

Fairfield Public Schools Enrollment Projections and Elementary School Capacity Study *Final Report*

December 14, 2010



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INTRODUCTION

The focus of this study was to develop alternative enrollment projection methodologies for Fairfield Public Schools (FPS) that would provide greater accuracy for a three- to ten-year period in the future, and to evaluate the capacities of all eleven elementary schools.

In order to develop accurate long-term enrollment projections, MGT used four enrollment projection models. These models included:

- Cohort survival
- Linear regression
- Average annual increase
- Students-per-household

In addition, MGT conducted an analysis of the capacity and utilization of the elementary school facilities. The capacity of each elementary school was calculated using the FPS model, the MGT Functional Capacity Model and an Operational Model. Utilization rates were developed for each capacity model.

The report is divided into two sections:

- Section 1 details the enrollment projections.
- Section 2 contains the capacity and utilization analysis.





SECTION 1: DEMOGRAPHIC ANALYSIS AND ENROLLMENT PROJECTIONS

MGT developed enrollment projections for the ten-year planning period, using several enrollment projection models to evaluate enrollment patterns for the district. It is expect that there will be a marginal increase in district-wide enrollment over the next ten years. The specific impact of future student enrollment on school building capacities is outlined in Section 2.0 of this report

NOTE: The majority of calculated numbers have been rounded from several decimal places down to two for ease in understanding the analysis presented in this report. As a result, some of the table totals may not match exactly the sum of the numbers that appear in the columns.

HISTORICAL DATA

An analysis of both quantitative and qualitative data forms the basis for MGT's enrollment projections. Quantitative data comes from the district, the town, and the U.S. Census Bureau ("Census"). Quantitative data provides the basic understanding of trends "by the numbers." Qualitative data is gathered from conversations with district officials familiar with enrollment trends, Town of Fairfield planners, and other town personnel, and provides the "why" behind the numbers. Both forms of data are critical to the preparation of enrollment projections for this study.

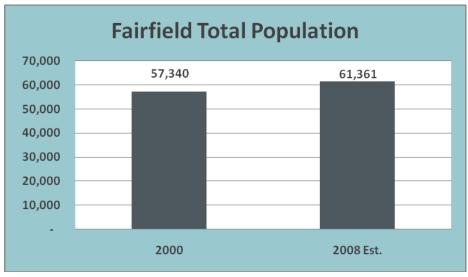
Fairfield Population Trends

It is important to understand the context in which enrollment trends occur within the district. The Town of Fairfield had a population of 57,340 in 2000; estimates indicate that number has increased to 61,361 in 2008. *Exhibit 1-1* shows the increase in total population from 2000 to 2008.





Exhibit 1-1 Town of Fairfield Total Population - 2000 to 2008

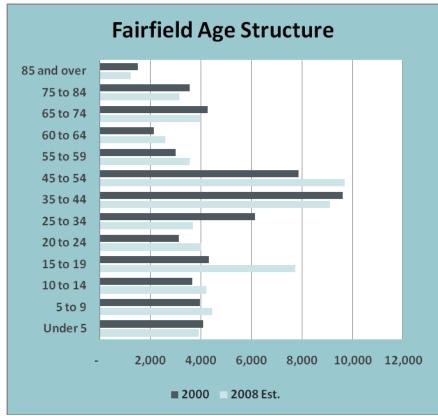


Source: U.S. Census Bureau.

An examination of the age structure of the Town of Fairfield reveals that the largest segment of the population is between 35 and 54 years of age. *Exhibits 1-2* and *1-3* illustrate the age structure of the Fairfield population in 2000 and in 2008.



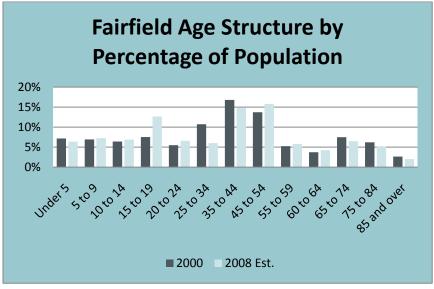




Source: U.S. Census Bureau.







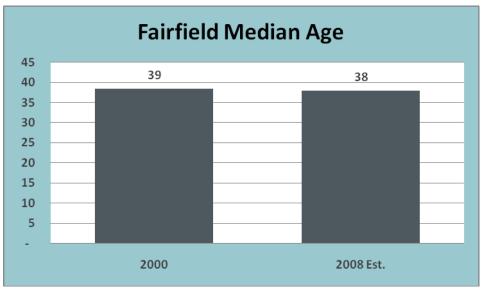
Source: U.S. Census Bureau.

Analysis of the age structure does not necessarily lead to any specific conclusions, but it does offer some interesting observations. Note that the population from 2000 to 2008, the *Under 5* age group declined 5%, and therefore fewer younger students will be entering the school system, while the *15 to 19* age group over the same period shows a significant increase indicating a major portion of the secondary grade level population will be leaving the school system over the next few years. Also note that the age groups between *45 to 54* and *60 to 64* show an increase from 2000 to 2008. There is growth in the older population, while the younger population is generally declining.

Exhibit 1-4 shows a slight decrease in the median age from 2000 to 2008.



Exhibit 1-4 Town of Fairfield Median Age of Population - 2000 to 2008



Source: U.S. Census Bureau.

The percent change in population for each age group further reveals that the population in Fairfield is getting older. *Exhibit 1-5* shows the percent change in population for each age segment. The *Under 5* population decreased approximately 11 percent from 2000 to 2008. In addition, the *5 to 9* and *10 to 14* age segments increased 4.5 percent and 7.6 percent, respectively, over that same time period. This data suggests a decline in the number of future school age children for the near term.

Exhibit 1-5
Fairfield
Percent Change in Population - 2000 to 2008
(by Age Segment)

Age Segment	% Change
Under 5	-10.8%
5 to 9	4.5%
10 to 14	7.6%
15 to 19	67.7%
20 to 24	19.7%
25 to 34	-43.9%
35 to 44	-11.6%
45 to 54	15.2%
55 to 59	10.6%
60 to 64	13.0%
65 to 74	-13.2%
75 to 84	-17.2%
85 and over	-24.1%



Source: U.S. Census Bureau.

Exhibit 1-6 illustrates the racial structure in Fairfield for 2000 and 2008. The white population increased from 53,699 in 2000 to 55,091 in 2008, but decreased as a percentage of total population (-3.8 percent). Other races accounted for the remaining ten percent of the Fairfield population in both 2000 and 2008.

Exhibit 1-6 Fairfield Racial Structure - 2000 to 2008 (Total Population by Race)

	2000	2008	Change	% Change	% of 2000 Population	% of 2008 Population	Change in % of Population
White	53,669	55,091	1,422	2.6%	93.6%	89.8%	-3.8%
Hispanic or Latino	1,340	2,651	1,311	97.8%	2.3%	4.3%	2.0%
Black or African American	598	807	209	34.9%	1.0%	1.3%	0.3%
American Indian and Alaska Native	30	180	150	500.0%	0.1%	0.3%	0.2%
Asian	1,157	1,989	832	71.9%	2.0%	3.2%	1.2%
Native Hawaiian and Other Pacific Islander	12	20	8	66.7%	0.0%	0.0%	0.0%
Other	76	122	46	60.5%	0.1%	0.2%	0.1%
Two or more races	458	501	43	9.4%	0.8%	0.8%	0.0%

Source: U.S. Census Bureau.

The data presented thus far builds the context for the following discussion regarding future FPS enrollment.



Historical Enrollment

The core body of data used to develop an enrollment projection is historical enrollment. Total enrollment in the Fairfield Public Schools stood at 8,246 students in 2001. Since then, enrollment has increased to 10,026 in 2010. *Exhibit 1-7* details the enrollment history of K-12 students in the district for the past ten years. Historical district enrollment excludes Special Ed and ECC students. Alternative high school students are included in the 9-12 grade band. *Exhibit 1-8* charts the data shown in *Exhibit 1-7*.

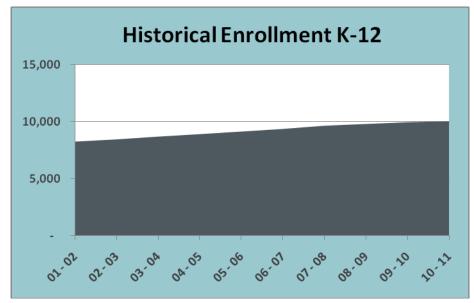
	2001 - 02	2002 – 03	2003 - 04	2004 - 05	2005 - 06	2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11
К	736	696	791	762	801	822	736	786	722	770
1	708	767	721	792	806	806	848	750	798	741
2	720	716	772	729	784	793	810	843	753	809
3	664	723	715	772	716	806	822	816	853	760
4	699	668	712	696	768	731	839	818	826	848
5	649	696	650	723	689	769	748	845	820	830
6	714	654	690	658	731	701	775	755	855	824
7	641	719	660	704	661	726	709	780	766	845
8	661	641	696	661	705	661	737	729	790	768
9	561	608	608	661	652	704	660	711	716	779
10	552	552	608	601	638	618	701	646	690	704
11	458	538	533	598	586	642	614	686	646	688
12	483	462	526	541	586	574	636	624	699	660
K-5	4,176	4,266	4,361	4,474	4,564	4,727	4,803	4,858	4,772	4,758
6-8	2,016	2,014	2,046	2,023	2,097	2,088	2,221	2,264	2,411	2,437
9-12	2,054	2,160	2,275	2,401	2,462	2,538	2,611	2,667	2,751	2,831
Total	8,246	8,440	8,682	8,898	9,123	9,353	9,635	9,789	9,934	10,026

Exhibit 1-7 Fairfield Public Schools Enrollment History 2001-2010

Source: Fairfield Public Schools, 2010.



Exhibit 1-8 Fairfield Public Schools Historical Enrollment 2001-2010

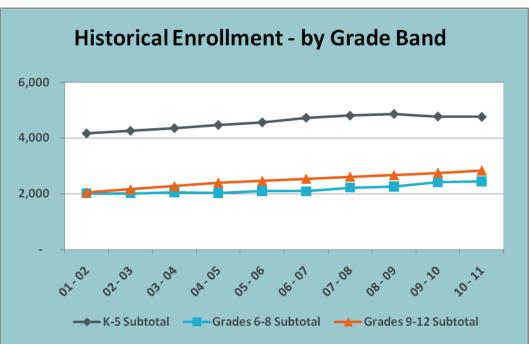


Source: Fairfield Public Schools, 2010.





An examination of historical enrollment at the grade-band level reveals that an increase in overall enrollment over the last ten years has been led by an increase of enrollment at the 9-12 grade band, which has increased 37.83 percent since 2001. The 6-8 grade band also increased in enrollment by 20.88 percent. The K-5 grade band increased by 13.94 percent. *Exhibit 1-9* illustrates the historical enrollment for each grade band.







Source: Fairfield Public Schools, 2010.

A closer look at historical enrollment at individual grade levels reveals a clear trend of fluctuating but sustained growth of one to three percent annually. Elementary grade-level enrollment data have all historically trended upward with similar rates of annual increase. Likewise, the middle and high school grade-level enrollment data indicate the same overall increasing trend in historical enrollment. The following Exhibits 1-10, 1-11, and 1-12 illustrate the historical enrollment for each grade level.

