	100
		-	5,000

Qty	Avg. Size	Capacity	Total NSF
1	2,700	-	2,700
1	400	-	400
1	1,000	-	1,000
1	3,000	-	3,000
1	800	-	800
1	1,400	-	1,400
0	-	-	-
1	400	-	400
1	400	-	400
1	400	-	400
		-	10,100

Qty	Avg. Size	Capacity	Total NSF
1	400	-	400
1	200	-	200
1	200	-	200
3	150	-	450
1	300	-	300
2	250	-	500
1	600	-	600
4	150	-	600
1	150	-	150
1	500	-	500
		-	3,900

Qty	Avg. Size	Capacity	Total NSF
1	200	-	200
1	1,000	-	1,000
2	100	-	200
1	200	-	200
		-	1,600

Current

Qty	Avg. Size	Capacity	Total NSF
4	883	48	3,530
0	-	-	-
0	-	-	-
0	-	-	-
4	51	-	205
		48	3,735

Qty	Avg. Size	Capacity	Total NSF
4	896	65	3,585
4	48	-	190
0	-	-	-
4	783	56	3,130
4	49	-	195
0	-	-	-
11	805	225	8,860
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
6	175	-	1,050
5	63	-	313
		346	17,323

Qty	Avg. Size	Capacity	Total NSF
1	3,827	-	3,827
4	154	-	615
1	1,080	-	1,080
1	735	-	735
2	650	-	1,300
0	-	-	-
1	825	-	825
1	175	-	175
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
		-	8,557

Qty	Avg. Size	Capacity	Total NSF
1	800	-	800
2	670	-	1,340
2	638	-	1,275
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
3	240	-	720
0	-	-	-
		-	4,135

Qty	Avg. Size	Capacity	Total NSF
1	2,215	-	2,215
3	155	-	465
0	-	-	-
1	2,620	-	2,620
5	266	-	1,330
1	575	-	575
0	-	-	-
1	1,335	-	1,335
0	-	-	-
		-	8,540

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
1	735	-	735
1	170	-	170
2	163	-	325
1	360	-	360
0	-	-	-
2	505	-	1,010
5	140	-	700
0	-	-	-
3	128	-	385
		-	3,685

Qty	Avg. Size	Capacity	Total NSF
1	185	-	185
1	600	-	600
1	155	-	155
0	-	-	-
		-	940

Hamilton Avenue

Current

Target Enrollment	379
Actual Capacity	394
Net Square Ft	46,915
NSF/Student	124
CORE	44,115
GOAL	2,800

Proposed

Qty	Avg. Size	Capacity	Total NSF
4	883	48	3,530
0	-	-	-
0	-	-	-
0	-	-	-
4	51	-	205
		48	3,735

Qty	Avg. Size	Capacity	Total NSF
4	896	65	3,585
4	48	-	190
0	-	-	-
4	783	56	3,130
4	49	-	195
0	-	-	-
11	805	225	8,860
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
6	175	-	1,050
5	63	-	313
		346	17,323

Qty	Avg. Size	Capacity	Total NSF
1	3,827	-	3,827
4	154	-	615
1	1,080	-	1,080
1	735	-	735
2	650	-	1,300
0	-	-	-
1	825	-	825
1	175	-	175
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
		-	8,557

Qty	Avg. Size	Capacity	Total NSF
1	800	-	800
2	670	-	1,340
2	638	-	1,275
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
3	240	-	720
0	-	-	-
		-	4,135

Qty	Avg. Size	Capacity	Total NSF
1	2,215	-	2,215
3	155	-	465
0	-	-	-
1	2,620	-	2,620
5	266	-	1,330
1	575	-	575
0	-	-	-
1	1,335	-	1,335
0	-	-	-
		-	8,540

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
1	735	-	735
1	170	-	170
2	163	-	325
1	360	-	360
0	-	-	-
2	505	-	1,010
5	140	-	700
0	-	-	-
3	128	-	385
		-	3,685

Qty	Avg. Size	Capacity	Total NSF
1	185	-	185
1	600	-	600
1	155	-	155
0	-	-	-
		-	940

Proposed

Target Enrollment	379
Actual Capacity	394
Net Square Ft	46,915
NSF/Student	124
CORE	44,115
GOAL	2,800

Greenwich Public Schools
Elementary School Program Capacity Summary

Model Program

Pre-Kindergarten (Opt.)			
PK.01	CORE		
PK.02	GOAL		
PK.03	GOAL		
PK.04	GOAL		
PK.05	CORE		
Subtotals			

Instructional Core			
A.01	CORE		
A.01a	CORE		
A.01b	CORE		
A.01c	CORE		
A.01d	CORE		
A.01e	CORE		
A.02	CORE		
A.03	GOAL		
A.04	GOAL		
A.05	GOAL		
A.06	GOAL		
A.07	CORE		
A.08	CORE		
Subtotals			

Activities Programs			
B.01	CORE		
B.09	CORE		
B.02	CORE		
B.03	CORE		
B.04	CORE		
B.04a	CORE		
B.10	GOAL		
B.11	GOAL		
B.05	CORE		
B.05a	GOAL		
B.06	GOAL		
B.07	GOAL		
B.08	GOAL		
Subtotals			

Special/Support Programs			
C.01	CORE		
C.02	CORE		
C.03	CORE		
C.04	GOAL		
C.05	GOAL		
C.06	CORE		
C.07	GOAL		
C.08	CORE		
C.09	GOAL		
Subtotals			

Community Commons			
D.01	CORE		
D.02	GOAL		
D.03	CORE		
D.04	CORE		
D.05	CORE		
D.06	CORE		
D.07	GOAL		
D.08	GOAL		
D.09	GOAL		
Subtotals			

Admin & Student Services			
E.01	GOAL		
E.02	CORE		
E.03	CORE		
E.04	CORE		
E.05	CORE		
E.06	GOAL		
E.07	CORE		
E.08	CORE		
E.09	GOAL		
E.10	CORE		
Subtotals			

Building/Facilities Support			
F.01	CORE		
F.02	CORE		
F.03	CORE		
F.04	CORE		
Subtotals			

Qty	Avg. Size	Capacity	Total NSF

Qty	Avg. Size	Capacity	Total NSF
3	1,000	54	3,000
3	50	-	150
1	100	-	100
3	1,000	54	3,000
3	50	-	150
3	100	-	300
12	850	259	10,200
0	850	-	-
6	100	-	600
1	400	-	400
1	100	-	100
8	150	-	1,200
8	50	-	400
367 19,600			

Qty	Avg. Size	Capacity	Total NSF
1	4,500	-	4,500
1	300	-	300
1	1,000	-	1,000
1	1,000	-	1,000
1	1,000	-	1,000
2	150	-	300
0	850	-	-
0	850	-	-
1	1,200	-	1,200
1	1,200	-	1,200
1	850	-	850
1	650	-	650
4	100	-	400
12,400			

Qty	Avg. Size	Capacity	Total NSF
1	850	-	850
3	600	-	1,800
1	850	-	850
2	300	-	600
1	100	-	100
1	100	-	100
1	200	-	200
1	400	-	400
1	100	-	100
5,000			

Qty	Avg. Size	Capacity	Total NSF
1	2,700	-	2,700
1	400	-	400
1	1,000	-	1,000
1	3,000	-	3,000
1	800	-	800
1	1,400	-	1,400
0	-	-	-
1	400	-	400
1	400	-	400
10,100			

Qty	Avg. Size	Capacity	Total NSF
1	400	-	400
1	200	-	200
1	200	-	200
3	150	-	450
1	300	-	300
2	250	-	500
1	600	-	600
4	150	-	600
1	150	-	150
1	500	-	500
3,900			

Qty	Avg. Size	Capacity	Total NSF
1	200	-	200
1	1,000	-	1,000
2	100	-	200
1	200	-	200
1,600			

3 Section

Target Enrollment	367
Model Capacity	367
Net Square Ft	52,600
NSF/Student	143

CORE	45,150
GOAL	7,450

Dundee

Current

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-

Qty	Avg. Size	Capacity	Total NSF
3	922	50	2,765
3	28	-	85
0	-	-	-
3	777	42	2,330
3	15	-	45
0	-	-	-
12	698	213	8,380
0	-	-	-
0	-	-	-
0	-	-	-
8	156	-	1,245
5	40	-	200
305 15,050			

Qty	Avg. Size	Capacity	Total NSF
1	5,070	-	5,070
3	163	-	490
1	950	-	950
1	650	-	650
2	495	-	990
0	-	-	-
1	630	-	630
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
1	50	-	50
8,830			

Qty	Avg. Size	Capacity	Total NSF
1	730	-	730
3	335	-	1,005
0	-	-	-
0	-	-	-
0	-	-	-
2	285	-	570
0	-	-	-
1	100	-	100
0	-	-	-
2,405			

Qty	Avg. Size	Capacity	Total NSF
1	3,290	-	3,290
1	110	-	110
0	-	-	-
1	2,380	-	2,380
3	343	-	1,030
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
6,810			

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
1	615	-	615
1	145	-	145
2	138	-	275
1	220	-	220
1	225	-	225
1	340	-	340
2	120	-	240
0	-	-	-
4	88	-	350
2,410			

Qty	Avg. Size	Capacity	Total NSF
1	40	-	40
0	-	-	-
1	220	-	220
0	-	-	-
260			

Dundee

Current

Target Enrollment	364
Actual Capacity	305
Net Square Ft	35,765
NSF/Student	98

CORE	34,750
GOAL	1,015

Proposed

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-

Qty	Avg. Size	Capacity	Total NSF
3	1,000	54	3,000
3	50	-	150
1	100	-	100
3	1,000	54	3,000
3	50	-	150
3	100	-	300
12	850	259	10,200
0	-	-	-
0	-	-	-
0	-	-	-
8	156	-	1,245
5	40	-	200
367 18,345			

Qty	Avg. Size	Capacity	Total NSF
1	5,070	-	5,070
3	163	-	490
1	950	-	950
1	650	-	650
2	495	-	990
0	-	-	-
1	630	-	630
0	-	-	-
1	1,200	-	1,200
0	-	-	-
0	-	-	-
0	-	-	-
4	238	-	950
10,930			

Qty	Avg. Size	Capacity	Total NSF
1	730	-	730
3	335	-	1,005
1	850	-	850
1	250	-	250
0	-	-	-
2	285	-	570
1	200	-	200
2	250	-	500
1	100	-	100
4,205			

Qty	Avg. Size	Capacity	Total NSF
1	3,290	-	3,290
1	110	-	110
2	1,350	-	2,700
1	2,380	-	2,380
3	343	-	1,030
1	1,400	-	1,400
0	-	-	-
0	-	-	-
0	-	-	-
10,910			

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
1	615	-	615
1	145	-	145
6	146	-	875
1	220	-	220
1	225	-	225
1	340	-	340
2	120	-	240
0	-	-	-
4	88	-	350
3,010			

Qty	Avg. Size	Capacity	Total NSF
1	40	-	40
0	-	-	-
1	220	-	220
1	300	-	300
560			

Proposed

Target Enrollment	364
Actual Capacity	367
Net Square Ft	47,960
NSF/Student	132

CORE	45,495
GOAL	2,465

Model Program

Pre-Kindergarten (Opt.)			
PK.01	CORE		
PK.02	GOAL		
PK.03	GOAL		
PK.04	GOAL		
PK.05	CORE		
Subtotals			

Instructional Core			
A.01	CORE		
A.01a	CORE		
A.01b	CORE		
A.01c	CORE		
A.01d	CORE		
A.01e	CORE		
A.02	CORE		
A.02c	CORE		
A.03	GOAL		
A.04	GOAL		
A.05	GOAL		
A.06	GOAL		
A.07	CORE		
A.08	CORE		
Subtotals			

Activities Programs			
B.01	CORE		
B.09	CORE		
B.02	CORE		
B.03	CORE		
B.04	CORE		
B.04a	CORE		
B.10	GOAL		
B.11	GOAL		
B.05	CORE		
B.05a	GOAL		
B.06	GOAL		
B.07	GOAL		
B.08	GOAL		
Subtotals			

Special/Support Programs			
C.01	CORE		
C.02	CORE		
C.03	CORE		
C.04	GOAL		
C.05	GOAL		
C.06	CORE		
C.07	GOAL		
C.08	CORE		
C.09	GOAL		
Subtotals			

Community Commons			
D.01	CORE		
D.02	GOAL		
D.03	CORE		
D.04	CORE		
D.05	CORE		
D.06	CORE		
D.07	GOAL		
D.08	GOAL		
D.09	GOAL		
Subtotals			

Admin & Student Services			
E.01	GOAL		
E.02	CORE		
E.03	CORE		
E.04	CORE		
E.05	CORE		
E.06	GOAL		
E.07	CORE		
E.08	CORE		
E.09	GOAL		
E.10	CORE		
Subtotals			

Building/Facilities Support			
F.01	CORE		
F.02	CORE		
F.03	CORE		
F.04	CORE		
Subtotals			

3 Section

Target Enrollment	367
Actual Capacity	367
Net Square Ft	52,600
NSF/Student	143
CORE	45,150
GOAL	7,450

Model Program

Qty	Avg. Size	Capacity	Total NSF

-

Current

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-

-

Julian Curtiss

Qty	Avg. Size	Capacity	Total NSF
3	925	50	2,775
2	65		130
2	60		120
3	813	44	2,440
0	-		-
0	-		-
10	833	212	8,330
0	-	-	-
0	-		-
0	-		-
4	91		365
8	175		1,400
1	75		75

306

15,635

Qty	Avg. Size	Capacity	Total NSF
1	3,160		3,160
1	230		230
1	705		705
1	400		400
1	560		560
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-

-

5,055

Qty	Avg. Size	Capacity	Total NSF
2	425		850
4	386		1,545
1	820		820
1	675		675
0	-		-
0	-		-
0	-		-
1	245		245
0	-		-

-

4,135

Qty	Avg. Size	Capacity	Total NSF
1	3,400		3,400
0	-		-
0	-		-
1	1,065		1,065
1	285		285
1	1,060		1,060
0	-		-
0	-		-
0	-		-

-

5,810

Qty	Avg. Size	Capacity	Total NSF
0	-		-
1	350		350
1	240		240
1	400		400
1	400		400
2	185		370
1	260		260
4	320		1,280
0	-		-
2	225		450

-

3,750

Qty	Avg. Size	Capacity	Total NSF
0	-		-
0	-		-
1	215		215
0	-		-

-

215

Julian Curtiss

Current

Target Enrollment	342
Actual Capacity	306
Net Square Ft	34,600
NSF/Student	101
CORE	33,190
GOAL	1,410

Proposed

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-

-

Qty	Avg. Size	Capacity	Total NSF
3	1,000	54	3,000
3	50		150
2	60		120
3	1,000	54	3,000
3	50		150
3	100		300
10	850	216	8,500
0	-	-	-
0	-		-
0	-		-
4	91		365
8	150		1,200
4	50		200

324

16,985

Qty	Avg. Size	Capacity	Total NSF
1	3,160		3,160
1	230		230
1	973		973
1	400		400
1	1,000		1,000
2	150		300
0	-		-
0	-		-
1	850		850
0	-		-
0	-		-
1	245		245
0	-		-

-

6,913

Qty	Avg. Size	Capacity	Total NSF
2	425		850
4	386		1,545
1	820		820
1	675		675
0	-		-
0	-		-
0	-		-
1	245		245
0	-		-

-

4,135

Qty	Avg. Size	Capacity	Total NSF
2	1,900		3,800
1	400		400
1	1,000		1,000
1	3,150		3,150
1	1,590		1,590
1	1,060		1,060
0	-		-
0	-		-
0	-		-

-

11,000

Qty	Avg. Size	Capacity	Total NSF
1	400		400
1	200		200
1	200		200
3	150		450
1	300		300
2	250		500
1	600		600
4	150		600
1	150		150
1	500		500

-

3,900

Qty	Avg. Size	Capacity	Total NSF
0	-		-
0	-		-
1	215		215
0	-		-

Proposed

Target Enrollment	342
Actual Capacity	324
Net Square Ft	43,148
NSF/Student	126
CORE	40,658
GOAL	2,490

New Lebanon

Model Program

Pre-Kindergarten (Opt.)			
PK.01	CORE	1,000	41
PK.02	GOAL	200	-
PK.03	GOAL	500	-
PK.04	GOAL	250	-
PK.05	CORE	50	-
Subtotals			41
			4,300

Instructional Core			
A.01	CORE	1,000	54
A.01a	CORE	50	-
A.01b	CORE	100	-
A.01c	CORE	1,000	54
A.01d	CORE	50	-
A.01e	CORE	100	-
A.02	CORE	850	259
A.02c	GOAL	850	-
A.04	GOAL	100	-
A.05	GOAL	400	-
A.06	GOAL	100	-
A.07	CORE	150	-
A.08	CORE	50	-
Subtotals			367
			19,600

Activities Programs			
B.01	CORE	4,500	-
B.09	CORE	300	-
B.02	CORE	1,000	-
B.03	CORE	1,000	-
B.04	CORE	1,000	-
B.04a	CORE	150	-
B.10	GOAL	850	-
B.11	GOAL	850	-
B.05	CORE	1,200	-
B.05a	GOAL	1,200	-
B.06	GOAL	850	-
B.07	GOAL	650	-
B.08	GOAL	100	-
Subtotals			-
			12,400

Special/Support Programs			
C.01	CORE	850	-
C.02	CORE	600	-
C.03	CORE	850	-
C.04	GOAL	300	-
C.05	GOAL	100	-
C.06	CORE	100	-
C.07	GOAL	200	-
C.08	CORE	400	-
C.09	GOAL	100	-
Subtotals			-
			5,000

Community Commons			
D.01	CORE	2,700	-
D.02	GOAL	400	-
D.03	CORE	1,000	-
D.04	CORE	3,000	-
D.05	CORE	800	-
D.06	CORE	1,400	-
D.07	GOAL	-	-
D.08	GOAL	400	-
D.09	GOAL	400	-
Subtotals			-
			10,100

Admin & Student Services			
E.01	GOAL	400	-
E.02	CORE	200	-
E.03	CORE	200	-
E.04	CORE	150	-
E.05	CORE	300	-
E.06	GOAL	250	-
E.07	CORE	600	-
E.08	CORE	150	-
E.09	GOAL	150	-
E.10	CORE	500	-
Subtotals			-
			3,900

Building/Facilities Support			
F.01	CORE	200	-
F.02	CORE	1,000	-
F.03	CORE	100	-
F.04	CORE	200	-
Subtotals			-
			1,600

3 Section w/PK

Target Enrollment	408
Actual Capacity	408
Net Square Ft	56,900
NSF/Student	140
CORE	48,300
GOAL	8,600

New Lebanon

New Lebanon

Target Enrollment	268
Actual Capacity	222
Net Square Ft	20,000
NSF/Student	75
CORE	19,605
GOAL	395

Model Program

Qty	Avg. Size	Capacity	Total NSF
3	1,000	41	3,000
2	200	-	400
1	500	-	500
1	250	-	250
3	50	-	150
Subtotals			41
			4,300

Qty	Avg. Size	Capacity	Total NSF
3	1,000	54	3,000
3	50	-	150
1	100	-	100
3	1,000	54	3,000
3	50	-	150
3	100	-	300
12	850	259	10,200
0	850	-	-
6	100	-	600
1	400	-	400
1	100	-	100
8	150	-	1,200
8	50	-	400
Subtotals			367
			19,600

Qty	Avg. Size	Capacity	Total NSF
1	4,500	-	4,500
1	300	-	300
1	1,000	-	1,000
1	1,000	-	1,000
1	1,000	-	1,000
2	150	-	300
0	850	-	-
0	850	-	-
1	1,200	-	1,200
1	1,200	-	1,200
1	850	-	850
1	650	-	650
4	100	-	400
Subtotals			-
			12,400

Qty	Avg. Size	Capacity	Total NSF
1	850	-	850
3	600	-	1,800
1	850	-	850
2	300	-	600
1	100	-	100
1	100	-	100
1	200	-	200
1	400	-	400
1	100	-	100
Subtotals			-
			5,000

Qty	Avg. Size	Capacity	Total NSF
1	2,700	-	2,700
1	400	-	400
1	1,000	-	1,000
1	3,000	-	3,000
1	800	-	800
1	1,400	-	1,400
0	-	-	-
1	400	-	400
1	400	-	400
1	400	-	400
Subtotals			-
			10,100

Qty	Avg. Size	Capacity	Total NSF
1	400	-	400
1	200	-	200
1	200	-	200
3	150	-	450
1	300	-	300
2	250	-	500
1	600	-	600
4	150	-	600
1	150	-	150
1	500	-	500
Subtotals			-
			3,900

Qty	Avg. Size	Capacity	Total NSF
1	200	-	200
1	1,000	-	1,000
2	100	-	200
1	200	-	200
Subtotals			-
			1,600

Current

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
Subtotals			-
			-

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
0	-	-	-
0	-	-	-
2	595	21	1,190
0	-	-	-
0	-	-	-
11	719	201	7,905
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
4	115	-	460
1	35	-	35
Subtotals			222
			9,590

Qty	Avg. Size	Capacity	Total NSF
1	2,930	-	2,930
1	75	-	75
1	500	-	500
0	-	-	-
1	580	-	580
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
Subtotals			-
			4,085

Qty	Avg. Size	Capacity	Total NSF
1	715	-	715
2	275	-	550
1	1,000	-	1,000
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
Subtotals			-
			2,265

Qty	Avg. Size	Capacity	Total NSF
1	1,500	-	1,500
0	-	-	-
0	-	-	-
1	1,310	-	1,310
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
Subtotals			-
			2,810

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
1	115	-	115
1	215	-	215
0	-	-	-
1	120	-	120
1	120	-	120
1	245	-	245
0	-	-	-
4	69	-	275
2	80	-	160
Subtotals			-
			1,250

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
Subtotals			-
			-

Proposed

Qty	Avg. Size	Capacity	Total NSF
3	1,048	42	3,145
0	200	-	-
0	500	-	-
0	250	-	-
3	50	-	150
Subtotals			42
			3,295

Qty	Avg. Size	Capacity	Total NSF
3	1,000	54	2,989
0	50	-	-
0	100	-	-
3	850	46	2,550
0	50	-	-
0	100	-	-
12	850	259	10,200
0	850	-	-
6	100	-	600
1	400	-	400
1	100	-	100
8	150	-	1,200
8	50	-	400
Subtotals			359
			18,439

Qty	Avg. Size	Capacity	Total NSF
1	5,000	-	5,000
1	300	-	300
1	800	-	800
1	1,000	-	1,000
1	900	-	900
1	150	-	150
0	850	-	-
1	200	-	200
1	900	-	900
0	1,200	-	-
0	850	-	-
0	650	-	-
1	100	-	100
Subtotals			-
			9,350

Qty	Avg. Size	Capacity	Total NSF
2	375	-	750
2	400	-	800
2	350	-	700
2	350	-	700
0	100	-	-
0	100	-	-
0	200	-	-
1	400	-	400
0	100	-	-
Subtotals			-
			3,350

Qty	Avg. Size	Capacity	Total NSF
1	4,150	-	4,150
0	400	-	-
1	1,200	-	1,200
1	2,700	-	2,700
1	800	-	800
1	900	-	900
0	-	-	-
0	400	-	-
0	400	-	-
0	400	-	-
Subtotals			-
			9,750

Qty	Avg. Size	Capacity	Total NSF
0	400		-
1	200		200
1	200		200
3	150		450
1	300		300
1	250		250
1	600		600
4	150		600
0	150		-
1	500		500

Model Program

Pre-Kindergarten (Opt.)			
PK.01	CORE	PK Learning Studios	
PK.02	GOAL	Small Group Rooms	
PK.03	GOAL	Commons/Transition Area	
PK.04	GOAL	PK Storage Room	
PK.05	CORE	PK Toilets	
Subtotals			

Instructional Core			
A.01	CORE	Kindergarten Learning Studios	
A.01a	CORE	Kindergarten Toilets	
A.01b	CORE	Kindergarten Storage	
A.01c	CORE	First Grade Learning Studios	
A.01d	CORE	First Grade Toilets	
A.01e	CORE	First Grade Storage	
A.02	CORE	2-5 Learning Studios	
A.03	GOAL	FLEX Learning Studios	
A.04	GOAL	Small Group Rooms	
A.05	GOAL	Activity Commons	
A.06	GOAL	Storage Rooms	
A.07	CORE	Student Restrooms	
A.08	CORE	Staff Restrooms	
Subtotals			

Activities Programs			
B.01	CORE	Gymnasium	
B.09	CORE	Gym Storage & Supports	
B.02	CORE	Music Labs	
B.03	CORE	Music Lab (Band/Orch)	
B.04	CORE	Art Lab	
B.04a	CORE	Art Kiln, Glazing & Storage Rooms	
B.10	GOAL	Computer Lab	
B.11	GOAL	World Language Lab	
B.05	CORE	Science Lab w/Prep Room	
B.05a	GOAL	Additional Science Lab w/Prep Room	
B.06	GOAL	Project/Idea Lab	
B.07	GOAL	Flex Lab	
B.08	GOAL	Lab Storage Rooms	
Subtotals			

Special/Support Programs			
C.01	CORE	Accelerated Learning Program	
C.02	CORE	Resource/Reading/Literacy/ESL	
C.03	CORE	Special Ed Learning Studios	
C.04	GOAL	Flex Special Programs Room	
C.05	GOAL	Storage Room	
C.06	CORE	Student Restroom/Changing	
C.07	GOAL	Sensory Room	
C.08	CORE	OT/PT	
C.09	GOAL	Reflection/Small Group Room	
Subtotals			

Community Commons			
D.01	CORE	Library/Media Center	
D.02	GOAL	Media Support Spaces	
D.03	CORE	Commons/Large Group Instruction	
D.04	CORE	Cafeteria/Dining	
D.05	CORE	Kitchen	
D.06	CORE	Performance Platform	
D.07	GOAL	Audience Seating (shared w/adj.)	
D.08	GOAL	Parent Center/Community Room	
D.09	GOAL	After School Programs	
Subtotals			

Admin & Student Services			
E.01	GOAL	Welcome Center	
E.02	CORE	Office Staff/Reception	
E.03	CORE	Principal's Office	
E.04	CORE	Admin Offices	
E.05	CORE	Conference Room	
E.06	GOAL	Work/Mail/Copy Room	
E.07	CORE	Teacher's Lounge/Dining	
E.08	CORE	Specialist Offices (Sp. Psy, Soc., etc)	
E.09	GOAL	Small Conference Room	
E.10	CORE	Nurse Suite	
Subtotals			

Building/Facilities Support			
F.01	CORE	Receiving	
F.02	CORE	Storage	
F.03	CORE	Custodial	
F.04	CORE	Security Vestibule	
Subtotals			

Model Program

Qty	Avg. Size	Capacity	Total NSF

Qty	Avg. Size	Capacity	Total NSF
4	1,000	72	4,000
4	50		200
1	100		100
4	1,000	72	4,000
4	50		200
4	50		200
16	850	346	13,600
0	850	-	-
8	100		800
1	400		400
1	100		100
10	150		1,500
10	50		500
490			25,600

Qty	Avg. Size	Capacity	Total NSF
1	5,500		5,500
1	500		500
1	1,200		1,200
1	1,000		1,000
1	1,000		1,000
2	150		300
0	850		-
0	850		-
1	1,200		1,200
1	1,200		1,200
1	850		850
1	850		850
4	100		400
-			14,000

Qty	Avg. Size	Capacity	Total NSF
2	850		1,700
3	600		1,800
1	850		850
3	300		900
1	100		100
1	100		100
1	200		200
1	400		400
1	100		100
-			6,150

Qty	Avg. Size	Capacity	Total NSF
1	3,000		3,000
1	600		600
1	2,000		2,000
1	4,000		4,000
1	1,000		1,000
1	1,600		1,600
0	-		-
1	400		400
1	400		400
-			13,000

Qty	Avg. Size	Capacity	Total NSF
1	600		600
1	200		200
1	200		200
4	150		600
1	300		300
2	300		600
1	800		800
5	150		750
1	150		150
1	600		600
-			4,800

Qty	Avg. Size	Capacity	Total NSF
1	200		200
1	1,200		1,200
2	100		200
1	200		200
-			1,800

4 Section

Target Enrollment	490
Actual Capacity	490
Net Square Ft	65,350
NSF/Student	133
CORE	56,700
GOAL	8,650

Current

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-

Qty	Avg. Size	Capacity	Total NSF
4	906	65	3,625
2	40		80
2	88		175
5	735	66	3,675
0	-	-	-
0	-	-	-
15	822	313	12,325
0	-	-	-
0	-	-	-
0	-	-	-
3	57		170
14	118		1,645
3	37		110
445			21,805

Qty	Avg. Size	Capacity	Total NSF
1	3,770		3,770
1	186		186
2	570		1,140
0	-	-	-
1	1,015		1,015
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
1	885		885
0	-	-	-
0	-	-	-
-			6,996

Qty	Avg. Size	Capacity	Total NSF
2	513		1,025
2	410		820
1	845		845
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
-			2,690

Qty	Avg. Size	Capacity	Total NSF
1	1,921		1,921
1	130		130
0	-	-	-
1	1,730		1,730
2	305		610
1	770		770
0	-	-	-
0	-	-	-
0	-	-	-
-			5,161

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
1	395		395
1	100		100
2	130		260
2	100		200
1	340		340
1	565		565
2	140		280
0	-	-	-
1	280		280
-			2,420

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
2	400		800
4	69		275
0	-	-	-
-			1,075

North Mianus

Current

Target Enrollment	459
Actual Capacity	445
Net Square Ft	40,147
NSF/Student	87
CORE	38,622
GOAL	1,525

Proposed

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-

Qty	Avg. Size	Capacity	Total NSF
4	835	60	3,341
4	50		230
0	-	-	-
4	829	60	3,315
4	50		160
0	-	-	-
16	810	329	12,954
0	-	-	-
0	-	-	-
1	446		446
2	63		125
16	128		2,040
1	40		40
449			22,651

Qty	Avg. Size	Capacity	Total NSF
1	5,500		5,500
2	330		660
1	960		960
1	757		757
1	964		964
2	150		300
0	-	-	-
0	-	-	-
1	1,200		1,200
0	-	-	-
1	885		885
0	-	-	-
0	-	-	-
-			11,226

Qty	Avg. Size	Capacity	Total NSF
2	770		1,540
3	694		2,081
1	868		868
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
1	454		454
0	-	-	-
-			4,943

Qty	Avg. Size	Capacity	Total NSF
1	1,921		1,921
0	-	-	-
1	1,238		1,238
1	3,907		3,907
1	910		910
1	770		770
0	-	-	-
0	-	-	-
0	-	-	-
-			8,746

Qty	Avg. Size	Capacity	Total NSF
2	328		656
0	-	-	-
1	200		200
4	150		600
1	340		340
0	-	-	-
1	789		789
5	160		800
0	-	-	-
1	657		657
-			4,042

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
6	200		1,428
3	25		75
1	92		92
-			1,595

Proposed

Target Enrollment	459
Actual Capacity	449
Net Square Ft	53,203
NSF/Student	116
CORE	51,091
GOAL	2,112

Model Program

Pre-Kindergarten (Opt.)				Qty	Avg. Size	Capacity	Total NSF
PK.01	CORE	PK Learning Studios	41				
PK.02	GOAL	Small Group Rooms	-				
PK.03	GOAL	Commons/Transition Area	-				
PK.04	GOAL	PK Storage Room	-				
PK.05	CORE	PK Toilets	-				
Subtotals				41		4,300	

Instructional Core				Qty	Avg. Size	Capacity	Total NSF
A.01	CORE	Kindergarten Learning Studios	54				
A.01a	CORE	Kindergarten Toilets	-				
A.01b	CORE	Kindergarten Storage	-				
A.01c	CORE	First Grade Learning Studios	54				
A.01d	CORE	First Grade Toilets	-				
A.01e	CORE	First Grade Storage	-				
A.02	CORE	2-5 Learning Studios	259	12	850	259	10,200
A.03	GOAL	FLEX Learning Studios	-	0	850	-	-
A.04	GOAL	Small Group Rooms	-	6	100	-	600
A.05	GOAL	Activity Commons	-	1	400	-	400
A.06	GOAL	Storage Rooms	-	1	100	-	100
A.07	CORE	Student Restrooms	-	8	150	-	1,200
A.08	CORE	Staff Restrooms	-	8	50	-	400
Subtotals				367		19,600	

