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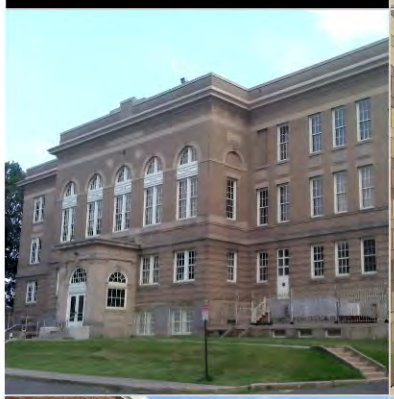
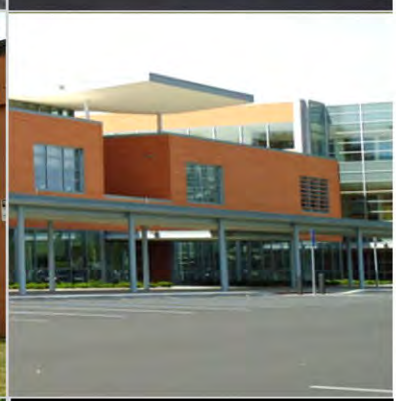
BRISTOL PUBLIC SCHOOLS

FEASIBILITY STUDY, BOARD OF EDUCATION SCHOOLS





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12/20/2017

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Bristol Feasibility Study, Board of Education Schools

APPENDICES

A. Enrollment Projections
B. Existing Conditions Reports
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Bristol Feasibility Study, Board of Education Schools

APPENDIX A ENROLLMENT PROJECTIONS

Report produced in November 2017 by Milone & MacBroom, Inc., 51 pages

Bristol Comprehensive School Enrollment Analysis & Projections

November 2017

Prepared for:
Bristol Public Schools

Prepared by:

Milone & MacBroom®

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Introduction

In Spring 2017, Bristol Public Schools (BPS) contracted with Milone & MacBroom, Inc. in partnership with Drummey Rosanne Anderson, Inc. to prepare comprehensive school enrollment projections and conceptual attendance zone boundaries for the district based on enrollment trends observed in the past two decades as well as available data on demographics and housing within the community. The projections in this report are meant to serve as a planning tool for the future to represent the most likely direction of BPS's enrollment.

This report examines factors that influence school enrollments, including trends in demographics, births, migration, employment, and housing development and real estate. In discussing these trends, the report provides context for historic patterns in BPS's enrollments and a basis for developing future enrollment projections from the best available evidence and indicators. These projections are the product of the best available data at a given point in time and will provide the greatest degree of accuracy when applied to the near future. Through annual updates, enrollment projections can be fine-tuned to increase accuracy, providing Bristol with an ongoing planning tool.

Demographic Overview

Demographic indicators of the current composition and recent changes in Bristol's population are an important foundation for this enrollment analysis, yielding critical insights into how recent regional and national-scale demographic trends have played out in the community. Data from the most recent Decennial Census and American Community Survey (ACS) was collected and reviewed to form the basis of this section.

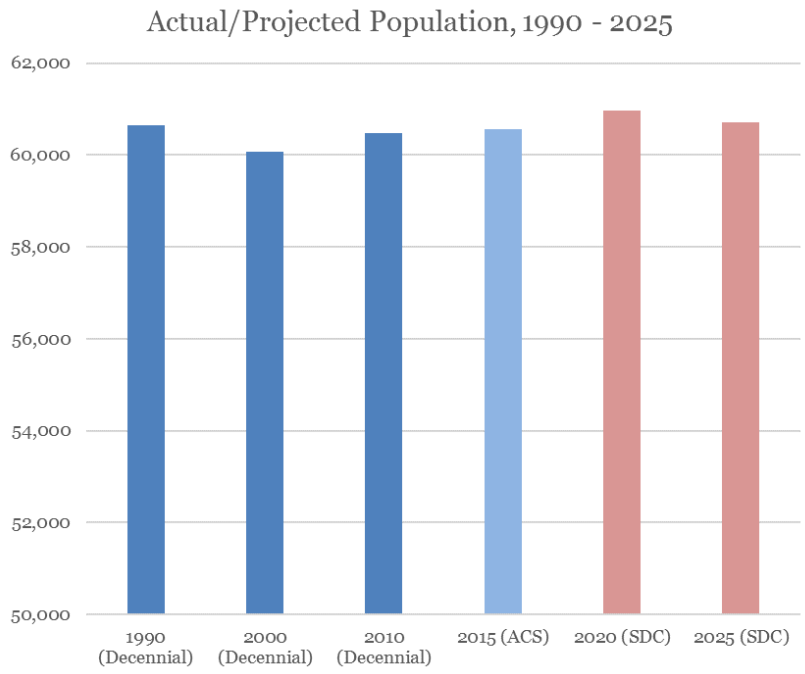


Figure 1: Historic and Projected Population, 1990 - 2025

Bristol's current population is estimated to be 60,554 persons, based on the 2015 ACS. The community's population has remained very stable since 2000 when the Decennial Census reported 60,062 persons. Accordingly, the city's growth over that 15-year period was just 0.8% and remains slightly below the peak population of 60,640 Bristol reached by the 1990 Census. Projections from the Connecticut State Data Center indicate potential growth to 2020 followed by a slight decline by 2025; however, these projections are driven by statewide trends and conditions that may not fully reflect the particular factors (demographics, labor market, development potential, etc.) that characterize Bristol.

Geographically, the most densely populated areas of Bristol are the downtown, the Stafford District, and Federal Hill. Conversely, the outlying areas south, west, and north of the downtown core, and in particular the Chippens Hill neighborhood, are less densely populated. Estimated population growth was greatest in the downtown core, East Bristol, and the northwestern residential neighborhoods north of Route 72, while declines were recorded in the north-central and southeastern areas of the city. (See Maps 2 and 3 in Appendix 1 for details.)

Census records provide both median age statistics and detailed breakdowns of the age distribution of Bristol's population. The city's median age increased from 37.6 to 40.3 between the past two Decennial Censuses, indicating that the population has aged substantially between 2000 and 2010. The 2015 ACS estimate of median age was 41.6, indicating that this trend has continued in recent years.

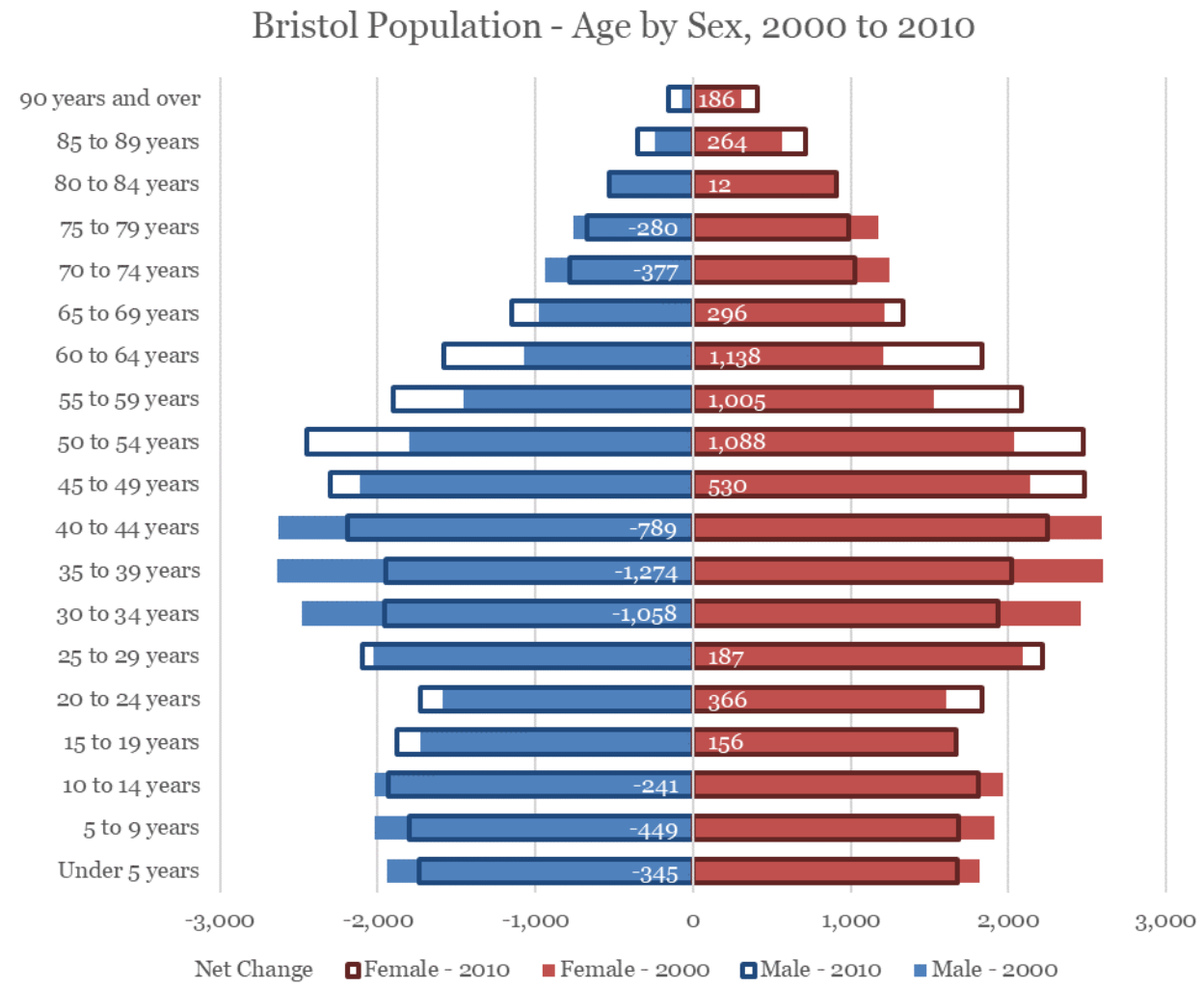


Figure 2: Age Distribution of Bristol's Population

Examining specific age cohorts shown on Figure 2 above, a decrease in the number of preschool-age children and younger school-age children (under 15 years of age) in 2010 relative to 2000 is evident as well as a sharp decline in the number of prime family-age adults (ages 30 to 44). Conversely, the population of older working-age and early retirement-age adults (ages 45 to 69) grew substantially between these years. As Bristol's population has grown older, young families with children entering the system are shrinking while older families with children who soon will or already have exited the system are making up a larger portion of the city's population.

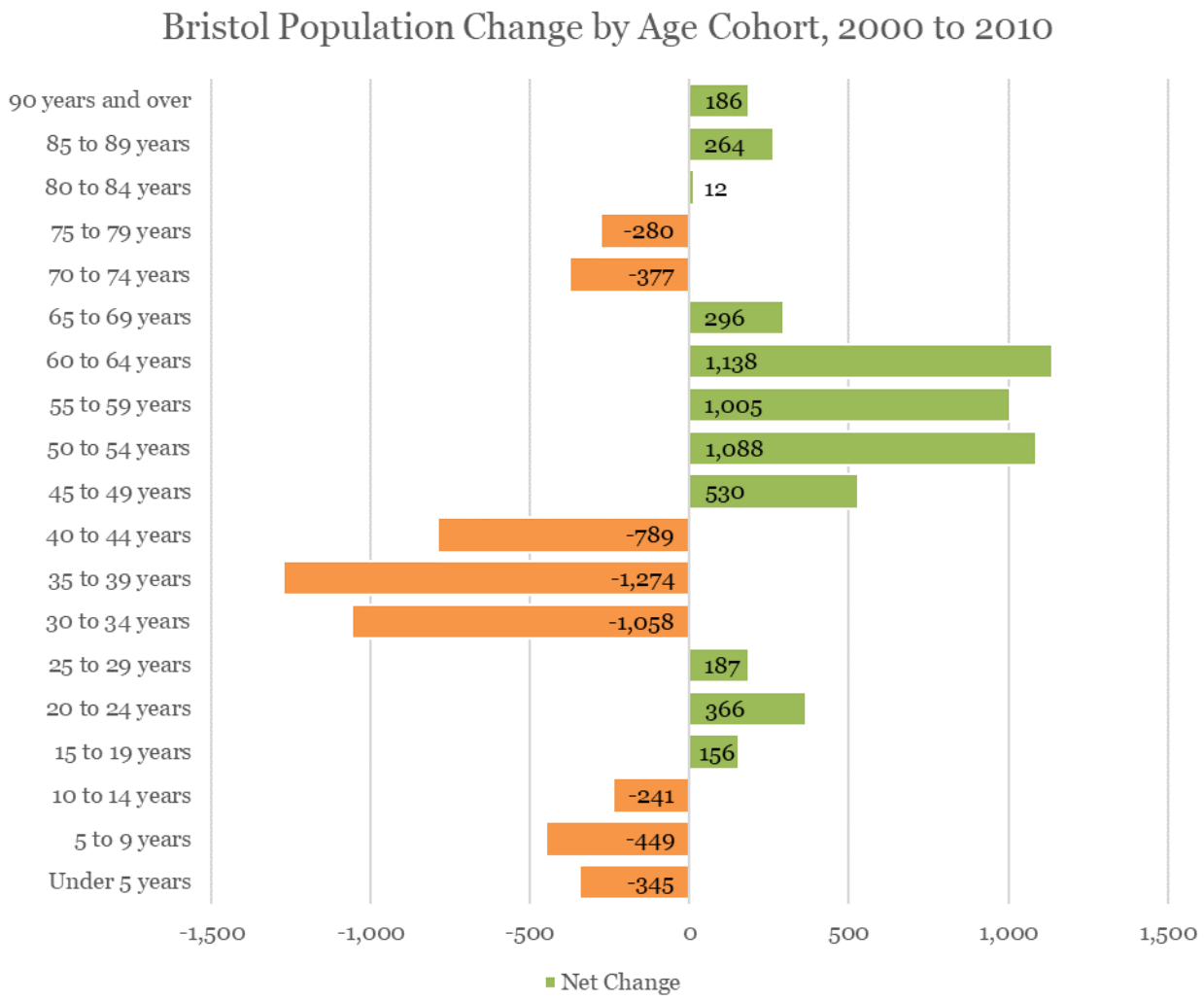


Figure 3: Population Change by Age

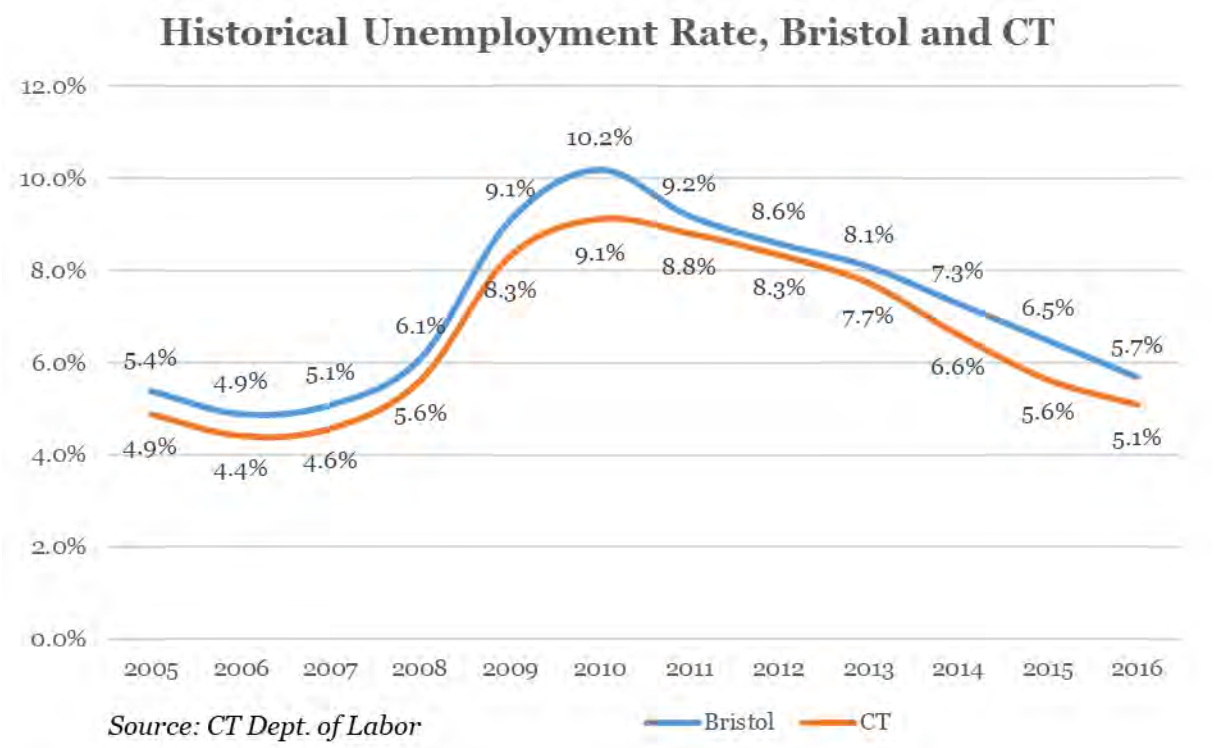
These ongoing shifts in population have impacted several key demographic groups related to future changes in enrollments. The population of school-age children (age 5 to 17) declined by 614 from 2000 to 2010, from 10,161 to 9,547 (note that this population includes all resident school-age children, including those attending other school systems). Estimates from the 2015 ACS indicate a slight uptick to 9,749 school-age children in the city; however, these estimates are less precise than the Decennial Census and should be evaluated with caution. Tract-level data indicates that changes in school-age population have been felt unevenly across the city, with significant increases in the Federal Hill, East Bristol, Chippens Hill, and Mountain View areas, and large declines in the South Side and Stafford areas. (See Map 4 in Appendix 1 for additional details.)

Another key indicator of changes in Bristol's population is the demographic of females of child-bearing age, here defined as women between the ages of 18 and 44 years. This subgroup has declined from a population of 11,896 in 2000 to 10,809 in 2010 and an estimate of 9,913 per the 2015 ACS. A decline in this population of 16.7% over the past 15 years is a strong negative indicator

of future birthrates in the community. The decline in the females of the child-bearing age demographic coincided with changes in births since 2000, when 739 births occurred, to rates around the mid 600s observed since the late 2000s.

Employment Trends

Bristol's unemployment rates have historically stood slightly above Connecticut's aggregate rates. As of July 2017, Bristol's unemployment rate stands at 5.5%, a level slightly above what would typically be considered full employment, and slightly above Connecticut's statewide unemployment rate of 5.0%. The city's labor market has steadily recovered from unemployment rates that peaked above 10% in 2010. The unemployment rate tends to correlate with both birthrates and migration, with stronger labor markets associated with both home sales and family formation.

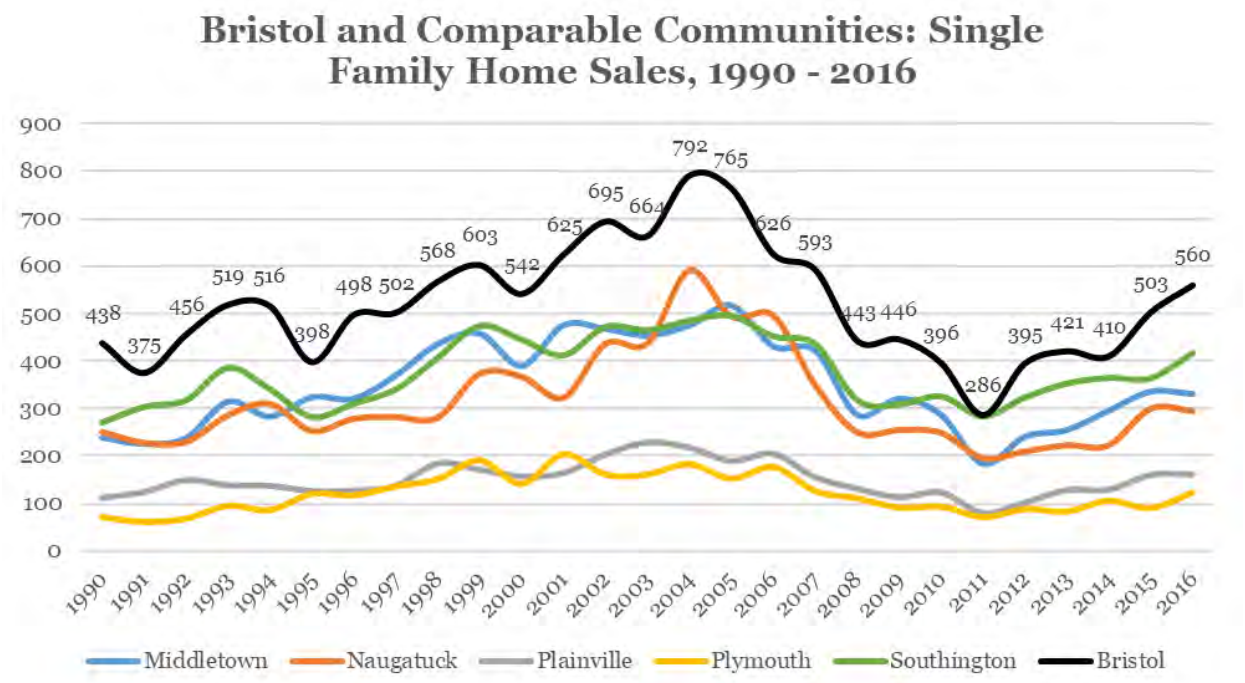


Housing Market Trends

Bristol contains some 26,953 housing units as estimated by the 2015 ACS. The vacancy rate in the community is estimated at 7.5%, indicating some remaining slack in the market, particularly in rental units, which make up approximately 35% of the market.

Bristol's residential housing market has historically matched national-scale trends, with growth in sales through the 1990s and into the mid 2000s before peaking in 2004, slightly before the onset of the Great Recession. Sales declined sharply in the late 2000s, reaching a low point in 2011. Bristol's pace of decline was especially steep in comparison to its neighboring communities, declining by over

500 sales/year between 2004 and 2011. However, the city's housing market has experienced steady growth from 2011 to the present, with 2016 sales approaching levels observed in the early 2000s.

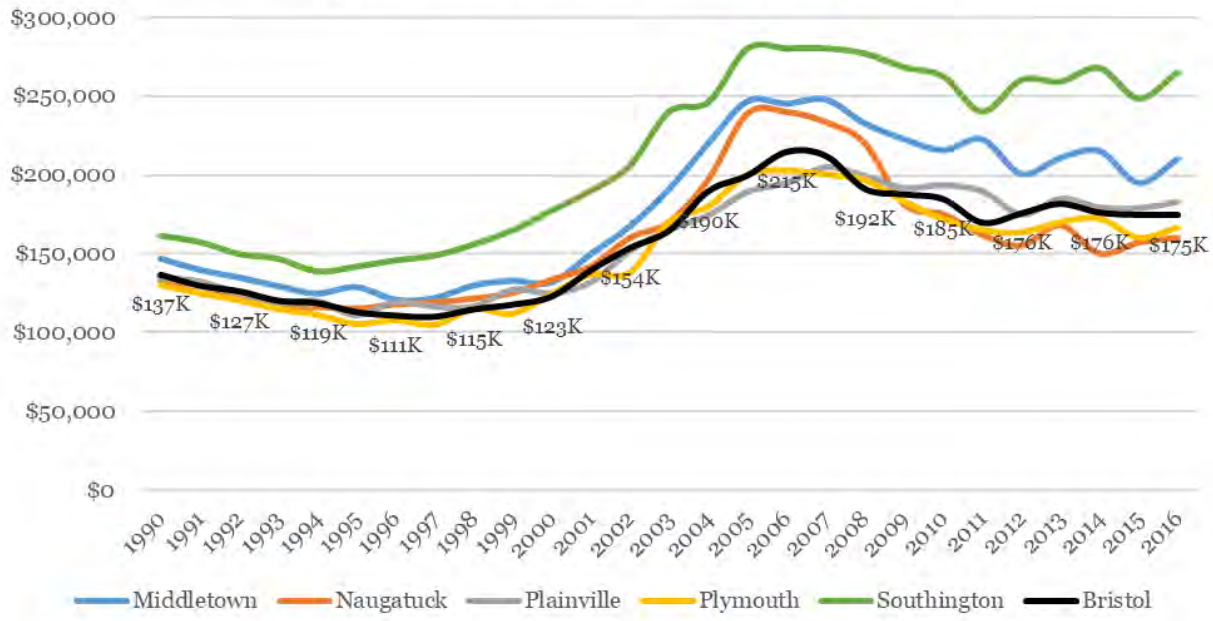


The strongest pace of housing sales has occurred in the southeastern area of Bristol, primarily the Greene-Hills district; some 554 sales occurred in this area between 2012 and 2016. The South Side and West Bristol attendance zones also experienced a strong pace of home sales during this time.

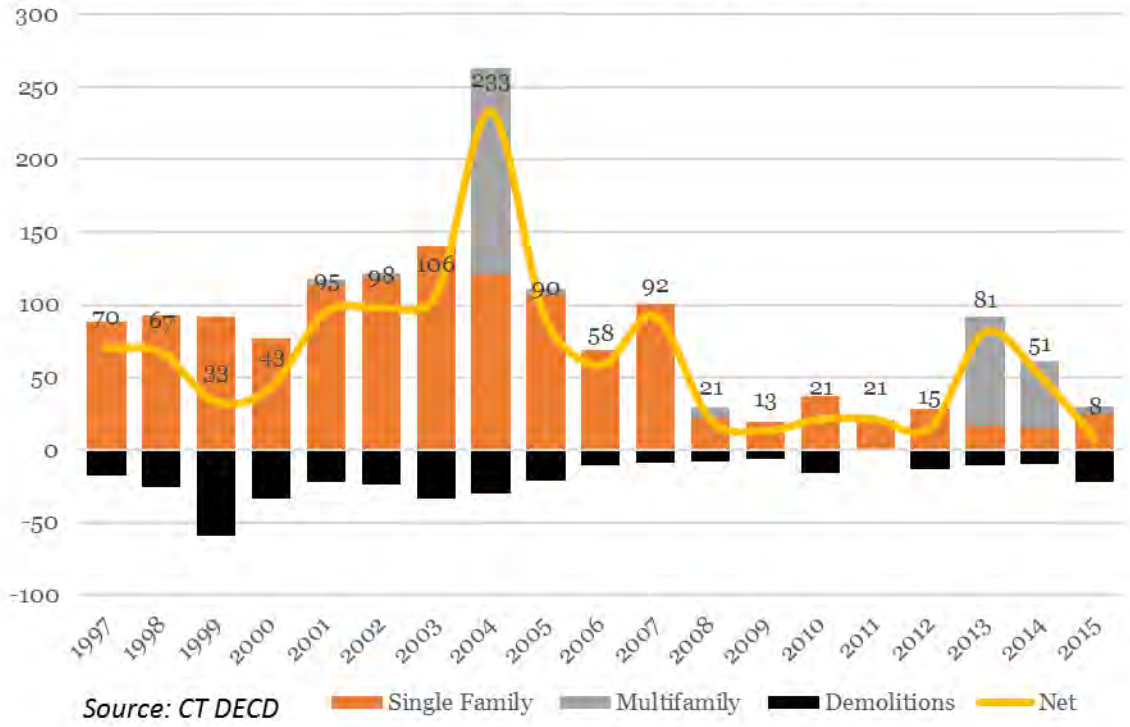
Single-family home prices have held fairly steady since prices peaked and declined during the onset and conclusion of the Great Recession. Bristol's housing market reached a peak median price of $215,000, close to double the nominal prices seen in the mid 1990s. After prices declined through the early 2010s, the median sales price has stabilized around $175,000 in the past several years.

While sales have accelerated in recent years, Bristol's pace of permitting activity for single-family homes has remained quite low. While the late 1990s and early 2000s saw an average of approximately 100 new single-homes built each year, there has been little recovery in the pace of construction since 2008, with a net increase in stock (excluding teardowns) of less than 20 homes per year. An exception to this trend has been an uptick in multifamily homebuilding activity, with 121 multifamily units approved in 2014 and 2015. Discussion with Bristol's town planner revealed that while overall residential construction appears to be on the upswing, much of the new residential development underway is focused on adaptive reuse of existing structures, including the Bingham and O'Connell Schools, both of which are slated for conversion to apartments or condos (likely one and two bedrooms). Other units in the development pipeline amount to approximately 80 units already approved, including both condos and single-family units, as well as a single-family subdivision likely to enter the approval process in the near future. The scale of the latter project is not yet known.

Bristol and Comparable Communities: Single Family Home Median Prices, 1990 - 2016



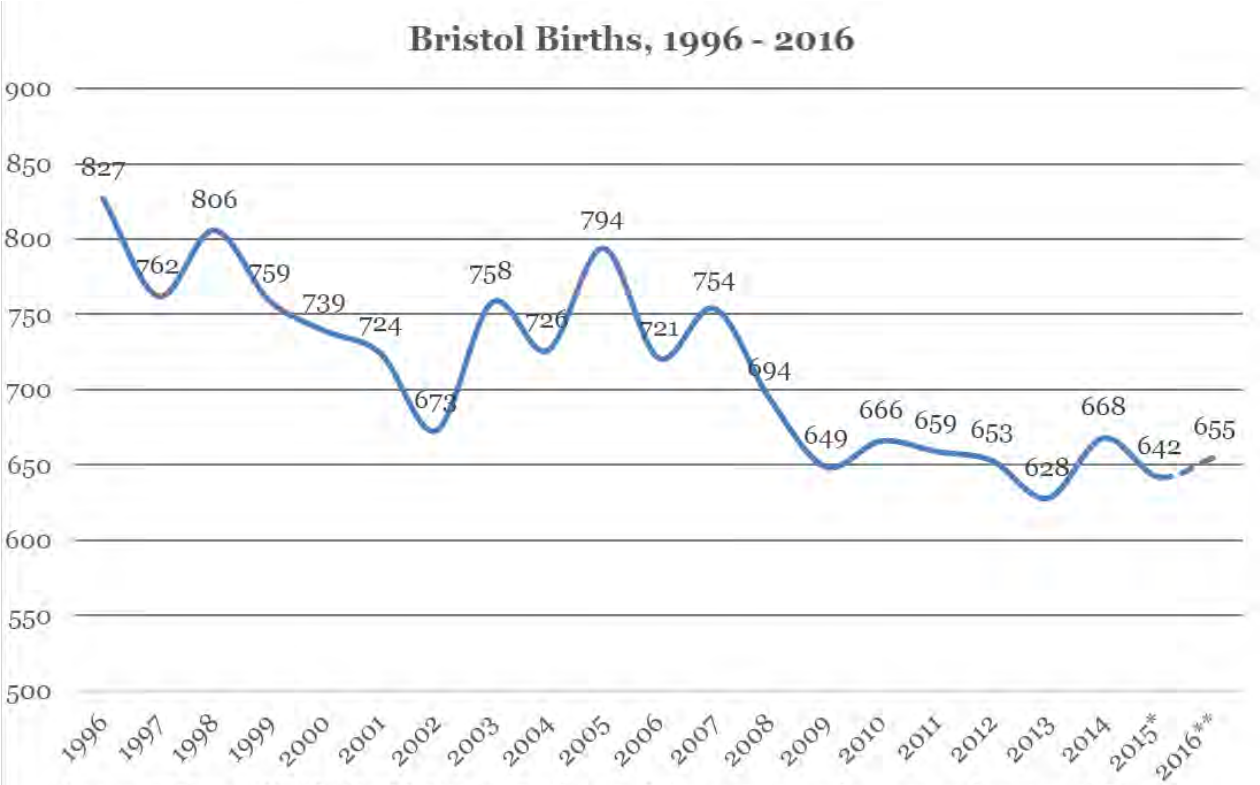
Bristol Housing Permits, 1997 - 2015



Source: CT DECD

Birth Trends and Projections

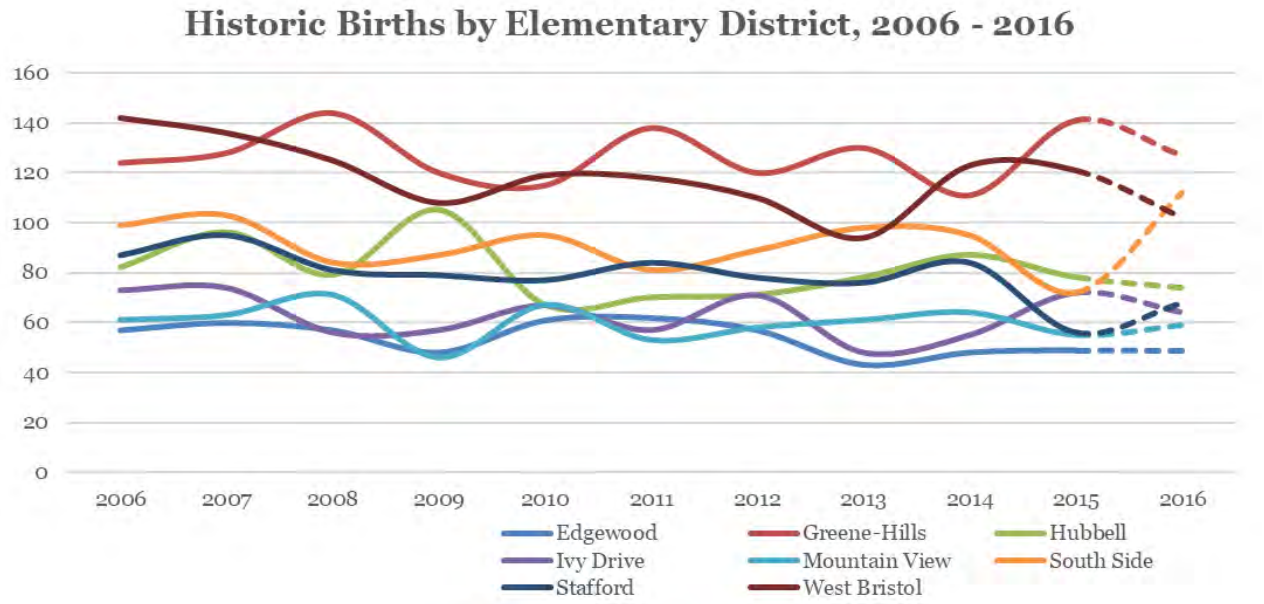
Bristol's births have recently experienced a period of substantial decline, with impacts on the town's population and school enrollment that will be felt for years to come. From the mid 1990s through 2007, the city saw an average of approximately 750 births each year, with most years' totals falling between 700 and 800. In the last years of the 2000s, birthrates dropped substantially, reaching 649 by 2009 and remaining in the mid 600s through the 2010s to the present. Initial counts for 2016 indicated a further decline to 587 births; however, the preliminary nature of this figure may substantially understate actual births and is adjusted upwards for the purposes of these projections based on the prior 2 years' birth counts. In any case, it is clear at this time that Bristol has yet to see a clear pattern of recovery in its birthrates, an experience shared by many of its western Hartford County neighbors and the state as a whole.



*Source: CT Dept. of Public Health (2016). *Birth records for 2015 are preliminary and may not fully account for out-of-state births **Birth records for 2016 are estimated based on previous two years.*

Examining the distribution of births across Bristol's neighborhoods and school districts, the greatest numbers of births have historically occurred in the Greene-Hills and West Bristol districts, with each averaging approximately 120 births annually. Conversely, the Mountain View, Edgewood, and Ivy Drive Schools have each experienced just 50 to 60 births each year. Although each attendance zone naturally experiences some year-to-year variation in birth counts, these geographical areas have been very consistent over time in terms of relative shares of Bristol's births.

The attendance zones most impacted in the past decade by Bristol's overall decrease in birthrates were Edgewood, Ivy Drive, Stafford, and West Bristol, which saw 14% to 19% declines in births between 2006 and 2008 and 2013 and 2015. By comparison, the remaining districts experienced smaller declines on the order of 4% to 8% below pre-Recession levels.



Projecting future enrollments over a 10-year horizon (through 2027-28) requires that in addition to known births data, 5 years of projected births are needed. To generate these birth projections, we start by examining the relationship between births and two sets of economic indicators: local and regional unemployment rates and historic housing sales. Both of these indicators are logically connected to births, as the condition of the housing market dictates the accessibility of the community to young families likely to have children, while unemployment rates (as an indicator of the overall strength of the labor market) may influence family planning decisions. The relationship between these variables and the number of births in town is examined both for same-year and lagged variations of each indicator.

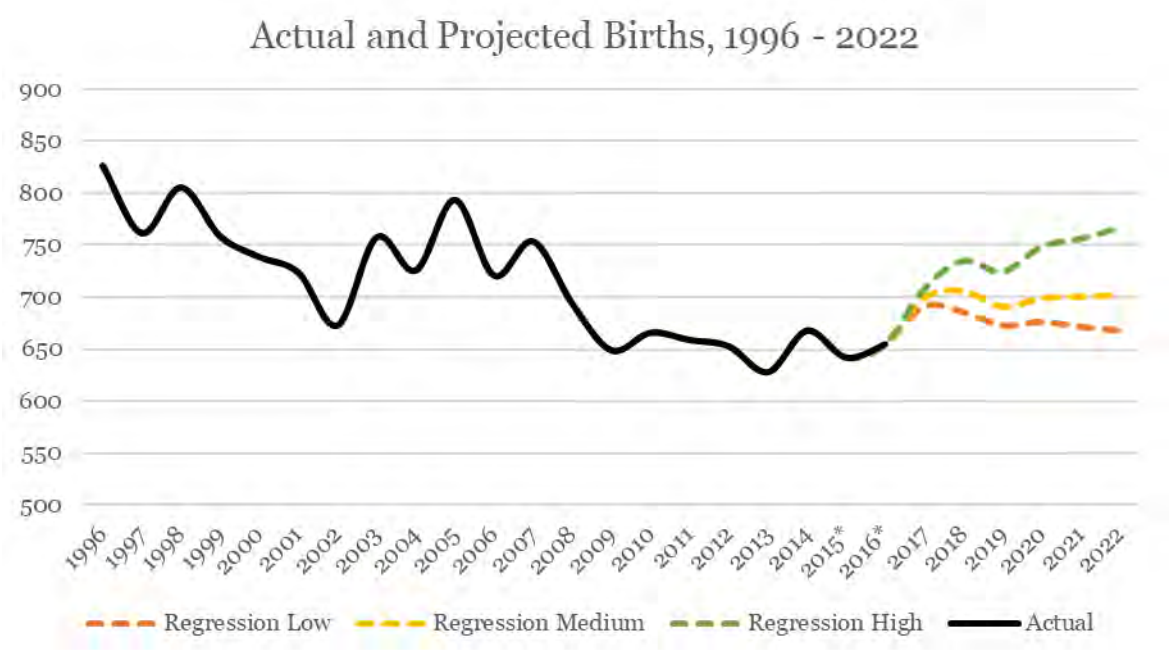
Using a backwards elimination procedure, the regression equation that best balances predictive accuracy and simplicity was found and used as the basis for birth projections under low, medium, and high economic growth assumptions based on changes in average annual unemployment rates and home sales.

$$Births = (Sales_{Year} * 0.475) + (Sales_{Year\text{-}2} * 0.451) + (Bristol\ Unemp._{Year\text{-}2} * 33.86)$$

The low, medium, and high scenarios assume a range of unemployment rates and home sales figures as the local and national economy faces uncertainty in how long the post-2009 economic expansion will be sustained. The chart below shows the range of local and regional employment rates and home sales that form the basis of the high, medium, and low scenarios.

Projection Assumptions			
	Low	Mid	High
Annual Home Sales	400 - 515	532 - 585	550 - 730
Bristol % Unemp.	6.5% - 8.1%	5% - 6.5%	3.5% - 6.5%
Annual Births	668 - 691	691 - 706	708 - 767

Although sales and unemployment rates are not likely to follow a steady, linear trend as assumed in these projections, the low-, medium-, and high-growth scenarios provide a range of likely projections under a range of economic conditions. By the last year of projected births (2022), our low-growth scenario projects 668 annual births while the high-growth scenario projects 767. The trajectory of projected births under each scenario are shown on the graph below.



Enrollment History and Trends

This enrollment projection report is being conducted as part of a school facility study; therefore, historical enrollments and projections reflect students who have attended or are currently attending school in one of Bristol's school facilities. It should also be noted that the enrollment reflected in the subsequent sections is based on the official October 1 enrollment as reported to the Connecticut State Department of Education.

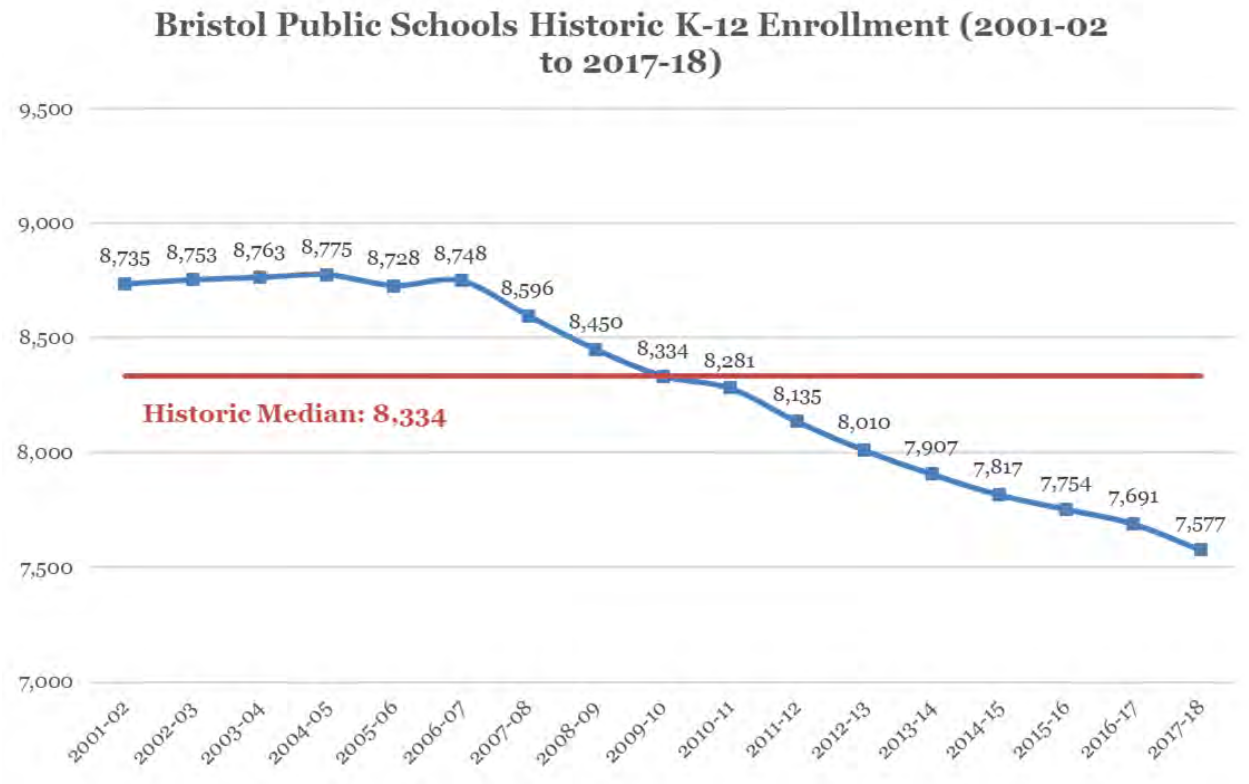
Over the past 13 years, Bristol's school enrollments experienced two distinct periods: a half-decade of highly stable overall enrollments from 2001-02 through 2006-07 followed by a steady and unbroken declining trend in total enrollments that has reduced the district's K-12 student body by close to 1,200 students. The cumulative loss in students since 2007-08 amounts to a 13.4% decline over this period. The following series of figures shows by-grade districtwide enrollment as well as enrollment trends for grades K-12 and elementary, middle, and high school grade groupings in BPS.

For purposes of this analysis, students enrolled in K-8 programs are analyzed in the same way as those in K-5 or 6-8 programs and aggregated with their current grade level.

Bristol Public School Enrollment History
Pre-Kindergarten through 12th Grade

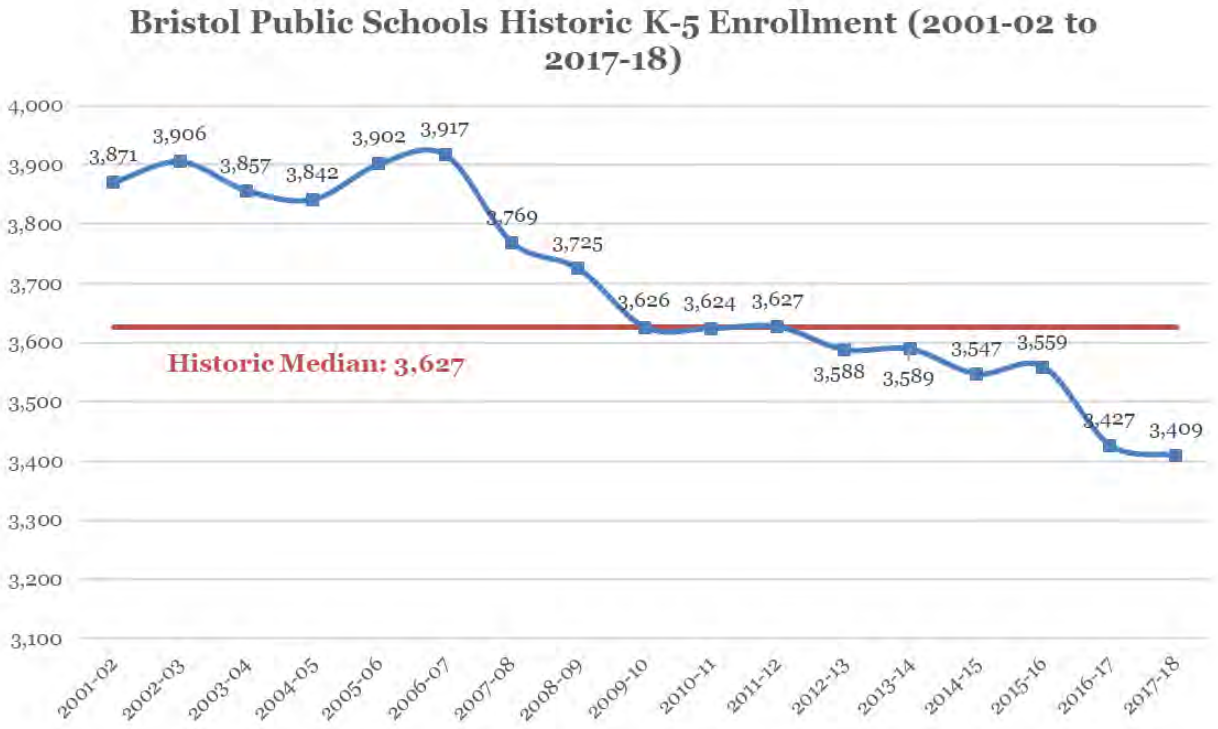
School Year	Birth Year	Births (5 Years Delayed)	K	1	2	3	4	5	6	7	8	9	10	11	12	PK
2001-02	1996	827	635	617	632	662	672	653	716	692	663	763	725	669	636	0
2002-03	1997	762	632	688	610	628	666	682	685	727	706	714	733	673	609	0
2003-04	1998	806	628	642	677	600	639	671	680	706	720	721	711	713	655	0
2004-05	1999	759	610	677	630	671	612	642	709	700	699	744	718	694	669	0
2005-06	2000	739	615	674	668	652	689	604	666	718	692	756	677	693	624	0
2006-07	2001	724	629	637	646	674	640	691	628	670	739	802	653	696	643	0
2007-08	2002	673	519	659	605	648	679	659	721	637	673	834	633	680	649	0
2008-09	2003	758	626	555	645	590	636	673	646	712	632	801	654	648	632	0
2009-10	2004	726	578	646	538	634	594	636	675	655	710	733	678	645	612	0
2010-11	2005	794	640	590	627	545	625	597	642	664	664	794	629	616	648	0
2011-12	2006	721	565	657	594	633	557	621	587	638	660	728	677	604	614	0
2012-13	2007	754	583	598	637	596	618	556	610	601	629	725	599	673	585	286
2013-14	2008	694	537	614	599	635	583	621	547	616	595	689	618	603	650	289
2014-15	2009	649	575	560	594	591	655	572	604	555	623	676	581	622	609	337
2015-16	2010	666	600	558	556	598	588	659	570	606	560	661	600	595	603	334
2016-17	2011	659	567	554	567	557	562	620	611	672	603	611	561	601	605	296
2017-18	2012	653	566	554	563	556	557	613	604	666	592	602	546	582	576	299

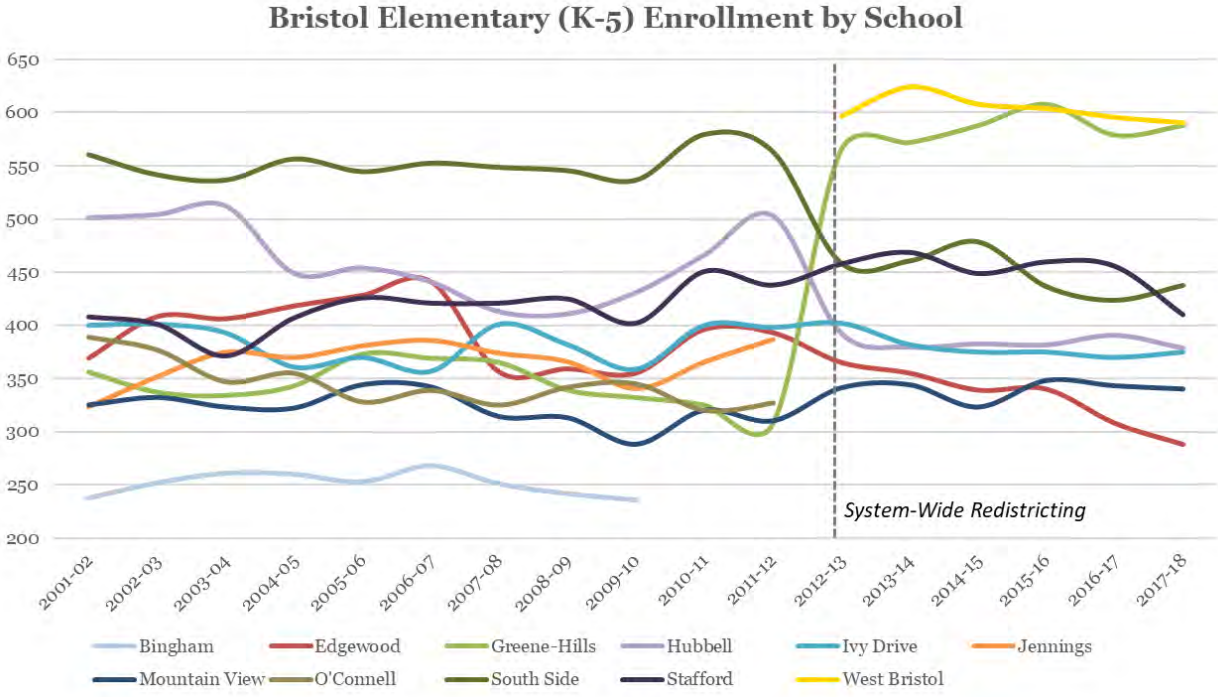
State Department of Education - Public School Information System, Summary Report for 2001-02 to 2011-12; Bristol Public Schools 2012-13 through 2017-18.