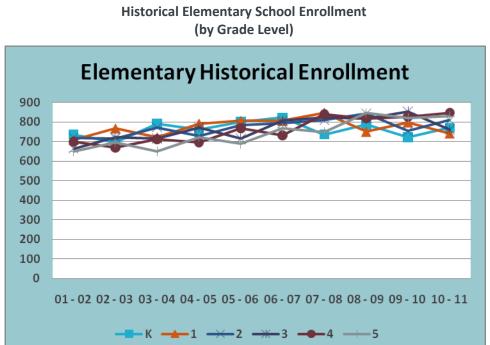
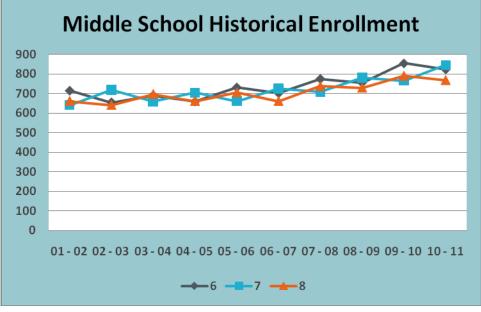


Exhibit 1-10 **Fairfield Public Schools**

Source: Fairfield Public Schools, 2010.

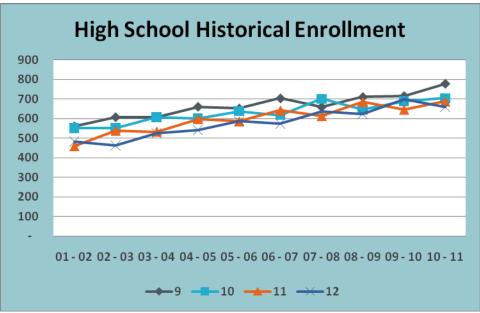


Exhibit 1-11 Fairfield Public Schools Historical Middle School Enrollment (by Grade Level)



Source: Fairfield Public Schools, 2010.





Source: Fairfield Public Schools, 2010.



The trends observed in the historical enrollment data will form a key component of the enrollment projections prepared as a part of this study.

Live Births and Kindergarten Enrollment

A second key component to analyzing potential future enrollment is to examine live-birth trends in the town and the live-births-to-kindergarten capture rate. A steady or increasing birth rate in the town could lead to an increase in kindergarten enrollment in the district, which would also push enrollment for subsequent grade levels higher. In Fairfield, live births have been declining since 2005. However, the number of live births in Fairfield has been fluctuating between a low of 567 in 2009 to a high of 841 in 2000. Exhibit 1-13 shows the trend of historical live births for the town. The 2010 live-birth number is estimated using linear regression.

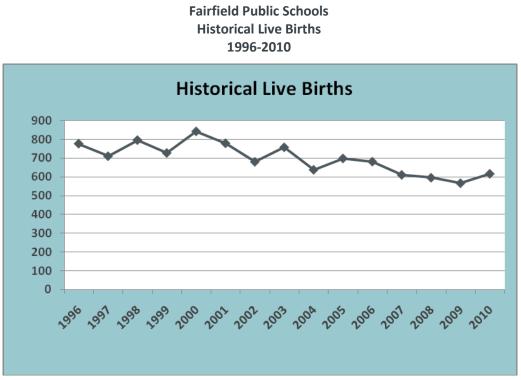
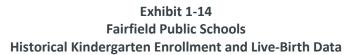


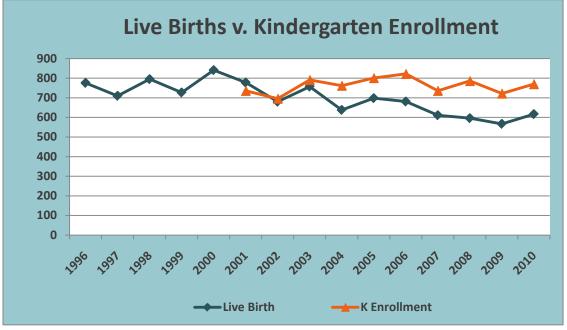
Exhibit 1-13

Source: Connecticut Department of Public Health, 2009.



When examining the ratio of live-births-to-kindergarten enrollment, live-birth data is collected for the preceding fifteen years and kindergarten enrollment for the preceding ten years. For example, a child born in 1990 would enroll in kindergarten at the age of five. Therefore, in this analysis, we are looking at how many children are enrolled in kindergarten as compared to the number of children born in the town five years prior to a particular school year. *Exhibit 1-14* compares the district's historical kindergarten enrollment to the live-birth data.





Source: Connecticut Department of Public Health, 2009.

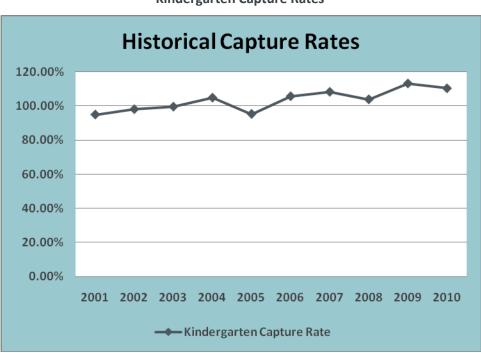
Two statistics are critical to understanding the relationship between live births and kindergarten enrollment in the district: the correlation coefficient and the capture rate.

The correlation coefficient calculates the relationship between two series of data. A correlation coefficient of *1* indicates a strong relationship; a correlation coefficient of *0* indicates a weak relationship. For FPS, the correlation coefficient for kindergarten enrollment to live births is 0.679, which indicates a fairly strong relationship and therefore the live-birth rate is a good indicator of future kindergarten enrollment. However, linear regression models project a significant decrease in live births which would have impacted the kindergarten forecast. For this reason, a projection model using kindergarten linear regression was used instead of the live birth to kindergarten ratio. This methodology more accurately aligns with historical kindergarten enrollment in the district.

The capture rate measures the percentage of live births that resulted in kindergarten enrollment five years later. Over the last ten years, the district's capture rate has averaged 103.36 percent, and the capture rate shows an overall increasing trend as *Exhibit 1-15* illustrates. This capture rate, in excess of



100 percent indicates that students are migrating into the community as demonstrated by a ten-year increase of 4.6 percent in overall kindergarten enrollment.







Housing Units

A third key piece of data used to develop enrollment projections is analyzing the trends in housing units in the town. The U.S. Census Bureau recorded 21,029 households in Fairfield in the 2000 Census. The census data provides a starting point for this analysis, but building permits provide additional information upon which to base an assumed number of households following the 2000 Census.

Since 2005, the number of housing permits issued each year in Fairfield has significantly decreased. Exhibit 1-16 illustrates the number of housing permits issued each year since 2005 in Fairfield, which includes single-family building permits. An official at the building department for the Town of Fairfield indicated that overall housing starts are down significantly but a number of permits for remodel and renovation have been issued in the district. It is difficult to determine the exact impact, but it is reasonable to assume these construction activities will generate some increase in student enrollment.

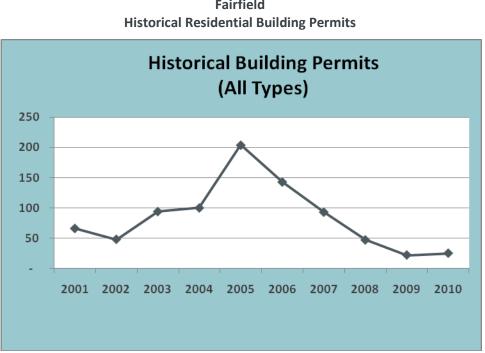


Exhibit 1-16 Fairfield

Source: Connecticut State Data Center Fairfield K-12 Enrollment 2009-2030.



Exhibit 1-17 projects the number of housing units for Fairfield through 2020. Normally, a projection would be based on historical trends, but in Fairfield's case, the historical trend of housing permits would have led to a decline in the number of existing housing units. Consequently, we have projected the maximum number of permits that could be realized under the current growth limits of two percent per year and used this factor to project housing units. Clearly, the actual number of permits and resulting housing units will be dependent on the state of the local economy, which no one can predict at this point. To counter the sharp drop in housing starts as a result of recent economic events, MGT used a five percent increase per year starting in 2012 through 2016. From 2017-2020, the percentage of increase was reduced to two percent. The percentages used reflect typical housing-start activity after previous economic downturns. These numbers were reached through various interviews with the Greater Fairfield Board of Realtors, the Connecticut Real Estate Commission, and the Town of Fairfield Town Plan and Zoning department.

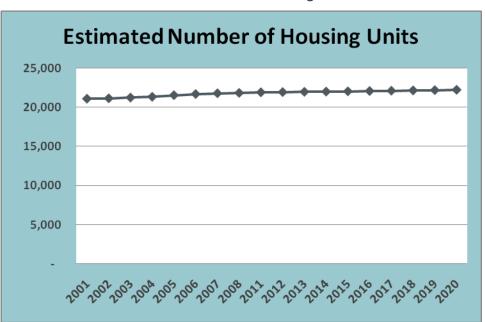


Exhibit 1-17 Town of Fairfield Estimated Number of Housing Units

Source: MGT of America, Inc., 2010.



Conclusions and Observations About Historical Data

Based on the analysis of data presented in this section, coupled with the examination of demographic trends specific to Fairfield Public Schools, we have concluded the following regarding student enrollment over the next ten years:

- Live births are leveling off, which could lead to the stabilization of enrollment throughout the district. This continued trend will, in all likelihood, result in fewer students entering the primary grades over the next three to five years. However, students born outside the area are migrating into the district. This in-migration has the potential to slightly offset the declining birth rate.
- Housing units are projected to increase and the majority of real estate capacity within the district has been built out. Although housing permits may increase the number of overall students generated, it will not have significant impact on future enrollment.
- The population is getting older, which will lead to fewer students in the future. According to the Census, the fastest growing segments of the population are the 15-19 and the 44-65 age groups.
- The in-migration population primarily consists of the 44 -65 and the 15-19 (the largest segment) age groups. This combination will produce an overall population increase in the town of Fairfield, but will not significantly increase the number of school-aged children for the planning period.

OBSERVATIONS

Primary Grades: Over the next three years student populations at the primary grades are predicted to fluctuate slightly from an increase of three percent to a decrease of six percent annually. These fluctuations will abate in the fourth and fifth years with district-wide annual growth between one and two percent. It should be noted that McKinley and Stratfield elementaries show significant increases in student population based on historical bubbles of enrollment.

Middle Schools: It is projected that middle school enrollment will increase slightly at Fairfield Woods Middle School and Tomlinson Middle School. A decrease is projected for Ludlowe Middle School. In years two through four, a continuous decline in student enrollment occurs across 6-8 grade bands district-wide. The projections fluctuate in years five through ten resulting in an overall decline in middle school student populations.

High Schools: The high school population is growing steadily at both Warde High School and Ludlowe High School. Enrollment at those locations is expected increase one to five percent annually in years one through three. The trend continues in years five through six, but the annual increase amounts are in the two- to three-percent range. By year ten, it is expected that there will be an overall increase of high school enrollment by as much as 600 or more students.

District: In general, the district will continue to grow with a projected increase of 850 students or more by the year 2020. Although this sounds like a large number, it equates to about a one percent gain annually over the next ten-year period. It is important the district examine the expanded growth of



both primary and high school sites as these grade levels will produce the most volatility over the projection period and may require substantial adjustments in site capacity.

ENROLLMENT PROJECTION METHODOLOGY

Enrollment projections are merely an *estimate* of future activity based on the historical data and information provided. As demonstrated by the district calculations over the past ten years, there can be constant variations in growth. These numbers can be highly accurate, but it must be remembered that the numbers are still a projection or estimate. During the implementation of any of the recommendations provided, it is critical that the district reassess these numbers on a regular basis and adjust plans accordingly.