Activities Programs				Qty	Avg. Size	Capacity	Total NSF
B.01	CORE	Gymnasium	-				
B.09	CORE	Gym Storage & Supports	-				
B.02	CORE	Music Labs	-				
B.03	CORE	Music Lab (Band/Orch)	-				
B.04	CORE	Art Lab	-				
B.04a	CORE	Art Kiln, Glazing & Storage Rooms	-	2	150	-	300
B.10	GOAL	Computer Lab	-	0	850	-	-
B.11	GOAL	World Language Lab	-	0	850	-	-
B.05	CORE	Science Lab w/Prep Room	-	1	1,200	-	1,200
B.05a	GOAL	Additional Science Lab w/Prep Room	-	1	1,200	-	1,200
B.06	GOAL	Project/Idea Lab	-	1	850	-	850
B.07	GOAL	Flex Lab	-	1	650	-	650
B.08	GOAL	Lab Storage Rooms	-	4	100	-	400
Subtotals						-	12,400

Special/Support Programs				Qty	Avg. Size	Capacity	Total NSF
C.01	CORE	Accelerated Learning Program	-				
C.02	CORE	Resource/Reading/Literacy/ESL	-				
C.03	CORE	Special Ed Learning Studios	-				
C.04	GOAL	Flex Special Programs Room	-				
C.05	GOAL	Storage Room	-				
C.06	CORE	Student Restroom/Changing	-	1	100	-	100
C.07	GOAL	Sensory Room	-	1	200	-	200
C.08	CORE	OT/PT	-	1	400	-	400
C.09	GOAL	Reflection/Small Group Room	-	1	100	-	100
Subtotals						-	5,000

Community Commons				Qty	Avg. Size	Capacity	Total NSF
D.01	CORE	Library/Media Center	-				
D.02	GOAL	Media Support Spaces	-				
D.03	CORE	Commons/Large Group Instruction	-				
D.04	CORE	Cafeteria/Dining	-				
D.05	CORE	Kitchen	-				
D.06	CORE	Performance Platform	-	1	800	-	800
D.07	GOAL	Audience Seating (shared w/adj.)	-	1	1,400	-	1,400
D.08	GOAL	Parent Center/Community Room	-	0	-	-	-
D.09	GOAL	After School Programs	-	1	400	-	400
Subtotals						-	10,100

Admin & Student Services				Qty	Avg. Size	Capacity	Total NSF
E.01	GOAL	Welcome Center	-				
E.02	CORE	Office Staff/Reception	-				
E.03	CORE	Principal's Office	-				
E.04	CORE	Admin Offices	-				
E.05	CORE	Conference Room	-				
E.06	GOAL	Work/Mail/Copy Room	-	1	300	-	300
E.07	CORE	Teacher's Lounge/Dining	-	2	250	-	500
E.08	CORE	Specialist Offices (Sp. Psy. Soc., etc)	-	1	600	-	600
E.09	GOAL	Small Conference Room	-	4	150	-	600
E.10	CORE	Nurse Suite	-	1	150	-	150
Subtotals						-	3,900

Building/Facilities Support				Qty	Avg. Size	Capacity	Total NSF
F.01	CORE	Receiving	-				
F.02	CORE	Storage	-				
F.03	CORE	Custodial	-				
F.04	CORE	Security Vestibule	-				
Subtotals						-	1,600

3 Section w/PK

Target Enrollment	408
Actual Capacity	408
Net Square Ft	56,900
NSF/Student	140
CORE	48,300
GOAL	8,600

North Street

Current

Qty	Avg. Size	Capacity	Total NSF
3	850	34	2,550
0	-		-
0	-		-
0	-		-
0	-		-

Qty	Avg. Size	Capacity	Total NSF
4	800	58	3,200
4	45		180
4	150		600
3	850	46	2,550
0	-		-
0	-		-
12	869	265	10,425
0	-	-	-
0	-		-
0	-		-
0	-		-
1	40		40
2	293		585
2	50		100

Qty	Avg. Size	Capacity	Total NSF
1	3,460		3,460
2	168		335
1	850		850
1	835		835
1	875		875
0	-		-
0	-		-
0	-		-
1	835		835
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-

Qty	Avg. Size	Capacity	Total NSF
2	875		1,750
1	945		945
2	850		1,700
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-

Qty	Avg. Size	Capacity	Total NSF
1	2,900		2,900
0	-		-
0	-		-
1	3,100		3,100
1	730		730
1	1,190		1,190
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-

Qty	Avg. Size	Capacity	Total NSF
0	-		-
1	445		445
1	195		195
0	-		-
1	205		205
2	125		250
1	470		470
1	100		100
0	-		-
1	465		465
			2,130

Qty	Avg. Size	Capacity	Total NSF
0	-		-
1	525		525
1	390		390
0	-		-
			915

North Street

Current

Target Enrollment	428
Actual Capacity	403
Net Square Ft	42,780
NSF/Student	100
CORE	42,490
GOAL	290

Proposed

Qty	Avg. Size	Capacity	Total NSF
4	1,000	54	4,000
2	200		400
1	500		500
1	250		250
4	50		200

Qty	Avg. Size	Capacity	Total NSF
4	800	58	3,200
4	45		180
6	117		700
3	850	46	2,550
0	-		-
0	-		-
12	869	265	10,425
0	-	-	-
0	-		-
0	-		-
0	-		-
1	40		40
2	293		585
2	50		100

Qty	Avg. Size	Capacity	Total NSF
1	3,460		3,460
2	168		335
1	1,000		1,000
1	835		835
1	1,000		1,000
2	275		550
0	-		-
0	-		-
1	835		835
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-

Qty	Avg. Size	Capacity	Total NSF
2	875		1,750
1	945		945
2	850		1,700
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-

Qty	Avg. Size	Capacity	Total NSF
1	2,900		2,900
0	-		-
0	-		-
1	3,100		3,100
2	365		730
2	595		1,190
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-

Qty	Avg. Size	Capacity	Total NSF
0	-		-
1	445		445
1	195		195
0	-		-
1	205		205
2	125		250
1	470		470
1	100		100
0	-		-
3	155		465
			2,130

Qty	Avg. Size	Capacity	Total NSF
0	-		-
1	525		525
1	390		390
0	-		-
			915

Proposed

Target Enrollment	428
Actual Capacity	422
Net Square Ft	46,505
NSF/Student	109
CORE	45,065
GOAL	1,440

Model Program

Pre-Kindergarten (Opt.)			
PK.01	CORE	1,000	41
PK.02	GOAL	200	-
PK.03	GOAL	500	-
PK.04	GOAL	250	-
PK.05	CORE	50	-
Subtotals		41	4,300

Instructional Core			
A.01	CORE	1,000	54
A.01a	CORE	50	-
A.01b	CORE	100	-
A.01c	CORE	1,000	54
A.01d	CORE	50	-
A.01e	CORE	100	-
A.02	CORE	850	259
A.03	GOAL	850	-
A.04	GOAL	100	-
A.05	GOAL	400	-
A.06	GOAL	100	-
A.07	CORE	150	-
A.08	CORE	50	-
Subtotals		367	19,600

Activities Programs			
B.01	CORE	4,500	-
B.09	CORE	300	-
B.02	CORE	1,000	-
B.03	CORE	1,000	-
B.04	CORE	1,000	-
B.04a	CORE	150	-
B.10	GOAL	850	-
B.11	GOAL	850	-
B.05	CORE	1,200	-
B.05a	GOAL	1,200	-
B.06	GOAL	850	-
B.07	GOAL	650	-
B.08	GOAL	100	-
Subtotals		-	12,400

Special/Support Programs			
C.01	CORE	850	-
C.02	CORE	600	-
C.03	CORE	850	-
C.04	GOAL	300	-
C.05	GOAL	100	-
C.06	CORE	100	-
C.07	GOAL	200	-
C.08	CORE	400	-
C.09	GOAL	100	-
Subtotals		-	5,000

Community Commons			
D.01	CORE	2,700	-
D.02	GOAL	400	-
D.03	CORE	1,000	-
D.04	CORE	3,000	-
D.05	CORE	800	-
D.06	CORE	1,400	-
D.07	GOAL	-	-
D.08	GOAL	400	-
D.09	GOAL	400	-
Subtotals		-	10,100

Admin & Student Services			
E.01	GOAL	400	-
E.02	CORE	200	-
E.03	CORE	200	-
E.04	CORE	150	-
E.05	CORE	300	-
E.06	GOAL	250	-
E.07	CORE	600	-
E.08	CORE	150	-
E.09	GOAL	150	-
E.10	CORE	500	-
Subtotals		-	3,900

Building/Facilities Support			
F.01	CORE	200	-
F.02	CORE	1,000	-
F.03	CORE	100	-
F.04	CORE	200	-
Subtotals		-	1,600

Model Program

Qty	Avg. Size	Capacity	Total NSF
3	1,000	41	3,000
2	200	-	400
1	500	-	500
1	250	-	250
3	50	-	150

Qty	Avg. Size	Capacity	Total NSF
3	1,000	54	3,000
3	50	-	150
1	100	-	100
3	1,000	54	3,000
3	50	-	150
3	100	-	300
12	850	259	10,200
0	850	-	-
6	100	-	600
1	400	-	400
1	100	-	100
8	150	-	1,200
8	50	-	400

Qty	Avg. Size	Capacity	Total NSF
1	4,500	-	4,500
1	300	-	300
1	1,000	-	1,000
1	1,000	-	1,000
1	1,000	-	1,000
2	150	-	300
0	850	-	-
0	850	-	-
1	1,200	-	1,200
1	1,200	-	1,200
1	850	-	850
1	650	-	650
4	100	-	400

Qty	Avg. Size	Capacity	Total NSF
1	850	-	850
3	600	-	1,800
1	850	-	850
2	300	-	600
1	100	-	100
1	100	-	100
1	200	-	200
1	400	-	400
1	100	-	100

Qty	Avg. Size	Capacity	Total NSF
1	2,700	-	2,700
1	400	-	400
1	1,000	-	1,000
1	3,000	-	3,000
1	800	-	800
1	1,400	-	1,400
0	-	-	-
1	400	-	400
1	400	-	400

Qty	Avg. Size	Capacity	Total NSF
1	400	-	400
1	200	-	200
1	200	-	200
3	150	-	450
1	300	-	300
2	250	-	500
1	600	-	600
4	150	-	600
1	150	-	150
1	500	-	500

Qty	Avg. Size	Capacity	Total NSF
1	200	-	200
1	1,000	-	1,000
2	100	-	200
1	200	-	200

Current

Qty	Avg. Size	Capacity	Total NSF
3	807	33	2,420
0	-	-	-
0	-	-	-
0	-	-	-
2	40	-	80

Qty	Avg. Size	Capacity	Total NSF
3	1,045	56	3,136
2	135	-	270
2	75	-	150
4	846	61	3,385
1	40	-	40
1	50	-	50
15	655	250	9,820
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
5	137	-	685
4	163	-	653
1	35	-	35

Qty	Avg. Size	Capacity	Total NSF
1	4,590	-	4,590
0	-	-	-
1	1,020	-	1,020
2	618	-	1,235
2	520	-	1,040
0	-	-	-
0	-	-	-
1	710	-	710
1	705	-	705
0	-	-	-
0	-	-	-
0	-	-	-
1	210	-	210

Qty	Avg. Size	Capacity	Total NSF
2	510	-	1,020
5	172	-	861
2	528	-	1,055
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
1	305	-	305
0	-	-	-

Qty	Avg. Size	Capacity	Total NSF
1	3,465	-	3,465
0	-	-	-
0	-	-	-
1	2,110	-	2,110
1	980	-	980
1	1,230	-	1,230
0	-	-	-
0	-	-	-
0	-	-	-

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
2	353	-	705
0	-	-	-
1	105	-	105
0	-	-	-
1	105	-	105
3	360	-	1,080
1	105	-	105
0	-	-	-
2	140	-	280

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
0	-	-	-
1	415	-	415
0	-	-	-

Old Greenwich

Current

Target Enrollment	459
Actual Capacity	400
Net Square Ft	44,055
NSF/Student	96
CORE	42,345
GOAL	1,710

3 Section w/PK

Target Enrollment	408
Actual Capacity	408
Net Square Ft	56,900
NSF/Student	140
CORE	48,300
GOAL	8,600

Proposed

Qty	Avg. Size	Capacity	Total NSF
3	1,000	41	3,000
2	200	-	400
1	500	-	500
1	250	-	250
3	50	-	150

Qty	Avg. Size	Capacity	Total NSF
3	1,000	54	3,000
3	50	-	150
1	100	-	100
4	850	61	3,400
4	50	-	200
1	100	-	100
16	750	305	12,000
0	-	-	-
4	100	-	400
0	-	-	-
1	100	-	100
8	150	-	1,200
4	50	-	200

Qty	Avg. Size	Capacity	Total NSF
1	4,590	-	4,590
0	-	-	-
1	1,020	-	1,020
2	618	-	1,235
2	520	-	1,040
0	-	-	-
0	-	-	-
1	710	-	710
1	705	-	705
0	-	-	-
0	-	-	-
0	-	-	-
1	210	-	210

Qty	Avg. Size	Capacity	Total NSF
1	850	-	850
3	600	-	1,800
2	850	-	1,700
0	-	-	-
0	-	-	-
1	100	-	100
0	-	-	-
1	400	-	400
1	100	-	100

Qty	Avg. Size	Capacity	Total NSF
1	3,465	-	3,465
0	-	-	-
0	-	-	-
1	2,110	-	2,110
1	980	-	980
1	1,230	-	1,230
0	-	-	-
0	-	-	-
0	-	-	-

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
1	200	-	200
1	200	-	200
3	150	-	450
1	300	-	300
1	250	-	250
1	600	-	600
3	150	-	450
0	-	-	-
1	500	-	500

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
0	-	-	-
1	415	-	415
1	200	-	200

Proposed

Target Enrollment	459
Actual Capacity	461
Net Square Ft	50,960
NSF/Student	111
CORE	48,040
GOAL	2,920

Model Program

Pre-Kindergarten (Opt.)			
PK.01	CORE	PK Learning Studios	
PK.02	GOAL	Small Group Rooms	
PK.03	GOAL	Commons/Transition Area	
PK.04	GOAL	PK Storage Room	
PK.05	CORE	PK Toilets	
Subtotals			

Instructional Core			
A.01	CORE	Kindergarten Learning Studios	
A.01a	CORE	Kindergarten Toilets	
A.01b	CORE	Kindergarten Storage	
A.01c	CORE	First Grade Learning Studios	
A.01d	CORE	First Grade Toilets	
A.01e	CORE	First Grade Storage	
A.02	CORE	2-5 Learning Studios	
A.03	GOAL	FLEX Learning Studios	
A.04	GOAL	Small Group Rooms	
A.05	GOAL	Activity Commons	
A.06	GOAL	Storage Rooms	
A.07	CORE	Student Restrooms	
A.08	CORE	Staff Restrooms	
Subtotals			

Activities Programs			
B.01	CORE	Gymnasium	
B.09	CORE	Gym Storage & Supports	
B.02	CORE	Music Labs	
B.03	CORE	Music Lab (Band/Orch)	
B.04	CORE	Art Lab	
B.04a	CORE	Art Kiln, Glazing & Storage Rooms	
B.10	GOAL	Computer Lab	
B.11	GOAL	World Language Lab	
B.05	CORE	Science Lab w/Prep Room	
B.05a	GOAL	Additional Science Lab w/Prep Room	
B.06	GOAL	Project/Idea Lab	
B.07	GOAL	Flex Lab	
B.08	GOAL	Lab Storage Rooms	
Subtotals			

Special/Support Programs			
C.01	CORE	Accelerated Learning Program	
C.02	CORE	Resource/Reading/Literacy/ESL	
C.03	CORE	Special Ed Learning Studios	
C.04	GOAL	Flex Special Programs Room	
C.05	GOAL	Storage Room	
C.06	CORE	Student Restroom/Changing	
C.07	GOAL	Sensory Room	
C.08	CORE	OT/PT	
C.09	GOAL	Reflection/Small Group Room	
Subtotals			

Community Commons			
D.01	CORE	Library/Media Center	
D.02	GOAL	Media Support Spaces	
D.03	CORE	Commons/Large Group Instruction	
D.04	CORE	Cafeteria/Dining	
D.05	CORE	Kitchen	
D.06	CORE	Performance Platform	
D.07	GOAL	Audience Seating (shared w/adj.)	
D.08	GOAL	Parent Center/Community Room	
D.09	GOAL	After School Programs	
Subtotals			

Admin & Student Services			
E.01	GOAL	Welcome Center	
E.02	CORE	Office Staff/Reception	
E.03	CORE	Principal's Office	
E.04	CORE	Admin Offices	
E.05	CORE	Conference Room	
E.06	GOAL	Work/Mail/Copy Room	
E.07	CORE	Teacher's Lounge/Dining	
E.08	CORE	Specialist Offices (Sp. Psy, Soc., etc)	
E.09	GOAL	Small Conference Room	
E.10	CORE	Nurse Suite	
Subtotals			

Building/Facilities Support			
F.01	CORE	Receiving	
F.02	CORE	Storage	
F.03	CORE	Custodial	
F.04	CORE	Security Vestibule	
Subtotals			

Model Program

Qty	Avg. Size	Capacity	Total NSF
2	1,000	27	2,000
1	200	-	200
1	400	-	400
1	200	-	200
2	50	-	100
27			2,900

Qty	Avg. Size	Capacity	Total NSF
2	1,000	36	2,000
2	50	-	100
1	100	-	100
2	1,000	36	2,000
2	50	-	100
1	100	-	100
8	850	173	6,800
2	850	43	1,700
4	100	-	400
1	400	-	400
1	100	-	100
6	150	-	900
6	50	-	300
288			15,000

Qty	Avg. Size	Capacity	Total NSF
1	3,500	-	3,500
1	300	-	300
1	1,000	-	1,000
1	850	-	850
1	1,000	-	1,000
2	100	-	200
0	850	-	-
0	850	-	-
1	1,200	-	1,200
1	1,200	-	1,200
1	850	-	850
1	500	-	500
4	100	-	400
-			11,000

Qty	Avg. Size	Capacity	Total NSF
1	850	-	850
2	600	-	1,200
1	850	-	850
1	300	-	300
1	100	-	100
1	100	-	100
1	200	-	200
1	400	-	400
1	100	-	100
-			4,100

Qty	Avg. Size	Capacity	Total NSF
1	2,400	-	2,400
1	400	-	400
1	1,000	-	1,000
1	2,000	-	2,000
1	600	-	600
1	1,200	-	1,200
0	-	-	-
1	400	-	400
1	400	-	400
-			8,400

Qty	Avg. Size	Capacity	Total NSF
1	200	-	200
1	200	-	200
1	200	-	200
2	150	-	300
1	300	-	300
2	200	-	400
1	400	-	400
3	150	-	450
1	150	-	150
1	400	-	400
-			3,000

Qty	Avg. Size	Capacity	Total NSF
1	200	-	200
1	800	-	800
2	100	-	200
1	200	-	200
-			1,400

2 Section w/PK

Target Enrollment	315
Actual Capacity	315
Net Square Ft	45,800
NSF/Student	145
CORE	36,800
GOAL	9,000

Current

Qty	Avg. Size	Capacity	Total NSF
3	750	30	2,250
0	-	-	-
0	-	-	-
0	-	-	-
3	20	-	60
30			2,310

Qty	Avg. Size	Capacity	Total NSF
2	1,040	37	2,080
0	-	-	-
2	113	-	225
2	750	27	1,500
2	20	-	40
0	-	-	-
8	806	164	6,445
0	-	-	-
0	-	-	-
0	-	-	-
1	120	-	120
2	210	-	420
1	65	-	65
228			10,895

Qty	Avg. Size	Capacity	Total NSF
1	3,435	-	3,435
1	180	-	180
1	750	-	750
1	750	-	750
1	1,045	-	1,045
0	-	-	-
1	715	-	715
1	125	-	125
1	810	-	810
0	-	-	-
1	815	-	815
0	-	-	-
0	-	-	-
-			8,625

Qty	Avg. Size	Capacity	Total NSF
2	833	-	1,665
5	555	-	2,775
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
1	430	-	430
0	-	-	-
-			4,870

Qty	Avg. Size	Capacity	Total NSF
1	2,875	-	2,875
1	510	-	510
0	-	-	-
1	1,910	-	1,910
1	835	-	835
1	890	-	890
0	-	-	-
0	-	-	-
0	-	-	-
-			7,020

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
1	315	-	315
2	180	-	360
0	-	-	-
0	-	-	-
1	165	-	165
1	530	-	530
1	105	-	105
0	-	-	-
2	163	-	325
-			1,800

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
1	105	-	105
4	185	-	740
0	-	-	-
-			845

Parkway

Current

Target Enrollment	256
Actual Capacity	259
Net Square Ft	36,365
NSF/Student	142
CORE	33,915
GOAL	2,450

Proposed

Qty	Avg. Size	Capacity	Total NSF
3	750	30	2,250
0	-	-	-
0	-	-	-
0	-	-	-
3	20	-	60
30			2,310

Qty	Avg. Size	Capacity	Total NSF
2	1,040	37	2,080
0	-	-	-
2	113	-	225
2	750	27	1,500
2	20	-	40
0	-	-	-
8	806	164	6,445
0	-	-	-
0	-	-	-
0	-	-	-
1	120	-	120
2	210	-	420
1	65	-	65
228			10,895

Qty	Avg. Size	Capacity	Total NSF
1	3,435	-	3,435
1	180	-	180
1	750	-	750
1	750	-	750
1	1,045	-	1,045
0	-	-	-
1	715	-	715
1	125	-	125
1	810	-	810
0	-	-	-
1	815	-	815
0	-	-	-
0	-	-	-
-			8,625

Qty	Avg. Size	Capacity	Total NSF
2	833	-	1,665
5	555	-	2,775
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
1	430	-	430
0	-	-	-
-			4,870

Qty	Avg. Size	Capacity	Total NSF
1	2,875	-	2,875
1	510	-	510
0	-	-	-
1	1,910	-	1,910
1	835	-	835
1	890	-	890
0	-	-	-
0	-	-	-
0	-	-	-
-			7,020

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
1	315	-	315
2	180	-	360
0	-	-	-
0	-	-	-
1	165	-	165
1	530	-	530
1	105	-	105
0	-	-	-
2	163	-	325
-			1,800

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
1	105	-	105
4	185	-	740
0	-	-	-
-			845

Proposed

Target Enrollment	256
Actual Capacity	259
Net Square Ft	36,365
NSF/Student	142
CORE	33,915
GOAL	2,450

Greenwich Public Schools
Elementary School Program Capacity Summary

Model Program

Pre-Kindergarten (Opt.)			
PK.01	CORE	PK Learning Studios	
PK.02	GOAL	Small Group Rooms	
PK.03	GOAL	Commons/Transition Area	
PK.04	GOAL	PK Storage Room	
PK.05	CORE	PK Toilets	
Subtotals			

Instructional Core			
A.01	CORE	Kindergarten Learning Studios	
A.01a	CORE	Kindergarten Toilets	
A.01b	CORE	Kindergarten Storage	
A.01c	CORE	First Grade Learning Studios	
A.01d	CORE	First Grade Toilets	
A.01e	CORE	First Grade Storage	
A.02	CORE	2-5 Learning Studios	
A.03	GOAL	FLEX Learning Studios	
A.04	GOAL	Small Group Rooms	
A.05	GOAL	Activity Commons	
A.06	GOAL	Storage Rooms	
A.07	CORE	Student Restrooms	
A.08	CORE	Staff Restrooms	
Subtotals			

Activities Programs			
B.01	CORE	Gymnasium	
B.09	CORE	Gym Storage & Supports	
B.02	CORE	Music Labs	
B.03	CORE	Music Lab (Band/Orch)	
B.04	CORE	Art Lab	
B.04a	CORE	Art Kiln, Glazing & Storage Rooms	
B.10	GOAL	Computer Lab	
B.11	GOAL	World Language Lab	
B.05	CORE	Science Lab w/Prep Room	
B.05a	GOAL	Additional Science Lab w/Prep Room	
B.06	GOAL	Project/Idea Lab	
B.07	GOAL	Flex Lab	
B.08	GOAL	Lab Storage Rooms	
Subtotals			

Special/Support Programs			
C.01	CORE	Accelerated Learning Program	
C.02	CORE	Resource/Reading/Literacy/ESL	
C.03	CORE	Special Ed Learning Studios	
C.04	GOAL	Flex Special Programs Room	
C.05	GOAL	Storage Room	
C.06	CORE	Student Restroom/Changing	
C.07	GOAL	Sensory Room	
C.08	CORE	OT/PT	
C.09	GOAL	Reflection/Small Group Room	
Subtotals			

Community Commons			
D.01	CORE	Library/Media Center	
D.02	GOAL	Media Support Spaces	
D.03	CORE	Commons/Large Group Instruction	
D.04	CORE	Cafeteria/Dining	
D.05	CORE	Kitchen	
D.06	CORE	Performance Platform	
D.07	GOAL	Audience Seating (shared w/adj.)	
D.08	GOAL	Parent Center/Community Room	
D.09	GOAL	After School Programs	
Subtotals			

Admin & Student Services			
E.01	GOAL	Welcome Center	
E.02	CORE	Office Staff/Reception	
E.03	CORE	Principal's Office	
E.04	CORE	Admin Offices	
E.05	CORE	Conference Room	
E.06	GOAL	Work/Mail/Copy Room	
E.07	CORE	Teacher's Lounge/Dining	
E.08	CORE	Specialist Offices (Sp. Psy, Soc., etc)	
E.09	GOAL	Small Conference Room	
E.10	CORE	Nurse Suite	
Subtotals			

Building/Facilities Support			
F.01	CORE	Receiving	
F.02	CORE	Storage	
F.03	CORE	Custodial	
F.04	CORE	Security Vestibule	
Subtotals			

Riverside

Current

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-

Qty	Avg. Size	Capacity	Total NSF
3	885	48	2,655
3	58		175
1	110		110
3	780	42	2,340
2	55		110
1	90		90
16	720	293	11,520
0	-	-	-
0	-	-	-
0	-	-	-
3	452		1,355
4	229		915
3	55		165

Qty	Avg. Size	Capacity	Total NSF
1	4,000		4,000
0	-		-
1	1,120		1,120
1	500		500
1	980		980
0	-		-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
1	1,200		1,200
0	-	-	-
1	490		490
0	-	-	-
3	55		165

Qty	Avg. Size	Capacity	Total NSF
3	667		2,000
1	420		420
2	393		785
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
1	845		845
0	-	-	-

Qty	Avg. Size	Capacity	Total NSF
1	3,930		3,930
1	70		70
0	-	-	-
1	1,720		1,720
4	153		610
1	1,135		1,135
0	-	-	-
0	-	-	-
0	-	-	-

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
0	-	-	-
1	95		95
5	66		330
1	210		210
1	240		240
2	443		885
2	190		380
0	-	-	-
5	74		370

Qty	Avg. Size	Capacity	Total NSF
1	180		180
2	30		60
1	55		55
0	-	-	-
0	-	-	295

4 Section

Target Enrollment	490
Actual Capacity	490
Net Square Ft	65,350
NSF/Student	133

CORE	56,700
GOAL	8,650

Riverside

Current

Target Enrollment	461
Actual Capacity	383
Net Square Ft	41,010
NSF/Student	89

CORE	38,690
GOAL	2,320

Proposed

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-
0	-	-	-

Qty	Avg. Size	Capacity	Total NSF
4	1,000	72	4,000
4	50		200
1	100		100
4	1,000	72	4,000
4	50		200
4	50		200
16	720	293	11,520
0	-	-	-
4	100		400
0	-	-	-
3	452		1,355
6	200		1,200
6	50		300

Qty	Avg. Size	Capacity	Total NSF
1	4,000		4,000
1	500		500
1	1,200		1,200
1	1,000		1,000
1	1,000		1,000
2	150		300
0	-	-	-
0	-	-	-
1	1,200		1,200
0	-	-	-
1	490		490
0	-	-	-
3	55		165

Qty	Avg. Size	Capacity	Total NSF
2	850		1,700
3	600		1,800
1	850		850
0	-	-	-
1	100		100
1	100		100
0	-	-	-
1	400		400
0	-	-	-

Qty	Avg. Size	Capacity	Total NSF
1	3,930		3,930
1	70		70
3	500		1,500
1	4,000		4,000
1	1,000		1,000
1	1,135		1,135
0	-	-	-
0	-	-	-
0	-	-	-

Qty	Avg. Size	Capacity	Total NSF
0	-	-	-
1	200		200
1	200		200
4	150		600
1	300		300
2	300		600
1	800		800
5	150		750
0	-	-	-
1	600		600

Qty	Avg. Size	Capacity	Total NSF
1	180		180
2	30		60
1	55		55
1	200		200
-	-	-	495

Proposed

Target Enrollment	461
Actual Capacity	437
Net Square Ft	54,460
NSF/Student	118

CORE	51,280
GOAL	3,180

Greenwich Publich Schools
Middle School Program Capacity Summary

Central Middle School
Current

Proposed

Code	Class	Instructional Core
A.01	CORE	Core Learning Studios
A.02	CORE	Science Labs
A.03	CORE	Applied Learning/ LGI Labs
A.03a	GOAL	Applied Learning/ LGI Labs
A.04	CORE	Lab Prep Rooms
A.05	CORE	Small Group Rooms - Core
A.05a	GOAL	Small Group Rooms - Goal
A.06	GOAL	Activity Commons
A.07	CORE	Storage Rooms
A.08	CORE	Student Restrooms
A.09	GOAL	Student Lockers

Subtotals

Qty	Avg. Size	Capacity	Total NSF
18	850	338	15,300
5	1,200	86	6,000
1	1,200		1,200
2	1,200		2,400
3	200		600
3	100		300
2	100		200
1	400		400
5	100		500
10	150		1,500
6	200		1,200

425 29,600

Qty	Avg. Size	Capacity	Total NSF
31	722	495	22,390
6	1,087	94	6,520
0	-		-
0	-		-
2	110		220
1	175		175
0	-		-
0	-		-
4	130		518
10	186		1,864
0	-		-

589 31,687

Qty	Avg. Size	Capacity	Total NSF
18	850	338	15,300
6	1,200	104	7,200
1	1,200		1,200
2	1,200		2,400
3	200		600
3	100		300
2	100		200
1	400		400
5	100		500
10	150		1,500
6	200		1,200

442 30,800

Code	Class	Activities Programs
B.01	CORE	Art Labs
B.02	CORE	Art Kiln, Glazing & Storage Rooms
B.03	CORE	Music Labs (Vocal & Instrumental)
B.04	CORE	Practice Rooms
B.05	CORE	Music Storage Rooms
B.06	CORE	World Languages Classrooms
B.15	CORE	Computer Lab
B.07	GOAL	Collaboration /Idea Lab
B.08	CORE	CTE / Project Labs
B.09	CORE	CTE / FCS Labs
B.10	GOAL	Lab Storage Rooms
B.11	CORE	Gymnasium
B.12	CORE	Fitness/Health Lab
B.13	CORE	Gym Locker Rooms
B.14	CORE	Gym Storage & Supports

Subtotals

Qty	Avg. Size	Capacity	Total NSF
2	1,200	35	2,400
2	150		300
2	1,575	51	3,150
4	50		200
2	250		500
2	850	27	1,700
0	850	-	-
1	850	10	850
1	1,800	17	1,800
1	1,800	17	1,800
4	100		400
2	3,500	49	7,000
1	850	14	850
2	800		1,600
2	400		800

219 23,350

Qty	Avg. Size	Capacity	Total NSF
1	1,090	16	1,090
2	74		147
3	992	48	2,975
0	-		-
2	190		380
0	-	-	-
0	-	-	-
1	835	9	835
1	1,100	11	1,100
1	1,050	10	1,050
2	71		141
1	6,445	45	6,445
1	395	6	395
4	424		1,696
8	141		1,129

145 17,383

Qty	Avg. Size	Capacity	Total NSF
2	1,200	35	2,400
2	150		300
2	1,575	51	3,150
4	50		200
2	250		500
2	850	27	1,700
0	850	-	-
1	850	10	850
1	1,800	17	1,800
1	1,800	17	1,800
4	100		400
2	3,500	49	7,000
1	850	14	850
2	800		1,600
2	400		800

219 23,350

Code	Class	Special/Support Programs
C.01	CORE	Resource/Reading/Literacy/ESL
C.02	GOAL	Flex Special Programs Room
C.03	CORE	Special Ed Learning Studio
C.04	GOAL	Storage Rooms
C.05	CORE	Student Restroom/Changing
C.06	GOAL	Sensory Room
C.07	CORE	OT/PT
C.08	GOAL	Reflection / Small Group Room

