WAPPENIGERS
CENTRAL SCHOOL DISTRICT

ENROLLMENT PROJECTION 2013-2022

DECEMBER 2012

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INTRODUCTION

The following enrollment projection has been prepared by FACTS at the request of the Wappingers Central School District.

Data and information from the following sources were utilized in compiling this report:
- School District
- United States Census Bureau
- New York State Department of Health
- Local Building Inspector(s)

FACTS has utilized diligent research and generally accepted formulas and procedures in preparing these projections. It must be recognized, however, that given the many variables comprising such projections, that caution must be exercised in the interpretation and application of these projections. A thorough review for accuracy of the data contained in this report should be conducted by the school district and prompt notification of any discrepancies provided to FACTS for correction.

PROJECTION METHODOLOGY

The Cohort Survival Method has been used in preparing these projections. This formula has proven to be highly reliable and is used extensively for enrollment projections for school districts in New York State.

The calculation of enrollment projections is based on the following data and procedures:
- Six years of actual district enrollment by grade
- Calculation of the survival ratios by grade level
- Projection of Kindergarten enrollment based on resident live births

The survival ratio expresses a quantitative relationship between the numerical size of a grade in a given year in comparison to the size of the next lower grade in the previous year. The number of students in a grade in a given year is divided by the number of students in the next lower grade in the previous year (i.e.; Grade 5 in 2008 divided by Grade 4 in 2007). If the quotient is greater than 1.0, the number of students has increased; conversely, if the quotient is less than 1.0, the number of students has decreased. Five years of actual survival ratios are calculated for each grade 1-12 and the five-year average is determined. This average is then applied by grade to determine the ten-year projected enrollment for each grade 1-12.

The calculation of projected kindergarten enrollment is based on the analysis of resident live birth data. A ten-year history of live birth data is collected. Each of the first five years of live birth data is compared to the actual kindergarten enrollment five years hence and the survival ratio is calculated (i.e.; 2003 live births to 2008 kindergarten enrollment, etc.). The five annual survival ratios are averaged and that average is applied to the next five years of live birth data to obtain the first five years of annual projected kindergarten enrollment (i.e.; 2008-2012 live births to project 2013-2017 kindergarten enrollments). For purposes of providing a ten-year enrollment projection, the kindergarten enrollment is projected for the last five years of the projection at the same number appearing in the fifth year.

In addition, the following factors which could potentially impact these projections are also researched and analyzed:

- Significant changes in residential construction
- Major changes in the local employment base
- Shifts in the non-public school population

The reliability of any enrollment projection must clearly be understood. Projections based on current and historical actual enrollments are the most reliable. Those based on historical live birth data are somewhat less reliable. In addition, the time frame and subset of the projections also play an important part in the reliability. Projections for the immediate future will be more reliable than those in later years, for example. Projections for the total K-12 district enrollment will also be more reliable than those for any particular grade in any given year. Therefore, these projections should be updated annually to reflect the latest live birth and actual enrollment data.

For the purposes of this study, data for the Towns of East Fishkill, Fishkill, Poughkeepsie and Wappinger and the Villages of Fishkill and Wappingers Falls have been researched.

Annual Updates: Annual updates of original projections prepared by FACTS are limited to the collection and research of the following information:

Live births
District enrollment
District non-public school enrollment

The collection of information regarding historical residential housing permits and future residential construction programs are not included in the annual update pricing fee.

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SUMMARY

The table below shows the comparison between our projections last year for 2012 to the actual 2012 enrollment this year.

Grade Grouping	2012 Projection	2012 Actual	Actual to Projection Difference	Percent Difference
K-5	4,924	4,955	+31	+0.63
6-8	2,806	2,778	-28	-1.01
9-12	4,145	4,123	-22	-0.54
K-12	11,856	11,875	+19	+0.16

DEMOGRAPHIC DATA

POPULATION TRENDS:
Table I reflects the population data from the 1990, 2000 and 2010 census as provided by the U.S. Census Bureau. The Town of East Fishkill continues to show substantial growth during the twenty year period. The Town of Fishkill experienced significant growth between 1990 and 2000 and reduced growth between 2000 and 2010. The Village of Fishkill experienced substantial decline between 1990 and 2000 and a substantial increase in population between 2000 and 2010. The Town of Poughkeepsie shows moderate growth between 1990 and 2000 and a minimal decline between 2000 and 2010. The Town of Wappinger lost population between 1990 and 2000 and experienced minimal increase between 2000 and 2010. The Village of Wappingers Falls had a moderate gain in population between 1990 and 2000 and significant increase between 2000 and 2010. Dutchess County experienced moderate growth during the entire period. Since these trends are already reflected in the historical enrollments, no adjustments to the projection formulas are necessary.