To identify trends and prepare for adequate spaces, teaching staff and materials and supplies, educational leaders use several methods of projecting enrollment. Among the most commonly used models are *Average Percentage Increase, Cohort Survival, Linear Regression*, and *Student-per-Housing Unit* models. Because no one model is foolproof, MGT generates a weighted average of these four "base" models to arrive at its enrollment projection.

A rule of thumb when forecasting enrollment is that the models should use as many years of historical data as there are years in the projection period. In other words, if the model is projecting enrollment for five years from now, then five years of historical data should be used. If the model is projecting enrollment for ten years from now, then ten years of historical data should be used. Each of the following "base" models draw data in this manner for their calculations.

Average Percentage Increase Model

This model calculates future school enrollment growth based on the historical average growth from year to year for each grade level. This simple model multiplies the historical average percentage increase (or decrease) by the prior year's enrollment to project future enrollment estimates. For example, if enrollment in the first grade decreased five percent from 2000 to 2001 and decreased seven percent from 2001 to 2002, then the average percentage change would be a six percent decrease, and six percent would be the factor used to project future enrollment in this base model.

Linear Regression Model

This model uses a statistical approach to estimating an unknown future value of a variable by performing calculations on known historical values. Once calculated, several future values for different future dates can then be plotted to provide a trend line or "regression line". MGT has chosen a "straight-line" model to estimate future enrollment values, a model that finds the best fit based on the historical data.

Cohort Survival Model

This model calculates the growth or decline in a grade level over a period of ten years based on the ratio of students who attend each of the previous years, or the "survival rate". This ratio is then applied to the incoming class to calculate the trends in that class as it "moves" or graduates through the school



system. For example, if history shows that between the first and second grades, the classes for the last ten years have grown by an average of 3.5 percent, then the size of incoming classes for the next ten years is calculated by multiplying them by 103.5 percent. If the history shows a declining trend, the multiplying factor would be 100 percent minus the declining trend number.

The determination of future kindergarten enrollment estimates is critical, especially for projections exceeding more than five years. There are two methods of projecting kindergarten enrollment as previously discussed on pages 13-14. The first model is based on the correlation between historical birth rates (natality rates) and historical kindergarten enrollment. The second model uses a linear regression line based on the historical kindergarten enrollment data. For this study, the linear regression model based on kindergarten enrollment was used because the estimated live-birth numbers generated from linear regression showed a significant decline and led to unrealistic kindergarten projections.

Students-Per-Household Model

This last model utilizes the estimated number of households as its base data. Using the housing unit data and historical enrollment data, MGT created a *student generation factor* (SGF) for each projected housing unit. By taking the total enrollment by grade level and dividing it by the current housing levels, a student generation factor was calculated for each grade level. This factor indicates the number of students within each grade level that will be generated by each new housing unit.

Once each of these four base models has been calculated, MGT generates a weighted average of each of the models. A weighted average allows the analysis to reflect all of the trends observed in the historical data and the over-arching themes from the qualitative information gathered in this process. The weighted average also works to maximize the strengths of each of the base models.

Two models, the Average Percentage Increase Model and the Linear Regression Model, emphasize historical data. These models are quite effective predictors if there is no expectation of unusual community growth or decline and student population rates have minimal fluctuation.

The Cohort Survival Model also uses historical enrollment numbers, but takes into account studentmobility patterns and the effects of the natality rates in prior years. The Cohort Survival Model is perhaps the best-known predictive tool using this type of data. However, like the Annual Percentage Annual Increase Model and the Linear Regression Model, the Cohort Survival Model loses its predictive capabilities in communities that experience, or are expecting to experience, more rapid growth or rapid decline.

The Students-Per-Household Model allows the planner to take into account projections for housing developments and general growth in the town. This model looks forward and is based on the input from local planners. The planning information is important and the district should continue to monitor this information.

Approach

In an effort to examine all aspects of current and future student enrollment MGT developed specific models of analysis to examine multiple factors within Fairfield Public Schools. MGT began by incorporating the quantitative data into a series of projection methodologies. The methodologies used



were average percent increase, linear regression, cohort survival and student per housing unit. Each model was then weighted based on the overall influence the model would have in each calculation. The purpose of this weighting is to allow for the mitigation of anomalies that occur overtime in a district. This mitigation or flattening process allows for consistent results from the projections based on the quantitative components of the analysis. Ultimately, a blended result from each model is developed and applied to the appropriate populations.

In building the ten-year enrollment projections, MGT calculated the first two years using a cohort survival method, a transition year calculation using an annual average weighting and the final seven-year model based on an average percent increase (20 percent), students-per-housing unit (ten percent), for a cohort survival (35 percent), and a linear regression (35 percent). The weightings take into account the demographic trends of the community including; the decline in birth rates, the aging population, and a 90 percent residential build out of property within the district.

In the development of the first year projections, a straight cohort model was used to provide a realistic grade-by-grade projection when compared to 2010 grade-level enrollment. This single-model application provided FPS with continuity in transition to a multi-projection methodology.

Exhibit 1-18 identifies the weights used in this analysis.

Weighting Factors									
Model	ES and HS Weight 2014-2020	MS Weight 2011-2020 ES and HS weight 2011-2012							
Average Percentage Annual Increase	0.2	0							
Students-per-Household	0.1	0							
Cohort Survival	0.35	1							
Linear Regression	0.35	0							

Exhibit 1-18 Model Weights Used to Generate Projections

ES and HS Projection 2013 is a transition year based on the avearge of the prior and subsequent projection years Source: MGT of America, Inc., 2010.

MGT weighted the Average Percentage Increase Model .2, or 20 percent, so that the weighted average reflected the overall enrollment increase experienced by the district over the last ten years. The Students-Per-Household Model warranted only a .1, or 10 percent, weight because the district's new housing units are not expected to add many students to the district. The people inhabiting those units are not likely to have children. Also, this projection is based on the maximum allowable building units, which is unlikely to be the case in the current economy.

The Cohort Survival Model was weighted at .35, or 35 percent, to allow the consistency in the transition to a multi-model approach over the next ten years. Finally, the Linear Regression Model was weighted



.35, or 35 percent, to prevent anomalies in the last ten years from distorting the "line of best fit" generated by the linear regression analysis.

FPS MODEL MODIFICATION AND JUSTIFICATION

- Models for Burr Elementary School used seven years worth of historical enrollment data to generate projections. Burr Elementary School opened in the 2004-05 school year.
- Models for Dwight Elementary School only used seven years worth of historical enrollment data. A significant number of Dwight Elementary School students went to Burr Elementary School when it opened in 2004-05.
- The Cohort model for Fairfield Woods Middle School used a six-year enrollment history, from years after the addition of Burr Elementary School
- The district chose to use historical elementary student numbers to populate the historical 6-8 grade student numbers when developing high school feeder pattern enrollments. This may result in a lack of capturing 6-8 students entering the system from private or charter schools.
- Models for Ludlowe High School used six years of historical enrollment data. It began serving grades 9-12 in 2005-06.
- Models for Fairfield WardeHigh School used six years worth of historical enrollment data. A significant number of students went to the new Fairfield Ludlowe High School in 2005-06 when it began serving grades 9-12.
- Each school's cohort is based on the six-year average district survival ratio instead of schoolspecific survival ratios.

Exhibit 1-19 Fairfield District Cohort Survival Rate (Six-Year Average) 2005 - 2010

Grade	District Cohort Survival Ratio 2005-10
K to 1	1.02604
1 to 2	0.99844
2 to 3	1.01256
3 to 4	1.00971
4 to 5	1.00482
5 to 6	1.01039
6 to 7	1.00308
7 to 8	1.01004
8 to 9	0.98607
9 to 10	0.97355
10 to 11	0.99176
11 to 12	1.00117



All schools used a best-fit regression line to project kindergarten enrollment at a school instead
of live birth projections for the cohort model. This methodology was chosen due to the
declining live-birth projections in the district that would result in a declining kindergarten
enrollment, which has not proven historically accurate for this district.

ENROLLMENT PROJECTIONS – BY DISTRICT

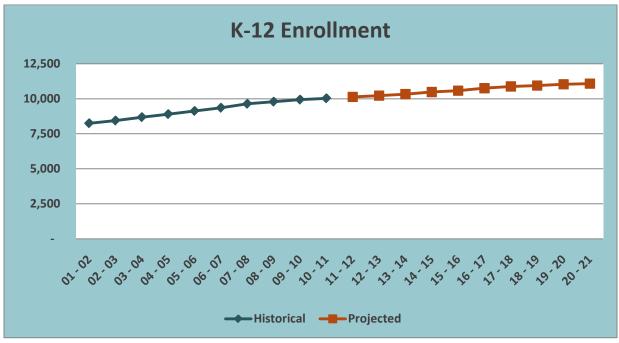
MGT has utilized the methodology described above to forecast enrollment for the district over the next ten years. *Exhibit 1-20* identifies the projected enrollment for the district. *Exhibit 1-21* illustrates the historical and projected enrollment for the entire district.

	Current	2011 - 12	2012 - 13	2013 - 14	2014 - 15	2015 - 16	2016 - 17	2017 - 18	2018 - 19	2019 - 20	2020-21
к	770.00	761.05	758.89	776.33	793.76	768.81	771.91	788.80	785.80	816.05	824.47
1	741.00	790.05	780.86	758.07	735.27	746.85	756.65	769.85	786.67	782.68	792.21
2	809.00	739.84	788.81	791.11	793.42	809.71	828.70	857.20	849.35	859.27	869.59
3	760.00	819.16	749.13	755.39	761.65	779.43	821.96	825.03	826.52	828.89	843.27
4	848.00	767.38	827.11	840.32	853.52	900.78	912.37	942.53	944.88	958.37	961.29
5	830.00	852.09	771.08	814.44	857.80	890.10	923.79	934.17	954.38	957.33	968.32
6	824.00	838.63	860.95	779.09	839.74	767.95	818.79	815.95	781.92	819.42	740.52
7	845.00	826.53	841.21	863.59	781.49	842.32	770.32	821.30	818.46	784.33	821.94
8	768.00	853.48	834.83	849.65	872.26	789.33	850.78	778.05	829.55	826.67	792.20
9	779.00	737.58	841.59	868.42	895.26	890.50	875.28	902.05	897.01	930.55	948.83
10	704.00	758.39	718.07	750.76	783.45	818.24	831.39	818.56	844.86	830.10	857.33
11	688.00	698.20	752.14	764.49	776.83	768.95	795.62	808.27	789.64	820.68	807.16
12	660.00	688.80	699.01	718.22	737.42	800.56	798.58	816.47	836.88	821.70	854.87
K-5	4,758.00	4,729.56	4,675.89	4,735.65	4,795.42	4,895.68	5,015.38	5,117.57	5,147.59	5,202.59	5,259.14
7-8	2,437.00	2,518.64	2,536.98	2,492.33	2,493.49	2,399.61	2,439.88	2,415.30	2,429.93	2,430.42	2,354.67
9-12	2,831.00	2,882.98	3,010.82	3,101.89	3,192.96	3,278.25	3,300.87	3,345.35	3,368.39	3,403.04	3,468.19
Total	10,026.00	10,131.18	10,223.68	10,329.87	10,481.87	10,573.54	10,756.12	10,878.21	10,945.90	11,036.05	11,081.99

Exhibit 1-20 Fairfield Public Schools Projected Enrollment



Exhibit 1-21 Fairfield Public Schools Historical and Projected Enrollment – K-12



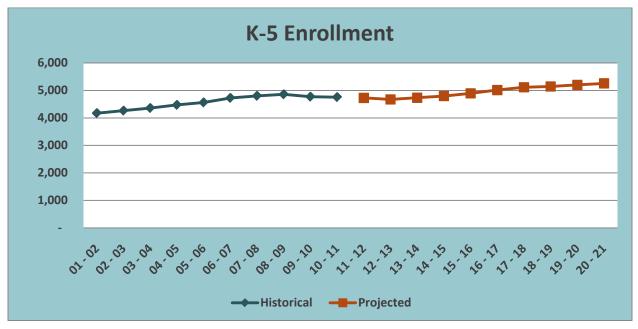
Source: MGT of America, Inc., 2010.