Subtotals

Qty	Avg. Size	Capacity	Total NSF
3	600		1,800
1	300		300
1	800		800
1	100		100
1	100		100
1	200		200
1	400		400
1	100		100

- 3,800

Qty	Avg. Size	Capacity	Total NSF
2	529		1,058
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-
0	-		-

- 1,058

Qty	Avg. Size	Capacity	Total NSF
3	600		1,800
1	300		300
1	800		800
1	100		100
1	100		100
1	200		200
1	400		400
1	100		100

- 3,800

Greenwich Publich Schools
Middle School Program Capacity Summary

Central Middle School
Current

Proposed

Code	Class	Community Commons
D.01	CORE	Library/Media Center
D.02	GOAL	Media Support Spaces
D.03	CORE	Commons/Large Group Instruction
D.04	CORE	Cafeteria/Dining
D.05	CORE	Kitchen
D.06	CORE	Auditorium Stage
D.07	CORE	Auditorium Seating
D.08	GOAL	Club Hub
D.09	GOAL	Community Room
		Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	4,000		4,000
1	400		400
1	1,500		1,500
1	2,500		2,500
1	1,500		1,500
1	1,200		1,200
1	4,500		4,500
1	400		400
1	400		400
		-	16,400

Qty	Avg. Size	Capacity	Total NSF
1	4,089		4,089
4	574		2,295
0	-		-
2	1,653		3,305
8	259		2,075
1	2,543		2,543
1	4,800		4,800
0	-		-
0	-		-
		-	19,107

Qty	Avg. Size	Capacity	Total NSF
1	4,089		4,089
4	574		2,295
1	1,500		1,500
1	2,500		2,500
1	1,500		1,500
1	1,200		1,200
1	4,500		4,500
1	400		400
1	400		400
		-	18,384

Code	Class	Admin & Student Services
E.01	GOAL	Welcome Center
E.02	CORE	Office Staff/Reception
E.03	CORE	Principal's Office
E.04	CORE	Asst. Principal Office
E.05	CORE	Admin Offices
E.06	CORE	Conference Room
E.07	GOAL	Workroom/Mailroom
E.08	CORE	Teachers' Lounge/Dining
E.09	CORE	Guidance Offices
E.10	CORE	Specialist Off. (Speech, Psych, etc.)
E.11	GOAL	Small Conference Room
E.12	CORE	Nurse Suite
		Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	600		600
1	200		200
1	200		200
1	180		180
6	120		720
1	300		300
1	400		400
1	400		400
3	150		450
2	150		300
1	150		150
1	600		600
		-	4,500

Qty	Avg. Size	Capacity	Total NSF
0	-		-
1	630		630
2	111		222
2	178		355
5	205		1,025
1	466		466
1	170		170
1	610		610
4	110		441
3	153		460
0	-		-
5	96		478
		-	4,857

Qty	Avg. Size	Capacity	Total NSF
1	600		600
1	200		200
1	200		200
1	180		180
6	120		720
1	300		300
1	400		400
1	400		400
3	150		450
2	150		300
1	150		150
1	600		600
		-	4,500

Code	Class	Building/Facilities Support
F.01	CORE	Receiving
F.02	CORE	Storage Rooms
F.03	CORE	Custodial
F.04	CORE	Security Vestibule
		Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	200		200
1	800		800
2	100		200
1	400		400
		-	1,600

Qty	Avg. Size	Capacity	Total NSF
0	-		-
4	559		2,236
1	364		364
0	-		-
		-	2,600

Qty	Avg. Size	Capacity	Total NSF
1	200		200
1	800		800
2	100		200
1	400		400
		-	1,600

Model Program	
Target Enrollment	588
Actual Capacity	644
Net Square Footage	79,250
NSF/Student	135
CORE	70,750
GOAL	8,500

Central Middle School	
Target Enrollment	588
Actual Capacity	734
Net Square Footage	76,692
NSF/Student	130
CORE	73,251
GOAL	3,441

Proposed	
Target Enrollment	588
Actual Capacity	661
Net Square Footage	82,434
NSF/Student	140
CORE	72,039
GOAL	10,395

Greenwich Publich Schools
Middle School Program Capacity Summary

Western Middle School
Current

Proposed

Code	Class	Instructional Core
A.01	CORE	Core Learning Studios
A.02	CORE	Science Labs
A.03	CORE	Applied Learning/ LGI Labs
A.03a	GOAL	Applied Learning/ LGI Labs
A.04	CORE	Lab Prep Rooms
A.05	CORE	Small Group Rooms - Core
A.05a	GOAL	Small Group Rooms - Goal
A.06	GOAL	Activity Commons
A.07	CORE	Storage Rooms
A.08	CORE	Student Restrooms
A.09	GOAL	Student Lockers

Subtotals

Qty	Avg. Size	Capacity	Total NSF
20	850	376	17,000
6	1,200	104	7,200
1	1,200		1,200
2	1,200		2,400
4	200		800
3	100		300
3	100		300
1	400		400
5	100		500
12	150		1,800
7	200		1,400

480 33,300

Qty	Avg. Size	Capacity	Total NSF
29	696	446	20,190
7	907	91	6,350
0	-		-
0	-		-
4	209		835
0	-		-
0	-		-
0	-		-
1	40		40
14	159		2,230
1	685		685

538 30,330

Qty	Avg. Size	Capacity	Total NSF
35	726	562	25,400
7	966	97	6,760
1	1,200		1,200
3	1,200		3,600
5	176		880
4	209		834
3	227		682
1	997		997
0	-		-
16	168		2,685
1	685		685

659 43,723

Code	Class	Activities Programs
B.01	CORE	Art Labs
B.02	CORE	Art Kiln, Glazing & Storage Rooms
B.03	CORE	Music Labs (Vocal & Instrumental)
B.04	CORE	Practice Rooms
B.05	CORE	Music Storage Rooms
B.06	CORE	World Languages Classrooms
B.15	CORE	Computer Lab
B.07	GOAL	Collaboration /Idea Lab
B.08	CORE	CTE / Project Labs
B.09	CORE	CTE / FCS Labs
B.10	GOAL	Lab Storage Rooms
B.11	CORE	Gymnasium
B.12	CORE	Fitness/Health Lab
B.13	CORE	Gym Locker Rooms
B.14	CORE	Gym Storage & Supports

Subtotals

Qty	Avg. Size	Capacity	Total NSF
2	1,200	35	2,400
2	200		400
2	1,575	51	3,150
6	50		300
3	250		750
2	850	27	1,700
0	850	-	-
1	850	10	850
1	1,800	17	1,800
1	1,800	17	1,800
4	100		400
2	3,500	49	7,000
1	850	14	850
2	1,000		2,000
2	500		1,000

219 24,400

Qty	Avg. Size	Capacity	Total NSF
1	1,160	17	1,160
3	103		310
4	968	63	3,870
0	-		-
1	300		300
0	-	-	-
1	680	-	680
0	-	-	-
4	505	19	2,020
1	1,150	11	1,150
5	44		220
1	6,060	42	6,060
1	390	6	390
2	118		235
4	148		590

158 16,985

Qty	Avg. Size	Capacity	Total NSF
1	1,160	17	1,160
3	103		310
4	968	63	3,870
6	63		379
1	300		300
3	850	41	2,550
0	-	-	-
1	850	10	850
3	745	21	2,236
1	1,150	11	1,150
4	40		160
2	4,553	63	9,105
1	695	11	695
2	1,000		2,000
3	196		589

237 25,354

Code	Class	Special/Support Programs
C.01	CORE	Resource/Reading/Literacy/ESL
C.02	GOAL	Flex Special Programs Room
C.03	CORE	Special Ed Learning Studio
C.04	GOAL	Storage Rooms
C.05	CORE	Student Restroom/Changing
C.06	GOAL	Sensory Room
C.07	CORE	OT/PT
C.08	GOAL	Reflection / Small Group Room

Subtotals

Qty	Avg. Size	Capacity	Total NSF
4	600		2,400
2	300		600
1	800		800
1	100		100
1	100		100
1	200		200
1	400		400
1	100		100

- 4,700

Qty	Avg. Size	Capacity	Total NSF
4	340		1,360
0	-		-
6	611		3,665
0	-		-
0	-		-
1	135		135
0	-		-
1	200		200

- 5,360

Qty	Avg. Size	Capacity	Total NSF
4	408		1,630
3	444		1,333
5	625		3,125
0	-		-
0	-		-
1	135		135
1	411		411
1	200		200

- 6,834

Greenwich Publich Schools
Middle School Program Capacity Summary

Western Middle School
Current

Proposed

Code	Class	Community Commons
D.01	CORE	Library/Media Center
D.02	GOAL	Media Support Spaces
D.03	CORE	Commons/Large Group Instruction
D.04	CORE	Cafeteria/Dining
D.05	CORE	Kitchen
D.06	CORE	Auditorium Stage
D.07	CORE	Auditorium Seating
D.08	GOAL	Club Hub
D.09	GOAL	Community Room
		Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	3,200		3,200
1	450		450
1	1,800		1,800
1	3,250		3,250
1	1,500		1,500
1	1,400		1,400
1	4,500		4,500
1	500		500
1	400		400
		-	17,000

Qty	Avg. Size	Capacity	Total NSF
1	4,575		4,575
2	248		495
0	-		-
2	1,793		3,585
6	289		1,735
1	1,920		1,920
1	3,765		3,765
0	-		-
0	-		-
		-	16,075

Qty	Avg. Size	Capacity	Total NSF
2	1,800		3,600
1	700		700
2	928		1,856
2	1,793		3,585
6	289		1,735
1	1,920		1,920
1	3,765		3,765
1	705		705
1	394		394
		-	18,260

Code	Class	Admin & Student Services
E.01	GOAL	Welcome Center
E.02	CORE	Office Staff/Reception
E.03	CORE	Principal's Office
E.04	CORE	Asst. Principal Office
E.05	CORE	Admin Offices
E.06	CORE	Conference Room
E.07	GOAL	Workroom/Mailroom
E.08	CORE	Teachers' Lounge/Dining
E.09	CORE	Guidance Offices
E.10	CORE	Specialist Off. (Speech, Psych, etc.)
E.11	GOAL	Small Conference Room
E.12	CORE	Nurse Suite
		Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	700		700
1	300		300
1	200		200
1	180		180
8	120		960
1	400		400
1	600		600
1	800		800
4	150		600
3	150		450
1	150		150
1	700		700
		-	6,040

Qty	Avg. Size	Capacity	Total NSF
0	-		-
3	315		945
1	190		190
2	143		285
1	110		110
1	345		345
3	102		305
0	-		-
3	90		270
2	95		190
0	-		-
4	99		395
		-	3,035

Qty	Avg. Size	Capacity	Total NSF
1	682		682
1	401		401
1	200		200
1	180		180
8	133		1,064
1	350		350
1	633		633
1	680		680
5	190		952
4	165		660
1	186		186
1	637		637
		-	6,625

Code	Class	Building/Facilities Support
F.01	CORE	Receiving
F.02	CORE	Storage Rooms
F.03	CORE	Custodial
F.04	CORE	Security Vestibule
		Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	200		200
1	1,000		1,000
4	100		400
1	400		400
		-	2,000

Qty	Avg. Size	Capacity	Total NSF
0	-		-
3	320		960
3	162		485
0	-		-
		-	1,445

Qty	Avg. Size	Capacity	Total NSF
0	-		-
3	320		960
3	162		485
0	-		-
		-	1,445

Model Program	
Target Enrollment	645
Actual Capacity	699
Net Square Footage	87,440
NSF/Student	136
CORE	77,890
GOAL	9,550

Western Middle School	
Target Enrollment	645
Actual Capacity	696
Net Square Footage	73,230
NSF/Student	114
CORE	71,190
GOAL	2,040

Proposed	
Target Enrollment	1,059
Actual Capacity	896
Net Square Footage	102,241
NSF/Student	97
CORE	90,299
GOAL	11,942

Greenwich Publich Schools
Middle School Program Capacity Summary

Eastern Middle School

Model Program

Current

Proposed

Code	Class	Instructional Core
A.01	CORE	Core Learning Studios
A.02	CORE	Science Labs
A.03	CORE	Applied Learning/ LGI Labs
A.03a	GOAL	Applied Learning/ LGI Labs
A.04	CORE	Lab Prep Rooms
A.05	CORE	Small Group Rooms - Core
A.05a	GOAL	Small Group Rooms - Goal
A.06	GOAL	Activity Commons
A.07	CORE	Storage Rooms
A.08	CORE	Student Restrooms
A.09	GOAL	Student Lockers

Subtotals

Qty	Avg. Size	Capacity	Total NSF
28	850	526	23,800
7	1,200	121	8,400
1	1,200		1,200
3	1,200		3,600
6	200		1,200
4	100		400
4	100		400
1	400		400
6	100		600
14	150		2,100
8	200		1,600

647 43,700

Qty	Avg. Size	Capacity	Total NSF
37	758	620	28,055
8	1,058	122	8,465
1	1,315		1,315
0	-		-
5	126		630
0	-		-
0	-		-
0	-		-
7	97		678
12	195		2,340
0	-		-

742 41,483

Qty	Avg. Size	Capacity	Total NSF
42	769	714	32,305
10	1,087	156	10,865
1	1,315		1,315
0	-		-
6	147		880
3	300		900
0	-		-
0	-		-
7	97		678
16	196		3,140
0	-		-

871 50,083

Code	Class	Activities Programs
B.01	CORE	Art Labs
B.02	CORE	Art Kiln, Glazing & Storage Rooms
B.03	CORE	Music Labs (Vocal & Instrumental)
B.04	CORE	Practice Rooms
B.05	CORE	Music Storage Rooms
B.06	CORE	World Languages Classrooms
B.15	CORE	Computer Lab
B.07	GOAL	Collaboration /Idea Lab
B.08	CORE	CTE / Project Labs
B.09	CORE	CTE / FCS Labs
B.10	GOAL	Lab Storage Rooms
B.11	CORE	Gymnasium
B.12	CORE	Fitness/Health Lab
B.13	CORE	Gym Locker Rooms
B.14	CORE	Gym Storage & Supports

Subtotals

Qty	Avg. Size	Capacity	Total NSF
2	1,200	35	2,400
2	250		500
3	1,575	77	4,725
8	50		400
4	250		1,000
3	850	41	2,550
0	850	-	-
2	850	19	1,700
2	1,800	35	3,600
1	1,800	17	1,800
4	100		400
2	3,500	49	7,000
2	850	27	1,700
2	1,200		2,400
2	600		1,200

299 31,375

Qty	Avg. Size	Capacity	Total NSF
2	1,143	33	2,285
2	126		251
3	1,083	53	3,250
0	-		-
1	400		400
0	-	-	-
0	-	-	-
0	-	-	-
1	1,560	15	1,560
2	728	14	1,455
3	40		120
1	6,120	42	6,120
1	280	4	280
5	446		2,230
4	95		380

161 18,331

Qty	Avg. Size	Capacity	Total NSF
2	1,143	33	2,285
2	126		251
3	1,083	53	3,250
0	-		-
1	400		400
0	-	-	-
0	-	-	-
0	-	-	-
1	1,560	15	1,560
2	728	14	1,455
3	40		120
1	6,120	42	6,120
1	280	4	280
5	446		2,230
4	95		380

161 18,331

Code	Class	Special/Support Programs
C.01	CORE	Resource/Reading/Literacy/ESL
C.02	GOAL	Flex Special Programs Room
C.03	CORE	Special Ed Learning Studio
C.04	GOAL	Storage Rooms
C.05	CORE	Student Restroom/Changing
C.06	GOAL	Sensory Room
C.07	CORE	OT/PT
C.08	GOAL	Reflection / Small Group Room

Subtotals

Qty	Avg. Size	Capacity	Total NSF
5	600		3,000
3	300		900
1	800		800
1	100		100
1	100		100
1	200		200
1	400		400
1	100		100

- 5,600

Qty	Avg. Size	Capacity	Total NSF
2	250		500
0	-		-
2	301		602
0	-		-
0	-		-
0	-		-
1	121		121
0	-		-

- 1,223

Qty	Avg. Size	Capacity	Total NSF
3	613		1,840
1	300		300
3	652		1,957
1	100		100
1	850		850
1	200		200
1	400		400
1	200		200

- 5,847

Greenwich Publich Schools
Middle School Program Capacity Summary

Eastern Middle School
Current

Proposed

Code	Class	Community Commons
D.01	CORE	Library/Media Center
D.02	GOAL	Media Support Spaces
D.03	CORE	Commons/Large Group Instruction
D.04	CORE	Cafeteria/Dining
D.05	CORE	Kitchen
D.06	CORE	Auditorium Stage
D.07	CORE	Auditorium Seating
D.08	GOAL	Club Hub
D.09	GOAL	Community Room

Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	4,000		4,000
1	500		500
1	2,000		2,000
1	4,000		4,000
1	1,500		1,500
1	1,600		1,600
1	4,500		4,500
1	600		600
1	400		400

- 19,100

Qty	Avg. Size	Capacity	Total NSF
1	4,955		4,955
0	-		-
0	-		-
2	1,823		3,645
6	233		1,395
1	1,800		1,800
1	4,300		4,300
0	-		-
0	-		-

- 16,095

Qty	Avg. Size	Capacity	Total NSF
1	4,955		4,955
0	-		-
0	-		-
2	1,823		3,645
6	233		1,395
1	1,800		1,800
1	4,300		4,300
0	-		-
0	-		-

- 16,095

Code	Class	Admin & Student Services
E.01	GOAL	Welcome Center
E.02	CORE	Office Staff/Reception
E.03	CORE	Principal's Office
E.04	CORE	Asst. Principal Office
E.05	CORE	Admin Offices
E.06	CORE	Conference Room
E.07	GOAL	Workroom/Mailroom
E.08	CORE	Teachers' Lounge/Dining
E.09	CORE	Guidance Offices
E.10	CORE	Specialist Off. (Speech, Psych, etc.)
E.11	GOAL	Small Conference Room
E.12	CORE	Nurse Suite

Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	800		800
1	400		400
1	200		200
1	180		180
10	120		1,200
1	500		500
1	800		800
1	1,000		1,000
5	150		750
4	150		600
1	150		150
1	800		800

- 7,380

Qty	Avg. Size	Capacity	Total NSF
0	-		-
3	318		955
1	215		215
1	190		190
1	720		720
1	185		185
2	230		460
2	285		570
3	122		365
4	110		440
0	-		-
3	168		505

- 4,605

Qty	Avg. Size	Capacity	Total NSF
0	-		-
3	318		955
1	215		215
1	190		190
1	720		720
1	185		185
2	230		460
2	285		570
3	122		365
4	110		440
0	-		-
3	168		505

- 4,605

Code	Class	Building/Facilities Support
F.01	CORE	Receiving
F.02	CORE	Storage Rooms
F.03	CORE	Custodial
F.04	CORE	Security Vestibule

Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	200		200
1	1,200		1,200
6	100		600
1	400		400

- 2,400

Qty	Avg. Size	Capacity	Total NSF
0	-		-
5	97		487
1	45		45
0	-		-

- 532

Qty	Avg. Size	Capacity	Total NSF
0	-		-
5	97		487
1	45		45
0	-		-

- 532

Model Program

Target Enrollment	885
Actual Capacity	946
Net Square Footage	109,555
NSF/Student	124

CORE	96,905
GOAL	12,650

Eastern Middle School

Target Enrollment	885
Actual Capacity	904
Net Square Footage	82,269
NSF/Student	93

CORE	81,689
GOAL	580

Proposed

Target Enrollment	1,059
Actual Capacity	1,032
Net Square Footage	95,493
NSF/Student	90

CORE	94,113
GOAL	1,380

Greenwich Public Schools Master Plan

Greenwich High School Capacity Summary

Model Program

Code	Class	Instructional Core	Qty	Avg. Size	Capacity	Total NSF
A.01a	CORE	Core Learning Studios-Small	52	675	977	35,100
A.01b	CORE	Core Learning Studios-Medium	20	850	376	17,000
A.01c	CORE	Core Learning Studios-Large	16	1,000	301	16,000
A.01d	CORE	Core Learning Studios-XL	4	1,600	150	6,400
A.02	CORE	Science Labs	28	1,200	484	33,600
A.02a	CORE	Science Prep	14	250		3,500
A.02b	CORE	Science Storage	10	250		2,500
A.03	CORE	SGL/Seminar Rooms	2	400		800
A.03a	GOAL	Small Group Instruction	2	400		800
A.04	GOAL	Large Group Instruction	2	1,800		3,600
A.05	CORE	Applied Learning Labs (Computers)	2	1,000		2,000
A.06	CORE	Learning Studio Storage	4	200		800
A.07	CORE	Student Toilets	24	150		3,600
A.08	CORE	Student Lockers	2	1,000		2,000
Subtotals					2,288	127,700

Current

Qty	Avg. Size	Capacity	Total NSF
60	686	1,145	41,135
6	854	113	5,125
6	950	107	5,700
1	1,790	42	1,790
22	1,134	359	24,955
12	540		6,474
6	92		550
1	530		530
0	-		-
0	-		-
2	955		1,910
7	266		1,860
52	159		8,276
0	-		-
		1,767	98,305

Proposed

Qty	Avg. Size	Capacity	Total NSF
55	685	1,049	37,680
17	785	295	13,345
8	938	141	7,500
1	1,790	42	1,790
24	1,141	394	27,390
12	540		6,474
6	92		550
3	100		300
0	-		-
5	1,992		9,960
2	1,000		2,000
10	187		1,870
52	159		8,276
0	-		-
		1,921	117,135

Code	Class	Instructional Activities	Qty	Avg. Size	Capacity	Total NSF
B.01a	CORE	Art Studio - 2D	3	1,200	52	3,600
B.01b	CORE	Art Studio - 3D	1	1,600	17	1,600
B.01c	GOAL	Design / Idea Lab (Computers)	1	1,200	17	1,200
B.01d	CORE	Art Storage Rooms	1	500		500
B.01e	CORE	Art Kiln Room / Clay Storage	1	300		300

Qty	Avg. Size	Capacity	Total NSF
3	1,253	54	3,760
1	1,650	18	1,650
1	1,320	19	1,320
0	-		-
0	-		-

Qty	Avg. Size	Capacity	Total NSF
3	1,253	54	3,760
1	1,650	18	1,650
1	1,320	19	1,320
0	-		-
0	-		-

Code	Class	Instructional Activities	Qty	Avg. Size	Capacity	Total NSF
B.02a	CORE	Photography Studio	1	1,200	17	1,200
B.02b	CORE	Dark Room	0	400		-
B.02c	GOAL	Art Office	0	200		-
B.02d	GOAL	Gallery / Exhibition Space	0	500		-

Qty	Avg. Size	Capacity	Total NSF
1	1,275	18	1,275
1	380		380
1	330		330
0	-		-

Qty	Avg. Size	Capacity	Total NSF
1	1,275	18	1,275
1	380		380
1	330		330
0	-		-

Code	Class	Instructional Activities	Qty	Avg. Size	Capacity	Total NSF
B.03a	CORE	Instrumental Music - Band	1	2,000	34	2,000
B.03b	CORE	Instrumental Music - Orchestra	1	1,600	26	1,600
B.03c	CORE	Vocal Music	2	2,000	68	4,000
B.03d	CORE	Practice Rooms - Small	2	150		300
B.03e	CORE	Practice Rooms - Sectional	2	300		600
B.03f	CORE	Instrument Storage	2	350		700
B.03g	CORE	Music Storage Rooms	1	200		200
B.03h	CORE	Uniform / Robe Storage	2	300		600
B.03i	CORE	Music Office	1	250		250

Qty	Avg. Size	Capacity	Total NSF
1	3,400	58	3,400
1	2,815	45	2,815
2	2,173	74	4,345
10	48		480
2	305		610
2	480		960
5	311		1,555
0	-		-
6	189		1,135

Qty	Avg. Size	Capacity	Total NSF
1	3,400	58	3,400
1	2,815	45	2,815
2	2,173	74	4,345
10	48		480
2	305		610
2	480		960
5	311		1,555
0	-		-
6	189		1,135

Greenwich Public Schools Master Plan

Greenwich High School Capacity Summary

Model Program

Code	Class	Instructional Activities	Qty	Avg. Size	Capacity	Total NSF
B.04a	CORE	Theater Production Studio	2	1,200	27	2,400
B.04b	CORE	Theater Arts Classroom	2	1,800	27	3,600
B.04c	CORE	Theater Teaching Studio	2	300		600
B.04d	GOAL	Theater Arts Office	2	300		600
B.04e	GOAL	Scene Shop	1	1,200		1,200
B.04f	CORE	Storage Rooms	2	300		600
B.04g	CORE	Dressing Rooms	2	300		600
B.04h	CORE	Green Room	1	600		600

Current

Qty	Avg. Size	Capacity	Total NSF
2	1,128	26	2,255
2	1,305	20	2,610
1	510		510
2	183		365
1	1,500		1,500
6	263		1,580
2	370		740
2	645		1,290

Proposed

Qty	Avg. Size	Capacity	Total NSF
2	1,128	26	2,255
2	1,415	21	2,830
1	510		510
2	183		365
1	1,500		1,500
6	263		1,580
2	370		740
2	645		1,290

Code	Class	Instructional Activities	Qty	Avg. Size	Capacity	Total NSF
B.05a	CORE	Competition Gym	1	12,000	65	12,000
B.05b	CORE	Aux Gym / Field House	3	5,000	117	15,000
B.05c	GOAL	Dance/Fencing/Wrestling	1	2,000	19	2,000
B.05d	CORE	Fitness/Weight Room	1	2,600	39	2,600
B.05e	CORE	Natatorium	1	9,000	27	9,000
B.05f	CORE	Health Classroom	1	1,200	19	1,200
B.05g	CORE	Training Room	1	300		300
B.05h	CORE	Men's Locker Rooms	1	3,500		3,500
B.05i	CORE	Women's Locker Rooms	1	2,500		2,500
B.05j	CORE	Team Rooms	8	500		4,000
B.05k	CORE	Uniforms / Rentals	1	300		300
B.05m	CORE	PE Offices	2	150		300
B.05n	GOAL	Coaches' Offices	2	100		200
B.05p	GOAL	Staff Locker Rooms	2	300		600
B.05q	CORE	Gym Storage Rooms	2	300		600

Qty	Avg. Size	Capacity	Total NSF
1	12,685	68	12,685
1	5,130	40	5,130
1	1,880	18	1,880
1	2,580	39	2,580
1	9,155	28	9,155
1	1,150	18	1,150
2	253		505
1	3,510		3,510
1	2,160		2,160
8	539		4,310
2	225		450
4	151		605
1	230		230
2	265		530
6	249		1,495

Qty	Avg. Size	Capacity	Total NSF
1	12,685	68	12,685
3	7,610	178	22,830
2	1,350	26	2,700
1	3,000	45	3,000
1	9,155	28	9,155
1	1,150	18	1,150
2	253		505
1	3,510		3,510
1	2,160		2,160
11	693		7,620
2	225		450
5	321		1,605
2	315		630
2	265		530
5	405		2,025

Code	Class	Instructional Activities	Qty	Avg. Size	Capacity	Total NSF
B.06a	CORE	Applied Learning Lab	5	1,000	86	5,000
B.06b	CORE	Construction Lab	1	2,400	17	2,400
B.06c	CORE	Transport/Energy Lab	1	2,000	17	2,000
B.06d	CORE	Human Development Lab	2	1,600	35	3,200
B.06e	GOAL	Design / Idea Lab	1	1,000	17	1,000
B.06f	GOAL	Mini-Labs / Transaction Spaces	4	300		1,200
B.06g	GOAL	Vivarium	1	750		750
B.06h	CORE	Model Shop	1	250		250
B.06i	CORE	Shared CTE Classrooms	3	650		1,950
B.06j	CORE	CTE Finishing Room	1	150		150
B.06k	CORE	CTE Project Storage	6	250		1,500
B.06m	GOAL	CTE Supply Storage	6	250		1,500
B.06n	GOAL	Career Offices / Think Tank	1	600		600

Qty	Avg. Size	Capacity	Total NSF
19	575	189	10,920
1	2,400	17	2,400
1	2,160	19	2,160
2	1,530	33	3,060
4	1,008	70	4,030
1	250		250
1	710		710
1	245		245
2	620		1,240
1	115		115
4	158		630
5	82		410
1	80		80

Qty	Avg. Size	Capacity	Total NSF
19	575	189	10,920
1	2,400	17	2,400
1	2,160	19	2,160
2	1,530	33	3,060
4	1,008	70	4,030
1	250		250
1	710		710
1	245		245
2	850		1,700
1	115		115
4	158		630
5	82		410
1	80		80

Greenwich Public Schools Master Plan

Greenwich High School Capacity Summary

Model Program

Code	Class	Instructional Activities
B.07a	GOAL	Media Production Studio
B.07b	GOAL	Media Production Lab
B.07c	GOAL	Radio Station
B.07d	GOAL	Yearbook / Journalism
B.07e	GOAL	On-line Learning Studio
B.07f	GOAL	Distance Learning Lab
B.07g	GOAL	Multi-Media Office
B.07h	GOAL	Multi-Media Storage Rooms
B.08a	GOAL	Technology Computer Lab Room
B.08b	GOAL	Computer Science Lab Room
		Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	400		400
1	400		400
1	200		200
1	800		800
1	800		800
1	800		800
2	150		300
4	150		600
1	150		150
1	150		150
		744	109,050

Current

Qty	Avg. Size	Capacity	Total NSF
0	-		-
0	-		-
1	155		155
0	-		-
0	-		-
0	-		-
1	155		155
0	-		-
1	1,285		1,285
1	1,150		1,150
		870	110,235

Proposed

Qty	Avg. Size	Capacity	Total NSF
0	-		-
0	-		-
1	155		155
1	160		160
1	160		160
0	-		-
3	158		475
6	160		960
0	-		-
0	-		-
		1,023	134,260

Code	Class	Special/Support Programs
C.01	CORE	Resource/Reading/Literacy/ESL
C.02	CORE	Special Ed Learning Studio
C.03	CORE	Storage Rooms
C.04	CORE	Student Restroom/Changing
C.05	CORE	Sensory Room
C.06	CORE	OT/PT
C.07	CORE	Reflection / Small Group Room
C.08	GOAL	Credit Recovery Lab
C.09	GOAL	Teacher Think Tanks
C.10	CORE	Department Offices
C.11	CORE	Staff Toilets
C.12	GOAL	Teacher Storage Rooms
C.13	GOAL	Conference Rooms
C.14	GOAL	Teacher Task Rooms
		Subtotals

Qty	Avg. Size	Capacity	Total NSF
4	600		2,400
4	800		3,200
4	100		400
1	100		100
1	200		200
1	400		400
1	100		100
1	100		100
8	600		4,800
8	200		1,600
16	60		960
8	150		1,200
8	150		1,200
8	50		400
		-	17,060

Qty	Avg. Size	Capacity	Total NSF
12	528		6,340
13	616		8,005
0	-		-
0	-		-
0	-		-
0	-		-
2	95		190
0	-		-
12	469		5,630
4	191		765
20	59		1,186
0	-		-
6	246		1,475
0	-		-
		-	23,591

Qty	Avg. Size	Capacity	Total NSF
12	528		6,340
13	616		8,005
0	-		-
0	-		-
0	-		-
0	-		-
2	95		190
0	-		-
12	469		5,630
4	191		765
20	59		1,186
0	-		-
6	246		1,475
0	-		-
		-	23,591

Code	Class	Learner Commons
D.01	CORE	Library/Media Center
D.01a	CORE	Library Office/Support
D.02	CORE	Student Union
D.03	GOAL	Discovery Center
D.04	CORE	Cafeteria/Dining
D.05	CORE	Cafeteria Kitchen
D.06	CORE	Auditorium (inc. Stage)
D.07	CORE	Projection / Control Room
		Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	6,000		6,000
3	500		1,500
1	6,000		6,000
1	6,000		6,000
1	2,500		2,500
1	1,500		1,500
1	10,000		10,000
1	150		150
		-	33,650

Qty	Avg. Size	Capacity	Total NSF
1	5,150		5,150
2	708		1,415
1	29,400		29,400
0	-		-
0	-		-
9	712		6,405
1	9,990		9,990
2	200		400
		-	52,760

Qty	Avg. Size	Capacity	Total NSF
1	7,000		7,000
1	500		500
2	14,300		28,600
1	5,000		5,000
0	-		-
9	712		6,405
1	9,990		9,990
2	200		400
		-	57,895

Greenwich High School Capacity Summary

Model Program

Code	Class	Admin & Student Services
E.01	CORE	School Administration
E.02	CORE	Student Services + Special Ed
E.03	CORE	Teacher Support
E.04	CORE	Clinic/Health Office
E.05	CORE	Community Support

Subtotals

Qty	Avg. Size	Capacity	Total NSF
1	4,000		4,000
1	8,000		8,000
12	400		4,800
1	1,200		1,200
1	600		600

- 18,600

Code	Class	Building/Facilities Support
F.01	CORE	Maintenance/Custodial
F.02	CORE	Mechanical/Electrical
F.03	CORE	Building Support
F.04	CORE	Facilities Storage
F.05	CORE	Security Vestibule

Subtotals

Qty	Avg. Size	Capacity	Total NSF
8	50		400
10	500		5,000
6	200		1,200
1	5,000		5,000
1	800		800

- 12,400

Model Program

Model Enrollment	3,032
Model Capacity	3,032
Net Square Footage	318,460
NSF/Student	105

CORE	284,910
GOAL	33,550

Current

Qty	Avg. Size	Capacity	Total NSF
39	158		6,180
37	194		7,165
23	228		5,242
8	94		750
1	500		500

- 19,837

Qty	Avg. Size	Capacity	Total NSF
5	19		95
18	806		14,506
4	218		870
20	258		5,165
0	-		-

- 20,636

Current

Target Enrollment	2,951
Actual Capacity	2,637
Net Square Footage	325,364
NSF/Student	123

CORE	303,879
GOAL	21,485

Proposed

Qty	Avg. Size	Capacity	Total NSF
38	166		6,310
37	194		7,165
21	239		5,017
8	94		750
1	500		500

- 19,742

Qty	Avg. Size	Capacity	Total NSF
5	19		95
18	806		14,506
4	218		870
16	335		5,365
1	1,800		1,800

- 22,636

Proposed

Target Enrollment	2,951
Actual Capacity	2,945
Net Square Footage	375,259
NSF/Student	127

CORE	338,429
GOAL	36,830

APPENDIX F

ENGINEERING NARRATIVES

Greenwich Public Schools
Engineering Narratives

Cos Cob School Master Plan
OLA Project No. NKGD0171.00
August 15, 2017

Site Utilities:

Site Water
N/A.