TABLE I POPULATION TRENDS						
Town/Village	1990	2000	1990-00% Change	2010	2000-10 % Change	1990-10 % Change
East Fishkill (T)	22,101	25,589	15.78	29,029	13.45	31.35
Fishkill (T)	15,698	18,523	18.00	19,936	7.63	27.00
Fishkill (V)	1,957	1,735	-11.34	2,171	25.13	10.94
Poughkeepsie (T)	39,254	42,777	8.97	42,237	-1.27	7.60
Wappinger (T)	22,292	21,345	-4.25	22,630	6.02	1.52
Wappingers Falls (V)	4,605	4,929	7.04	5,522	12.03	19.92
Dutchess County	259,462	280,150	7.97	297,488	6.19	14.66
Source: U.S. Census Bureau						

RESIDENT LIVE BIRTHS:

Table II shows the actual number of resident live births for the nine-year period 2003-11. The births for 2012 have been estimated at the average for 2009 through 2011 of 684. Resident live births have continued to decline which will result in lower kindergarten enrollments in this updated study.

We are continuing to use the resident live birth data base by district boundaries to project kindergarten enrollment.

	TABLE II RESIDENT LIVE BIRTHS BY DISTRICT BOUNDARIES									
District Boundaries	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012*
District	780	775	800	714	733	720	709	662	680	684

* Estimated
Source: New York State Department of Health

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ENROLLMENT PROJECTIONS

HISTORICAL ENROLLMENT:
Table III depicts the district's actual enrollment by grade level for a six-year period. The grade by grade survival ratios shown in Table IV were calculated from this information.

TABLE III HISTORICAL ENROLLMENT						
Grade	2007	2008	2009	2010	2011	2012
Kindergarten	781	791	724	767	655	766
First	866	861	880	822	812	747
Second	872	857	870	891	829	811
Third	887	867	890	841	888	840
Fourth	915	896	905	902	887	908
Total K-4	4,321	4,272	4,269	4,223	4,071	4,072
Fifth	990	937	918	916	916	883
Total K-5	5,311	5,209	5,187	5,139	4,987	4,995
Sixth	964	989	933	932	920	921
Seventh	1,000	1,005	1,021	959	925	922
Eighth	956	1,021	999	1,039	969	935
Total 5-8	3,910	3,952	3,871	3,846	3,730	3,661
Total 6-8	2,920	3,015	2,953	2,930	2,814	2,778
Ninth	1,144	1,020	1,079	1,051	1,070	1,009
Tenth	1,064	1,125	1,018	1,067	1,022	1,062
Eleventh	1,039	1,081	1,122	1,020	1,063	983
Twelfth	938	1,039	1,052	1,143	1,008	1,069
Total 9-12	4,185	4,265	4,271	4,281	4,163	4,123
Total K-12	12,416	12,489	12,411	12,350	11,964	11,856
% Change	0.00	0.59	-0.62	-0.49	-3.13	-0.90

SURVIVAL RATIOS:

The district's historical loss or gain of students from one grade level to the next grade level is reflected in Table IV. These ratios reflect the number of students in a particular grade in one year as compared to the number of students in the next higher grade in the following year. A ratio higher than 1.0 indicates a gain in students and conversely a ratio of less than 1.0 reflects a loss of students. These ratios, by grade level, were calculated individually for a five-year period and the five-year average for each grade level determined. The five-year average was then used to project future enrollments for each grade level.