As *Exhibit 1-21* shows, enrollment across the district is expected to increase slightly year over year resulting in a nine-percent increase at the end of the ten-year planning period. This is a reasonable projection given the following:

- While there is a fairly good correlation between the live birth rate and the kindergarten enrollment, the capture rate has historically been more than 100 percent indicating a continued slight increase of students into the district at the kindergarten grade level.
- While the slowing economy has negatively affected the rate of construction of homes, there is a
 general consensus among stakeholders that the rates of building and migration into the town
 will increase once the economy improves.



The district is strongly encouraged to revisit these projections on an annual basis and update them to reflect current trends and data. The following *Exhibits 1-22* through *1-24* illustrate the historical and projected enrollment at each grade band.

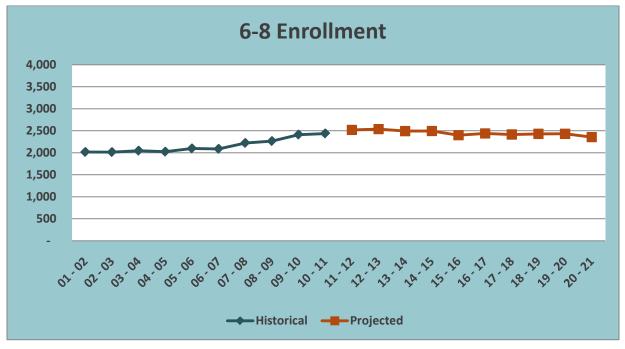






Source: MGT of America, Inc., 2010.

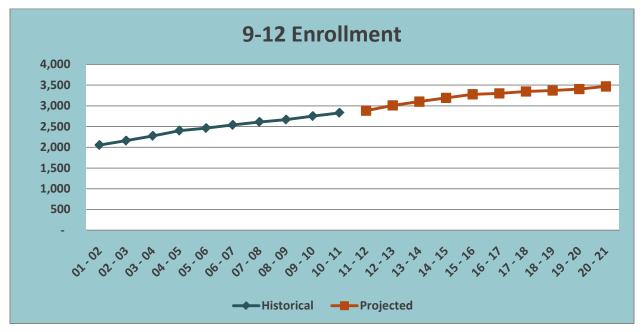
Exhibit 1-23 Fairfield Public Schools Historical and Projected Enrollment – 6-8



Source: MGT of America, Inc., 2010.



Exhibit 1-24 Fairfield Public Schools Historical and Projected Enrollment – 9-12



Source: MGT of America, Inc., 2010.

In the next subsection of this report, we will detail these projections by school.



ENROLLMENT PROJECTIONS – PROJECTIONS BY SCHOOL

School	2010-11 Enroll	2011-12	2012-13	2013-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21
Burr ES	400	394.70	396.10	386.11	376.11	379.09	374.76	379.43	375.64	371.96	368.42
Dwight ES	315	301.22	289.61	286.49	283.37	287.19	292.91	307.63	309.64	312.35	315.40
Holland Hill ES	333	328.47	325.09	319.09	313.09	322.32	324.54	324.69	321.82	318.66	315.93
Jennings ES	347	327.01	307.56	317.50	327.44	332.81	341.05	346.07	341.64	340.27	341.01
McKinley ES	471	486.98	482.28	506.73	531.19	536.26	550.24	561.89	582.91	603.67	625.23
Mill Hill ES	474	464.40	461.14	469.26	477.37	481.78	488.62	489.01	465.96	455.74	448.56
North Stratfield ES	483	490.48	477.62	475.48	473.34	492.79	513.14	522.55	524.71	527.69	532.24
Osborn Hill ES	538	543.78	544.85	551.72	558.60	565.11	576.69	585.85	577.70	579.49	582.98
Riverfield ES	451	429.33	422.62	427.77	432.93	438.81	452.91	471.55	490.00	500.68	509.45
Sherman ES	442	448.00	441.40	450.54	459.68	459.26	468.98	476.93	485.29	492.97	500.37
Stratfield ES	504	515.20	527.61	544.97	562.33	600.25	631.53	651.97	672.29	699.10	719.54
Fairfield Woods MS	668	755.13	835.60	914.93	914.97	860.13	847.61	836.43	821.22	793.77	745.22
Ludlowe MS	985	998.77	943.97	904.81	860.19	859.99	837.64	854.41	845.69	848.79	799.31
Tomlinson MS	784	764.74	757.41	672.59	718.33	679.49	754.62	724.46	763.02	787.87	810.13
Fairfield Warde HS	1,327	1,341.23	1,407.75	1,468.97	1,530.19	1,573.02	1,566.68	1,588.83	1,576.41	1,588.13	1,628.80
Fairfield Ludlowe HS	1,504	1,541.75	1,603.07	1,632.92	1,662.77	1,705.23	1,734.18	1,756.52	1,791.98	1,814.91	1,839.39
K-5	4,758	4,729.56	4,675.89	4,735.65	4,795.42	4,895.68	5,015.38	5,117.57	5,147.59	5,202.59	5,259.14
6-8	2,437	2,518.64	2,536.98	2,492.33	2,493.49	2,399.61	2,439.88	2,415.30	2,429.93	2,430.42	2,354.67
9-12	2,831	2,882.98	3,010.82	3,101.89	3,192.96	3,278.25	3,300.87	3,345.35	3,368.39	3,403.04	3,468.19
K-12	10,026	10,131.18	10,223.68	10,329.87	10,481.87	10,573.54	10,756.12	10,878.21	10,945.90	11,036.05	11,081.99

Exhibit 1-25 Enrollment Projections by School Fairfield Public Schools

*Excludes SpecEd and ECC School. Alternative students are included with the high schools and included with the 9-12 grade band. Source: MGT of America, Inc., 2010.

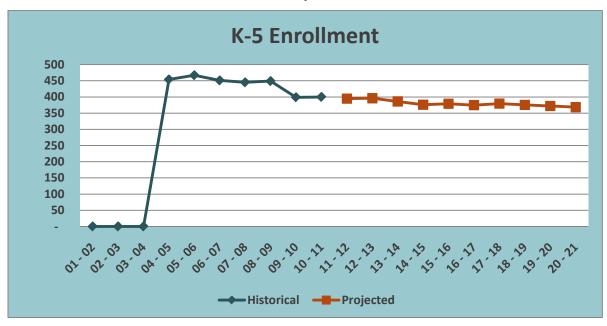


	Projected Enrollment												
Grade	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20	20 - 21			
к	62.14	61.36	63.30	65.25	68.41	62.89	61.91	61.66	61.42	61.18			
1	67.72	63.76	67.83	71.90	65.41	60.84	56.57	54.94	53.32	51.72			
2	57.91	67.61	76.36	85.10	85.88	81.14	82.07	82.56	83.11	83.74			
3	86.07	58.64	53.53	48.43	42.25	46.91	46.43	44.20	41.98	39.79			
4	57.55	86.90	67.26	47.62	55.56	54.93	59.60	58.71	57.83	56.94			
5	63.30	57.83	57.83	57.82	61.58	68.06	72.86	73.57	74.30	75.05			
K-5	394.70	396.10	386.11	376.11	379.09	374.76	379.43	375.64	371.96	368.42			

Exhibit 1-26 Fairfield Public Schools Burr Elementary

Source: MGT of America, Inc., 2010.

Exhibit 1-27 Fairfield Public Schools Burr Elementary Historical and Projected Enrollment





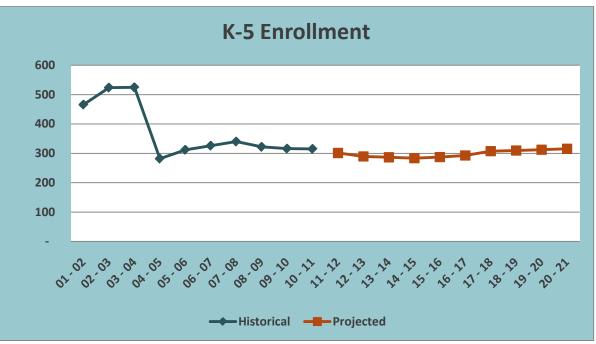
Dwight Elementary

	Projected Enrollment												
Grade	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20	20 - 21			
К	42.57	41.32	44.35	47.38	45.08	44.50	43.87	42.80	42.07	41.34			
1	50.27	43.68	38.70	33.72	34.34	33.85	36.18	35.19	34.30	33.40			
2	43.93	50.19	46.12	42.05	39.93	42.81	43.40	42.80	42.12	41.44			
3	46.58	44.48	48.96	53.43	57.51	57.80	62.55	64.11	65.83	67.68			
4	62.60	47.03	49.26	51.49	50.45	53.38	55.99	56.65	57.32	58.00			
5	55.26	62.90	59.10	55.31	59.88	60.58	65.65	68.09	70.72	73.54			
K-5	301.22	289.61	286.49	283.37	287.19	292.91	307.63	309.64	312.35	315.40			

Exhibit 1-28 Fairfield Public Schools Dwight Elementary

Source: MGT of America, Inc., 2010.





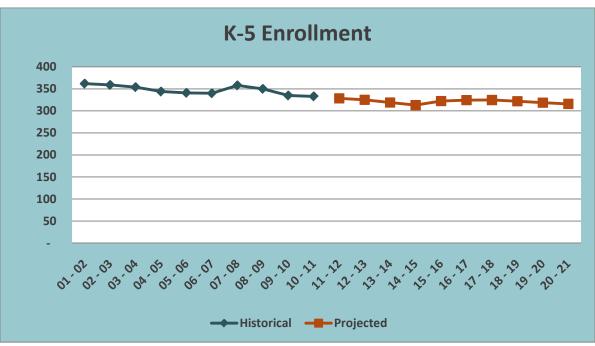


Holland Hill Elementary

	Projected Enrollment												
Grade	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20	20 - 21			
к	51.60	51.20	51.04	50.87	48.19	50.65	51.42	50.15	52.67	50.55			
1	55.41	52.94	45.83	38.73	47.37	47.80	47.21	48.63	47.52	49.81			
2	48.92	55.32	54.31	53.29	52.99	51.93	54.18	52.37	51.54	51.24			
3	55.69	49.54	55.52	61.51	60.78	62.70	60.35	57.88	57.89	59.15			
4	59.57	56.23	55.53	54.82	55.02	52.91	53.49	52.84	54.42	52.18			
5	57.27	59.86	56.86	53.86	57.97	58.55	58.05	59.94	54.63	53.00			
K-5	328.47	325.09	319.09	313.09	322.32	324.54	324.69	321.82	318.66	315.93			

Exhibit 1-30 Fairfield Public Schools Holland Hill Elementary







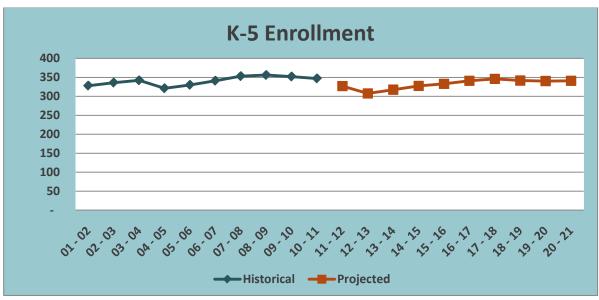
Jennings Elementary

Projected Enrollment										
Grade	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20	20 - 21
К	47.40	46.25	42.36	38.47	38.06	34.23	37.69	36.15	36.88	37.32
1	45.15	48.63	46.61	44.59	43.13	49.35	49.30	48.59	48.56	48.19
2	53.92	45.08	43.47	41.87	48.19	47.35	47.70	47.11	46.61	46.62
3	49.62	54.59	57.62	60.65	60.94	62.63	63.59	62.27	61.42	60.42
4	62.60	50.10	60.44	70.78	73.48	73.28	73.55	73.29	73.44	72.96
5	68.33	62.90	66.99	71.09	69.02	74.20	74.23	74.23	73.36	75.50
K-5	327.01	307.56	317.50	327.44	332.81	341.05	346.07	341.64	340.27	341.01

Exhibit 1-32 Fairfield Public Schools Jennings Elementary

Source: MGT of America, Inc., 2010.