Site Sanitary
N/A.

Site Gas
The school is provided with one (1) gas service and associated gas meter and regulator at the exterior of the school.

Site Fuel Oil
The school is provided with one (1) exterior fuel oil storage tank within a fenced in area exterior to the boiler room.

Site Electrical
The electrical service for this school originates from the utility company and is routed underground to a pad mounted utility transformer located on the east side of the property. The utility transformer steps the voltage down to 208Y/120V, 3 phase, 4 wire, and the service is then routed underground to the Main Electrical Room located towards the northeast end of the building where it is metered and distributed from. The main electrical service equipment is rated for 2500 Amps at 208Y/120V, 3 phase, 4 wire. The electrical service is adequate for the addition of AC for the entire school.

Site Storm Water
N/A.

Electrical/Fire Alarm/Lighting:

Interior Electric Distribution
The electrical distribution inside the school originates in the Main Electrical Room on the first floor towards the northeast end of the building. The main electrical service equipment is rated for 2500 Amps at 208Y/120V, 3 phase, 4 wire. The main service equipment consists of a 3-section line-up which contains the current transformer, main service switch and distribution circuit breakers feeding electrical panels and equipment throughout the school. The main service equipment is manufactured by Siemens and has a listed manufacturing date of 09/1992 making the equipment roughly 25 years old. It appears to be in fair condition. Consideration should be given to replacing this switchboard and adding (5) 225-amp panels throughout the school for future IT expansion in the next 15 years.

Lighting Fixtures
The lighting throughout the school consist of mostly fluorescent and high-pressure sodium fixtures which would not be considered energy efficient by today’s standards. The lighting fixtures throughout the school should be replaced with energy efficient LED lighting fixtures in the next 5 years. The exterior lighting fixtures are mostly high-pressure sodium fixtures which should also be replaced with LED lighting fixtures within the next 5 years. Control for the interior light fixtures consists of mostly manual switches. It is our understanding that control for the exterior fixtures consists of mainly traditional time clocks with override switches. Consideration should be given to installing energy efficient automatic controls such as occupancy and vacancy sensors throughout the building, with programmable time-based controls for exterior lighting within the next 5 years.

PA/Comm
The Public-Address System is a Bogen Multicom-2000 system and is serviced by Telcom Incorporated. No issues were reported by facility personnel. The system should be replaced in the next 5-15 years with new technology and when additional expansion is required.

Fire Alarm and Smoke Detection
The current fire alarm control panel is an addressable panel manufactured by Honeywell and located in the main electrical room. There is a voice evacuation system manufactured by Audiosone Inc. integrated with the fire alarm system. The fire alarm system is serviced by United Alarm Service Inc. The panels appear to be in good condition. There appears to be partial smoke detector coverage throughout the school. No smoke detectors or strobes are located in the classrooms. There are no strobes located in the bathrooms. It is recommended that the entire system should be replaced in the next 5-15 years with new technology and devices be added to code required locations.

Emergency and Exit Lighting
The emergency lighting is a combination of inverter-backed lighting panels and stand-alone emergency wall-packs. The lighting inverters are manufactured by Prescolite, have an original service date of 03/2002 and were last serviced on 05/2004. According to facility personnel, there have been issues with the inverter serving the gym, café and kitchen emergency lights. Typical lighting inverters have an expected service life of 10 years. These inverters have been in service for approximately 15 years. It is recommended that these inverters be replaced within the next 5 years.

The stand-alone emergency wall-packs and exit signs appear to contain inefficient fluorescent or incandescent lamps. The wall-packs and exit signs should be replaced with LED energy efficient fixtures within the next 5 years.

Emergency/Standby Power
There is no back-up generator system for this building. Consideration should be given to installing a back-up generator in the next 15 years to power the entire facility during electric utility outages.

Greenwich Public Schools

Engineering Narratives

Plumbing:

Water Distribution

A 4" domestic water service enters the Water Meter Room and is provided with a main house control valve. The domestic water service splits into two (2) 2" mains, each provided with 2" Watts reduced pressure zone (RPZ) backflow preventers and individual water meters. Domestic water is distributed throughout the building through copper piping and utilizes the municipal water pressure. Domestic cold, hot, and hot water recirculation water piping is generally routed above ceilings with local branch piping dropping down within walls to serve fixtures. It is recommended all branch mains and branch piping serving individual fixtures be provided with lead-free ball shut-off valves. A 1-inch RPZ is located within the Boiler Room for make-up water to the boiler system.

Sanitary Drainage

The school sanitary main exits the building below grade. Sanitary piping within the building consists of cast-iron hub-less piping. There were no reported issues with the sanitary system at the time of our review.

Storm Drainage

The school is provided with exterior gutters and leaders at the pitched roof areas. The leaders are routed below grade to an underground storm water main. It was not determined where this main terminates. Roof drains are provided at the flat roofs with internal storm drain piping routed down through the school and out below the building.

Hot Water Heaters

The school is provided domestic hot water through one (1) AO Smith gas-fired hot water heater rated at 199 MBH input and 100 gallons storage. The heater is approximately 7 years old and observed to be in good condition. A central hot water mixing valve is located in the boiler room. Sections of domestic cold and hot water piping in vicinity of the hot water heater were uninsulated. It is recommended all domestic water piping be completely insulated throughout the building.

Plumbing Fixtures

The observed plumbing fixtures are of the non-water conserving type. The fixtures are generally in good condition. It is recommended plumbing fixtures be replaced and updated with new water-conserving type fixtures.

Gas

Gas is routed to the Boiler Room from the exterior gas meter. Gas piping is distributed within the Boiler Room to the two (2) boilers and a domestic hot water heater. Gas is distributed through the building to the Kitchen for cooking equipment. The boilers are provided with a by-pass/shut-off valve to isolate gas while boilers fire on oil.

Fuel Oil

A Fuel oil storage tank is installed within a fenced in area exterior to the boiler room. Fuel oil piping is routed into the boiler room to provide fuel to the boilers. The system was observed to be in fair condition.

Swimming Pool

N/A.

HVAC Systems:

Heating Systems

The existing heating system consists of two (2) HB Smith model 28A-11 sectional cast-iron hot water boilers with dual fuel burners. Each boiler has a rated gas input of 3,508 MBH. Two (2) in-line primary pumps provide circulation through the boilers and two (2) end-suction floor mounted secondary hot water circulating pumps provide hot water throughout the building. The secondary pumps are provided with VFD's for modulation with building heating demands. The system includes an expansion tank and in-line air separator located within the Boiler Room. The boilers and hot water pumps are approximately 10 years old and observed to be in good condition with no known problems. We recommended yearly preventative maintenance on the boiler system and associated equipment to maximize the life expectancy of the equipment. Combustion air is provided through louvers and motorized dampers at the exterior wall of the boiler room. It is recommended the size of the louvers be confirmed to provide the required combustion air based on the installed gas-fired equipment within the Boiler Room.

The school is heated through central air handling units (AHU) with hot water heating coils and variable air volume (VAV) units with hot water re-heat coils. Additionally, perimeter fin tube radiation (FTR) is provided throughout the building along exterior walls.

Mechanical spaces are provided with hot water unit heaters for space tempering with local thermostat control.

The overall condition of the heating system was observed to be in good condition.

Ventilation Systems

The school is provided with ventilation through multiple central AHU's and individual local units located throughout the building. Outdoor air is ducted to the equipment from outdoor air louvers located at exterior walls of the building.

General exhaust fans and toilet exhaust fans are located throughout the school at the roof to provide exhaust from the spaces. The general condition of the fans are fair. It is recommended old fans be replaced with new, more efficient fans.

The kitchen is provided with a dedicated make-up air unit and kitchen exhaust hood fan located at the roof. The Reznor rooftop unit is in fair condition and appears to be approaching its useful life expectancy. It is recommended this unit be replaced in the near future with a more efficient unit. The kitchen exhaust fan is in fair condition. We would recommend replacement of the kitchen exhaust fan at the same time the make-up air unit is replaced.

Greenwich Public Schools

Engineering Narratives

Air Conditioning Systems

The existing air conditioning system consists of six (6) indoor Carrier AHU's and associated six (6) outdoor air cooled condensing units (ACCU), three (3) Carrier and three (3) Trane, located on the roof. The indoor AHU's are provided with DX cooling coils with refrigerant piping routed to the exterior ACCU's. Ductwork is distributed above ceilings to serve spaces throughout the school. Individual spaces and/or groups of rooms are provided with VAV's with hot water reheat for individual temperature control.

The gymnasium is served by three (3) of the indoor AHU's. The units are approximately 6 years old and observed to be in good condition. Ductwork was observed routed exposed high within the space.

The three (3) AHU's serving the remainder of the building have been in use for 20+ years and are approaching their useful life expectancy. Consideration should be given to replacement of the equipment with new energy efficient equipment.

The main office areas and nurse's office are served by two (2) Magicaire AHU's and provided with cooling. The units were observed to be in good condition.

HVAC Controls

The school is currently provided with an Automatic Logic BMS system and a variety of Andover and Siemens control devices throughout the building. It was not confirmed as to the extent of equipment and systems throughout the building that are connected and controlled through the existing BMS. Portions of the abandoned pneumatic control system were observed throughout the building, including the main compressor within the Boiler Room. It is recommended the pneumatic system and associated tubing and devices be removed completely. Any equipment that is replaced should be provided with DDC controls such that the Automatic Logic system can communicate with the new equipment. We also recommend upgrading the controls system to include full graphics, trending, and alarms to assist Building Personnel with monitoring energy use and with maintenance.

Fire Protection:

Fire Water Service

A 6" fire protection water services enters the Water Meter Room and is provided with a main house control valve and a 6" Watts double check detector assembly (DCDA) backflow preventer.

Fire Protection Systems

The building was observed to be fully sprinklered and provided with a standpipe system. The sprinkler system consists of three (3) alarm check control valves. A 3" and 4" wet system serves the occupied/conditioned spaces of the building. A 2" dry sprinkler system provides sprinkler coverage to unconditioned spaces throughout the building. Wet pipe sprinkler systems are distributed throughout the building through steel pipe and generally routed above ceilings to sprinkler heads. Dry-pipe systems are distributed through galvanized steel piping. The standpipes are located throughout the building stairwells and provided with hose-valve connections at each landing.

Fire Pump

N/A.

Greenwich Public Schools
Engineering Narratives

Glenville School Master Plan
OLA Project No. NKGD0171.00
August 15, 2017

Site Utilities:

Site Water
N/A.

Site Sanitary
N/A.

Site Gas
The school is provided with one (1) 1” gas service and associated gas meter and regulator at the exterior of the building. A 3” main and 4” are routed into the school.

Site Fuel Oil
The school is provided with one (1) exterior above ground 4,000-gallon, double-wall, fuel-oil storage tank within a fenced in area remote to the building. Fuel oil supply and return piping are routed below grade, under the parking, and into the school. The tank and piping were observed to be in good condition with no known issues.

Site Electrical
The electrical service for this school originates from the utility company and is routed underground to a pad mounted utility transformer located outside of the school at the north west corner of the building. The utility transformer steps the voltage down to 480Y/277V, 3 phase, 4 wire, and the service is then routed underground to the Main Electrical Room located towards the north west end of the building where it is distributed from. The main electrical service equipment is rated for 2000 Amps (1600-amp plug) at 480Y/277V, 3 phase, 4 wire and should be adequate for the school.

Site Storm Water
N/A.

Electrical/Fire Alarm/Lighting:

Interior Electric Distribution
The electrical distribution inside the school originates in the Main Electrical Room towards the north west end of the building. The main electrical service equipment is rated for 2000 amps (1600 amps plug) at 480Y/277V, 3 phase, 4 wire. The main service equipment is manufactured by General Electric and appears to be in good condition. Consideration should be made for adding (4) 225 Amp electrical panels throughout the school for circuit capacity for new technology in the next 5-15 years.

Lighting Fixtures
The lighting throughout the school consist of mostly fluorescent and incandescent fixtures which would not be considered energy efficient by today’s standards. The lighting fixtures throughout the school should be replaced with energy efficient LED lighting fixtures in the next 5 years. The exterior lighting fixtures are mostly metal halide fixtures which should also be replaced with LED lighting fixtures within the next 5 years. Control for the interior light fixtures consists of mostly manual switches. It is our understanding that control for the exterior fixtures consists of mainly traditional time clocks with override switches. Consideration should be given to installing energy efficient automatic controls such as occupancy and vacancy sensors throughout the building, with programmable time-based controls for exterior lighting within the next 5 years.

PA/Communications
The Public-Address System should be replaced in the next 5-15 years with new technology and when additional expansion is required.

Fire Alarm and Smoke Detection
The current fire alarm control panel is an addressable Notifier ADDR-CR (NFS2-640) panel with voice evacuation. The fire alarm system is serviced and maintained by Integrated Technical Systems Inc. The panel appears to be in good condition. There is a 20 HP fire pump which is monitored by the fire-alarm system. The fire-alarm system should be replaced in the next 5-15 years with new technology.

Emergency and Exit Lighting
Emergency lighting is accomplished by exterior pad-mounted generator. See Emergency/standby power section. The exit lights appear to have fluorescent or incandescent lamps. They should be replaced with energy efficient LED fixtures throughout the school in the next 5 years.

Emergency/Standby Power
There is a 200 kW generator manufactured by Cummins located outside which was out of service during the time of the site visit. The existing wiring was damaged by rodents. The generator appears to back-up mechanical loads, interior emergency lights and exterior lights. Consideration should be given to replacing the generator or installing a new generator to back-up the entire school in the next 5-15 years.

Greenwich Public Schools

Engineering Narratives

Plumbing:

Water Distribution

A 4" domestic water service enters the Fire Pump Room. The domestic service reduces to a 3" main and is provided with a main house control valve, 3" Watts 975 reduced pressure zone (RPZ) backflow preventers and water meter. Domestic water is distributed throughout the building through copper piping and pressure is boosted through an Armstrong duplex booster pump set. The booster pump consists of two (2) 5 HP pumps and is rated at 140 GPM / 127 feet head and was observed in good condition with no major indications of issues. Domestic cold, hot, and hot water recirculation water piping is generally routed above ceilings with local branch piping dropping down within walls to serve fixtures. It is recommended all branch mains and branch piping serving individual fixtures be provided with lead-free ball shut-off valves. A ¾ inch RPZ is located within the Boiler Room for make-up water to the boiler system.

Sanitary Drainage

The building sanitary main exits the building below grade. Sanitary piping within the building consists of cast-iron hub-less piping. There were no reported issues with the sanitary system at the time of our review.

Storm Drainage

The building is provided with exterior gutters and leaders at the pitched roof areas. The leaders are routed below grade to an underground storm water main. It was not determined where this main terminates. Roof drains are provided at the flat roofs with internal storm drain piping routed down through the school and out below the building.

Hot Water Heaters

The building is provided domestic hot water through one (2) Lochinvar Efficiency PAC gas-fired hot water heaters rated at 199 MBH input each. The heaters were observed to be in good condition. Two (2) central hot water mixing valves are located in the boiler room. One mixing valve provides hot water at 120 degrees Fahrenheit to the building for general hot water usage, and the second mixing valve provides hot water at 140 degrees Fahrenheit to the Kitchen.

Plumbing Fixtures

The observed plumbing fixtures are of the non-water conserving type. The fixtures are generally in good condition. It is recommended plumbing fixtures be replaced and updated with new water-conserving type fixtures.

Gas

Gas is routed to the Boiler Room from the exterior gas meter. Gas piping is distributed within the Boiler Room to the two (2) boilers and two (2) domestic hot water heaters. Gas is distributed through the building to the Kitchen for cooking equipment.

Fuel Oil

Fuel oil piping is routed below grade from the exterior above ground fuel oil storage tank and into the school. The duplex fuel oil transfer pump set distributes fuel oil through the boiler room to the boilers. The system was observed in good condition.

Swimming Pool

N/A.

HVAC Systems:

Heating Systems

The existing heating system consists of two (2) Burnham model V1111 hot water boilers with dual fuel burners. Each boiler has a rated input of 2,656 MBH. The boilers are approximately 7 years old. Two (2) in-line primary pumps provide circulation through the boilers and two (2) end-suction floor mounted secondary hot water circulating pumps provide hot water throughout the building. The secondary pumps are provided with VFD's for modulation with building heating demands. The system includes an expansion tank and in-line air separator located within the Boiler Room. The boilers and hot water pumps were observed to be in good condition with no known problems. We recommended yearly preventative maintenance on the boiler system and associated equipment to maximize the life expectancy of the equipment. Combustion air is provided to the boiler room. It is recommended the size of the louvers be confirmed to provide the required combustion air based on the installed gas-fired equipment within the Boiler Room.

The school is heated through Trane modular rooftop air handling units with hot water heating coils and VAV's with hot water reheat coils. Perimeter fin tube radiation (FTR) is provided throughout the building along exterior walls.

Mechanical spaces are provided with hot water unit heaters for space tempering with local thermostat control.

The overall condition of the heating system was observed to be in good condition.

Ventilation Systems

The school is provided ventilation through six (6) Trane Climate Changer modular rooftop air handling units (RTU). Outdoor air is ducted from the RTU down into the school and distributed through ductwork with VAV's located above the ceiling. The VAV's provide localized temperature control of individual or grouped spaces. Three (3) RTU's provide ventilation to the classrooms, corridors, and common spaces. The three (3) remaining RTU's provide ventilation independently to the gymnasium, cafeteria, and library spaces. The RTU's are each provided with heating hot water coils and cooling chilled water coils. Hot water and chilled water are circulated throughout the school and routed to the equipment. The equipment was observed in good condition.

General exhaust fans and toilet exhaust fans are located throughout the school at the roof to provide exhaust from the spaces. The general condition of the fans is good.

The kitchen is provided with a dedicated Greenheck make-up air unit and kitchen exhaust hood fan located at the roof. The equipment was observed in good condition.

Greenwich Public Schools

Engineering Narratives

Air Conditioning Systems

The existing air conditioning system consists of indoor water-cooled chillers, outdoor air-cooled condensing units (ACCU), and chilled water pumps. The two (2) indoor Trane chillers have a nominal capacity of 125 tons each. The chillers were observed in good condition. The two (2) modular outdoor air-cooled condensing units are located on the roof and have a nominal capacity of 125 tons each. The ACCU's were observed in good condition. The two (2) chilled water pumps were observed to be in fair condition. The pumps exhibit signs of wear and poor water treatment due to rust and corrosion observed on the casing and associated piping in proximity of the pump. It is recommended new chilled water pumps be installed. The system is approximately 7 years old.

The school was observed to be fully air-conditioned. Chilled water is distributed throughout the school and routed to the chilled water coils at each RTU. The chilled water piping throughout the school was observed in good condition with no known issues.

HVAC Controls

The school is currently provided with Trane controls system. The system is local and does not communicate with the school district's central BMS system which utilizes Automatic Logic BMS system. It was not confirmed as to the extent of equipment and systems throughout the building that are connected and controlled through the existing Trane controls. Portions of the abandoned pneumatic control system were observed throughout the building, including the main compressor within the Boiler Room. It is recommended the pneumatic system and associated tubing and devices be removed completely. Any equipment that is replaced should be provided with DDC controls such that the Automatic Logic system can communicate with the new equipment. We also recommend removing the Trane controls and provide new Andover and Siemens control devices throughout the building to communicate with the central BMS system.

Fire Protection:

Fire Water Service

A 6" fire protection water services enters the Fire Pump room and is provided with a main house control valve and a 6" Watts 757 double check detector assembly (DCDA) backflow preventer.

Fire Suppression Systems

The building was observed to be fully sprinklered and provided with a standpipe system. The sprinkler system consists of two (2) alarm check control valves. Fire protection sprinkler systems are distributed throughout the building through steel pipe and generally routed above ceilings to sprinkler heads.

Fire Pump

A 20-HP electric vertical in-line fire pump is provided within the Fire Pump room, complete with associated jockey pump and automatic transfer switch for operation with the emergency generator. The fire pump is rated for 300 GPM at 150 feet head. The fire pump was observed in good condition, although periodic maintenance is recommended to minimize build-up of rust that has accumulated on the pump base and pipe couplings.

Greenwich Public Schools
Engineering Narratives

Hamilton School Master Plan
OLA Project No. NKGD0171.00
August 4, 2017

Site Utilities:

Site Water
N/A.

Site Sanitary
N/A.

Site Gas
The school is provided with one (1) 2” gas service and associated gas meter and regulator at the exterior of the school within a fenced enclosure.

Site Fuel Oil
N/A.

Site Electrical
The electrical service for this school originates at a pad mounted transformer on the north side of the building. It appears that 10 of 3 ½” conduits enter the building underground and terminate on the CT(Current Transformer) Cabinet.
The voltage is stepped down to 208Y/120V, 3 phase, 4 wire, and routed to the main service switch rated for 1200 amps located in the utility room in the northeast corner of the building. The electrical service appears to have been upgraded in 2009 when the school was renovated and expanded.

Site Storm Water
N/A.

Electrical/Fire Alarm/Lighting:

Interior Electric Distribution
The electrical distribution inside the school originates in the utility room in the northeast corner of the building where it is metered. The main switch is also located in this room and is rated for 1200 Amps at 208Y/120V, 3 phase, 4 wire and appears to be in good condition. It then feeds the main distribution equipment which is located in the custodian’s office adjacent to the utility room and also appears to be in good condition. The main distribution equipment should not be in a room shared with the custodian’s office. The distribution throughout the school consists of mainly ITE/Siemens equipment and is in good condition. Consideration should be made for adding (4) 225-amp electrical panels throughout the school for circuit capacity for new technology in the next 5-15 years.

Lighting Fixtures
The lighting fixtures throughout the school consists of mainly 2’x4’ and 2’x2’ fluorescent fixtures which would not be considered energy efficient by today’s standards. The lighting fixtures should be replaced throughout the school with energy efficient LED lighting fixtures in the next 5 years. The exterior lights appear to be HID. They should also be replaced with LED fixtures in the next 5 years.

PA/Comm/Security
The Public-Address System is a TOA (TOA Electronics Inc.) 700 series amplifier system, model A-724 and is approximately 20 years old and functioning. There are no current issues. The system should be replaced in the next 5-15 years with new technology and when additional expansion is required.
The communications DATA/IT systems have been kept up to date but require regular maintenance and up keeping. New capacity is required as technology improves.

Fire Alarm and Smoke Detection
The current fire alarm system consists of a Notifier AFP-400 intelligent fire detection system with voice evacuation and is currently serviced by United Alarm Services, Inc. There is full smoke detection coverage throughout the school. The system is approximately 10 years old and will need to be replaced within 5-15 years based on new technology and expansion of the system. Strobes should be added in classrooms to meet current Code requirements.

Emergency and Exit Lighting
The emergency lighting is currently functioning. The exit lights appear to have fluorescent or incandescent lamps. The emergency and exit lights should be replaced with LED energy efficient fixtures throughout the school in the next 5 years.

Emergency/Standby Power
There is currently no emergency generator system for this building. There is an existing concrete pad that was set up for a future generator. A new generator is recommended to be installed for back-up power during utility outages to power entire facility including proposed AC in the next 5-15 years.

Plumbing:

Water Distribution
A 3” domestic water services enters the Water Meter Room and is provided with a main house control valve. The domestic water service is provided with a 3” Watts 909 reduced pressure zone (RPZ) backflow preventer and water meter. Domestic water is distributed throughout the building through copper piping and utilizes the municipal water pressure. Domestic cold, hot, and hot water recirculation water piping is generally routed above ceilings with local branch piping dropping down within walls to serve fixtures. It is recommended all branch mains and branch piping serving individual fixtures be provided with lead-free ball shut-off valves. A 1-inch RPZ is located within the Boiler Room for make-up water to the boiler system

Greenwich Public Schools
Engineering Narratives

Sanitary Drainage

The school sanitary main exits the building below grade. Sanitary piping within the building consists of cast-iron hub-less piping. There were no reported issues with the sanitary system at the time of our review.

Storm Drainage

The school is provided with exterior gutters and leaders at the pitched roof areas. The leaders are routed below grade to an underground storm water main. It was not determined where this main terminates. Roof drains are provided at the flat roofs with internal storm drain piping routed down through the school and out below the building.

Hot Water Heaters

The school is provided domestic hot water through one (1) AO Smith gas-fired hot water heater rated at 240 MBH input and 100 gallons storage. The was observed to be in good condition and is approximately 10 years old. A central hot water mixing valve is located in the boiler room.

Plumbing Fixtures

The observed plumbing fixtures are relatively new and in good condition. It is recommended plumbing fixture flush-valves and faucets be replaced and updated with new water-conserving type devices as required.

Gas

Gas is routed to the Boiler Room from the exterior gas meter. Gas piping is distributed within the Boiler Room to the two (2) boilers and a domestic hot water heater. Gas is distributed through the building to the Kitchen for cooking equipment and rooftop heating equipment.

Fuel Oil

N/A

Swimming Pool

N/A

HVAC Systems:

Heating Systems

The existing heating system consists of two (2) LAARS natural gas condensing boilers in mechanical room C22 that provide heating hot water. The boilers are eight (8) years old and are in good condition. In addition, there are two (2) hot-water pumps.

Ventilation Systems

There is a McQuay make-up air unit located in the kitchen ceiling.

Air Conditioning Systems

There is an eight (8) well geothermal heat pump system at Hamilton Ave School, which serves as the primary source of heating and cooling and is approximately 10 years old. In addition, there are seven (7) FHP water to water heat pumps, two (2) ground-water pumps and two (2) dual temp water pumps. This system along with the boiler provides hot and chilled water to central air handling units. The classrooms are served by the central air handling units. Each classroom appears to have its own VAV terminal box. The VAV units typically have hot water reheat coils. The entire school is air-conditioned utilizing central air handling units with the exception of some smaller spaces that utilize split type units. Split type units are typically in the server and computer lab spaces.

HVAC Controls

The school is currently provided with an Automatic Logic BMS system. It was not confirmed as to the extent of equipment and systems throughout the building that are connected and controlled through the existing BMS.

Fire Protection:

Fire Water Service

A 8” fire protection water services enters the sprinkler room C33. The 8” service reduces down to a 6” main and is provided with a house control valve and 6” Watts 774 double check detector assembly (DCDA) backflow preventer. The available pressure observed was approximately 80 psi.

Fire Protection Systems

The school was observed to be fully sprinklered. The occupied/conditioned spaces are protected with a 4” alarm check valve and 4” wet sprinkler system. The wet sprinkler systems are distributed throughout the building with steel pipe and generally routed above ceilings to sprinkler heads. Two (2) 4” dry valves and associated compressors provide 4” dry pipe systems for protection of the unconditioned attic and unconditioned parking garage. The dry sprinkler system is routed throughout the respective spaces with galvanized steel pipe.

Fire Pump

N/A

Greenwich Public Schools
Engineering Narratives

Dundee School Master Plan
OLA Project No. NKGD0171.00
August 15, 2017

Site Utilities:

Site Water
N/A.

Site Sanitary
N/A.

Site Gas
The school is provided with a 1½” gas service that splits to two (2) gas meters and regulators at the exterior of the building. An additional gas service and meter is provided at the Gymnasium.

Site Fuel Oil
N/A.

Site Electrical
The electrical service for the school originates from the utility company and is routed to the CL&P vault located on the East side of the building. The utility transformer steps the voltage down to 208Y/120V, 3 phase, 4 wire and feeds the main switch rated for 800 amps. The electrical service appears to be original. There will be a need for an electrical service upgrade to 1200 amps in the next 5 years due to the addition of AC for the entire school.

Site Storm Water
N/A.

Electrical/Fire Alarm/Lighting:

Interior Electric Distribution
The electrical service inside the school originates in the Main Electric Room on the east side of the building and the main electrical equipment is rated for 800A at 208Y/120V, 3 phase, 4 wire. The equipment is manufactured by General Electric and appears to be approximately 60 years old. There is a clearance issue with some of the electrical equipment which is a code violation and should be corrected. The typical service life of a switchboard is approximately 30 years. It is recommended that the service equipment is upgraded to 1200 amps and a new 800-amp panel is added for air conditioning in the next 5 years. It is also recommended that (3) 225-amp electrical panels are added throughout the school for circuit capacity for new technology.

Lighting Fixtures
The lighting fixtures throughout the school consist of mainly fluorescent and incandescent light fixtures, which would not be considered energy efficient by today’s standards. The lighting fixtures throughout the school should be replaced with energy efficient LED lighting fixtures in the next 5 years. Control for the interior light fixtures consists of mostly manual switches. It is our understanding that control for the exterior fixtures consists of mainly traditional time clocks with override switches. Consideration should be given to installing energy efficient automatic controls such as occupancy and vacancy sensors throughout the building, with programmable time-based controls for exterior lighting within the next 5 years.

PA/Communications
The Public-Address System is a Multicom-2000 system. The system should be replaced in the next 5-15 years with new technology and when additional expansion is required.

Fire Alarm and Smoke Detection
The current fire alarm control panel is an addressable EST IRC-3 panel manufactured by Edwards Systems Technology. The panel appears to be in good condition. There is no voice evacuation system on site. It appears that the fire-alarm system is serviced by ITS. The system should be replaced in the next 5-15 years with new technology.

Emergency and Exit Lighting
The emergency lighting is a combination of stand-alone emergency wall-packs and integral batteries in regular lighting fixtures. The exit lights and stand-alone emergency wall packs appear to have incandescent or fluorescent lamps. It is recommended that the wall-packs and exit lights be replaced with LED energy efficient fixtures within the next 5 years.

Emergency/Standby Power
There is no back-up generator system for this building. Consideration should be given to installing a back-up generator in the next 15 years to power the entire facility during electric utility outages.

Plumbing:

Water Distribution
A 3-inch domestic water service enters the school and is provided with a main house control valve, water meter, and pressure reducing valve. A reduced pressure zone (RPZ) backflow preventer was not observed installed. We recommend proper backflow prevention devices be installed on the water service. Pressure was observed at approximately 90 psi. Domestic water is distributed throughout the building through copper piping and utilizes the municipal water pressure. Domestic cold, hot, and hot water recirculation water piping is generally routed above ceilings with local branch piping dropping down within walls to serve fixtures. It is recommended all branch mains and branch piping serving individual fixtures be provided with lead-free ball shut-off. A 1-inch RPZ is located within the Boiler Room for make-up water to the boiler system.