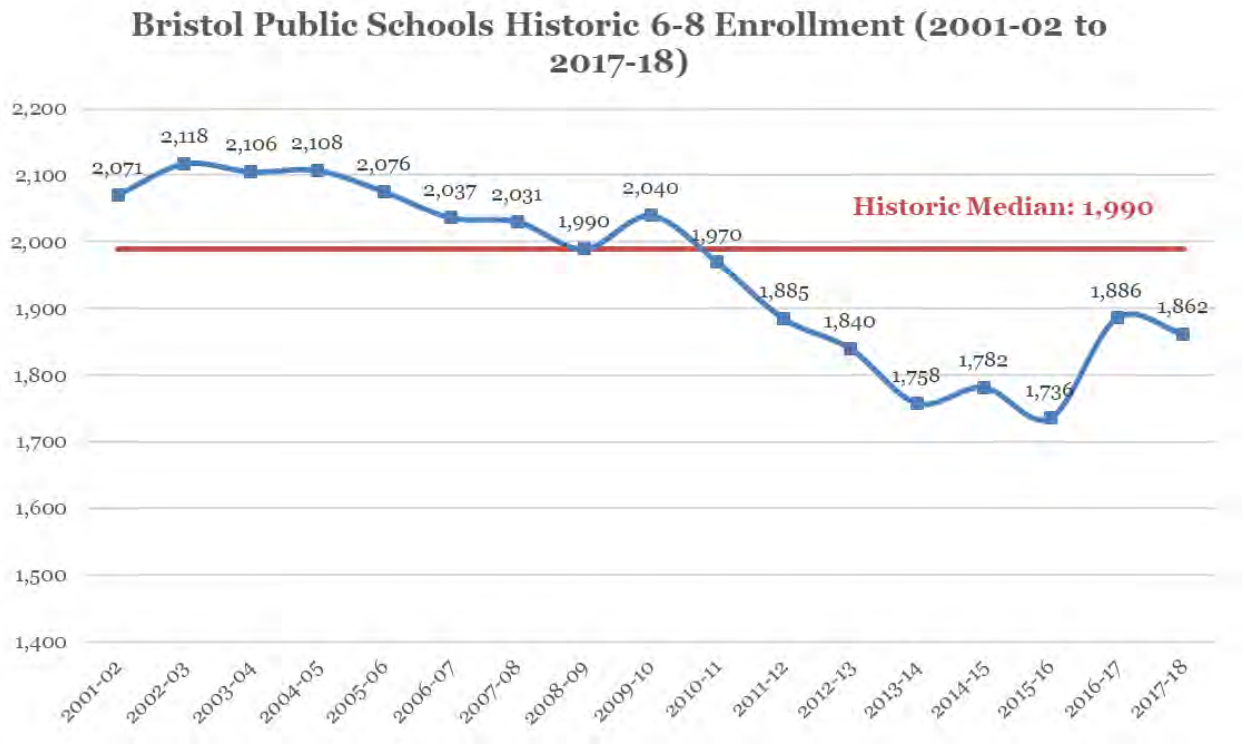
Bristol's K-5 enrollments remained relatively stable between 2001-02 and 2006-07 at approximately 3,850 to 3,900 students, with a peak of 3,917 in 2006-07. In the following year, enrollment dropped precipitously to 3,769 K-5 students as an unusually large 5th grade cohort matriculated to the middle school level and the smallest entering kindergarten cohort on record entered the system.

K-5 enrollments continued to decline in the following years, albeit with a brief period of stability from 2009-10 to 2011-12. Any indications of recovery from a small uptick in 2015-16 were contradicted by another large decline in enrollment in 2016-17, again driven by a large exiting 5th grade cohort being replaced by a small entering kindergarten one.



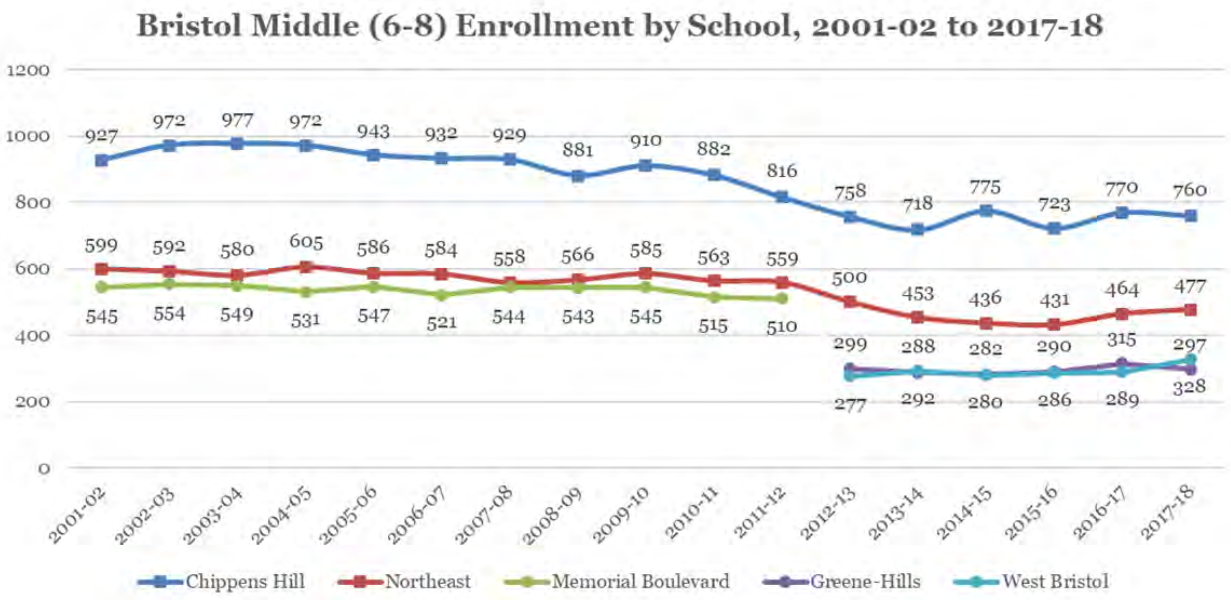


Examining K-5 enrollment at the individual school level, the restructuring of Bristol's elementary school system in 2012-13 is apparent. The addition of the West Side and Greene-Hills Schools, each at approximately 575-625 students, allowed for redistricting that resulted in smaller student bodies at the South Side, Hubbell, and Edgewood Schools. Since the redistricting occurred, enrollment declines have been felt most acutely at the Edgewood, Ivy Drive, and Stafford Schools, which each has seen enrollments shrink by at least 30 students since 2012-13.

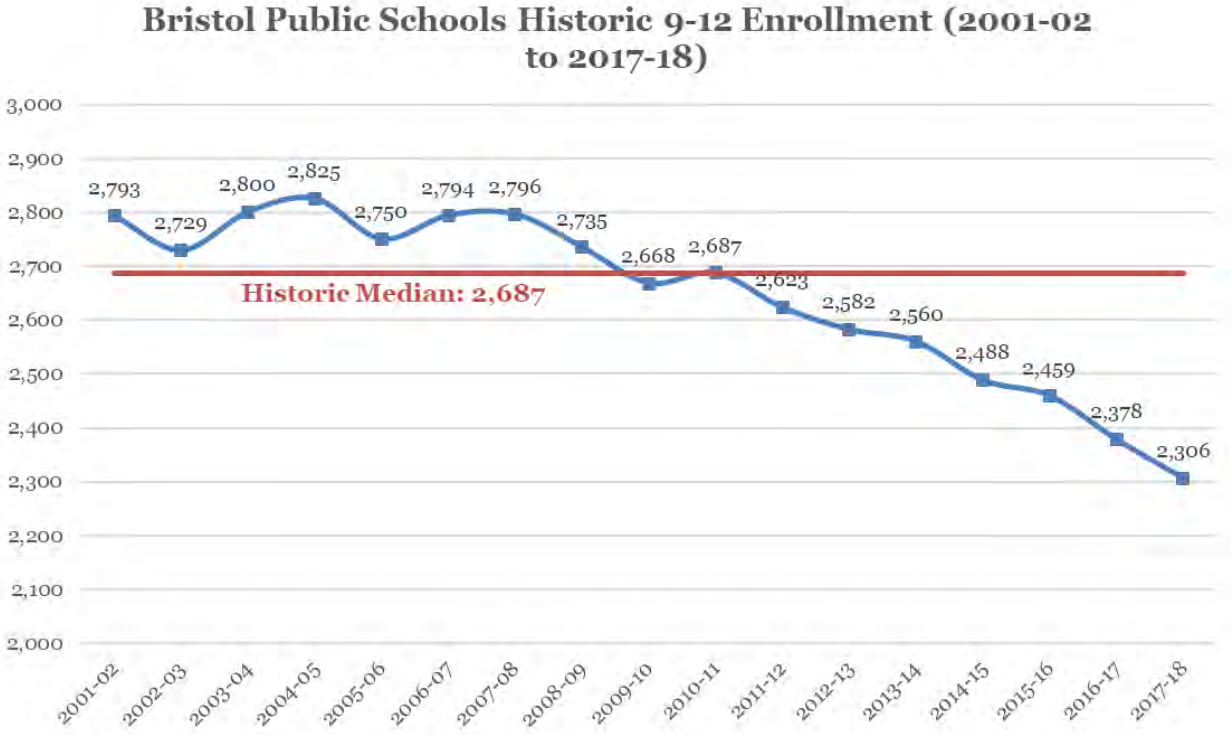


At the middle school level, enrollments began a slow decline slightly earlier than at the elementary level, around 2005-06. After a brief recovery in 2009-10 back above 2,000 students, a stronger period of decline resumed through 2013-14, bringing enrollments from around 2,100 in the early 2000s to 1,758. The 2016-17 school year saw a strong uptick in middle school enrollments due to the influence of a large incoming 6th grade cohort. Current 6-8 grade enrollments stand some 8.6% below 2009-10 levels.

At the individual school level, enrollment declines have been concentrated at Northeast and Chippens Hill while the K-8 programs at Greene-Hills and West Bristol have held steady since they opened in 2012-13. While Northeast saw particularly strong declines in enrollment since the opening of the K-8 programs, the last 2 years have seen enrollments recover by close to 50 students.



At the high school level, sustained enrollment declines have occurred since 2007-08 and have reduced the system's grade 9-12 population by nearly 500 students since that time. This decline has been particularly sharp in the past 2 years, due to a smaller entering cohort in 2016-17, as well as losses in the 9th to 10th and 10th to 11th grade transitions.



Non-Bristol Public Schools Enrollment

Examining the role and trends in non-BPS enrollment of resident students is an important factor in projecting future enrollments. Data on all resident students known to the district to be enrolled in other public or non-public programs was provided by BPS administration for years 2012-13 through 2016-17. Based on this data, approximately 80 students are enrolled in non-BPS programs in each given year, or about 1% of the district's enrollment. The majority of students enrolled in non-BPS programs are at the high school level although smaller numbers of students in the middle school and upper elementary grades also participate in outside programs. While the number of students enrolling in private or other public programs has increased over the last several years, it still makes up a very small share of overall districtwide enrollment.

Non-BPS Enrollment, 2012-13 through 2016-17

Grade	K	1	2	3	4	5	6	7	8	9	10	11	12	Total
2012-13	0	0	4	5	0	5	3	3	7	9	11	8	15	70
2013-14	1	3	2	6	5	1	4	5	3	4	14	10	15	73
2014-15	0	1	6	5	5	7	2	6	6	4	6	15	17	80
2015-16	0	1	3	5	6	5	7	4	7	9	4	8	23	82
2016-17	1	3	1	5	6	4	7	10	6	9	13	6	22	93
Average (grade)	0	2	3	5	4	4	5	6	6	7	10	9	18	80
Average (grade level)	18						17			44				

Prior Projections Review

The last set of projections prepared for Bristol was based on 2011-12 enrollment data and projected enrollments through 2018-19. A comparison of projected and actual enrollments shows that projected districtwide K-12 enrollments differed by less than 1% from actual October 1 enrollment counts for the first three years and by approximately 2% or less for the second 3 years of the projection horizon. Compared to the standard benchmark for cohort-survival projections of 1% compounding error per year removed from known data, the projections for Bristol's K-12 population performed quite well. Projected enrollments ran slightly lower than actual enrollments, indicating that BPS enrollments declined slightly slower than the projection scenario depicted.

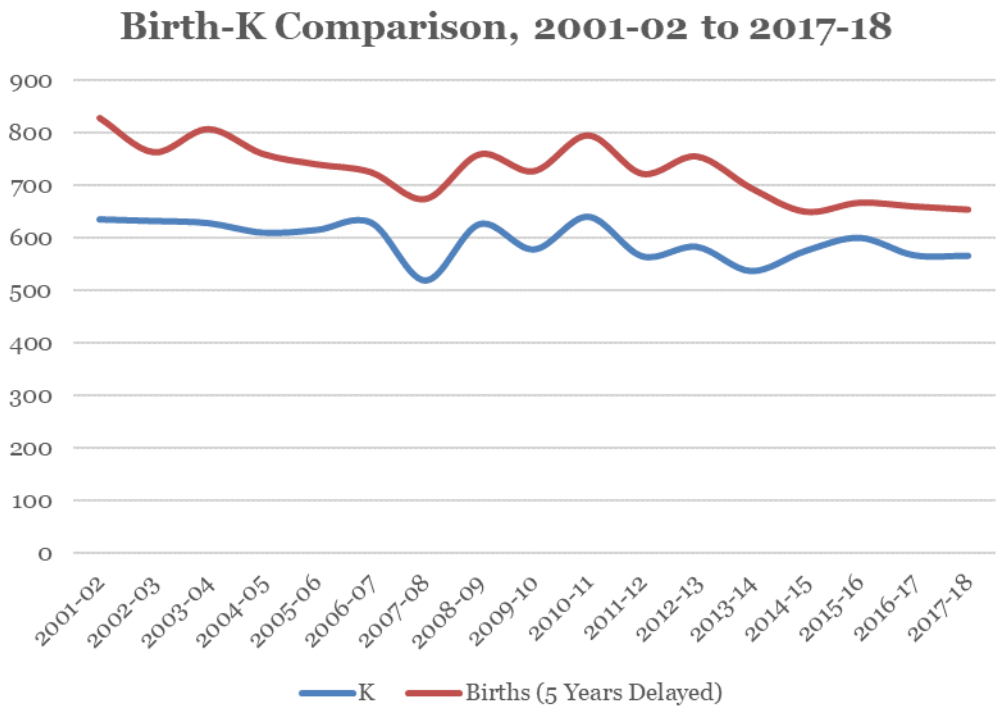
Projected and Actual Enrollments by Grade Range 2012-13 to 2017-18

	K-5			6-8			9-12			K-12		
Year	*Proj.*	*Actual*	*% Diff.*	*Proj.*	*Actual*	*% Diff.*	*Proj.*	*Actual*	*% Diff.*	*Proj.*	*Actual*	*% Diff.*
2012-13	3610	3588	0.6%	1845	1840	0.3%	2603	2582	0.8%	8058	8010	0.6%
2013-14	3614	3589	0.7%	1761	1758	0.2%	2579	2560	0.7%	7954	7907	0.6%
2014-15	3496	3547	-1.5%	1809	1782	1.5%	2460	2488	-1.1%	7765	7817	-0.7%
2015-16	3433	3559	-3.7%	1784	1736	2.7%	2440	2459	-0.8%	7657	7754	-1.3%
2016-17	3327	3427	-3.0%	1877	1886	-0.5%	2330	2378	-2.1%	7534	7691	-2.1%
2017-18	3289	3409	-3.7%	1814	1862	-2.7%	2332	2306	1.1%	7435	7577	-1.9%

Examining the performance of the prior projections by grade groupings (K-5, 6-8, and 9-12), projected and actual enrollments aligned well for all projected years. Projected elementary enrollments were consistently slightly lower than actual K-5 enrollment as declines were gradual from 2012-13 through 2015-16. Middle school projections were slightly high in the first 4 years but slightly underestimated the magnitude of enrollment growth in 2016-17 and 2017-18. No consistent low or high bias is evident in projections for grades 9-12.

Kindergarten Enrollment Trends and Migration

Bristol's annual birth count has been in decline since the mid 2000s, but only in the past 4 years has the gap in size narrowed between annual birth cohorts and the annual cohort of entering kindergarten students (as shown on the *Birth-K Comparison* chart below). This trend indicates some combination of reduced outmigration and/or increased in-migration of families with young children to the community. This pattern aligns with the sharp increase in home sales the community has seen in the past 5 years, following local sales records reaching a low point in 2011 (as discussed above). Accordingly, BPS's Birth-K persistency ratio (or the ratio of kindergarten enrollments to births 5 years prior) has increased from an average of 0.80 prior to 2014-15 to approximately 0.88 in the last 4 years.



Enrollment Projections

Methodology

The cohort-survival methodology, with some modifications, was used to calculate all projections in this report. This is a standard methodology for projecting populations and student enrollments and relies on the recent past as a predictor of the future. It works well for stable populations, including those that are growing or declining at a steady rate.

Persistency ratios were calculated from historic and current enrollments to determine growth or loss in a grade cohort as it progresses through the school system. Persistency ratios of 1.00 mean that the cohort remains the same as it advances from one grade to the next. A persistency ratio of 1.05 means the cohort increased by 5% or a class of 100 gained five additional students the next year. Persistency ratios were calculated from historic and current enrollments to determine growth or loss in a grade cohort as it progresses through the school system. Persistency ratios of 1.00 mean that the cohort remains the same as it advances from one grade to the next. A persistency ratio of 1.05 means the cohort increased by 5% or a class of 100 gained five additional students the next year. Enrollment data from 2001-02 through 2017-18 and birth data from 1996 to 2012 were used to calculate the birth-K and grade-to-grade persistency ratios shown in the table on the following page.

Persistency ratios account for the various factors affecting enrollments, including housing development and sales, economic conditions, student transfers, and mobility into and out of a school district; however, they function best in a system that has stable trends – whether steadily increasing, decreasing, or remaining flat. As discussed above, Bristol's Birth-K persistency ratio has risen significantly in the past several years, from an average of approximately 0.80 in the 2000s and early 2010s to an average of 0.88 in the past 4 years. Another notable trend apparent in these figures is an unusual level of in-migration in the past 2 years into the 5th and 7th grade cohorts.

Year	Birth-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	Elem. Migration
2002-03	0.8294	1.0835	0.9887	0.9937	1.0060	1.0149	1.0490	1.0154	1.0202	1.0769	0.9607	0.9283	0.9103	1.7%
2003-04	0.7792	1.0158	0.9840	0.9836	1.0175	1.0075	0.9971	1.0307	0.9904	1.0212	0.9958	0.9727	0.9733	0.2%
2004-05	0.8037	1.0780	0.9813	0.9911	1.0200	1.0047	1.0566	1.0294	0.9901	1.0333	0.9958	0.9761	0.9383	1.4%
2005-06	0.8322	1.1049	0.9867	1.0349	1.0268	0.9869	1.0374	1.0127	0.9886	1.0815	0.9099	0.9652	0.8991	2.7%
2006-07	0.8688	1.0358	0.9585	1.0090	0.9816	1.0029	1.0397	1.0060	1.0292	1.1590	0.8638	1.0281	0.9278	-0.3%
2007-08	0.7712	1.0477	0.9498	1.0031	1.0074	1.0297	1.0434	1.0143	1.0045	1.1286	0.7893	1.0413	0.9325	0.7%
2008-09	0.8259	1.0694	0.9788	0.9752	0.9815	0.9912	0.9803	0.9875	0.9922	1.1902	0.7842	1.0237	0.9294	-0.4%
2009-10	0.7961	1.0319	0.9694	0.9829	1.0068	1.0000	1.0030	1.0139	0.9972	1.1598	0.8464	0.9862	0.9444	-0.1%
2010-11	0.8060	1.0208	0.9706	1.0130	0.9858	1.0051	1.0094	0.9837	1.0137	1.1183	0.8581	0.9086	1.0047	-0.2%
2011-12	0.7836	1.0266	1.0068	1.0096	1.0220	0.9936	0.9832	0.9938	0.9940	1.0964	0.8526	0.9603	0.9968	1.2%
2012-13	0.7732	1.0584	0.9696	1.0034	0.9763	0.9982	0.9823	1.0239	0.9859	1.0985	0.8228	0.9941	0.9685	0.0%
2013-14	0.7738	1.0532	1.0017	0.9969	0.9782	1.0049	0.9838	1.0098	0.9900	1.0954	0.8524	1.0067	0.9658	0.7%
2014-15	0.8860	1.0428	0.9674	0.9866	1.0315	0.9811	0.9726	1.0146	1.0114	1.1361	0.8433	1.0065	1.0100	0.1%
2015-16	0.9009	0.9704	0.9929	1.0067	0.9949	1.0061	0.9965	1.0033	1.0090	1.0610	0.8876	1.0241	0.9695	-0.5%
2016-17	0.8604	0.9233	1.0161	1.0018	0.9398	1.0544	0.9272	1.1789	0.9950	1.0911	0.8487	1.0017	1.0168	-1.4%
2017-18	0.8668	0.9771	1.0162	0.9806	1.0000	1.0907	0.9742	1.0900	0.8810	0.9983	0.8936	1.0374	0.9584	1.3%
Long Term Average	0.8223	1.0337	0.9837	0.9983	0.9985	1.0107	1.0022	1.0255	0.9933	1.0966	0.8753	0.9913	0.9591	
Last 5-Yr Average	0.8576	0.9934	0.9989	0.9945	0.9889	1.0274	0.9709	1.0593	0.9773	1.0764	0.8651	1.0153	0.9841	
Last 4-Yr Average	0.8785	0.9784	0.9982	0.9939	0.9916	1.0331	0.9676	1.0717	0.9741	1.0716	0.8683	1.0174	0.9887	
Last 3-Yr Average	0.8760	0.9569	1.0084	0.9964	0.9782	1.0504	0.9660	1.0907	0.9617	1.0501	0.8766	1.0211	0.9816	
3-Yr Weighted Avg	0.8704	0.9581	1.0123	0.9920	0.9791	1.0645	0.9623	1.1052	0.9403	1.0397	0.8776	1.0233	0.9797	
Last 2-Yr Average	0.8636	0.9502	1.0162	0.9912	0.9699	1.0726	0.9507	1.1345	0.9380	1.0447	0.8712	1.0196	0.9876	

An estimate of migration was calculated on the basis of year-to-year changes in cohorts at the most stable grade levels in order to determine the degree to which migration in and out of the school system has affected enrollments and persistency ratios. Migration in each year was estimated as a ratio of K to 4th grade enrollments in the previous year to 1st to 5th grade enrollments in the following year; these grade levels traditionally have the greatest level of stability. For example, minimal movement in and out of private school generally takes place in these grades. A gain in enrollment during these years indicates in-migration into the district while a loss indicates out-migration, whether due to a change in residence, transfer to or from private school, or other circumstances. For the 2017-18 school year, net in-migration occurred across these grades at a faster rate than seen in the previous decade, where most years saw net declines or increases under 1%.

Projection Scenarios

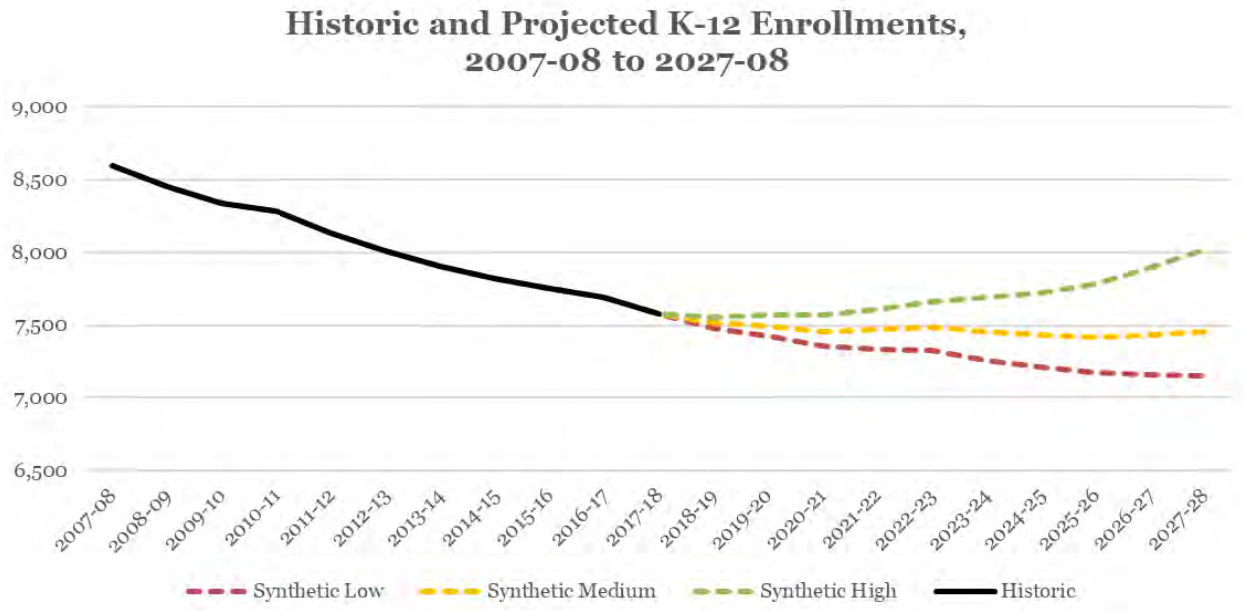
We prepared low, medium, and high projections based on different sets of assumptions regarding economic conditions, births, and persistency ratios. The high projection model is predicated on economic growth, declining unemployment, and an upturn in the local housing market as drivers for increased birth estimates and persistency ratios, leading to higher enrollment projections. By contrast, the low-growth model is predicated on a moderate economic downturn, affecting both migration and fertility over the next several years. The following table shows the anticipated change in births, home sales, and unemployment assumed under our three different growth models from 2017 to 2022, the 6 years in which birth projections are necessary.

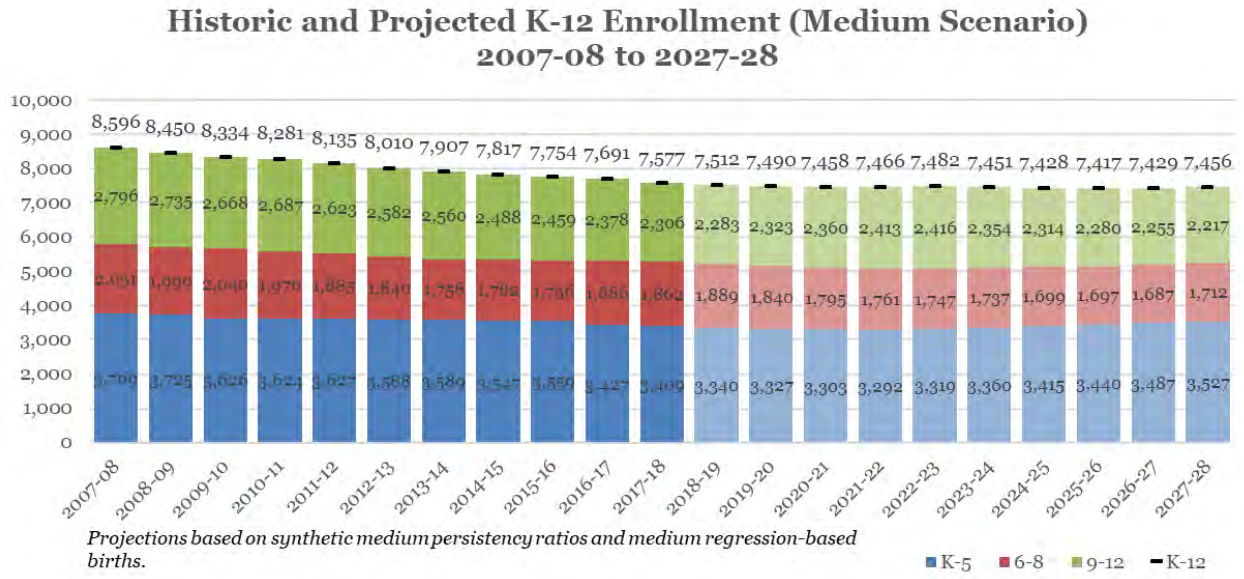
Projection Assumptions

	Low	Mid	High
Annual Home Sales	400 - 515	532 - 585	550 - 730
Bristol % Unemp.	6.3% - 8.1%	5.0% - 5.5%	3.5% - 5.1%
Annual Births	668 - 691	691 - 706	708 - 767

Three sets of projected enrollments provide a range of possible future scenarios for BPS. The low scenario puts forward a pessimistic outlook based on a scenario of economic decline, with both migration, employment rates, and births softening relative-to-recent trends at the same time. The medium projection scenario anticipates the continuation of current economic and migration trends while the high projection model is predicated on more substantial and rapid growth in the labor and housing markets. **In our judgment, the medium-growth scenario presents the most appropriate model for long-term projections over the 10-year planning horizon of this study.** However, it is necessary to continue to monitor trends in Birth-K persistency ratios, as well as local births, in order to ensure well-calibrated projections.

Districtwide Enrollment Projections





Low Enrollment Projections

Low Districtwide Projections

School Year	Birth Year	Births	K	1	2	3	4	5	6	7	8	9	10	11	12	PK
2016-17	2011	659	567	554	567	557	562	620	611	672	603	611	561	601	605	296
2017-18	2012	653	566	554	563	556	557	613	604	666	592	602	546	582	576	299
2018-19	2013	628	539	542	559	561	544	585	595	640	640	628	521	554	573	307
2019-20	2014	668	573	516	547	557	549	571	568	630	615	678	543	529	545	307
2020-21	2015	642	551	548	520	545	545	577	554	602	606	652	587	551	521	307
2021-22	2016	655	562	527	553	518	533	572	560	587	579	642	564	596	542	307
2022-23	2017	691	593	538	531	551	507	560	555	593	565	614	555	573	587	307
2023-24	2018	686	588	567	543	529	539	533	544	588	570	599	531	563	564	307
2024-25	2019	673	577	563	572	541	517	566	517	576	565	604	518	539	554	307
2025-26	2020	676	580	552	568	570	529	543	550	548	554	599	523	526	530	307
2026-27	2021	672	576	555	557	566	558	556	527	583	527	587	518	531	518	307
2027-28	2022	668	573	551	560	555	554	586	540	558	561	559	508	526	523	307

	Total PK-12	Total K-12	Total K-5	Total 6-8	Total 9-12
2016-17	7,987	7,691	3,427	1,886	2,378
2017-18	7,876	7,577	3,409	1,862	2,306
2018-19	7,788	7,481	3,330	1,875	2,276
2019-20	7,728	7,421	3,313	1,813	2,295
2020-21	7,666	7,359	3,286	1,762	2,311
2021-22	7,642	7,335	3,265	1,726	2,344
2022-23	7,629	7,322	3,280	1,713	2,329
2023-24	7,565	7,258	3,299	1,702	2,257
2024-25	7,516	7,209	3,336	1,658	2,215
2025-26	7,479	7,172	3,342	1,652	2,178
2026-27	7,466	7,159	3,368	1,637	2,154
2027-28	7,461	7,154	3,379	1,659	2,116

	PK-12	K-12	K-5	6-8	9-12
5 Yr Change	-3.1%	-3.4%	-3.8%	-8.0%	1.0%
10 Yr Change	-5.3%	-5.6%	-0.9%	-10.9%	-8.2%

Medium Enrollment Projections

Medium Districtwide Projections

School Year	Birth Year	Births	K	1	2	3	4	5	6	7	8	9	10	11	12	PK
2016-17	2011	659	567	554	567	557	562	620	611	672	603	611	561	601	605	296
2017-18	2012	653	566	554	563	556	557	613	604	666	592	602	546	582	576	299
2018-19	2013	628	542	542	561	558	544	593	593	647	649	634	523	556	570	307
2019-20	2014	668	577	519	549	557	546	579	574	636	630	695	551	532	545	307
2020-21	2015	642	554	553	525	545	545	581	560	615	620	675	603	561	521	307
2021-22	2016	655	566	531	560	521	534	580	562	600	599	664	586	613	550	307
2022-23	2017	700	605	542	538	556	510	568	561	602	584	642	577	596	601	307
2023-24	2018	706	610	580	549	534	544	543	550	601	586	626	557	587	584	307
2024-25	2019	691	597	584	587	545	523	579	525	589	585	628	544	567	575	307
2025-26	2020	699	604	572	591	582	534	557	560	563	574	627	545	553	555	307
2026-27	2021	701	605	579	579	586	570	568	539	600	548	615	544	554	542	307
2027-28	2022	702	606	580	586	574	574	607	550	578	584	587	534	553	543	307

	Total PK-12	Total K-12	Total K-5	Total 6-8	Total 9-12
2016-17	7,987	7,691	3,427	1,886	2,378
2017-18	7,876	7,577	3,409	1,862	2,306
2018-19	7,819	7,512	3,340	1,889	2,283
2019-20	7,797	7,490	3,327	1,840	2,323
2020-21	7,765	7,458	3,303	1,795	2,360
2021-22	7,773	7,466	3,292	1,761	2,413
2022-23	7,789	7,482	3,319	1,747	2,416
2023-24	7,758	7,451	3,360	1,737	2,354
2024-25	7,735	7,428	3,415	1,699	2,314
2025-26	7,724	7,417	3,440	1,697	2,280
2026-27	7,736	7,429	3,487	1,687	2,255
2027-28	7,763	7,456	3,527	1,712	2,217

	PK-12	K-12	K-5	6-8	9-12
5 Yr Change	-1.1%	-1.3%	-2.6%	-6.2%	4.8%
10 Yr Change	-1.4%	-1.6%	3.5%	-8.1%	-3.9%

High Enrollment Projections

High Districtwide Projections

School Year	Birth Year	Births	K	1	2	3	4	5	6	7	8	9	10	11	12	PK
2016-17	2011	659	567	554	567	557	562	620	611	672	603	611	561	601	605	296
2017-18	2012	653	566	554	563	556	557	613	604	666	592	602	546	582	576	299
2018-19	2013	628	547	577	553	560	551	575	592	659	651	634	523	556	575	307
2019-20	2014	668	581	558	576	550	555	569	555	646	644	698	551	532	550	307
2020-21	2015	642	559	593	557	572	545	573	550	605	631	690	606	561	526	307
2021-22	2016	655	570	570	592	554	567	563	554	600	591	676	599	617	555	307
2022-23	2017	708	616	581	569	588	549	586	544	604	586	633	587	609	610	307
2023-24	2018	735	640	628	580	566	583	567	566	593	590	628	550	597	602	307
2024-25	2019	725	631	653	627	576	561	602	548	617	580	632	545	560	590	307
2025-26	2020	749	652	644	652	623	571	580	582	598	603	622	549	554	554	307
2026-27	2021	756	658	665	643	648	618	590	560	635	584	646	540	559	548	307
2027-28	2022	767	668	671	664	639	643	638	570	611	621	626	561	549	553	307

	Total PK-12	Total K-12	Total K-5	Total 6-8	Total 9-12
2016-17	7,987	7,691	3,427	1,886	2,378
2017-18	7,876	7,577	3,409	1,862	2,306
2018-19	7,860	7,553	3,363	1,902	2,288
2019-20	7,872	7,565	3,389	1,845	2,331
2020-21	7,875	7,568	3,399	1,786	2,383
2021-22	7,915	7,608	3,416	1,745	2,447
2022-23	7,969	7,662	3,489	1,734	2,439
2023-24	7,997	7,690	3,564	1,749	2,377
2024-25	8,029	7,722	3,650	1,745	2,327
2025-26	8,091	7,784	3,722	1,783	2,279
2026-27	8,201	7,894	3,822	1,779	2,293
2027-28	8,321	8,014	3,923	1,802	2,289

	PK-12	K-12	K-5	6-8	9-12
5 Yr Change	1.2%	1.1%	2.3%	-6.9%	5.8%
10 Yr Change	5.7%	5.8%	15.1%	-3.2%	-0.7%

The low and medium projection scenarios both depict declines in enrollment for most or all of the next 10 years while the high projection scenario shows small declines in 2018-19 before stabilizing for several years and experiencing an increasing level of growth in the second half of the projection horizon. The medium scenario, which is recommended as the scenario most likely to reflect future conditions, depicts an overall decline to 7,466 K-12 students (9.1% below current levels) by 2021-22, the last year of known births. This scenario shows a continued decline to 2025-26, with slight increases projected in the final 2 years. This scenario reaches a low of 7,417 in 2025-26, a decline of 2.1% from current enrollment levels.

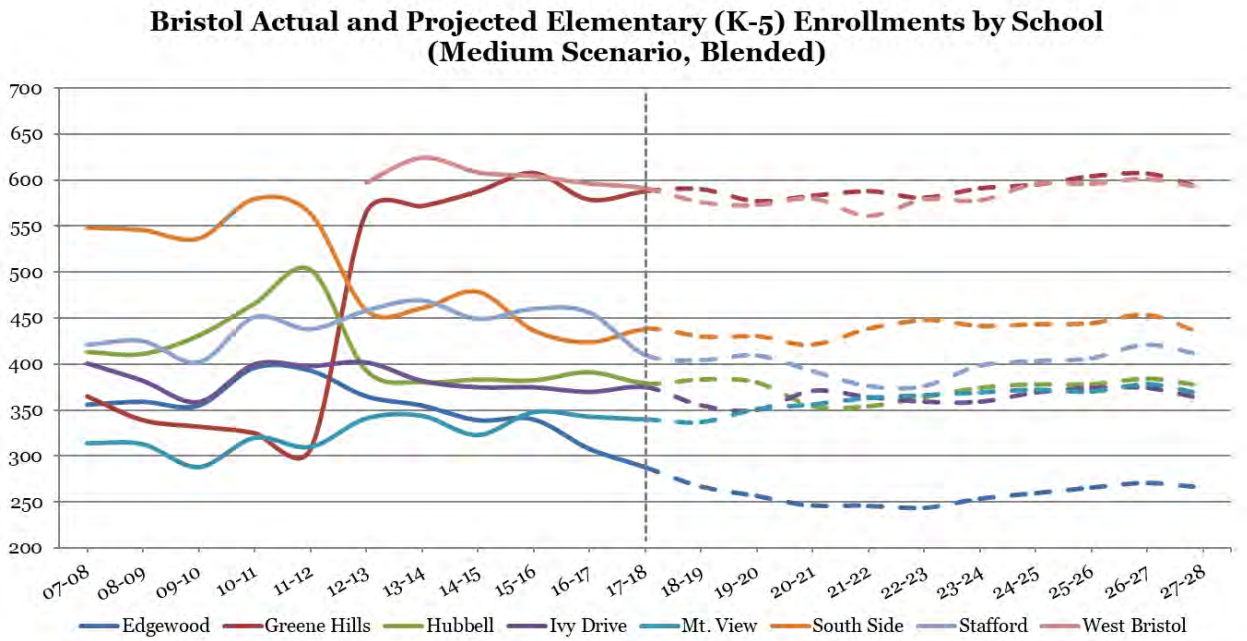
Comparing across scenarios, projected declines in enrollment are projected to occur most dramatically at the middle school (grades 6-8) level throughout the projection horizon. In the first 5 years of projected enrollments, this grade level is projected to see a decline of 6.2% to 8.0%, with further declines expected to occur under the low and medium projection scenarios. The elementary school (grades K-5) level is also projected to experience enrollment declines under the low and medium scenarios, reaching a low point in 2021-22 between 2.6% and 3.8% lower than current K-5 enrollments. By contrast, the high scenario depicts a small K-5 enrollment decline in 2018-19 before recovering above current levels by 2021-22. All three scenarios show some recovery in the latter half of the projection horizon, with particularly strong and sustained growth under the high scenario reaching levels 15% above current K-5 enrollments (comparable to levels seen in the mid 2000s).

At the high school level, all three scenarios depict an increase in enrollment during the first half of the projection horizon as larger cohorts progress through grades 9 through 12 in 2020-21 and 2021-22. As these cohorts graduate out of the system, declining high school enrollments are projected for 2022-23 through the end of the projection horizon as smaller known cohorts take their place.

Individual Enrollment Projections

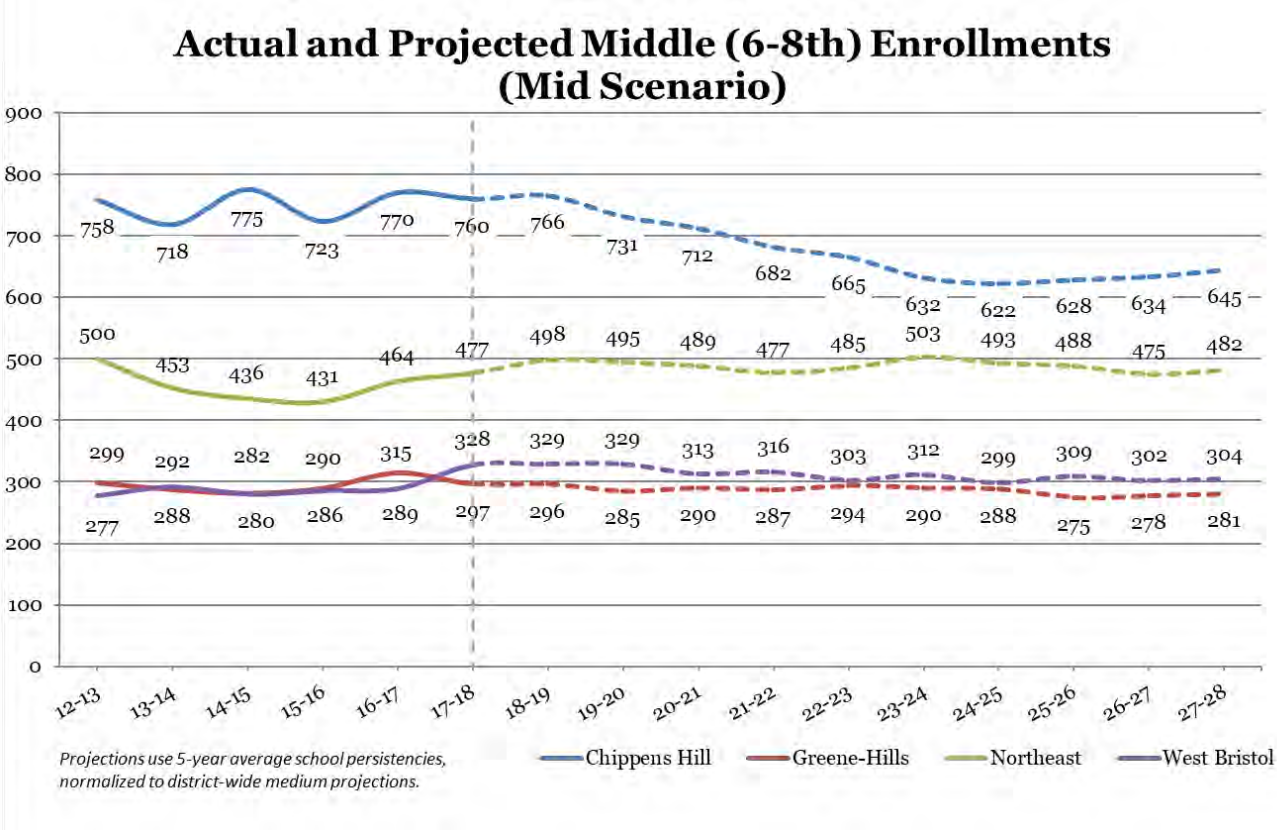
Projections of enrollments at individual elementary and middle BPS facilities were prepared for a 10-year horizon based on the districtwide projections described above. The projections described below are based on the medium projection scenario; full details of all three scenarios are contained in Appendix 2 below.

At the elementary grade levels, overall enrollments are projected to decline to 2021-22 before beginning to recover. In the first 5 years of projections, the Edgewood and Stafford Schools are expected to experience the most dramatic declines in enrollment by 20.1% and 17.5%, respectively. Ellen P. Hubbell is also projected to experience a more moderate decline of 9.5%. By contrast, Mountain View is expected to see modest enrollment growth during this period. In the latter half of the projections, Edgewood, Hubbell, and Stafford are expected to see significant rebounds after the enrollment losses in the first 5 years, but all elementary buildings are expected to see some growth during this period.

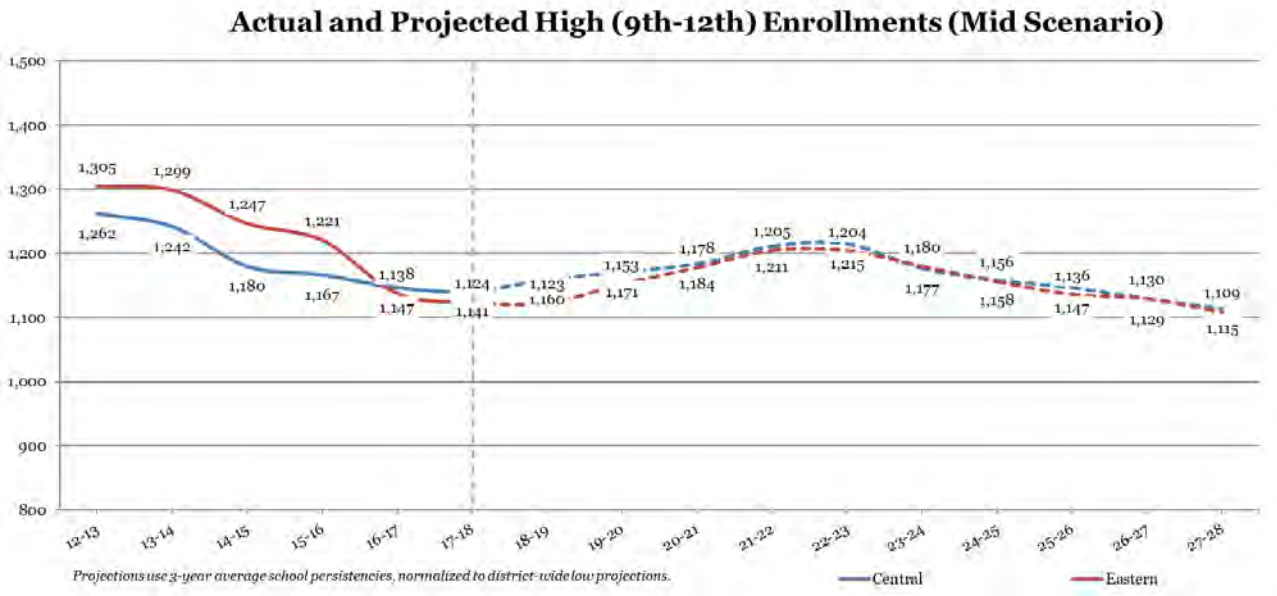


Projections based on 5-year average by-school persistencies (4-year for West Bristol due to limited historic enrollments), normalized to district-wide low scenario projections.

At the middle school grade level, districtwide projections indicate significant declines through the projection horizon, with a small uptick evident in the final year (2027-28). The most dramatic decline in the first 5 years is projected to occur at Chippens Hill (12.5% decline), with West Bristol also experiencing some enrollment losses (7.6% decline). The projections show greater stability in the latter half of the projection horizon, with a slow recovery occurring at Chippens Hill in the last 3 years of projections.



Lastly, projections for the high school grade level show a pattern of increase through 2021-22 at Bristol Central and 2022-23 at Bristol Eastern. Following this peak, Bristol Eastern is projected to decline by 8.2% while Bristol Central is projected to decline by 7.9%. Minimal differences are evident between the two schools' enrollment trajectories through the projection horizon.