Exhibit 1-33 Fairfield Public Schools Jennings Elementary Historical and Projected Enrollment





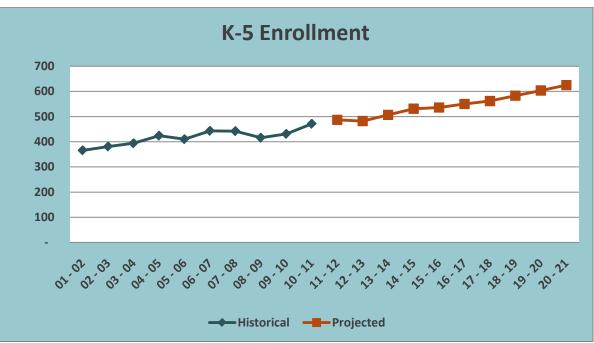
McKinley Elementary

Projected Enrollment										
Grade	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20	20 - 21
к	80.67	82.77	101.60	120.43	111.88	118.87	120.16	123.81	131.17	137.76
1	97.47	82.77	83.95	85.13	90.25	90.96	93.16	95.21	99.06	102.24
2	79.87	97.32	86.03	74.74	78.00	82.44	78.28	82.16	84.93	91.22
3	72.90	80.88	76.81	72.75	77.11	74.02	76.75	79.90	85.08	88.41
4	64.62	73.61	89.50	105.39	95.08	103.05	107.30	114.91	116.69	118.53
5	91.44	64.93	68.84	72.74	83.94	80.90	86.24	86.92	86.73	87.09
K-5	486.98	482.28	506.73	531.19	536.26	550.24	561.89	582.91	603.67	625.23

Exhibit 1-34 Fairfield Public Schools McKinley Elementary

Source: MGT of America, Inc., 2010.







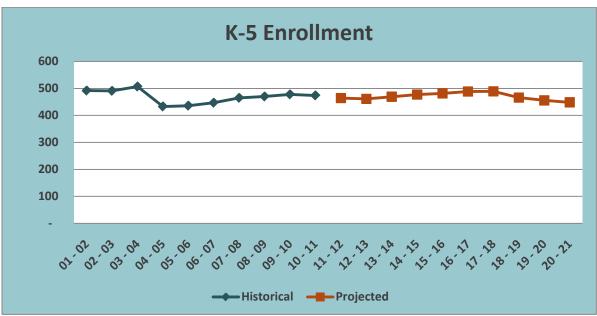
Mill Hill Elementary

Projected Enrollment										
Grade	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20	20 - 21
к	72.60	71.15	70.19	69.24	72.85	70.06	70.11	65.13	65.41	62.52
1	73.87	74.49	80.62	86.75	80.04	81.33	84.12	83.18	77.32	76.08
2	86.86	73.76	71.43	69.10	73.78	78.66	79.95	70.71	68.95	69.01
3	76.95	87.96	80.44	72.92	79.53	82.17	77.16	73.25	71.88	68.12
4	75.73	77.70	80.87	84.04	86.62	82.11	85.19	82.66	78.61	80.16
5	78.38	76.09	85.70	95.31	88.97	94.30	92.47	91.03	93.57	92.67
K-5	464.40	461.14	469.26	477.37	481.78	488.62	489.01	465.96	455.74	448.56

Exhibit 1-36 Fairfield Public Schools Mill Hill Elementary

Source: MGT of America, Inc., 2010.







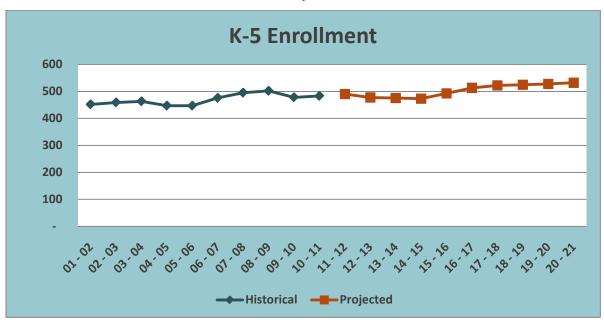
North Stratfield Elementary

	Projected Enrollment										
Grade	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20	20 - 21	
к	80.27	80.57	74.48	68.39	66.22	69.54	72.36	74.67	78.15	80.72	
1	77.98	82.36	71.70	61.04	66.72	68.41	73.74	74.87	74.49	78.47	
2	65.90	77.86	81.77	85.69	87.12	90.87	92.37	90.65	95.10	92.03	
3	88.09	66.72	74.64	82.55	86.80	89.31	90.65	92.55	88.65	92.52	
4	80.78	88.95	93.81	98.67	102.14	105.65	110.40	105.43	109.63	107.04	
5	97.47	81.17	79.07	76.98	83.79	89.36	83.02	86.55	81.66	81.46	
K-5	490.48	477.62	475.48	473.34	492.79	513.14	522.55	524.71	527.69	532.24	

Exhibit 1-38 Fairfield Public Schools North Stratfield Elementary

Source: MGT of America, Inc., 2010.

Exhibit 1-39 Fairfield Public Schools North Stratfield Elementary Historical and Projected Enrollment





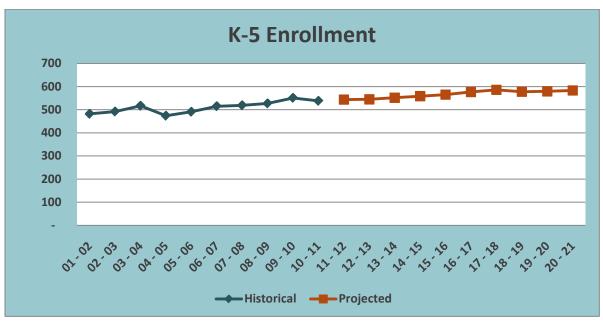
Osborn Hill Elementary

	Projected Enrollment										
Grade	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20	20 - 21	
к	90.13	89.87	90.97	92.07	91.93	92.02	91.18	85.97	87.93	87.70	
1	91.32	92.48	93.26	94.03	93.12	91.10	91.09	91.58	91.30	91.32	
2	86.86	91.17	94.45	97.72	94.92	96.93	101.22	99.58	98.81	100.62	
3	97.21	87.96	87.18	86.41	86.79	93.04	95.07	93.77	94.91	94.51	
4	84.82	98.15	97.36	96.56	101.68	104.58	105.55	106.36	105.74	106.31	
5	93.45	85.22	88.51	91.80	96.68	99.02	101.75	100.44	100.80	102.51	
K-5	543.78	544.85	551.72	558.60	565.11	576.69	585.85	577.70	579.49	582.98	

Exhibit 1-40 Fairfield Public Schools Osborn Hill Elementary

Source: MGT of America, Inc., 2010.

Exhibit 1-41 Fairfield Public Schools Obsorn Hill Elementary Historical and Projected Enrollment





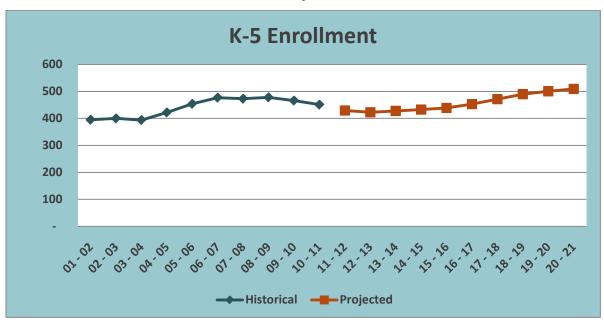
Riverfield Elementary

	Projected Enrollment										
Grade	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20	20 - 21	
к	71.73	71.05	67.42	63.79	58.81	51.25	56.46	60.38	64.54	64.21	
1	68.74	73.60	67.36	61.13	52.47	57.21	60.91	66.29	67.70	70.02	
2	65.90	68.64	62.99	57.35	65.11	68.28	73.06	73.13	75.69	76.19	
3	73.92	66.72	65.39	64.05	67.15	72.81	72.07	76.45	77.51	81.97	
4	67.65	74.63	79.50	84.36	90.68	91.02	96.07	97.08	99.90	94.31	
5	81.39	67.98	85.11	102.25	104.59	112.34	112.97	116.67	115.34	122.76	
K-5	429.33	422.62	427.77	432.93	438.81	452.91	471.55	490.00	500.68	509.45	

Exhibit 1-42 Fairfield Public Schools Riverfield Elementary

Source: MGT of America, Inc., 2010.

Exhibit 1-43 Fairfield Public Schools Riverfield Elementary Historical and Projected Enrollment





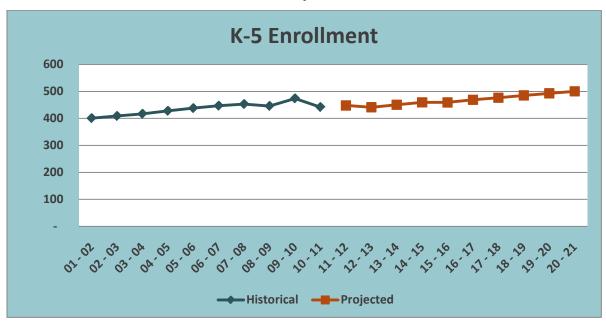
Roger Sherman Elementary

	Projected Enrollment										
Grade	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20	20 - 21	
к	69.53	68.94	73.24	77.54	65.41	69.44	68.55	70.58	71.21	70.43	
1	65.67	71.34	76.51	81.68	91.13	88.95	93.76	95.76	96.43	98.58	
2	89.86	65.56	65.03	64.51	58.34	62.85	64.84	65.84	65.40	67.05	
3	63.79	90.99	85.76	80.54	86.14	88.24	88.90	89.33	91.79	93.22	
4	79.77	64.41	68.12	71.84	80.74	81.78	83.01	84.37	86.31	89.67	
5	79.38	80.15	81.86	83.58	77.49	77.73	77.87	79.41	81.83	81.42	
K-5	448.00	441.40	450.54	459.68	459.26	468.98	476.93	485.29	492.97	500.37	

Exhibit 1-44 Fairfield Public Schools Roger Sherman Elementary

Source: MGT of America, Inc., 2010.