Greenwich Public Schools
Engineering Narratives

HVAC Systems:

Sanitary Drainage

The school sanitary main exits the building below grade. Sanitary piping within the building consists of cast-iron hub-less piping. There were no reported issues with the sanitary system at the time of our review.

Storm Drainage

The school is provided with exterior gutters and leaders at the pitched roof areas. The leaders are routed below grade to an underground storm water main. It was not determined where this main terminates. Roof drains are provided at the flat roofs with internal storm drain piping routed down through the school and out below the building.

Hot Water Heaters

The school is provided domestic hot water through one (1) AO Smith gas-fired hot water heater rated at 199 MBH input and 100 gallons storage. The heater is approximately 3 years old and observed to be in good condition. Sections of domestic cold and hot water piping in vicinity of the hot water heater were uninsulated. It is recommended all domestic water piping be completely insulated throughout the building. A separate gas-fired domestic hot water heater is provided at the gymnasium building. This heater provides hot water to the two (2) bathrooms within the gymnasium. This hot water heater was observed to be in good condition.

Plumbing Fixtures

The observed plumbing fixtures are of the non-water conserving type. The fixtures are generally in good condition. It is recommended plumbing fixtures be replaced and updated with new water-conserving type fixtures.

Gas

A 3” gas main is routed to the Boiler Room from the two (2) exterior gas meters. Gas piping is distributed to the two (2) heating boilers, one (1) heating boiler to serve the Gymnasium, one (1) domestic hot water heater, and (1) gas driven engine associated with the Chiller. Gas is distributed through the building to the Kitchen for cooking equipment.

Fuel Oil

N/A

Swimming Pool

N/A.

Heating Systems

The existing heating system consists of two (2) Hydrotherm Knight model KN-10 gas fired hot water boilers. Each boiler has a rated input of 1,000 MBH. The boilers were installed in 2014 and observed to be in good condition. Two (2) end-suction floor mounted hot water circulating pumps provide hot water throughout the building. The pumps are provided with VFD's for modulation with building heating demands. The system includes an expansion tank and in-line air separator located within the Boiler Room. The boilers and hot water pumps were observed to be in good condition with no known problems. We recommended yearly preventative maintenance on the boiler system and associated equipment to maximize the life expectancy of the equipment. Combustion air is provided through louvers and motorized dampers at the exterior wall of the boiler room.

Classrooms, corridors, offices, and common spaces throughout the school are provided with hot water fin-tube radiators along the perimeter walls to provide heating to the space. The overall condition of this system is good.

A separate boiler is provided within the gymnasium to supply heating hot water to the gymnasium space. This heating system consists of one (1) Weil Mclain Series 80, model 680 gas-fired hot water boiler rated at 787 MBH gas input. Two (2) in-line hot water circulating pumps provide hot water to the gymnasium H&V unit and perimeter baseboard heating elements. The boiler and circulating pumps were observed in good condition and should be replaced in the near future.

Ventilation Systems

The school is provided with ventilation through various systems and equipment located throughout the building with 4-pipe units. Hot water is routed to the hot water coil and chilled water is routed to the chilled water coil at each unit. Ventilation to the spaces is provided by louvers through the exterior walls and roof with outside air ducted to the equipment.

General exhaust fans and toilet exhaust fans are located throughout the school to provide exhaust from the spaces. The general condition of the fans is fair. It is recommended old fans be replaced with new, more efficient fans.

A central AHU provides ventilation to Corridors and common spaces. The equipment was observed to be in fair condition.

Individual 4-pipe fan coil units (FCU) provide ventilation to the Classroom and office spaces. Generally, the first-floor spaces are provided with vertical FCU's and the second-floor spaces provided with horizontal FCU's. The units were observed to be installed recently and are in good condition.

Greenwich Public Schools

Engineering Narratives

The Gymnasium is provided with a horizontal H&V unit with a duct mounted hot water heating coil. Outside air is provided from an exterior louver. The AHU appears original to the building and has exceeded its useful life expectancy. It is recommended a new energy efficient air-handling unit be installed to provide ventilation and heating to the gymnasium. The gymnasium is also provided with two (2) exhaust fans high within the space at the vaulted ceiling. The fans terminate with ductwork up through the roof to a louvered penthouse. The fans were observed to be in fair condition and are recommended to be replaced with new energy efficient equipment.

The library and computer lab spaces are provided with an AAON unit that was installed within the past year. This unit was observed in good condition.

The cafeteria is provided with a Carrier AHU. The system is ducted throughout the cafeteria and provides heating and cooling to the space. The equipment was observed to be in good condition.

Air Conditioning Systems

The existing school system consists of an indoor gas engine driven chiller, outdoor air-cooled cooling tower, chilled water pumps, and condenser water pumps. The chiller is a Techochill, model CH-170 chiller. The gas engine has been replaced within the last year, however the unit is in excess of 20 years old and have exceeded its useful life expectancy. It is recommended a new energy efficient chiller be installed. The outdoor cooling tower is a Baltimore Air Coil cooling tower, model VTO-132-LCR rated at a nominal 132 tons. The cooling tower is in excess of 20 years old and have exceeded its useful life expectancy. It is recommended a new energy efficient cooling tower be installed. The indoor condenser water and chilled water pumps were observed to be in fair condition. The pumps exhibit signs of wear and poor water treatment due to rust and corrosion observed on the casing and associated piping. It is recommended new condenser water and chilled water pumps be installed. The condenser water piping inside and exterior of the building was observed with signs of corrosion and age. It is recommended the condenser water piping system be replaced completely.

The school was observed to be fully air-conditioned with exception to the auditorium and kitchen spaces and the stand-alone gymnasium building. Chilled water is distributed throughout the main school and routed to the chilled water coils at each AHU and FCU. The chilled water piping was observed in good condition with no known issues.

Electrical room M-25 serves as an IT closet with racks of equipment. It was observed that the space is warm and potential overheating of the space could result in damage to equipment within the room. It is recommended a ductless split system air conditioning system be installed to provide temperature control of the room.

HVAC Controls

The school is currently provided with an Automatic Logic BMS system and a variety of Andover and Siemens control devices throughout the building. It was not confirmed as to the extent of equipment and systems throughout the building that are connected and controlled through the existing BMS. Portions of the abandoned pneumatic control system were observed throughout the building, including the main compressor within the Boiler Room. It is recommended the pneumatic system and associated tubing and devices be removed completely. Any equipment that is replaced should be provided with DDC controls such that the Automatic Logic system can communicate with the new equipment. We also recommend upgrading the controls system to include full graphics, trending, and alarms to assist Building Personnel with monitoring energy use and with maintenance.

Fire Protection:

Fire Water Service

A 6" fire protection water services enters the school in a closet located within the Library. Pressure was observed at approximately 90 psi. The fire protection service immediately reduces in size to a vertical 4" double check detector assembly (DCDA) backflow preventer and a 4" alarm check valve. Fire protection sprinkler systems are distributed throughout the building through steel pipe and generally routed above ceilings to sprinkler heads.

Fire Protection Systems

The building was observed to be fully sprinklered. The gymnasium is provided with a 2" fire protection main from the domestic water system off the main building. The gymnasium is partially sprinklered with sprinklers only provided within the storage room. It is recommended this cross connection between domestic and sprinkler systems be revised such that the sprinkler system within the gymnasium is provided with water from the main building fire protection service. It is recommended the sprinkler system within the gymnasium be expanded to provide full coverage of the space.

Fire Pump

N/A.

Greenwich Public Schools
Engineering Narratives

Julian Curtiss Master Plan
OLA Project No. NKGD0171.00
August 4, 2017

Site Utilities:

Site Water
N/A.

Site Sanitary
N/A.

Site Gas
The school is provided with a gas service with a gas meter and regulator at the exterior of the building.

Site Fuel Oil
NA

Site Electrical
The electrical service for this school originates at a utility transformer located at the north end of the property where the voltage is stepped down to 208Y/120V, 3 phase, 4 wire, and routed to the main service switch rated 1200 amps and is located in the electrical room in the northeast corner of the building. The electrical service appears to have been upgraded approximately 10 years ago. There will be a need for an electrical service upgrade to 1600 amps in the next 5 years due to the addition of AC for the entire school.

Site Storm Water
N/A.

Electrical/Fire Alarm/Lighting:

Interior Electric Distribution
The electrical distribution inside the school originates in the utility room in the northeast corner of the building where it is metered. The main service switch and distribution equipment is also located in this room. The main service switch is rated for 1200 Amps at 208Y/120V, 3 phase, 4 wire and has a manufacturers date of 2001 and appears to be in good condition. There is currently some electrical expansion capacity in the main electrical equipment. The distribution throughout the school consists of mainly Square-D equipment which appears to be over 20 years old. It is recommended that the service equipment is upgraded to 1600 amps and a new 800-amp panel is added for air conditioning in the next 5 years. It is also recommended that (4) 225-amp electrical panels are added throughout the school for circuit capacity for new technology.

Lighting Fixtures
The lighting fixtures throughout the school consists of mainly 2’x4’ and 2’x2’ fluorescent fixtures which would not be considered energy efficient by today’s standards. According to facility personnel, 70% of classrooms have lighting fixtures that were recently replaced with newer fluorescent fixtures, and automatic controls have been added. The lighting fixtures in the gym consist of inefficient 400W metal halide fixtures. Consideration should be given to installing energy efficient lighting fixtures and automatic controls such as occupancy and vacancy sensors throughout the building, with programmable time-based controls for exterior lighting within the next 5 years.

PA/Comm
The Public-Address System is a Bogen Communication Model TPS-4 system with microphone control and is approximately 25 years old and functioning. There are no current issues with the system. The clock system appears to be approximately 50 years old and should be replaced as technology improves. The systems should be replaced in the next 5-15 years with new technology and when additional expansion is required.

Fire Alarm and Smoke Detection
The current fire alarm system consists of a Gamewell E3 Series fire detection system with voice evacuation. There is full smoke detection coverage throughout the school. The system is approximately 20 years old and is currently serviced by United Alarm Services, Inc. The system should be replaced in the next 5 years with new technology and when additional expansion is required.

Emergency and Exit Lighting
The emergency lighting consists of stand-alone wall-packs located throughout the building. The emergency lighting is currently functioning and is of the antiquated incandescent type. The exit lights appear to have fluorescent or incandescent lamps. The wall-packs and exit lights should be added/replaced with LED energy efficient fixtures throughout the school within 5 years.

Emergency/Standby Power
There is no back-up generator system for this building. Consideration should be given to installing a new generator to back-up the entire school in the next 5-15 years.

Plumbing:

Water Distribution
A 4-inch domestic water service enters the school and splits to a 1½” and 1” main with shut-off valves and water meters. A reduced pressure zone (RPZ) backflow preventer was not observed installed on the water service. We recommend proper backflow prevention devices be installed on the water service. Domestic water is distributed throughout the building through copper piping and utilizes the municipal water pressure. Domestic cold, hot, and hot water recirculation water piping is generally routed above ceilings with local branch piping dropping down within walls to serve fixtures. It is recommended all branch mains and branch

Greenwich Public Schools
Engineering Narratives

pipng serving individual fixtures be provided with lead-free ball shut-off valves. A 1-inch RPZ is located within the Boiler Room for make-up water to the boiler system.

Sanitary Drainage

The school sanitary main exits the building below grade. Sanitary piping within the building consists of cast-iron hub-less piping. There were no reported issues with the sanitary system at the time of our review.

Storm Drainage

The school is provided with exterior gutters and leaders at the pitched roof areas. The leaders are routed below grade to an underground storm water main. It was not determined where this main terminates. Roof drains are provided at the flat roofs with internal storm drain piping routed down through the school and out below the building.

Hot Water Heaters

The building is provided domestic hot water through two (2) AO Smith gas-fired hot water heater rated at 154 MBH input and 100 gallons storage each. One heater is approximately 2 years old and observed to be in good condition. The other heater is approximately 11 years old and is approaching its useful life expectancy. We would recommend replacement of this heater in the near future.

Plumbing Fixtures

The observed plumbing fixtures are of the non-water conserving type. The fixtures are generally in good condition. It is recommended plumbing fixtures be replaced and updated with new water-conserving type fixtures.

Gas

Gas piping is distributed within the Boiler Room to the two (2) boilers and two (2) domestic hot water heaters. Gas is distributed through the school to the Kitchen for cooking equipment.

Fuel Oil

NA

Swimming Pool

N/A.

HVAC Systems:

Heating Systems

The existing heating system consists of two (2) Burnham model V1111 hot water boilers with dual fuel burners. Each boiler has a rated gas input of 2,656 MBH. The main boiler flue was observed to be installed with an Exhausto assistance fan to modulate exhaust of the boilers through varying loads on the boilers. Two (2) B&G in-line primary pumps provide circulation through the boilers and two (2) B&G end-suction floor mounted secondary hot water circulating pumps provide hot water throughout the building. The secondary pumps are provided with VFD’s for modulation with building heating demands. The system includes an expansion tank and in-line air separator located within the Boiler Room. The boilers and hot water pumps are approximately 10 years old and observed to be in fair condition. We recommended yearly preventative maintenance on the boiler system and associated equipment to maximize the life expectancy of the equipment. Combustion air is provided through ducts and louvers from the exterior to the boiler room. It is recommended the size of the ducts be confirmed to provide the required combustion air based on the installed gas-fired equipment within the Boiler Room.

Ventilation Systems

The school is provided with ventilation through various systems and equipment located throughout the building. Common areas, corridors, and classrooms are provided with unit ventilators or fan coil units with 2-pipe heating coils. Hot water is routed to the hot water coil at each unit. Ventilation to the spaces is provided by louvers through the exterior walls with outside air ducted to the unit ventilators and fan coil units. The unit ventilators and fan coil units were observed to be old and have exceeded their useful life expectancy. It is recommended new energy efficient heating and ventilating equipment be installed to serve the spaces

The Gymnasium is provided with ventilation through fan coil units (FCU) with hot water heating coils. Outside air is provided from an exterior louver through the roof. The FCU’s are approximately 30 years old and have exceeded its useful life expectancy. It was noted during our survey that the heating coils at the gymnasium units are undersized as sufficient heating is not provided during the winter months. It is recommended a new energy efficient air-handling unit be installed to provide ventilation and heating to the gymnasium along with review of heating coil size to provide sufficient heating during winter months.

The offices are provided with ventilation through fan coil units (FCU) with hot water heating coils. Outside air is provided from an exterior louver through the roof. The FCU’s are approximately 30 years old and have exceeded its useful life expectancy. It is recommended a new energy efficient air-handling unit be installed to provide ventilation and heating to the offices.

Air Conditioning Systems

The Classrooms are currently provided air conditioning with thru-window air conditioning units. The age of these units varies. It is recommended these units be removed and new energy efficient air conditioning equipment with energy recovery be installed to serve the Classrooms.

Multiple offices and smaller classrooms throughout the school were observed with ductless split air-conditioning systems. The equipment was observed to be in good condition.

Greenwich Public Schools
Engineering Narratives

Fire Protection:

HVAC Controls

The school is currently provided with Trane controls system. The system is local and does not communicate with the school district's central BMS system which utilizes Automatic Logic BMS system. It was not confirmed as to the extent of equipment and systems throughout the building that are connected and controlled through the existing Trane controls. Any equipment that is replaced should be provided with DDC controls such that the Automatic Logic system can communicate with the new equipment. We also recommend removing the Trane controls and provide new Andover and Siemens control devices throughout the building to communicate with the central BMS system.

Fire Water Service

The existing building is not provided with an existing water service for Fire Protection systems. We recommend a new fire protection water service and applicable backflow preventor equipment be installed for sprinklering of the full building.

Fire Suppression Systems

We recommend the entire building be provided with an automatic sprinkler system for full sprinkler coverage within the building. Wet pipe systems shall provide coverage to the occupied/conditioned spaces and a dry-pipe system shall provide coverage to unconditioned spaces such as the attic.

Fire Pump

Pending hydrant flow tests to provide data of available water pressure and flow to the building, a Fire Pump has been assumed as being required to provide sufficient pressure and flow to the proposed sprinkler system throughout the building.

Greenwich Public Schools
Engineering Narratives

New Lebanon School Master Plan
OLA Project No. NKGD0171.00
August 15, 2017

Site Utilities:

Site Water
N/A

Site Sanitary
N/A

Site Gas
The school is provided with a single gas service that splits to two (2) gas meters and regulators at the exterior of the building within a fenced enclosure. The enclosure was observed to be overgrown with weeds and plant life. It is recommended this space be kept clear for access and maintenance by building personnel and gas utility.

Site Fuel Oil
The existing fuel oil system at the building has been abandoned in place. The size and age of the exterior underground tank is unknown. We recommend the complete removal of the underground fuel oil storage tank and associated piping and controls. The decommissioning of the underground fuel tank should be conducted in the correct manner and all testing, local, state, and federal agency sign-offs should be obtained.

Site Electrical
The electrical service for this school originates at a utility transformer located at the Northwest end of the property where the voltage is stepped down to 208Y/120V, 3 phase, 4 wire, and routed to the main service switch rated 1200 Amps and is located in the electrical room in the northwest corner of the building. The electrical service appears to have been upgraded approximately 6 years ago. The service will need to be upgraded to 2000 A for the air conditioning upgrades

Site Storm Water
N/A

Electrical/Fire Alarm/Lighting:

Interior Electric Distribution
The electrical distribution inside the school originates in the Electrical room. The main switch is located in this room and is rated for 1200 Amps at 208Y/120V, 3 phase, 4 wire. The main switch feeds the Main Distribution Board which feeds panelboards board located in the old electric room and throughout the school. The main switch and the main distribution board appear to have been installed within the last 6 years and are in good condition. There is currently some electrical expansion capacity in the main electrical equipment of the school. The distribution throughout the school consists of mainly Frank Adams Electric equipment which appears to be over 30 years old and Square D equipment recently installed. It is recommended that the service equipment is upgraded to 2000 amps and a new 400-amp panel is added for air conditioning in the next 5 years. It is also recommended that (2) 225-amp electrical panels are added throughout the school for circuit capacity for new technology.

Lighting Fixtures
The lighting fixtures throughout the school consists of mainly 1’x4’ fluorescent fixtures which would not be considered energy efficient by today’s standards. The lighting fixtures in the gym consist of inefficient 250W metal halide fixtures. The exterior lights are mainly sodium-vapor lamps based. These lighting fixtures should be replaced throughout the school with energy efficient LED lighting fixtures in the next 5 years. Control for the interior lighting fixtures consists of manual switches and some automatic controls in classrooms. Consideration should be given to installing energy efficient automatic controls such as occupancy and vacancy sensors throughout the building, with programmable time-based controls for exterior lighting within the next 5 years.

PA/Communications
The Public-Address System is a Bogen Communication Model TPS-4 system with microphone control and is approximately 25 years old and functioning. There are no current issues with the system. The clock system appears to be approximately 50 years old and should be replaced as technology improves. The systems should be replaced in the next 5-15 years with new technology and when additional expansion is required.

Fire Alarm and Smoke Detection
The fire alarm system consists of a Vigilant VM Series fire detection system with voice evacuation in fair condition. There appears to be smoke detection coverage throughout most the school. The system is recently upgraded and is currently serviced by Security Specialists.

Greenwich Public Schools

Engineering Narratives

Emergency and Exit Lighting

The emergency lighting consists of stand-alone wall-packs located throughout the building. The emergency lighting is currently functioning and is of the antiquated incandescent type. The exit lights appear to have fluorescent or incandescent lamps. The wall-packs and exit lights should be added/replaced with LED energy efficient fixtures throughout the school within 5 years.

Emergency/Standby Power

N/A

Plumbing:

Water Distribution

A 4-inch domestic water service enters a closet off the Art classroom and is provided with a main house control valve and pressure reducing valve. A meter was not observed to be installed. A reduced pressure zone (RPZ) backflow preventer was not observed installed on the water service. We recommend proper backflow prevention devices be installed on the water service. Domestic water is distributed throughout the building through copper piping and utilizes the municipal water pressure. Domestic cold, hot, and hot water recirculation water piping is generally routed above ceilings with local branch piping dropping down within walls to serve fixtures. It is recommended all branch mains and branch piping serving individual fixtures be provided with lead-free ball shut-off valves. A 1-inch RPZ is located within the Boiler Room for make-up water to the boiler system.

Sanitary Drainage

The school sanitary main exits the building below grade. Sanitary piping within the building consists of cast-iron hub-less piping. There were no reported issues with the sanitary system at the time of our review.

Storm Drainage

The school is provided with roof drains at the flat roof areas. The leaders are routed internal to the school and exit below grade to an underground storm water main. It was not determined where this main terminates.

Hot Water Heaters

The school is provided domestic hot water through one (1) AO Smith gas-fired hot water heater rated at 199 MBH input and 81 gallons storage. The heater is approximately 11 years old and is approaching its useful life expectancy. It is recommended the hot water heater be replaced within the next few years. Two (2) hot water mixing valves were observed adjacent to the heater. One provides 140-degree hot water to the Kitchen and the second provides 110-degree hot water to the school plumbing fixtures.

Plumbing Fixtures

The observed plumbing fixtures are of the non-water conserving type. The fixtures are generally in good condition. It is recommended plumbing fixtures be replaced and updated with new water-conserving type fixtures.

Gas

Gas is routed to the Boiler Room from the exterior gas meters. Gas piping is distributed within the Boiler Room to the two (2) boilers and a domestic hot water heater. Gas is distributed through the building to the Kitchen for cooking equipment and rooftop gas-fired heating equipment.

Fuel Oil

The existing fuel oil system within the school consists of a fuel oil transfer pump set and associated fuel oil supply and return piping within the Boiler room of which have been abandoned in place. We recommend removal of all abandoned fuel oil equipment and piping.

HVAC Systems:

Heating Systems

The existing heating system consists of two (2) HB Smith model 19A-10 sectional cast-iron hot water boilers with dual fuel burners. Each boiler has a rated gas input of 1,137 MBH. Two (2) B&G in-line primary pumps provide circulation through the boilers and two (2) B&G end-suction floor mounted secondary hot water circulating pumps provide hot water throughout the building. The secondary pumps are provided with VFD's for modulation with building heating demands. The system includes two (2) expansion tanks and in-line air separator located within the Boiler Room. The boilers and hot water pumps are approximately 10 years old and observed to be in good condition with no known problems. We recommended yearly preventative maintenance on the boiler system and associated equipment to maximize the life expectancy of the equipment. Combustion air is provided through exterior louvers at the boiler room wall and a combustion air fan and ductwork. It is recommended the size of the ducts be confirmed to provide the required combustion air based on the installed gas-fired equipment within the Boiler Room.

Classrooms, offices, and common spaces throughout the school are provided with hot water fin-tube radiators along the perimeter walls to provide heating to the space. The overall condition of this system was observed to be good.

The perimeter glass corridor leading to the 1996 addition was observed with no perimeter heating. We recommend hot water fin tube heating elements be provided along the perimeter wall to maintain space temperature during winter months.

Ventilation Systems

The school is provided with ventilation through various systems and equipment located throughout the building. The classrooms and offices are provided ventilation through operable windows. The corridor is ventilated through exhaust registers and ductwork routed above the ceilings up to exhaust fans at the roof above.

The four (4) classrooms built as part of the 1996 addition are provided with Nesbitt unit ventilators along the perimeter floor. The units are ducted to outside air louvers at the exterior wall of the classroom. The equipment is approximately 20 years old and has exceeded its useful life expectancy. We recommend replacement of the equipment with new, efficient units.

General exhaust fans and toilet exhaust fans are located throughout the school at the roof to

Greenwich Public Schools

Engineering Narratives

provide exhaust from the Toilet rooms and Corridors. The general condition of the fans is fair. It is recommended exhaust fans be replaced with new, more efficient fans.

The kitchen is provided with a kitchen exhaust hood fan located at the flat roof above and associate gravity vent for make-up air. The exhaust fan was observed in fair condition. It is recommended a new make-up air unit be installed to provide tempered make-up air to the kitchen.

The Cafeteria is provided with ventilation through operable windows.

The Gymnasium is provided with ventilation through a Carrier Rooftop Unit (RTU) with gas-fired heating furnace. Outside air is provided from an exterior louver. The AHU is approximately 12 years old and observed in good condition.

Air Conditioning Systems

The school is fully air conditioned, with exception to the corridors and toilet rooms.

The classrooms are provided with 3-Ton Carrier ductless split systems. The indoor unit consists of a ceiling suspended unit. The casing return grilles, and access panels were observed to be in poor condition, broken, and/or missing. We recommend replacement of these units in the near future. The outdoor condensing units are located at the roof and observed in fair condition. The equipment is approximately 11 years old and observed in fair condition.

The administration and office spaces are provided with two (2) Carrier 7.5 Ton RTU's. Ductwork is routed down from the RTU and distributed above the ceiling to serve the spaces. The equipment is approximately 11 years old and observed in fair condition.

The cafeteria is provided with two (2) Sanyo 3-Ton ductless split systems. The interior units are ceiling recessed and connected to two (2) 3-Ton condensing units at the roof above. The equipment is approximately 12 years old and observed in fair condition.

The gymnasium is provided with a Carrier 25 Ton RTU. Ductwork is routed down from the RTU and distributed above the ceiling to serve the gymnasium. The equipment is approximately 11 years old and observed in fair condition. The stage is provided with a 3-Ton split system consisting of an indoor unit and outdoor condensing unit at the roof.

The Library/Media room is provided with a Carrier 7.5 Ton RTU. Ductwork is routed down from the RTU and distributed above the ceiling to serve the space. The equipment is approximately 11 years old and observed in fair condition.

HVAC Controls

The school is currently provided with an Automatic Logic BMS system and a variety of Andover, Siemens, Trane, and Johnson control devices throughout the building. It was not confirmed as to the extent of equipment and systems throughout the building that are connected and controlled through the existing BMS. Portions of the abandoned pneumatic control system were observed throughout the building, including the main compressor within the Boiler Room. It is recommended the pneumatic system and associated tubing and devices be removed completely. Any equipment that is replaced should be provided with DDC controls such that the Automatic Logic system can communicate with the new equipment. We also recommend upgrading the controls system to include full graphics, trending, and alarms to assist Building Personnel with monitoring energy use and with maintenance.

Fire Protection:

Fire Water Service

The existing building is not provided with an existing water service for Fire Protection systems. We recommend a new fire protection water service and applicable backflow preventer equipment be installed for sprinklering of the full building.

Fire Protection Systems

We recommend the entire school be provided with an automatic sprinkler system for full sprinkler coverage within the building. Occupied and conditioned spaces should be provided with wet-sprinkler systems. Unoccupied and unconditioned spaces should be provided with dry-sprinkler systems.

Fire Pump

Pending hydrant flow tests to provide data of available water pressure and flow to the building, a Fire Pump has been assumed as being required to provide sufficient pressure and flow to the proposed sprinkler system throughout the building.

Greenwich Public Schools
Engineering Narratives

North Mianus Master Plan
OLA Project No. NKGD0171.00
August 16, 2017

Site Utilities:

Site Water
N/A.

Site Sanitary
N/A.

Site Gas
The school is provided with one (1) gas service and associated gas meter and regulator at the exterior of the school.

Site Fuel Oil
N/A.

Site Electrical
The electrical service for this school is rated 1600 A, 208Y/120V, 3 phase, 4 wire. The service is routed underground from the utility source to the main service switch located in the utility room in the basement. The electrical service appears to be original and is adequate for the addition of AC for the entire school.

Site Storm Water
N/A.

Electrical/Fire Alarm/Lighting:

Interior Electric Distribution
The electrical distribution inside the school originates in the electrical room in the basement, where it is metered. The main switch is also located in this room and is rated for 1600 Amps at 208Y/120V, 3 phase, 4 wire. It then feeds the main distribution equipment located in the same room. The electrical distribution appears to be original and has not been updated recently. The distribution throughout the school consists of mainly Frank Adam equipment which appears to be over 30 years old. Consideration should be made for replacing the main distribution equipment and adding (4) 225 Amp electrical panels throughout the school for circuit capacity for new technology in the next 5-15 years.

Lighting Fixtures
The lighting fixtures throughout the school consist of mainly 2’ x 4’ and 2’ x 2’ fluorescent fixtures which are approximately 10 years old and would not be considered energy efficient by today’s standards. The lighting fixtures should be replaced throughout the school with energy efficient LED lighting fixtures in the next 5 years. The exterior lighting fixtures appear to be mostly Incandescent and HID, and some have been replaced with LED fixtures. The remaining HID fixtures should also be replaced with LED fixtures in the next 5 years. Control for the interior lighting fixtures consists of mostly manual switches, while the recently upgraded bathrooms contained occupancy sensors. Control for the exterior fixtures consists of mainly traditional time clocks with override switches which are not fully operational. Consideration should be given to installing energy efficient automatic controls such as occupancy and vacancy sensors throughout the building, with programmable time-based controls for exterior lighting within the next 5 years.

PA/Comm
The Public-Address System was installed within the last year and has microphone control. No issues were reported by school staff. The clock has reached its lifetime service and is being replaced by standalone wireless clock. The legacy equipment should continue to be replaced as it fails.

Fire Alarm and Smoke Detection
The current fire alarm system consists of an Edwards EST2 fire detection system with voice evacuation and is currently serviced by ITS, Inc. The fire alarm control panel is located at the basement in the Electrical room and is current in trouble condition. There appears to be smoke detection coverage throughout most the school. Combination horn/strobes were located in some common spaces, however, strobes should be added in all classrooms to meet current Code requirements. The majority of existing fire alarm devices appear to be over 15 years old and have exceeded their useful life. These devices should be replaced, and consideration should be given to a full system upgrade in the next 5 years to incorporate new devices, additional strobes and pull stations in some classrooms directly open to exterior.

Emergency and Exit Lighting
The emergency lighting consists of a combination of stand-alone wall-packs and ceiling mounted fixtures located throughout the building. The wall-packs were tested and are operational. These wall-packs are antiquated incandescent type. The wall-packs/ceiling mounted emergency lighting fixtures and exit lights should be replaced with LED energy efficient fixtures throughout the school in the next 5 years.

Emergency/Standby Power
There is no back-up generator system for this building. Consideration should be given to installing a back-up generator in the next 5-15 years to power the entire facility during electric utility outages.

Greenwich Public Schools

Engineering Narratives

Plumbing:

Water Distribution

A 4" domestic water service enters the school within a narrow crawl space and is provided with a main house control valve and water meter. A reduced pressure zone (RPZ) backflow preventer was not observed installed. We recommend proper backflow prevention devices be installed on the water service. Domestic water is distributed throughout the building through copper piping and utilizes the municipal water pressure. Domestic cold, hot, and hot water recirculation water piping is generally routed above ceilings with local branch piping dropping down within walls to serve fixtures. It is recommended all branch mains and branch piping serving individual fixtures be provided with lead-free ball shut-off valves. A 3/4-inch RPZ is located within the Boiler Room for make-up water to the boiler system.

Sanitary Drainage

The school sanitary main exits the building below grade. Sanitary piping within the building consists of cast-iron hub-less piping. There were no reported issues with the sanitary system at the time of our review.

Storm Drainage

The school is provided with exterior gutters and leaders at the pitched roof areas. The leaders are routed below grade to an underground storm water main. It was not determined where this main terminates. Roof drains are provided at the flat roofs with internal storm drain piping routed down through the school and out below the building.

Hot Water Heaters

The school is provided domestic hot water through one (1) AO Smith gas-fired hot water heater rated at 75 MBH input and 80 gallons storage. The heater is approximately 21 years old and has exceeded its useful life expectancy. It is recommended a new hot water be installed immediately.

Plumbing Fixtures

The observed plumbing fixtures are of the non-water conserving type. The fixtures are generally in good condition. It is recommended plumbing fixtures be replaced and updated with new water-conserving type fixtures.

Gas

Gas is routed to the Boiler Room from the exterior gas meter. Gas piping is distributed within the Boiler Room to the three (3) boilers and a domestic hot water heater. Gas is distributed through the building to the Kitchen for cooking.

Fuel Oil

An abandoned indoor fuel oil tank was observed within a CMU block enclosure. We recommend the oil tank and associated fuel oil piping, controls, etc., be completely demolished. The decommissioning of the fuel tank should be conducted in the correct manner and all testing, local, state, and federal agency sign-offs should be obtained.

Swimming Pool

N/A.