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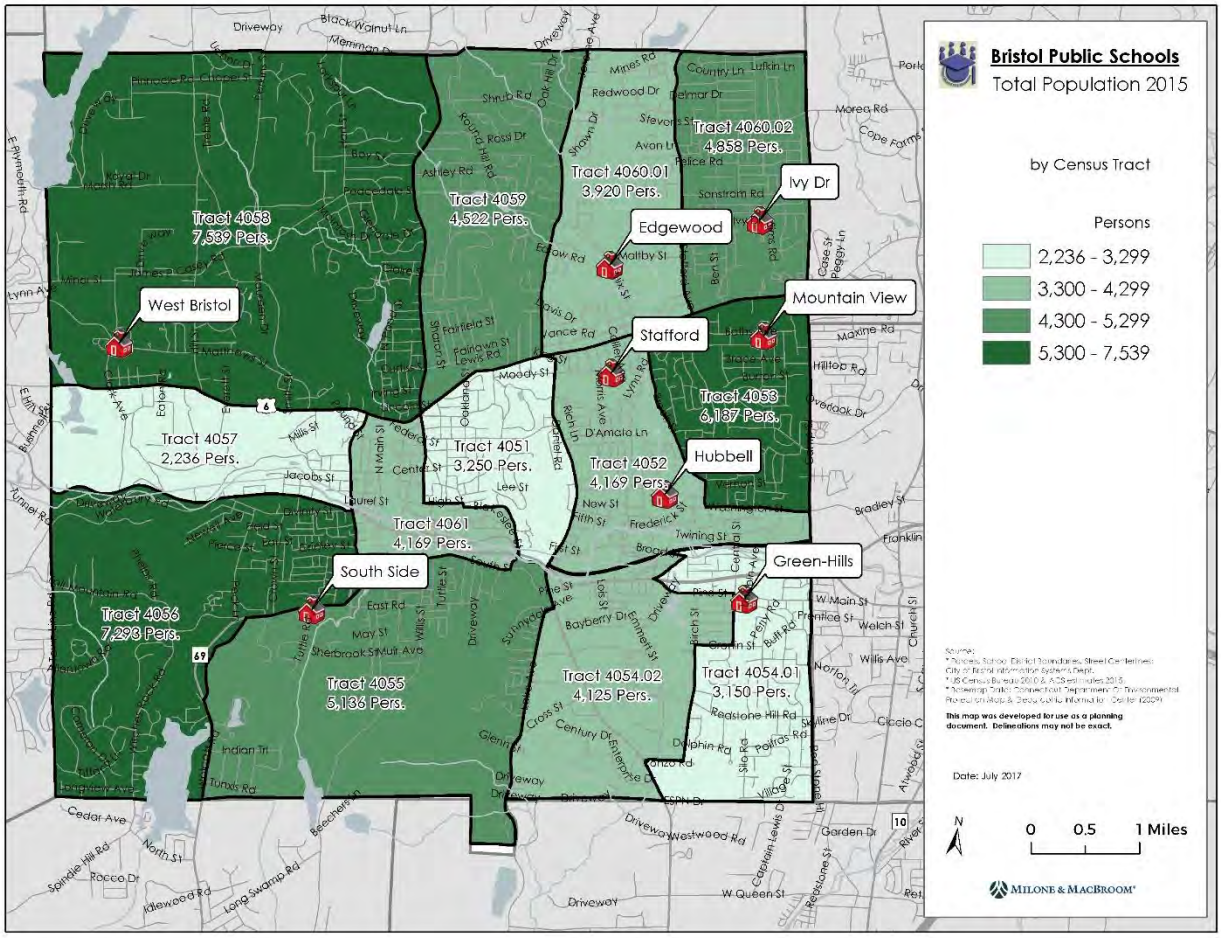
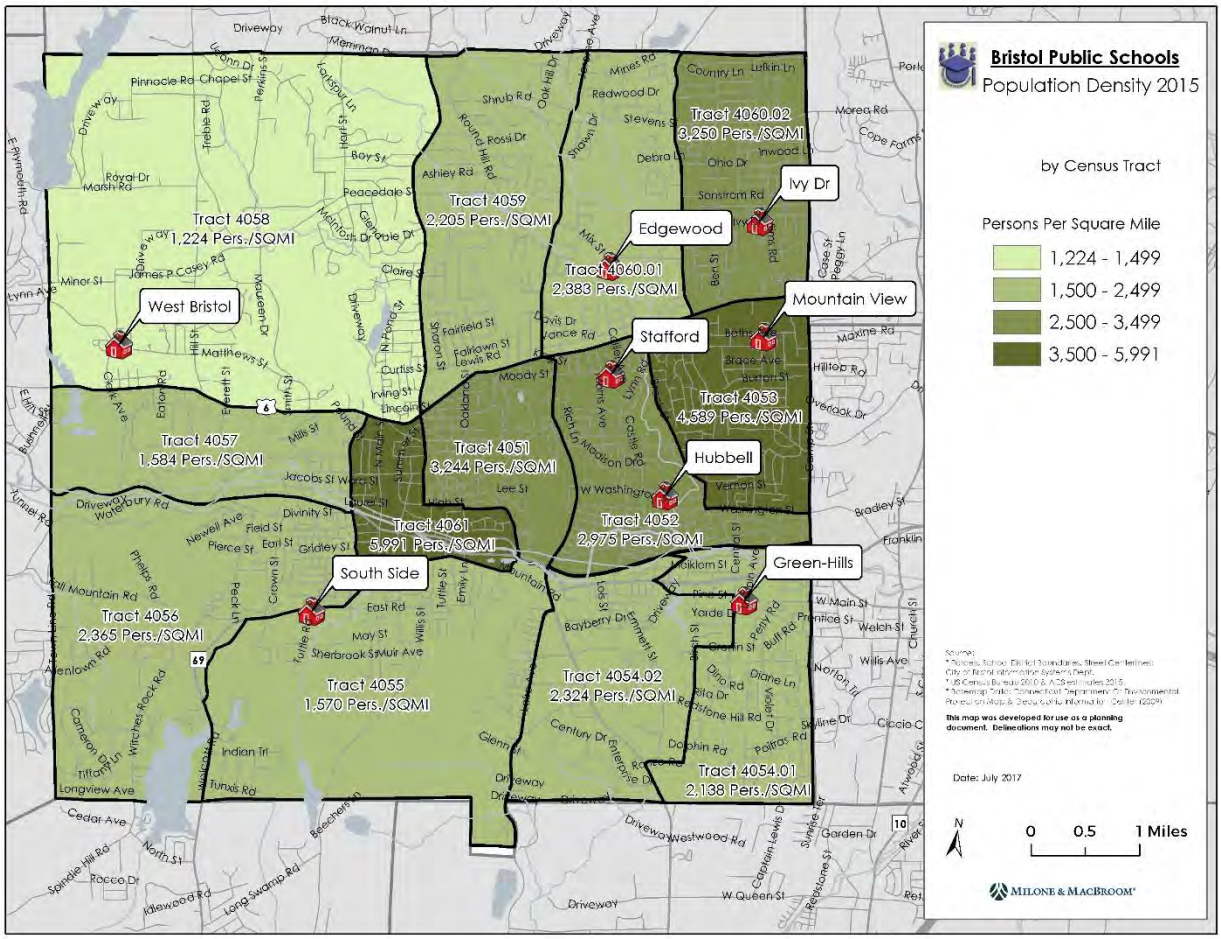
Appendix 1: Demographic and Statistical Mapping

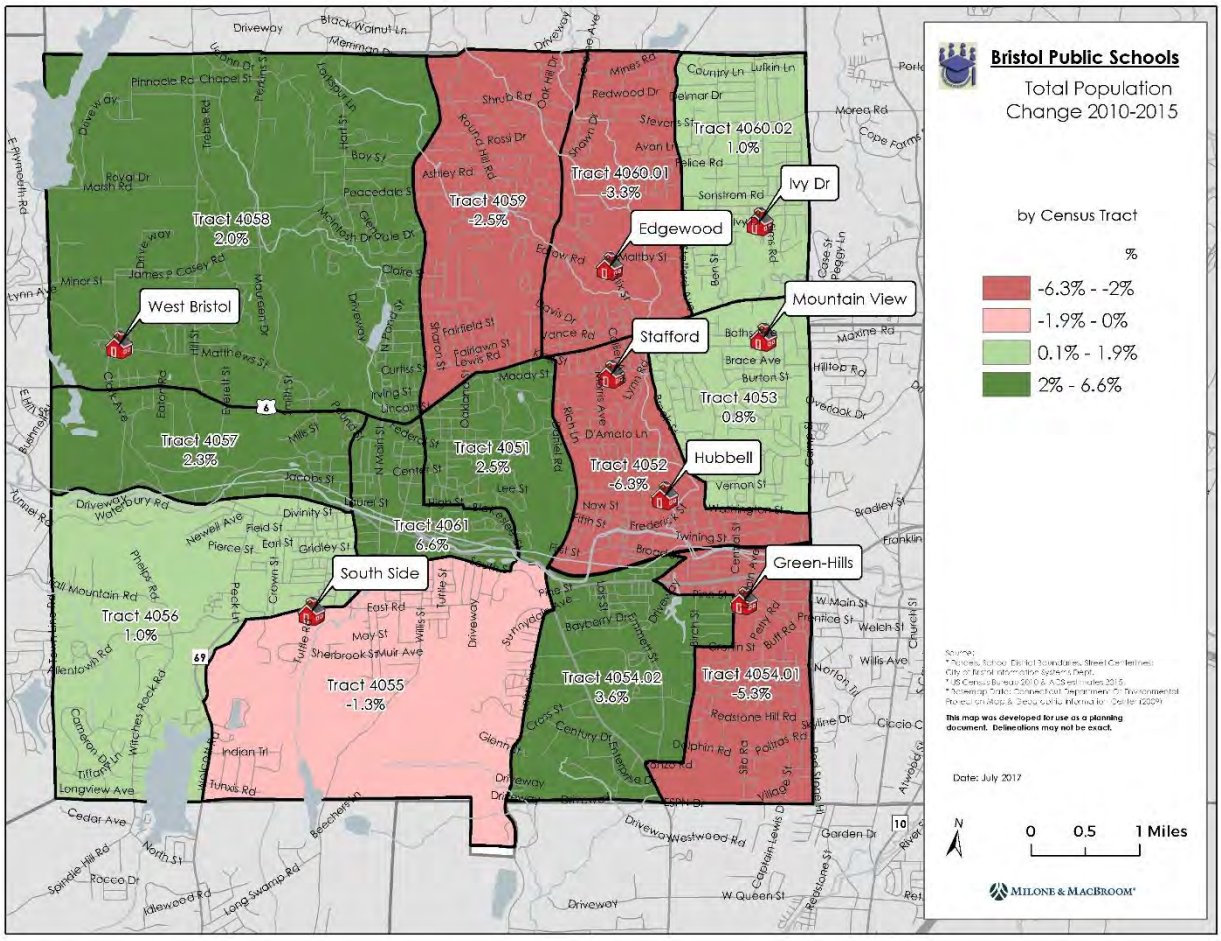
The following maps depict key demographic and housing market indicators that informed our analysis of Bristol's enrollment patterns. Unless otherwise noted, the data displayed on these maps is drawn from the US Census Bureau's 2000 and 2010 Decennial Census and/or the 2015 ACS.



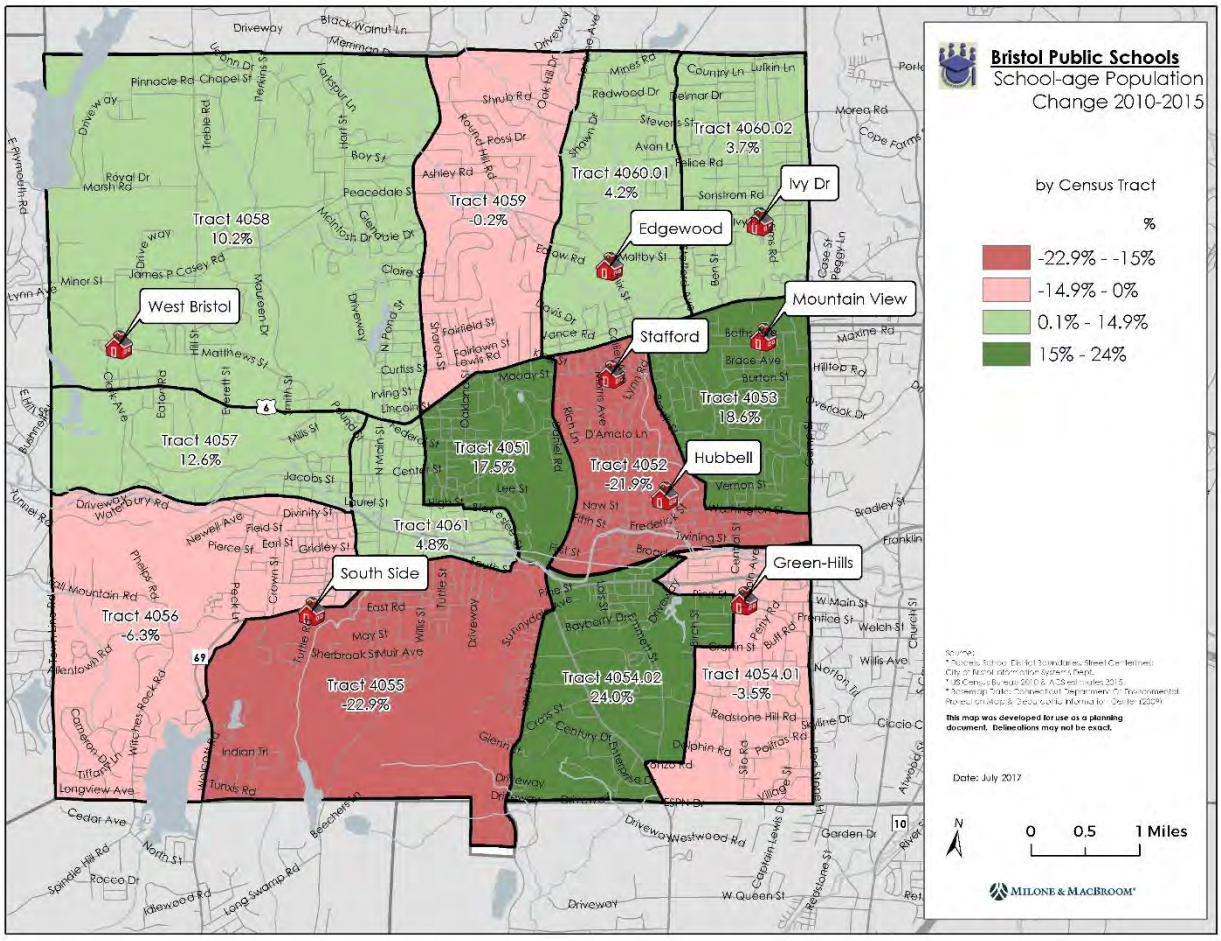
Map 1: Total Population



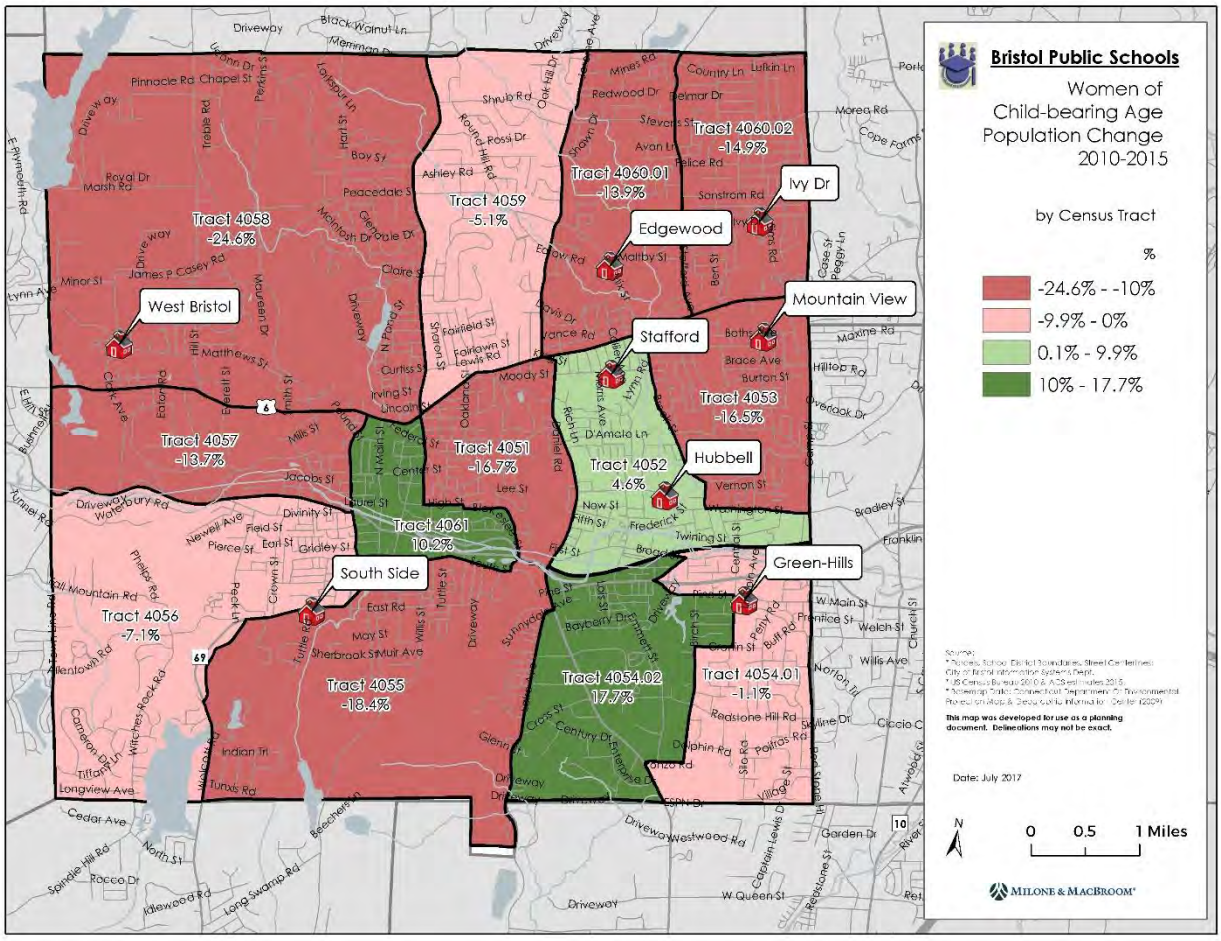
Map 2: Population Density



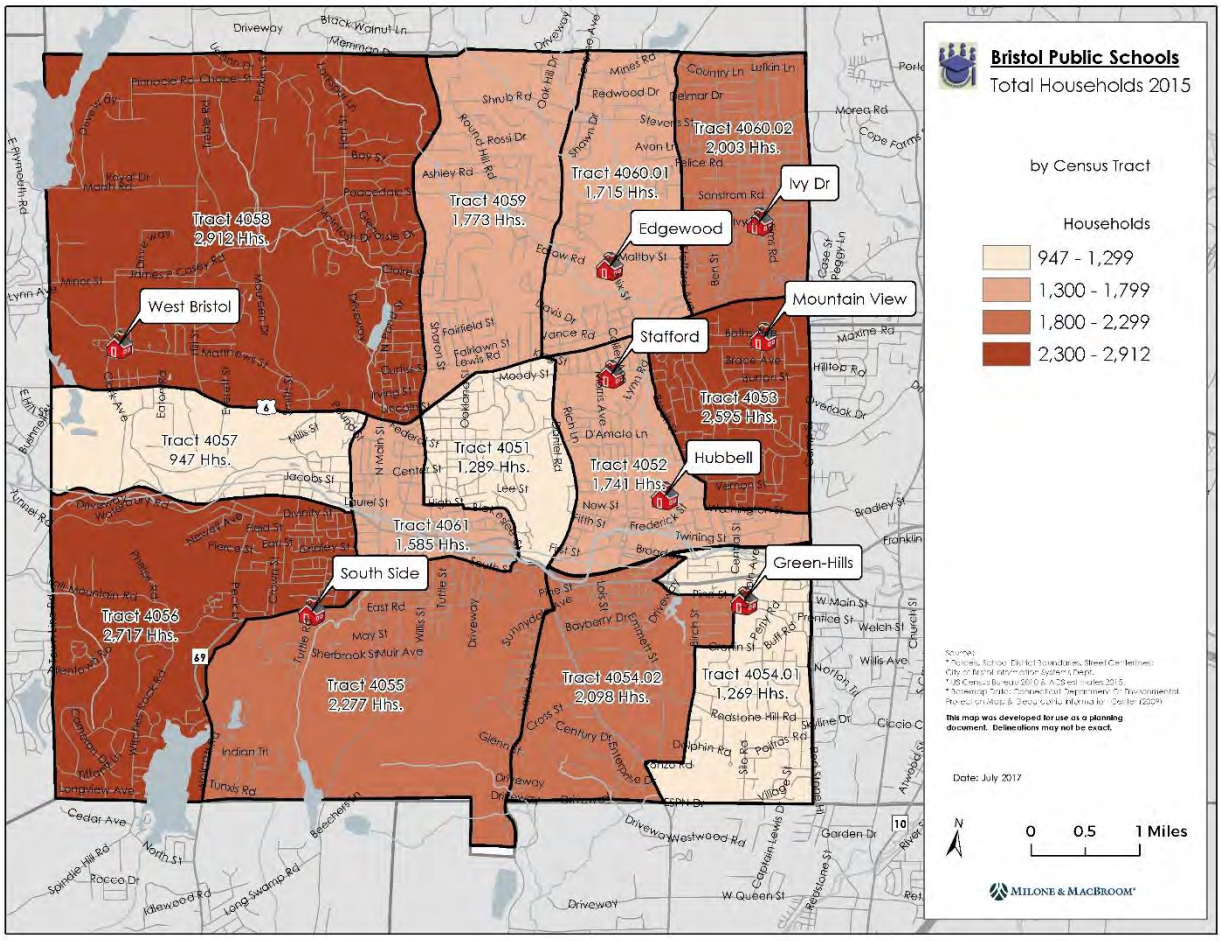
Map 3: Total Population Change, 2010 – 2015



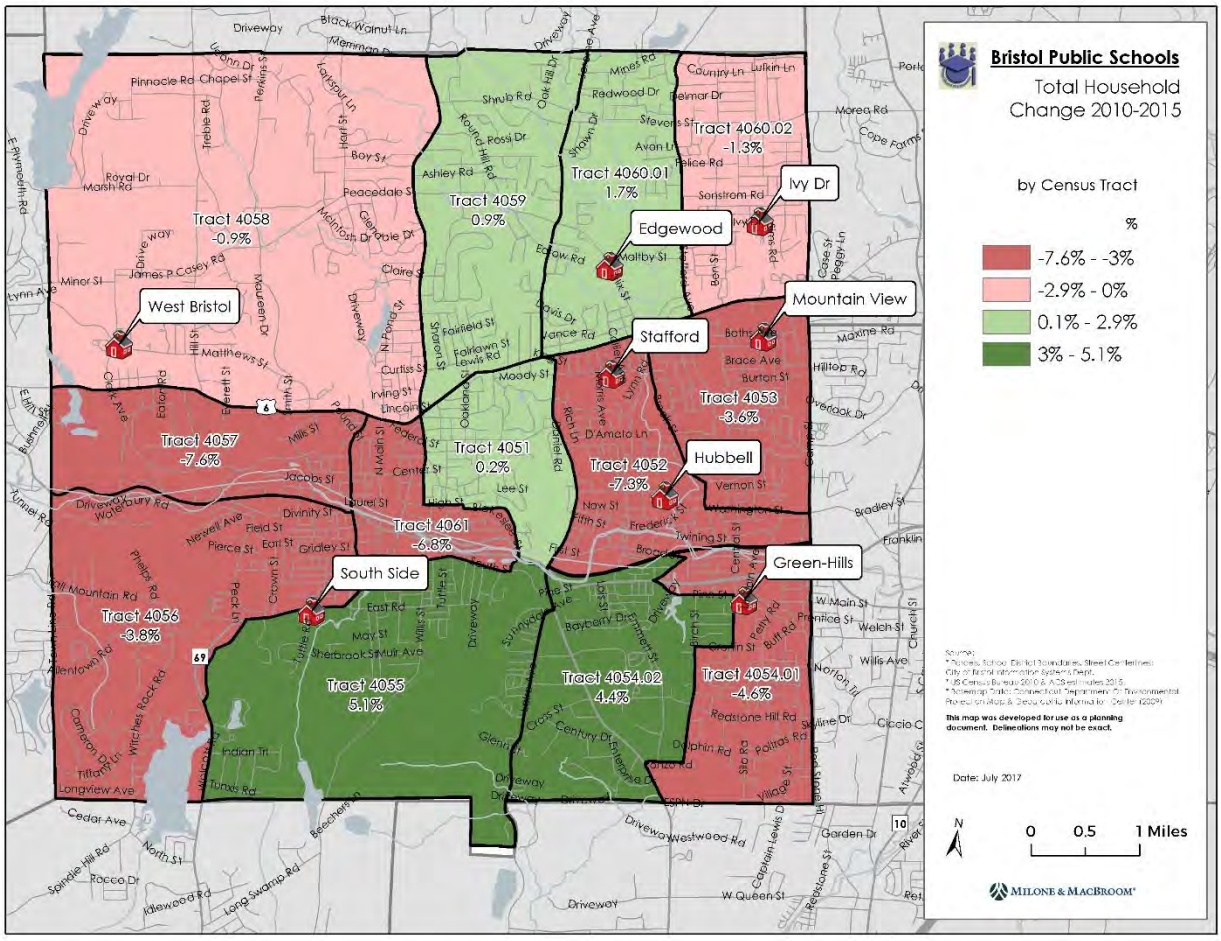
Map 4: School-Age Population Change, 2010 - 2015



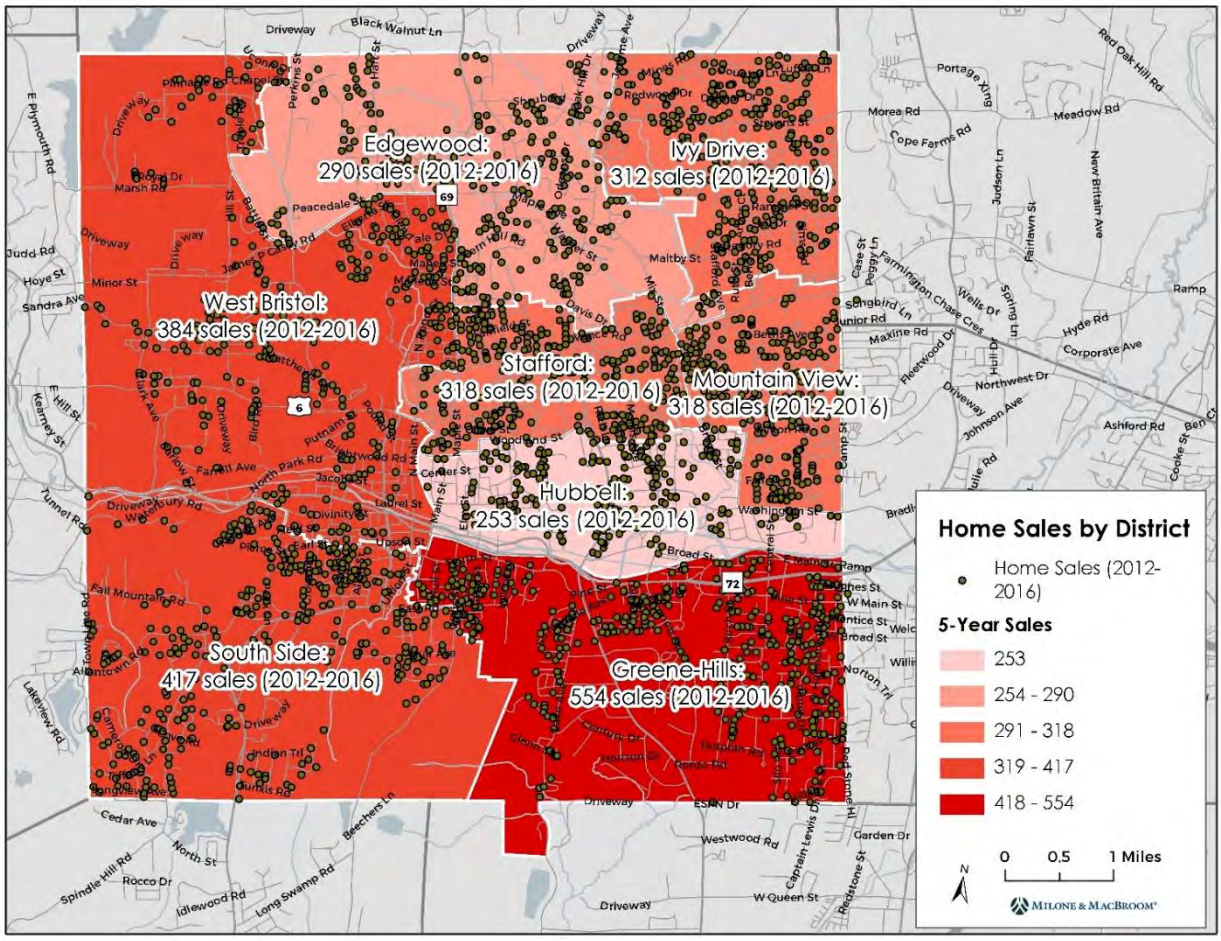
Map 5: Women of Child-Bearing Age Population Change, 2010 – 2015



Map 6: Total Households, 2015



Map 7: Total Household Change, 2010 - 2015



Map 8: Home Sales by Attendance Zone

Appendix 2: Detailed Individual Enrollment Projections

Elementary Projections (Low Scenario)

Bristol Public Schools
Elementary School Enrollment Projections 2017-18

School	K	1	2	3	4	5	K-5th
Edgewood	44	47	47	51	44	55	**288**
Greene Hills	98	111	93	96	97	93	**588**
Hubbell	62	53	57	77	67	63	**379**
Ivy Drive	65	60	63	44	64	79	**375**
Mt. View	60	60	56	52	47	65	**340**
South Side	84	61	65	71	75	82	**438**
Stafford	52	76	82	72	61	67	**410**
West Bristol	101	86	100	93	102	109	**591**
TOTAL	**566**	**554**	**563**	**556**	**557**	**613**	**3,409**

Bristol Public Schools
Elementary School Enrollment Projections 2018-19

School	K	1	2	3	4	5	K-5th
Edgewood	43	41	49	45	48	45	**271**
Greene Hills	102	95	111	94	93	102	**597**
Hubbell	62	60	52	57	76	73	**380**
Ivy Drive	52	61	62	64	44	68	**351**
Mt. View	56	58	62	55	51	49	**331**
South Side	74	80	64	65	69	79	**431**
Stafford	66	50	75	80	70	62	**403**
West Bristol	84	97	85	102	92	106	**566**
TOTAL	**539**	**542**	**560**	**562**	**543**	**584**	**3,330**

Bristol Public Schools
Elementary School Enrollment Projections 2019-20

School	K	1	2	3	4	5	K-5th
Edgewood	47	40	43	47	43	50	**270**
Greene Hills	97	98	95	112	90	97	**589**
Hubbell	68	61	59	51	56	82	**377**
Ivy Drive	57	49	63	62	65	48	**344**
Mt. View	59	55	59	60	54	54	**341**
South Side	74	69	83	63	63	72	**424**
Stafford	72	64	50	73	78	72	**409**
West Bristol	98	80	95	87	101	96	**557**
TOTAL	**572**	**516**	**547**	**555**	**550**	**571**	**3,311**

Bristol Public Schools
Elementary School Enrollment Projections 2020-21

School	K	1	2	3	4	5	K-5th
Edgewood	46	44	42	41	45	45	**263**
Greene Hills	107	94	98	95	108	95	**597**
Hubbell	63	66	60	58	50	61	**358**
Ivy Drive	63	53	50	64	63	69	**362**
Mt. View	55	58	56	58	59	56	**342**
South Side	63	70	73	82	61	66	**415**
Stafford	58	69	63	48	71	80	**389**
West Bristol	95	94	78	97	86	105	**555**
TOTAL	**550**	**548**	**520**	**543**	**543**	**577**	**3,281**

Bristol Public Schools
Elementary School Enrollment Projections 2021-22

School	K	1	2	3	4	5	K-5th
Edgewood	47	43	46	41	40	47	**264**
Greene Hills	103	103	94	98	91	113	**602**
Hubbell	62	61	65	59	57	54	**358**
Ivy Drive	60	60	54	51	64	68	**357**
Mt. View	56	52	59	55	57	62	**341**
South Side	81	60	73	72	80	65	**431**
Stafford	64	56	69	62	47	72	**370**
West Bristol	88	91	92	80	95	89	**535**
TOTAL	**561**	**526**	**552**	**518**	**531**	**570**	**3,258**

Bristol Public Schools
Elementary School Enrollment Projections 2022-23

School	K	1	2	3	4	5	K-5th
Edgewood	51	44	45	44	39	41	**264**
Greene Hills	107	99	104	95	95	96	**596**
Hubbell	67	60	60	64	59	63	**373**
Ivy Drive	61	56	62	56	51	69	**355**
Mt. View	59	55	53	58	54	60	**339**
South Side	75	76	63	72	70	84	**440**
Stafford	72	62	55	67	61	48	**365**
West Bristol	99	85	89	95	79	99	**546**
TOTAL	**591**	**537**	**531**	**551**	**508**	**560**	**3,278**

Bristol Public Schools
Elementary School Enrollment Projections 2023-24

School	K	1	2	3	4	5	K-5th
Edgewood	51	48	46	43	42	40	**270**
Greene Hills	106	103	99	103	92	100	**603**
Hubbell	67	66	59	60	63	64	**379**
Ivy Drive	61	58	58	63	56	55	**351**
Mt. View	59	57	56	52	57	56	**337**
South Side	74	71	80	63	71	73	**432**
Stafford	71	70	61	54	65	62	**383**
West Bristol	98	95	83	92	93	82	**543**
TOTAL	**587**	**568**	**542**	**530**	**539**	**532**	**3,298**

Bristol Public Schools
Elementary School Enrollment Projections 2024-25

School	K	1	2	3	4	5	K-5th
Edgewood	50	48	50	44	41	43	**276**
Greene Hills	104	102	103	99	99	96	**603**
Hubbell	66	65	64	59	59	69	**382**
Ivy Drive	60	58	59	59	63	60	**359**
Mt. View	58	57	58	55	51	60	**339**
South Side	73	71	75	79	61	74	**433**
Stafford	70	69	69	59	53	66	**386**
West Bristol	96	94	94	85	90	97	**556**
TOTAL	**577**	**564**	**572**	**539**	**517**	**565**	**3,334**

Bristol Public Schools Elementary School Enrollment Projections 2025-26							
School	**K**	**1**	**2**	**3**	**4**	**5**	**K-5th**
Edgewood	50	47	50	49	42	43	**281**
Greene Hills	105	100	102	104	96	104	**611**
Hubbell	66	64	64	63	58	64	**379**
Ivy Drive	60	57	59	60	59	66	**361**
Mt. View	58	56	58	57	54	54	**337**
South Side	73	69	75	74	77	64	**432**
Stafford	70	67	68	68	58	55	**386**
West Bristol	97	92	93	96	84	94	**556**
TOTAL	**579**	**552**	**569**	**571**	**528**	**544**	**3,343**

Bristol Public Schools Elementary School Enrollment Projections 2026-27							
School	**K**	**1**	**2**	**3**	**4**	**5**	**K-5th**
Edgewood	50	47	48	48	46	43	**282**
Greene Hills	104	101	100	103	100	101	**609**
Hubbell	66	64	63	63	63	63	**382**
Ivy Drive	60	57	58	60	61	63	**359**
Mt. View	58	56	57	57	56	56	**340**
South Side	73	69	72	74	72	81	**441**
Stafford	70	68	67	67	66	59	**397**
West Bristol	96	93	91	95	94	88	**557**
TOTAL	**577**	**555**	**556**	**567**	**558**	**554**	**3,367**

Bristol Public Schools Elementary School Enrollment Projections 2027-28							
School	**K**	**1**	**2**	**3**	**4**	**5**	**K-5th**
Edgewood	50	47	49	47	46	47	**286**
Greene Hills	104	100	101	100	99	106	**610**
Hubbell	65	64	63	62	62	68	**384**
Ivy Drive	59	56	58	59	61	66	**359**
Mt. View	57	56	57	56	56	60	**342**
South Side	72	69	72	72	71	75	**431**
Stafford	70	68	67	66	65	67	**403**
West Bristol	96	92	92	92	93	99	**564**
TOTAL	**573**	**552**	**559**	**554**	**553**	**588**	**3,379**

Elementary Projections (Medium Scenario)

Bristol Public Schools
Elementary School Enrollment Projections 2017-18

School	K	1	2	3	4	5	K-5th
Edgewood	44	47	47	51	44	55	**288**
Greene Hills	98	111	93	96	97	93	**588**
Hubbell	62	53	57	77	67	63	**379**
Ivy Drive	65	60	63	44	64	79	**375**
Mt. View	60	60	56	52	47	65	**340**
South Side	84	61	65	71	75	82	**438**
Stafford	52	76	82	72	61	67	**410**
West Bristol	101	86	100	93	102	109	**591**
TOTAL	**566**	**554**	**563**	**556**	**557**	**613**	**3,409**

Bristol Public Schools
Elementary School Enrollment Projections 2018-19

School	K	1	2	3	4	5	K-5th
Edgewood	43	39	51	43	46	45	**267**
Greene Hills	103	92	109	94	91	101	**590**
Hubbell	63	58	52	55	78	77	**383**
Ivy Drive	52	58	63	66	45	71	**355**
Mt. View	57	62	63	52	52	51	**337**
South Side	74	79	66	63	69	79	**430**
Stafford	67	53	75	79	69	61	**404**
West Bristol	84	100	83	106	94	109	**576**
TOTAL	**543**	**541**	**562**	**558**	**544**	**594**	**3,342**

Bristol Public Schools
Elementary School Enrollment Projections 2019-20

School	K	1	2	3	4	5	K-5th
Edgewood	47	38	42	45	38	47	**257**
Greene Hills	98	97	91	110	88	94	**578**
Hubbell	69	59	56	50	56	90	**380**
Ivy Drive	57	47	61	67	68	50	**350**
Mt. View	60	58	65	60	52	56	**351**
South Side	75	70	86	65	61	73	**430**
Stafford	73	68	51	73	75	69	**409**
West Bristol	99	83	96	88	107	100	**573**
TOTAL	**578**	**520**	**548**	**558**	**545**	**579**	**3,328**

Bristol Public Schools
Elementary School Enrollment Projections 2020-21

School	K	1	2	3	4	5	K-5th
Edgewood	46	41	41	37	42	39	**246**
Greene Hills	108	93	94	92	104	92	**583**
Hubbell	64	64	57	54	51	64	**354**
Ivy Drive	64	51	50	64	68	75	**372**
Mt. View	55	62	61	62	59	57	**356**
South Side	64	71	76	84	62	64	**421**
Stafford	59	73	66	50	69	75	**392**
West Bristol	96	99	80	102	89	114	**580**
TOTAL	**556**	**554**	**525**	**545**	**544**	**580**	**3,304**

Bristol Public Schools
Elementary School Enrollment Projections 2021-22

School	K	1	2	3	4	5	K-5th
Edgewood	47	41	45	37	34	42	**246**
Greene Hills	104	102	91	96	87	109	**589**
Hubbell	63	59	63	55	55	59	**354**
Ivy Drive	61	58	54	51	66	75	**365**
Mt. View	57	57	66	58	62	64	**364**
South Side	81	60	76	75	81	66	**439**
Stafford	65	59	71	65	47	69	**376**
West Bristol	89	96	94	85	102	95	**561**
TOTAL	**567**	**532**	**560**	**522**	**534**	**579**	**3,294**

Bristol Public Schools
Elementary School Enrollment Projections 2022-23

School	K	1	2	3	4	5	K-5th
Edgewood	52	41	44	40	33	34	**244**
Greene Hills	110	98	101	92	91	90	**582**
Hubbell	69	58	58	60	56	63	**364**
Ivy Drive	63	54	61	56	53	74	**361**
Mt. View	61	59	60	62	58	66	**366**
South Side	76	76	66	75	72	85	**450**
Stafford	74	66	58	70	61	47	**376**
West Bristol	101	89	92	100	87	110	**579**
TOTAL	**606**	**541**	**540**	**555**	**511**	**569**	**3,322**

Bristol Public Schools
Elementary School Enrollment Projections 2023-24

School	K	1	2	3	4	5	K-5th
Edgewood	52	47	45	40	36	34	**254**
Greene Hills	111	103	95	101	87	94	**591**
Hubbell	70	65	57	56	61	65	**374**
Ivy Drive	64	56	58	64	58	59	**359**
Mt. View	62	62	63	56	62	64	**369**
South Side	76	72	82	64	72	76	**442**
Stafford	74	75	65	56	67	61	**398**
West Bristol	102	100	85	98	101	92	**578**
TOTAL	**611**	**580**	**550**	**535**	**544**	**545**	**3,365**

Bristol Public Schools
Elementary School Enrollment Projections 2024-25

School	K	1	2	3	4	5	K-5th
Edgewood	51	47	50	40	35	37	**260**
Greene Hills	108	104	101	97	95	90	**595**
Hubbell	68	65	63	55	57	70	**378**
Ivy Drive	62	57	60	60	66	64	**369**
Mt. View	60	64	66	59	56	67	**372**
South Side	76	72	78	80	62	75	**443**
Stafford	73	74	74	63	53	66	**403**
West Bristol	100	101	97	91	99	108	**596**
TOTAL	**598**	**584**	**589**	**545**	**523**	**577**	**3,416**

Bristol Public Schools Elementary School Enrollment Projections 2025-26							
School	**K**	**1**	**2**	**3**	**4**	**5**	**K-5th**
Edgewood	52	46	50	46	36	36	**266**
Greene Hills	109	101	102	102	91	99	**604**
Hubbell	69	64	63	61	56	65	**378**
Ivy Drive	63	55	60	62	62	72	**374**
Mt. View	61	61	67	62	59	60	**370**
South Side	77	71	77	76	78	65	**444**
Stafford	73	74	73	72	60	54	**406**
West Bristol	101	99	97	102	92	105	**596**
TOTAL	**605**	**571**	**589**	**583**	**534**	**556**	**3,438**

Bristol Public Schools Elementary School Enrollment Projections 2026-27							
School	**K**	**1**	**2**	**3**	**4**	**5**	**K-5th**
Edgewood	52	47	49	45	41	37	**271**
Greene Hills	110	102	100	103	97	95	**607**
Hubbell	69	65	62	61	62	65	**384**
Ivy Drive	63	56	59	63	64	69	**374**
Mt. View	61	62	65	64	62	64	**378**
South Side	77	72	77	75	73	82	**456**
Stafford	74	74	73	72	68	60	**421**
West Bristol	101	100	96	103	103	98	**601**
TOTAL	**607**	**578**	**581**	**586**	**570**	**570**	**3,492**

Bristol Public Schools Elementary School Enrollment Projections 2027-28							
School	**K**	**1**	**2**	**3**	**4**	**5**	**K-5th**
Edgewood	50	45	49	43	40	39	**266**
Greene Hills	105	99	100	97	95	95	**591**
Hubbell	67	62	62	58	60	66	**375**
Ivy Drive	61	54	59	59	63	66	**362**
Mt. View	58	60	65	59	62	64	**368**
South Side	73	69	76	72	70	72	**432**
Stafford	70	72	71	68	65	64	**410**
West Bristol	97	96	95	97	101	104	**590**
TOTAL	**581**	**557**	**577**	**553**	**556**	**570**	**3,394**

Middle Projections (High Scenario)

Bristol Public Schools
Elementary School Enrollment Projections 2017-18

School	K	1	2	3	4	5	K-5th
Edgewood	44	47	47	51	44	55	**288**
Greene Hills	98	111	93	96	97	93	**588**
Hubbell	62	53	57	77	67	63	**379**
Ivy Drive	65	60	63	44	64	79	**375**
Mt. View	60	60	56	52	47	65	**340**
South Side	84	61	65	71	75	82	**438**
Stafford	52	76	82	72	61	67	**410**
West Bristol	101	86	100	93	102	109	**591**
TOTAL	**566**	**554**	**563**	**556**	**557**	**613**	**3,409**

Bristol Public Schools
Elementary School Enrollment Projections 2018-19

School	K	1	2	3	4	5	K-5th
Edgewood	43	42	50	43	48	44	**270**
Greene Hills	103	99	109	94	93	99	**597**
Hubbell	63	65	51	56	78	74	**387**
Ivy Drive	52	63	62	65	46	68	**356**
Mt. View	57	65	62	54	53	49	**340**
South Side	75	84	65	63	69	77	**433**
Stafford	67	54	73	79	70	61	**404**
West Bristol	85	106	81	106	95	104	**577**
TOTAL	**545**	**578**	**553**	**560**	**552**	**576**	**3,364**

Bristol Public Schools
Elementary School Enrollment Projections 2019-20

School	K	1	2	3	4	5	K-5th
Edgewood	47	43	45	46	41	47	**269**
Greene Hills	99	104	97	110	91	95	**596**
Hubbell	69	66	61	49	56	86	**387**
Ivy Drive	57	51	65	65	69	48	**355**
Mt. View	60	62	67	60	54	54	**357**
South Side	75	74	90	64	62	72	**437**
Stafford	73	70	52	71	77	70	**413**
West Bristol	100	88	98	86	107	98	**577**
TOTAL	**580**	**558**	**575**	**551**	**557**	**570**	**3,391**

Bristol Public Schools
Elementary School Enrollment Projections 2020-21

School	K	1	2	3	4	5	K-5th
Edgewood	46	46	45	41	43	40	**261**
Greene Hills	109	101	102	98	106	92	**608**
Hubbell	64	71	62	59	49	62	**367**
Ivy Drive	64	55	53	68	68	73	**381**
Mt. View	55	65	64	64	60	56	**364**
South Side	64	75	80	88	62	64	**433**
Stafford	59	76	67	50	69	77	**398**
West Bristol	97	104	83	104	88	110	**586**
TOTAL	**558**	**593**	**556**	**572**	**545**	**574**	**3,398**

Bristol Public Schools
Elementary School Enrollment Projections 2021-22

School	K	1	2	3	4	5	K-5th
Edgewood	47	44	49	41	38	43	**262**
Greene Hills	105	109	98	103	94	108	**617**
Hubbell	63	66	69	60	60	55	**373**
Ivy Drive	61	62	57	55	70	73	**378**
Mt. View	57	61	69	62	65	62	**376**
South Side	82	64	80	78	85	64	**453**
Stafford	65	63	74	66	49	68	**385**
West Bristol	90	103	98	88	107	91	**577**
TOTAL	**570**	**572**	**594**	**553**	**568**	**564**	**3,421**

Bristol Public Schools
Elementary School Enrollment Projections 2022-23

School	K	1	2	3	4	5	K-5th
Edgewood	53	46	47	45	37	37	**265**
Greene Hills	111	106	106	99	100	96	**618**
Hubbell	70	65	62	66	61	66	**390**
Ivy Drive	64	59	64	60	57	74	**378**
Mt. View	62	62	63	66	62	67	**382**
South Side	77	81	68	78	77	88	**469**
Stafford	75	68	61	71	64	49	**388**
West Bristol	103	94	97	103	90	110	**597**
TOTAL	**615**	**581**	**568**	**588**	**548**	**587**	**3,487**

Bristol Public Schools
Elementary School Enrollment Projections 2023-24

School	K	1	2	3	4	5	K-5th
Edgewood	54	51	49	43	41	37	**275**
Greene Hills	116	112	103	107	95	102	**635**
Hubbell	72	73	62	61	68	68	**404**
Ivy Drive	67	62	61	66	63	61	**380**
Mt. View	64	66	64	61	67	64	**386**
South Side	81	78	87	67	76	79	**468**
Stafford	77	79	66	59	70	63	**414**
West Bristol	107	107	88	103	105	92	**602**
TOTAL	**638**	**628**	**580**	**567**	**585**	**566**	**3,564**

Bristol Public Schools
Elementary School Enrollment Projections 2024-25

School	K	1	2	3	4	5	K-5th
Edgewood	54	53	54	45	41	41	**288**
Greene Hills	113	117	111	104	103	98	**646**
Hubbell	72	76	69	60	61	74	**412**
Ivy Drive	66	65	65	63	69	67	**395**
Mt. View	63	69	69	62	61	69	**393**
South Side	80	80	83	85	65	78	**471**
Stafford	77	81	75	64	57	68	**422**
West Bristol	106	112	101	94	104	108	**625**
TOTAL	**631**	**653**	**627**	**577**	**561**	**603**	**3,652**

Bristol Public Schools Elementary School Enrollment Projections 2025-26							
School	**K**	**1**	**2**	**3**	**4**	**5**	**K-5th**
Edgewood	56	52	56	50	41	40	**295**
Greene Hills	118	115	114	112	101	106	**666**
Hubbell	75	75	72	67	61	68	**418**
Ivy Drive	68	64	68	67	66	74	**407**
Mt. View	65	68	72	67	62	62	**396**
South Side	82	79	86	81	82	67	**477**
Stafford	79	80	78	73	62	56	**428**
West Bristol	109	111	105	108	96	107	**636**
TOTAL	**652**	**644**	**651**	**625**	**571**	**580**	**3,723**

Bristol Public Schools Elementary School Enrollment Projections 2026-27							
School	**K**	**1**	**2**	**3**	**4**	**5**	**K-5th**
Edgewood	56	55	55	52	47	41	**306**
Greene Hills	119	119	113	115	108	102	**676**
Hubbell	75	77	71	69	68	68	**428**
Ivy Drive	69	66	66	71	70	71	**413**
Mt. View	66	70	70	69	67	65	**407**
South Side	83	82	85	84	79	85	**498**
Stafford	80	82	78	76	71	61	**448**
West Bristol	111	115	104	111	109	98	**648**
TOTAL	**659**	**666**	**642**	**647**	**619**	**591**	**3,824**

Bristol Public Schools Elementary School Enrollment Projections 2027-28							
School	**K**	**1**	**2**	**3**	**4**	**5**	**K-5th**
Edgewood	57	55	58	51	48	46	**315**
Greene Hills	120	120	116	114	111	110	**691**
Hubbell	76	78	73	69	70	74	**440**
Ivy Drive	70	66	69	69	73	74	**421**
Mt. View	67	71	73	68	70	69	**418**
South Side	84	82	88	83	82	82	**501**
Stafford	81	83	80	75	74	70	**463**
West Bristol	112	115	107	110	113	111	**668**
TOTAL	**667**	**670**	**664**	**639**	**641**	**636**	**3,917**

Middle Projections (Low Scenario)

Bristol Public Schools Middle School Enrollment 2017-18				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	240	271	249	**760**
Greene-Hills	86	118	103	**307**
Northeast	167	168	150	**485**
West Bristol	111	108	91	**310**
TOTAL	**604**	**665**	**593**	**1,862**

Bristol Public Schools Middle School Enrollment 2018-19				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	230	256	262	**748**
Greene-Hills	94	94	115	**303**
Northeast	163	178	161	**502**
West Bristol	108	110	100	**318**
TOTAL	**595**	**638**	**638**	**1,871**

Bristol Public Schools Middle School Enrollment 2019-20				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	217	245	250	**712**
Greene-Hills	103	102	92	**297**
Northeast	144	174	172	**490**
West Bristol	105	108	103	**316**
TOTAL	**569**	**629**	**617**	**1,815**

Bristol Public Schools Middle School Enrollment 2020-21				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	228	231	238	**697**
Greene-Hills	97	111	99	**307**
Northeast	134	153	167	**454**
West Bristol	95	103	100	**298**
TOTAL	**554**	**598**	**604**	**1,756**

Bristol Public Schools Middle School Enrollment 2021-22				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	209	243	226	**678**
Greene-Hills	95	105	108	**308**
Northeast	149	142	148	**439**
West Bristol	107	94	96	**297**
TOTAL	**560**	**584**	**578**	**1,722**

Bristol Public Schools Middle School Enrollment 2022-23				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	201	223	238	**662**
Greene-Hills	113	103	103	**319**
Northeast	151	159	138	**448**
West Bristol	89	107	87	**283**
TOTAL	**554**	**592**	**566**	**1,712**

Bristol Public Schools Middle School Enrollment 2023-24				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	197	213	217	**627**
Greene-Hills	96	122	100	**318**
Northeast	153	160	153	**466**
West Bristol	99	87	99	**285**
TOTAL	**545**	**582**	**569**	**1,696**

Bristol Public Schools Middle School Enrollment 2024-25				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	198	210	208	**616**
Greene-Hills	95	104	120	**319**
Northeast	138	164	155	**457**
West Bristol	89	98	81	**268**
TOTAL	**520**	**576**	**564**	**1,660**

Bristol Public Schools Middle School Enrollment 2025-26				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	207	212	203	**622**
Greene-Hills	102	103	101	**306**
Northeast	147	147	158	**452**
West Bristol	94	88	91	**273**
TOTAL	**550**	**550**	**553**	**1,653**

Bristol Public Schools Middle School Enrollment 2026-27				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	201	222	205	**628**
Greene-Hills	97	110	100	**307**
Northeast	141	157	141	**439**
West Bristol	90	93	81	**264**
TOTAL	**529**	**582**	**527**	**1,638**

Bristol Public Schools Middle School Enrollment 2027-28				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	204	215	215	**634**
Greene-Hills	99	105	107	**311**
Northeast	144	151	150	**445**
West Bristol	92	89	86	**267**
TOTAL	**539**	**560**	**558**	**1,657**

Middle Projections (Medium Scenario)

Bristol Public Schools Middle School Enrollment 2017-18				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	247	273	240	**760**
Greene-Hills	89	114	94	**297**
Northeast	154	169	154	**477**
West Bristol	114	110	104	**328**
TOTAL	**604**	**666**	**592**	**1,862**

Bristol Public Schools Middle School Enrollment 2018-19				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	231	268	267	**766**
Greene-Hills	90	95	111	**296**
Northeast	167	165	166	**498**
West Bristol	105	119	105	**329**
TOTAL	**593**	**647**	**649**	**1,889**

Bristol Public Schools Middle School Enrollment 2019-20				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	217	252	262	**731**
Greene-Hills	97	96	92	**285**
Northeast	154	179	162	**495**
West Bristol	105	110	114	**329**
TOTAL	**573**	**637**	**630**	**1,840**

Bristol Public Schools Middle School Enrollment 2020-21				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	227	242	243	**712**
Greene-Hills	91	106	93	**290**
Northeast	146	170	173	**489**
West Bristol	97	112	104	**313**
TOTAL	**561**	**630**	**613**	**1,804**