		TABLE IV SURVIVAL RATIOS				
Grade	2008	2009	2010	2011	2012	5 Year Average
K-1	1.1024	1.1125	1.1354	1.0587	1.1405	1.1099
1-2	0.9896	1.0105	1.0125	1.0085	0.9988	1.0040
2-3	0.9943	1.0385	0.9667	0.9966	1.0133	1.0019
3-4	1.0101	1.0438	1.0135	1.0547	1.0225	1.0289
4-5	1.0240	1.0246	1.0122	1.0155	0.9955	1.0144
5-6	0.9990	0.9957	1.0153	1.0044	1.0055	1.0040
6-7	1.0425	1.0324	1.0279	0.9925	1.0022	1.0195
7-8	1.0210	0.9940	1.0176	1.0104	1.0108	1.0108
8-9	1.0669	1.0568	1.0521	1.0298	1.0413	1.0494
9-10	0.9834	0.9980	0.9889	0.9724	0.9925	0.9870
10-11	1.0160	0.9973	1.0020	0.9963	0.9618	0.9947
11-12	1.0000	0.9732	1.0187	0.9882	1.0056	0.9972

PROJECTED KINDERGARTEN ENROLLMENT:
The annual ratio was calculated for a four-year period reflecting the ratio between the actual kindergarten enrollment in each year and the number of live births in each of the preceding five years (i.e.; 2008 actual kindergarten enrollment to 2003 live births, etc.). The five-year average was calculated and applied to the most recent five years of live births to project the subsequent five years of kindergarten enrollment for each projection. Years six through ten of kindergarten enrollment were projected at the same number as the fifth projected year.

			TABLE V			
		PROJECTED KINDERGARTEN ENROLLMENT - LIVE BIRTHS				
Year	Live Births	Year	K-Enroll	Birth/K Ratio	Year	Projected K-Enroll
2003	780	2008	791	1.0141		
2004	775	2009	724	0.9342		
2005	800	2010	767	0.9588		
2006	714	2011	655	0.9174		
2007	733	2012	766	1.0450		
FIVE-YEAR AV733ERAGE SURVIVAL				0.9739		
2008	720				2013	701
2009	709				2014	690
2010	662				2015	645
2011	680				2016	662
2012	684*				2017	666
					2018	666
					2019	666
					2020	666
					2021	666
*Estimated					2022	666

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TEN-YEAR ENROLLMENT PROJECTIONS:
Table VI provides a summary by grade groupings of the projections shown in Table VII comparing the projected fifth and tenth years to the base year of 2012.

Grade Range	2012	2017	% Change	2022	% Change
TABLE VI ENROLLMENT PROJECTION SUMMARY					
K-4					
District	4,072	3,695	-9.26	3,654	-10.27
K-5					
District	4,955	4,588	-7.41	4,429	-10.62
5-8					
District	3,661	3,455	-5.63	3,150	-13.96
6-8					
District	2,778	2,562	-7.78	2,375	-14.46
9-12					
District	4,123	3,881	-5.87	3,581	-13.15
K-12					
District	11,856	11,031	-6.96	10,385	-12.41

Grade	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
TABLE VII										
TEN-YEAR ENROLLMENT PROJECTION - DISTRICT BOUNDARIES										
Kindergarten	701	690	645	662	666	666	666	666	666	666
First	850	778	766	716	735	739	739	739	739	739
Second	750	853	781	769	719	738	742	742	742	742
Third	813	751	855	782	770	720	739	743	743	743
Fourth	864	837	773	880	805	792	741	760	764	764
Total K-4	3,978	3,909	3,820	3,809	3,695	3,655	3,627	3,650	3,654	3,654
Fifth	921	876	849	784	893	817	803	752	771	775
Total K-5	4,899	4,785	4,669	4,593	4,588	4,472	4,430	4,402	4,425	4,429
Sixth	886	925	879	852	787	897	820	806	755	774
Seventh	939	903	943	896	869	802	914	836	822	770
Eighth	932	949	913	953	906	878	811	924	845	831
Total 5-8	3,678	3,653	3,584	3,485	3,455	3,394	3,348	3,318	3,193	3,150
Total 6-8	2,757	2,777	2,735	2,701	2,562	2,577	2,545	2,566	2,422	2,375
Ninth	981	978	996	958	1,000	951	921	851	970	887
Tenth	996	968	965	983	946	987	939	909	840	957
Eleventh	1,056	991	963	960	978	941	982	934	904	836
Twelfth	980	1,053	988	960	957	975	938	979	931	901
Total 9-12	4,013	3,990	3,912	3,861	3,881	3,854	3,780	3,673	3,645	3,581
Total K-12	11,669	11,552	11,316	11,155	11,031	10,903	10,755	10,641	10,492	10,385
% Change	-1.58	-1.00	-2.04	-1.42	-1.11	-1.16	-1.36	-1.06	-1.40	-1.02