Exhibit 1-45 Fairfield Public Schools Roger Sherman Elementary Historical and Projected Enrollment





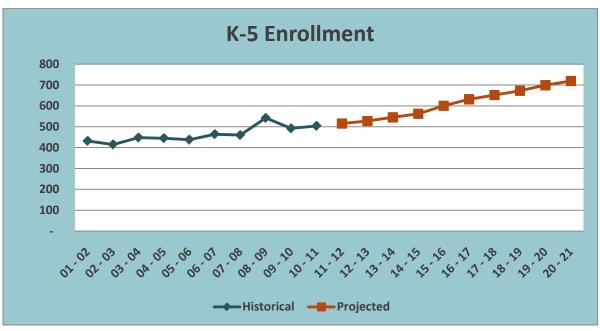
Stratfield Elementary

						-					
	Projected Enrollment										
Grade	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20	20 - 21	
к	92.40	94.42	97.37	100.32	101.98	108.45	115.08	114.51	124.60	130.73	
1	96.45	94.81	85.69	76.58	82.88	86.85	83.81	92.44	92.69	92.38	
2	59.91	96.30	109.15	122.00	125.45	125.46	140.12	142.44	146.99	150.45	
3	108.34	60.66	69.53	78.39	74.43	92.34	91.52	92.82	91.93	97.49	
4	71.69	109.40	98.68	87.96	109.34	109.68	112.38	112.57	118.49	125.19	
5	86.41	72.03	84.56	97.08	106.18	108.74	109.06	117.51	124.39	123.30	
K-5	515.20	527.61	544.97	562.33	600.25	631.53	651.97	672.29	699.10	719.54	

Exhibit 1-46 Fairfield Public Schools Stratfield Elementary

Source: MGT of America, Inc., 2010.

Exhibit 1-47 Fairfield Public Schools Stratfield Elementary Historical and Projected Enrollment





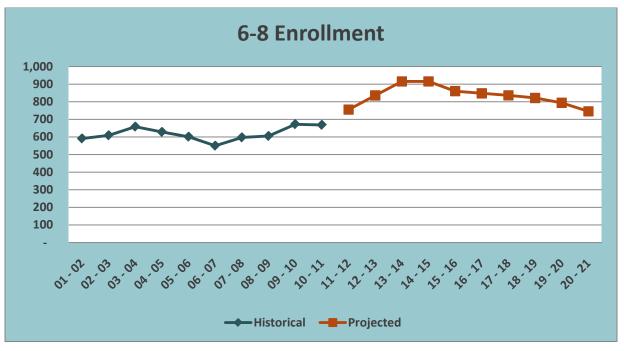
MIDDLE SCHOOLS Fairfield Woods Middle

Exhibit 1-48 Fairfield Public Schools Fairfield Woods Middle

	Projected Enrollment											
Grade	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20	20 - 21		
6	298.07	319.81	292.16	297.91	265.31	279.66	287.11	249.89	252.23	239.04		
7	214.66	298.98	320.79	293.06	298.82	266.13	280.52	287.99	250.66	253.00		
8	242.41	216.81	301.98	324.01	296.00	301.82	268.80	283.34	290.88	253.17		
6-8	755.13	835.60	914.93	914.97	860.13	847.61	836.43	821.22	793.77	745.22		

Source: MGT of America, Inc., 2010.

Exhibit 1-49 Fairfield Public Schools Fairfield Woods Middle Historical and Projected Enrollment



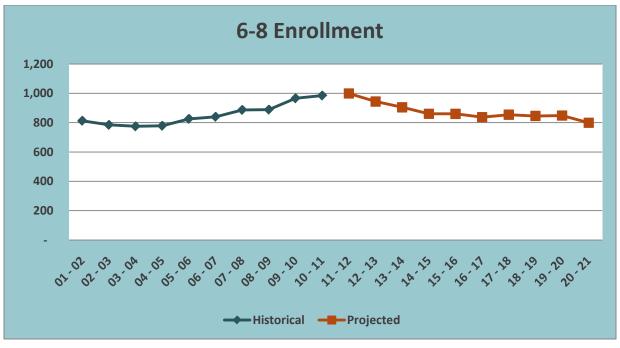


	Roger Ludlowe Middle										
	Projected Enrollment										
Grade	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20	20 - 21	
6	312.21	297.47	290.11	267.80	297.44	267.97	284.27	289.06	270.84	234.79	
7	330.01	313.17	298.39	291.00	268.63	298.35	268.79	285.15	289.95	271.67	
8	356.54	333.32	316.31	301.38	293.92	271.32	301.35	271.49	288.01	292.85	
6-8	998.77	943.97	904.81	860.19	859.99	837.64	854.41	845.69	848.79	799.31	

Exhibit 1-50 Fairfield Public Schools Roger Ludlowe Middle

Source: MGT of America, Inc., 2010.

Exhibit 1-51 Fairfield Public Schools Roger Ludlowe Middle Historical and Projected Enrollment





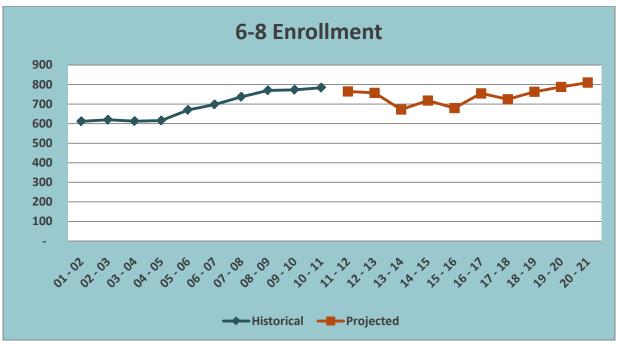
Tomlinson Middle

	Projected Enrollment										
Grade	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20	20 - 21	
6	228.35	243.66	196.82	274.03	205.20	271.16	244.57	242.98	296.36	266.69	
7	281.86	229.05	244.41	197.43	274.87	205.83	271.99	245.32	243.72	297.27	
8	254.53	284.69	231.35	246.87	199.41	277.63	207.90	274.72	247.79	246.17	
6-8	764.74	757.41	672.59	718.33	679.49	754.62	724.46	763.02	787.87	810.13	

Exhibit 1-52 Fairfield Public Schools Tomlinson Middle

Source: MGT of America, Inc., 2010.







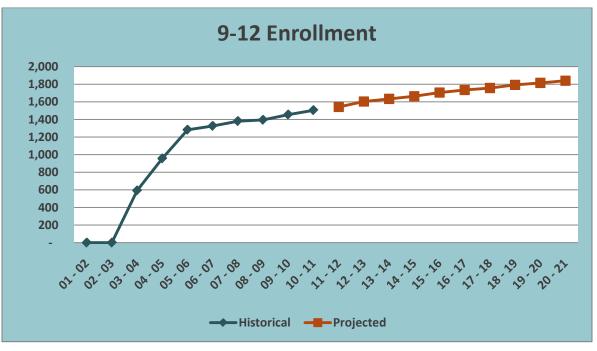
HIGH SCHOOLS Fairfield Ludlowe High

Exhibit 1-56						
Fairfield Public Schools						
Fairfield Ludlowe High						

	Projected Enrollment										
Grade	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20	20 - 21	
9	404.29	432.25	447.12	462.00	460.36	460.09	456.88	475.93	478.60	484.20	
10	396.23	393.59	410.76	427.92	443.66	438.58	445.86	456.13	470.07	473.28	
11	383.81	392.97	393.77	394.57	391.62	412.46	418.46	420.56	423.08	434.49	
12	357.42	384.26	381.27	378.28	409.59	423.06	435.32	439.35	443.16	447.42	
9-12	1,541.75	1,603.07	1,632.92	1,662.77	1,705.23	1,734.18	1,756.52	1,791.98	1,814.91	1,839.39	

Source: MGT of America, Inc., 2010.

Exhibit 1-57 Fairfield Public Schools Fairfield Ludlowe High Historical and Projected Enrollment





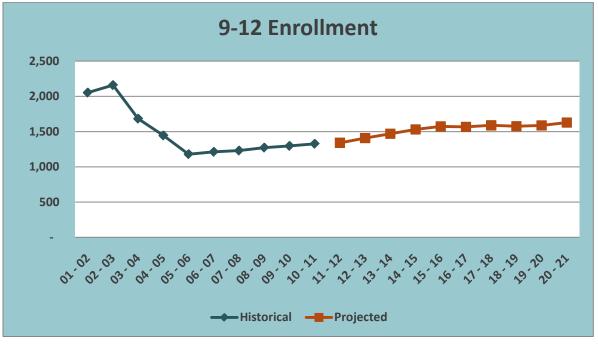
Fairfield Warde High

	Projected Enrollment										
Grade	11 - 12	12 - 13	13 - 14	14 - 15	15 - 16	16 - 17	17 - 18	18 - 19	19 - 20	20 - 21	
9	333.29	409.34	421.30	433.26	430.14	415.19	445.18	421.07	451.95	464.63	
10	362.16	324.48	340.00	355.53	374.58	392.81	372.69	388.73	360.03	384.05	
11	314.39	359.17	370.72	382.26	377.33	383.16	389.81	369.08	397.60	372.67	
12	331.39	314.75	336.95	359.14	390.97	375.52	381.15	397.53	378.54	407.45	
9-12	1,341.23	1,407.75	1,468.97	1,530.19	1,573.02	1,566.68	1,588.83	1,576.41	1,588.13	1,628.80	

Exhibit 1-54 Fairfield Public Schools Fairfield Warde High

Source: MGT of America, Inc., 2010.







SECTION 2: CAPACITY AND UTILIZATION

This section examines and compares the capacity and utilization rates for the elementary schools of Fairfield Public Schools (FPS) as calculated by MGT and FPS. The capacity and utilization rates of the middle and high schools were not included as part of this study.

The functional capacity of an educational facility is defined as the number of students the facility can accommodate. More specifically, a school's capacity is the number of students which can be accommodated given the specific educational programs, the class schedules, the student-teacher ratios, and the size of the rooms. The utilization rate of a facility is calculated by dividing the current enrollment of the educational facility by the capacity. The utilization rate is used to determine if the facility has excess space or if it is over-crowded.

FUNCTIONAL CAPACITY

The *Instructional Use Model*, used by MGT and FPS, counts the number of the various types of instructional rooms and multiplies that number by the students-per-room or the *loading* factor to identify the capacity for the school. MGT and FPS use slightly different approaches in applying this model. In the FPS model, the loading factor is the average number of students per classroom. In the MGT model, the loading factor takes the maximum students per classroom and then multiplies that number by a scheduling/grouping factor; which takes into account the realities of how the space is scheduled and how students are grouped. While scheduling is not typically a factor in elementary schools, the grouping of students does affect capacity.

Elementary schools typically group students by grade level where each class contains students of one grade. Realistically, students do not come in even groups for each grade. Consequently, it is unrealistic to expect each classroom to be filled with the maximum number of students allowed in the loading factor, e.g. 25 students in every 3rd grade room. Therefore, to arrive at a practical capacity calculation, a 95 percent scheduling/grouping factor is used to arrive at the functional capacity.





Exhibit 2-1 lists the loading factors used to calculate the functional capacities in both approaches.

Exhibit 2-1 Fairfield Public Schools Functional Capacity Loading Factors

Room Type	MGT	FPS
K-2 Classroom	23	21
3-5 Classroom	25	21
SPED (self-contained)	10	10
PK Classroom	20	20
Scheduling/Grouping Factor	95%	-

Source: MGT of America, Inc., 2010.