Bristol Public Schools Middle School Enrollment 2021-22				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	205	246	231	**682**
Greene-Hills	89	97	101	**287**
Northeast	157	157	163	**477**
West Bristol	110	101	105	**316**
TOTAL	**561**	**601**	**600**	**1,762**

Bristol Public Schools Middle School Enrollment 2022-23				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	202	223	240	**665**
Greene-Hills	105	95	94	**294**
Northeast	162	169	154	**485**
West Bristol	92	115	96	**303**
TOTAL	**561**	**602**	**584**	**1,747**

Bristol Public Schools Middle School Enrollment 2023-24				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	195	220	217	**632**
Greene-Hills	86	111	93	**290**
Northeast	163	174	166	**503**
West Bristol	106	96	110	**312**
TOTAL	**550**	**601**	**586**	**1,737**

Bristol Public Schools Middle School Enrollment 2024-25				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	196	212	214	**622**
Greene-Hills	87	92	109	**288**
Northeast	147	175	171	**493**
West Bristol	97	111	91	**299**
TOTAL	**527**	**590**	**585**	**1,702**

Bristol Public Schools Middle School Enrollment 2025-26				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	208	213	207	**628**
Greene-Hills	93	92	90	**275**
Northeast	157	158	173	**488**
West Bristol	102	101	106	**309**
TOTAL	**560**	**564**	**576**	**1,700**

Bristol Public Schools Middle School Enrollment 2026-27				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	200	227	207	**634**
Greene-Hills	89	99	90	**278**
Northeast	151	168	156	**475**
West Bristol	99	106	97	**302**
TOTAL	**539**	**600**	**550**	**1,689**

Bristol Public Schools Middle School Enrollment 2027-28				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	206	218	221	**645**
Greene-Hills	90	94	97	**281**
Northeast	155	162	165	**482**
West Bristol	100	103	101	**304**
TOTAL	**551**	**577**	**584**	**1,712**

Middle Projections (High Scenario)

Bristol Public Schools Middle School Enrollment 2017-18				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	238	270	246	**754**
Greene-Hills	86	119	103	**308**
Northeast	169	167	152	**488**
West Bristol	110	110	91	**311**
TOTAL	**603**	**666**	**592**	**1,861**

Bristol Public Schools Middle School Enrollment 2018-19				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	227	260	262	**749**
Greene-Hills	92	97	117	**306**
Northeast	165	185	166	**516**
West Bristol	107	114	105	**326**
TOTAL	**591**	**656**	**650**	**1,897**

Bristol Public Schools Middle School Enrollment 2019-20				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	211	248	255	**714**
Greene-Hills	99	104	97	**300**
Northeast	143	181	186	**510**
West Bristol	102	111	109	**322**
TOTAL	**555**	**644**	**647**	**1,846**

Bristol Public Schools Middle School Enrollment 2020-21				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	226	229	242	**697**
Greene-Hills	96	111	103	**310**
Northeast	136	156	181	**473**
West Bristol	95	105	106	**306**
TOTAL	**553**	**601**	**632**	**1,786**

Bristol Public Schools Middle School Enrollment 2021-22				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	207	245	224	**676**
Greene-Hills	93	107	111	**311**
Northeast	149	148	157	**454**
West Bristol	106	97	101	**304**
TOTAL	**555**	**597**	**593**	**1,745**

Bristol Public Schools Middle School Enrollment 2022-23				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	197	225	239	**661**
Greene-Hills	110	104	106	**320**
Northeast	151	164	149	**464**
West Bristol	88	109	93	**290**
TOTAL	**546**	**602**	**587**	**1,735**

Bristol Public Schools Middle School Enrollment 2023-24				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	201	214	219	**634**
Greene-Hills	99	122	104	**325**
Northeast	162	165	163	**490**
West Bristol	105	90	105	**300**
TOTAL	**567**	**591**	**591**	**1,749**

Bristol Public Schools Middle School Enrollment 2024-25				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	206	219	209	**634**
Greene-Hills	99	110	122	**331**
Northeast	148	177	165	**490**
West Bristol	95	108	86	**289**
TOTAL	**548**	**614**	**582**	**1,744**

Bristol Public Schools Middle School Enrollment 2025-26				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	217	223	214	**654**
Greene-Hills	107	111	110	**328**
Northeast	160	161	177	**498**
West Bristol	99	98	103	**300**
TOTAL	**583**	**593**	**604**	**1,780**

Bristol Public Schools Middle School Enrollment 2026-27				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	210	236	218	**664**
Greene-Hills	99	119	111	**329**
Northeast	151	174	161	**486**
West Bristol	100	102	93	**295**
TOTAL	**560**	**631**	**583**	**1,774**

Bristol Public Schools Middle School Enrollment 2026-27				
School	**6**	**7**	**8**	**6-8th**
Chippens Hill	215	228	231	**674**
Greene-Hills	104	110	119	**333**
Northeast	155	164	174	**493**
West Bristol	98	102	97	**297**
TOTAL	**572**	**604**	**621**	**1,797**

High Projections (Low Scenario)

Bristol Public Schools High School Enrollment 2017-18					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	293	272	298	278	**1,141**
Eastern	304	260	270	290	**1,124**
TOTAL	**597**	**532**	**568**	**568**	**2,265**

Bristol Public Schools High School Enrollment 2018-19					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	320	254	283	297	**1,154**
Eastern	308	267	271	276	**1,122**
TOTAL	**628**	**521**	**554**	**573**	**2,276**

Bristol Public Schools High School Enrollment 2019-20					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	352	275	258	276	**1,161**
Eastern	327	268	271	269	**1,135**
TOTAL	**679**	**543**	**529**	**545**	**2,296**

Bristol Public Schools High School Enrollment 2020-21					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	322	302	279	251	**1,154**
Eastern	331	285	272	270	**1,158**
TOTAL	**653**	**587**	**551**	**521**	**2,312**

Bristol Public Schools High School Enrollment 2021-22					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	323	277	307	272	**1,179**
Eastern	319	288	289	270	**1,166**
TOTAL	**642**	**565**	**596**	**542**	**2,345**

Bristol Public Schools High School Enrollment 2022-23					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	323	277	281	298	**1,179**
Eastern	291	278	292	288	**1,149**
TOTAL	**614**	**555**	**573**	**586**	**2,328**

Bristol Public Schools High School Enrollment 2023-24					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	311	278	281	273	**1,143**
Eastern	288	253	282	291	**1,114**
TOTAL	**599**	**531**	**563**	**564**	**2,257**

Bristol Public Schools High School Enrollment 2024-25					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	314	267	282	273	**1,136**
Eastern	290	251	257	281	**1,079**
TOTAL	**604**	**518**	**539**	**554**	**2,215**

Bristol Public Schools High School Enrollment 2025-26					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	311	270	271	274	**1,126**
Eastern	288	252	255	256	**1,051**
TOTAL	**599**	**522**	**526**	**530**	**2,177**

Bristol Public Schools High School Enrollment 2026-27					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	299	267	274	264	**1,104**
Eastern	287	251	256	254	**1,048**
TOTAL	**586**	**518**	**530**	**518**	**2,152**

Bristol Public Schools High School Enrollment 2027-28					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	287	257	272	266	**1,082**
Eastern	272	250	254	256	**1,032**
TOTAL	**559**	**507**	**526**	**522**	**2,114**

High Projections (Medium Scenario)

Bristol Public Schools High School Enrollment 2017-18					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	293	272	298	278	**1,141**
Eastern	304	260	270	290	**1,124**
TOTAL	**597**	**532**	**568**	**568**	**2,265**

Bristol Public Schools High School Enrollment 2018-19					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	323	255	285	297	**1,160**
Eastern	312	268	270	273	**1,123**
TOTAL	**635**	**523**	**555**	**570**	**2,283**

Bristol Public Schools High School Enrollment 2019-20					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	355	279	260	277	**1,171**
Eastern	341	273	272	267	**1,153**
TOTAL	**696**	**552**	**532**	**544**	**2,324**

Bristol Public Schools High School Enrollment 2020-21					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	341	306	284	253	**1,184**
Eastern	334	299	277	268	**1,178**
TOTAL	**675**	**605**	**561**	**521**	**2,362**

Bristol Public Schools High School Enrollment 2021-22					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	327	294	313	277	**1,211**
Eastern	337	293	302	273	**1,205**
TOTAL	**664**	**587**	**615**	**550**	**2,416**

Bristol Public Schools High School Enrollment 2022-23					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	327	282	301	305	**1,215**
Eastern	315	295	296	298	**1,204**
TOTAL	**642**	**577**	**597**	**603**	**2,419**

Bristol Public Schools High School Enrollment 2023-24					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	314	282	288	293	**1,177**
Eastern	312	276	299	293	**1,180**
TOTAL	**626**	**558**	**587**	**586**	**2,357**

Bristol Public Schools High School Enrollment 2024-25					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	319	271	288	280	**1,158**
Eastern	309	273	279	295	**1,156**
TOTAL	**628**	**544**	**567**	**575**	**2,314**

Bristol Public Schools High School Enrollment 2025-26					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	315	275	277	280	**1,147**
Eastern	312	271	277	276	**1,136**
TOTAL	**627**	**546**	**554**	**556**	**2,283**

Bristol Public Schools High School Enrollment 2026-27					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	308	271	281	269	**1,129**
Eastern	309	274	274	273	**1,130**
TOTAL	**617**	**545**	**555**	**542**	**2,259**

Bristol Public Schools High School Enrollment 2027-28					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	298	266	277	274	**1,115**
Eastern	292	270	277	270	**1,109**
TOTAL	**590**	**536**	**554**	**544**	**2,224**

High Projections (High Scenario)

Bristol Public Schools High School Enrollment 2017-18					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	299	282	303	274	**1,158**
Eastern	303	264	279	302	**1,148**
TOTAL	**602**	**546**	**582**	**576**	**2,306**

Bristol Public Schools High School Enrollment 2018-19					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	323	258	287	295	**1,163**
Eastern	312	265	268	281	**1,126**
TOTAL	**635**	**523**	**555**	**576**	**2,289**

Bristol Public Schools High School Enrollment 2019-20					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	361	279	264	282	**1,186**
Eastern	337	273	268	267	**1,145**
TOTAL	**698**	**552**	**532**	**549**	**2,331**

Bristol Public Schools High School Enrollment 2020-21					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	339	312	285	259	**1,195**
Eastern	351	295	276	267	**1,189**
TOTAL	**690**	**607**	**561**	**526**	**2,384**

Bristol Public Schools High School Enrollment 2021-22					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	337	292	319	280	**1,228**
Eastern	339	308	298	275	**1,220**
TOTAL	**676**	**600**	**617**	**555**	**2,448**

Bristol Public Schools High School Enrollment 2022-23					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	333	291	299	313	**1,236**
Eastern	302	296	311	297	**1,206**
TOTAL	**635**	**587**	**610**	**610**	**2,442**

Bristol Public Schools High School Enrollment 2023-24					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	325	287	297	293	**1,202**
Eastern	304	265	300	310	**1,179**
TOTAL	**629**	**552**	**597**	**603**	**2,381**

Bristol Public Schools High School Enrollment 2024-25					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	327	281	293	291	**1,192**
Eastern	305	266	268	299	**1,138**
TOTAL	**632**	**547**	**561**	**590**	**2,330**

Bristol Public Schools High School Enrollment 2025-26					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	323	282	286	288	**1,179**
Eastern	300	267	270	267	**1,104**
TOTAL	**623**	**549**	**556**	**555**	**2,283**

Bristol Public Schools High School Enrollment 2026-27					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	331	278	288	281	**1,178**
Eastern	318	263	270	269	**1,120**
TOTAL	**649**	**541**	**558**	**550**	**2,298**

Bristol Public Schools High School Enrollment 2027-28					
School	**9**	**10**	**11**	**12**	**9th-12th**
Central	322	286	284	283	**1,175**
Eastern	304	278	266	269	**1,117**
TOTAL	**626**	**564**	**550**	**552**	**2,292**

Bristol Feasibility Study, Board of Education Schools

APPENDIX B EXISTING CONDITIONS REPORTS

Ten building reports are included in this appendix, in the following order:

High Schools

- Central High
- Eastern High

Middle Schools

- Chippens Hill Middle School
- Northeast Middle School

Elementary Schools

- Edgewood
- Hubbell
- Ivy Drive
- Mountain View
- South Side
- Stafford

The two K-8 schools, Greene-Hills and West Bristol, were deemed not to need evaluation, since they are newly built. The former school on Memorial Boulevard, which is being proposed as an Arts Magnet school, was evaluated in other reports and not included here. The Special Education Pre-School and the alternative high school (Bristol Preparatory Academy) are each located in rental space, and were not evaluated.

D•R•A

Drummey Rosane Anderson Inc.
225 Oakland Road
Studio 205
South Windsor, CT
06074

Central High School

480 Wolcott Street, Bristol, CT

Existing Conditions Report — August 9, 2017

Year Built:	1967
Addition & Renovation:	1999
Grades Served:	9-12
Square Feet:	221,000
Site Acreage:	36

Summary:

Built in 1967, Bristol Central High School was designed by Lyons & Mather. The building underwent extensive renovations in 1999 with the oversight of Lawler Architects. It is one of the two schools in the district exclusive to high school grades 9 through 12. The school is very efficient in layout, with the 3 storey structure surrounding one central corridor.

Located in the West End, Central High School's main entrance is off of Connecticut Route 69, which is Wolcott Road. It is surrounded by a mostly single-family home neighborhood. Southside Elementary is located one block away.

Because of the many updates in 1999, the building is in good condition. Minor systems maintenance items should be addressed. Although the central office is located at the main southern entrance area, monitoring of the complete perimeter is only possible by electronic camera and video feed.

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Central's front facade

Site:

Central High's site contains only one vehicular entrance, on the southern side of the site, off route 69. As such, there are often backups on the road at school start times. The high school building is buffered from the entrance road by a strip of nine houses along Wolcott Road, which are in close proximity to the high school's drives and parking. Within the site, vehicular traffic has a choice of two exit drives, Peck Lane on the west or Crown Street on the east. The one-way traffic pattern maximizes the site efficiency for bus drop off, but does not cater to parent or visitor traffic. Parking is located throughout the drive areas, as well as in dedicated smaller parking lots on the east and west of the school building.

Because of the building's efficient 3-story compact layout, the site is also maximized for playfield areas. The athletic fields include a football field with surrounding track, two baseball fields, a softball field and a multipurpose field area including track and field event areas. The site also contains five tennis courts.

Two loading/service areas serve the building on the lower level on the east and west sides of the building. There are exterior storage units located at the loading and utility areas. Site lighting was upgrades to LED this summer.

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Entrance from Wolcott road


Front entrance drop off area


Tennis, football, softball and multi-purpose fields to the northeast


Baseball to the northwest

Architectural Envelope:

Exterior Walls:
Central High has double-wythe masonry walls, with brick on the exterior and concrete masonry units on the interior. The exterior walls are also finished with precast concrete pilasters, lintels, and sills. This appearance is consistent throughout, including the large central courtyard. The masonry is in good condition.

Window Systems:
The metal framed window systems are ribbon-style in juxtaposition to the vertical precast detailing. They appear to be operable but none of the panes were opened at the time of the site visit. The windows are in fair condition.


Courtyard

Entrance Systems:
The building's efficient layout results in a minimum number of entrances, which also enhances the security of the building. Exterior doors and frames are hollow metal, with the main pedestrian doors having full divided lites.

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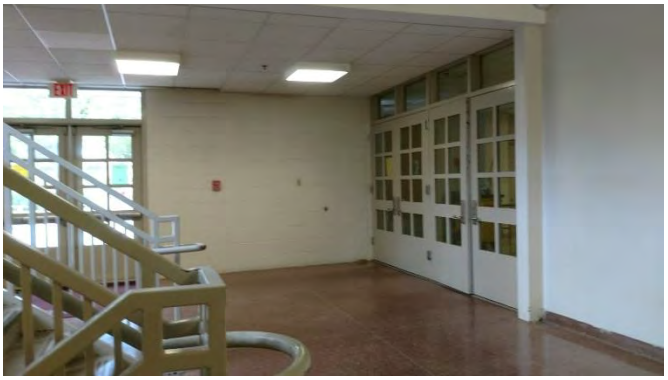
Main stairwell with exterior entrance

Roof:
The roof at Bristol Central was replaced in 1993 and is a built-up system. It is performing in good condition.


Roof looking southwest

Interior Architectural Components:

Interior walls:
Interior walls are painted concrete masonry units with very little exception. Walls are in excellent condition for their age.

Doors:
Interior doors are wood, many with glazing. Door hardware appears to have been updated in the 1999 renovation project. Condition of both doors and hardware is good.

Ceilings:
The majority of the school has acoustical ceiling tile grid system installed. The ceiling systems might have been updated in 1999, but they are showing wear and tear and should be replaced in the near future.

Flooring:

Vinyl tile is installed in the majority of the school, including corridors and classrooms. It was presumably installed in 1999 and is in fair condition. In the stairwells, the original terrazzo floors remain and are in good condition. The specialty spaces, such as the gym and the library, have flooring appropriate to their uses, wood sports floor and carpeting respectively. The carpeting is in fair condition while the wood sports flooring appears in excellent condition.


Main entry / office area


Typical corridor

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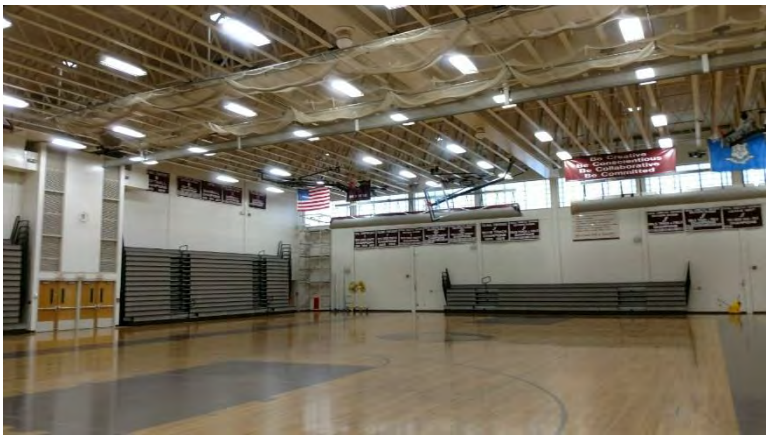
Typical classroom


Library entrance


Library


Gym

Millwork:
Throughout the school, it appears the classroom and office millwork was updated in 1999. It is wood with plastic laminate tops typically, and is in fair to good condition.

Specialties:
Lockers at Central High are single tier and flanked by wing walls. They appear in fair condition. Gym equipment is also in fair condition. Window blinds are vertical style and should be replaced due to age and functionality. Food service, stage equipment, toilet partitions, and display boards are in fair to good condition.

Mechanical Systems:

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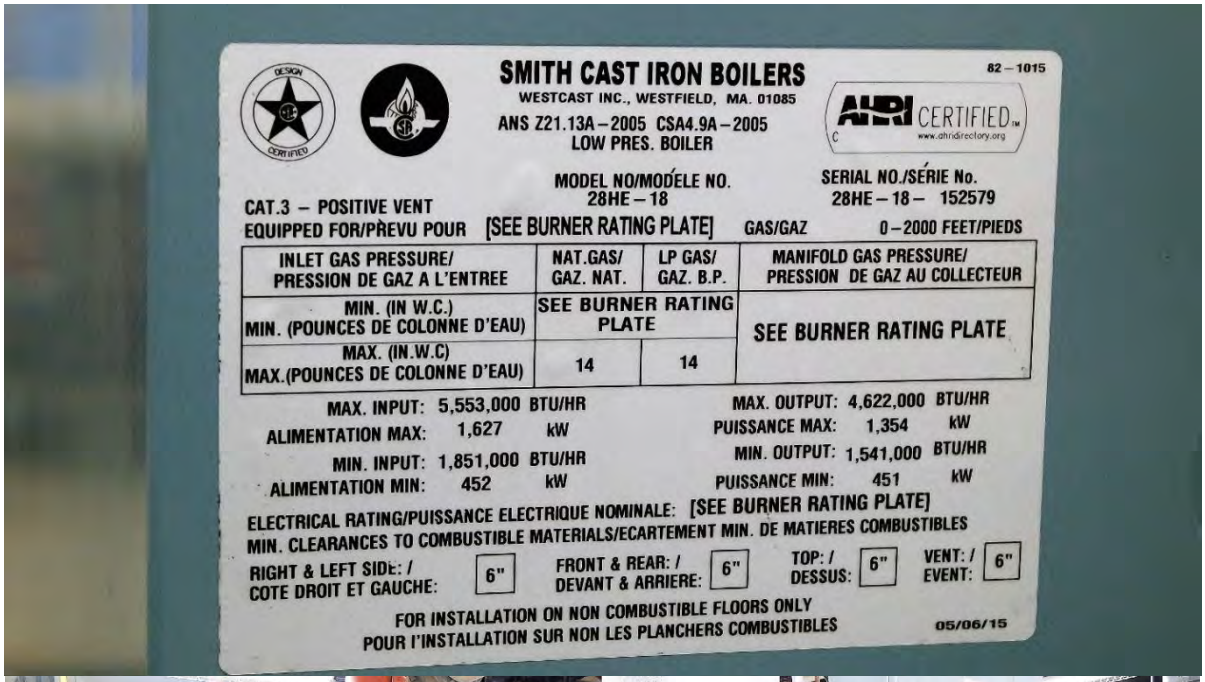
Heating System

The existing heating system is a steam system which consists of two Smith cast iron boilers which provide steam to radiant heaters and steam heating coils in air handlers and make-up air units. The burners are dual-fuel and are capable of utilizing both oil and natural gas, but only the oil is connected due to lack of adequate natural gas pressure at the school. These boilers are 85% efficient, which is the highest available efficiency for steam boilers. One boiler was installed in 2015 and the other in 2016, and are in excellent condition. There is an old, abandoned Cleaver Brooks boiler in the mechanical room that is not functional. Visible piping in the mechanical room looks to be in good condition, although insulation is missing in places. Most of the steam piping in the building appears to be from the 1999 renovation of the building, but it is possible that some of the original piping from 1967 remains in use.

The mechanical equipment is outfitted with a modern direct digital control system that was installed during the 1999 renovation. The front-end user interface and graphics may be somewhat outdated if it has not been upgraded in the past 18 years.

Boilers: Life Expectancy is approximately **25-30 years.**
Burner: Life Expectancy is approximately **20 years.**



Fin Tube Radiation: Life Expectancy is approximately **10-15 years.**

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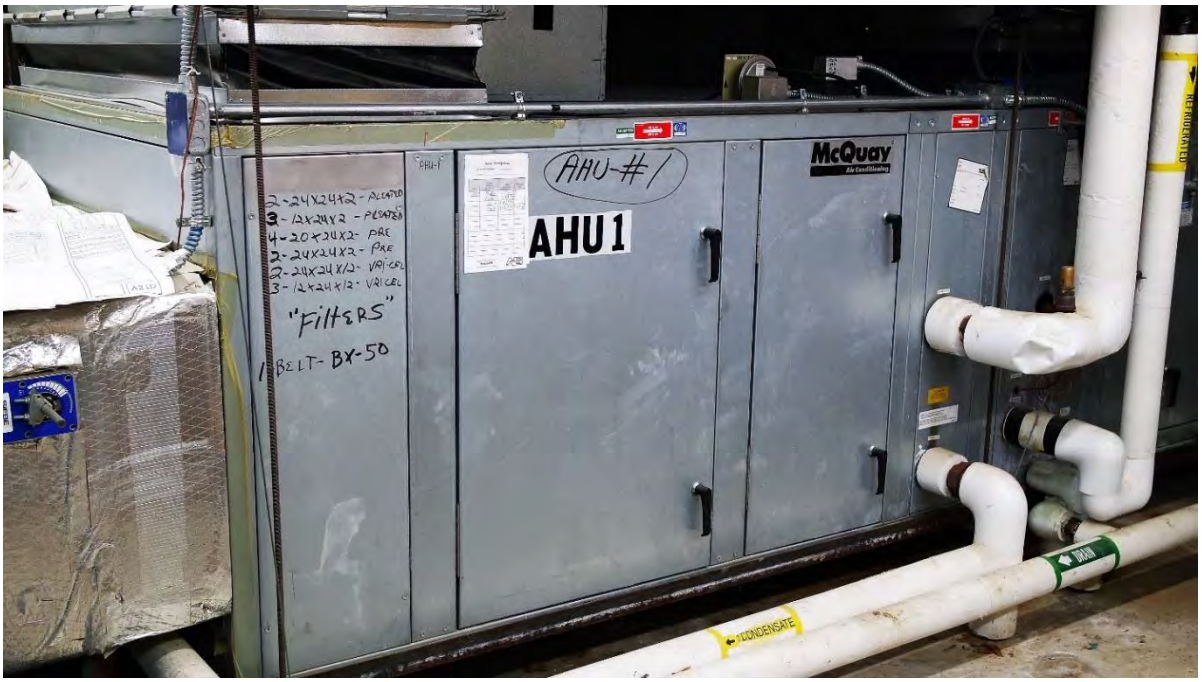
Cooling & Ventilation

The majority of the school is air conditioned by a combination of split systems and rooftop makeup air units. The music, choral, and locker rooms are the main areas currently without air conditioning. The split systems include modular indoor air-handling units connected with refrigerant lines to outdoor condensing units. The five makeup air units are large packaged units with steam heating coils, remote condensing units for cooling, and energy recovery wheels to pre-treat incoming outdoor air. There are also a number of heating-only air-handling units which serve a variety of spaces in the building including the band room, chorus, locker rooms, and garage. Despite being 18 years old, most of the split systems and makeup air units appear to be in good condition. The one exception is that many of the steam coils in the makeup air units have either leaks or have failed completely. The large split systems use R-22 as a refrigerant, which is is no longer allowed in new installations due to environmental concerns. There are several newer roof mounted mini-split air conditioners serving data closets and using R-410A refrigerant.

Air-Handling Units: Life Expectancy is approximately **5-15 years.**



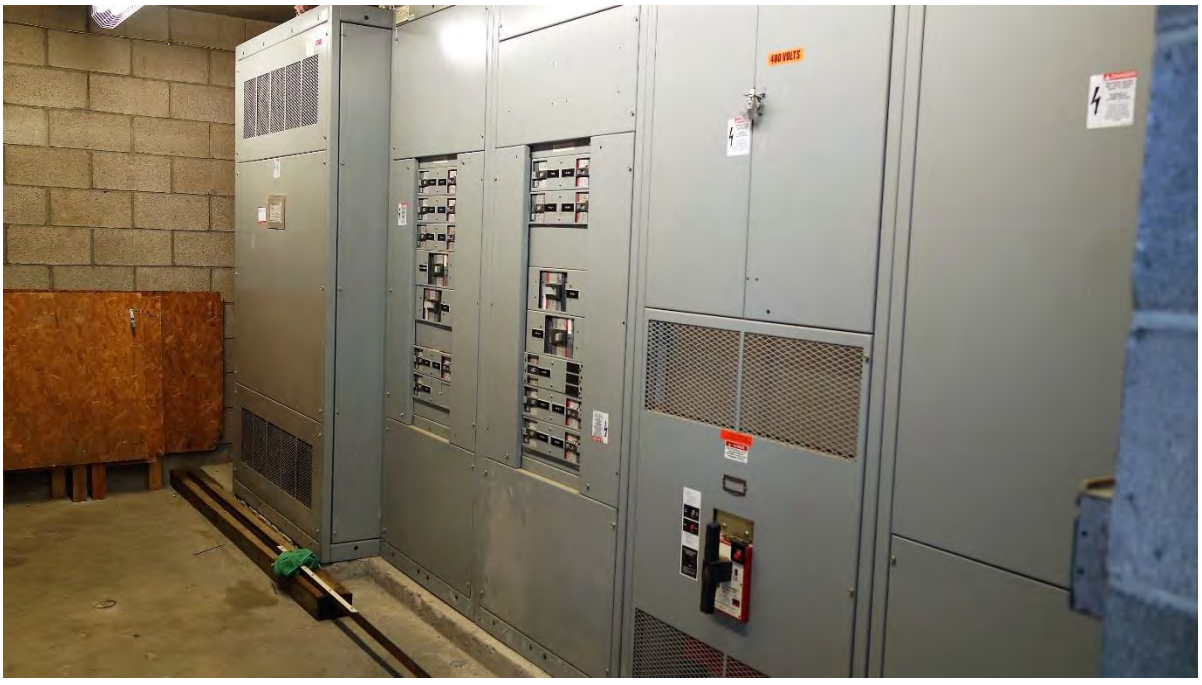
Condensing Units: Life Expectancy is approximately **2-5 years.**

Makeup Air Units: Life Expectancy is approximately **5-15 years.**
Makeup Air Unit Steam Coils: Life Expectancy is approximately **0-2 years.**

Fan Equipment: Life Expectancy is approximately **5 years.**

Electrical Systems:

Main Electrical Service (1999): 2500 Amp, 480 Volt AC Service. Life Expectancy is 20 years.



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Electrical Distribution (1967): 1600Amp Service. Life Expectancy: Original equipment that should be replaced.

Main Section

Distribution Section

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Lighting: Life Expectancy is approximately 10 years. However, current LED technology is more efficient.

40KW Generator: Life Expectancy – Appears to be original equipment from 1967, and should be replaced. Note: Generator run-time meter shows only 455 hours. Genset should be run under load periodically for proper maintenance, but does not appear that it has.

VFD's for Air Handling Units appear to be in good working order but require periodic maintenance. These should be replaced when HVAC units are replaced.

Surge Protection Equipment should be serviced. The "Low Battery" Indicator is lit.

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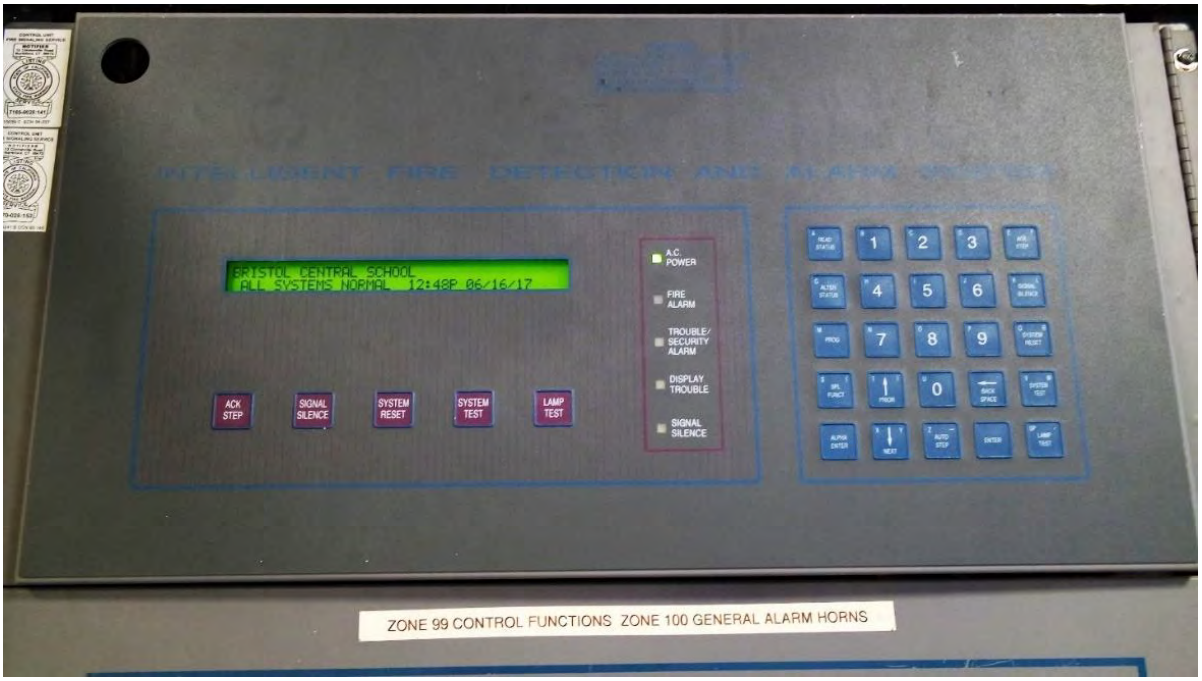
Fire Alarm System

The fire alarm system is an addressable system manufactured by Notifier and is 15 years old.

Fire Alarm: Life Expectancy is approximately **10 years.**



Plumbing and Fire Protection:

Domestic hot water is provided by two gas-fired boilers manufactured by A.O. Smith, which are connected to a 350-gallon storage tank with recirculation pump.

The water distribution piping and plumbing fixtures are in fair condition. Roof drains are currently functional.

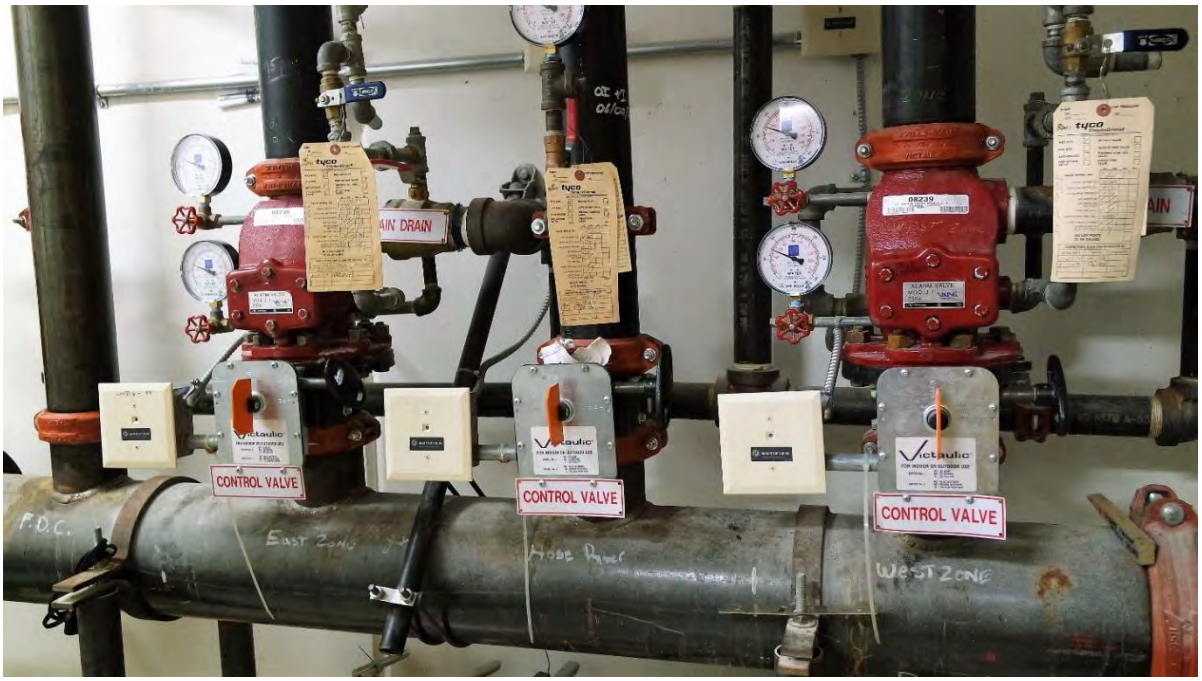
The gas meter for the building is installed inside the Custodial Office. This is an unusual location, as most gas meters are installed on the exterior of buildings.

The building is completely sprinklered for fire protection.

Domestic Hot Water Heaters: Life Expectancy is approximately **5-10 years.**

Domestic Water Piping: Life Expectancy is approximately **10-15 years.**

Sprinkler Piping: Life Expectancy is approximately **10-20 years.**



Plumbing Fixtures: Life Expectancy is **10-15 years.**

Roof Drains: Life Expectancy is **10-15 years.**

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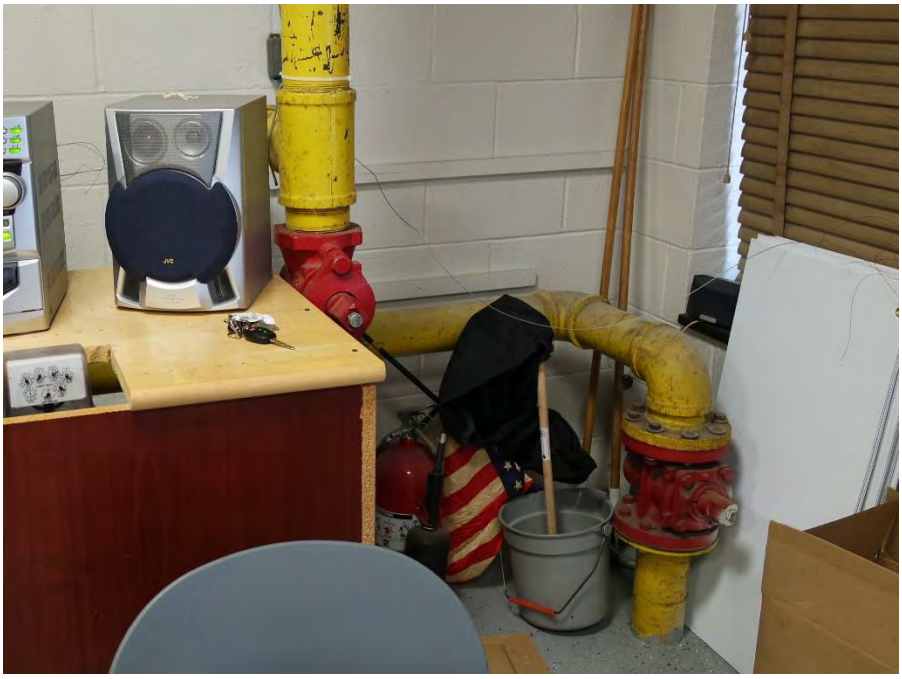
Gas Meter Location:



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Bristol Eastern High School

632 King Street, Bristol, CT

Existing Conditions Report — August 9, 2017

Year Built:	1957
Addition & Renovation:	1999
Grades Served:	9-12
Square Feet:	235,000
Site Acreage:	50

Summary:
Bristol Eastern High School is the older of the two high schools in the district, built originally in 1957. The school, like Central High, serves grades 9-12. While both of the high schools were renovated in 1999 under the oversight of Lawler architects, Eastern's updates appear to have been not as thorough, or have aged more quickly since their installation. The result is that Eastern's condition appears more weathered than Central's.

Eastern High is a two -storey structure, with some areas single storey construction such as the auditorium, gymnasium, and it's north wing building. The configuration of the building includes three courtyards. The main office is located in the center of the large building, which is convenient to the main classroom two-storey areas, but due to its location it cannot monitor the entrance to the building. As a result, an auxiliary office is in use at the main entrance to monitor visitor traffic. There is an additional, larger entrance lobby along the main drop off on the building's south façade and adjacent to the auditorium, but this entrance is not being used as the main visitors entrance.

The site is accessed from both Morris Ave on the east and Rich Lane / King Street on the West. Eastern High School is located in a mixed use neighborhood, consisting of residential, commercial, municipal, and religious buildings. Nearby is Stafford Elementary School.

In the past, there were significant ground water issues in the basement of Eastern. After installation of sump pumps, it appears the issue has been rectified, but needs ongoing maintenance.

The high school is in fair condition overall. It is in need of cosmetic upgrades, along with upgrades to the roofing, exterior doors, and glazing systems.

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Eastern High main entrance

Site:

Bristol Eastern is bordered by Morris Avenue on the East, and King Street on the West. Between King Street and the building, is an extension of Rich Lane as an internal road. Rich Lane connects to a residential neighborhood to the south, where there are nine private homes that are adjacent to the High School's main parking lot. Only this southern border has a light buffer zone. The buffer between the properties on the north along Louisiana Avenue between the houses and the ballfields is much stronger. The district's oldest school building currently in use, Stafford Elementary, is across Morris Avenue from the School, and Page Park is across King Street to the west.

Within the site, vehicular circulation is clear, with bus drop off at the building entrance and a main parking lot along side it. There are 4 other supplemental parking areas on the site, added where space allowed. The loading and utility areas are dedicated, but adjacent to the internal drive and staff parking areas. All the site lighting was upgrades to LED this summer.

For athletic fields, the property includes a main football field with surrounding track, and adjacent track and field events. In addition, there are two baseball fields, a softball field, two multi-use/practice fields, and six tennis courts.

Bus drop off and view to southeast and adjacent residences

Loading area looking west towards King St.

Architectural Envelope:

Exterior Walls:
Eastern is a double-wythe masonry structure. The school's brickwork includes a handsome bond pattern and a variegated brick color. The masonry is in fair condition and should be assessed in greater detail for repairs and repointing. The interior concrete masonry units appear in good condition.

Window Systems:
The school's glazing systems appear to have been replaced in 1999 with the renovation. In some cases, the glazing units are punched openings, while in the major classroom areas. They are large expanses of framed units with both glazing and solid panels set into the frames. As such, there is less insulated exterior wall than there is vision panel. The glazing units include inward operative hopper panes within the units, which are not practical. The condition of the glazing systems is fair to good.

Entrance Systems:
Both steel and aluminum entrances are present in the building, with some in poor condition. Replacement of the entrance systems is recommended.

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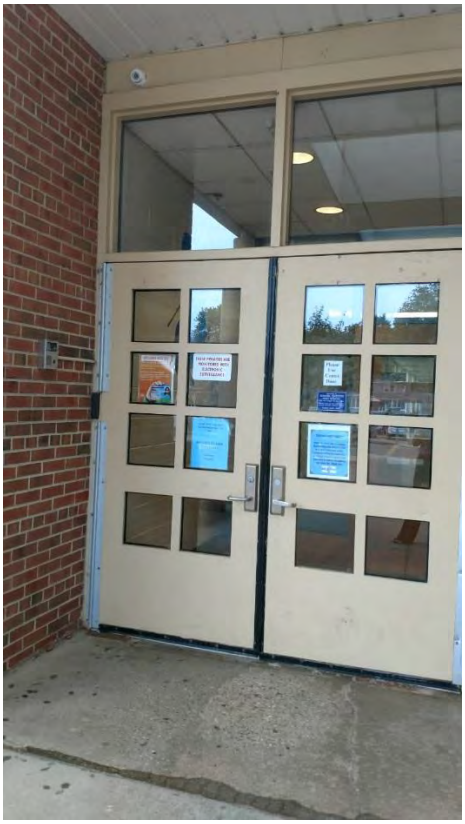
South façade, auditorium entrance


Main entrance doors


Brick and glazing systems, east façade

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Exterior doors, typical


Glazing systems


South courtyard


Translucent panels, gym wall

Roof:
The roof at Eastern was replaced prior to the 1999 renovations. As one of the only non-built up roof systems in the district, the PVC membrane has been a maintenance issue. To compound the issue, the roof replacement project did not include enough pitch to drain water appropriately.


Roofing with auditorium ductwork beyond

<u>Interior Architectural Components:</u>

Interior walls:
Interior walls are painted concrete masonry units with very little exception and are in good condition. The exterior brick was repeated on the interior in what is now the "auditorium entrance" area.

Doors:
Interior doors are wood, many with glazing. Doors are showing wear, although hardware appears to have been updated in the 1999 renovation project.

Ceilings:
The majority of the school has acoustical ceiling tile grid system installed. The ceiling systems might have been updated in 1999, but they are showing wear and tear and should be replaced in the near future.

Flooring:
In the main corridors and stairwells, the original terrazzo floors remain from the original construction, which is unique. With restoration, the terrazzo's appearance and longevity will be enhanced. Vinyl tile is installed in the classrooms. Both gymnasiums have wood performance floors which are in fair condition. The cafeteria has a sheet goods floor and is in good condition. The carpeted areas such as the media center and the auditorium are in fair to good condition.

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Millwork:
Throughout the school, it appears the classroom and office millwork was updated in 1999. It is wood with plastic laminate tops typically, and is in fair to good condition.

Specialties:
Lockers at Central High are single tier and flanked by wing walls. They appear in poor to fair condition. Gym equipment is also in fair condition, with some bleachers needing replacement. The horizontal window blinds style and should be replaced due to age and functionality.


Main entrance / auxiliary office


“Auditorium entrance”

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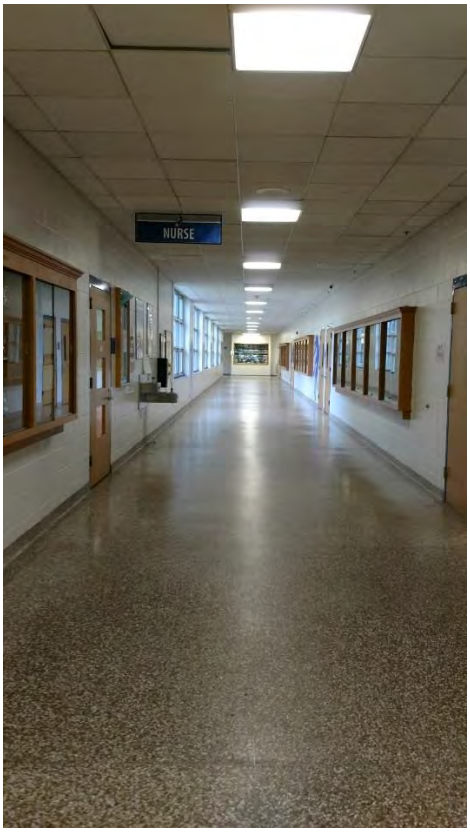
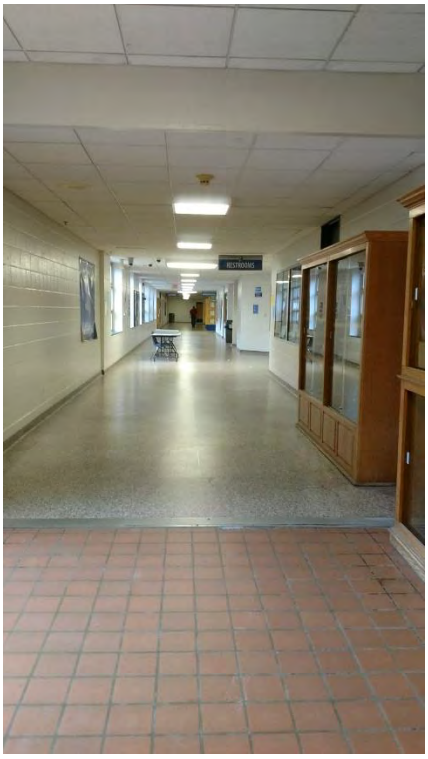


First floor entrance corridor


Corridor outside main office

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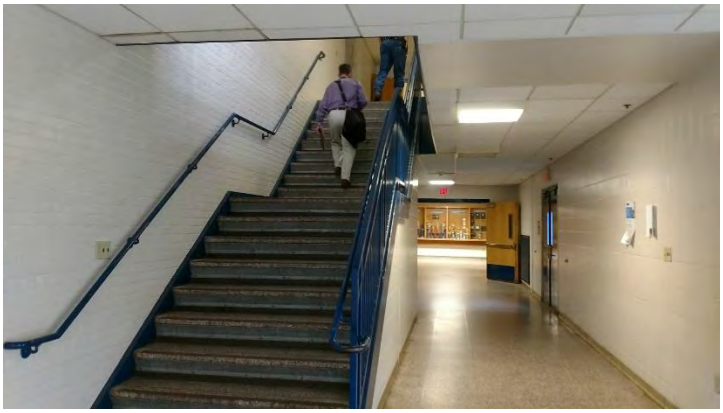
Typical classroom area corridor


Typical classroom


Central stair

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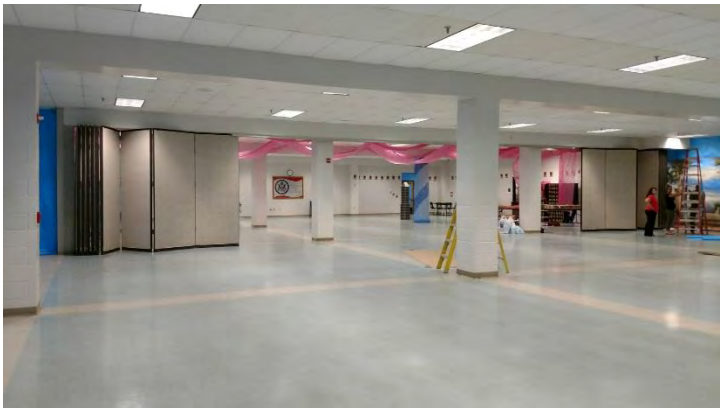
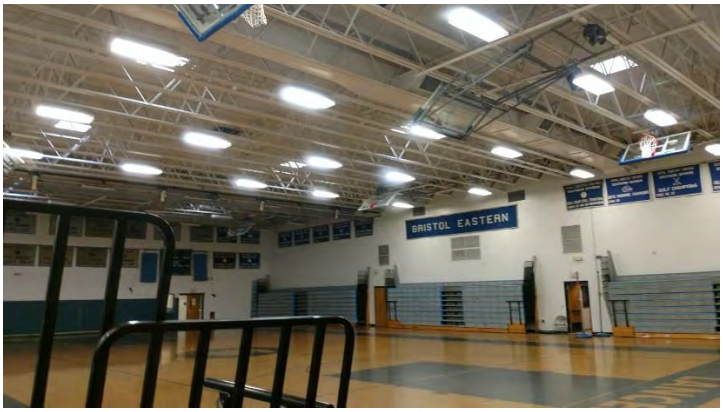
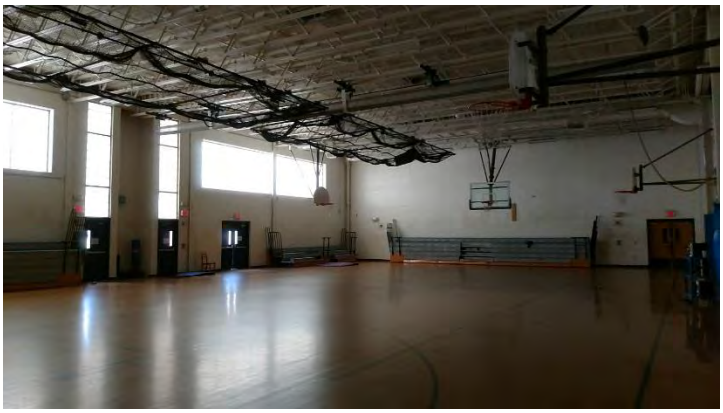


Cafeteria



Main Gym



Auxiliary Gym

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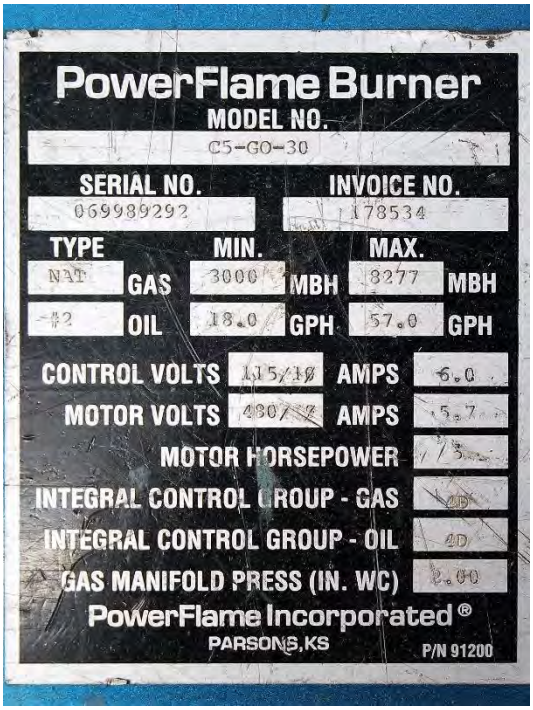
Mechanical Systems:

Heating System

The existing heating system is a steam system which consists of two Smith cast iron boilers which provide steam to radiant heaters and steam heating coils in air handlers and make-up air units. The burners are dual-fuel and are capable of utilizing both oil and natural gas, but typically use gas. There are plans to remove the existing heating oil tank this year. These boilers are at most 80% efficient, compared to newer gas-fired condensing boilers with efficiencies of 95%. Both boilers are from the 1999 renovation to the building and are approximately 18 years old. Visible piping in the mechanical room looks to be in good condition, although insulation is missing in places. Most of the steam piping in the building appears to be from the 1999 renovation of the building, but it is possible that some of the original piping from 1959 remains in use.