HVAC Systems:

Heating Systems

The existing heating system consists of three (3) Hydrotherm KN-20 hot water boilers with gas burners. Each boiler has a rated input of 1,999 MBH. The boilers are approximately 2-years old and observed in good condition. Three (3) in-line primary pumps provide circulation through the boilers and two (2) end-suction floor mounted secondary hot water circulating pumps provide hot water throughout the building. The secondary pumps are provided with VFD's for modulation with building heating demands. The system includes an expansion tank and in-line air separator located within the Boiler Room. We recommended yearly preventative maintenance on the boiler system and associated equipment to maximize the life expectancy of the equipment. Combustion air is provided through louvers and motorized dampers at the exterior wall of the boiler room. It is recommended the size of the louvers be confirmed to provide the required combustion air based on the installed gas-fired equipment within the Boiler Room.

The upper classrooms are provided heating with unit ventilators along the perimeter with HW heating coils. The equipment is approximately 15-20 years old and has exceeded its useful life expectancy. We recommend replacement of the equipment with new, efficient systems.

The lower classrooms are provided heating through central AHU's with heating coils. The equipment was observed to be in fair condition and would recommend replacement within a few years.

Ventilation Systems

The upper classrooms are provided with unit ventilators along the perimeter. The units are ducted to outside air louvers at the exterior wall of the classroom. The equipment is approximately 15-20 years old and has exceeded its useful life expectancy. We recommend replacement of the equipment with new, efficient systems.

The lower classrooms are provided ventilation through central AHU's with outside air ducted to exterior louvers. The equipment was observed to be in fair condition and would recommend replacement within a few years.

General exhaust fans and toilet exhaust fans are located throughout the school at the roof to provide exhaust from the Toilet rooms and Corridors. The general condition of the fans is fair. It is recommended exhaust fans be replaced with new, more efficient fans.

Air Conditioning Systems

As noted above, although the classroom unit ventilators have integrated condensing coil, many are not operational. They are scheduled for replacement. Building personnel have installed temporary MovnCool type units for some of the classrooms. The Ground floor classrooms have a central H&V unit, but they do not have air conditioning.

The Cafeteria is cooled by (3) wall mounted Fujitsu wall mounted mini-splits.

The Library has own packaged AHU. The Gymnasium does not have cooling in its air handling unit.

Greenwich Public Schools

Engineering Narratives

HVAC Controls

The school is currently provided with an Automatic Logic BMS system and a variety of Andover and Siemens control devices throughout the building. It was not confirmed as to the extent of equipment and systems throughout the building that are connected and controlled through the existing BMS. Portions of the abandoned pneumatic control system were observed throughout the building, including the main compressor within the Boiler Room. It is recommended the pneumatic system and associated tubing and devices be removed completely. Any equipment that is replaced should be provided with DDC controls such that the Automatic Logic system can communicate with the new equipment. We also recommend upgrading the controls system to include full graphics, trending, and alarms to assist Building Personnel with monitoring energy use and with maintenance

Fire Protection:

Fire Water Service

A 4" fire protection water services enters the school and is provided with a main house control valve and a 4" AMES double check detector assembly (DCDA) backflow.

Fire Protection Systems

The building was observed to be fully sprinklered and provided with a standpipe system. Sprinkler heads were observed throughout entire building. The wet-pipe sprinkler system consists of an alarm check control valve. A wet-pipe sprinkler system serves the occupied/conditioned spaces of the building. Wet pipe sprinkler systems are distributed throughout the building through steel pipe and generally routed above ceilings to sprinkler heads. A dry sprinkler system provides sprinkler coverage to unconditioned spaces throughout the building. Dry-pipe systems are distributed throughout the building with galvanized steel piping.

Fire Pump

N/A.

Greenwich Public Schools
Engineering Narratives

North Street School Master Plan
OLA Project No. NKGD0171.00
August 15, 2017

Site Utilities:

Site Water
N/A.

Site Sanitary
N/A.

Site Gas
The school is provided with a single 1½”gas service that splits to two (2) gas meters and regulators at the exterior of the building within a fenced enclosure. A 2” gas main and a 6” gas main are routed into the school.

Site Fuel Oil
The school is provided with an existing underground fuel oil storage tank located below the paved basketball courts. The size and age of the tank is unknown. We recommend the complete removal of the underground fuel oil storage tank and associated piping, controls, etc. The decommissioning of the underground fuel tank should be conducted in the correct manner and all testing, local, state, and federal agency sign-offs should be obtained.

Site Electrical
The electrical service for this school originates from the utility company and is routed underground to a pad mounted utility transformer located on the South side of the school. The utility transformer steps the voltage down to 208Y/120V, 3 phase, 4 wire, and the service is routed through an outdoor CT & service switch line up and then underground to the main distribution board located in the Storage room. The main electrical service equipment is rated for 1200 Amps at 208Y/120V, 3 phase, 4 wire and has adequate capacity for the addition of AC for the entire school.

Site Storm Water
N/A.

Electrical/Fire Alarm/Lighting:

Interior Electric Distribution
The electrical distribution inside the school originates in the Storage Room towards the south end of the building. The main distribution board should be located in a dedicated electrical room, not a room used for storage and other purposes. The main electrical service equipment is manufactured by General Electric, rated for 1200 amps at 208Y/120V, 3 phase, 4 wire and appears to be less than 20 years old. It appears that there was a service upgrade when air conditioning was added and that the General Electric equipment feeds the air conditioning equipment and back-feeds the buildings existing distribution panels. The buildings existing distribution panels appear to be in good condition. Consideration should be made for adding (3) 225-amp panels throughout the school for circuit capacity for new technology in the next 5-15 years.

Lighting Fixtures
The lighting throughout the school consist of mostly fluorescent and incandescent fixtures which would not be considered energy efficient by today’s standards. The lighting fixtures throughout the school should be replaced with energy efficient LED lighting fixtures in the next 5 years. The exterior lighting fixtures are LED. Control for the interior light fixtures consists of mostly manual switches with the exception of some areas. It is our understanding that control for the exterior fixtures consists of mainly traditional time clocks with override switches. Consideration should be given to installing energy efficient automatic controls such as occupancy and vacancy sensors throughout the building, with programmable time-based controls for exterior lighting within the next 5 years.

PA/Communications
The public-address system should be replaced in the next 5-15 years with new technology and when additional expansion is required.

Fire Alarm and Smoke Detection
The current fire alarm control panel is an MS-9200UDLS addressable panel manufactured by Honeywell and does not appear to have voice evacuation. It appears the FA panel is serviced by ITS. The panels appear to be in good condition. There appears to be smoke detector coverage throughout the school. There are no strobe lights in the restrooms. The entire system should be replaced in the next 5-15 years with new technology and devices should be extended to code required locations.

Emergency and Exit Lighting
According to facility personnel, the emergency lighting is a combination of stand-alone emergency wall-packs and integral batteries in regular lighting fixtures. It appears that there are many areas lacking emergency lighting. The exit lights appear to be of the LED type. It is recommended that LED wall packs be added throughout the school in the next 5 years.

Emergency/Standby Power
There is no back-up generator system for this building. Consideration should be given to installing a back-up generator in the next 15 years to power the entire facility during electric utility outages.

Greenwich Public Schools

Engineering Narratives

Plumbing:

Water Distribution

A 4-inch domestic water service enters the school and reduces to a 3" water main. The domestic service is provided with a main house control valve, water meter, check valve, and pressure reducing valve. Pressure was observed at approximately 100 psi. A reduced pressure zone (RPZ) backflow preventer was not observed installed on the water service. We recommend proper backflow prevention devices be installed on the water service. Domestic water is distributed throughout the building through copper piping and utilizes the municipal water pressure. Domestic cold, hot, and hot water recirculation water piping is generally routed above ceilings with local branch piping dropping down within walls to serve fixtures. It is recommended all branch mains and branch piping serving individual fixtures be provided with lead-free ball shut-off valves.

Sanitary Drainage

The school sanitary main exits the building below grade. Sanitary piping within the building consists of cast-iron hub-less piping. There were no reported issues with the sanitary system at the time of our review.

Storm Drainage

The school is provided with exterior gutters and leaders at the pitched roof areas. The leaders are routed below grade to an underground storm water main. It was not determined where this main terminates. Roof drains are provided at the flat roofs with internal storm drain piping routed down through the school and out below the building. The school was noted to experience water infiltration and flooding during storms and high water-tables. We recommend this condition be investigated to mitigate the flooding issues being experienced.

Hot Water Heaters

The school is provided domestic hot water through one (1) AO Smith gas-fired hot water heater rated at 120 MBH input and 71 gallons storage. The heater is approximately 15 years old and exceeded its useful life expectancy. The cold and hot water connections to the heater were observed to be rusted. We recommend the heater be replaced immediately.

Plumbing Fixtures

The observed plumbing fixtures are of the non-water conserving type. The fixtures are generally in fair condition. It is recommended plumbing fixtures be replaced and updated with new water-conserving type fixtures. The janitor slop sink and floor mounted sink were observed to be in poor condition. The sinks were noted to backup often and pose a flooding threat to the floor. We recommend this condition be investigated to mitigate the back-up issues being experienced.

Gas

Gas is routed to the Boiler Room from the exterior gas meters. Gas piping is distributed within the Boiler Room to the two (2) boilers and a domestic hot water heater. Gas is distributed through the building to the Kitchen for cooking equipment.

Fuel Oil

The existing fuel oil system is routed from the exterior underground fuel oil storage tank to a duplex fuel oil transfer pump within the boiler room. The duplex fuel oil transfer pump and associated fuel oil supply and return piping within the Boiler Room was observed in good condition.

Swimming Pool

N/A.

HVAC Systems:

Heating Systems

The existing heating system consists of two (2) Weil Mclain model 88 hot water boilers with dual fuel burners. Each boiler has a rated gas input of 5,485 MBH. Two (2) in-line primary pumps provide circulation through the boilers and four (4) end-suction floor mounted secondary hot water circulating pumps provide hot water throughout the building. The secondary pumps are provided with VFD's for modulation with building heating demands. The system includes an expansion tank and in-line air separator located within the Boiler Room. The boilers and hot water pumps are approximately 8 years old and were observed to be in good condition. We recommended yearly preventative maintenance on the boiler system and associated equipment to maximize the life expectancy of the equipment. Combustion air is provided through louvers and motorized dampers at the exterior wall of the boiler room. It is recommended the size of the louvers be confirmed to provide the required combustion air based on the installed gas-fired equipment within the Boiler Room.

Classrooms, offices, and common spaces throughout the school are provided with hot water fin-tube radiators along the perimeter walls to provide heating to the space. The overall condition of this system was observed to be good.

Ventilation Systems

The school is provided with ventilation through various systems and equipment located throughout the building. The classrooms and offices are provided ventilation through operable windows. The corridor is ventilated through exhaust registers and ductwork routed above the ceilings up to exhaust fans at the roof above.

The gymnasium ventilation fans were observed to be abandoned. We recommend replacement of this equipment and provide new equipment to provide required ventilation of the space.

The science storage space, four (4) kindergarten classrooms, and a music room were observed with unit ventilators to provide ventilation to the spaces. The equipment was observed in fair condition.

General exhaust fans and toilet exhaust fans are located throughout the school at the roof to provide exhaust from the Toilet rooms and Corridors. The general condition of the fans is fair. It is recommended exhaust fans be replaced with new, more efficient fans.

Greenwich Public Schools

Engineering Narratives

Air Conditioning Systems

The school is fully air conditioned, with exception to the corridors and toilet rooms.

The classrooms are provided with 3-Ton Carrier ductless split systems. The indoor unit consists of a ceiling suspended unit. The outdoor condensing units are located at the roof and observed in fair condition. The equipment is approximately 15 years old and observed in fair condition. We recommend replacement of this equipment with new, more efficient systems.

The IT Closet is provided with a Fujitsu mini split system. The equipment was observed in fair condition and recommend replacement in the near future.

The gymnasium is provided air conditioning by two (2) 12.5 Ton Carrier rooftop units. The equipment was observed in fair condition and recommend replacement in the near future.

The school offices are currently provided air conditioning with thru-window air conditioning units. The age of these units varies. It is recommended these units be removed and new energy efficient air conditioning equipment with energy recovery be installed to serve the offices.

The music room is provided with two (2) Fujitsu split systems. The system consists of indoor ceiling suspended ductless units with refrigerant routed to outdoor air-cooled condensers located at the roof above. The equipment was observed to be installed in the last few years and in good condition.

HVAC Controls

The school is currently provided with an Automatic Logic BMS system and a variety of Andover and Siemens control devices throughout the building. It was not confirmed as to the extent of equipment and systems throughout the building that are connected and controlled through the existing BMS. Portions of the abandoned pneumatic control system were observed throughout the building, including the main compressor within the Boiler Room. It is recommended the pneumatic system and associated tubing and devices be removed completely. Any equipment that is replaced should be provided with DDC controls such that the Automatic Logic system can communicate with the new equipment. We also recommend upgrading the controls system to include full graphics, trending, and alarms to assist Building Personnel with monitoring energy use and with maintenance.

Fire Protection:

Fire Water Service

The existing building is not provided with an existing water service for Fire Protection systems. We recommend a new fire protection water service and applicable backflow preventor equipment be installed for sprinklering of the full building.

Fire Protection Systems

We recommend the entire school be provided with an automatic sprinkler system for full sprinkler coverage within the building. Occupied and conditioned spaces should be provided with wet-sprinkler systems. Unoccupied and unconditioned spaces should be provided with dry-sprinkler systems.

Fire Pump

Pending hydrant flow tests to provide data of available water pressure and flow to the building, a Fire Pump has been assumed as being required to provide sufficient pressure and flow to the proposed sprinkler system throughout the building.

Greenwich Public Schools
Engineering Narratives

Old Greenwich School Master Plan
OLA Project No. NKGD0171.00
August 4, 2017

Site Utilities:

Site Water
N/A.

Site Sanitary
N/A.

Site Gas
The school is provided with a single gas service that splits to two (2) gas meters and regulators at the exterior of the building.

Site Fuel Oil
The existing fuel oil system at the building has been partially demolished and abandoned in place. An underground fuel oil tank outside of the Boiler Room has been abandoned in place including the underground fuel oil supply and return piping to the boiler. It is recommended the abandoned fuel oil system be removed completely. It should be confirmed that the decommissioning of the underground fuel tank was done in the correct manner and all testing, local, state, and federal agency sign-offs were obtained.

Site Electrical
The electrical service for this school originates at a utility pole located at the northeast end of the property. The service is routed underground to a utility transformer located at the north end of the property where the voltage is stepped down to 208Y/120V, 3phase, 4 wire, and routed to a 1200-amp main service switch located in the utility room in the northeast corner of the building. The electrical service appears to be original and has not been upgraded recently. There will be a need for an electrical service upgrade to 2000 amps in the next 5 years due to the addition of AC for the entire school.

Site Storm Water
N/A.

Electrical/Fire Alarm/Lighting:

Interior Electric Distribution
The electrical distribution inside the school originates in the utility room in the northeast corner of the building where it is metered. The main switch is also located in this room and is rated for 1200 Amps at 208Y/120V, 3 phase, 4 wire. It then feeds the main distribution equipment which is located in the custodian's office adjacent to the utility room. The main distribution equipment should not be in a room shared with the custodian's office. There is currently some electrical circuit capacity in the main electrical equipment of the school. The distribution throughout the school consists of mainly ITE/Siemens equipment which appears to be over 30 years old and should be replaced to support additional loads. It is recommended that the service equipment is upgraded to 2000 amps and a new 800-amp panel is added for air conditioning in the next 5 years. It is also recommended that (4) 225-amp electrical panels are added throughout the school for circuit capacity for new technology.

Lighting Fixtures
The lighting fixtures throughout the school consists of mainly 2'x4' and 2'x2' fluorescent fixtures which would not be considered energy efficient by today's standards. The lighting fixtures should be replaced throughout the school with energy efficient LED lighting fixtures in the next 5 years. The exterior lights appear to be HID. They should also be replaced with LED fixtures in the next 5 years. Consideration should be given to installing energy efficient automatic controls such as occupancy and vacancy sensors throughout the building, with programmable time-based controls for exterior lighting within the next 5 years.

PA/Communications
The Public-Address System is a TOA (TOA Electronics Inc.) 700 series amplifier system, model A-724 and is approximately 20 years old and functioning. There are no current issues. The system should be replaced in the next 5-15 years with new technology and when additional expansion is required. The communications DATA/IT systems have been kept up to date but require regular maintenance and up keeping. New capacity is required as technology improves.

Fire Alarm and Smoke Detection
The current fire alarm system consists of a Notifier AFP-400 intelligent fire detection system with voice evacuation and is currently serviced by United Alarm Services, Inc.. There is full smoke detection coverage throughout the school. The system is approximately 20 years old and will need to be replaced within 5 years based on new technology and expansion of the system. Strobes should be added in classrooms to meet current code requirements.

Emergency and Exit Lighting
The emergency lighting is currently functioning. The exit lights appear to have fluorescent or incandescent lamps. The emergency and exit lights should be replaced with energy efficient LED fixtures throughout the school in the next 5 years.

Greenwich Public Schools

Engineering Narratives

Emergency/Standby Power

There is currently no emergency generator system for this building. A new generator is recommended to be installed for back-up power during utility outages to power entire facility in the next 5-15 years.

Plumbing:

Water Distribution

A 3-inch domestic water service enters the Boiler Room and is provided with a main house control valve, water meter, pressure reducing valve, and a reduced pressure zone (RPZ) backflow preventer. Pressure was observed at approximately 65 psi downstream of the RPZ. The RPZ catastrophic discharge drain terminates into an adjacent duplex sump pump pit. It is recommended the RPZ drain terminate above grade or into a gravity drainage system. If the drain must require a pumped discharge, it is recommended the respective pumps be provided with back-up power. Domestic water is distributed throughout the building through copper piping and utilizes the municipal water pressure. Domestic cold, hot, and hot water recirculation water piping is generally routed above ceilings with local branch piping dropping down within walls to serve fixtures. It is recommended all branch mains and branch piping serving individual fixtures be provided with lead-free ball shut-off valves.

A 1-inch RPZ is located within the Boiler Room for make-up water to the boiler system. The device was observed to have been last tested on July 27, 2016. The RPZ catastrophic discharge drain terminates into an adjacent duplex sump pump pit. It is recommended the RPZ drain terminate above grade or into a gravity drainage system. If the drain must require a pumped discharge, it is recommended the respective pumps be provided with back-up power.

Sanitary Drainage

The school sanitary main exits the building below grade. The sanitary mains exits through a pit below slab with a house-trap. Immediately exterior to the house trap is an underground pit with a check-valve installed on the sanitary main. It was brought to our attention that during periods of high tide and severe rainfalls, the building is subject to backups within the sanitary system and includes overflow and backup of the main house-trap and individual plumbing fixtures throughout the building. It was noted that additional sump pumps and generators are provided on-site during times of anticipated heavy rainfall and/or high tides. It is recommended the main sanitary system be snaked and/or scoped to confirm it is clear of any obstructions or blockages within the piping. Additional permanent sump pumps are recommended to be installed to assist in the remediation of flood waters and back-ups to the building. We recommend a review be performed by a Site Engineer to determine the exact cause of the back-ups into the sanitary piping within the building. Sanitary piping within the building consists of cast-iron hub-less piping.

A duplex sump pump and pit is located within the Boiler Room. It was undetermined at the time of our visit where the discharge of this pump terminates.

Storm Drainage

The school is provided with exterior gutters and leaders at the pitched roof areas. The leaders are routed below grade to an underground storm water main. It was not determined where this main terminates. Roof drains are provided at the flat roofs with internal storm drain piping routed down through the school and out below the building.

Hot Water Heaters

The school is provided domestic hot water through two (2) AO Smith gas-fired hot water heaters. The heaters are approximately 2 years old and appear to be in good condition. Expansion tanks are located at the floor adjacent to each hot water heater. It is recommended the expansion tanks be located up on a 4" curb for protection from water infiltration into the Boiler Room.

Plumbing Fixtures

The observed plumbing fixtures are of the non-water conserving type. The fixtures are generally in good condition. It is recommended plumbing fixtures be replaced and updated with new water-conserving type fixtures.

Gas

Gas is routed to the Boiler Room from the two (2) exterior gas meters. Gas piping is distributed within the Boiler Room to the two (2) boilers and two (2) domestic hot water heaters. Gas is distributed through the school to the Kitchen for cooking equipment.

Fuel Oil

The existing fuel oil system within the school has been partially demolished and abandoned in place. The fuel oil transfer pump and associated fuel oil supply and return piping within the Boiler Room has been abandoned in place. Fuel oil piping to the boiler burners has been partially demolished, capped, and abandoned in place. We recommend removal of all abandoned fuel oil equipment and piping.

Swimming Pool

N/A.

HVAC Systems:

Heating Systems

The original steam heating plant has been demolished with portions of steam heating elements remaining abandoned within the building. The existing heating system consists of two (2) HB Smith model 28A-10 sectional cast-iron hot water boilers with dual fuel burners. Each boiler has a rated gas input of 3,172 MBH. The oil piping to the burners has been cut, capped, and abandoned in place. We recommend removal of all abandoned fuel oil equipment and piping. The main boiler flue was observed to be installed with a Tjernlund assistance fan to modulate exhaust of the boilers through varying loads on the boilers. Two (2) B&G in-line primary pumps provide circulation through the boilers and two (2) B&G end-suction floor mounted secondary hot water circulating pumps provide hot water throughout the building. The secondary pumps are provided with VFD's for modulation with building heating demands. The system includes an expansion tank and in-line air separator located within the Boiler Room. The boilers and hot water pumps are approximately 10 years old and observed to be in good condition with no known problems. We recommended yearly preventative maintenance on the boiler system and associated equipment to maximize the life expectancy of the equipment. Combustion air is provided through ducts from the exterior to the boiler room.

Corridors throughout the building were observed with surface mounted hot water fin tube radiators (FTR) along the perimeter walls. The newer FTR enclosure have been installed over the original recessed steam heating coils within the wall construction. It is recommended

Greenwich Public Schools

Engineering Narratives

the steam heating elements and associated piping be removed and new FTR located within the wall cavity; providing additional usable square footage within the Corridors.

Classrooms, offices, and common spaces throughout the school are provided with hot water fin-tube radiators along the perimeter walls to provide heating to the space. The overall condition of this system is good.

Ventilation Systems

The school is provided with ventilation through various systems and equipment located throughout the building. Common areas, corridors, classrooms, and offices are provided with unit ventilators or fan coil units with a variety of 2-pipe and 4-pipe units. Hot water is routed to the hot water coil at each unit. The 4-pipe units chilled water coils are currently not utilized. Ventilation to the spaces is provided by louvers through the exterior walls with outside air ducted to the unit ventilators and fan coil units. The unit ventilators and fan coil units are approximately 40 years old and have exceeded their useful life expectancy. It is recommended new energy efficient heating and ventilating equipment be installed to serve the spaces.

The kitchen is provided with a dedicated make-up air unit and kitchen exhaust hood fan located at the flat roof. The Reznor gas-fired rooftop unit is in fair condition and appears to be approaching its useful life expectancy. It is recommended this unit be replaced in the near future with a more efficient unit. The Greenheck kitchen exhaust fan is in fair condition. We would recommend replacement of the kitchen exhaust fan at the same time the make-up air unit is replaced.

General exhaust fans and toilet exhaust fans are located throughout the school at the roof to provide exhaust from the spaces. The general condition of the fans is fair. It is recommended old fans be replaced with new, more efficient fans.

The Cafeteria is provided with ventilation through McQuay air-handling unit (AHU). The AHU is provided with a hot-water heating coil and outside air from an exterior louver. The AHU is in fair condition and approximately 15 years old. Consideration should be given to replacing this equipment with new energy efficient equipment.

The Gymnasium is provided with ventilation through a Trane AHU with a duct mounted hot water heating coil. Outside air is provided from an exterior louver. The AHU is approximately 45 years old and has exceeded its useful life expectancy. It is recommended a new energy efficient air-handling unit be installed to provide ventilation and heating to the gymnasium.

Air Conditioning Systems

The Classrooms are currently provided air conditioning with thru-window air conditioning units. The age of these units varies. It is recommended these units be removed and new energy efficient air conditioning equipment with energy recovery be installed to serve the Classrooms.

The Main Offices are provided with split system air conditioning units located throughout the offices. The outdoor condenser is supported from the exterior wall at the second level and was unable to be observed. The system is approximately 3-4 years old.

The Music Room and Art Room are provided with air conditioning with indoor air handling units above the ceiling. The outdoor Lennox condensers are located on the flat roof and supported on lengths of 4x4 wood lumber. The systems are approximately 20 years old and have exceeded their useful life expectancy. It is recommended new energy efficient air conditioning equipment with energy recovery be installed to serve these areas.

HVAC Controls

The school is currently provided with an Automatic Logic BMS system and a variety of Andover and Siemens control devices throughout the building. It was not confirmed as to the extent of equipment and systems throughout the building that are connected and controlled through the existing BMS. Portions of the abandoned pneumatic control system were observed throughout the building, including the main compressor within the Boiler Room. It is recommended the pneumatic system and associated tubing and devices be removed completely. Any equipment that is replaced should be provided with DDC controls such that the Automatic Logic system can communicate with the new equipment. We also recommend upgrading the controls system to include full graphics, trending, and alarms to assist Building Personnel with monitoring energy use and with maintenance.

Fire Protection:

Fire Water Service

The existing building is not provided with an existing water service for Fire Protection systems. We recommend a new fire protection water service and applicable backflow preventor equipment be installed for sprinklering of the full building.

Fire Protection Systems

Sprinkler heads, totaling less than ten (10) heads were observed within a storage room and within the Kitchen. The sprinkler heads are connected to the domestic water system within the building. We recommend these sprinkler heads be removed from the domestic system. We recommend the entire school be provided with an automatic sprinkler system for full sprinkler coverage within the building. Occupied and conditioned spaces should be provided with wet-sprinkler systems. Unoccupied and unconditioned spaces should be provided with dry-sprinkler systems.

Fire Pump

Pending hydrant flow tests to provide data of available water pressure and flow to the building, a Fire Pump has been assumed as being required to provide sufficient pressure and flow to the proposed sprinkler system throughout the building.

Greenwich Public Schools
Engineering Narratives

Parkway School Master Plan
OLA Project No. NKGD0171.00
August 15, 2017

Site Utilities:

Site Water
N/A.

Site Sanitary
N/A.

Site Gas
The school is provided with an above ground propane tank exterior to the building. The tank is installed on a concrete pad and observed to be in fair condition.

Site Fuel Oil
The school is provided with an existing underground fuel oil storage. The size and age of the tank is unknown. We recommend the removal and replacement of the underground fuel oil storage tank with a new above ground double-wall fuel oil storage tank. We recommend the underground fuel oil tank be removed completely. The decommissioning of the underground fuel tank should be conducted in the correct manner and all testing, local, state, and federal agency sign-offs should be obtained.

Site Electrical
The electrical service for this school originates from the utility company and is routed underground to a pad mounted utility transformer located on the northeast side of the property. The utility transformer steps the voltage down to 208Y/120V, 3 phase, 4 wire, and the service is then routed underground to the utility company CT cabinet located outside at the loading dock. From the CT cabinet, it appears that the service is split and routed overhead to a 1200A main service switch labelled “Building MDP”, located in the General Storage room, and an 800A panelboard in the adjacent IT room labelled “AC MDP”, that appears to serve various AC panels. The utility transformer label shows a receipt date of 11/18/02, indicating that the transformer had been installed within that last 15 years. Access to the service feeders between the transformer and CT cabinet could not be obtained at the time this survey, since only the utility company can access the transformer and CT cabinet. The main service switch line side feeders and fusing could not be verified because the switch was designed to provide access only when in the open position, and a building shutdown could not be performed. The main service switch load side feeders were verified to be two sets of 500MCM, rated for 800A total, and appear to have been installed when the generator and ATS were installed in 2005. There service has adequate capacity for the addition of AC for the entire school.

Site Storm Water
N/A.

Electrical/Fire Alarm/Lighting:

Interior Electric Distribution
The electrical distribution inside the school originates in the General Storage room on the northeast side of the building, where it is metered. The main switch is also located in this room and is rated for 1200 Amps at 208Y/120V, 3 phase, 4 wire. The existing fuse size could not be verified. The main switch then feeds an adjacent 800A automatic transfer switch (ATS), which feeds distribution panels on the adjacent wall in the same room. The General Storage room is used to store custodial equipment, trash bins, chairs, and tables, and most of this equipment had to be removed to access the distribution equipment. The main distribution equipment should not be in a room shared with this non-electrical equipment and should be readily accessible. This distribution equipment in the General Storage room consists of Lincoln Electric pull-out fuse panels and circuit breaker panelboards which appears to be over 50 years old and should be replaced in the next 5-15 years. Additional Eaton/Cutler-Hammer PRL1A panelboards were observed in some hallways and appear to be approximately 20 years old. These panels are in good condition. An additional AC panelboard was observed in the IT room adjacent to the General Storage room. This panelboard is a GE Spectra Series rated 800A at 208Y/120V, 3 phase, 4 wire, appears to serve various AC panels throughout the building, is in good condition, and appears to be less than 20 years old. Consideration should be made for the addition of (3) 225-amp electrical panels throughout the school for circuit capacity for new technology in the next 5-15 years.

Lighting Fixtures
The lighting fixtures throughout the school consist of mainly 2’ x 4’ and 2’ x 2’ fluorescent fixtures which are approximately 25 years old and would not be considered energy efficient by today’s standards. The lighting fixtures should be replaced throughout the school with energy efficient LED lighting fixtures in the next 5 years. The exterior lighting fixtures appear to be mostly HID, and some have been replaced with LED fixtures. The remaining HID fixtures should also be replaced with LED fixtures. Control for the interior lighting fixtures consists of mostly manual switches, and the recently upgraded bathrooms contained occupancy sensors. Control for the exterior fixtures consists of mainly traditional time clocks with override switches. Consideration should be given to installing energy efficient automatic controls such as occupancy and vacancy sensors throughout the building, with programmable time-based controls for exterior lighting, in the next 5 years.

PA/Comm
The Public-Address System is a Bogen Gold Seal Series amplifier system with microphone control and was installed within the past year. No issues were reported by school staff. The communications DATA/IT systems have been kept up to date and the phone system is approximately 5 years old. The phone system is separate from PA and can call individual rooms. The data/phone system is integrated to the IT server racks adjacent to the General Storage room. No capacity issues were reported.

Greenwich Public Schools

Engineering Narratives

Fire Alarm and Smoke Detection

The current fire alarm system is a Silent Knight Intelliknight 5820XL addressable system. The fire alarm control panel is located in the General Storage room and is approximately 5 years old. There appears to be smoke detection coverage throughout most the school. Combination horn/strobes were located in some common areas and some classrooms such as Band, Music, and Art rooms, however, strobes should be added in all classrooms to meet current Code requirements. No voice evacuation system was observed on site. The system is currently serviced by United Alarm Services, Inc. The majority of existing fire alarm devices appear to be over 15 years old and have exceeded their useful life. These devices should be replaced, and consideration should be given to a full system upgrade to incorporate new devices, additional strobes, and a voice evacuation system in the next 5 years.

Emergency and Exit Lighting

The emergency lighting is a combination of generator-backed lighting panels and stand-alone wallpacks located throughout the building. The wallpacks were tested and are operational. These wallpacks are antiquated incandescent type. The exit lights appear to have fluorescent or incandescent lamps. The wallpacks and exit lights should be replaced with energy efficient LED fixtures throughout the school in the next 5 years.

Emergency/Standby Power

The emergency generator system for this building consists of a Cummins/Onan standby generator located on the northeast side of the property, adjacent to the utility transformer. The generator is rated 150kW/187.5kVA, 208Y/120V, 3 phase, 4 wire with an 800A Merlin Gerin main circuit breaker, and feeds a Cummins/Onan ATS located in the General Storage room, adjacent to the main service switch. The ATS is rated 800A, 208Y/120V, 3 phase, 3 pole, 4 wire, and feeds the main distribution equipment, also located in the General Storage room. The generator appears to provide backup power to mainly lighting, receptacle, and heating loads throughout the building. The AC MDP panel serving various AC panels throughout the building does not appear to be on generator power. The generator and ATS are in good condition and are approximately 12 years old. Regular maintenance in accordance with manufacturer's instructions is recommended. The typical service life of a generator is approximately 30 years but varies with use and maintenance. Consideration should be given to replacing the generator in the next 5-15 years.

Plumbing:

Water Distribution

The well water system enters the school with a 3" main at the rear of the band room. A 4" shut-off valve is provided in the pump room. Domestic water is distributed throughout the building through copper piping and utilizes the well water pump pressure. Domestic cold, hot, and hot water recirculation water piping is generally routed above ceilings with local branch piping dropping down within walls to serve fixtures. It is recommended all branch mains and branch piping serving individual fixtures be provided with lead-free ball shut-off valves.