The following example shows how the Instructional Use Model is used to calculate the capacity of a theoretical school.

Exhibit 2-2 Fairfield Public Schools Examples of Capacity Calculation

Room Type	Number of Rooms	Loading Factor MGT	Loading Factor FPS	Capacity MGT	Capacity FPS
K-2 Classroom	12	23	21	276	252
3-5 Classroom	12	25	21	300	252
SPED (self-contained)	2	10	10	20	20
PK Classroom	2	20	20	40	40
Sub-total				636	564
Scheduling/Grouping Factor		0.95	-	0.95	-
Capacity				604	564

Source: MGT of America, Inc., 2010.

OPERATIONAL CAPACITY

The operational capacity of an educational facility is a measure of how housing present-day educational programs and services in buildings designed to older standards effects the capacity. Schools designed to older standards do not have the dedicated spaces to accommodate all of the specialized programs in today's curriculum. The operational capacity calculates the space deficiencies and adjusts the functional capacity accordingly.

Each space deficiency, such as a portable, an OT/PT on a stage, or an ELL in a book closet, is measured in a fraction of a classroom according to the amount of space that would normally be assigned the



program/service. For instance, a portable would be measured as 1.0, a Spanish teacher's office as 0.25, etc. These deficiencies are totaled and then subtracted from the total of the capacity bearing classrooms to arrive at an operational number of classrooms. *Exhibit 2-3* shows the space assigned to the most common deficiencies.

Room Type	Deficiency as % of a classroom		
Science	1.0		
Art, Music	1.0		
Gifted	0.5		
OT/PT	0.5		
Conference room	0.5		
Office	0.25		
Small group room (ELL, IIT, ELT, MRT, etc.)	0.25		
Resource (SPED)	0.5		
Art, Music on a cart	0.5		
Gym class	1.5		
Portable	1.0		
Source: MGT of America Inc. 2010			

Exhibit 2-3 Fairfield Public Schools Operational Capacity Space Deficiencies



CAPACITY CALCULATIONS

Capacity calculations using the functional and operational approaches were completed for each school. The first step was to identify the program/capacity deficiencies for each school. This was accomplished through interviews with the principals and district administrative staff. *Exhibit 2-4* lists an example of the deficiencies for one school.

Program/Capacity Deficiency	Deficiency as % of a classroom
No band room	1.0
No gifted/talented room	0.5
Only 2 SPED areas (3 required)	0.5
No early literacy space	0.25
No conference room	0.5
No computer lab	1.0
No science room	1.0
Total	4.75

Exhibit 2-4 Timothy Dwight Elementary School Program/Capacity Deficiencies

Source: MGT of America, Inc., 2010.

The total of the deficiencies is then rounded off to a whole number (4.75 to 5.0 in this case) and subtracted from the capacity bearing classrooms to develop an operational capacity. *Exhibit 2-5* shows this process for Timothy Dwight ES.



Space Type	Functional Qty.	Operational Qty.	Comment
Capacity Rooms			
K-2 Classroom	9	6	
3-5 Classroom	9	7	
SPED (self-contained)	1	1	Rm 14
PK Classroom	0		
Non-Capacity Rooms			
Science	0	0	
Gifted Language Arts/Math	0	0	Rm 3
Art	1	1	
Music	1	1	Rm 30
Music Instrumental	1	1	Rm 21
Resource (3 areas/rooms)	2	2	Rms 19
PE/Gym	1	1	
Cafeteria/Auditorium	1	1	
Media Center	1	1	
Computer Lab	0	0	In LMC - too small
Portable	0	0	

Exhibit 2-5 Timothy Dwight Elementary School Room Inventory

Source: MGT of America, Inc., 2010.

The capacities and utilization are then calculated using the room loading and the scheduling/grouping factors as shown in *Exhibit 2-6*.

Exhibit 2-6 Timothy Dwight Elementary School Capacity and Utilization Calculations

Space Type	MGT - Functional	MGT - Operational	MGT - District
K-2 Classroom	207	138	189
3-5 Classroom	225	175	189
SPED (self-contained)	10	10	10
PK Classroom	0	0	0
2010 Cap.	420	307	388
2010 Enroll	315	315	315
2010 Util.	75%	103%	81%



Exhibit 2-7 shows the functional capacities as calculated using the MGT and FPS approaches, and the operational capacity for each elementary school. The detailed calculations for each school are included in *Appendix A*.

School	FPS Functional Capacity	MGT Functional Capacity	Operational Capacity
Burr	504	547	525
Holland Hills	336	363	159
Jennings	398	429	293
McKinley	504	547	525
Mill Hill	378	405	137
North Stratfield	504	547	434
Osborn Hill	535	577	464
Riverfield	399	430	204
Roger Sherman	462	502	343
Stratfield	504	547	547
Timothy Dwight	388	420	307
Elementary School Total	4912	5314	3938

Exhibit 2-7 Fairfield Public Schools Functional and Operational Capacities

Source: MGT of America, Inc., 2010.

As would be expected, the relationship between the FPS functional capacity and the MGT functional capacity is consistent, with MGT's capacity being eight percent higher on the average. However, the relationship of the operational capacity varies and this is due to the differing conditions at each school.

UTILIZATION RATES

The effective management of school facilities requires a school's capacity and enrollment to be aligned. When capacity exceeds enrollment (underutilization), operational costs are higher than necessary and facilities may need to be repurposed or the facilities may need to be removed from inventory. When enrollment exceeds capacity (overutilization), the school may be overcrowded and may require capital expenditures or redistricting to alleviate the crowding.



Exhibit 2-8 shows the corresponding utilization rates calculated using the different capacities and the current 2010 enrollments at each school.

School	FPS Functional Capacity Utilization Rate	MGT Functional Capacity Utilization Rate	Operational Capacity Utilization Rate
Burr	83%	77%	80%
Holland Hills	99%	92%	210%
Jennings	87%	81%	119%
McKinley	97%	90%	93%
Mill Hill	125%	117%	346%
North Stratfield	96%	88%	111%
Osborn Hill	101%	93%	116%
Riverfield	113%	105%	221%
Roger Sherman	96%	88%	129%
Stratfield	96%	88%	88%
Timothy Dwight	81%	75%	103%
Elementary School Average	97%	90%	121%

Exhibit 2-8 Fairfield Public Schools Elementary School Utilization Rates

Color Key				
Utilization greater than 100%				
Utilization between 90% and 100%				
Utilization between 80% and 90%				
Utilization between 70% and 80%				
Utilization below 70%				



CAPACITY AND UTILIZATION CONCLUSIONS

As concluded earlier, the FPS model produces a lower capacity than the MGT model and therefore a higher utilization with the same number of students. The overall utilization rate of the elementary schools with the FPS model is 97 percent, and 89 percent with the MGT model. In either case, some schools are overutilized in both models.

RECOMMENDATION: Utilize the MGT model to calculate the capacity of the elementary schools.

While both models use a similar approach, the use of an "average" class size in the FPS model for a loading factor, results in a lower capacity based on current enrollments as opposed to a capacity based on maximum class sizes. At the same time, the MGT model is a practical approach because it uses the scheduling/grouping factor to recognize the realities of class enrollments.

RECOMMENDATION: Utilize the operational capacity to understand the effect of "un-housed" special programs on facility space needs.

While the functional capacity measures the number of students a school building will house in "classrooms", it does not take into consideration the impact on space that special programs have on the utilization of a facility. The operational capacity is a helpful tool in planning facilities that truly support all the educational programs of a modern educational program.

Using both the functional and operational capacities in planning for current and future educational facilities needs will result in more effective schools.



Appendix A – Capacity Calculations by School

Burr ES

Base line - 4 sections

Space Type	Functional Qty.	Operational Qty.	Comment				
	Capacity Rooms						
K-2 Classroom	12	11					
3-5 Classroom	12	12					
SPED (self-contained)	0	0					
PK Classroom	0	0	Located in Room 110				
	Non-Capa	acity Rooms					
Science	1	1					
Gifted Language Arts/Math	1	1					
Art	1	1					
Music	1	1					
Music Instrumental	1	1					
Resource (3 areas/rooms)	3	3					
PE/Gym	1	1					
Cafeteria/Auditorium	1	1					
Media Center	1	1					
Computer Lab	1	1	In LMC				
Portable	0	0					

Space Туре	MGT - Functional	MGT - Operational	District
K-2 Classroom	276	253	252
3-5 Classroom	300	300	252
SPED (self-contained)	0	0	0
PK Classroom	0	0	0
2010 Cap.	547	525	504
2010 Enroll	420	420	420
2010 Util.	77%	80%	83%

Program/Capacity Deficiencies			
Deficiency Factor			
No dedicated PK room	1		
Total 1			

Holland Hill ES

Base line - 3 sections

Space Type	Functional Qty.	Operational Qty.	Comment
	Capacity Roo	ms	
K-2 Classroom	9	4	
3-5 Classroom	7	3	
SPED (self-contained)	0	0	
PK Classroom	0	0	
	Non-Capacity Ro	ooms	
Science	0	0	
Gifted Language Arts/Math	0	0	
Art	1	1	
Music	0	0	Portable
Music Instrumental	0	0	Stage
Resource (3 areas/rooms)	2	2	Rm 13
PE/Gym	1	1	
Cafeteria/Auditorium	1	1	
Media Center	1	1	
Computer Lab	1	1	In LMC
Portable	3	3	2 - Gr 5, 1- Music

Space Type	MGT - Functional	MGT - Operational	District
K-2 Classroom	207	92	189
3-5 Classroom	175	75	147
SPED (self-contained)	0	0	0
PK Classroom	0	0	0
2010 Cap.	363	159	336
2010 Enroll	333	363	333
2010 Util.	92%	229%	99%

Program/Capacity Deficiencies		
Deficiency	Factor	
Room 18 - houses Gifted, Social	1	
Worker, MRT	1	
No Science room	1	
Lacking 1 SPED space	0.5	
No conference room	0.5	
No dedicated copy room (teacher	0.5	
workroom)	0.5	
No Spanish teacher office	0.25	
Two classes and music in portables	3	
Instrumental music on stage	1	
No Computer Room	1	
No server room	0.25	
Total	9	

Jennings ES

Base line - 3 sections

Space Type	Functional Qty.	Operational Qty.	Comment
	Capacity Roo	ms	
K-2 Classroom	9	6	
3-5 Classroom	9	6	
SPED (self-contained)	2	2	
PK Classroom	0	0	
	Non-Capacity R	ooms	
Science	0	0	
Gifted Language Arts/Math	0	0	
Art	1	1	Rm 25
Music	Portable	Portable	
Music Instrumental	Stage	Stage	
Resource (3 areas/rooms)	3	3	Rms 20, 21
PE/Gym	1	1	
Cafeteria/Auditorium	1	1	
Media Center	1	1	
Computer Lab	0	0	In LMC - too small
Portable	1	1	Music

Space Type	MGT - Functional	MGT - Operational	District
K-2 Classroom	207	138	189
3-5 Classroom	225	150	189
SPED (self-contained)	20	20	20
PK Classroom	0	0	0
2010 Cap.	429	293	398
2010 Enroll	347	347	347
2010 Util.	81%	119%	87%