The mechanical equipment is outfitted with a modern direct digital control system that was installed during the 1999 renovation. The front-end user interface and graphics may be somewhat outdated if it has not been upgraded in the past 18 years.

Boilers: Life expectancy is approximately **10-15 years.**
Burners: Life expectancy is approximately **5-10 years.**



Fin Tube Radiation: Life expectancy is approximately **10-15 years.**

Cooling & Ventilation

The majority of the school is air conditioned by a combination of split systems and rooftop makeup air units. The gymnasium and nearby office area are the main areas currently without air conditioning. The split systems include modular indoor air-handling

units connected with refrigerant lines to outdoor condensing units. The makeup air units are large packaged units with steam heating coils, remote condensing units for cooling, and energy recovery wheels to pre-treat incoming outdoor air. Despite being 18 years old, most of the split systems and makeup air units appear to be in good condition. The one exception is that many of the steam coils in the makeup air units have either leaks or have failed completely. The large split systems use R-22 as a refrigerant, which is is no longer allowed in new installations due to environmental concerns. There are several newer roof mounted mini-split air conditioners serving data closets which are using R-410A refrigerant. Roof mounted fans provide exhaust for bathrooms and kitchen areas and appear to be in good condition.

Air Conditioning & Ventilation Units: Life expectancy is approximately **5-15 years.**
Steam Coils: Life expectancy is approximately **0-2 years.**
Condensing Units: Life Expectancy is approximately **3-10 years.**

Fan Equipment: Life expectancy is approximately **5 years.**

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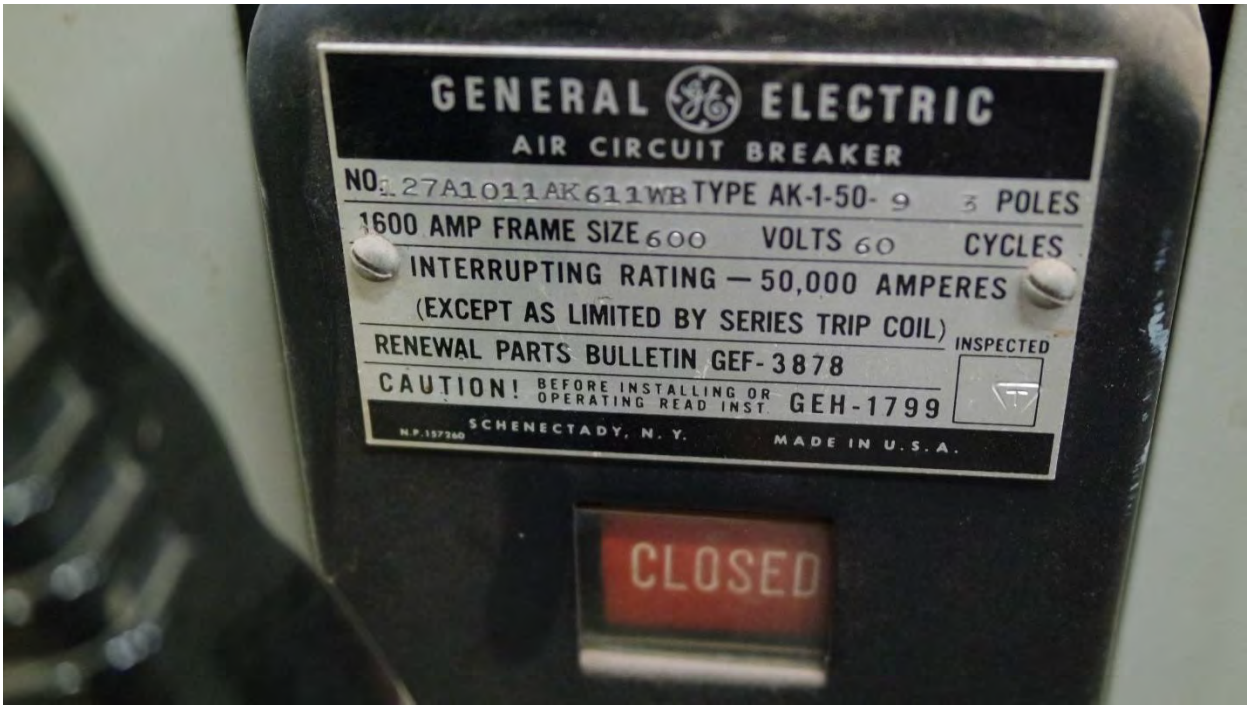
Electrical Systems:

Main Electrical Service (1999): 2500 Amp, 480 Volt AC Service. Life Expectancy is approximately 20 years.

Electrical Distribution (1967): 1600 Amp Service. Life Expectancy: Original equipment that should be replaced if still in use and operational. These 40-year-old circuit breakers require periodic maintenance and may or may not re-close when opened.



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45 KW, 208V Generator (2012): Life Expectancy 20-25 years.

Lighting: Life Expectancy is approximately 10 years. However, current LED technology is more efficient.

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Fire Alarm System

The fire alarm system is and addressable system manufactured by Notifier and is 15 years old.

Fire Alarm System: Life expectancy is approximately **10 years.**

Plumbing and Fire Protection:

Domestic hot water is provided by two gas-fired boilers manufactured by A.O. Smith, which are connected to a 350-gallon storage tank with recirculation pump.

The water distribution piping and plumbing fixtures are in fair condition. Roof drains are currently functional.

The building has a sprinkler system for fire protection, however some areas of the building do not appear to meet current building code requirements for sprinkler systems.

Domestic Hot Water Heater: Life expectancy is approximately **5-10 years.**

Piping and Plumbing Fixtures: Life expectancy is approximately **10-15 years.**

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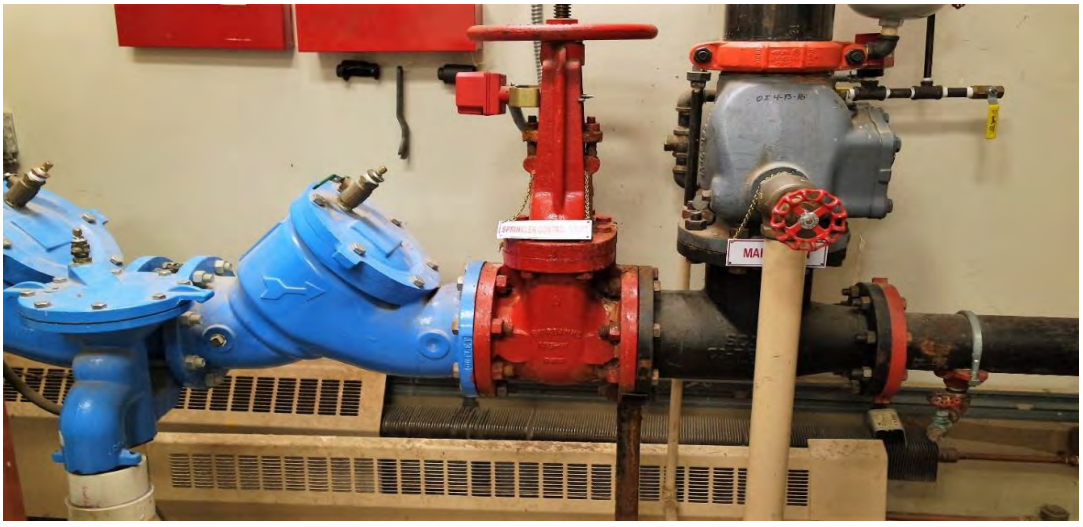
Sprinkler Piping: Life Expectancy is approximately **10-20 years.**



Roof Drains: Life expectancy is approximately 10-15 years

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Chippens Hill School

551 Peacedale Street, Bristol, CT

Existing Conditions Report — August 7, 2017

Year Built:	1993
Grades Served:	6-8
Square Feet:	166,000
Site Acreage:	24

Summary:

The Chippens Hill Middle School was built in 1993 and was designed by the SLAM Collaborative. It serves as one of only two schools in the district serving exclusively grades 6-8. Located in the northwest area of the city, the site is on a hill in a more pastoral section of the district which includes single family homes and a few farm properties.

The building is one of the district's largest, and is 3 storeys tall, built into a hillside so that the main entrance is on the middle level. The double corridors are on either side of the centralized gathering spaces, which are the gym, the cafeteria, the media center, and the auditorium. Classrooms and office spaces benefit from the exterior wall's natural light and views. There are six main stair towers, 3 of which were designed to be architectural features of the building. The entrance lobby on the main level includes a dramatic atrium space and serves the main office and auditorium entrance directly. The two-storey cafeteria and gymnasium spaces, located on the lower level, are significant in size and are viewable through interior windows from the main level corridors. There is no dedicated entrance for evening gym or cafeteria events.

Chippens Hill Middle School has reached the age where some maintenance items need to be addressed, but overall the building is in excellent condition. If the maintenance items are addressed and air conditioning added, the building will function like new.

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Main entrance plaza

Site:

The Chippens Hill site is generous. Vehicular entry for both busses and cars is off of Peacedale Street on the north. The bus loop appears small for the size of the school. There is one main parking area for both staff and visitors, configured in tiers on the upper portion of the hill, so that visitors walk down to the entrance plaza. As such, the main office, which faces west, has no clear view of the parking area, but has direct view of the drop off loop.

The site development includes 5 playfields, all on the west side of the building. There is a wooded area on the east side of the building which acts as a buffer from the excavation lot adjacent to the district's site. All site lighting was replaced this summer with LED fixtures.

The service drive and loading dock are located at the bottom of the site's hill, on the south side, with a dedicated drive off of James P Casey Road.

Bus loop

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Tiered parking

View of fields from main entry

Architectural Envelope:

Exterior Walls:

The exterior walls are double wythe masonry of concrete block, with a glazed facing in neutral tones to create a pattern over the expansive walls. The exterior face has shown very little wear over its 24 years of age. Mortar joints should be inspected for re-pointing where needed.

Window Systems:

Window systems are metal frame, set in punched openings, most with operable awning panes. Because of the lack of air conditioning, the operable windows can catch the prevailing winds prevalent on the hilltop site. However, no stack effect was designed in the building to enhance natural airflow within. The window systems are a signature “teal” color. At the main stair towers, the design incorporates expansive glass framed enclosures. While the stair towers are visual features, the amount of heat gain within the spaces is difficult for the building’s mechanical systems to temper.

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Entrance Systems:
The metal entrance systems are finished in bright red at the main entrance and are teal color in other areas, integral with the window systems. The entrances are in good condition having some wear, and should be evaluated for specific hardware or complete replacement.


South elevation, loading area

Main entrance doors


View from northeast stair tower looking south

Roof:
Chippens Hill roof was scheduled for replacement in the 2016-17 school year, along with replacement of the roof top units and repointing.

Interior Architectural Components:

Interior walls:
The majority of the school's interior walls are concrete masonry units, unfinished, and show very little wear. In some locations, a glazed tile has been installed. It is an architectural theme throughout the school that the building steel was left exposed, and painted in the signature teal color. In the featured stair towers, the exterior tile product was installed on the walls.

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Feature stair tower

Doors:

Interior doors are a combination of metal and wood, with wood being used for classrooms and offices. Metal was used in more high traffic areas, and locations with interior glazing systems so that they might be integral.

Main office entrance

Ceilings:

Chippens Hill ceilings are mostly acoustic tile grid systems, and have experienced warping and staining over time. Due to the lack of air conditioning, humidity has been an issue in the building. The ceilings are due for a replacement throughout the building. In the corridors, there are skylights with soffit enclosures. There are a few rooms with exposed painted structure, such as the gym. In the cafeteria, there are skylights installed with surrounding soffit enclosures.

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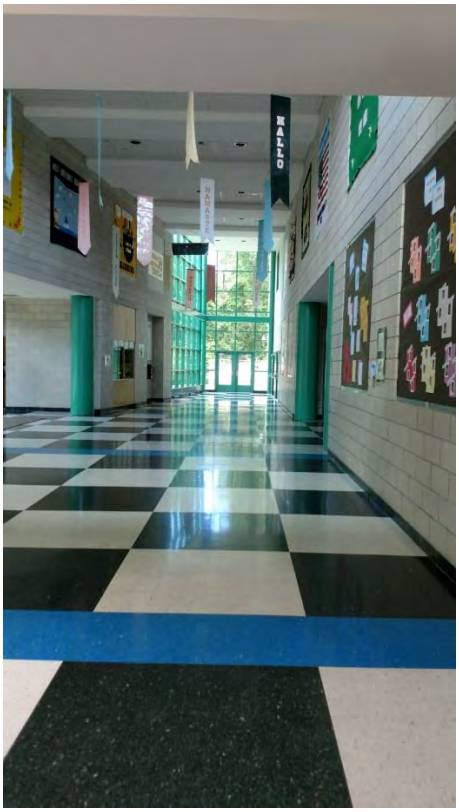

Main entrance atrium

Typical ceilings

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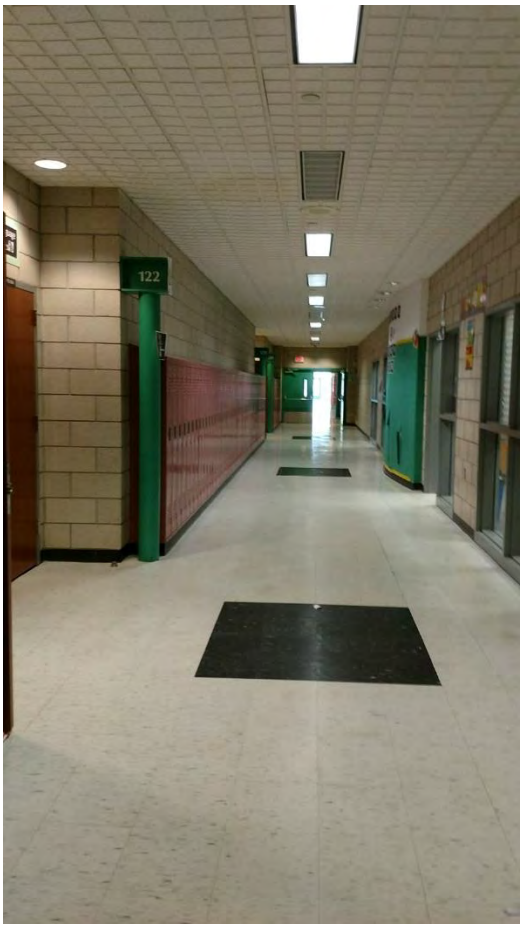
Flooring:
Flooring at Chippens is mostly vinyl composite tile and is in good condition. Some of the flooring had to be replaced due to humidity issues in the building and / or slab. The gym is a wood sports floor. There is carpet installed in the auditorium, office areas, and the media center, all in good condition.



Main corridor


Cafeteria

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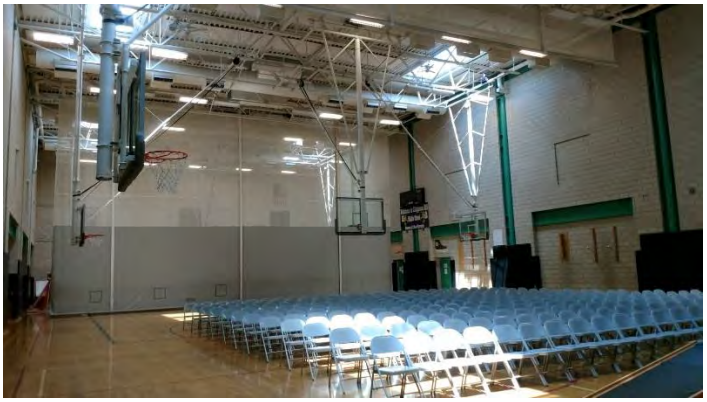
Gymnasium

Millwork:
Millwork in office and classroom areas is wood with plastic laminate counters and is in good condition.

Specialties:
The lockers, food service equipment, gym equipment, stage rigging and curtains, and auditorium seating all appeared in good condition. In many locations, round column covers were installed and finished in the signature teal color.


Auditorium

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Mechanical Systems:

Heating System

The existing heating system for the building is a hydronic hot water system including two oil-fired, cast iron boilers and two pumps for distribution to fin tube radiation located throughout the building. The hot water system and boilers were installed in 1993. The existing boilers are about 80% efficient, while newer condensing boilers with modulating burners regularly reach efficiencies of 95%. There are two fuel-oil transfer pumps in the mechanical room that provide fuel-oil for the boilers and domestic hot water heater. The mechanical room is properly ventilated with several louvers providing combustion air from the area near the loading dock. Visible piping in the mechanical room appears to be in good condition and is insulated and labeled. The boilers and fin tube radiation are in good condition, the pumps are in fair condition.

The controls system for the boiler plant is a modern direct digital controls system. There is a wall mounted controller for the oil feed pumps in the mechanical room. Both appear to be in good condition.

Boilers: Life Expectancy is approximately **10 years.**
Burner: Life Expectancy is approximately **0-5 years.**

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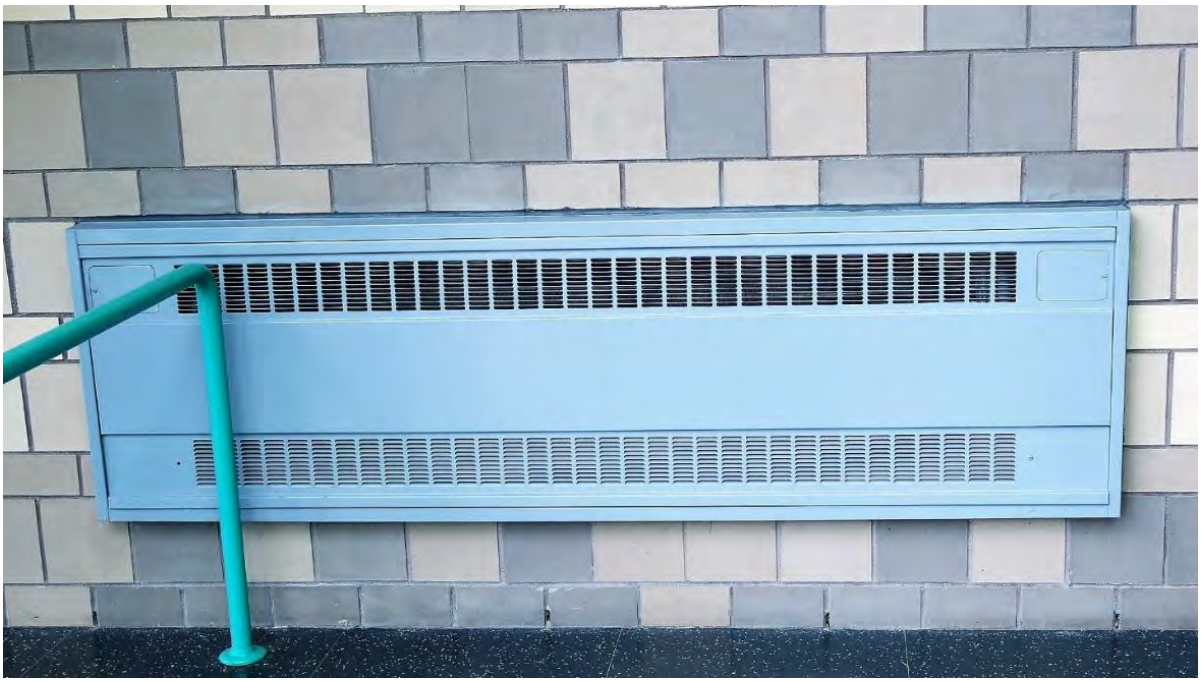
Pumps: Life Expectancy is approximately **0-5 years.**

Fin Tube Radiation: Life Expectancy is approximately **5-10 years.**



Cooling & Ventilation Systems

The areas of the building which have air conditioning are the Auditorium, Library, Computer Rooms, Main Office & Administration Areas, Guidance Area & Nurse's Office, and other Faculty spaces. Air conditioning is provided by packaged rooftop units, and split systems. The rest of the building is provided with ventilation from rooftop make-up air units, and rooftop fans for bathrooms and other exhaust. All rooftop equipment, including packaged rooftop units, make-up air units, condensing units, and exhaust fans are being replaced during the 2017 HVAC replacement project this summer.

Rooftop Units (Air Conditioning & Ventilation): Life Expectancy is approximately **15-25 years.**

Fan Equipment: Life Expectancy is approximately **20 years.**

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Electrical Systems:

Main Electrical Service (1993): 2000 Amp, 208 Volt AC Service. Life Expectancy is approximately 10-15 years.

Electrical Distribution (1993): Life Expectancy is approximately 10-15 years.

Generator (1999): Life Expectancy is approximately 10-15 years.

Lighting: Life Expectancy is approximately 5-10 years. However, current LED technology is more efficient.

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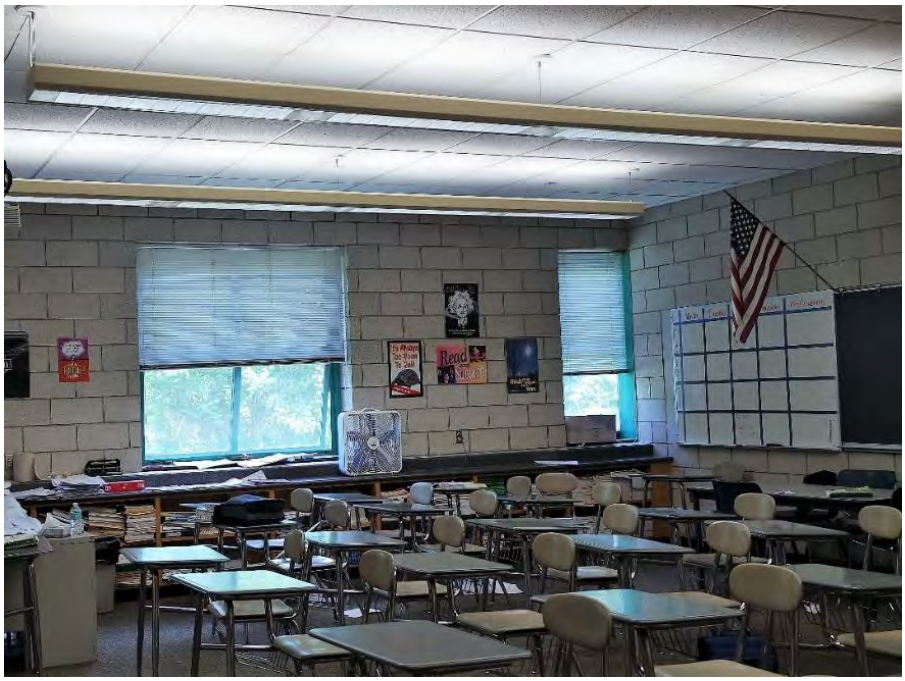

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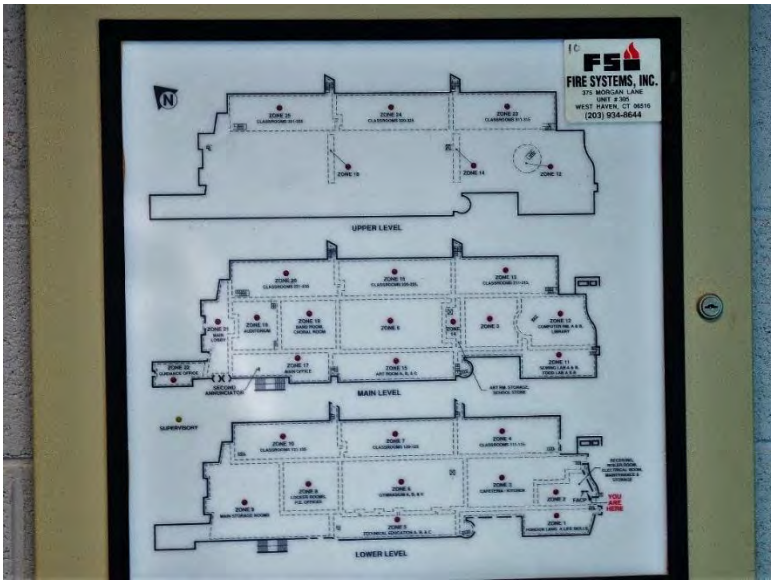
Fire Alarm System

Fire Alarm Panel: Life Expectancy is approximately **30-40 years.**

The fire alarm panel and devices are currently being replaced with a new addressable system.



Plumbing and Fire Protection:

Domestic hot water is provided by an oil-fired, 75-gallon domestic hot water heater and a 119-gallon storage tank with recirculation pump. The hot water heater was installed in 2016 and is in excellent condition.

Plumbing fixtures and piping were installed when the school was built in 1993 and are in excellent condition. Piping where visible is insulated and labeled. Roof drains are currently functioning.

The building has a sprinkler system for fire protection.

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Domestic Hot Water Heater: Life Expectancy is approximately **20 years.**

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Piping: Life Expectancy is approximately **10 years.**

Plumbing Fixtures: Life Expectancy is approximately **10 years.**

Roof Drains: Life Expectancy is approximately **10 years.**

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Northeast Middle School

Existing Conditions Report Sept 1, 2017

Year Built:	1961
Additions & Renovations:	1964, 1983
Grades Served:	6-8
Square Feet:	74,000
Site Acreage:	31

Summary:

Northeast Middle School serves grades 6-8 and is located in a predominately residential neighborhood, not far from Edgewood Elementary School. Originally constructed as a slab on grade building, a two storey classroom wing was added soon after it was built, but without an elevator. Only the slab on grade classrooms are currently accessible to disabled staff and students. It is one of two 6-8 schools in the district, the other being the relatively new building Chippens Hill.

Northeast has a generous site, but the building's systems are aging out. A new roof was installed last year to stop ongoing roof leaks and stabilize the building for now, but major systems replacements, envelope improvements, and finishes replacements are imminent.

Main entrance

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Site:

Located between Felice Road to the south and Stevens Street to the north, the middle school property includes an access drive that connects the two major neighborhood streets. As a result, many residents use the school's access drive as a cut-through. Since the bus and parent drop off is located on the access drive itself, this situation needs a remedy such as a gate or other deterrent to local traffic. Regardless of the thru traffic, separation of parent and bus drop off, and visitor parking, is needed.

The site is laid out with generous buffers for the adjacent residential neighbors. To the east, there are playfields and woods between the school and the single family homes. To the west, there is the access road and woods between the school and the adjacent multi-family residential buildings. Despite the generous buffers, there appears to be a lack of appropriate parking for school events; there is parking along the access road, and two small lots to the north and south of the building.

The school site includes 4 playfield areas. The main office has a clear view of the entrance drive and oncoming traffic from the north and south entrances. Due to the layout of the building, there are multiple perimeter entrances to the building that need to be monitored.


Entrance from Stevens Street

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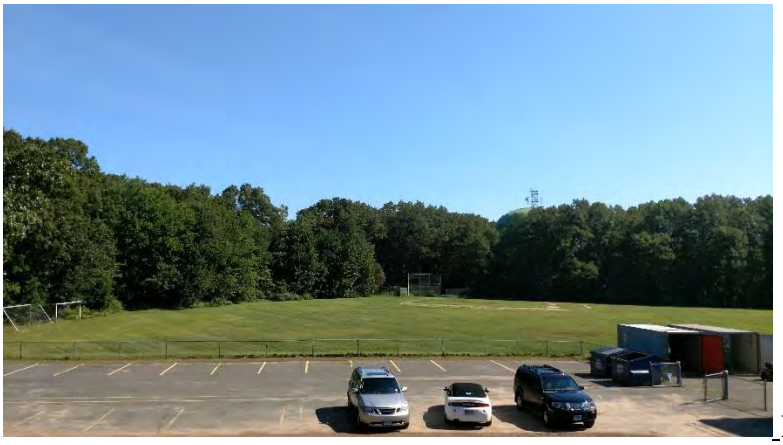
Fields to the north


Fields to the east

Architectural Envelope:

Exterior Walls:

The exterior walls systems at Northeast are double wythe brick and concrete masonry unit walls. Where there are classroom and office areas, there are large expanses of glazing systems which degrade the insulative value of the walls. The brick is a typical common brick and should be assessed for cleaning and repointing.

Window Systems:

The glazing systems were replaced in 1983 and have reached the end of their life expectancy. They are mostly double panel aluminum frame systems, with some spandrel panels included. Since most of the building is not air conditioned, the awning unit portions of the glazing systems are regularly used. It should be noted that while there is a lack of natural light in some areas of the school, others are subject to floor to ceiling glass which is too intense for classroom settings.

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Office area glazing and wall


Classroom glazing at interior courtyard

Entrance Systems:
Exterior doors throughout the building have reached end of life. Most are original to the building and match the district's typical aluminum style with vision panels. The main entrance includes a vestibule.


Main entrance vestibule

Roof:

Northeast Middle's roof was replaced this year to prevent ongoing leaks. It is an EPDM membrane system which is expected to last 20-30 years.

New roof system

Interior Architectural Components:

Interior walls:
The majority of interior walls are painted concrete masonry units. In a few classrooms and office areas, there are gypsum walls. In the music rooms, a corrugated sound absorbing wall panel system has been installed. Throughout the school, where space has allowed, the students have installed murals, which gives a personalized and vibrant theme to Northeast.

Public corridor with murals

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Typical classroom corridor


Vocal music classroom with acoustic walls

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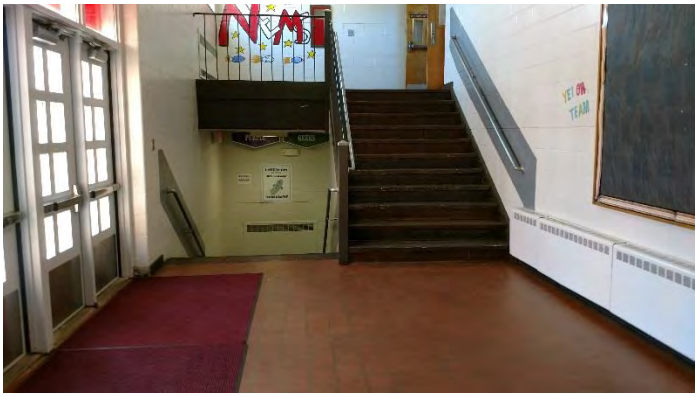
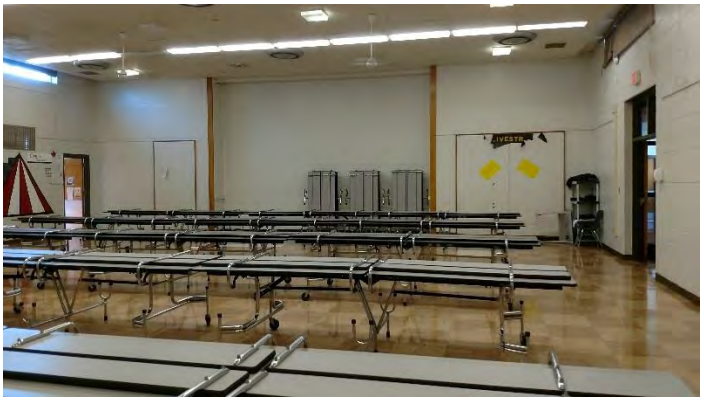


Stair to two storey addition



Cafeteria

Gymatorium

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Media Center

Doors:
At Northeast, the original wood classroom doors are maintained but need replacement. Over time, the hardware was upgraded. Frame systems are metal with adjacent or clerestory lights.


Typical classroom door

Ceilings:
With the exception of the gym, the school has 2 x4 suspended acoustical tiles in a grid system. Most ceilings are end of useful life and many are warping.

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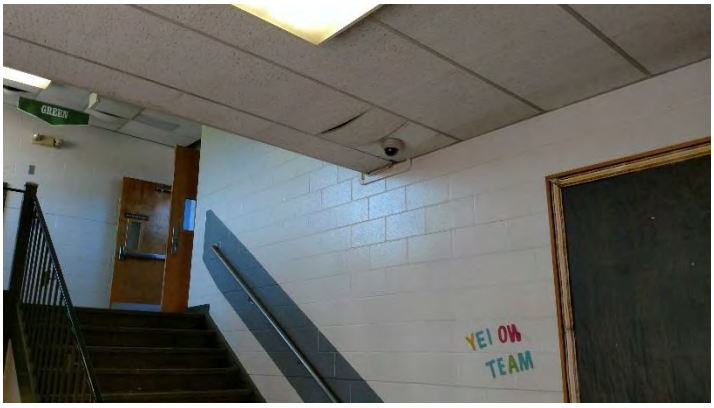
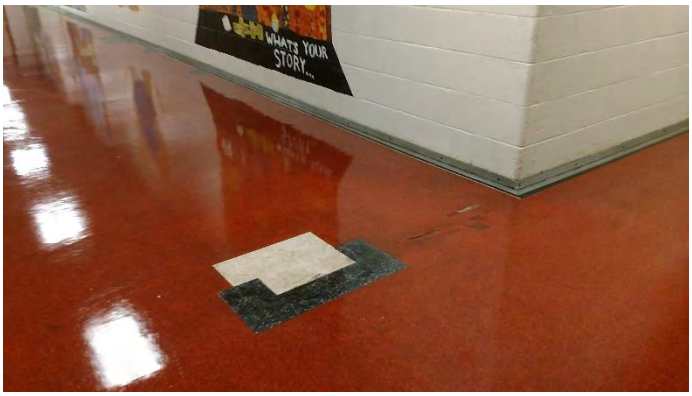


Suspended grid ceiling

Flooring:
The school has many flooring products installed, which results in an exhaustive maintenance program. In some classrooms and corridors, there is vinyl floor tile product. There is sheet linoleum and terra cotta tiles in other corridors. Ceramic tile is present in the toilet rooms, and quarry tile in the kitchen. In the gym, the original wood parquet flooring still exists. The stair treads to the 1964 addition are inconsistent and failing. In a few rooms, including the media center and main office, broadloom carpet has been installed.



Typical corridor flooring with patches


Gym flooring


Stair flooring

Millwork:
Northeast has a mixture of millwork woods installed. In the main lobby, there is a feature bench of dark wood, while nearby are trophy cases of medium tone wood. Classroom, office, and media center millwork appear to be of similar age and species. Along with a lack of consistency, the millwork is showing wear and tear.


Main office

Specialties:
The green house structure in the east courtyard is in good condition. Gym and stage equipment are older and should be replaced. Cafeteria equipment is in fair to good condition.

Lockers in corridors are in fair to good condition, while the locker units in the 1961 classrooms are at end of their life. Toilet partitions are in fair to good condition.

Due to the large expanses of clear glazing in each classroom, the shading devices are heavily used and are beyond their usable life and need replacement.


Greenhouse


Corridor and classroom lockers and millwork


Window shades

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Mechanical Systems:

Heating Systems

The existing heating system for the building is a hydronic hot water system including two Smith oil-fired, cast iron boilers and five Bell & Gossett pumps for distribution to fin tube radiation and air-handling units located throughout the building. The boilers and pumps were installed in 2001, while the fin tube radiation and air handling units are 30-55 years old. The existing boilers are about 80% efficient, while newer condensing boilers with modulating burners regularly reach efficiencies of 95%. The mechanical room appears to be properly ventilated for combustion air. Visible piping in the mechanical room appears to be in fair to good condition and is mostly insulated. However, much of the distribution piping system is at an age when regular leaks would not be unusual to see. The boilers appear to be in good condition, while the pumps and radiation are in fair to good condition.

The control system for the boiler plant is pneumatic, and the associated air compressor and other controls components are located in the mechanical room. Modern control systems are typically direct digital controls, which are more precise than the existing pneumatic system and can be monitored remotely. Pneumatic systems such as this will become more difficult to repair as the number of technicians familiar with these aging control systems reduces. As with any control system of this age, it is in poor to fair condition.

Boilers: Life Expectancy is approximately **20 years.**
Burner: Life Expectancy is approximately **5-10 years.**
Pneumatic Controls: Life Expectancy is approximately **0-5 years.**

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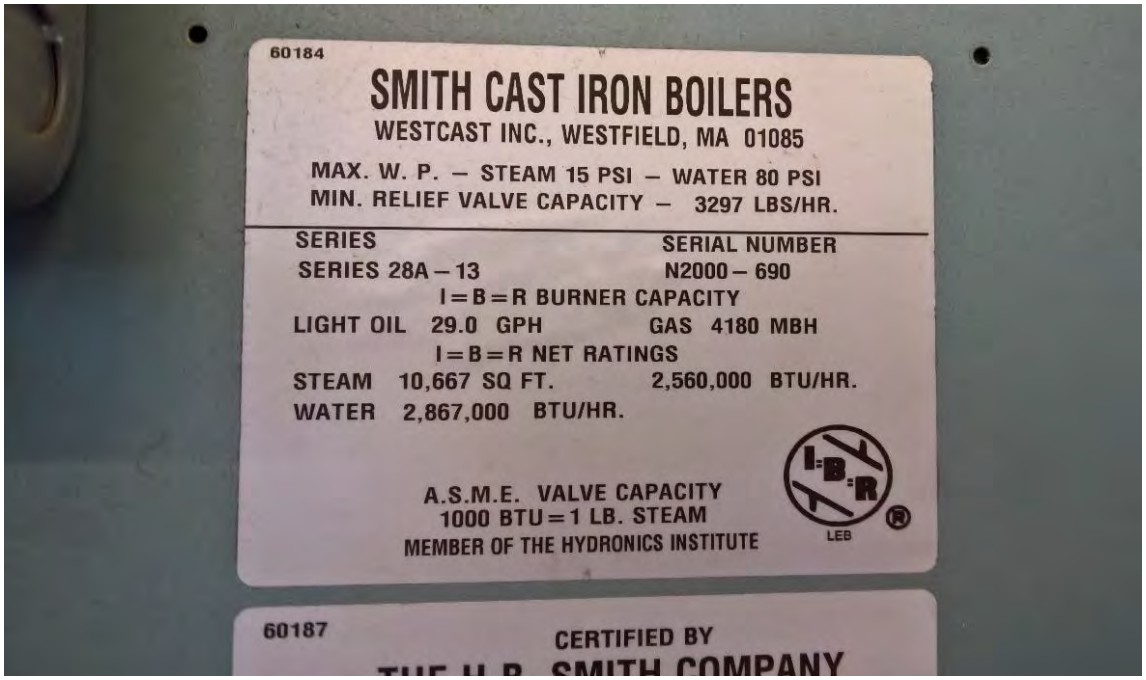

Pumps: Life Expectancy is approximately **5 years.**

Fin Tube Radiation: Life Expectancy is approximately **2-5 years.**

Pneumatic Controls: Life Expectancy is approximately **0-5 years.**

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Cooling & Ventilation Systems

Limited areas of the building are currently provided with cooling. The administration area is served by a 6 ton Carrier packaged rooftop unit which was installed in 2016. This unit provides heating and cooling to the spaces, uses R-410A refrigerant, and appears to be in good to excellent condition. A few spaces such as the Computer Lab and Teacher's / Conference Room are cooled with window air conditioning units. Air conditioning for the server room is provided by a Sanyo mini-split wall mounted air conditioner which uses R-410A refrigerant.

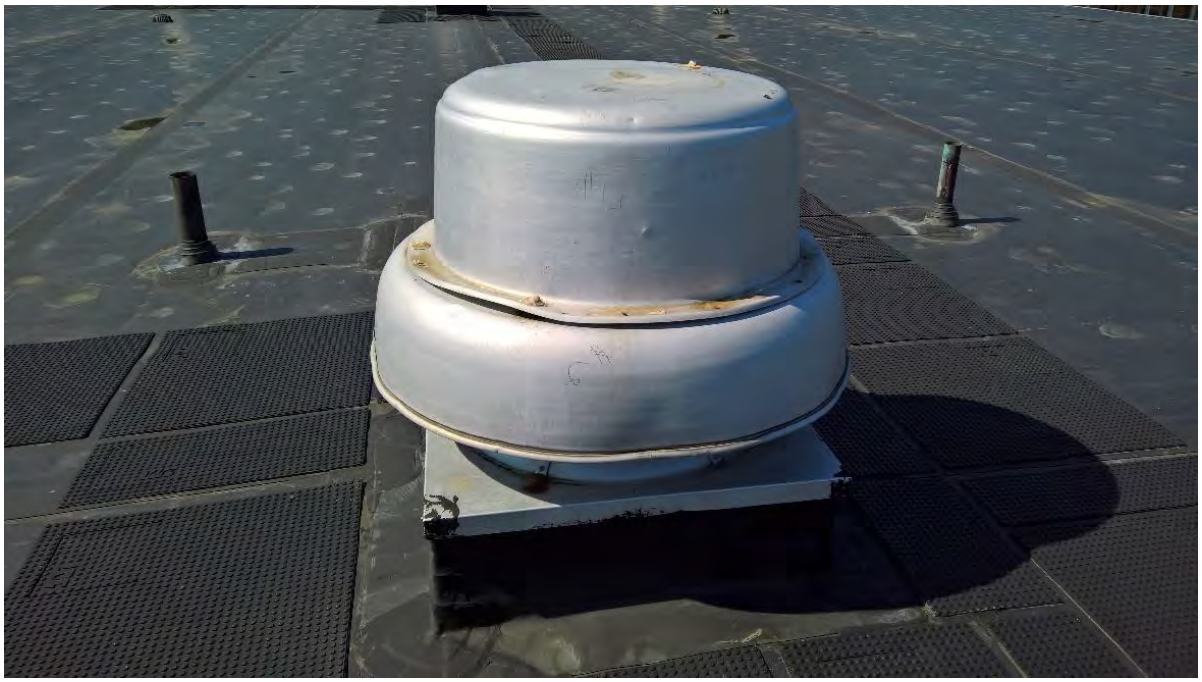
There are two air-handling units that provide heating and ventilation for the Cafeteria and Gymnasium. These systems, which are more than 30 years old, all appear to be in poor to fair condition. The building also has a variety of exhaust fans for the kitchen and bathrooms. Some classrooms have exhaust for ventilation. Some exhaust fans are morethan 30 years old, while other have been replaced in recent years.

Rooftop Air Conditioning Unit: Life Expectancy is approximately **15 years.**

Mini-Split Condensing Units: Life Expectancy is approximately **5 years.**

Air-Handling Units: Life Expectancy is approximately **0-5 years.**

Fan Equipment: Life Expectancy is approximately **2-10 years.**



Window Air Conditioners: Life Expectancy is approximately **2-5 years.**

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Electrical Systems:

Electrical Distribution: Life Expectancy is approximately **0-2** years.
Should be replaced soon.

The Electrical Distribution Equipment is mostly of an earlier vintage (installed in the 1960's), and should be replaced as soon as possible. There are some panelboards "Spectra Series" that are newer and may be retained.

Electrical distribution equipment area should not be used as for storage.
This is a hazardous condition and should be remedied immediately.

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Electrical distribution equipment area should not be used as for storage.
This is a hazardous condition and should be remedied immediately.

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Electrical distribution equipment area should not be used as for storage. This is a hazardous condition and should be remedied immediately.

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This equipment is very old and has outlived its useful life.

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Lighting

While the lighting appears to be functional, current LED technology is far more efficient and cost effective.

Lighting: Life Expectancy is approximately **5** years.

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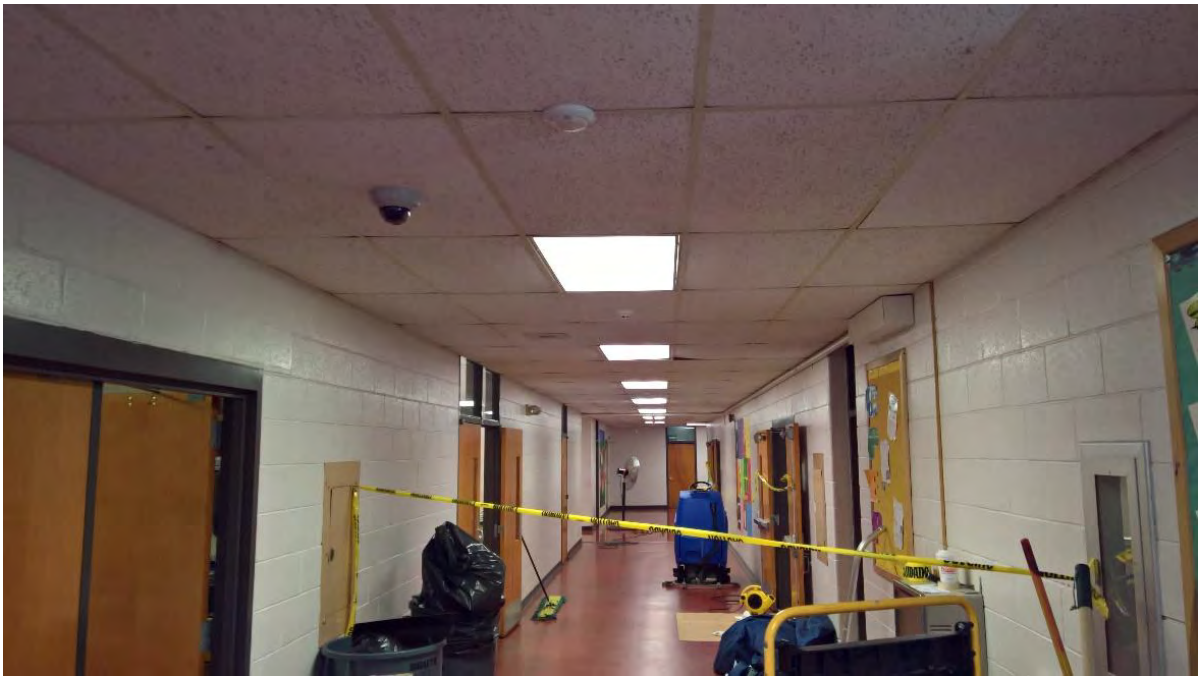

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Fire Alarm System

The fire alarm system is an older conventional zoned system installed in 1983, and is the oldest in any of the Bristol schools. This equipment has oulived most of its useful life and should be replaced with a more modern system. It appears that some of the peripheral devices have been replaced, also indicating that the system is in need of replacement.

Fire Alarm: Life Expectancy is approximately **0-2 years.**

Plumbing and Fire Protection:

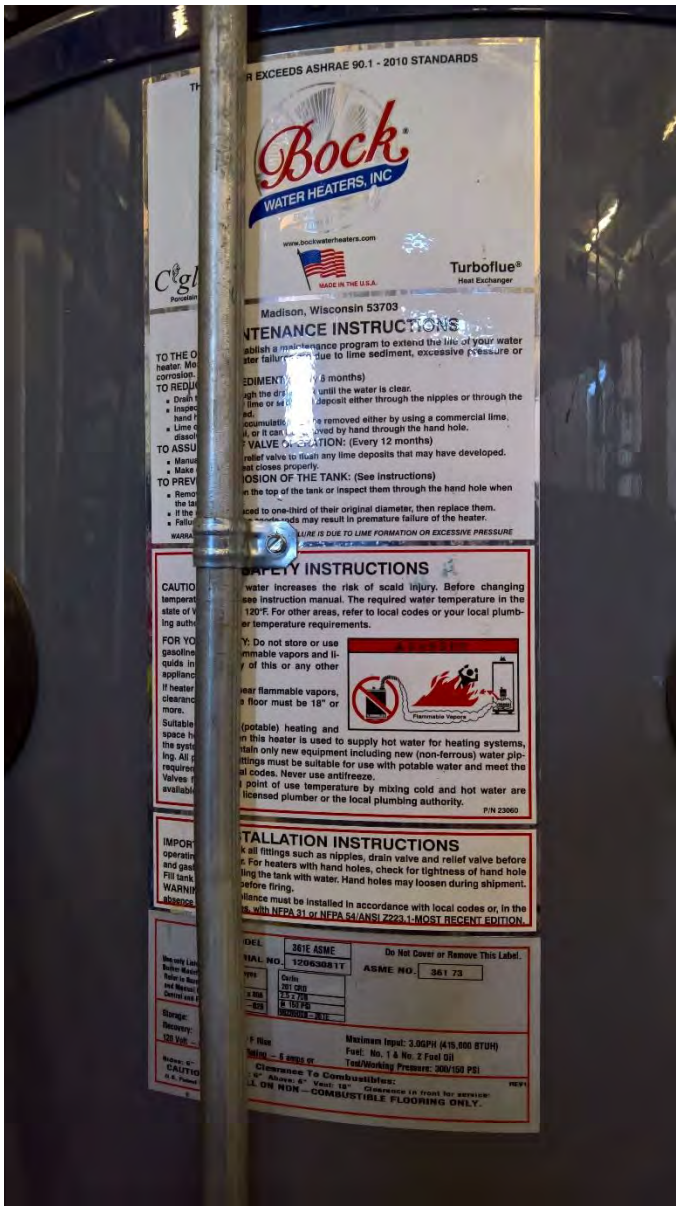
Domestic hot water is provided by a unique combination of an atmospheric or power vented, oil-fired, 91-gallon, tank type hot water heater manufactured by Bock Water Heaters, connected to an older indirect tank / heat exchanger heated by hot water from the boilers. Either or both of these systems can be utilized to produce domestic hot water. The Bock hot water heater, installed in 2013, appears to be in good condition, and the indirect tank / heat exchanger appears to be in poor to fair condition.

Much of the water distribution piping and plumbing fixtures are original to the building with upgrades and repairs as required, and some date to the 1983 renovation. Roof drains are currently functioning, and there is no visible redundant drainage system.

The building does not have a sprinkler system for fire protection.

Piping & Plumbing Fixtures: Life Expectancy is approximately **X years.**

Bock Domestic Hot Water Heater: Life Expectancy is approximately **15 years.**



Indirect Heat Exchanger Domestic Hot Water Heater: Life Expectancy is approximately **0-5 years.**

Piping & Plumbing Fixtures: Life Expectancy is approximately **2-5 years.**

Roof Drains: Life Expectancy is approximately **2-5 years.**

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Edgewood School

345 Mix Street, Bristol, CT

Existing Conditions Report — June 28, 2017

Year Built:	1957
Addition & Renovation:	1992
Grades Served:	PreK – 5
Square Feet:	44,000
Site Acreage:	15

Summary:

The Edgewood Elementary school was built in 1957, with an addition shortly after in 1963, both projects designed by the architect Rossetti. In 1987, an addition and renovation project was completed, having been designed by Lawler, which added six classrooms. Edgewood is a single storey slab on grade building with no basement. It contains 20 classrooms, a media center, an administrative office suite, nurse and teacher lounge suite, and support staff suite. It also contains a multi-purpose room with adjacent kitchen. The multipurpose room serves as cafeteria, gym, and auditorium. The combination of uses for this space hinders the staff and educational program.