Sanitary Drainage

The school sanitary main exits the building below grade. Sanitary piping within the building consists of cast-iron hub-less piping. The system is routed to a septic system that is pumped/maintained every summer. There were no reported issues with the sanitary system at the time of our review.

Storm Drainage

The school is provided with exterior gutters and leaders at the pitched roof areas. The leaders are routed below grade to an underground storm water main. It was not determined where this main terminates. Roof drains are provided at the flat roofs with internal storm drain piping routed down through the school and out below the building. The roof was noted to experience periodic overflow of roof drains. We recommend this condition be investigated to mitigate the overflow issues being experienced.

Hot Water Heaters

The school is provided domestic hot water through one (1) Bradford White gas-fired hot water heater rated at 199 MBH input and 98 gallons storage. The heater was noted to be installed within the past few years and observed in good condition.

Plumbing Fixtures

The observed plumbing fixtures are of the non-water conserving type. The fixtures are generally in good condition. It is recommended plumbing fixtures be replaced and updated with new water-conserving type fixtures.

Gas

Propane gas is routed within the school to serve Kitchen cooking equipment and boiler pilot lights. There are no known issues with this system.

Fuel Oil

The existing fuel oil system is routed from the exterior underground fuel oil storage tank to a duplex fuel oil transfer pump within the boiler room. The duplex fuel oil transfer pump and associated fuel oil supply and return piping within the Boiler Room was observed in good condition.

Swimming Pool

N/A.

HVAC Systems:

Heating Systems

The existing heating system consists of two (2) HB Smith model 28A-10 sectional cast-iron hot water boilers with dual fuel burners. The boilers are approximately 12 years old. Two (2) end-suction floor mounted hot water circulating pumps provide hot water throughout the building. The pumps are provided with VFD's for modulation with building heating demands. The system includes an expansion tank and in-line air separator located within the Boiler Room. The boilers and hot water pumps were observed to be in good condition. We recommended yearly preventative maintenance on the boiler system and associated equipment to maximize the life expectancy of the equipment. Combustion air is provided through louvers and motorized dampers at the exterior wall of the boiler room. It is recommended the size of the louvers be confirmed to provide the required combustion air based on the installed gas-fired equipment within the Boiler Room

Parkway School is heated by unit ventilators in the classrooms and hydronic baseboard heat in the bathrooms. The unit ventilators are well past their expected service age and require replacement.

Greenwich Public Schools

Engineering Narratives

Ventilation Systems

As noted above, the unit ventilators serving the classrooms require replacement.

Air Conditioning Systems

The 5th Grade classrooms have packaged air conditioning units on the roof (eight units in total). All other classrooms have split type ductless air conditioning units. It is unknown the age of the split type units, but they appear to about 8-10 years old. It is recommended the units be removed and more energy efficient systems are installed.

The Gymnasium has three (3) packaged rooftop units that appear to be in good condition.

HVAC Controls

The school is currently provided with an Automatic Logic BMS system and a variety of Andover and Siemens control devices throughout the building. It was not confirmed as to the extent of equipment and systems throughout the building that are connected and controlled through the existing BMS. Any equipment that is replaced should be provided with DDC controls such that the Automatic Logic system can communicate with the new equipment. We also recommend upgrading the controls system to include full graphics, trending, and alarms to assist Building Personnel with monitoring energy use and with maintenance.

Fire Protection:

Fire Water Service

The existing building is not provided with an existing water service for Fire Protection systems. We recommend a new fire protection water service and applicable backflow preventor equipment be installed for sprinklering of the full building. If the municipal water utility cannot provide adequate water service to the building, water storage or hydro-pneumatic fire tanks should be installed to provide sufficient water storage for the fire protection system. The tanks shall be filled by the well-water system.

Fire Protection Systems

A sprinkler head was observed within a janitor closet. The sprinkler head was observed to be connected to the domestic water system within the building. We recommend this sprinkler head be removed from the domestic system. We recommend the entire school be provided with an automatic sprinkler system for full sprinkler coverage within the building. Occupied and conditioned spaces should be provided with wet-sprinkler systems. Unoccupied and unconditioned spaces should be provided with dry-sprinkler systems.

Fire Pump

Pending hydrant flow tests to provide data of available water pressure and flow to the building, a Fire Pump has been assumed as being required to provide sufficient pressure and flow to the proposed sprinkler system throughout the building.

Greenwich Public Schools
Engineering Narratives

Riverside School Master Plan
OLA Project No. NKGD0171.00
August 16, 2017

Site Utilities:

Site Water
N/A.

Site Sanitary
N/A.

Site Gas
The school is provided with a gas service that splits to two (2) gas meters and regulators at the exterior of the building within a fenced enclosure.

Site Fuel Oil
N/A.

Site Electrical
The electrical service for this school originates from the utility company and is routed underground to a pad mounted utility transformer located on the west side of the property. The utility transformer steps the voltage down to 208Y/120V, 3 phase, 4 wire, and the service is then routed underground to the Receiving/Storage Room located on the west side of the building where it is metered and distributed from. The main electrical service equipment is rated for 1600 Amps at 208Y/120V, 3 phase, 4 wire. The electrical service appears to be original and is adequate for the addition of AC for the entire school.

Site Storm Water
N/A.

Electrical/Fire Alarm/Lighting:

Interior Electric Distribution
The electrical distribution inside the school originates in the Receiving/Storage Room on the west side of the first floor. The main electrical equipment should be located in a dedicated electrical room, not a room used for storage and other purposes. The main electrical service equipment is rated for 1600 Amps at 208Y/120V, 3 phase, 4 wire. The main service equipment is manufactured by Siemens and I-T-E. The Siemens equipment appears to be approximately 20 years old while the I-T-E equipment appears to be approximately 50 years old. Consideration should be made for replacing this switchboard and adding (4) 225-amp electrical panels throughout the school for future IT expansion in the next 15 years.

Lighting Fixtures
The lighting throughout the school consist of mostly fluorescent and incandescent fixtures which would not be considered energy efficient by today’s standards. The lighting fixtures throughout the school should be replaced with energy efficient LED lighting fixtures in the next 5 years. The exterior lighting fixtures are mostly high intensity discharge (HID) fixtures which should also be replaced with LED lighting fixtures within the next 5 years. Control for the interior light fixtures consists of mostly manual switches with the exception of the bathrooms. It is our understanding that control for the exterior fixtures consists of mainly traditional time clocks with override switches. Consideration should be given to installing energy efficient automatic controls such as occupancy and vacancy sensors throughout the building, with programmable time-based controls for exterior lighting within the next 5 years.

PA/Communications
The Public-Address System should be replaced in the next 5-15 years with new technology and when additional expansion is required.

Fire Alarm and Smoke Detection
The current fire alarm control panel is an addressable panel manufactured by Honeywell. It is located in the Receiving/Storage Room with the main electrical equipment. The fire alarm system is serviced by United Alarm Service Inc. The panels appear to be in good condition. There appears to be smoke detector coverage throughout the school. Single person toilets did not contain strobe lights. The entire system should be replaced in the next 5-15 years with new technology and devices should be added to code required locations.

Emergency and Exit Lighting
The emergency lighting is a combination of stand-alone emergency wall-packs and integral batteries in regular lighting fixtures. The exit lights and stand-alone emergency wall packs appear to have incandescent or fluorescent lamps. It is recommended that the wall-packs and exit lights be replaced with LED energy efficient fixtures within the next 5 years.

Emergency/Standby Power
There is no back-up generator system for this building. Consideration should be given to installing a back-up generator in the next 15 years to power the entire facility during electric utility outages.

Plumbing:

Water Distribution
A 4-inch water service enters the school boiler room and splits to a domestic and fire protection water main. The 4” domestic water reduces to 1” with a 1” water meter. The 1” domestic water main then increases up to a 3” main with a pressure reducing valve and reduced pressure zone (RPZ) backflow preventer. We recommend review of the section of 1” domestic water main to provide sufficient water to the school. A 1-inch RPZ is located within the Boiler Room for make-up water to the boiler system.

Greenwich Public Schools

Engineering Narratives

Sanitary Drainage

The school sanitary main exits the building below grade. Sanitary piping within the building consists of cast-iron hub-less piping. There were no reported issues with the sanitary system at the time of our review.

Storm Drainage

The school is provided with exterior gutters and leaders at the pitched roof areas. The leaders are routed below grade to an underground storm water main. It was not determined where this main terminates. Roof drains are provided at the flat roofs with internal storm drain piping routed down through the school and out below the building. Roof drains are provided at the flat roofs with internal storm drain piping routed down through the school and out below the building.

Hot Water Heaters

The school is provided domestic hot water through one (1) Lochinvar gas-fired hot water heater rated at 180 MBH input and associated storage tank. The heater was observed to be old and in poor condition. We recommend the heater be replaced in the foreseeable future.

Plumbing Fixtures

Bathrooms were observed to have been recently renovated throughout the school. It should be confirmed the newly installed fixtures and faucets, flushometers, etc.; are of the water-conserving type.

Gas

Gas is routed to the Boiler Room from the exterior gas meters. Gas piping is distributed within the Boiler Room to the three (3) boilers and a domestic hot water heater. Gas is distributed through the building to the Kitchen for cooking equipment.

Fuel Oil

N/A.

Swimming Pool

N/A.

HVAC Systems:

Heating Systems

The existing heating system consists of three (3) HydroTherm model KN-20 hot water boilers with gas-fired burners. Each boiler has a rated gas input of 1,999 MBH. Two (2) end-suction floor mounted hot water circulating pumps provide hot water throughout the building. The pumps are provided with VFD's for modulation with building heating demands. The system includes an expansion tank and in-line air separator located within the Boiler Room. The boilers and hot water pumps are approximately 7 years old and were observed to be in good condition. We recommended yearly preventative maintenance on the boiler system and associated equipment to maximize the life expectancy of the equipment. Combustion air is provided through louvers and motorized dampers at the exterior wall of the boiler room. It is recommended the size of the louvers be confirmed to provide the required combustion air based on the installed gas-fired equipment within the Boiler Room.

Classrooms, offices, and common spaces throughout the school are provided with hot water to unit ventilators along the perimeter walls to provide heating to the space. The overall condition of this system is fair.

Ventilation Systems

Classrooms and offices are provided with unit ventilators along the perimeter floor. The units are ducted to outside air louvers at the exterior wall of the classroom. The equipment is approximately 12-15 years old and has exceeded its useful life expectancy. We recommend replacement of the equipment with new, efficient units.

The kitchen is provided with a dedicated make-up air unit and kitchen exhaust hood fan located at the flat roof. The Reznor gas-fired rooftop unit is in fair condition and appears to be approaching its useful life expectancy. It is recommended this unit be replaced in the near future with a more efficient unit. The Greenheck kitchen exhaust fan is in fair condition. We would recommend replacement of the kitchen exhaust fan at the same time the make-up air unit is replaced.

The gymnasium is provided ventilation through utility type exhaust fans located below the stage. The equipment was observed to be old and in poor condition. We recommend replacement of this equipment in the future.

General exhaust fans and toilet exhaust fans are located throughout the school at the roof to provide exhaust from the spaces. The general condition of the fans is fair. It is recommended old fans be replaced with new, more efficient fans.

Air Conditioning Systems

The classrooms throughout the "old wing" of the school are currently provided air conditioning with a mix of thru-window air conditioning units and duct-less split systems. The age of these units varies. It is recommended these units be removed and new energy efficient air conditioning equipment with energy recovery be installed to serve the Classrooms.

The classrooms throughout the "new wing" of the school are currently provided air conditioning by (3) three Carrier indoor air handlers and associated outdoor air-cooled condensers located at the roof above. The equipment was observed in fair condition, however is recommended to be replaced with newer, more efficient equipment.

The Baltimore Air Coil cooling tower located on the roof was observed to provide condenser water to unit ventilators and various equipment throughout the building. The cooling tower was observed in poor condition and appeared to be restricted proper air-flow to the unit. It is recommended the cooling tower be removed and more efficient equipment/systems be installed.

Greenwich Public Schools

Engineering Narratives

HVAC Controls

The school is currently provided with an Automatic Logic BMS system and a variety of Andover and Siemens control devices throughout the building. It was not confirmed as to the extent of equipment and systems throughout the building that are connected and controlled through the existing BMS. Portions of the abandoned pneumatic control system were observed throughout the building, including the main compressor within the Boiler Room. It is recommended the pneumatic system and associated tubing and devices be removed completely. Any equipment that is replaced should be provided with DDC controls such that the Automatic Logic system can communicate with the new equipment. We also recommend upgrading the controls system to include full graphics, trending, and alarms to assist Building Personnel with monitoring energy use and with maintenance.

Fire Protection:

Fire Water Service

A 4" fire protection water services enters the school at the boiler room and is provided with a main house control valve and a 4" double check detector assembly (DCDA) backflow preventer.

Fire Suppression Systems

The existing school is partially sprinkler within the areas of the basement storage and the Old Wing. We recommend the existing sprinkler system be expanded and the entire school be provided with an automatic sprinkler system for full sprinkler coverage within the school. Occupied and conditioned spaces should be provided with wet-sprinkler systems. Unoccupied and unconditioned spaces should be provided with dry-sprinkler systems.

Fire Pump

Pending hydrant flow tests to provide data of available water pressure and flow to the building, a Fire Pump has been assumed as being required to provide sufficient pressure and flow to the proposed sprinkler system throughout the building.

Greenwich Public Schools
Engineering Narratives

Central Middle School Master Plan
OLA Project No. NKGD0171.00
August 4, 2017

Site Utilities:

Site Water
N/A.

Site Sanitary
N/A.

Site Gas
The school is provided with a single gas service that splits to two (2) gas meters and regulators at the exterior of the building.

Site Fuel Oil
The school is provided with an existing underground fuel oil storage tank. The size and age of the tank is unknown. We recommend the removal and replacement of the underground fuel oil storage tank with a new above ground double-wall fuel oil storage tank. We recommend the underground fuel oil tank be removed completely. The decommissioning of the underground fuel tank should be conducted in the correct manner and all testing, local, state, and federal agency sign-offs should be obtained.

Site Electrical
The electrical service for this school originates from the utility company and is routed underground to a pad mounted utility transformer located on the west side of the property by the basketball courts. The utility transformer steps the voltage down to 208Y/120V, 3 phase, 4 wire, and the service is then routed underground to the utility company current transformer (CT) cabinet located in the Trans. Room. The Trans. Room could not be accessed during the time of the survey, however, facility personnel stated the CT cabinet and the main service disconnect switch are located in the Trans. Room. Adjacent to the Trans. Room is the Switch Room which contains the main switchboard, automatic transfer switch (ATS) for the standby generator, and other electrical equipment. The main service feeders could not be verified, however the main electrical service equipment is rated for 800 Amps at 208Y/120V, 3 phase, 4 wire. There will be a need for an electrical service upgrade to 2000 amps in the next 5 years due to the addition of AC for the entire school.

Site Storm Water
N/A.

Electrical/Fire Alarm/Lighting:

Interior Electric Distribution
The electrical distribution inside the school originates in the Trans. Room on the west side of the building, where it is metered. According to facility personnel, the main service switch is also located in this room, however we were unable to access the room, so the rating of the switch remains unknown. Adjacent the Trans. Room is the Switch Room containing the main switchboard, the ATS and other electrical equipment. The main switchboard is rated for 800A, 208Y/120V, 3 phase, 4 wire and appears to be in good condition. It has a manufacturer's date of 12/1998, indicating that the switchboard was made within the last 20 years. The main switchboard is a Cutler-Hammer Pow-R-Line C PRL4 switchboard with several distribution circuit breakers serving electrical panels and equipment throughout the school. There are some spare circuit breakers in the main switchboard which could be used for future loads. It is recommended that the service equipment is upgraded to 2000 amps and a new 800-amp panel is added for air conditioning in the next 5 years. It is also recommended that (5) 225-amp electrical panels are added throughout the school for circuit capacity for new technology.

Lighting Fixtures
The lighting fixtures throughout the school consist of mainly 2' x 4' and 2' x 2' fluorescent fixtures which would not be considered energy efficient by today's standards. According to facility personnel, the lighting fixtures were replaced about 5 years ago but are now obsolete, and it has been very difficult and expensive to get replacement parts. The lighting fixtures throughout the school should be replaced with energy efficient LED lighting fixtures in the next 5 years. According to facility personnel, the exterior lights have already been replaced with LED lighting fixtures. Control for the interior light fixtures consists of mostly manual switches. It is our understanding that control for the exterior fixtures consists of mainly traditional time clocks with override switches. Consideration should be given to installing energy efficient automatic controls such as occupancy and vacancy sensors throughout the building, with programmable time-based controls for exterior lighting within the next 5 years.

PA/Comm
The Public-Address System is a Simplex Building Communication Systems 5100 series with microphone input. No issues with the Public-Address System have been reported. The system should be replaced in the next 5-15 years with new technology and when additional expansion is required.

Greenwich Public Schools

Engineering Narratives

Fire Alarm and Smoke Detection

The current fire alarm system is a Fire-Lite MS-9600UDLS addressable fire alarm control system by Honeywell integrated with a Cooper Wheelock Safepath 4 voice evacuation system. The fire alarm control panel and voice evacuation panel is located in the Custodian's Room towards the south of the building on the first floor. According to facility personnel, the system was replaced 5 years ago along with the lighting fixtures and drop ceilings. There appears to be smoke detector coverage throughout most of the building. There are heat detectors in the bathrooms and strobe lights in the bathrooms in classrooms. The system is currently serviced by Integrated Technical Systems Inc. The system should be replaced in the next 5-15 years with new technology and when additional expansion is required.

Emergency and Exit Lighting

The emergency lighting is a combination of stand-alone emergency wall-packs and integral batteries in regular lighting fixtures. The exit lights and stand-alone emergency wall packs appear to have incandescent or fluorescent lamps. It is recommended that the wall-packs and exit lights be replaced with LED energy efficient fixtures within the next 5 years. It is also recommended that when the regular fluorescent lighting fixtures are replaced with LED lighting fixtures, integral emergency batteries are specified.

Emergency/Standby Power

There is a natural gas standby generator rated 13kW, 208Y/120V, 3 phase, 4 wire, located in the Emergency Generator Room within the Mechanical Room on the ground floor. The generator is manufactured by Kohler and has a manufacturer's date of 08/2007 indicating that the generator is approximately 10 years old. The ATS and generator electrical panel are located in the Switch Room within the Mechanical Room. According to the directory on the generator electrical panel, the generator provides back-up power for multiple data rooms throughout the school and sump pumps for the boiler and crawl space. The generator and ATS are in good condition. Regular maintenance in accordance with manufacturer's instructions is recommended. Consideration should be given to adding a new generator to back-up the entire school in the next 5-15 years.

Plumbing:

Water Distribution

A 3-inch domestic water service enters at a crawl space within the Boiler Room. The domestic water service is provided with a shut-off valve and meter. A reduced pressure zone (RPZ) backflow preventer was not observed installed on the water service. We recommend proper backflow prevention devices be installed on the water service. Domestic water is distributed throughout the building through copper piping and utilizes the municipal water pressure. Domestic cold, hot, and hot water recirculation water piping is generally routed above ceilings with local branch piping dropping down within walls to serve fixtures. It is recommended all branch mains and branch piping serving individual fixtures be provided with lead-free ball shut-off valves. A 1-inch RPZ is located within the Boiler Room for make-up water to the boiler system.

Sanitary Drainage

The school sanitary main exits the building below grade. Sanitary piping within the building consists of cast-iron hub-less piping. There were no reported issues with the sanitary system at the time of our review.

Storm Drainage

The school is provided with exterior gutters and leaders at the pitched roof areas. The leaders are routed below grade to an underground storm water main. It was not determined where this main terminates. Roof drains are provided at the flat roofs with internal storm drain piping routed down through the school and out below the building.

Hot Water Heaters

The school is provided domestic hot water through one (1) Lochnivar gas-fired hot water boiler and two (2) vertical domestic hot water storage tanks. The domestic boiler and hot water storage tanks appear to be in fair condition.

Plumbing Fixtures

Bathrooms throughout the school were observed to have been recently renovated. The fixtures are generally in good condition and observed with water conserving type faucets and flushometers.

Gas

Gas is routed to the Boiler Room from the exterior gas meters. Gas piping is distributed within the Boiler Room to the two (2) boilers and a domestic hot water boiler. Gas is distributed through the building to science classrooms and to the Kitchen for cooking equipment.

Fuel Oil

The existing fuel oil system is routed from the exterior underground fuel oil storage tank to a duplex fuel oil transfer pump within the boiler room. The duplex fuel oil transfer pump and associated fuel oil supply and return piping within the Boiler Room was observed in good condition.

Swimming Pool

N/A.

HVAC Systems:

Heating Systems

The existing heating system consists of two (2) HB Smith model 28HE-10 sectional cast-iron hot water boilers with dual fuel burners. Each boiler has a rated gas input of 3,033 MBH. Two (2) end-suction floor mounted hot water circulating pumps provide hot water throughout the building. The pumps are provided with VFD's for modulation with building heating demands. The system includes an expansion tank and in-line air separator located within the Boiler Room. The boilers and hot water pumps are approximately 10 years old and observed to be in good condition with no known problems. We recommended yearly preventative maintenance on the boiler system and associated equipment to maximize the life expectancy of the equipment. Combustion air is provided through louvers and motorized dampers at the exterior wall of the boiler room. It is recommended the size of the louvers be confirmed to provide the required combustion air based on the installed gas-fired equipment within the Boiler Room.

The school "old wing" is heated through three (3) central rooftop units (RTU) at the roof with hot water heating coils. Additionally, perimeter fin tube radiation (FTR) and cabinet unit heaters are provided throughout the building along exterior walls and stairs.

Greenwich Public Schools

Engineering Narratives

The school “new wing” is primarily heated through individual unit ventilator heat pumps with associated seven (7) heat pump air-cooled condensing units located at the roof above. The overall condition of the heating system was observed to be in fair condition.

Ventilation Systems

The “old wing” is provided ventilation through central RTU’s which are ducted throughout the school.

The “new wing” is provided ventilation through individual unit ventilators at each classroom with outside air louvers through the exterior wall.

General exhaust fans and toilet exhaust fans are located throughout the school at the roof to provide exhaust from the spaces. The general condition of the fans are fair. It is recommended old fans be replaced with new, more efficient fans.

Air Conditioning Systems

The “old wing” classrooms are currently provided air conditioning with thru-window air conditioning units. The age of these units varies. It is recommended these units be removed and new energy efficient air conditioning equipment with energy recovery be installed to serve the Classrooms.

The “new wing” classrooms are provided air conditioning with unit ventilator heat pumps and associated condensing units located at the roof above.

HVAC Controls

The school is currently provided with an Automatic Logic BMS system and a variety of Andover and Siemens control devices throughout the building. It was not confirmed as to the extent of equipment and systems throughout the building that are connected and controlled through the existing BMS. Portions of the abandoned pneumatic control system were observed throughout the building, including the main compressor within the Boiler Room. It is recommended the pneumatic system and associated tubing and devices be removed completely. Any equipment that is replaced should be provided with DDC controls such that the Automatic Logic system can communicate with the new equipment. We also recommend upgrading the controls system to include full graphics, trending, and alarms to assist Building Personnel with monitoring energy use and with maintenance.

Fire Protection:

Fire Water Service

The existing building is not provided with an existing water service for Fire Protection systems. We recommend a new fire protection water service and applicable backflow preventor equipment be installed for sprinklering of the full building.

Fire Protection Systems

Sprinkler heads, totaling less than four (4) heads were observed within each storage room in the two (2) “new wing” science classrooms. The sprinkler heads are connected to the domestic water system within the building. We recommend these sprinkler heads be removed from the domestic system. We recommend the entire school be provided with an automatic sprinkler system for full sprinkler coverage within the building. Occupied and conditioned spaces should be provided with wet-sprinkler systems. Unoccupied and unconditioned spaces should be provided with dry-sprinkler systems.

Fire Pump

Pending hydrant flow tests to provide data of available water pressure and flow to the building, a Fire Pump has been assumed as being required to provide sufficient pressure and flow to the proposed sprinkler system throughout the building.

Greenwich Public Schools
Engineering Narratives

Eastern Middle School Master Plan
OLA Project No. NKGD0171.00
August 4, 2017

Site Utilities:

Site Water
N/A.

Site Sanitary
N/A.

Site Gas
The school is provided with a single gas service that splits to two (2) gas meters and regulators at the exterior of the building.

Site Fuel Oil
The school is provided with an existing underground fuel oil storage tank. The size and age of the tank is unknown. We recommend the removal and replacement of the underground fuel oil storage tank with a new above ground double-wall fuel oil storage tank. We recommend the underground fuel oil tank be removed completely. The decommissioning of the underground fuel tank should be conducted in the correct manner and all testing, local, state, and federal agency sign-offs should be obtained.

Site Electrical
The electrical service for this school originates from the utility company and is routed underground to a pad mounted utility transformer. The utility transformer steps the voltage down to 208Y/120V, 3 phase, 4 wire, and the service is then routed underground to the utility company CT cabinet located in the ATS room. From the CT cabinet, the service is routed to a 1600A main service switch and distribution board in the Electrical room. There will be a need for an electrical service upgrade to 2500 amps in the next 5 years due to the addition of AC for the entire school.

Site Storm Water
N/A.

Electrical/Fire Alarm/Lighting:

Interior Electric Distribution
The electrical distribution inside the school originates in the Electrical room. The main switch is located in this room and is rated for 1600 Amps at 208Y/120V, 3 phase, 4 wire. The main switch feeds the Main Distribution Board which feeds the old distribution board located in the old electric room and panelboards throughout the school. The main switch and the main distribution board appear to have been installed within the last five years and are in good condition. The old distribution board in the old electrical room appears to be more than 50 years old. There is currently some electrical expansion capacity in the main electrical equipment of the school. The distribution throughout the school consists of mainly Metropolitan Electric equipment which appears to be over 30 years old. It is recommended that the service equipment is upgraded to 2500 amps and a new 800-amp panel is added for air conditioning in the next 5 years. It is also recommended that (5) 225-amp electrical panels are added throughout the school for circuit capacity for new technology.

Lighting Fixtures
The lighting fixtures in common spaces of the school consist of mainly 2' x 4' and 2' x 2' fluorescent fixtures which are approximately 25 years old. Most of the lighting fixtures in the classrooms consist of suspended linear fluorescent lighting fixtures that appear to have been recently installed. None of the lighting fixtures would be considered energy efficient by today's standards. The lighting fixtures should be replaced throughout the school with energy efficient LED lighting fixtures in the next 5 years. The exterior lighting fixtures appear to be mostly LED, but some are still HID. The remaining HID fixtures should be replaced with LED fixtures in the next 5 years. Control for the interior lighting fixtures consists of mostly manual switches, while the recently upgraded bathrooms contain occupancy sensors. Control for the exterior fixtures consists of mainly traditional time clocks with override switches. Consideration should be given to installing energy efficient automatic controls such as occupancy and vacancy sensors throughout the building, with programmable time-based controls for exterior lighting, within the next 5 years.

PA/Comm
The Public-Address System appears to be more than 40 years old and has reached its lifetime service. The clock system is a MidWest Time Control Inc product which appears to be more than 30 years old. No issues were reported by school staff. The system should be replaced in the next 0-5 years with new technology and when additional expansion is required.

Greenwich Public Schools

Engineering Narratives

Fire Alarm and Smoke Detection

The current fire alarm system is an Edwards EST2 addressable system with voice evacuation and is currently serviced by United Alarm Services, Inc. There appears to be smoke detection coverage throughout most of the school. Combination horn/strobes were located in some common areas. The fire alarm control panel is located in the Storage Room and is approximately 15 years old. Replacement parts for this equipment may be difficult to obtain. The majority of existing fire alarm devices appear to be over 15 years old and have exceeded their useful life. These devices should be replaced, and consideration should be given to a full system upgrade to incorporate new devices and additional strobes in the next 5 years.

Emergency and Exit Lighting

The emergency lighting consists of stand-alone wallpacks located throughout the building with the exception of the kitchen. The wallpacks are antiquated incandescent type and are still operational. The exit lights appear to have fluorescent or incandescent lamps. The wallpacks and exit lights should be replaced with energy efficient LED fixtures throughout the school and fixtures should be added as needed for proper coverage in the next 5 years.

Emergency/Standby Power

The emergency generator system for this building consists of a Cummins standby generator and is rated 352kW/440kVA, 208Y/120V, 3 phase, 4 wire, and feeds an ASCO 7000 Power transfer Switch located in ATS room. The ATS is rated 1600A, 208Y/120V, 3 phase, 3 pole, 4 wire, and feeds the main distribution equipment, located in the Electrical room. The generator appears to back up the entire school. The generator and ATS are in good condition and are approximately 5 years old. Regular maintenance in accordance with manufacturer's instructions is recommended. Consideration should be given to adding a new generator to back up the entire school at the new service size in the next 5-15 years.

Plumbing:

Water Distribution

A 4-inch domestic water service enters at a crawl space within the Boiler Room. The domestic water service is provided with a shut-off valve and meter. A reduced pressure zone (RPZ) backflow preventer was not observed installed on the water service. We recommend proper backflow prevention devices be installed on the water service. Domestic water is distributed throughout the building through copper piping and utilizes the municipal water pressure. Domestic cold, hot, and hot water recirculation water piping is generally routed above ceilings with local branch piping dropping down within walls to serve fixtures. It is recommended all branch mains and branch piping serving individual fixtures be provided with lead-free ball shut-off valves. A 1-inch RPZ is located within the Boiler Room for make-up water to the boiler system.

Sanitary Drainage

The building sanitary main is routed to a sump pit with duplex sewage ejector pumps within the boiler room. The sewage is pumped out through the building below grade. Sanitary piping within the building consists of cast-iron hub-less piping. There were no reported issues with the sanitary system at the time of our review.

Storm Drainage

The school is provided with exterior gutters and leaders at the pitched roof areas. The leaders are routed below grade to an underground storm water main. It was not determined where this main terminates. Roof drains are provided at the flat roofs with internal storm drain piping routed down through the school and out below the building.

Hot Water Heaters

The school is provided domestic hot water through one (1) AO Smith gas-fired hot water heater rated at 300 MBH input and 200 gallons storage. The heater is approximately 19 years old has exceeded its useful life expectancy. We recommend replacing the hot water heater with a new more efficient heater.

Plumbing Fixtures

The observed plumbing fixtures are of the non-water conserving type. The fixtures are generally in good condition. It is recommended plumbing fixtures be replaced and updated with new water-conserving type fixtures.

Gas

Gas is routed to the Boiler Room from the exterior gas meters. Gas piping is distributed within the Boiler Room to the three (3) boilers and a domestic hot water heater. Gas is distributed through the building to the Kitchen for cooking equipment.

Fuel Oil

The existing fuel oil system is routed from the exterior underground fuel oil storage tank to a duplex fuel oil transfer pump within the boiler room. The duplex fuel oil transfer pump and associated fuel oil supply and return piping within the Boiler Room was observed in poor condition.

Swimming Pool

N/A.

HVAC Systems:

Heating Systems

The existing heating system consists of two (2) HB Smith model 28A-10 sectional cast-iron hot water boilers with dual fuel burners. The boilers are approximately 12 years old. Two (2) end-suction floor mounted hot water circulating pumps provide hot water throughout the building. The pumps are provided with VFD's for modulation with building heating demands. The system includes an expansion tank and in-line air separator located within the Boiler Room. The boilers and hot water pumps were observed to be in good condition.

Ventilation Systems

The old wing has central air handling units that provide heating and ventilation throughout. The gymnasium also has heating and ventilation units.

The new wing has unit ventilators for ventilation.

Greenwich Public Schools

Engineering Narratives

Air Conditioning Systems

The Classrooms in the old wing have window air conditioning units. The classrooms in the new wing have cooling provided by the unit ventilators (heat pumps)

The Auditorium has a recently installed water cooled packaged unit and a cooling tower.

Then Library has two (2) large split type units that are approximately 18 years old and should be replaced.

HVAC Controls

The school is currently provided with an Automatic Logic BMS system and a variety of Andover and Siemens control devices throughout the building. It was not confirmed as to the extent of equipment and systems throughout the building that are connected and controlled through the existing BMS. Portions of the abandoned pneumatic control system were observed throughout the building, including the main compressor within the Boiler Room. It is recommended the pneumatic system and associated tubing and devices be removed completely. Any equipment that is replaced should be provided with DDC controls such that the Automatic Logic system can communicate with the new equipment. We also recommend upgrading the controls system to include full graphics, trending, and alarms to assist Building Personnel with monitoring energy use and with maintenance.