Program/Capacity Deficiencies		
Deficiency	Factor	
Rm 26 houses LAC, MRT, IIT, Instructional support, and conference	0.5	
Some OT/PT in hall	0.25	
ELT in closet	0.25	
No ELL room	0.25	
No Spanish office	0.25	
No science room	1	
No gifted room	0.5	
Music in portable	1	
Music instrumental on stage	1	
No computer lab	1	
Total	6	

McKinley ES

Base line - 4 sections

Space Type	Functional Qty.	Operational Qty.	Comment
	Сара	acity Rooms	
K-2 Classroom	12	11	
3-5 Classroom	12	12	
SPED (self-contained)	0		
PK Classroom	0	0	In faculty lunchroom
	Non-Ca	apacity Rooms	
Science	1	1	Being used as regular classrm.
Gifted Language Arts/Math	0	0	
Art	1	1	
Music	1	1	
Music Instrumental	1	1	
Resource (3 areas/rooms)	3	3	
PE/Gym	1	1	
Cafeteria/Auditorium	1	1	
Media Center	1	1	
Computer Lab	1	1	
Portable			

Space Туре	MGT - Functional	MGT - Operational	District
K-2 Classroom	276	253	252
3-5 Classroom	300	300	252
SPED (self-contained)	0	0	0
PK Classroom	0	0	0
2010 Cap.	547	525	504
2010 Enroll	491	491	491
2010 Util.	90%	93%	97%

Program/Capacity Deficiencies			
Deficiency Factor			
No PK room			
Total	1		

Mill Hill ES

Base line - 3 sections

Space Туре	Functional Qty.	Operational Qty.	Comment				
	Capacity Rooms						
K-2 Classroom	12	3					
3-5 Classroom	6	3					
SPED (self-contained)	0	0					
PK Classroom	0	0					
Ν	Ion-Capacity Ro	oms					
Science	0	0					
Gifted Language Arts/Math	0	0					
Art	1	1					
Music	0	0	Rm 7				
Music Instrumental	1	1					
Resource (3 areas/rooms)	3	3					
PE/Gym	1	1					
Cafeteria/Auditorium	1	1					
Media Center	1	1					
Computer Lab	0	0					
Portable	5	5	4 - 5th, 1 - 4th				

Space Type	MGT - Functional	MGT - Operational	District
K-2 Classroom	276	69	252
3-5 Classroom	150	75	126
SPED (self-contained)	0	0	0
PK Classroom	0	0	0
2010 Cap.	405	137	378
2010 Enroll	474	474	474
2010 Util.	117%	346%	125%

Program/Capacity Deficiencies		
Deficiency	Factor	
No Science room	1	
No Spanish office	0.25	
No Gifted room	0.5	
Music on cart or in APR for some classes	0.5	
OT/PT on stage	0.5	
IIT in conference room	0.25	
1 SPED in office	0.5	
No MRT room	0.25	
ELT in closet	0.25	
ELL in closet	0.25	
Social Worker in Book Storage	0.25	
5 regular classrooms in portables	5	
Music in regular classroom, Rm 7	1	
Computer lab in LMC	1	
Total	11.5	

North Stratfield ES

Base line - 4 sections

Space Type	Functional Qty.	Operational Qty.	Comment				
	Capacity Rooms						
K-2 Classroom	12	9					
3-5 Classroom	12	10					
SPED (self-contained)	0	0					
PK Classroom	0	0					
	Non-Capacity R	ooms					
Science	0	0					
Gifted Language Arts/Math	0	0					
Art	1	1					
Music	1	1					
Music Instrumental	1	1					
Resource (3 areas/rooms)	3	3					
PE/Gym	1	1					
Cafeteria/Auditorium	1	1					
Media Center	1	1					
Computer Lab	1	1					
Portable	0	0					

Space Type	MGT - Functional	MGT - Operational	District
K-2 Classroom	276	207	252
3-5 Classroom	300	250	252
SPED (self-contained)	0	0	0
PK Classroom	0	0	0
2010 Cap.	547	434	504
2010 Enroll	483	483	483
2010 Util.	88%	111%	96%

Program/Capacity Deficiencies		
Deficiency	Factor	
2 gym classes at same time	1.5	
No science room	1	
Some music classes in APR	0.5	
OT/PT on stage	0.5	
No dedicated gifted room	0.5	
LMC lacking storage due to location of 2 SPED classes	0.5	
No ELL space	0.25	
Total	4.75	

Osborn Hill ES

Base line - 4 sections

Space Type	Functional Qty.	Operational Qty.	Comment				
Capacity Rooms							
K-2 Classroom	14	11					
3-5 Classroom	11	9					
SPED (self-contained)	1	1					
PK Classroom	0	0					
	Non-Capac	ity Rooms					
Science	1	1	being used as 5th gr/science				
Gifted Language Arts/Math	0	0	In LMC				
Art	1	1	Some classes on a cart				
Music	1	1	Some classes on a cart				
Music Instrumental	Stage	Stage					
Resource (3 areas/rooms)	2	2	Rm 122				
PE/Gym	1	1					
Cafeteria/Auditorium	1	1					
Media Center	1	1					
Computer Lab	1	1					
Portable	0	0					

Space Type	MGT - Functional	MGT - Operational	District
K-2 Classroom	322	253	294
3-5 Classroom	275	225	231
SPED (self-contained)	10	10	10
PK Classroom	0	0	C
2010 Cap.	577	464	535
2010 Enroll	538	538	538
2010 Util.	93%	116%	101%

Program/Capacity Deficiencies			
Deficiency	Factor		
Room 144 - Teacher's Workroom also houses SPED and Math Resource	0.75		
Room 128 - LMC closet houses LAC	0.25		
Room 1 - Admin. Closet houses IIT	0.25		
Room 106a - Storage houses social worker	0.25		
No conference room	0.5		
No office for Spanish teacher	0.25		
2 gym classes at same time	1.5		
ELL in hall	0.25		
Literary tutor in LMC closet	0.25		
Art on a cart for some classes	0.50		
Music on a cart for some classes	0.5		
Gifted Language Arts/Math in LMC	0.50		
Music instrumental on stage	1.00		
Only 2 SPED areas	0.50		
Subtotal	7.25		
2 extra classrooms over 4 section	-2.00		
Total	5.25		

Riverfield ES

Base line - 3 sections

Space Type	Functional Qty.	Operational Qty.	Comment					
	Capacity Rooms							
K-2 Classroom	11	5						
3-5 Classroom	8	4						
SPED (self-contained)	0	0						
PK Classroom	0	0						
	Non-Capacity Rooms							
Science	1	1						
Gifted Language Arts/Math	0	0	in LMC					
Art	1	1						
Music	Portable	Portable						
Music Instrumental	Portable	Portable						
Resource (3 areas/rooms)	2	2	Rm 6					
PE/Gym	1	1						
Cafeteria/Auditorium	1	1						
Media Center	1	1						
Computer Lab	1	1	in LMC					
Portable	5	5	2-3 rd ; 1-4 th ; music, band & orchestra					

Space Type	MGT - Functional	MGT - Operational	District
K-2 Classroom	253	115	231
3-5 Classroom	200	100	168
SPED (self-contained)	0	0	0
PK Classroom	0	0	0
2010 Cap.	430	204	399
2010 Enroll	451	451	451
2010 Util.	105%	221%	113%

Program/Capacity Deficiencies		
Deficiency	Factor	
Music and Instrumental Music in	2	
portables	2	
Gifted, Spanish in LMC server room	0.5	
Lang. Arts in staff lunch room	0.25	
Only 2 SPED areas	0.5	
ELT in closet #7	0.25	
Social Worker in Book Room	0.25	
No dedicated space for Spanish and OT/PT	0.75	
2 gym classes at same time	1.5	
Staff Lunch and work room in classroom	1	
3 regular classrooms in portables	3	
Total	10	

Roger Sherman

Base line - 3.66 sections

Space Туре	Functional Qty.	Operational Qty.	Comment				
Capacity Rooms							
K-2 Classroom	11	7					
3-5 Classroom	11	8					
SPED (self-contained)	0	0					
PK Classroom	0	0					
Nor	n-Capacity Room	is					
Science	0	0					
Gifted Language Arts/Math	0	0					
Art	1	1					
Music	1	1					
Music Instrumental	0	0	Portable				
Resource (3 areas/rooms)	2	2					
PE/Gym	1	1					
Cafeteria/Auditorium	1	1					
Media Center	1	1					
Computer Lab	0	0	in LMC - too small				
Portable	1	1					

Space Type	MGT - Functional	MGT - Operational	District	
K-2 Classroom	253	161	231	
3-5 Classroom	275	200	231	
SPED (self-contained)	0	0	0	
PK Classroom	0	0	0	
2010 Cap.	502	343	462	
2010 Enroll	442	442	442	
2010 Util.	88%	129%	96%	

Program/Capacity Deficiencies		
Deficiency	Factor	
No Science room	1	
OT/PT, SW, and MRT in classroom	1	
Music instrumental in portable	1	
1 SPED in LMC Office	0.5	
ELT in storage room	0.25	
Teacher's work room in LMC work room	0.5	
Spanish teacher in storage room	0.25	
Server in Faculty lunch room	0.25	
Stage is used for storage	0.5	
Gifted, IIT, ELL located in conference room	1	
No computer lab	1	
Total	7.25	

Stratfield ES

Base line - 4 sections

Space Type	Functional Qty.	Operational Qty.	Comment				
	Capacity Rooms						
K-2 Classroom	12	12					
3-5 Classroom	12	12					
SPED (self-contained)	0	0					
	Non-Capac	ity Rooms					
Science	1	1					
Gifted Language Arts/Math	2	2	Rms 303, 302				
Art	1	1					
Music	1	1					
Music Instrumental	1	1					
Resource (3 areas/rooms)	3	3	Rms 001, 002, 003				
PE/Gym	1	1					
Cafeteria/Auditorium	1	1					
Media Center	1	1					
Computer Lab	1	1					
Portable	0	0					

Space Type	MGT - Functional	MGT - Operational	District
K-2 Classroom	276	276	252
3-5 Classroom	300	300	252
SPED (self-contained)	0	0	0
PK Classroom	0	0	0
2010 Cap.	547	547	504
2010 Enroll	483	483	483
2010 Util.	88%	88%	96%

Program/Capacity Deficiencies		
Deficiency	Factor	
0		

Timothy Dwight ES

Base line - 3 sections

Space Type	Functional Qty.	Operational Qty.	Comment			
Capacity Rooms						
K-2 Classroom	9	6				
3-5 Classroom	9	7				
SPED (self-contained)	1	1	Rm 14			
PK Classroom	0	0				
	Non-Capac	ity Rooms				
Science	0	0				
Gifted Language Arts/Math	0	0	Rm 3			
Art	1	1				
Music	1	1	Rm 30			
Music Instrumental	1	1	Rm 21			
Resource (3 areas/rooms)	2	2	Rms 19			
PE/Gym	1	1				
Cafeteria/Auditorium	1	1				
Media Center	1	1				
Computer Lab	0	0	In LMC - too small			
Portable	0	0				

Space Туре	MGT - Functional	MGT - Operational	District
K-2 Classroom	207	138	189
3-5 Classroom	225	175	189
SPED (self-contained)	10	10	10
PK Classroom	0	0	0
2010 Cap.	420	307	388
2010 Enroll	315	315	315
2010 Util.	75%	103%	81%

Program/Capacity Deficiencies				
Deficiency	Factor			
Band in classroom	1			
No Gifted room	0.5			
Only 2 SPED areas	0.5			
Early Literacy in closet	0.25			
No conference room	0.5			
No computer lab	1			
No science room	1			
Total	4.75			