The building itself is in need of substantial upgrades, or replacement, in the near future. The site, although limited, could be re-configured to allow for proper vehicular circulation and recreational spaces.

Main Entrance

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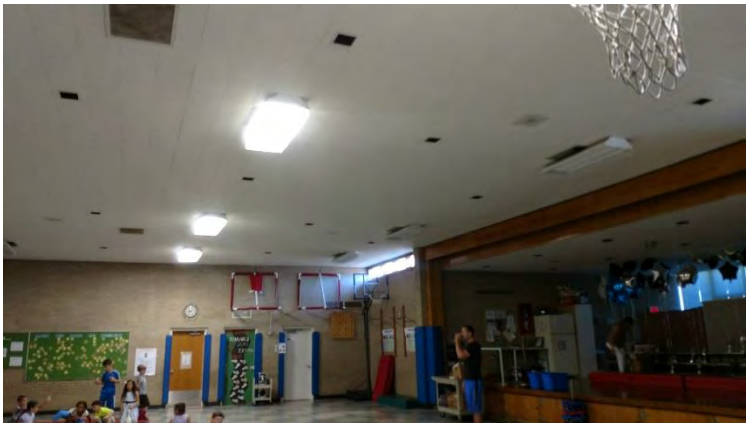
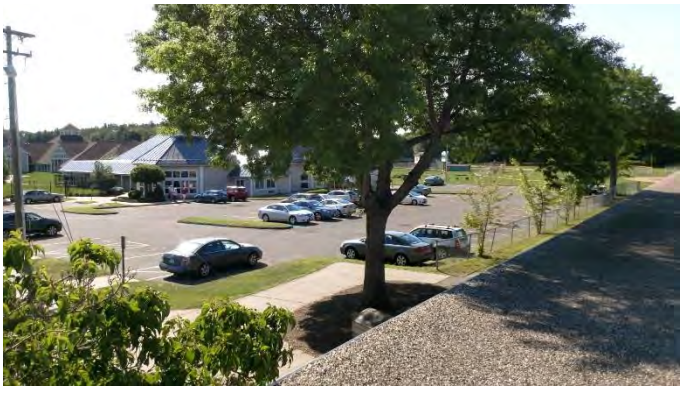


Multi-purpose room

Site:

Edgewood Elementary is located adjacent to town little league fields and a municipal pool building. Parking is adequate for the school, due in part to the adjacent facilities' parking areas. Maintenance of the little league parking area, including snow removal, is done by the school maintenance personnel.

The bus drop off loop is of adequate size and is located on the east side, off of Mix Street, while a small parent drop off loop is on the west side at the end of Willow Brook Road, a residential cul-de-sac off of Jerome Avenue. The loading area and utility entrance is also located on the west side of the building. The grass playfield space for Edgewood is very limited. There is a hardscape play area on the west side of the school, with one small playscape area located next to the hardscape.



Main entrance area and adjacent pool building

Parent drop-off

Play areas

The main office has visual control of the bus loop and main entrance on the west side. Site lighting is being replaced this summer as part of a town wide school building grant improvement program. Maintenance staff keeps their gasoline powered equipment in an outdoor storage container located on the north side of the building.

Architectural Envelope:

Exterior Walls:

The exterior walls are constructed of double wythe block interior with brick exterior. The light colored brick is also used in several interior locations. The exterior masonry construction is limited, with aluminum glazing systems installed from foundation wall to roof framing for the majority of the vertical envelope. The masonry appears in good condition, however the overall insulative value of the exterior wall is hindered by the expanse of the glazing systems.

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Exterior wall and Glazing

Window Systems:
The aluminum glazing systems are double pane tinted glass, installed in the 1987 renovation. They include both glass panels and spandrel panels, and are in fair condition. The glazing systems are located on the exterior side of the structural tube columns primarily in classroom locations, and on the interior side of the tube columns in the administrative suite. The center panels of the glazing systems are operable, awning style openings. Mini-blinds are installed inside most classrooms and offices.

Entrance Systems:
All classrooms have exterior doors as part of their aluminum glazing system units. The classroom exterior doors are solid panels and vary in their hardware types. The entrance systems at the ends of corridors are also aluminum, with vision panels, sidelights, and transom lights. While the classroom exterior doors are in fair condition, the exterior doors serving corridors are in good condition.

Roof:
The built-up roof includes ballast and appears in good condition, although there has been a nuisance leak near the area of the multipurpose room, perhaps along the expansion joint, for which the source location has not be able to be identified. The roof construction includes multiple polymer skylights, installed during the 1987 renovation, which assist in illuminating the corridors on sunny days.

Roof, area of unidentified leak.

Interior Architectural Components:

Interior walls:
The interior walls are a combination of painted concrete masonry block (classrooms), and glazed block and brick (corridors, toilet rooms, kitchen, multipurpose room). The walls reflect their respective original constriction ages, and have been manipulated over time. The corridor side walls of the classrooms were renovated in the 1987 project to include single pane transom glazing panels.

Interior walls and glazing

Doors:
Most interior doors are solid wood (classroom, interior vestibule), with a few being aluminum system (corridor). They include large vision panels and knob style door hardware.

Ceilings:
Ceiling tiles are at end of life. There is a variety of fissured, perforated, and anti-fungal panels, and along with the grid system, are in need of replacement. Likewise, the interior lighting fixtures are at end of life. In the corridors, light fixtures were installed on the inside frame of the skylights, to provide artificial supplemental lighting to the natural daylight, however the artificial lighting levels are not bright enough for cloudy day illumination levels.

Classroom ceiling and corridor skylight

Flooring:
Flooring is primarily vinyl tile, with some VAT yet to be remediated. There is also broadloom carpet in the media center, and ceramic tile in the toilet rooms. There are limited entrance mat areas. All flooring is aged and in need of replacement in the near future.

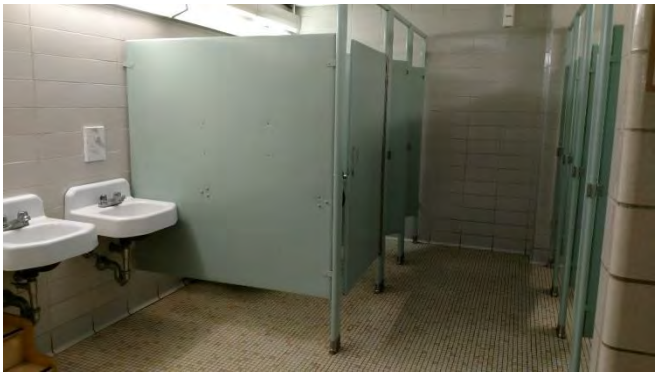
Millwork:
Classrooms contain wood millwork storage units along the glazing wall and corridor wall, some with perforated faces, others with wood faces. Counter tops appear to be laminate. In the media center, there are wood shelving units, a wood circulation desk, and laminate computer counters. Millwork conditions range from poor to good, depending on location.

Classroom millwork

Media center

Specialties:
The multi-purpose room contains murphy-style metal tables embedded in the corridor wall. These units are impractical, and the space in and of itself is impractical having three separate uses. Toilet partitions are in poor condition, as are the toilet rooms themselves.

Multi-purpose room tables



Toilet room

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Mechanical Systems:

Heating Systems

The existing heating system for the building is a hydronic hot water system including two Smith gas-fired, cast iron boilers and two Bell & Gossett pumps for distribution to fin tube radiation located throughout the building. The boilers and pumps were installed in 2001, while the fin tube radiation and cabinet unit heaters are 30 years old. The boilers were converted from oil to natural gas in 2015 with the installation of a new gas service and Power Flame burners. The existing boilers are about 80% efficient, while newer condensing boilers with modulating burners regularly reach efficiencies of 95%. The mechanical room is properly ventilated for combustion air, with several insulated ducts leading to exterior louvers, along with high and low termination points for the ducts. Visible piping in the mechanical room appears to be in fair to good condition and is fully insulated. However, much of the distribution piping system is at an age when regular leaks would not be unusual to see. The boilers appear to be in good condition, while the pumps and radiation are in fair to good condition.

The control system for the boiler plant is pneumatic, and the associated air compressor and control panel are located in the mechanical room. Modern control systems are typically direct digital controls, which are more precise than the existing pneumatic system and can be monitored remotely. Pneumatic systems such as this will become more difficult to repair as the number of technicians familiar with these aging control systems reduces. As with any control system of this age, it is in poor to fair condition.

Boilers: Life Expectancy is approximately **20 years.**
Burner: Life Expectancy is approximately **20 years.**
Pneumatic Controls: Life Expectancy is approximately **0-5 years.**

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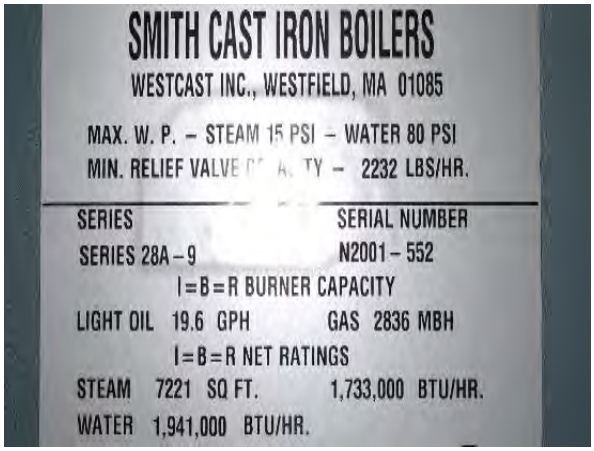
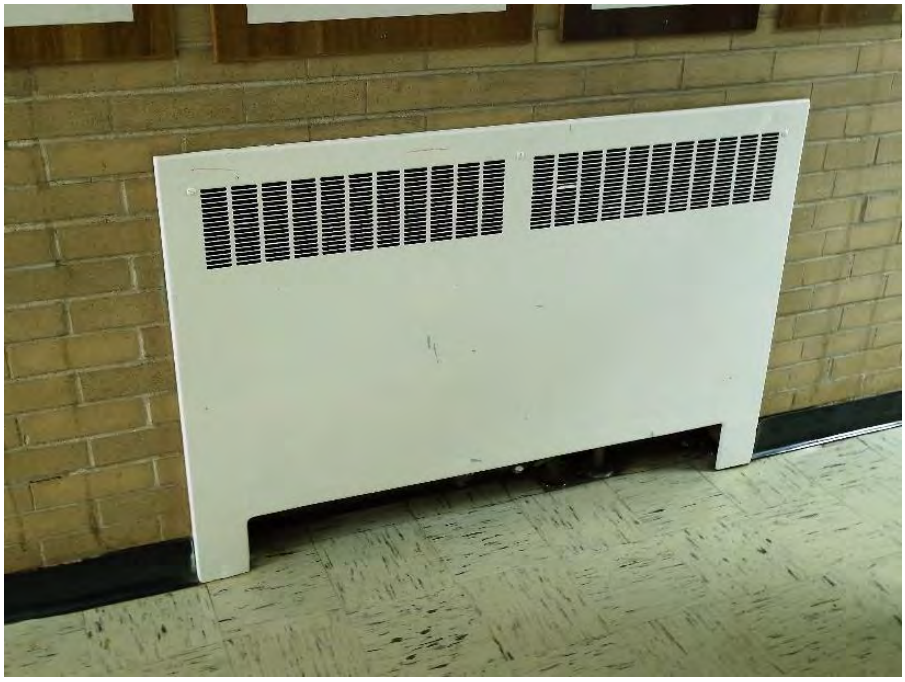


Pumps: Life Expectancy is approximately **5 years.**

Fin Tube Radiation: Life Expectancy is approximately **2-5 years.**



Cooling & Ventilation Systems

Limited areas of the building are currently provided with cooling. The administration area is served by a 5 ton Trane split system which provides cooling to the space. This Trane system uses R-22 refrigerant, and appears to be in poor to fair condition. A few spaces such as the Nurse's Office are cooled with window air conditioning units. Air conditioning for the server room is provided by a 2 ton Sanyo mini-split wall mounted air conditioner which uses R-410A refrigerant. R-22 refrigerant is no longer allowed in new installations due to environmental concerns, and most new equipment is provided with R-410A refrigerant.

There are two ceiling mounted, heating-only ventilation units serving the gymnasium. These units get outside air from the green gravity intake roof vents pictured below. These systems, which are more than 30 years old, all appear to be in poor to fair condition. The building also has a variety of exhaust fans for the kitchen and bathrooms. Some classrooms have exhaust for ventilation.

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Air Conditioning:
Trane Unit: Life Expectancy is **0-2 years.**
Sanyo Unit: Life Expectancy is approximately **5 years.**

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Fan Equipment: Life Expectancy is **2-5 years.**

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Ventilation Systems: Life Expectancy is **2-5 years.**

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Electrical Systems:

Main Utility Electrical Service: Life Expectancy is 5 years. There is limited future growth capacity because the utility can only provide a maximum of 1,200 amps. While this future capacity is greater than the existing 800 amps, it is not large enough to install air conditioning in the school.

These oil-filled transformers may contain PCB's and should be tested.

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Main Switchgear (2012): Life Expectancy is 30-35 years.

Electrical Distribution (1987): Life Expectancy is 5-10 years. This GE equipment was intalled in 1987, but has useful life remaining, and this type of circuit breaker is still available for replacement.

Electrical Distribution: Should be replaced. This Square D equipment was intalled in 1963, and has exceeded its useful life.

Lighting: Life Expectancy - 5 years. Should be replaced with current technology.

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Fire Alarm System

The fire alarm system is a conventional zoned system manufactured by Simplex, and is 30 years old. It is one of the oldest fire alarm systems in any of the Bristol Schools.

Fire Alarm: Life Expectancy is approximately **0-2 years.**

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Plumbing and Fire Protection:

Domestic hot water is provided by an atmospheric or power vented, natural gas fired, 113-gallon, tank type hot water heater manufactured by Bock Water Heaters. This hot water heater appears to be in good to excellent condition. The domestic water system is outfitted with a Bell & Gossett pump for recirculation. The domestic hot water heater was installed in 2015 as part of the building conversion to natural gas.

Most of the water distribution piping and plumbing fixtures are original to the building with upgrades and repairs as required, and some date to the 1987 renovation. Roof drains are currently functioning, and there is no visible redundant drainage system.

The building does not have a sprinkler system for fire protection.

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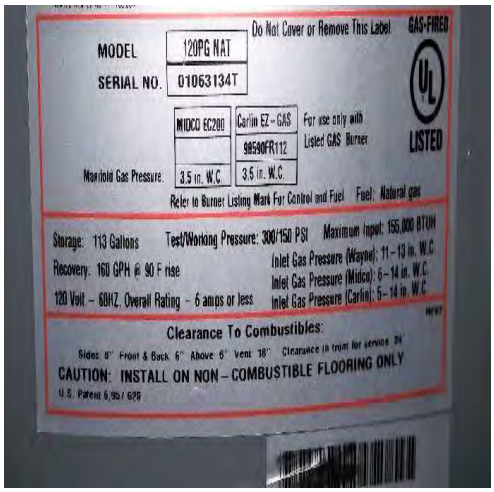
Domestic Hot Water Heater: Life Expectancy is approximately **15-20 years.**



Piping & Plumbing Fixtures: Life Expectancy is approximately **2-5 years.**

Roof Drains: Life Expectancy is approximately **2-5 years.**

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Ellen Hubbell School

90 West Washington Street, Bristol, CT

Existing Conditions Report June 28, 2017

Year Built:	1961
Addition & Renovation:	1992
Grades Served:	K – 5
Square Feet:	63,000
Site Acreage:	20

Summary:

Hubbell School is a single storey slab on grade building and was originally built in 1961 with 15 classrooms, a multi-purpose room, office suite, and media center. In 1992, the building received a renovation and addition, designed by Lawler, which added 8 classrooms, 4 kindergarten rooms, an art room, a music room, and a cafeteria. The building configuration includes 2 courtyards, the west courtyard from the original design and the east courtyard from the addition project. During the 1992 addition project, the murphy-style tables in the multi-purpose room were removed, gym storage areas created in their place, and a cafeteria added to in the southwest corner of the building. Because the cafeteria was added behind the stage, there is a separation between the cafeteria and the kitchen so that they are not immediately adjacent to one another. The two pairs of kindergarten rooms added in 1992 contain shared kitchenette areas. These two kitchenettes are being used primarily for storage. Overall, there appears to be a lack of required office space.

The building is in good condition and could continue to serve the district with some upgrades, mainly to the central plant equipment, but also to the toilet rooms, the envelope, and interior finishes.

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Hubbell entrance

Site:

The Hubbell School property is constrained by a narrow entrance area on the south at West Washington Street. The site then expands in width to the north, but the current parking configuration is not adequate for the size of the school. The front bus loop and the western parking and parent drop bus loop are limited and share the same entrance drive, which has poor sight lines onto the street. At the north, behind the school, a grass playfield and two playscape areas, along with two small hardscape areas, are located, with one of the playscapes being adjacent to the building's dumpster area. The main office does not have full view of the entrance and parking areas due to the limitations of the south side of the property.

Entrance bus loop

Parking area

Architectural Envelope:

Exterior Walls:

Hubbell School exterior walls consist of double wythe block and brick, with the exterior brick being mostly common brick. In some locations, the common brick coursing and color varies, and a square brick was introduced to the façade in the 1992 addition project. The majority of the envelope is masonry and is in good condition.

East courtyard

Window Systems:

Classroom windows are aluminum double pane entrance systems in large punched openings with masonry sills and headers. These units contain awning style operable panes. Around the courtyards and in the media center, the aluminum window systems extend to the foundation wall. These systems, for the most part, are in good condition.

Cafeteria

Entrance Systems:

Exterior doors at Hubbell are limited to the egress corridors, service areas, and courtyards, and are either aluminum with vision panels or steel, but are in poor to fair condition and should be replaced.

Roof:
The roof was replaced last year. Skylights were installed over the corridors in the 1992 project. The installation detail includes fluorescent lighting at the base of the skylight openings, but does not provide sufficient light to illuminate the corridors.

Interior Architectural Components:

Interior walls:
The majority of interior walls are painted block, with the exception being in the corridors, where glazed block was installed. In entrance areas, the exterior brick was also used. During the 1992 renovation, transom glazing was added at the top of interior corridor walls to transfer light through from the classrooms to the corridors. This glazing does not appear to be fire rated. Also in many locations, wood framed tackboard panels are installed within rooms and also in corridor areas.

Interior transom glazing

Doors:
Interior doors are solid wood with lever handle hardware throughout the building and appear in good condition.

Interior vestibule door

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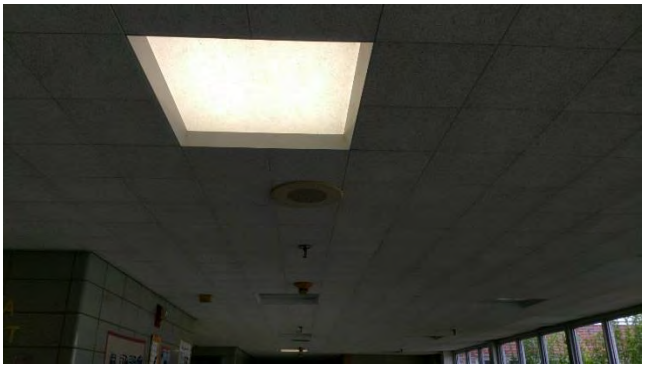
Ceilings:
A perforated ceiling product was installed in Hubbell, and in locations with a concealed grid, which makes maintenance and above ceiling upgrades very difficult. The ceiling and grid should be replaced with a system more appropriate for the ongoing needs of an educational facility. Interior lighting is still fluorescent and should be replaced along with the ceilings.



Corridor ceiling and skylight

Flooring:
The school is almost entirely covered with vinyl flooring product, some of which is still VAT and needs to be removed.

Multi-purpose room

Millwork:
There is a substantial amount of wood millwork in the building, which coordinates with all the wood frames tack boards, transom lights, wood base, and wood corner boards. The millwork varies from poor to good condition depending on location.

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Media Center

Specialties:
There are two main student toilet rooms, which are original to the 1961 construction and need to be gutted and re-built, including toilet partitions. In the classrooms, mini-blinds are installed, while vertical blinds are used in the media center and the cafeteria. These blind systems are most likely at the end of their life cycle.

Mechanical Systems:

Heating System

The existing heating system for the building is a hydronic hot water system which consists of two oil-fired Mills Water tube boilers that are original to the building and 55 years old. The existing boilers are at most 75% efficient, compared to newer oil-fired boilers with efficiencies of 85% or newer gas-fired condensing boilers with efficiencies of 95%. This boiler appears to be in poor to fair condition. There are four hydronic system pumps for the for distribution of hot water to the fin tube radiation and heating-only air handlers throughout the building. The pumps have been replaced as needed since 1961, and appear to be in fair to good condition. The existing mechanical room also contains the building's main electrical service, which does not meet current building codes that require separate rooms for each. The current combustion air intake ventilation appears to be undersized for the boiler capacity, but this is currently being addressed by the facilities department.

The controls system for the boilers is the original pneumatic system. Modern control systems are typically direct digital controls, which are more precise than the existing pneumatic system and can be monitored remotely. Pneumatic systems such as this will become more difficult to repair as the number of technicians familiar with these aging control systems reduces. As with any control system of this age, it is in poor to fair condition.

Boilers: Life Expectancy is approximately **0-2 years.**
Burner: Life Expectancy is approximately **0-2 years.**
Pneumatic Controls: Life Expectancy is **0-2 years.**

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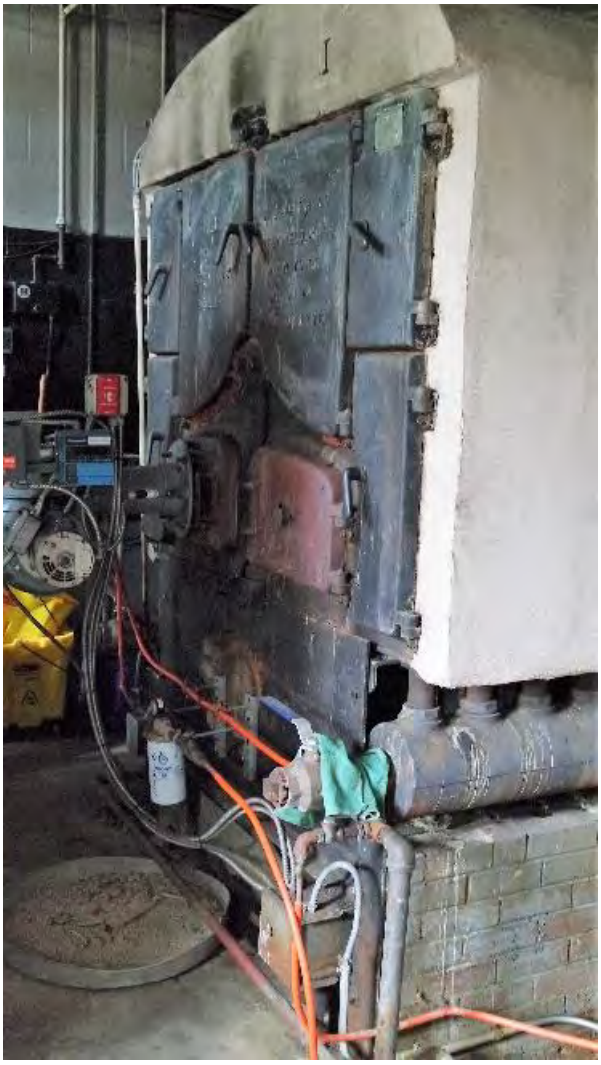

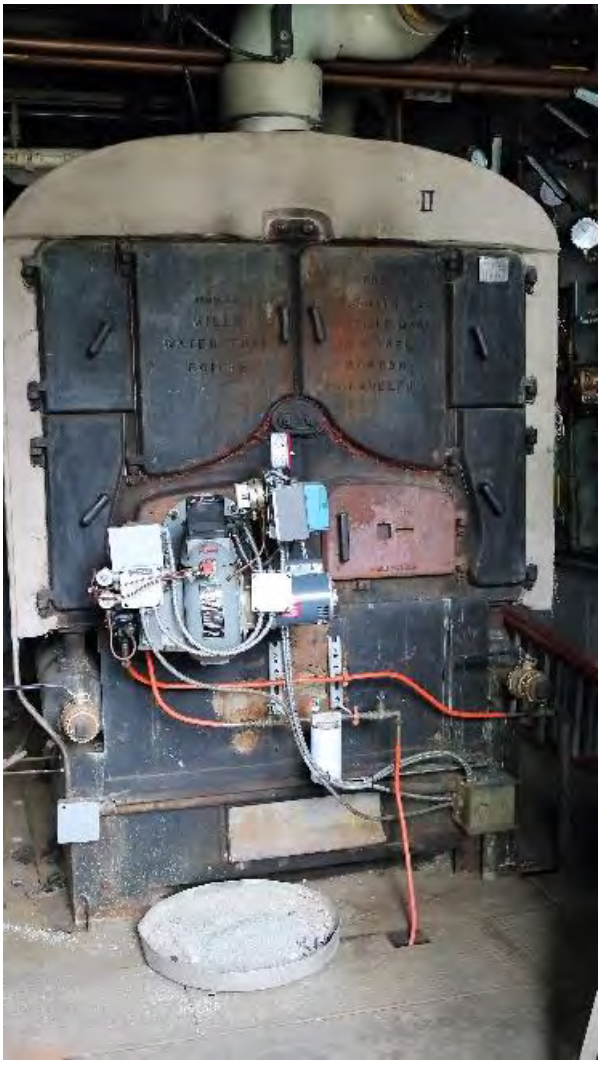

Pumps: Life Expectancy is approximately **5 years.**

Fin Tube Radiation: Life Expectancy is approximately **5 years.**

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Cooling & Ventilation Systems

There are only two areas of the building with air conditioning, the administration area and the teacher's lounge. Both are split systems, with the administration area condensing unit located on the roof and the teacher's lounge unit located at grade in the adjacent courtyard. Some spaces such as the data closet in the library are using portable air conditioners. These portable AC units are extremely inefficient and these spaces would be better served with dedicated mini-split units for cooling. These air conditioning systems are all newer, with R-410A refrigerant, and appear to be in good condition.

There are several heating-only ventilation units in the building that are past their serviceable life, and are in poor to fair condition. These air handling units are located in closets, and provide heating and ventilation for the gymnasium and cafeteria. Rooftop fans are new and were replaced during the 2016 reroofing project.

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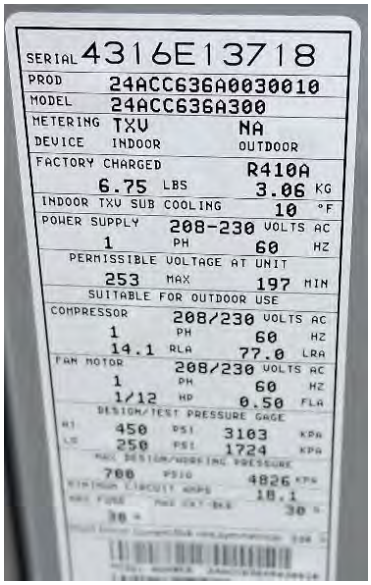
Air Conditioning: Life Expectancy is approximately **10-15 years.**



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Fan Equipment: Life Expectancy is approximately **20 years.**

Ventilation Systems: Life Expectancy is approximately **0-2 years.**

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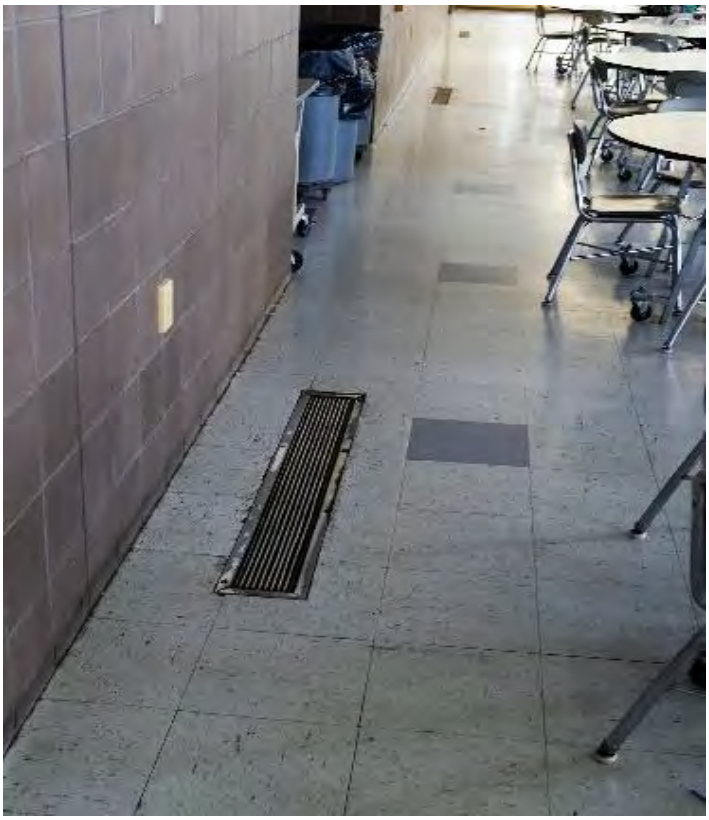

Electrical Systems:
Utility-owned transformer appears to be in fair condition.

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Main Electrical Service (1992): 800 Amp, 208 Volt AC Service. Life Expectancy is 10-15 years.

Electrical Distribution / Original Main Electrical Service (1961): Life Expectancy is 0-2 years. Replacement parts for this equipment is no longer available and itshould be replaced.

Electrical Distribution (1992): Life Expectancy is 10-15 years.

Lighting: Life Expectancy is 5 - 10 years. However, current LED technology is more efficient.

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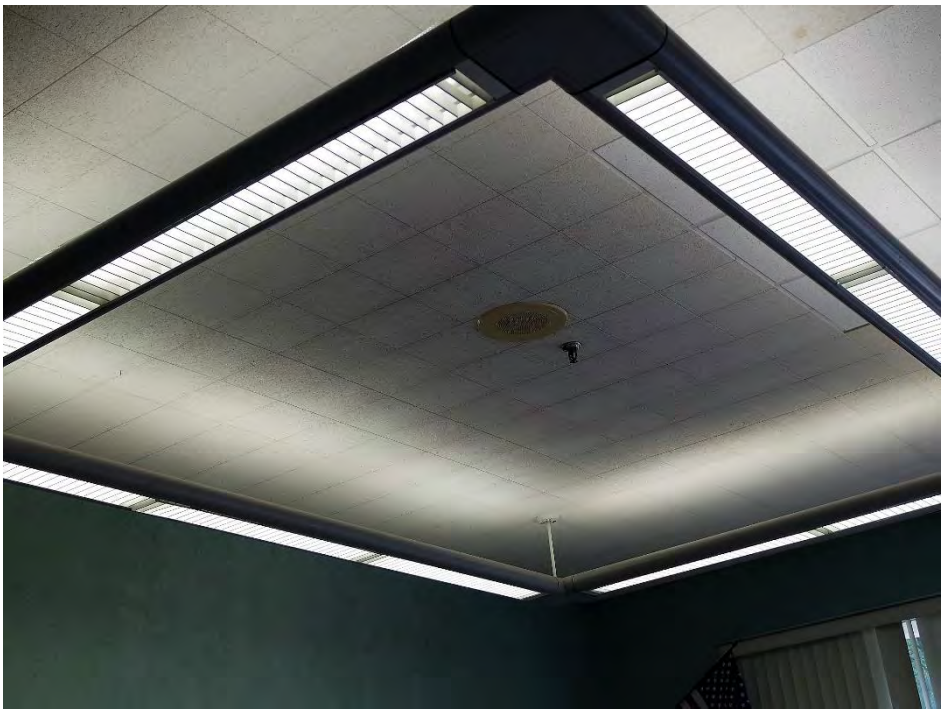

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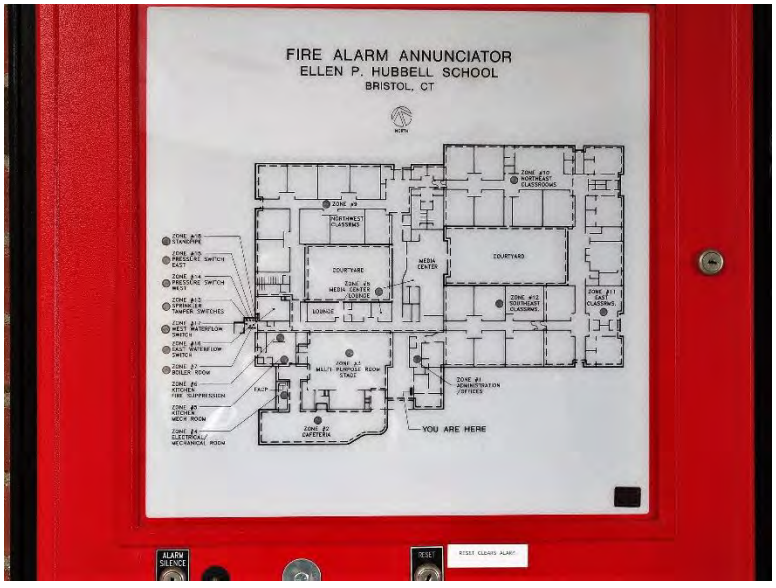
Fire Alarm System

The fire alarm system is a conventional zoned system manufactured by Notifier and is 25 years old. It is one of the oldest fire alarm systems in any of the Bristol Schools.

Fire Alarm: Life Expectancy is approximately **0-2 years.**



Plumbing and Fire Protection:

Domestic hot water is provided by an oil-fired, 84-gallon hot water heater manufactured by A.O. Smith, with a Bell & Gossett circulator for recirculation. This hot water heater appears to be in fair condition. Piping insulation is missing from the hot and cold water lines, and severe corrosion can be seen on the piping near the pump. There is also an 80-gallon electric water heater on site that has not been installed and is in the janitor's closet.

Most of the water distribution piping is original to the building with upgrades and repairs as required. Areas that were renovated as part of the 1992 addition have newer distribution piping and fixtures. The water main for the building is original to the building, and is currently in need of replacement at 55 years old. Roof drains are currently functioning, and there is no visible redundant drainage system.

The building has a sprinkler system for fire protection.

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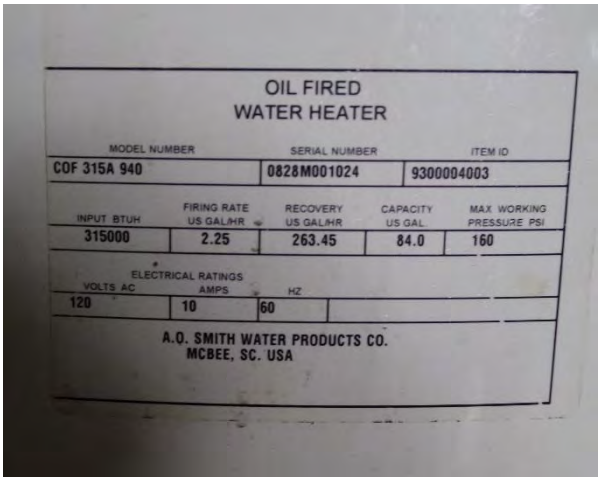
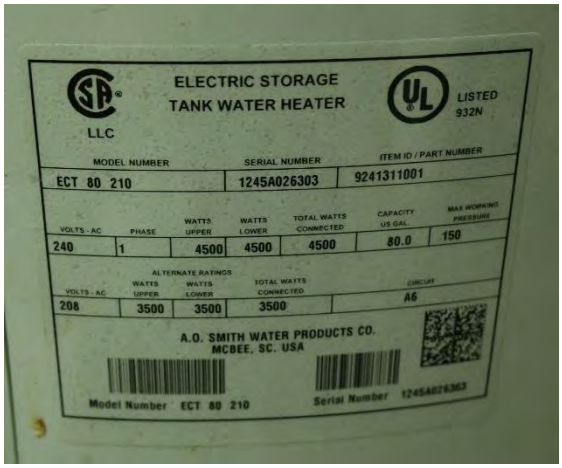
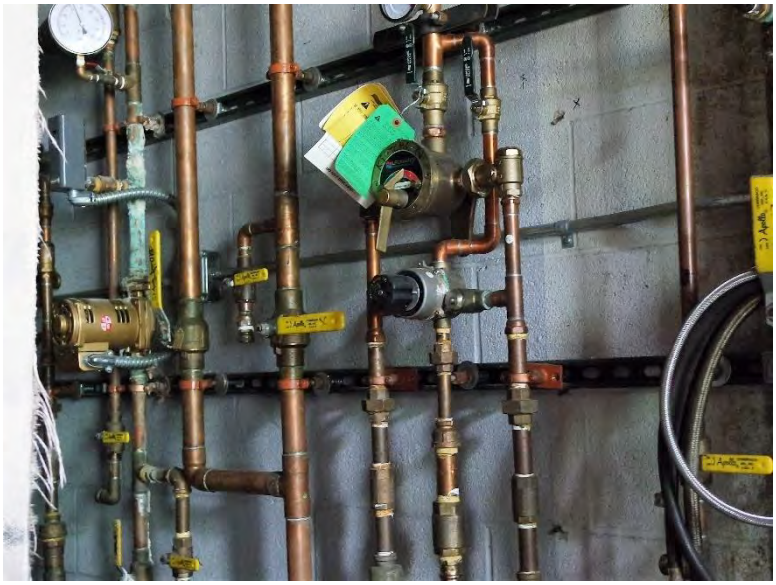
Domestic Hot Water Heater: Life Expectancy is approximately **5-10 years.**





Piping & Plumbing Fixtures: Life Expectancy is **5-10 years.**



Roof Drains: Life Expectancy is **20 years.**

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Ivy Drive School

160 Ivy Drive, Bristol, CT

Existing Conditions Report July 31, 2017

Year Built:	1967
Addition & Renovation:	2007
Grades Served:	PreK-5
Square Feet:	58,876
Site Acreage:	17

Summary:
Ivy Drive Elementary School, built originally in 1967, received extensive renovations and additions, designed by Lawler, in 2007. It is a slab on grade single storey building in very good condition.

The school is located in a single family residential neighborhood, with a narrow access drive off Ivy Drive to the north. It is bordered by residences on the north, east, and west sides, and a wooded area on the south. The eastern abutters properties are proximate to Ivy's parking area.

Ivy Drive has 18 regular classrooms, a 4-classroom kindergarten suite, support classrooms, a library, a cafeteria, a gymatorium, and office spaces. It contains two enclosed courtyards and another 3-sided courtyard, in which is the lower grade playscape.

Other than some mechanical system upgrades and interior lighting replacement, the school is functioning in good order.

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East entrance plaza

Site:

Ivy Drive Elementary School has one main vehicular access drive, utilized by both busses and cars. Although the parking area is of adequate capacity, the traffic exiting the site can build up. Fortunately, there are waking paths located to the west of the school at the terminus of Jasmine Street and Gregory Road, so some parents choose to park on those streets and walk to the site for pick-up.

The play and field areas for students are also sufficient, with good visibility and layout. The lower grade playscape is well protected, and fenced in within a partially enclosed courtyard. The two courtyards appear to be well used, and are well maintained, for educational programs.


Entrance drive to north

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Entrance plaza with bus loop and parking area

Field area to west

Playscape to south and wooded area beyond


Lower grade playscape courtyard


Courtyard

Architectural Envelope:

Exterior Walls:
When the 2007 addition and renovation project was completed, the original common brick was matched, and a square brick of a different shade was also utilized for feature areas. Interior wythe of the walls is painted concrete block. In the cafeteria, the original exterior common brick was left exposed on the east wall.

Window Systems:
It appears all the glazing systems were replaced in the renovation with aluminum systems. These units include operable awning panes throughout. The glazing systems are typically set in punched openings, with some units extending to the floor.

Entrance Systems:
Exterior doors are integral with most glazing systems and are also aluminum with large vision panes and upgraded door hardware.

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Media center

Roof:
Ivy Drive's roof was replaced with the 2007 project, and is in good condition. There are a few skylights and mechanical units, but typically the roof has minimal penetrations.

Interior Architectural Components:

Interior walls:
With the exception of some of the original building brick exposed inside the new additions, the interior walls at Ivy Drive Elementary are painted concrete masonry units.

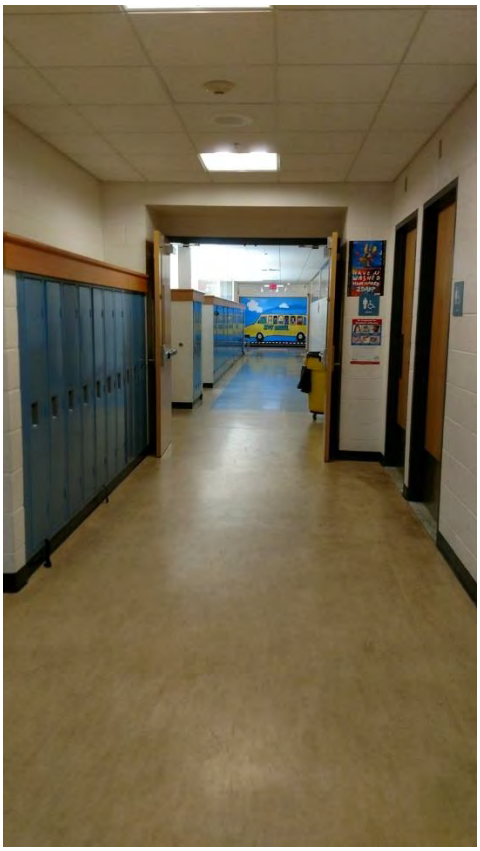
Doors:
Interior doors are either wood or metal, depending on use, and most include vision panes. Door hardware was upgraded in the renovation project in 2007.

Ceilings:
The majority of ceilings at Ivy Drive are 2x2 or 2x4 acoustical tiles set in a grid system. This includes the cafeteria and gymatorium spaces.

Flooring:
The corridors and cafeteria space at the school are finished with linoleum sheet goods, which is a difficult product to maintain. In the gymatorium, the wood flooring is in good condition. The kitchen and toilet rooms have ceramic tile products, and the classrooms have vinyl tile.

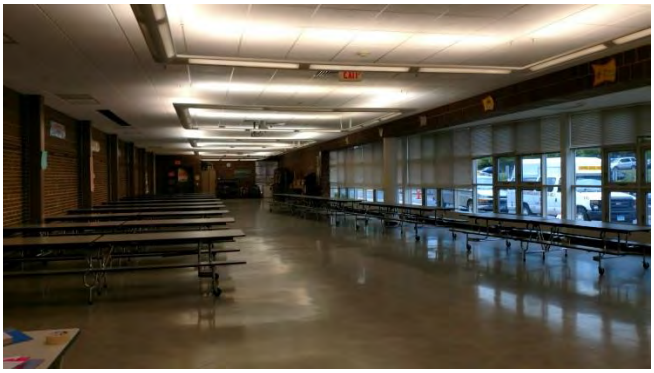
Millwork:
Wood millwork in classrooms and offices is in good condition. There are also wood shelf tops over the lockers in some corridors.

Specialties:
Metal lockers stand in the corridors between classroom doors and are in good condition. Concrete masonry end walls were installed to protect them. Toilet rooms are in good condition, as is the gym and kitchen equipment.


Typical corridor


Typical classroom


Detail between classrooms and corridors

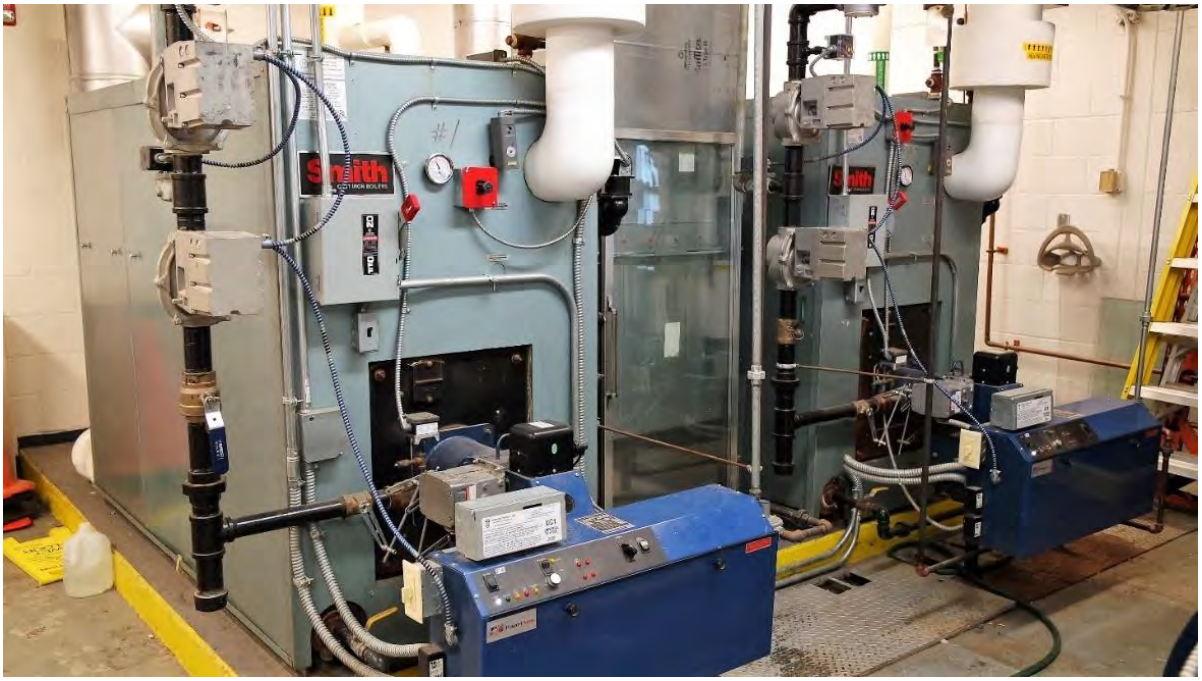

Cafeteria added in 2007

Mechanical Systems:

Heating System

The existing heating system is a hydronic hot water system which includes two gas-fired, cast iron boilers. The existing boilers are about 80% efficient, while newer condensing boilers with modulating burners regularly reach efficiencies of 95%. There are two pumps for the boiler loop and two pumps for distribution to fin tube radiation. The pumps for the are outfitted with variable frequency drives (VFD's). The boilers and pumps were installed in 2007 during the renovation/expansion and appear to be in good condition. Visible piping in the mechanical room is insulated and labeled, and appears to be in excellent condition. The baseboard radiation is in good to excellent condition.

Boilers: Life expectancy is approximately **25 years.**
Burners: Life expectancy is approximately **10-15 years.**



Pumps: Life expectancy is approximately **10-15 years.**

Fin Tube Radiation: Life expectancy is approximately **20-25 years.**

Cooling & Ventilation System

The building is provided with ventilation and air conditioning from gas-fired packaged rooftop units, rooftop make-up air units, and split systems consisting of indoor air handlers with rooftop mounted condensing units. The majority of the building is provided with air conditioning, and the air conditioning equipment appears to be in good condition. Roof mounted fans provide exhaust for the kitchen and bathroom areas, and appear to be in good condition. Mini-split wall mounted air conditioners with individual roof mounted condensing units provide cooling for data and electrical closets. The ventilation rates for the make-up air units are constant, compared to modern systems that utilize carbon dioxide sensors to vary the ventilation rates for occupant comfort and energy savings.

Packaged Rooftop Units: Life expectancy is approximately **5-10 years.**

Makeup Air Units: Life Expectancy is approximately **15-20 years.**

Condensing Units: Life expectancy is approximately **5-10 years.**

Fan Equipment: Life expectancy is approximately **10 years.**

Controls

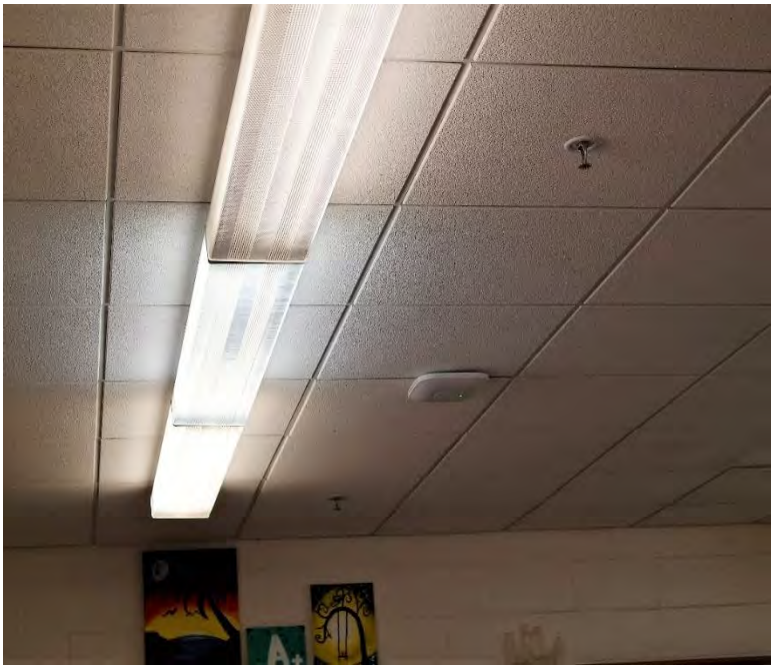
The controls system for the rooftop equipment and boiler plant is a modern direct digital controls (DDC) system. The pumps on the heating hot water loop and some of the rooftop units are equipped with VFD's to modulate flow.

Electrical Systems:

Main Electrical Service (2007): 2000 Amp, 208 Volt AC Service. Life Expectancy is approximately 25-30 years.

Electrical Distribution (2007): Life expectancy is approximately 25-30 years.

Lighting: Life Expectancy is approximately 10-15 years. However, current LED technology is more efficient.



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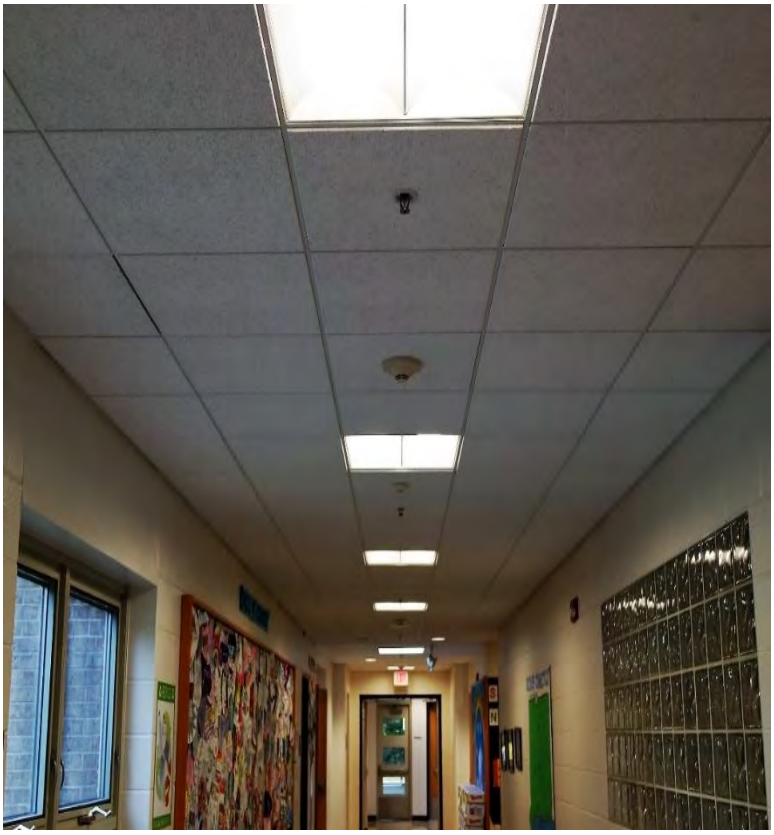

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Fire Alarm System

The fire alarm system is and addressable system by Notifier and was installed 10 years ago. All devices appear to be in excellent condition.