Fire Protection:

Fire Water Service

A 4" fire protection water services enters the basement storage room and is provided with a main house control valve and a 4" Watts double check detector assembly (DCDA) backflow preventer. The device was observed in good condition and should be tested annually.

Fire Protection Systems

The existing school is currently partially sprinklered within the areas of the basement storage only. We recommend the sprinkler system be expanded to provide sprinkler coverage throughout the full building. Occupied and conditioned spaces should be provided with wet-sprinkler systems. Unoccupied and unconditioned spaces should be provided with dry-sprinkler systems.

Fire Pump

Pending hydrant flow tests to provide data of available water pressure and flow to the building, a Fire Pump has been assumed as being required to provide sufficient pressure and flow to the proposed sprinkler system throughout the building.

Greenwich Public Schools
Engineering Narratives

Western Middle School Master Plan
OLA Project No. NKGD0171.00
August 4, 2017

Site Utilities:

Site Water
N/A.

Site Sanitary
N/A.

Site Gas
The school is provided with a gas service that splits to two (2) gas meters and regulators at the exterior of the building within a fenced enclosure.

Site Fuel Oil
The school is provided with an existing underground fuel oil storage tank. The size and age of the tank is unknown. We recommend the removal and replacement of the underground fuel oil storage tank with a new above ground double-wall fuel oil storage tank. We recommend the underground fuel oil tank be removed completely. The decommissioning of the underground fuel tank should be conducted in the correct manner and all testing, local, state, and federal agency sign-offs should be obtained.

Site Electrical
The two electrical services for this school originate at a utility transformer located at the north end of the property where the voltage is stepped down to 208Y/120V, 3phase, 4 wire. Service 1 is routed to the 1600-amp main service switch located in electrical room of the Main Building and service 2 is routed to the 1200-amp main service switch located in Wing W. Service 1 was upgraded in the last five years and service 2 appears to be original. Between the two services there is adequate capacity for the addition of AC for the entire school.

Site Storm Water
N/A.

Electrical/Fire Alarm/Lighting:

Interior Electric Distribution
The electrical distribution inside the school originates from two different electrical rooms, each separately metered. The main service switch 1, rated for 1600 Amps at 208Y/120V, 3 phase, 4 wire and located in the basement, feeds the Main Building. The main service switch 2, rated for 1200 Amps, 208V/120V, 3 phase, 4 wire and located in Mechanical room at lower level, feeds wing W. The service switch 1 and MDB1 are in good condition while service switch 2 and MDB 2 appear to be original. There is currently some electrical circuit capacity in the main electrical equipment of the school. The distribution throughout the school consists of mainly Square D and GE equipment that appears to be over 20 years old. Consideration should be made for adding (5) 225 Amp electrical panels throughout the school for circuit capacity for new technology in the next 5-15 years.

Lighting Fixtures
The lighting fixtures throughout the school consists of mainly 2’x4’ and 2’x2’ fluorescent fixtures which would not be considered energy efficient by today’s standards. The lighting fixtures should be replaced throughout the school with energy efficient LED lighting fixtures in the next 5 years. The exterior lights appear to be HID lighting fixtures. They should also be replaced with LED fixtures in the next 5 years. Control for the interior lighting fixtures consists of manual switches and some automatic controls in classrooms. Controls for the exterior fixtures consists of mainly traditional time clocks with override switches. Consideration should be given to installing energy efficient automatic controls such as occupancy and vacancy sensors throughout the building, with programmable time-based controls for exterior lighting within the next 5 years.

PA/Comm
The Public-Address System is a TOA (TOA Electronics Inc.) product and is approximately 10 years old. No issues were reported. The system should be replaced in the next 5-15 years with new technology and when additional expansion is required.

Fire Alarm and Smoke Detection
The current fire alarm system consists of an Edwards EST3 fire detection system with voice evacuation. There is full smoke detection coverage throughout the school. The majority of existing fire alarm devices appear to be over 15 years old and have exceeded their useful life. These devices should be replaced, and consideration should be given to a full system upgrade to incorporate new devices, additional strobes. The system should be replaced in the next 5 years with new technology and when additional expansion is required.

Emergency and Exit Lighting
The emergency lighting is currently functioning and consists of dedicated ceiling mounted lighting fixtures fed from the generator-backed emergency panel. The lights will need to be replaced within 5 years. The exit lights appear to have fluorescent or incandescent lamps. They should be replaced with energy efficient LED fixtures throughout the school.

Emergency/Standby Power
The emergency generator system for this building consists of an Onan standby generator located at the basement of the main building, adjacent to the electrical room. The generator is rated 15kW, 208Y/120V, 3 phase, 4 wire, and feeds an Onan ATS located in the same room. The ATS is rated 100A, 208Y/120V, 3 phase, 3 pole, 4 wire, and feeds two emergency panels. The generator appears to provide backup power to mainly lighting in the Main Building and Wing W. The generator and ATS are approximately 25 years old and consideration should be given to replacing this equipment or installing a new generator to back-up the entire school in the next 5-15 years.

Greenwich Public Schools

Engineering Narratives

Plumbing:

Water Distribution

A 4-inch domestic water service enters at the basement storage room. The domestic water service is provided with a shut-off valve and meter. A reduced pressure zone (RPZ) backflow preventer was not observed installed on the water service. We recommend proper backflow prevention devices be installed on the water service. Domestic water is distributed throughout the building through copper piping and utilizes the municipal water pressure. Domestic cold, hot, and hot water recirculation water piping is generally routed above ceilings with local branch piping dropping down within walls to serve fixtures. It is recommended all branch mains and branch piping serving individual fixtures be provided with lead-free ball shut-off valves. A 1-inch RPZ is located within the Boiler Room for make-up water to the boiler system.

Sanitary Drainage

The school sanitary main exits the building below grade. Sanitary piping within the building consists of cast-iron hub-less piping. There were no reported issues with the sanitary system at the time of our review.

Storm Drainage

The school is provided with exterior gutters and leaders at the pitched roof areas. The leaders are routed below grade to an underground storm water main. It was not determined where this main terminates. Roof drains are provided at the flat roofs with internal storm drain piping routed down through the school and out below the building.

Hot Water Heaters

The school is provided domestic hot water through one (1) AO Smith gas-fired hot water heater rated at 199 MBH input and 81 gallons storage. The heater is approximately 4 years old and observed in good condition. The domestic hot water system is provided with a central thermostatic mixing valve located adjacent to the heater. The mixing valve was observed in fair condition. We recommend replacement of the mixing valve in the near future.

Plumbing Fixtures

The observed plumbing fixtures are of the non-water conserving type. The fixtures are generally in good condition. It is recommended plumbing fixtures be replaced and updated with new water-conserving type fixtures.

Gas

Gas is routed to the Boiler Room from the exterior gas meters. Gas piping is distributed within the Boiler Room to the two (2) boilers and one (1) domestic hot water heater. Gas is distributed through the building to the Kitchen for cooking equipment.

Fuel Oil

The existing fuel oil system is routed from the exterior underground fuel oil storage tank to a duplex fuel oil transfer pump within the boiler room. The duplex fuel oil transfer pump and associated fuel oil supply and return piping within the Boiler Room was observed in good condition.

Swimming Pool

N/A.

HVAC Systems:

Heating Systems

The existing heating system consist of two (2) HB Smith boilers, each rated at 2,531 mbh. The boilers are 10 years old and appear to be in good condition. The hot water heating pumps are 15 years old and approaching the end of their service life. All except the new W wing use steam. There is a steam to hot water heat exchanger for the W wing. There have been issues with the condensate return in areas furthest from the boiler room. A new condensate pump should be installed to alleviate this problem.

Ventilation Systems

All of the class rooms, except in W wing, have heating and ventilation only. There is a central air handling unit with a heating coil for all of the original classrooms.

The new wing has split type systems that provide ventilation.

Air Conditioning Systems

The older classrooms utilize window AC units and ductless split type units. As noted above the new wing classrooms have ducted split type units. Neither the auditorium or the gymnasium has air conditioning. The cafeteria has multiple ductless split type units.

HVAC Controls

The school is currently provided with an Automatic Logic BMS system and a variety of Andover and Siemens control devices throughout the building. It was not confirmed as to the extent of equipment and systems throughout the building that are connected and controlled through the existing BMS. Portions of the abandoned pneumatic control system were observed throughout the building, including the main compressor within the Boiler Room. It is recommended the pneumatic system and associated tubing and devices be removed completely. Any equipment that is replaced should be provided with DDC controls such that the Automatic Logic system can communicate with the new equipment. We also recommend upgrading the controls system to include full graphics, trending, and alarms to assist Building Personnel with monitoring energy use and with maintenance.

Fire Protection:

Fire Water Service

A 4" fire protection water services enters the Boiler Room and is provided with a main house control valve and a 4" Watts double check detector assembly (DCDA) backflow preventer. The device was observed in fair condition and should be tested annually.

Fire Protection Systems

The existing school is partially sprinkler within the areas of the basement storage and the Old Wing. We recommend the existing sprinkler system be expanded and the entire school be provided with an automatic sprinkler system for full sprinkler coverage within the school. Occupied and conditioned spaces should be provided with wet-sprinkler systems. Unoccupied and unconditioned spaces should be provided with dry-sprinkler systems.

Greenwich Public Schools
Engineering Narratives

Fire Pump

Pending hydrant flow tests to provide data of available water pressure and flow to the building, a Fire Pump has been assumed as being required to provide sufficient pressure and flow to the proposed sprinkler system throughout the building.

Greenwich Public Schools
Engineering Narratives

Greenwich High School Master Plan
OLA Project No. NKGD0171.00
August 4, 2017

Site Utilities:

Site Water
N/A.

Site Sanitary
N/A.

Site Gas
The school is provided with a single gas service with a gas meter and regulator at the exterior of the building within a fenced enclosure.

Site Fuel Oil
The school is provided with an existing 15,000-gallon underground fuel oil storage tank. The age of the tank is unknown. We recommend the removal and replacement of the underground fuel oil storage tank with a new above ground double-wall fuel oil storage tank. We recommend the underground fuel oil tank be removed completely. The decommissioning of the underground fuel tank should be conducted in the correct manner and all testing, local, state, and federal agency sign-offs should be obtained.

Site Electrical
There are two underground electrical utility services feeding this school. One utility service transformer is located on the west side of the property in a fenced-in enclosure and serves the entire school with the exception of the recently added Performing Arts Center (PAC). This transformer steps the voltage down to 480Y/277V, 3 phase, 4 wire and the service is then routed underground to the Main Service Switchgear Room located in the lower level of building B. The label on this transformer shows a receipt date of 12/02/2004 indicating that the transformer was installed within the last 15 years. The main electrical service equipment is rated for 2500 Amps at 480Y/277V, 3 phase, 4 wire and is adequate for the addition of AC for the entire school (see interior electric distribution). The other utility service transformer is located on the north side of the property and serves the recently added PAC. This transformer steps the voltage down to 480Y/277V, 3 phase, 4 wire and the service is then routed underground to the PAC Main Electrical Room. The label on this transformer shows a receipt date of 03/03/2014 indicating that the transformer was installed within the last 5 years. The main electrical service equipment is rated for 2000 Amps at 480Y/277V, 3 phase, 4 wire.

Site Storm Water
N/A.

Electrical/Fire Alarm/Lighting:

Interior Electric Distribution
There are two main sources for the electrical distribution in the school. The main source is the Main Service Switchgear Room located in the lower level of building B. This electrical room serves the entire school with the exception of the recently added Performing Arts Center (PAC). The main service switch is rated for 2500 Amps at 480Y/277V, 3 phase, 4 wire and is manufactured by Federal Pacific Electric. It appears the main switch and switchboard are over 50 years old and replacement parts for this equipment may be difficult to obtain and the equipment has exceeded its useful life. Consideration should be given to replacing the main switch and switchboard in the next 5-15 years and adding (20) panels throughout the school for future expansion. The second source for the electrical distribution is located in the PAC Main Electrical Room. This electrical room serves the recently added PAC. The main switch in this electrical room is rated for 2000 Amps at 480Y/277V, 3 phase, 4 wire and has a manufacturers date of 04/29/2014 and is in excellent condition.

Lighting Fixtures
The lighting fixtures throughout the school consist of mainly 2' x 4' and 2' x 2' fluorescent fixtures with the exception of the gym and student center that have already been upgraded to LED lighting fixtures. Since fluorescent lighting fixtures are not considered energy efficient by today's standards, the remaining fluorescent fixtures throughout the school should be replaced with energy efficient LED lighting fixtures in the next 1-5 years. According to facility personnel, some of the exterior lights have been replaced with LED's. The remaining exterior lighting fixtures should also be replaced with LED's. According to facility personnel, all of the classroom lights are controlled by occupancy sensors. Consideration should be given to installing energy efficient automatic controls such as occupancy and vacancy sensors throughout all of the other areas of the school, with programmable time-based controls for exterior lighting.

PA/Communications
The Public-Address System is a Simplex Building Communication Systems 5100 series with microphone input. The age of the system is unknown. According to facility personnel, the PA system does not cover the swimming pool area. It is recommended that the PA system be extended to the swimming pool area. It is also recommended that the PA system be upgraded with new technology in the next 5-15 years.

Fire Alarm and Smoke Detection
The current fire alarm system is an addressable voice evacuation system by Notifier. The main fire alarm control panel is located in the main office and there are several other networked fire alarm panels throughout the school. There appears to be open area smoke detector coverage throughout the school along with duct and beam detectors. According to facility personnel, there was a fire-alarm upgrade in 1997. No problems were reported with the fire alarm system. It is recommended that the fire-alarm system be replaced with new technology in 5-15 years.

Greenwich Public Schools

Engineering Narratives

Emergency and Exit Lighting

According to facility personnel, the emergency lighting fixtures are backed-up by the two emergency generators (see Emergency/Standby Power section).

The exit signs appear to have fluorescent or incandescent lamps. The exit signs should be replaced with LED energy efficient fixtures in the next 5 years.

Emergency/Standby Power

There is a 375kW diesel generator rated for 564 Amps at 480Y/277V, 3 phase, 4 wire, with a 1000-gallon subterranean diesel tank, located on the west side of the property in the fenced-in enclosure near the utility transformer. The generator is manufactured by Spectrum and has a manufacturers date of 12/2001. The automatic transfer switches (ATS) are located in the main service switchgear room. According to facility personnel, the generator backs-up emergency lighting throughout the school. Typical expected service life of a generator is 30 years. It is recommended that this generator is replaced in the next 5-15 years.

There is also a 250kW diesel generator with a sub-base tank located on the north side of the property near the utility transformer. The ATS's are located in the PAC main electrical room. According to the directory on the emergency panel, this generator serves emergency lighting throughout the PAC. This generator system appears to be in good condition. Regular maintenance in accordance with manufacturer's instructions is recommended.

Plumbing:

Water Distribution

(2) Water services. (1) 4" at science wing. (1) 6" at loading dock. Neither have RPZ. Loading dock service is in rusted condition and appears to have asbestos wrapping.

Sanitary Drainage

The main school sanitary main exits the building below grade. Sanitary piping within the building consists of cast-iron hub-less piping. There were no reported issues with the sanitary system at the time of our review.

The PAC was observed with a large sewage pit in the boiler room with duplex sewage ejector pumps that discharge building sewage to a site sewer main.

Storm Drainage

The school is provided with exterior gutters and leaders at the pitched roof areas. The leaders are routed below grade to an underground storm water main. It was not determined where this main terminates. Roof drains are provided at the flat roofs with internal storm drain piping routed down through the school and out below the building.

Hot Water Heaters

The main school is provided domestic hot water through one (1) Patterson Kelly Compact Series 400 HW heat exchanger served by the building boilers. The associated valves, piping, and pumps were observed to be corroded. The system is approximately 20 years old and exceeded its useful life expectancy. We recommend replacement of the domestic hot water heating system with stand-alone gas fired hot water heaters, independent of the boiler system.

The PAC is provided domestic hot water through an Aerco SmartPlate plate and frame heat exchanger served by the main boilers.

Plumbing Fixtures

Bathrooms throughout the school were generally observed to be in good condition. The fixtures are generally in good condition and observed with water conserving type faucets and flushometers.

Gas

Gas is routed to the Boiler Room from the exterior gas meters. Gas piping is distributed within the Boiler Room to the two (2) boilers. Gas is distributed through the building to science classrooms and to the Kitchen for cooking equipment.

Fuel Oil

The existing fuel oil system is routed from the exterior underground fuel oil storage tank to a duplex fuel oil transfer pump within the boiler room. The duplex fuel oil transfer pump and associated fuel oil supply and return piping within the Boiler Room was observed in good condition.

Swimming Pool

The high school is provided with a pool. The pool filtration equipment was observed to be in good condition.

HVAC Systems:

Heating Systems

Heating is provided by (2) Clever Brooks 16,738,000. Boilers are over 20 years old and are in functioning condition.

Ventilation Systems

School is ventilated through packaged units in mechanical rooms within each building zone. Ventilation air is ducted throughout the school.

Air Conditioning Systems

The school is entirely air conditioned.

Greenwich Public Schools

Engineering Narratives

Fire Protection:

Fire Water Service

The main school is provided with three (3) fire protection water services of which are all interconnected through the school. A 4" fire protection water service is located at the loading dock, an 8" water service is located at in the Science wing, and a 6" water service is located at the main boiler room. The science wing and boiler room fire protection water services were observed with double check detector assembly (DCDA) backflow preventers, while the loading dock fire protection water service was not observed with a backflow prevention device installed. We recommend a new BFP assembly be provided on the existing 4" fire protection water service located at the loading dock.

The PAC building is provided with an independent 6" fire protection water service with a 6" DCDA backflow preventer.

Fire Protection Systems

The building was observed to be fully sprinklered. The wet-pipe sprinkler system consists of an alarm check control valve. A wet-pipe sprinkler system serves the occupied/conditioned spaces of the building. Wet pipe sprinkler systems are distributed throughout the building through steel pipe and generally routed above ceilings to sprinkler heads. A dry sprinkler system provides sprinkler coverage to unconditioned spaces throughout the building. Dry-pipe systems are distributed throughout the building with galvanized steel piping.

Fire Pump

The PAC building is provided with a fire pump. PAC has its own fire-pump.

APPENDIX G

ROOF REPORTS

ROOF SUMMARY									
	No Work Needed		Work Needed 1-5 Years			Work Need 5-15 Years			
School	Total S/F	S/FGood	S/F Fair	U/P	\$	S/FGood	U/P	\$	Comments
Cos Cob School	50,500	50,500							
Glenville School	68,800	68,800							
Hamilton Avenue School	42,500	42,500			\$ 250,000				Install snow guards and gutter diverters
International School at Dundee	49,800	49,800							
Julian Curtiss School	37,850		24,850	60.00	\$ 1,491,000	13,000	25.00	\$ 325,000	In progress
Millbank School	3,100		3,100	20.00	\$ 62,000				
North Mianus School	57,000	30,700	14,400	25.00	\$ 360,000	11,900	25.00	\$ 297,500	
North Street School	62,300					62,300	25.00	\$ 1,557,500	
Old Greenwich School	56,400	34,900	13,100	25.00	\$ 327,500	8,400	25.00	\$ 210,000	
Parkway School	54,800					54,800	25.00	\$ 1,370,000	
Riverside School	57,400					57,300	25.00	\$ 1,432,500	
Central Middle School	75,700		9,900	25.00	\$ 247,500	65,800	25.00	\$ 1,645,000	
Eastern Middle School	82,500		10,800	25.00	\$ 270,000	71,700	25.00	\$ 1,792,500	
Western Middle School	67,300	12,600				54,700	25.00	\$ 1,367,500	
Greenwich High School	289,500	80,400	50,600	25.00	\$ 1,265,000	158,500	25.00	\$ 3,962,500	
Totals	1,055,450	370,200	126,750		\$ 4,273,000	558,400		\$ 13,960,000	
								\$18,233,000	Total 1 to 5 plus 5 to 15 years

GREENWICH PUBLIC SCHOOLS MASTER PLAN

WATSKY ASSOCIATES, INC.
20 Madison Avenue
Valhalla, NY 10595

ROOF EVALUATION REPORTS

Greenwich High School
Western Middle School
Eastern Middle School
Central Middle School
Cos Cob School
Glenville School
Hamilton Avenue School
International School at Dundee
Julian Curtis School
New Lebanon School – Not Included
North Mianus School
North Street School
Old Greenwich School
Parkway School
Riverside School
Havemeyer – Not Included
Milbank School

GREENWICH HIGH SCHOOL

Greenwich High School is a sprawling complex with numerous wings built at different times. It has 51 different sections of roof; they vary in height from one to three stories - all are flat. The total roof area is approximately 289,500 square feet.

Approximately 25,100 square feet of roof area is covered with fully adhered reinforced polyvinyl chloride (PVC) single ply roofing. It was installed in 2016 and it's in excellent condition.

Approximately 55,300 square feet of roof is covered with terpolymer olefin (TPO) reinforced single ply roofing - it was installed circa 2015 - 2016 when the new auditorium addition was constructed. It is in good condition.

Approximately 158,500 square feet of roof is covered with modified bitumen roll roofing with a granular surfaced cap sheet. It is in good condition.

About 50,600 square feet of roof is covered with conventional gravel surfaced built up roofing. It is in fair to poor condition.

Most roof areas are accessible via roof hatches, bulkhead doors or permanent exterior ladders mounted on the change in elevations walls. A few roof areas are only accessible with a portable ladder.

The PVC and TPO roofing should provide about 20 years of service; the modified bitumen roll roofing should provide at least 10 more years of service. Plans should be made to replace the sections of gravel surfaced built up roof in 3 to 5 years.

WESTERN MIDDLE SCHOOL

Western Middle School is a sprawling building with 23 different sections of roof; they vary in height from one to three stories - all sections are flat. The total roof area is approximately 67,300 square feet.

The entire school is covered with modified bitumen roof roofing with a granular surfaced cap sheet.

The modified bitumen roofing was installed in two phases: approximately 12,600 square feet of roofing was installed on the West side of the school in 2013, the remaining 54,700 square feet of roofing on the East side of the school was installed in 2007. All of the roofing is in good condition.

Most roof areas are accessible via roof hatches, bulkhead doors or permanent exterior ladders mounted on the change in elevations walls. A few roof areas are only accessible with a portable ladder.

The modified bitumen roll roofing on the West side of the school should provide at least 20 years of service. The modified roof roofing on the East side of the school should provide at least 10 more years of service.

EASTERN MIDDLE SCHOOL

CENTRAL MIDDLE SCHOOL

Eastern Middle School is a sprawling one and two story building with 19 different sections of roof; they vary in height - all are flat. The total roof area is approximately 82,500 square feet.

Approximately 10,800 square feet of roof area is covered with fully adhered reinforced ethylene propylene diene monomer (EPDM) rubber, single ply roofing. It was installed circa 1998 and it's in fair condition.

Approximately 71,700 square feet of roof is covered with modified bitumen roll roofing with a granular surfaced cap sheet. It is in good condition.

The main roof is accessible via a bulkhead door by climbing out a second floor window. The gymnasium and locker room roofs are only accessible with a portable ladder.

The modified bitumen roll roofing should provide about 10 years of service. Plans should be made to replace the sections of EPDM roofing in 3 to 5 years.

Central Middle School has 10 different sections of roof that vary in height from one to two stories. All are flat, except the clerestory roof on the 1998 addition slopes. The total roof area of the Central Middle School is approximately 75,700 square feet.

Approximately 9,900 square feet of roof area is covered with fully adhered reinforced ethylene propylene diene monomer (EPDM) rubber single ply roofing. It was installed circa 1998 and it's in fair condition.

Approximately 65,800 square feet of roof is covered with modified bitumen roll roofing with a granular surfaced cap sheet. A long section of base flashings on the auditorium change in elevation wall has fallen off the wall; it should be repaired immediately. However, the modified bitumen roofing is in overall good condition.

The main roof is accessible via a roof hatch. The auditorium and gymnasium are only accessible with a portable ladder.

The modified bitumen roll roofing should provide about 10 years of additional service. Plans should be made to replace the EPDM roofing in 3 to 5 years.

COS COB SCHOOL

GLENVILLE SCHOOL

The Cos Cob School has 21 different sections of roof that vary in height from one to three stories. About half of the roofs are flat, and about half have slope. The total roof area of the Cos Cob School is approximately 50,500 square feet.

Approximately 25,600 square feet of roof area is covered with fully adhered 90 mil thick ethylene propylene diene monomer {EPDM} rubber, single ply roofing. It was installed in 2002. The EPDM roofing is in excellent condition.

Approximately 24,900 square feet of roof area is covered with architectural style asphalt shingles. The shingle roof areas are in good condition, albeit a few missing shingles should be replaced immediately.

Flat roof areas are accessible via roof hatches and second floor windows, or via permanent exterior ladders mounted on the change in elevations walls. One flat roof area on the rear of the building is only accessible with a portable ladder.

The EPDM roofs are covered by a 30 year manufacturer's warranty and should provide at least 15 more years of service. The asphalt shingle roofs should provide another 15 years of service as well.

The Glennville School is a sprawling one and two story building constructed circa 2009. It has 10 different sections of roof; they vary in height - all are flat. The total roof area is approximately 68,800 square feet.

All roof areas are covered with fully adhered reinforced polyvinyl chloride (PVC) single ply roofing. It was installed in 2009 when the building was constructed. PVC roofing was also installed to cover many of the change in elevation walls, between roof levels. All of the PVC roofing is in good condition.

The Glennville School has an extensive array of solar panels on the roof.

The main roof is accessible via a roof hatch; adjoining roof areas are accessible via exterior ladders mounted on the change in elevations walls.

The PVC roofing should provide at least 15 years of service.

HAMILTON AVENUE SCHOOL

The Hamilton Avenue School consists of one and two story wings, and a large addition that was constructed circa 2008. It is covered with 21 different sections of roof; they vary in height, and are both flat and sloped. The total roof area is approximately 42,500 square feet.

Approximately 25,900 square feet of roof area is covered with fully adhered reinforced polyvinyl chloride (PVC) single ply roofing. It was installed circa 2008. The PVC roofs lack snow guards - at their transitions to the adjoining asphalt shingle roofs. However, other than lacking of snow guards; the PVC roofs are in good condition.

Approximately 9,300 square feet of roof is covered with architectural style asphalt shingles; they were installed in 2008 when the addition was constructed. Pad style snow guards installed along the eaves of the shingle roofs are not adequate, but the shingles are in generally good condition.

Approximately 7,200 square feet of roof area on the original School is covered with black Vermont slate that was installed in 1938 when the building was constructed. There are about a dozen missing and broken slates that should be replaced immediately, but other than that, the slate roof is in generally good condition.

Bulkhead doors provide access to the upper level of the main roof. Portable ladders are needed to access the adjoining PVC roofs, and the one story high PVC roofs.

The custodian reported problems with sliding snow, overflowing gutters and icicles forming on the Library sun shades.

All roof areas should provide at least 15 more years of service. However, problems with the sliding snow should be addressed immediately. Pipe style snow guards should be installed along all PVC and shingle roof eaves.

Gutters at the shingle eaves are built-into the exterior wall. It will be difficult and expensive to rework the gutters to prevent water from spilling over them; isolated sheet metal diverters at most the worst spill-over locations will help.

There is no way to prevent ice from forming on the window shades, other than to remove the shades.

THE INTERNATIONAL SCHOOL AT DUNDEE

The International School at Dundee is a one and two story building with three different sections of roof; they vary in height - all are sloped. The total roof area is approximately 49,800 square feet.

All roof areas are covered with architectural style asphalt shingles, except for a large valley down the middle of the main roof - the valley is covered with modified bitumen roof roofing with a granular surfaced reinforced cap sheet roof. All of the roofing is in good condition.

The roofs are only accessible with a portable ladder. The roof should provide about 15 more years of service.

JULIAN CURTISS SCHOOL

NORTH MIANUS SCHOOL

The Julian Curtiss School has 10 different sections of flat and sloping roof; they vary in height from one to two stories, and total approximately 37,850 square feet.

Approximately 24,800 square feet of roof area is covered with glazed terra cotta tiles. The tiles are in poor condition, and a project is underway to replace them..

Approximately 13,000 square feet of roof is covered with modified bitumen roll roofing with a granular surfaced cap sheet. It is in good condition.

The main roof is accessible via a roof hatch.

The modified bitumen roll roofing should provide about 10 years of service. The tile roof is scheduled to be replaced this summer.

The North Mianus School has nine sections of sloped and flat roof that very in height from one to two stories. The total roof area is approximately 57,000 square feet.

Approximately 18,600 square feet of roof area is covered with architectural style asphalt shingles. The shingles are in generally good condition.

Approximately 6,000 square feet of roof area is covered with older 3-tab asphalt shingles. These shingles are in poor condition.

Approximately 21,400 square feet of roof is covered with modified bitumen roll roofing with a granular surfaced cap sheet. The modified bitumen roll roofing was installed in two phases: approximately 11,900 square feet is in good condition, and approximately 8,400 square feet is in poor condition.

Approximately 2,600 square feet of roof area is covered with a batten seam metal roof. The metal roof is in good condition.

Portable ladders are needed to access all sections of this roof.

Plans should be made to replace the older modified bitumen roll roofing and 3-tab asphalt shingle roof in 2 to 3 years.

11,900 square feet of modified bitumen roll roofing will need replacing in about 10 years. The remaining sections of roof should provide at least another 15 years of service.

NORTH STREET SCHOOL

OLD GREENWICH SCHOOL

The North Street School is a one story building with eight different sections of roof; they vary slightly in height - all are flat. The total roof area is approximately 62,300 square feet.

The entire school is covered with modified bitumen roll roofing with a granular surfaced cap sheet - the roof is in good condition.

The roofs are only accessible with a portable ladder.

The roofing should provide about 10 more years of service.

The Old Greenwich School has fifteen different sections of flat and sloped roof, that vary in height from one to three stories. The total roof area is approximately 56,400 square feet.

Approximately 34,500 square feet of roof area is covered with architectural style asphalt shingles. There are a few missing shingles that should be replaced immediately, but the shingles are in generally good condition.

Approximately 13,100 square feet of roof area is covered with older 3-tab asphalt shingles. These shingles are in fair to poor condition, and need replacing.

Approximately 8,400 square feet of roof is covered with modified bitumen roll roofing with a granular surfaced cap sheet. It is in generally good condition.

Approximately 200 square feet of roof area is covered with fully adhered reinforced ethylene propylene diene monomer (EPDM) rubber single ply roofing. The EPDM roofing is in good condition.

Three small bay window roofs are covered with copper, they are also in good condition.

The high sloped roof is accessible via a roof hatch. Flat roof areas and adjoining low sloped roof areas are accessible by climbing out second floor windows. Portable ladders are needed to access some of the lower roofs. The newer architectural asphalt shingles, the EPDM and the copper roofs should provide at least 20 more years of service. The modified bitumen roll roofing should provide about 10 years of service. Plans should be made to replace the older 3-tab asphalt shingle roofs in 3 to 5 years.

PARKWAY SCHOOL

RIVERSIDE SCHOOL

The Parkway School is a one story building with nine different sections of roof; all are flat. The total roof area is approximately 54,800 square feet.

The entire school is covered with modified bitumen roof roofing with a granular surfaced cap sheet which is in good condition.

The main roof is accessible via a roof hatch; adjoining roof areas are accessible via exterior ladders mounted on the change in elevations walls.

The existing roof should provide about 10 more years of service.

The Riverside School roof varies in height from one to two stories. It has 15 different sections of sloped and flat roofing that total approximately 57,400 square feet.

Approximately 47,600 square feet of roof area is covered with architectural style asphalt shingles. The shingles are in generally good condition.

Approximately 9,700 square feet of roof is covered with modified bitumen roll roofing with a granular surfaced cap sheet. It is in good condition.

A small bay window roof in the rear of the building is covered with copper - it's also in good condition.

The flat roof areas and adjoining low sloped roofs are accessible by climbing out second floor windows. Portable ladders are needed to access the two story sloped roof areas.

The asphalt shingles and modified bitumen roll roofing should provide at least 10 more years of service.

MILBANK SCHOOL

The Milbank School is a one story residential type of building. It has 2 different sections of roof - both are sloped. The total roof area is approximately 3,100 square feet.

All roof areas are covered with 3-tab asphalt shingles. The shingles are in generally poor condition. The roofs are only accessible with a portable ladder.
Plans should be made to replace the roof as soon as possible.

* * *

[illegible]

[illegible]

[illegible]