Fire Alarm: Life Expectancy is approximately **15-20 years.**

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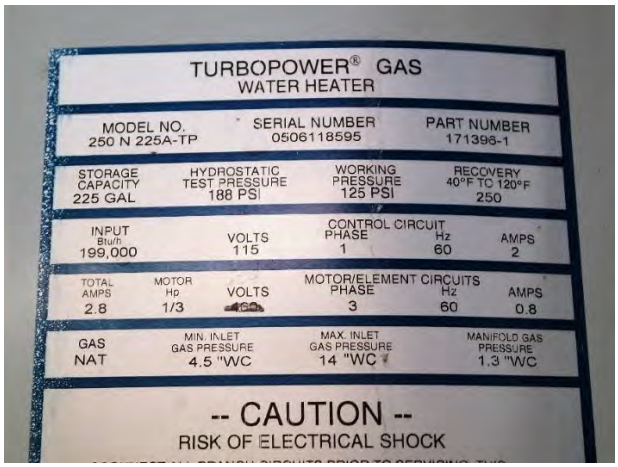
Plumbing and Fire Protection:

Domestic hot water is provided by two gas-fired hot water heaters. One is a 225-gallon atmospherically vented Turbopower water heater by PVI, which has been abandoned in place. The second is a Bradford White 100-gallon, direct-vent water heater that is in operation. The Bradford White hot water heater was recently installed in 2016. Both water heaters and the recirculation pump appear to be in good condition, but the Turbopower water heater was problematic, thus leading to its replacement.

Roof drains are currently functional and appear to be in good condition. Portions of the water distribution piping were replaced in 2007 during the building renovation and expansion. The distribution piping and fixtures appear to be in good condition.

The building has a sprinkler system for fire protection.

Domestic Hot Water Heater, PVI: Abandoned**.**
Domestic Hot Water Heater, Bradford White: Life Expectancy is approximately **20 years.**



Piping & Plumbing Fixtures: Life Expectancy is approximately **20 years.**

Roof Drains: Life Expectancy is approximately **20 years.**

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Mountain View School

71 Vera Road, Bristol, CT

Existing Conditions Report July 31, 2017

Year Built:	1967
Addition & Renovation:	2007
Grades Served:	53,285
Site Acreage:	11

Summary:

Mountain View Elementary school was built in 1967. In 2007, an addition and renovation project was completed, having been designed by Lawler, which upgraded the interiors, the envelope, and added a four classroom kindergarten wing. Mountain View is a two storey slab on grade building with no basement. It contains 19 classrooms. Classrooms for grades 2 – 5 are all located on the second floor. It also contains a media center, a gymatorium, music and art rooms, a courtyard, an administrative office suite, nurse suite, teacher work/lounge suite, and educational support spaces. Although the site is a little limited for the needs, the building is in good condition due to recent renovations.

Main Entrance

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Site:

Mountain View Elementary is located at the terminus of Vera Street in a residential neighborhood. The residences are located to the south, while the school is neighbors to commercial properties on the west, north and east. The school's entrance drive is a dedicated vehicular access. There is a pedestrian walking path located on the west side. Due to its proximity to the commercial uses, the school might consider adding boundary fences to the west, north and east.

The bus drop off loop is on the south side of the school at the main entrance, and the parent drop off loop is on the west side, also adjacent to the lower grade first floor classrooms. The main entrance and bus drop off area are visible from the main entrance, but the parent loop is not, however this appears to serve the school's daily routine sufficiently. There are 4 separate parking areas, one for visitors, 2 for staff, and an overflow lot. Although there is a delivery and utility area on the east side, it is not of adequate size for truck traffic so deliveries are received at the front entrance.

The recreational space is sufficient, with fenced in playscapes for lower and upper grades, 2 generous size hardscape play areas, and 3 field areas. The playscapes, along with the larger hardscape area, are shaded by trees. The school's site on a hill is a fortunate location for prevailing winds to provide a breeze to the outdoor activities and supplementary natural ventilation to the classrooms.


Main drop off / visitor parking

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Parent Drop off

Play areas to the north

Field areas to the west

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Architectural Envelope:

Exterior Walls:
The exterior walls are constructed of double wythe block interior with brick exterior. When the renovation and addition occurred in 2007, the original masonry construction remained and was supplemented in the re-configured and added locations by similar construction. The integrity of both original and new masonry construction appears in excellent condition.

Window Systems:
It appears all the glazing was replaced in 2007. Glazing throughout the building are punched openings of aluminum window systems, most with awning style operable panes at the bottom panel. A few of the aluminum systems extend to the floor level. The consistency of the glazing installation makes for an efficient envelope.

Entrance Systems:
It appears all entrances were replaced in 2007 and have shown minor wear since then. The majority are aluminum systems, with a few steel doors in maintenance areas. Door hardware appears to be compliant with current codes.


Typical masonry and glazing systems

Roof:
The ballasted built up roof appears in good condition with no active leaks, despite the multiple mechanical equipment and penetration locations on the roof.

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Roof area

Interior Architectural Components:

Interior walls:
The interior walls at Mountain View are painted concrete masonry units with a few minor areas of drywall. No specialized areas of glazed block or brick inside the building were evident. Vinyl base is installed throughout. Metal covers conceal the steel framing system. Toilet rooms are fully covered in ceramic wall tile and base. In the gym, there is acoustic wall paneling and protection pads on much of the wall area. In some locations, glass block has been installed in the corridor walls to transfer light.

Doors:
Interior doors are wood, with the exception of the stairwell doors which are aluminum and glazed to match the exterior systems. All appear to have compliant lever hardware and panic devices were required.

Ceilings:
The majority of ceilings are 2x4 or 2x2 acoustical grid systems with consistent tile products throughout. The gym, cafeteria and kitchen appear to have tiles more suited to those spaces. The toilet rooms also have grid sytems and tile. The few areas of gypsum drywall ceilings are the stairwells and some transition areas where corridors meet.

Flooring:
In 2007, a linoleum sheet good product was installed in the corridors and cafeteria which is difficult to maintain and should be considered for replacement. The original 1967 terrazzo remains on the stairwell treads and is in good condition. Stairwell landings and specialized areas such as the media center have a carpeting, good for acoustical value. The kitchen floor is quarry tile, and the toilet rooms ceramic. The gym floor is a wood athletic floor in good condition, and the stage floor is also wood.

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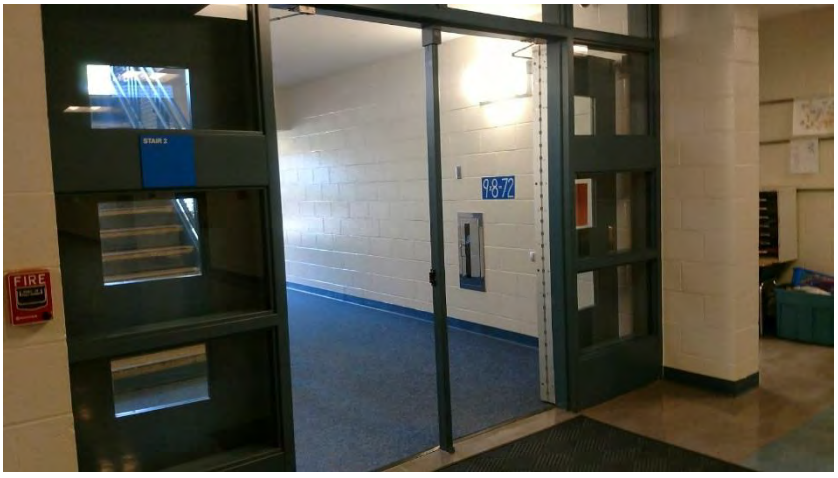
Typical corridor



Corridor and stairwell


Gymatorium

Media Center entrance

Millwork:
The classrooms, media center, office areas, and window sills have wood millwork installed, which is in good condition and consistent throughout the building. Some include laminate tops. In the gym, wood storage cabinets line the south wall.

Specialties:
Corridor lockers are recessed between concrete masonry unit wing walls and are in good condition, and include millwork locker top shelves. Toilet rooms partition systems are in good condition. The kitchen is a generous size and food service equipment in good condition. Visual display boards, platform curtains, and windows shades all also appear in good condition.

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Mechanical Systems:

Heating System

The existing heating system is a hydronic hot water system which includes two natural gas-fired, cast iron boilers, and was installed in 2007. The existing boilers are about 80% efficient, while newer condensing boilers with modulating burners regularly reach efficiencies of 95%. There are two pumps for the boiler loop and four pumps for distribution to fin tube radiation. The pumps for the main distribution loop are outfitted with variable frequency drives (VFD's). The boilers and pumps appear to be in good condition. Visible piping in the mechanical room is insulated and labeled, and appears to be in good condition. The baseboard radiation built into the cabinetry and shown below appears to be in good condition. The boilers were originally installed incorrectly, requiring repairs in 2015.

Boilers: Life Expectancy is approximately **25 years.**

Pumps: Life Expectancy is approximately **10-15 years.**

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Fin Tube Radiation: Life Expectancy is approximately **20 years.**

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Cooling & Ventilation Systems

The building is currently provided with air conditioning and ventilation, with a combination of four rooftop units and five make-up air units that were installed in 2007. The rooftop units include gas-fired furnaces to provide heat to the areas they serve. The make-up air units are equipped with energy recovery wheels to pre-treat incoming outdoor air for energy efficiency. Overall the units appear to be in fair to good condition, there are some small spots of visible rusting but acceptable wear for units that are 10 years old. This rooftop equipment all uses R-22 refrigerant. R-22 refrigerant is no longer allowed in new installations due to environmental concerns, and most new equipment is provided with R-410A refrigerant. There are several mini-split air conditioners serving data and electrical rooms which have condensers located on the roof. These systems all use R-410A refrigerant. In addition, there are roof mounted fans for kitchen and bathroom exhaust.

Air Conditioning: Life Expectancy is approximately **10-15 years.**

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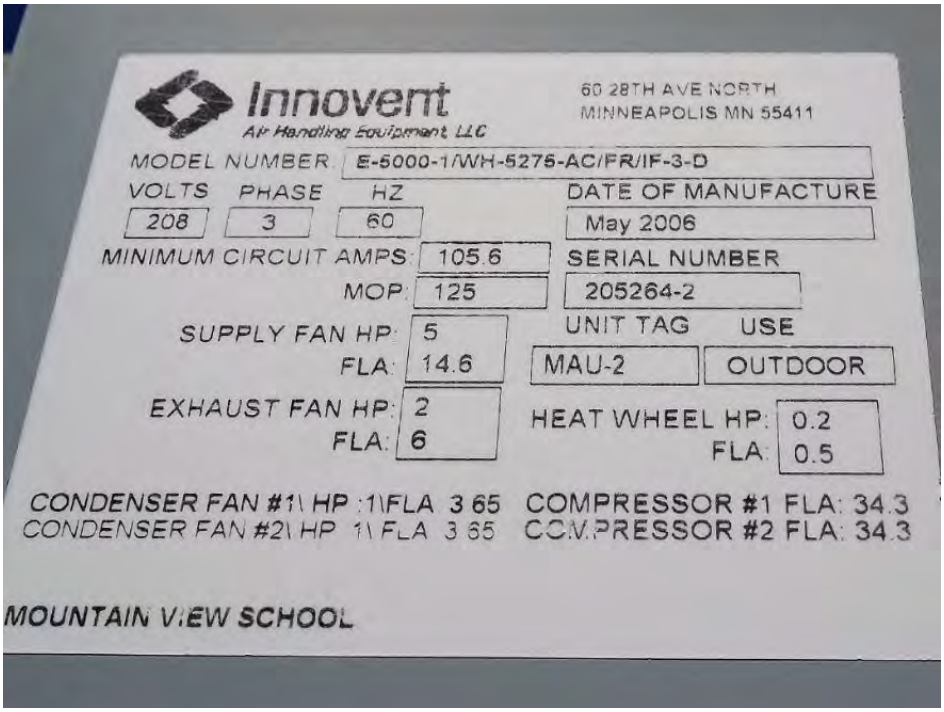
Fan Equipment: Life Expectancy is approximately **10 years.**

Makeup Air Units: Life Expectancy is approximately **15-20 years.**



Controls

The controls system for the HVAC equipment and boiler plant is a modern direct digital controls (DDC) system. The four pumps on the heating hot water loop are equipped

with VFD's to modulate flow. The workstation and panel for the controls is in the janitor's office adjacent to the mechanical room.

Electrical Systems:

There is no generator permanently on site, but the school electrical system has a hookup to connect to a remote backup generator in case of emergency.

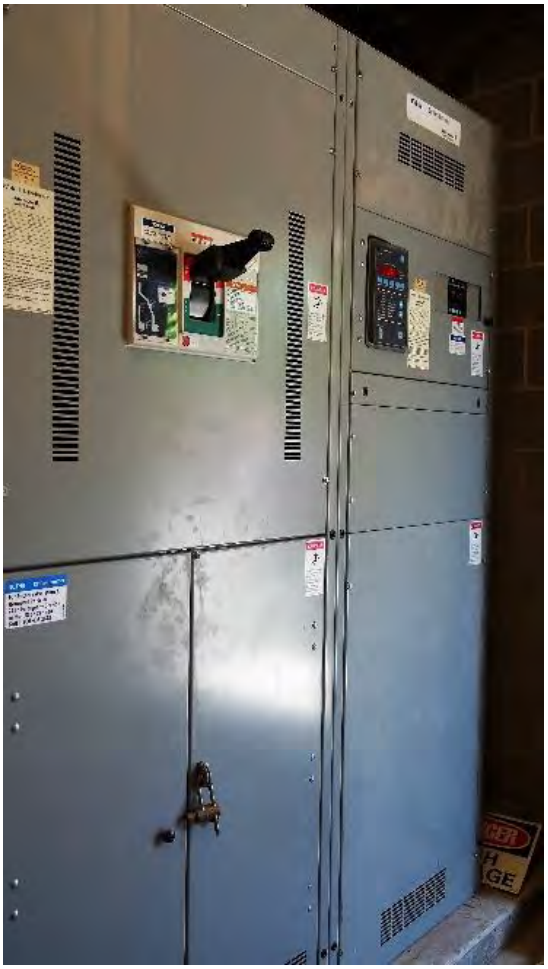
There is custom LED lighting in the architectural ceiling in the addition at the rear of the building.

The electrical service and distribution equipment were installed in 2007, and are in good shape. Technology is current.

The facilities department reports power glitches or surges at this school, which cause problems with the Cutler Hammer variable frequency drives.

Utility-owned transformer appears to be in good condition.

Main Electrical Service (2007): 1,600 Amp, 208 Volt AC Service. Life Expectancy is 25-30 years.



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Electrical Distribution: Life Expectancy is 25-30 years.

Lighting: Life Expectancy is approximately 10-15 years. However, current LED technology is more efficient.

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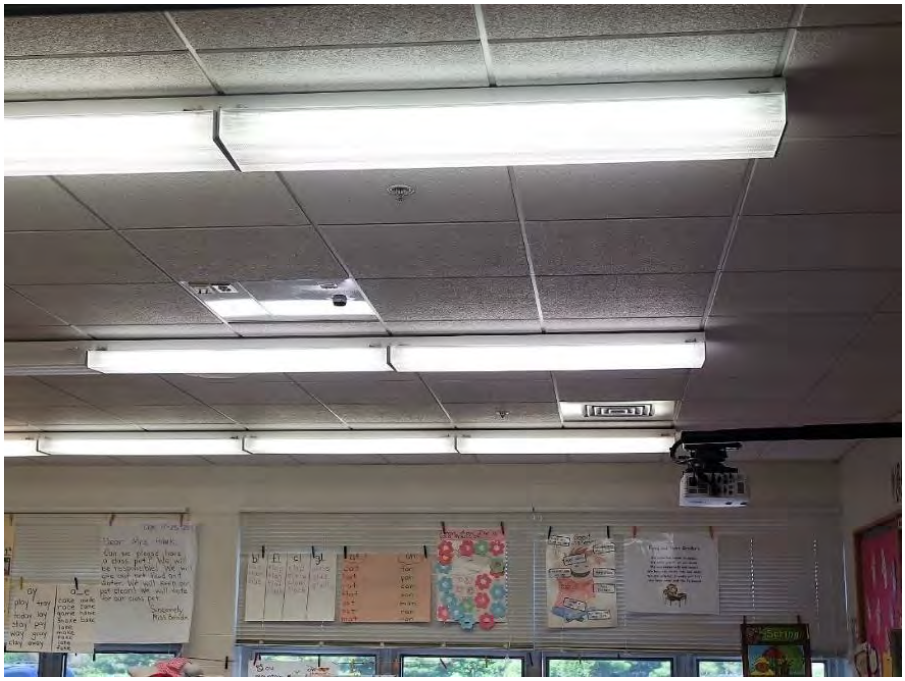


Fire Alarm: Life Expectancy is approximately **15-20 years.**

The fire alarm system is an addressable system by Notifier and was installed 10 years ago. All devices appear to be in excellent condition.

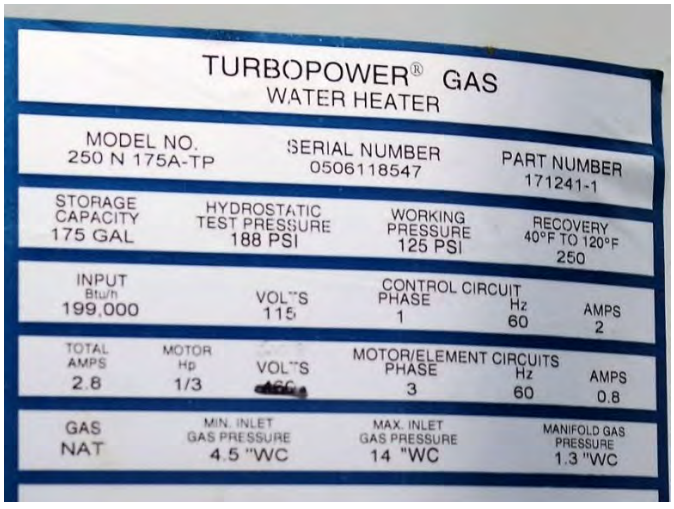
Plumbing and Fire Protection:

Domestic hot water is provided by a gas-fired Turbopower water heater with a capacity of 175 gallons. The hot water heater is approximately 10 years old and appears to be in good condition. The domestic water system is outfitted with a pump for recirculation. This hot water heater is scheduled for replacement in the summer or fall of 2017

Most of the water distribution piping and fixtures were upgraded during the 2007 renovation. Roof drains are currently functional and appear in good condition. The school has a sewer ejector pump which can be seen in the photographs below.

The building has a sprinkler system for fire protection.

Domestic Hot Water Heater: Life Expectancy is approximately **10 years.** However, it is being replaced during the summer or fall of 2017.



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Domestic Water Piping: Life Expectancy is approximately **20-25 years.**

Sewage Ejector Pump: Life Expectancy is approximately **5 years.**

Roof Drains: Life Expectancy is approximately **20 years.**

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South Side School

21 Tuttle Road, Bristol, CT

Existing Conditions Report July 31, 2017

Year Built:	1973
Addition & Renovation:	2016 – Minor Renovations
Grades Served:	K – 5
Square Feet:	87,000
Site Acreage:	17

Summary:

The South Side Elementary school was built in 1973, designed by Lyons Mather Lechner. It remains largely the same, with the exception of a few minor renovations completed in 2016. South side currently serves grades Pre-K through 5 and is located on a site at the corner of Tuttle Road to the west and Wolcott Street to the north. Just one block east of Bristol Central High School, the neighborhood is primarily medium to large single family homes. The South Side site is bounded on the east and south by a wooded area containing a brook which leads to Dunham Mill Pond.

The building is two storeys with a generous floor to floor height at each level. There is also a full basement below the central office area of the building, which contains a large boiler room and a significant size storage room. There are 27 total classrooms spaces in the building, 14 of which have an operable partition dividing them. The second floor has 16 of the classroom spaces, a large library, and some office spaces. Along with general classrooms, the first floor has an office suite, a special education 3-classroom suite, a generous art room, a large gym, and a cafetorium.

The main office is centrally located, but because the main office is located across the corridor from the front entrance doors, there is no direct view of the entrance drive by office staff.

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Main entrance area

Site:

The access drive into the site is located at the far southwestern corner of the site on Tuttle Road, because the site is sloped sharply at the north side at Wolcott Street. This entrance location limits the site usage. There is only one vehicular drop off area, used for busses. The parent drop off area is also the main parking area, which is located tight to the south side property line along the brook. The parking area is not of adequate capacity to serve the school. There is no specific loading / utility drive, so that activity must be shared with the bus drop off or parking area as well.

There are two playscape areas, a hardscape area, and a single ballfield. This limits the outdoor activity program space.

Bus loop and parking area beyond. Grades rise on Tuttle Rd(right) to the east.

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Play areas to the east

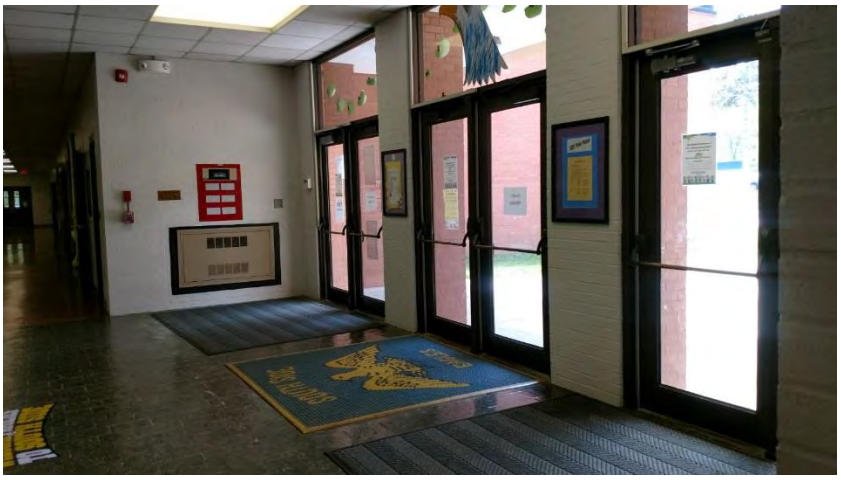

Pre-K/K playscape in NE corner

<u>Architectural Envelope:</u>

Exterior Walls:
South Side is a double wythe brick and block envelope. The benefit of the building is in its generous size and height, and the existence of a basement level. Since the building has seen little upgrade over its lifetime, the walls are showing their age, which has accelerated due to the air quality issues in the building. On the exterior side of the walls, the brick needs to be cleaned.

Window Systems:
The original metal window systems remain in place and are in need of replacement. Glazing systems are set in punched openings with small awning operable panes at the base of each masonry opening.

Entrance Systems:
Exterior doors are mostly steel, typically without vision panes with the exception of the front entrance. The front entrance consists of 3 sets of double doors with full glazing. There is no entrance vestibule; the doors open immediately into the main corridor.


Main entrance; interior

Roof:
The roof at South Side was replaced in 2010 and is in excellent condition.


Exterior walls, glazing, doors & roof

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Interior Architectural Components:

Interior walls:
Interior walls are mostly painted concrete masonry units, including several bullnose details, and the original wall base.

Doors:
Interior doors are wood, with original hardware.

Ceilings:
Ceilings are mostly acoustical tiles set in a grid system and appear original to the construction. They have been compromised by the indoor humidity levels.

Flooring:
Interior flooring is original tile, assumed to be VAT, in the corridors. The kitchen area is ceramic and the gym has a sports flooring. The platform has a vinyl tile product. The main entrance area has a flooring feature area of pavers.


Main corridor


Typical classroom

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Gymnasium


Cafetorium

Millwork:
Millwork in the classrooms is integral with the mechanical units and needs replacement because of wear over time.

Specialties:
The recessed lockers are in good condition for their age. Kitchen equipment is original and is showing significant wear.

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Mechanical Systems:

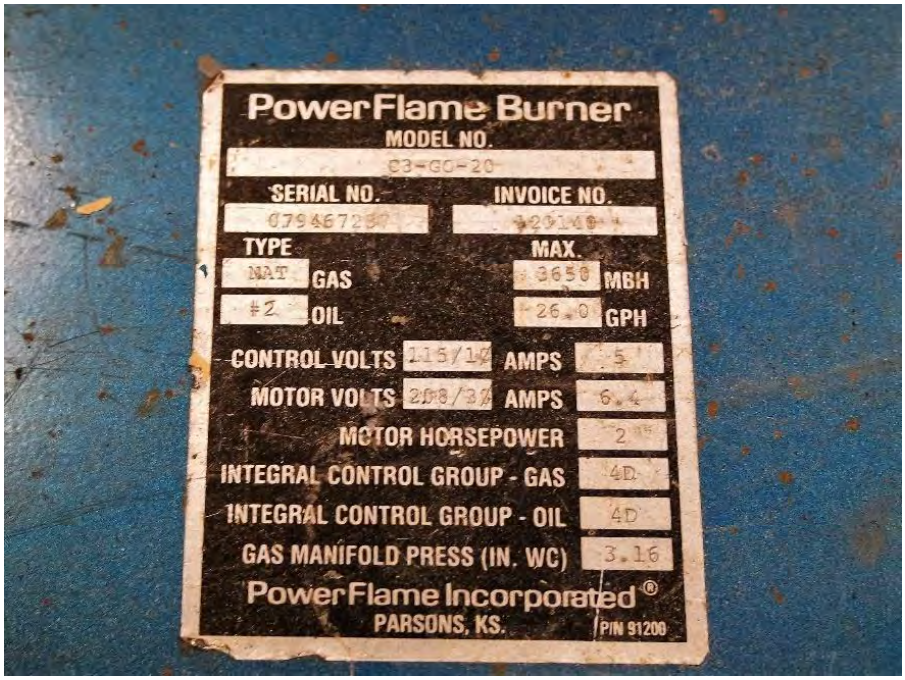
Heating System

The existing heating system consists of two Smith natural gas-fired, cast iron steam boilers, and a steam to hot water heat exchanger that produces hot water. Two Bell & Gossett pumps distribute the hot water to radiation or unit ventilators in each space. The heat exchanger was being replaced during the site visit. The boilers are in fair to poor condition. The existing boilers are at most 75% efficient, while newer condensing boilers with modulating burners regularly reach efficiencies of 95%.

The controls system for the boiler plant is pneumatic and the associated air compressor is in the boiler room. Modern control systems are typically direct digital controls, which are more precise than the existing pneumatic system and can be monitored remotely. Pneumatic systems such as this will become more difficult to repair as technicians become less familiar with these aging controls systems.

Bristol currently has plans to upgrade the HVAC systems at this school.

Boiler: Life Expectancy is approximately **0-2 years.**



Pumps: Life Expectancy is approximately **0-2 years.**

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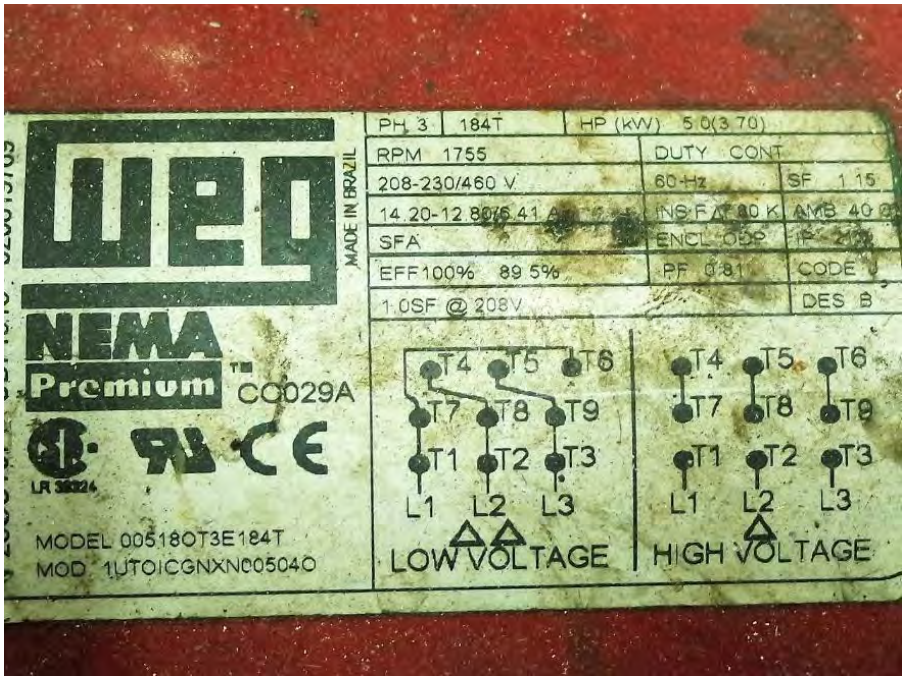

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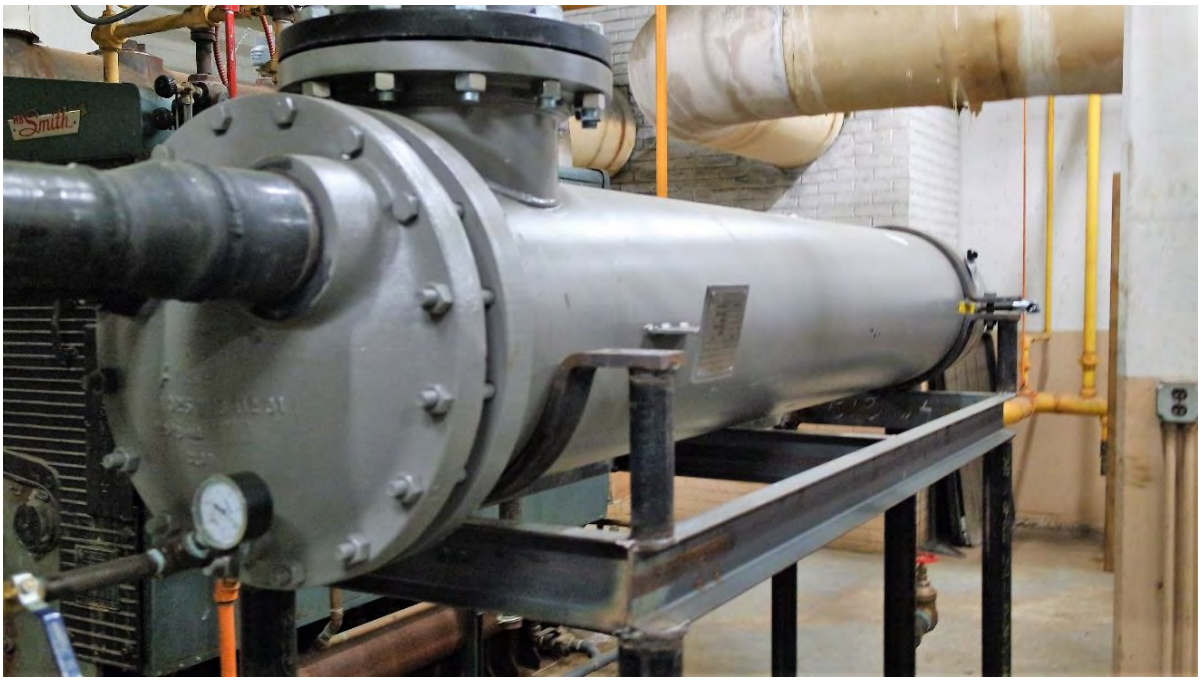
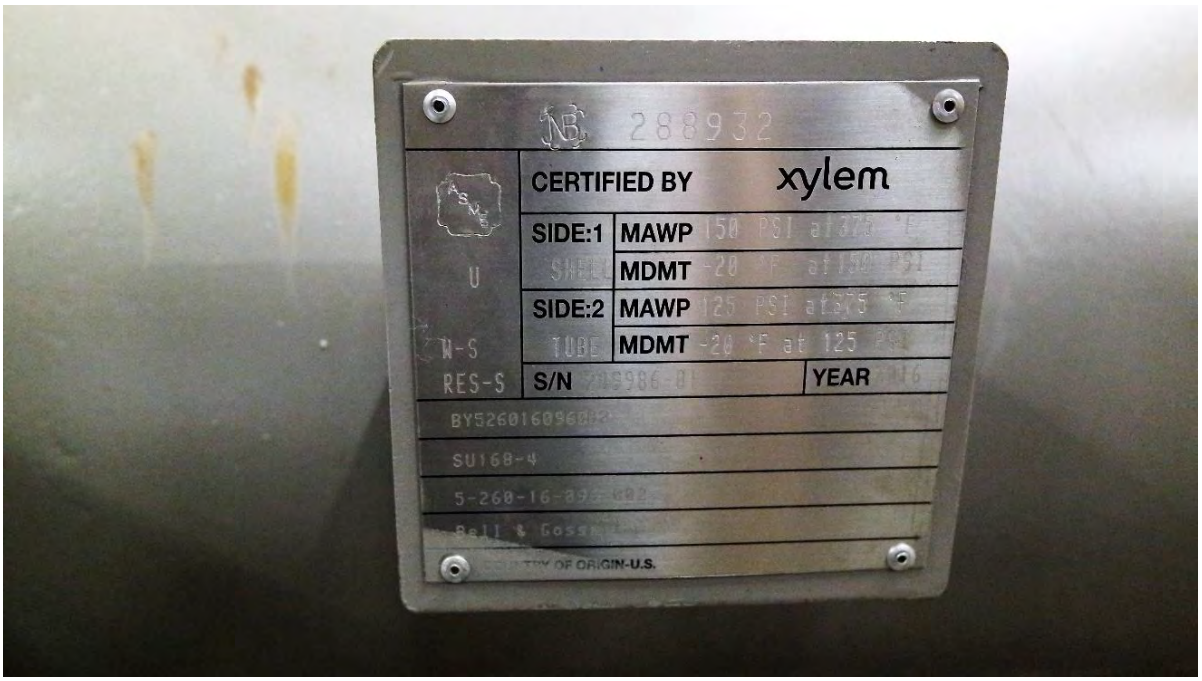
Heat Exchanger: Life Expectancy is approximately **25 years.**





Fin Tube Radiation: Life Expectancy is approximately **0-5 years.**
Unit Ventilators: Life Expectancy is approximately **0-5 years.**

Pneumatic Controls: Life Expectancy is **0-5 years.**

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Cooling & Ventilation Systems

There is a chiller with four compressors located in the basement, which is connected by refrigerant piping to four condensers located on the roof. The chiller produces chilled water, which is distributed by a base-mounted pump in the mechanical room to unit ventilators located in each classroom to provide air conditioning. The unit ventilators have louvers with integral dampers at the exterior of the building which allow fresh air to come into the building. The compressors, condensers and unit ventilators are in fair to poor condition. One condenser has been replaced more recently than the other three and is in better condition. The chiller and associated condensers are in such poor condition that they have not been operated for the past two years.

Unit ventilators in poor condition are suspected of possibly contributing to the air quality issues in the building. At approximately 40 years old, the dampers no longer functioning properly, and many of the ventilation louvers are covered with plexiglass, resulting in no ventilation for the classrooms served. These units also require extensive maintenance to keep operational.

The chilled water piping is the major cause of condensation and mold problems in the school that the custodians are trying to control with local plug-in dehumidifier units. Insulation on the chilled water piping is not thick enough to prevent condensation, which is the root cause of these problems.

The existing AAON rooftop unit, which was replaced with the roof replacement six years ago, serves the media center and is in excellent condition. There is a split system that is original to the building, with a Trane condensing unit connected to an indoor air-handling unit over the cafeteria stage. The condensing unit utilizes R-22 refrigerant, is in poor condition, and there is visible interior damage from the leaking air handler. R-22 refrigerant is no longer used because of environmental concerns, modern HVAC equipment is provided with R-410 refrigerant.

There are also a variety of mini-split units, and temporary window or floor mounted air conditioning units. The mini-split air conditioners are in good condition and serve select portions of the main office space and conference room. The window or floor units are residential style units and are inefficient. There are several roof mounted exhaust fans serving areas such as the kitchen and bathrooms.

Bristol currently has plans to upgrade the HVAC systems at this school.

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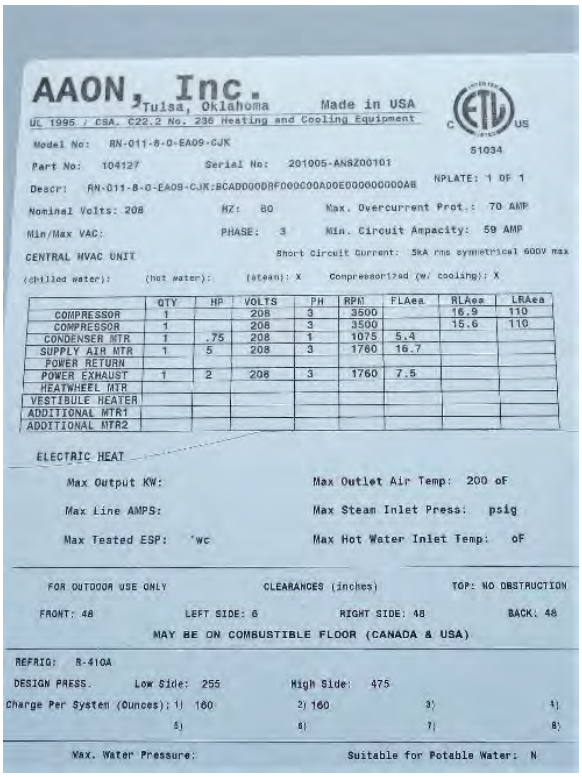
Aaon Rooftop Air Conditioning Unit: Life Expectancy is approximately **10-15 years.**



AAON, Inc. Tulsa, Oklahoma Made in USA

UL 1995 / CSA. C22.2 No. 236 Heating and Cooling Equipment

51034

Model No: RN-011-8-0-EA09-CJK

Part No: 104127 Serial No: 201005-ANSZ00101

Descr: RN-011-8-0-EA09-CJK:BCADD0ODRF000C00AD0E0000000000AB NPLATE: 1 OF 1

Nominal Volts: 208 HZ: 60 Max. Overcurrent Prot.: 70 AMP

Min/Max VAC: PHASE: 3 Min. Circuit Ampacity: 59 AMP

CENTRAL HVAC UNIT Short Circuit Current: 5kA rms symmetrical 600V max

(chilled water): (hot water): (steam): X Compressorized (w/ cooling): X

	QTY	HP	VOLTS	PH	RPM	FLAea	RLAea	LRAea
COMPRESSOR	1		208	3	3500		16.9	110
COMPRESSOR	1		208	3	3500		15.6	110
CONDENSER MTR	1	.75	208	1	1075	5.4		
SUPPLY AIR MTR	1	5	208	3	1760	16.7		
POWER RETURN								
POWER EXHAUST	1	2	208	3	1760	7.5		
HEATWHEEL MTR								
VESTIBULE HEATER								
ADDITIONAL MTR1								
ADDITIONAL MTR2								

ELECTRIC HEAT

Max Output KW: Max Outlet Air Temp: 200 oF

Max Line AMPS: Max Steam Inlet Press: psig

Max Tested ESP: "wc Max Hot Water Inlet Temp: oF

FOR OUTDOOR USE ONLY CLEARANCES (inches) TOP: NO OBSTRUCTION

FRONT: 48 LEFT SIDE: 0 RIGHT SIDE: 48 BACK: 48

MAY BE ON COMBUSTIBLE FLOOR (CANADA & USA)

REFRIG: R-410A

DESIGN PRESS. Low Side: 255 High Side: 475

Charge Per System (Ounces): 1) 160 2) 160 3) 4)

5) 6) 7) 8)

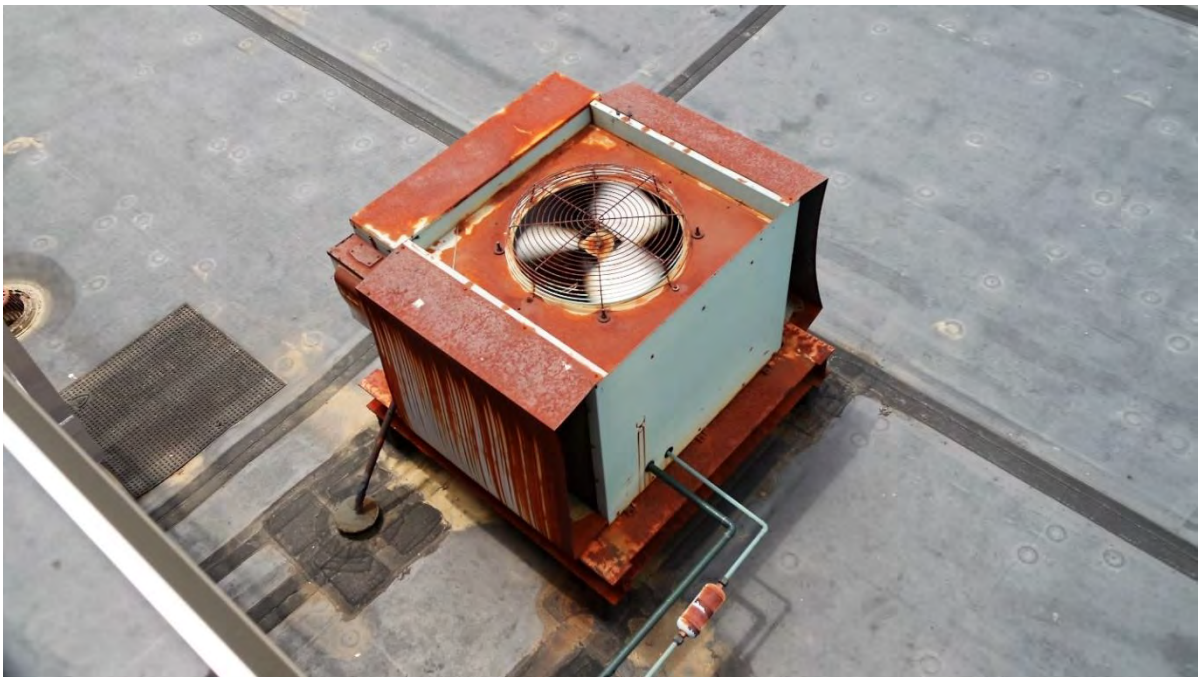
Max. Water Pressure: Suitable for Potable Water: N

Condensers Serving the Chiller: Life Expectancy is approximately **0-2 years.**

Chiller: Life Expectancy is approximately **0-2 years.**

Mini-Split Condensing Units: Life Expectancy is approximately **5-10 years.**

Condensing Unit: Life Expectancy is approximately **0-2 years.**



Air Handling Unit: Life Expectancy is approximately **0-2 years.**

Fan Equipment: Life Expectancy is approximately **15 years.**

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Electrical Systems:

Main Electrical Service (1973): 2,000 Amp, 208 Volt AC Service. Life Expectancy is approximately 0-2 years.

Electrical Distribution (1973): Life Expectancy is approximately 0-2 years. Circuit breakers are obsolete, and have outlived their useful life. Cardboard fillers are a fire hazard.

Lighting: Life Expectancy is approximately 0-2 years.
Lighting is obsolete and should be replaced.




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Fire Alarm System

The fire alarm system was installed in 1994 and is an addressable system by Notifier. It is one of the older fire alarm systems in any of the Bristol Schools.

Fire Alarm: Life Expectancy is approximately **0-2 years.**

Plumbing and Fire Protection:

The domestic hot water is provided by a A.O. Smith gas-fired tank type hot water heater located in the basement mechanical room. The hot water heater was installed in 2012, and is in good condition. The domestic hot water system is outfitted with a recirculation pump.

Most of the water distribution piping and plumbing fixtures are original to the building with upgrades and repairs as required, with some of the piping and insulation repaired in summer of 2015. The original piping is a problem due to its age, with failures occurring fairly often. Roof drains are currently functioning, and there is no visible redundant drainage system.

The building does not have a sprinkler system for fire protection.

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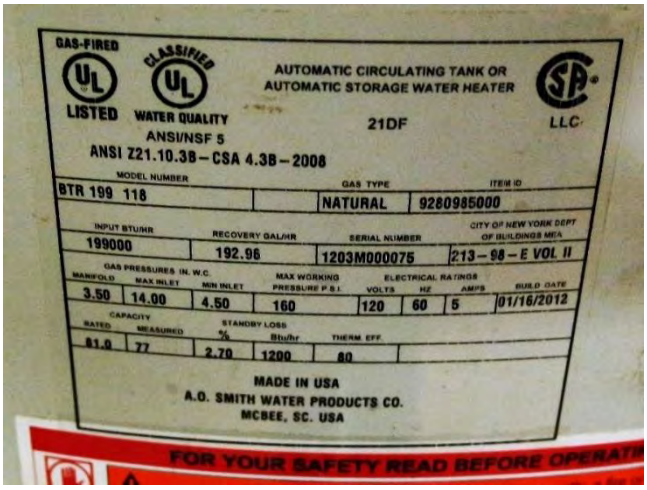
Domestic Hot Water Heater: Life Expectancy is approximately **15 years.**



Piping & Plumbing Fixtures: Life Expectancy is approximately **5-10 years.**

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Roof Drains: Life Expectancy is approximately **5-10 years.**

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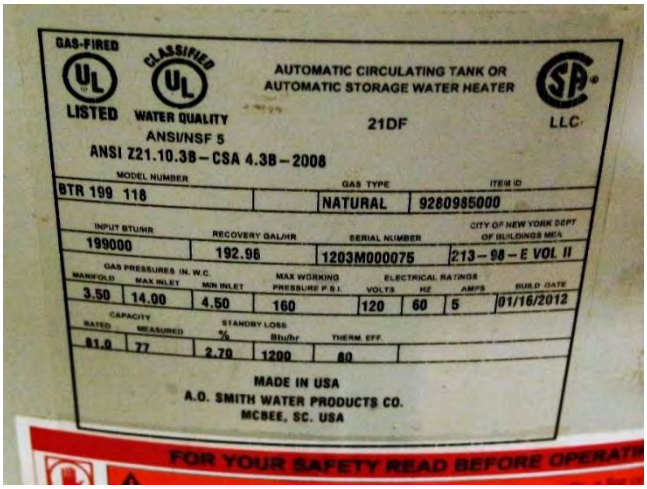
Domestic Hot Water Heater: Life Expectancy is approximately **15 years.**



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Stafford School

212 Louisiana Avenue, Bristol, CT

Existing Conditions Report July 31, 2017

Year Built:	1950
Addition:	1954
Window Replacement:	1987
Grades Served:	K – 5
Square Feet:	61,000
Site Acreage:	22

Summary:
Stafford Elementary School is the oldest of the district's operating schools, having been built in 1950, designed by the Architect Percival. In 1954, an addition was completed designed by the same architect. The building has remained largely the same, with the exception of roof replacement in 1983 and window replacement in 1987. The facility is showing its age.

Stafford Elementary is located on Louisiana Avenue, at the corner of Morris Avenue, just east of Bristol Eastern High School. The neighborhood is of mixed uses, including residential and commercial. It is just one block south of the Route 4 commercial corridor. The school currently serves grades K through 5.

Main entrance

Although the main office is located directly off the entrance lobby, it does not have complete visibility of visitors entering the site.

Stafford is configured as a double loaded corridor with it's administration and gymnasium areas at the head entrance. The building is built on the natural slope of the site, with single storey classrooms on the west side of the main corridor, and two storey on the east side. The school has 16 classroom spaces, an admin suite, and the gymatorium on its main level. The lower level contains a cafeteria and art and music rooms beneath the main level classrooms on the east side. There is also sub-grade mechanical space and storage space on the lower level. The classrooms, which are nearly square in proportion, are bright and airy due to their high ceiling design with clerestory light. The design is unique to the district.

Site:

Stafford Elementary is accessed off Louisiana Avenue, it's northerly border. The remaining eastern, southern, and western borders are residential properties. The development of the site is in close proximity to Louisiana Avenue, with an inadequately small bus loop and no parent drop off loop. Parking is also very limited. Stafford is located proximate to Eastern High School.

The site slopes up sharply at the back of the school building and is covered in wooded area; the assumption being that this area is undevelopable due to the grade change. As such, the field and play areas are limited to two pockets on the east and west of the building, each containing small amounts of hardscape and field areas. There are two small playscapes, one on the west and one on the south of the building.

Hardscape area to east with woods beyond


Field to northeast

<u>Architectural Envelope:</u>

Exterior Walls:
Stafford Elementary is a masonry building, with brick on the exterior, and in many locations brick on the interior as well. In some locations, such as the gym, concrete masonry units were used for the inside wythe. The exterior masonry is not extensive, since the building incorporates a ribbon-window style glazing system. There is also a stone masonry product installed as a feature at the main entrance area.

Window Systems:
Having been replaced 30 years ago, the glazing systems are at end of life. The ribbon system design is a large portion of the exterior envelope and contributes to heat gain and loss significantly. The bottom pane of the system includes awning style windows. In the gymatorium, the south facing glazing has been protected by metal mesh cage units.


East elevation

Entrance Systems:
Exterior doors are a combination of wood and metal. If they were not replaced in 1987, they are original to the building. Many are fully glazed. Some of the exterior door frames are wood and original to the 1950 construction. At some point, lever handles and panic bars were installed on the exterior doors.

East elevation door, lower level

Roof:
The roof at Stafford was replaced in 1983 and is reported to be in good condition, but at 34 years old should be considered for replacement soon.

<u>Interior Architectural Components:</u>

Interior walls:
Many of Stafford's interior corridor walls are brick. The interior brick detailing is prevalent throughout the building. In the gymnasium and in the lower level spaces such as the cafeteria and music rooms, the walls are painted concrete masonry units. In classrooms, the wall finish is painted gypsum. Stairwells are a combination of brick and concrete masonry.

Doors:

Interior doors are wood, with large vision panes. Together with their frames, they appear to be the original doors, but the hardware was replaced.

Ceilings:
A popcorn style ceiling product has been installed throughout the building, making maintenance and upgrades difficult. The typical classroom was designed to have cleretory light along with the expansive ribbon windows. The popcorn ceiling product was installed on both the lower and upper levels of the ceilings in these spaces. The clerestory design brings in ample natural light into the classrooms through glass block product installed at the roof level. There are operable panes inset in the glass block, but it is unknown if those are actually being used for natural ventilation.

Flooring:
The majority of the flooring in the building is vinyl tile original to the 1950 and 1954 construction. The gym wood floor is also at end of life. Carpeting has been installed in the lower level music room.

Millwork:
Wood millwork throughout the school is in fair to poor condition. This includes classrooms, office areas, and the library.

Specialties:
Most metal lockers are fully recessed into the brick corridor walls and are in fair condition. Additional free standing lockers have been added to the corridors. Toilet rooms are original to the building and in poor condition. In the gymatorium, it appears much of the equipment and stage curtains are also original.

Front entrance / office area

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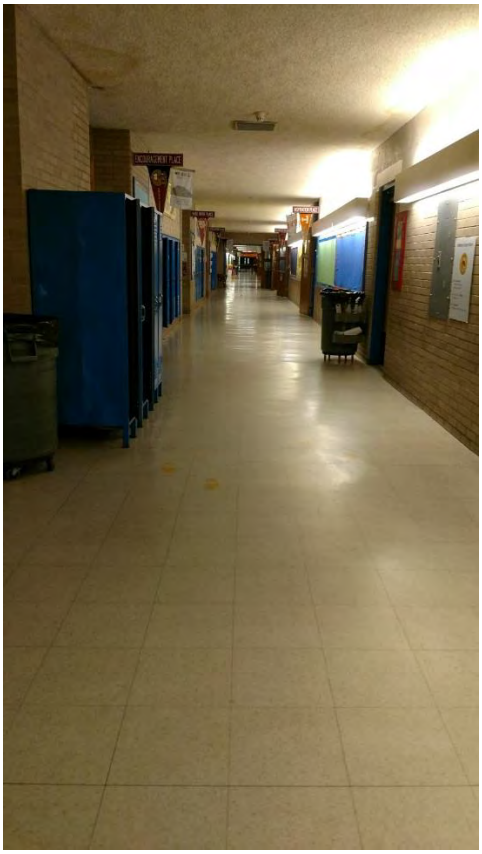
Main classroom corridor


Typical classroom


Gymatorium

Mechanical Systems:

Heating System

The existing heating system is a steam system which includes two HB Smith natural gas-fired, cast iron steam boilers. The boilers appear to be in poor to fair condition and were installed in the 1950's. The boilers supply steam to fin-tube radiation located throughout the building. The boilers were converted from oil to natural gas several years ago with the installation of a new gas service and Power Flame burners. The existing boilers are at most 75% efficient, while newer condensing boilers with modulating burners regularly reach efficiencies of 95%. Some problems have been noted with the steam system's condensate tank/receiver/pump, which will soon require replacement. Visible piping in the mechanical room appears to be in fair good condition and is fully insulated. However, much of the distribution piping system is at an age when regular leaks would not be unusual to see. Steam traps throughout the building need to be replaced to keep the steam heating system operating properly.

The control system for the boiler plant is pneumatic, and the associated air compressor and control panel are located in the mechanical room. Modern control systems are typically direct digital controls, which are more precise than the existing pneumatic system and can be monitored remotely. Pneumatic systems such as this will become more difficult to repair as the number of technicians familiar with these aging control systems reduces. As with any control system of this age, it is in poor to fair condition.

Boilers: Life Expectancy is approximately **0-5 years.**
Burners: Life Expectancy is approximately **15 years.**
Pneumatic Controls: Life Expectancy is approximately **0-5 years.**

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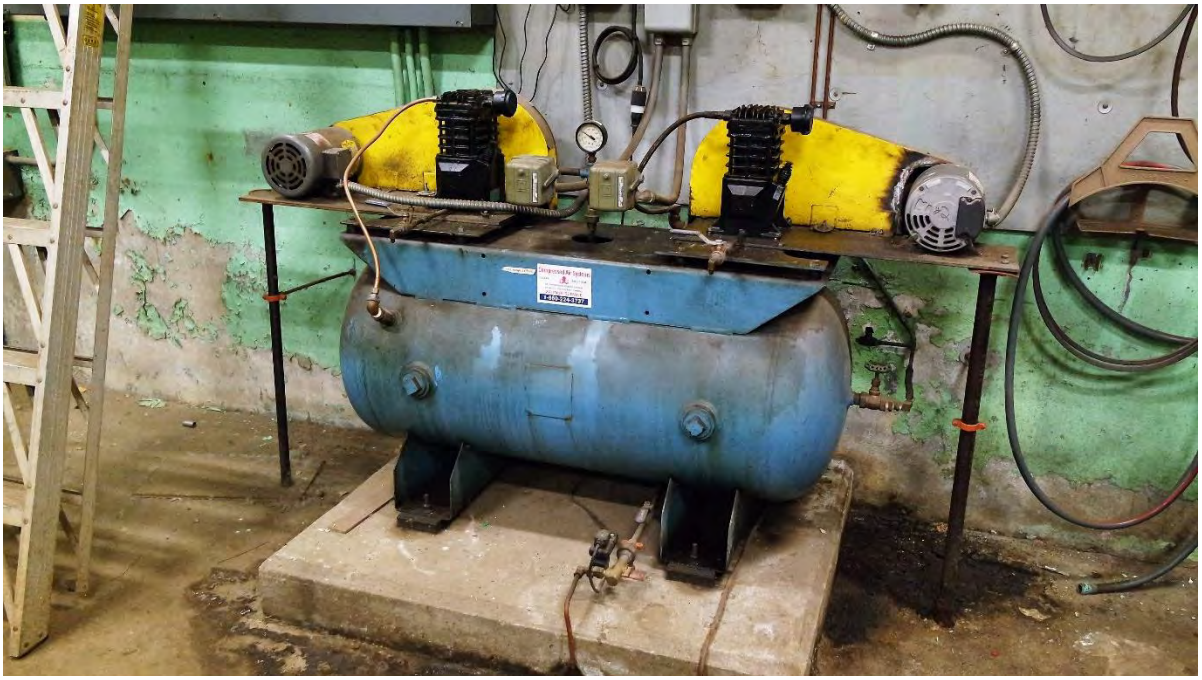

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Fin Tube Radiation: Life Expectancy is approximately **0-5 years.**

Cooling & Ventilation Systems

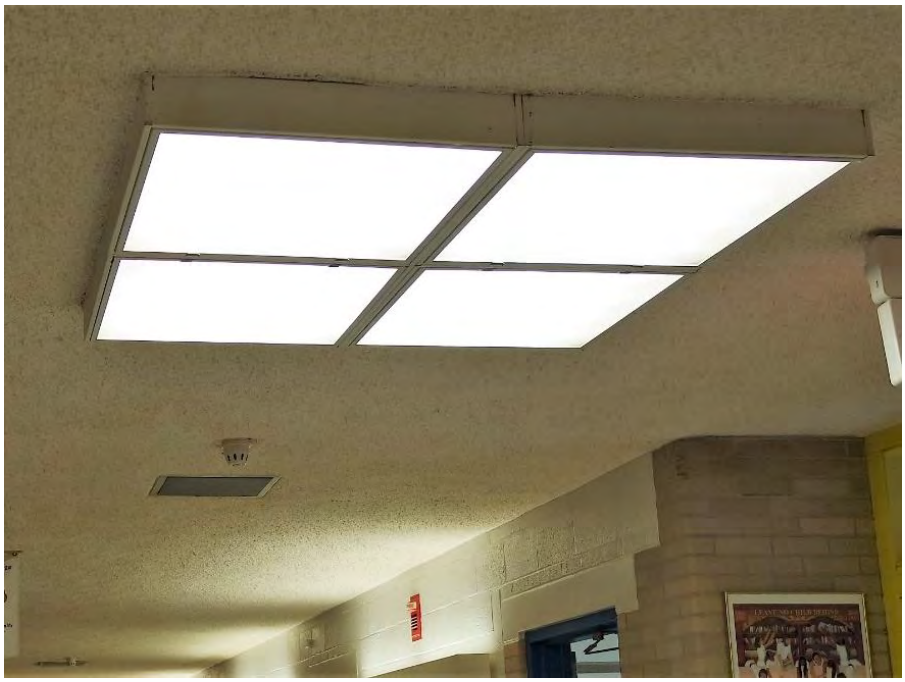
There is no air conditioning provided in the school. There are roof mounted exhaust fans that provide exhaust for bathrooms and kitchens. The building has roof-mounted exhaust fans serving the toilets and kitchen, along with some ceiling fans for comfort.

Electrical Systems:

New exit lights with battery backup have recently been installed. There is a 150 KVA utility transformer on the site.

Main Electrical Service (1983): Life Expectancy is approximately 0-2 years. Westinghouse equipment is obsolete and should be replaced.

Lighting: Life Expectancy is approximately 5-10 years. Many fixtures are fairly new.



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Emergency Lighting System

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Fire Alarm System

The fire alarm system is a conventional zoned system manufactured by Simplex, and is 30 years old. It is one of the oldest fire alarm systems in any of the Bristol Schools.

Fire Alarm: Life Expectancy is approximately **0-2 years.**

Plumbing and Fire Protection:

Domestic hot water is provided by a A.O. Smith gas-fired hot water heater installed in 2013and located in the mechanical room. The hot water heater is atmospherically vented and was installed in 2015 during the building conversion to natural gas. It appears to be in good to excellent condition. The domestic water system is outfitted with a pump for recirculation.

Most of the water distribution piping is original to the building however many plumbing fixtures have been replaced. The water service is extremely rusted (see picture below) and is depositing rust in the water lines when the valves are used. It is in poor condition and should be replaced.

The building does not have a sprinkler system for fire protection.

Domestic Water Heater: Life Expectancy is approximately **15-20 years.**

Piping & Plumbing Fixtures: Life Expectancy is approximately **0-5 years** for original piping and fixtures, although many fixtures have been replaced recently. The main domestic water service to the building should be replaced immediately, and was actually replaced shortly after the photo below was taken.

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Bristol Feasibility Study, Board of Education Schools

APPENDIX C ARTS MAGNET SCHOOL, MEMORIAL BOULEVARD

Document included:

"Educational Specifications for Memorial Boulevard Intradistrict Arts Magnet School," prepared by The Bristol Board of Education, Office of the Superintendent, November 1, 2017

Educational Specifications

for

Memorial Boulevard Intradistrict Arts Magnet School

Prepared by:

The Bristol Board of Education

Office of the Superintendent

November 1, 2017

Memorial Boulevard Arts Magnet School – Education Specifications

November 1, 2017

Table of Contents and General Information

Section - Section Title – Page Number

Project Rationale

Memorial Boulevard School is listed in the Connecticut State Register of Historic Places. The theater contains seating for approximately 750 guests in orchestra, mezzanine and balcony spaces. The existing theater makes this building an ideal arts magnet location.

The Memorial Boulevard School, located at the gateway to the Bristol downtown area, was built as Bristol High School in 1922. In the 1960's two high schools were constructed and the school was renamed Memorial Boulevard Middle School. The Memorial Boulevard School was turned back to the City at the end of the 2012-13 school year when the district opened two new kindergarten through grade eight schools. Maintenance of the school was deferred; knowing of its closure more than 5 years prior to closure.

Importantly, adding a keystone of economic revitalization to downtown Bristol is a win-win for the students and citizens of Bristol.

Bringing new life to this theater and the school spaces, will not only provide our students with the opportunity to explore the vast number of post-secondary career opportunities in the arts, but for the Bristol community as a whole to share in the rebirth of this outstanding cultural focal point.

Bristol is a town without any dedicated performance venues beyond the high school auditoriums. The Carousel Museum, Fire Museum, American Clock and Watch Museum, Military Museum and ImagiNation museum provide minimal exposure to the cultural arts for students and the community at-large. Local theater, music and choral groups do not have a fixed home for performances. Bristol residents interested in viewing theatrical performances must travel to Hartford, Waterbury, Torrington, or beyond.

The renovation of the Memorial Boulevard School into the Memorial Boulevard Arts Magnet School will provide cultural immersion for the students who attend the school and a venue for performance groups from within and outside of the Bristol community to share these spaces for the benefit of all Bristol citizens.

The renovated theater at the Memorial Boulevard Arts Magnet School will become a preferred cultural destination for residents and attract guests from other towns to Bristol; strengthening its economic vitality.

Theater Revitalization Committee

A group of Bristol citizens formed a committee several years ago to explore the possibility of revitalizing the theater at the Memorial Boulevard School as a cultural hub for Bristol. Their work included preliminary design work to assess the capacity of this theater to be a successful large-draw venue. Through the work of this committee, the City boards appropriated $13.3 million for

the renovation of the theater. To date, only minimal design work has begun. The appropriation of these funds could be reallocated to the renovation of the Memorial Boulevard Intradistrict Arts Magnet School.

Revitalization of the theater only addresses one need in the community. Renovation of the entire building provides an extraordinary learning opportunity for our students and the community as a whole during off hours use.

Other Factors

Currently, nearly 400 Bristol students leave the community to attend magnet schools throughout the state. They do so because the Bristol Public Schools do not have any theme based schools. A changing world requires a changed focus on student learning. The return of some of these students to Bristol will save the District the tuitions paid to the magnet of attendance and reduce the state's transportation cost for each student who returns to their home district.

Bristol Public Schools arts programs have been regionally and nationally recognized for the quality of our music and fine arts programs. Students have participated in Northeast Regional music and vocal ensembles as well as. Our fine arts students annually receive multiple gold and silver keys at the Scholastic Art Awards program and many of our students receive talent-based scholarships for their musical and art talents.

Memorial Boulevard School was built with a swimming pool adjacent to the gymnasium. The pool was covered over approximately 10 years ago when the drain no longer met code standards. Reopening the pool is another positive opportunity for the Bristol community. There is one indoor pool located near the Giammati Little League Center. That pool is used to capacity with local swim teams and community use. The pool is not large enough for competitions, but sufficient for use by physical education classes and Parks and Recreation swimming lesson programs.

Current organizational pattern of the district

Currently, the configuration of schools is as follows:

1. PK-8 buildings - 2
2. PK-5 Elementary -2
3. Middle Schools 6-8 – 2
4. Traditional High Schools – 2
5. Alternative High School
6. Adult Education Center
7. Early Childhood Special Services PK

Our feeder patterns have 3 elementary schools feeding into each of the middle schools. Each high school receives students from a PK-8 and one middle school.

All of our schools are currently operating at or near optimum occupancy. Within most of our schools, there are district-wide programs for students with special needs. Currently, 19% of Bristol's students have an Individualized Educational Programs. In an effort to provide our learners with the least restrictive environment, spaces that were traditional classrooms are now providing self-contained, focused instruction, occupational and physical therapy, and transitional support for our 18-21-year-old students with disabilities; changing space requirements for general education. (Please see the DRAFT Feasibility Study enrollments).

Feasibility for an arts magnet school

A long-range feasibility study is currently being conducted by Drummey Rosanne Architects (DRA). They have included the Memorial Boulevard Arts Magnet in their study of future educational spaces. This long-range plans looks forward 5 years and will provide data to the City as they structure their 10-year capital plan. Creation of the Memorial Boulevard Intradistrict Arts Magnet has the potential for saving tax payers the cost of renovating several other schools within the 10-year capital plan. This is dependent upon the Board of Education's acceptance of one of the 5 plans presented.

Currently, 308 students leave Bristol to attend Magnet schools, a significant increase from the 196 students who attended in the 2013-14 school year.

Enrollment Data - 5-Year Look Back

Year/Grade	2013-14	2014-15	2015-16	2016-17	2017-18
Grade 6	649	605	572	655	611
Grade 7	611	551	606	580	667
Grade 8	590	616	556	608	594
Grade 9	689	673	657	582	608
Grade 10	613	577	592	603	582
Grade 11	585	617	577	557	603
Grade 12	610	570	571	568	557

Enrollment - 5-Year Projections

Year/Grade	2018-19	2019-2020	2020-2021	2021-2022	2022-2023
Grade 6	600	567	553	585	550
Grade 7	608	608	580	561	592
Grade 8	668	610	618	576	562
Grade 9	629	722	659	659	622
Grade 10	576	551	632	577	577
Grade 11	510	573	548	629	574
Grade 12	598	505	567	542	623

Enrollment Strategy:

Memorial Boulevard Middle School enrolled approximately 525 students in grades 6-8, in a discipline based instructional arrangement. When reopened as an arts magnet, students from grades 6-12 will have the option of applying using a lottery system. Each middle and high school will have a limit to the number of students who may gain a seat in the magnet school. The rationale for limiting transfers from each school being maintenance of arts course and performance enrollments at all of the other middle and high schools. For example, if there are 75 seats available to students in grade 9, a maximum of 37/38 students will come from each high school.

Bristol has been rebranded "***Bristol All Heart".*** The level of public participation in heartfelt events such as the Mum Festival, Shamrock Run, Relay for Life, Rock***well*** in the Park and the Challenger League are visible signs of the level of caring and paying it forward that are hallmarks of Bristol residents. Bristol a vibrant manufacturing town and the home of ESPN . Myriad workforce opportunities are available to our our students once they gain the necessary technical and social skills in middle and high school, and post-secondary learning opportunities. The Technical Workforce Committee brings together professional school staff, Tunxis Community College staff, members of the Central Connecticut Chambers of Commerce and members of the business community to envision future workforce needs. Several collaborative programs are in the planning stage that will provide students with college credits prior to high school graduation and allow for continuous enrollment to complete an Associate's Degree at Tunxis Community College. We look forward to linking the MB Arts Magnet students with internships/job shadowing experiences at ESPN.

The arts magnet concept may be defined as a place where student draw, paint, sing, dance, play a musical instrument and act in a play. However, ...

We see an arts magnet as a place where students indeed may participate in all of the aforementioned activities, but there is so much more. Students will use authentic mathematical and science skills to design and create sets, English language arts to create speeches, scripts, and other creative writing, organizational skills necessary for directing and producing vignettes and larger scale productions, and create works of art inspired by the historic tradition of the school in which they are learning. Learning how to utilize sound and lighting systems, creating and editing digital media and communication of this learning in multiple formats will assist these students in gaining access to post-secondary educational opportunities in their home town.

Existing Conditions Before:

Enrollment vs. Building Capacity

The current building capacity is 660 students (see attached EDO50). The projected enrollment will be grades 6-12 with 75 students per grade for a total student population of 525 students. The utilization rate for the school will be 83%. Average class size is approximately 25 students.

Upgrades Due to General Age of Building

The original Memorial Boulevard School (MBS) was constructed as a district High School in 1922. The last renovation was in 1978, the 10,000 gallon oil tank was replaced in 2000 and the roof was replaced in 2008. The overall area of the building (see attached EDO50) is 96524 square feet. The existing structure, exterior envelope, floor plan and floor to ceiling heights provide an excellent frame work for our renovation project. Except for the roof all building systems are at the end of its life cycle and need to be replaced. The project will be filed as a "Renovation Status".

The Memorial Boulevard School requires a complete renovation including asbestos abatement, heating, addition of cooling in all area, new flooring and changes in classroom purposes to fit the new concept of an arts magnet school.

The building is nearing a century in age and is expected to last at least another century once fully renovated. Multiple generations will continue to utilize the school as a school, and the community at large will benefit from the creation of new spaces that will be accessed for use of the pool, theater, Black Box Theater, dance studio and production facilities. We envision this school being utilized 12 months a year once it is air conditioned. The central location of this building makes it an ideal all-year use building.

Area of Existing Building by Type Size and Space

General Classrooms
The number of general classrooms (see attached ED050) is currently 27. The area of the general classrooms is 820 square feet. The size of the rooms and the aspect ratio is adequate for a modern teaching environment. The floor to ceiling height is very generous and the large exterior windows provide ample natural daylight. Technology, MEP, flooring, ceilings, casework, wall finishes and exterior windows all need to be replaced and/or upgraded.

Library Media Center
The library is located on the first floor and is 1630 square feet. The size of the space is adequate for a modern media center. The floor to ceiling height is very generous and the large exterior windows provide ample natural daylight. Technology, MEP, flooring, ceilings, casework, wall finishes, book shelving and exterior windows all need to be replaced and/or upgraded.

Science Labs
The science labs are 925 square feet. The rooms are undersized for the modern science curriculum. Technology, MEP, flooring, ceilings, casework, wall finishes and exterior windows all need to be replaced and/or upgraded.

Gymnasium
The gymnasium is 7700 square feet. Above the gym is a mezzanine that runs the perimeter of the space. An elementary size basketball court is located in the open volume at the center of the space. Support spaces and storage are located at the perimeter of the gym with offices on the mezzanine. Technology, MEP, flooring, ceilings, gym equipment, wall finishes and exterior windows all need to be replaced and/or upgraded.

Pool
The pool area is 2410 square feet. The pool is 58'x20' or 1160 square feet.

The Swimming pool was closed and covered due to a non-compliant drain. It was known that the school would be closed in 2012 and therefore, resources were not dedicated to refurbishment. The pool has been infilled with metal joists, plywood deck and carpet. The floor levels changes will have to be addressed to be in compliance with ADA requirements. The pool requires new pumps, piping and drainage upgrades to meet the current NFPA Code. Technology, MEP, flooring, ceilings, railings and wall finishes all need to be replaced and/or upgraded.

Music Room
The music room is 910 square feet. The room is undersized for a modern music program. The floor to ceiling height is very generous and the large exterior windows provide ample natural daylight. The room would require risers, sound system, and acoustical paneling. Technology, MEP, flooring, ceilings, casework, wall finishes and exterior windows all need to be replaced and/or upgraded.

Art Room
The art room is 910 square feet. The room is undersized for a modern art program. The floor to ceiling height is generous and the large exterior windows provide ample natural daylight. Technology, MEP, flooring, ceilings, casework, wall finishes and exterior windows all need to be replaced and/or upgraded.

Industrial Art Spaces
The industrial art area is 1630 square feet. The industrial art area consists of three contiguous areas on the ground floor. The floor to ceiling height is very generous and the small exterior clerestory windows provide minimal natural daylight. Technology, MEP, flooring, ceilings, casework, wall finishes and exterior windows all need to be replaced and/or upgraded.

Special Education Classrooms
The area of the special education classrooms are 820 square feet. The size of the rooms and the aspect ratio is adequate for a modern special education program. The floor to ceiling height is very generous and the large exterior windows provide plenty of natural daylight. Technology, MEP, flooring, ceilings, casework, wall finishes and exterior windows all need to be replaced and/or upgraded.

Computer Lab
The computer lab is 920 square feet. The room is undersized for a modern computer lab and was designed in an antiquated manner that would not facilitate ubiquitous technology needs. The floor to ceiling height is very generous and the large exterior windows provide ample natural

daylight. Technology, MEP, flooring, ceilings, casework, wall finishes and exterior windows all need to be replaced and/or upgraded.

Cafeteria
The cafeteria is 2624 square feet. The cafeteria has small clerestory windows which provide minimum natural light. The food service area needs to be fully updated and modernized. Technology, MEP, flooring, ceilings, equipment, wall finishes and exterior windows all need to be replaced and/or upgraded. This space is inappropriate to continue to be used as a cafeteria. An alternate space will be chosen for the cafeteria. See attached before and after floor plans. Likely, the cafeteria will be part of an addition to allow for community use of the theater without entering the classroom area of the school
.

Kitchen
The kitchen is 790 square feet. The kitchen is not contiguous to the cafeteria and requires circulation across the main corridor for deliveries. All of the kitchen equipment and prep areas need to be replaced. Technology, MEP, flooring, ceilings, casework, wall finishes and exterior windows all need to be replaced and/or upgraded.

Theater
The theater is 5776 square feet. The seating is set on a raked floor providing excellent sight lines. The general acoustics are good. The theater requires new seating, theater lighting, house lighting sound equipment and projection equipment. Technology, MEP, flooring, ceilings, casework, wall finishes and exterior windows all need to be replaced and/or upgraded.

Mezzanine and Balcony Seating
The balcony seating is 2240 square feet. The balcony has entry points at different three different levels. Handicapped access will need to be reviewed and updated. This may require heavy renovation to the existing floor slab and structure.

Stage
The stage area is 2520 square feet. The stage has good fly space for scenery hoisting and will require curtains, theater lighting, hoisting equipment and sound equipment. The back of house will require heavy renovations for the stage. Technology, MEP, flooring, ceilings, casework, wall finishes and exterior windows all need to be replaced and/or upgraded.

Administrative Offices
The administrative office is 1100 square feet. The location is off of the main school entrance. The views to the north and south bus drop off and parking areas are limited. Technology, MEP, flooring, reception desk, casework, ceilings, wall finishes and exterior windows all need to be replaced and/or upgraded.

Health Room
The nurse's office is 760 square feet, located next to the administrative area. The upgrades should include exam beds, secure medical storage, privacy curtains, technology, MEP, flooring,

casework, sinks, ceilings, wall finishes and exterior windows all need to be replaced and/or upgraded.

Roof
The roof was replaced in 2008.

Guidance Office
The guidance office is 160 square feet. The two offices are next to the administrative area. Technology, MEP, flooring, reception desk, casework, ceilings, wall finishes and exterior windows all need to be replaced and/or upgraded.

Custodial Services
The custodial areas include corridor closets, office space, storage and locker room. Technology, MEP, flooring, ceilings, and wall finishes, and exterior windows all need to be replaced and/or upgraded.

Building Mechanicals
The building mechanicals are serviced by the boiler room on the first floor. The air distribution is handled though roof top air handlers. Electrical closets, data closets, mechanical chases are located throughout the floor plan. The mechanical upgrades will need to meet LEED Silver Equivalent.

Storage
Storage areas are located throughout the building. They include, book storage, teacher materials storage, custodial storage, outside equipment storage, coat rooms and gym equipment storage.

AFTER

Envisioned Renovations and Purpose of Spaces:

Core Academic Program – See Floor Plans Before and After

Core Academic Classrooms

The academic classrooms will be located on levels 3 and 4, the top two levels of the school. Most classrooms are approximately 820 sq. ft. Academic rooms will be shared by middle and high school year students. Students will receive discipline-based academic coursework during half of each day. For illustrative purposes, students in grades 6-8 will use these spaces in the morning and students in grades 9-12 during the afternoon. There are 16 classrooms designated for this purpose. These will serve the core areas of English/language arts, mathematics, social studies and science, with 4 classrooms for each discipline. All of these spaces require renovation of the floors, technological and acoustical replacement, VOIP and intercom, wireless and hard-wired connectivity, adequate HVAC, lighting and furnishings flexible for and conducive

to collaborative learning. Teacher stations will be equipped with electronic white boards, tack boards and 21st century peripheral technology.

Two classrooms will be designated for special support services. This may include provision of IEP services and intervention in mathematics and literacy. Spaces for student support staff and school and career counseling will be located on the entrance level floor.

Each classroom will be equipped with an electronic whiteboard, teacher's workstation, tack boards, lockable storage cabinets, and a lockable cabinet for the teacher's personal effects. Cabinetry will also include bookshelves, closed storage and a sink.

With an intended capacity of 25 students per classroom, each classroom should be furnished with at least 27 student desks and chairs. The furniture should be such that it can easily be moved into flexible groupings.

Lockers and Storage

Student lockers will line hallways and former coat halls to provide each student with a lockable space for their coats, books and other materials.

Technology Requirements

Communication systems within the building will utilize the City's VOIP system for purposes of an intercom system, emergency notification system and call out, call in phone service. Every classroom, office and specialized space will be wired for this service.

Ubiquitous Wi-Fi Internet service provides staff and students with the flexibility to utilize computers and other electronic devices in all spaces within the school. However, hard-wired work stations in the office areas and for teachers will provide back-up to the wireless environment.

Each classroom will have a Chromebook cart containing at least 25 workbooks. Electrical service in the classroom areas will be sufficient to allow for nightly charging station use. Students will have access to workbooks in a firewall protected environment compliant with federal student protection laws.

Each classroom will have a sound system and appropriate acoustical materials; providing hearing impaired students equal access to classroom discussions.

Science Laboratories

Four science laboratories will be created on level four. These rooms will also be used as general science education classrooms. Again, these spaces will be shared among grade levels. Particular attention will be made to the code requirements for square footage per student required for laboratory activities. The current Next General Science Standards (NGSS),

approach science from the perspective of a phenomenon. Often, students will use materials that require sinks, adequate ventilation, eye-wash stations, ventilation and safe storage of materials; including glass beakers, microscopes, cannulas and protective eyewear.

Each lab station will be equipped with lab tables and stools, electrical outlets protected with GFI shut-off as a precaution based upon the experiment materials used. Further, gas or portable hot plates, Bunsen burners and fire suppression must be included. Lab table space should be sufficient for 27 students.

A focal point presentation area will be moveable; allowing the teacher to move the space to student work-groups.

Each classroom will be equipped with an electronic whiteboard, teacher's workstation, tack boards, lockable storage cabinets, and a lockable cabinet for the teacher's personal effects.

A science prep room will be constructed among the science labs as a means for appropriate storage of materials using current space and safety requirements.

Information Resources Center

Traditionally known as the library-media center, the Information Resource Center will allow for traditional use of print materials, but also have sufficient student work stations for more than one group of students to occupy this space at the same time. Thus, allowing students to come to the center to conduct for brief periods of time to seek real time information and solutions to problems.

An electronic whiteboard will allow for small group instruction, digital connections with other schools and/or digital field trips.

Additionally, a small office space and materials storage area should be included in this space. The office will contain a hardwired computer station and a desk and chair for the staff responsible for this area.

Gymnasium

This space is ideal for a Black Box Theater. The new gymnasium will be part of an addition to the building.

Pool

The Swimming pool was closed and covered due to a non-compliant drain. It was known that the school would be closed in 2012 and therefore, resources were not dedicated to refurbishment.

In addition to use as a physical education space, the pool will provide the community with another indoor swimming venue that will be available during non-school hours.

Dance Studio

The dance studio will be located in a part of the former cafeteria on the ground floor. This space will be wired to allow for music accompaniment. This room should have acoustical sound proofing.

This room will have hardwood floors, a mirrored wall and barre. One end of the room will have a platform and curtain for rehearsals. An electronic whiteboard and teacher station will be placed away from the dance space. Storage for dance workshops will fill the wall on the far opposite side from the platform. An office will be provided for the instructor with connectivity, lockable personal storage space and a desk and filing drawers.

Music Suite – Choral and Instrumental

A large assembly space for music ensembles will be created along with a series of small, acoustically sound proofed rooms on the main entrance level used for instrumental or vocal practice. An office space with hard-wired technology and personal storage space will be included for two teachers. Instrument storage cages will be created either in an adjacent room or within the music suite.

A flexible classroom space is needed to allow this music suite to serve both instrumental and choral music instruction. Choral risers will require storage as well as music stands, keyboards, and a grand piano. The grand piano may be moved from the music space to the theater as they are on the same level.

An electronic whiteboard, sound system and digital recording technology will allow students to compose music, view their performances and engage in critiquing their work.

These spaces will be fully wired with outlets to be used in various locations within the suite.

At least 50 chairs and music stands will be required for the instrumental groups. Therefore, adequate storage for this is imperative to allowing this space to be flexible.

Fine Arts Area

A well-lit space for drawing, painting, 2 and 3-D art composition will be located on the main entrance level. This area will include a kiln room, storage area and display space. Some courses will share spaces in the set design area, instructional resource center and theater.

Sound Engineering, Lighting & Production Studio

This space is used for visual communications including graphic design, digital photography, and website design. These courses will be housed in the theater area for courses that specifically relate to use of the sound and lighting systems within the theater, and within the instructional resource center when

One performance room and another would be a control room with connecting window to monitor production. Wiring and cabling should connect both spaces with the ability to communicate to musicians or performers. Ideally there would be two rooms for recording and one control room. Rooms should be treated for proper sound. It should include many outlets for musical equipment

Technology Education/Theater Production Electives

Set design and construction

One of the former industrial arts rooms will be converted into a space for set design and construction. This is one of many encore courses students may choose.

Costume design and creation

Within the arts curriculum, a design lab for creation of costumes and use of textiles will provide students with yet another aspect of the arts industry.

Digital media laboratory within the Instructional Resources Area

Within this classroom, students may engage in film study, creation, and digital editing.

Technology server and switch space

An MDF/IDF will be necessary to serve as the technology and HVAC hub of the building.

Student dining

The existing cafeteria space will be converted into a dance studio. This space was inadequate when the school functioned as a middle school. The addition will contain student dining area, server and kitchen.. Seating capacity must allow for 225 students to use the cafeteria at the same time. This will allow all students in grades 6-8 to be served in a single lunch wave. Students in grade 9-12 will be served in two lunch waves.

This space may also be used in concert with the theater as a café.

Staff Dining

Staff may dine in a space adjacent to the student dining area or in their faculty workroom. This space will have seating for 16 staff members. In addition to a table and seating, a countertop

with storage above and below and a kitchen style sink, microwave oven, coffee service and refrigerator are needed.

Food preparation area

The existing kitchen is unusable in its current location. The addition will have a food preparation area adjacent to the student dining area.

Space will be required storage for non-perishables, a walk-in freezer and refrigerator, an oven, stovetop burners, a microwave oven, dishwasher, storage for paper goods generally.

This area will be designed during the Schematic Design Phase.

Black Box Theatre

The Black Box theater will reside in the former gymnasium space. This space will consist of "black box" theatrical presentations that are in line with the magnet theme of this school. The space requires a raised platform areas for non-fixed seating, no windows for daylight, clear space for actual performance space, curtains, back drops, special lighting with controls, and sound system. The space requires acoustical treatment.

Green Room

The Green room will also be constructed within the addition. The term "Green Room" refers to the director's critique session held after a rehearsal or performance, since it is often held in the green room. This session is used for a pep talk, bonding among actors, and/or warmup exercises or open space for warm up activities if needed.

Stagecraft Rooms
Designed for the construction of fashion, props and staging of a theater performance. Generally, it is equipped with tools for the construction of scenery and staging. Three types of storage are required: storage of the grand piano, chairs, stands and choral risers etc., an area is for scenery and props, and storage for costumes and textiles.

Theater

Fields of Study – Theatrical Productions

Front of the stage Study

Costuming

Costuming is an elective course where students will design and create costumes in a space with sewing machines, multi-purpose storage for fabric, notions and other costuming supplies.

Theatrical Makeup

Among a series of electives related to presentation of a theatrical production, theatrical makeup, composition and application will be studied.

Acting, Choreography, Dance, Musical Accompaniment

Back of the Stage Study

Lighting, Sound, Set Design & Construction

Theater Occupancy

All ADA requirements will be made during this renovation. Access to both the theater and school must be accessible for students, staff and visitors to all parts of this building.

A full renovation of the theater to return it to its original state is a mandatory component of this project. Included in this work are: Seating, Curtain System, Soundproof Wall to close off the rear stage, floor leveling, a new HVAC system on its own zone.

The addition adjacent to the theater will include the Green Room on ground level and Black Box Theater above it.

The renovation will include creation of a lobby and typical amenities including a ticket booth, concessions, lavatories and coat storage.

Support facilities:

Administrative Offices
These offices will be used by a principal and assistant principal as well as several administrative assistant stations. The location remains the same. However, a complete renovation is required to include ubiquitous Wi-Fi, up-to-date code for access, VOIP phones and intercom, office furnishings and new HVAC and including a high capacity printing system.

Staff planning
Several faculty planning rooms will be refurbished throughout the school to include HVAC, lighting and furnishings.

Conference rooms
Two conference rooms will be created in ground level rooms. One conference room for administrative use and the other for Planning & Placement Team meetings and small group staff

meetings. These spaces will be refurbished throughout the school to include HVAC, lighting and furnishings.

Health room
The health room will remain in its before location and require refurbished throughout to include HVAC, lighting and furnishings. An area for the dental hygienist will be created within this design.

Student support services
The guidance suite will include spaces for counselors to work privately with students.

Custodial services
Existing custodial spaces will be refurbished with appropriate equipment, casework and access to water.

Building mechanicals
All existing HVAC mechanicals will require replacement. This will include ventilation and circulation of heating and cooling using multiple zones to allow for use of parts of the building without heating or cooling all area to ambient levels.

IT mechanicals
The existing technology infrastructure must be replaced with energy star components. Appropriate heating and cooling will be added to maintain the integrity of the servers and switches in this room.

Storage
All storage areas will be refurbished with new casework and HVAC systems.

Building Systems

Architectural & Structural Systems

MBS was built in 1922 as a High School. It had a moderate renovation in 1978, the oil tank was replaced in 2000 and the roof was replaced in 2008. The foundation is metal rebar with poured in place concrete. The structural system is steel frame enclosed in poured in place concrete. The floor system is terra cotta block infill with steel frame and poured in place concrete. The wall system is terra cotta infill with either a brick veneer or a stucco veneer. The exterior system includes double glazed exterior windows with terra cotta block and a brick veneer on the exterior and interior.

Building Hazardous Material

A preliminary Hazardous Material Report was done by Eagle Environmental. The report indicated that asbestos is present in the interior stucco, flooring tiles and pipe insulation. A more detailed analysis will begin in the Schematic Design phase of the project.

Site Hazardous Material
A Phase 1 Site Assessment will be conducted in the Schematic Design phases of the project. The 10,000 Gallon Oil tank was replaced in 2000 with a monitoring system. No contamination was found during the extraction of the existing tank.

ADA/ Life Safety
The project is still under review for ADA and Life Safety issues. We have many varying floor to floor heights in the building. We will review the renovation of an existing elevator and the possibility of a new hoist way and elevator located outside the building footprint. Ramps will also be required at the exterior site and interior corridors to accommodate the level changes. Fire suppression, exit signage, and fire alarm systems will need to be replaced.

Interior Building Environment
The air exchange from the air handlers is limited and the pneumatic controls are outdated. The natural daylighting is good from the generous exterior windows and the floor to ceiling heights. The lighting system provides poor lighting distribution. Walls, ceilings, flooring, PA systems, phone systems and clock systems need to be replaced.

Site Civil
MBS is located in the middle of the City of Bristol on Memorial Boulevard. The Boulevard, MBS and the surrounding Veteran Memorial Park serve as a vital focal point and gate way to the City. Parades, veteran's events, festivals and holidays are all celebrated along this route. MBS is surrounded by a bucolic park with historic monuments dedicated to our local veterans. It is important that we understand how we physically and culturally connect back to this surronding environment.

The site plan will need to address some of the safety concerns of the current school. It is important that the bus and car drop off areas are separated and have a clear view from the administrative area. The parking will need to accommodate the theater and the school with ADA parking located near the main entrance. The play fields will be evaluated for both academic and community needs.

As a LEED Silver Equivalent the site will be developed with an eye towards sustainability. This would include a balanced cut and fill program during excavation. We will provide safe sidewalk on and around the site for the neighborhood students. Bike paths and bike racks will be provided for student and staff riders. Power stations will be installed for hybrids and electrical vehicles. The landscape design will include minimal impervious coverage with indigenous plants that enhance the natural environment.

We will also need to evaluate the site in terms of site run off and utility connections to electrical, sewer, water, and fiber.

Technology
The current building has CAT 5 cabling. Most of the classrooms have smartboards with projection systems. The clock and phone system are at the end of their life cycle and need to be replaced. The building requires a full replacement of the current technology infrastructure; this would include a new MDF room with data closets located throughout the plan. The cabling infrastructure would be replaced with CAT 7 cable. Smartboards, laptop docking stations, Wi Fi connections and new sound systems will be provided at each teaching stations. A new phone system and VOIP systems will be provided throughout the building.

Fire Alarm and Sprinklers
The building needs a full upgrade to both the fire alarm and sprinkler system.

Security
The current building has some issues with site lines to the existing bus drop off and parking. From a planning standpoint it is very important to provide clear site lines from the administrative offices to the main building entrance and the site traffic. Cameras will also be to enhance the visibility to all entrances and exits. The access points will have "Fob" access and automated entrance hardware. A lock down procedure will be developed with internal keys provided in the event of a security breach.

HVAC
The current building has through wall air conditioning in the administrative and library areas. The boilers serve a series of perimeter fin tube radiators and cast iron radiators. Fresh air is provided through roof top air handling units. The controls are pneumatic, supplemented with low voltage thermostats. The existing system is at the end of it life cycle.

The new system will be designed as a Silver LEED Equivalent. We will explore high performance options that may include; ground source wells, heat pumps, occupancy sensors, intelligent building monitoring systems, passive solar panels, and active solar panels

Plumbing
The sewer, domestic water, sprinkler, drainage and HVAC piping will be replaced. The toilets and sinks will be replaced with ADA fixtures that are ASTM compliant for water usage. All showers, sprinkler systems, hose bibs, irrigation systems will be replaced. Utility connections to site sewer domestic water and underground drainage will be replaced.

Electrical/Lighting
The existing electrical system has been updated over the years. Most of the power is provide through exposed conduit with wall mounted duplexes. The switch gear, power panels, utility site power connections will need to be replaced. The lighting will use direct and indirect lamping to provide soft ambient lighting in the instruction spaces. The natural daylight is provided by an expanse of exterior windows. Daylight controls will allow the lights to turn off when natural day light is present in the classrooms. The occupancy sensors will automatically turn off the lights when the rooms are unoccupied.

Food Service & Dining
The current kitchen and dining areas are on the ground floor with limited natural day light. The kitchen and dining areas are not contiguous. The new food service area and kitchen will be upgraded with state of the art POS stations, food service counters, refrigeration and way finding signage. The new dining area will allow students easy access from the classrooms and provide a clean safe dining environment. The staff dining will be separate and will provide counters, sinks, stove, microwave and refrigeration. These spaces will be part of the addition.

Student Health Services
The current health services are provided in a small area next to the administration area. The spaces are undersized and lack patient privacy. The new health service will provide a series of adjacent rooms that provide a small lobby, nurse's office, secure medical storage, and exam areas.

Silver LEED Equivalent
The existing building will need major upgrades to meet the Silver LEED Equivalent as required by the state DAS. We will explore high performance geothermal wells, ground source heat pumps, exterior envelope upgrades, automated controls, occupancy sensor, CO2 sensors, natural daylight harvesting, and solar power.

Construction bonus request
The City of Bristol will be exploring the following three of bonus requests:

1. Pre-1950 Space Standard Bonus
2. 1% Mechanical Space Bonus
3. Open Choice Space Bonus

Community uses

Community use of the theater – non-school hours

It is anticipated that the theater will benefit the Bristol area and beyond by creating a venue for the local theater group, traveling theatrical and musical productions, Nutmeg Symphony Orchestra, the Bristol Choral Society and others.

For the students and adults in Bristol, we foresee summer enrichment programs, adult continuing education and EL programs, in-town and out-of-to n community space rentals other district schools' use of the theater, Board of Education public forums, other public forums

Other Non-school hours functions

It is anticipated that the MBIAMS will provide additional much needed space for Bristol Parks & Recreation programs, use as a potential polling location, and in-town and out-of-town community space rentals

Swimming pool

There is only 1 indoor community swimming pool. We foresee use of the pool for swimming lessons, and open swim times.

Regulatory Approvals – attached as individual documents

1. Bristol Board of Education
2. City of Bristol Board of Finance
3. City of Bristol City Council
4. DRAFT Feasibility Study Options

Space use drawings - attached

Before and After Space Usage

Bristol Feasibility Study, Board of Education Schools

APPENDIX D COST ESTIMATES

In comparing the "Do Nothing" option to Option 4, the district will spend over $11 million more to renovate 5 schools if they follow their current capital improvement plan. Option 4 will save them not only the $11 million in construction costs, but the operating costs of Stafford and Edgewood. South Side and Hubbell's buildings are of much greater value than the Stafford and Edgewood Schools because they are larger, and have more efficient layouts and envelopes.

The district is fortunate to have Stafford and Edgewood to use as swing space during renovations, if needed. Phasing of Option 4 will therefore be easier on the students and staff than the capital improvement plan. In the "Do Nothing" option, 5 schools will be renovated while occupied, lengthening the construction timeframes, unless the buildings can be vacated, and additional space found elsewhere. In Option 4, Northeast can be expanded and opened as a K-8 first, thus freeing up space at Edgewood and Stafford for the Hubbell and South Side students to utilize while their buildings are renovated more expeditiously.

Since the time has come where 5 schools are at the end of life cycle, it is more fiscally responsible to add space to Northeast in keeping with the K-8 model, and limit the other renovations to South Side and Stafford.

The assumption of a 64% reimbursement rate from the state is conservative; the 2018 rate is actually 68.93%, but considering there will be some ineligible costs and potential changes at the state, the lower rate is more realistic to predict.

Cost estimates are in 2017 dollars, and include a magnitude of scope (useful for comparisons), rather than actual bids from contractors. These estimates include hard costs, soft costs, and a reasonable contingency based on the incomplete nature of preliminary information.

(See the cost comparison spreadsheet on the next page, with details on the pages following.)

APPENDIX D

Bristol Schools Study

Budget Comparison - "Do Nothing" to "Option 4"

DO NOTHING - CIP

No.	Description	Total Cost	*State Reimbursement: Including 5% Reduction for Ineligible Cost	Cost to City
1	Southside HVAC	$3,597,160	0%	$3,597,160
2	Stafford Roof & Masonry Repointing	$2,043,575	0%	$2,043,575
3	Edgewood Renovate as New with addition	$25,909,470	64%	$9,327,409
4	Northeast Renovate as New (updated)	$34,371,994	64%	$12,373,918
5	Southside Renovate as New (updated)	$33,293,344	64%	$11,985,604
6	Stafford Renovate as New (updated)	$26,770,918	64%	$9,637,530
7	Hubbell Renovate as New	$20,140,646	64%	$7,250,633
			TOTAL COST TO CITY	$56,215,829

OPTION 4

No.	Description	Total Cost	* State Reimbursement: Including 5% Reduction for Ineligible Cost	Cost to City
1	Northeast Renovate as New and Addition*	$72,356,659	64%	$26,048,397
2	Southside Renovate as New	$36,793,344	64%	$13,245,604
3	Hubbell Renovate as New	$20,140,646	64%	$7,250,633
			TOTAL COST TO CITY	$46,544,634

** State Reimbursment 2017 for "Renovation"Status = 68.93%-5% for Ineligibles= 63.98%.*
*** State Reimbursment 2017 for "New Construction" = 58.93%-5% for Ineligibles= 53.98%.*

APPENDIX D

BRISTOL SCHOOLS STUDY
CAPITAL IMPROVEMENTS SUMMARY
"DO NOTHING" OPTION

Item	School	Grades	Year Built	SF	Stories	Acres	Cost of Work*	Description
1	Stafford	K-5	1950	61,000	1 w/usable lower level	22	$28.8 million	Like-New Renovation including space re-configurations and an elevator upgrade. Replace glazing and entrance systems. Replace all finishes, doors, millwork, and specialties. Roof is new. MEP replacements except hot water heaters. Major sitework and reconfiguration of drives and parking.
2	Edgewood	PK-5	1957	44,000	1	15	$25.9 million	Like-New Renovation of 44,000 sf and Multipurpose room addition of 4,000 sf. Renovation includes replacing glazing and entrance systems, envelope insulation upgrades, and new roof. Replace all interior finishes, doors, millwork, and specialties. MEP replacement except for boilers, main switchgear, and hot water heaters which are relatively new. Minimal sitework.
3	South Side	K-5	1973	87,000	2	17	$36.9 million	Like-New Renovation with MEP replacement and exterior wall upgrades and mold remediation. Roof is new. Renovation including space re-configurations and an elevator upgrade. Replace glazing and entrance systems. Replace all finishes, doors, millwork, and specialties. MEP replacements except heat exchanger, rooftop airconditioning unit, rooftop fan unit and hot water heaters which are relatively new. Average amount of sitework.
4	Northeast	6 to 8	1961	74,000	2	31	$34.4 million	Like-New Renovation including space re-configurations and an elevator addition for the 2-story portion. Replace glazing and entrance systems. Replace all finishes, doors, millwork, and specialties. Roof is new. MEP replacements except boilers. Major sitework and reconfiguration of drives and parking.
5	Hubbell	K-5	1961	63,000	1	20	$20.1 million	Light renovation including ceiling replacements and lighting upgrades throughout, flooring replacements, and toilet room replacements and expansions. Complete MEP system replacements required. Sitework minimal.
							*Before State Reimbursement	

Other capitol upgrades needed

6	Chippens Hill	6 to 8	1993	166,000	3	24		In approx. 5-10 years, the following systems should be replaced: ceilings, lighting, boilers, pumps, and fin tube radiation. Heat gain in the glazed stair towers should also be addressed.
7	Central High	9 to 12	1967	221,000	3	36		Generator should be replaced now. In approx. 5-10 years, the following systems should be replaced: ceilings, lighting, fan equipment, hot water heaters, and condensing units.
8	Eastern High	9 to 12	1957	235,000	2	50		In 5 years, the following should be replaced: Entrance systems, flooring, air conditioning system, fan equipment, ceilings, and lighting. Also, the main office should be relocated to have control of the building entrance.

APPENDIX D

BRISTOL SCHOOLS STUDY
CAPITAL IMPROVEMENTS SUMMARY
OPTION 4 SCOPE SUMMARY

Item	School	Grades	Year Built	SF	Stories	Acres	Cost of Work*	Description
1	Stafford	K-5	1950	61,000	1 w/usable lower level	22	$0	CLOSE / DEMO / SELL
2	Edgewood	PK-5	1957	44,000	1	15	$0	CLOSE / DEMO / SELL
3	South Side	K-5	1973	87,000	2	17	$36.8 million	Like-New Renovation with MEP replacement and exterior wall upgrades and mold remediation. Roof is new. Renovation including space re-configurations and an elevator upgrade. Replace glazing and entrance systems. Replace all finishes, doors, millwork, and specialties. MEP replacements except heat exchanger, rooftop airconditioning unit, rooftop fan unit and hot water heaters which are relatively new. Average amount of sitework.
4	Northeast	6 to 8; change to PK-8	1961	74,000 existing; expand to create total of 140,000 after construction	2	31	$72.4 million	**OPTION A:** Addition of 66,000 SF. Like-New Renovation of 74,000 sf including space re-configurations and an elevator addition for the 2-story portion. Replace glazing and entrance systems. Replace all finishes, doors, millwork, and specialties. Roof is new. MEP replacements except boilers. Major sitework and reconfiguration of drives and parking. **OPTION B:** Replace existing building with new 140,000 two-story building. Renovation of entire site including new drives, parking, playscapes and ballfields, and demolition of existing building. **OPTION C:** Like-New Renovation of 74,000 sf as elementary school as described in OPTION A; build new 66,000 sf middle school building with connector to existing.
5	Hubbell	K-5	1961	63,000	1	20	$20.1 million	Light renovation including ceiling replacements and lighting upgrades throughout, flooring replacements, and toilet room replacements and expansions. Complete MEP system replacements required. Sitework minimal.

*Before State Reimbursement

Other capitol upgrades needed

6	Chippens Hill	6 to 8	1993	166,000	3	24		In approx. 5-10 years, the following systems should be replaced: ceilings, lighting, boilers, pumps, and fin tube radiation. Heat gain in the glazed stair towers should also be addressed.
7	Central High	9 to 12	1967	221,000	3	36		Generator should be replaced now. In approx. 5-10 years, the following systems should be replaced: ceilings, lighting, fan equipment, hot water heaters, and condensing units.
8	Eastern High	9 to 12	1957	235,000	2	50		In 5 years, the following should be replaced: Entrance systems, flooring, air conditioning system, fan equipment, ceilings, and lighting. Also, the main office should be relocated to have control of the building entrance.