Live Births vs Kindergarten Enrollment Comparison
Baseline Projection

Students — ♦ — Births   — ■ — K Enroll Actual   —— K Enroll Projected

Years

Births	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Enroll	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017

200
175
150
125
100
75
50
25
0
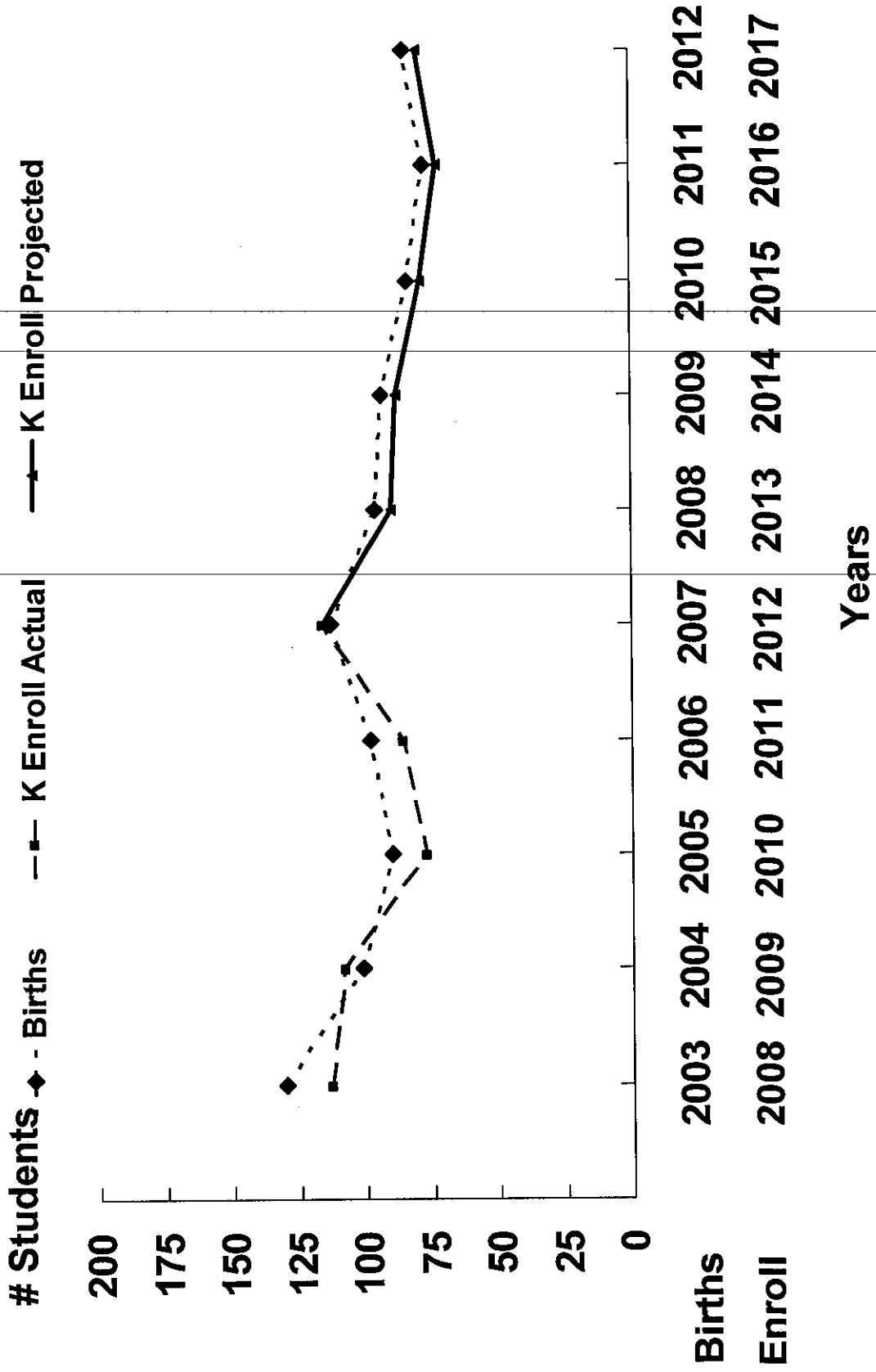
Enrollment Projection Breakdown
Based on Live Births

K-4   - - 5-8   · · · 9-12

Students

5,000	
4,500	
4,000	
3,500	
3,000	

'13 '14 '15 '16 '17 '18 '19 '20 '21 '22

Year
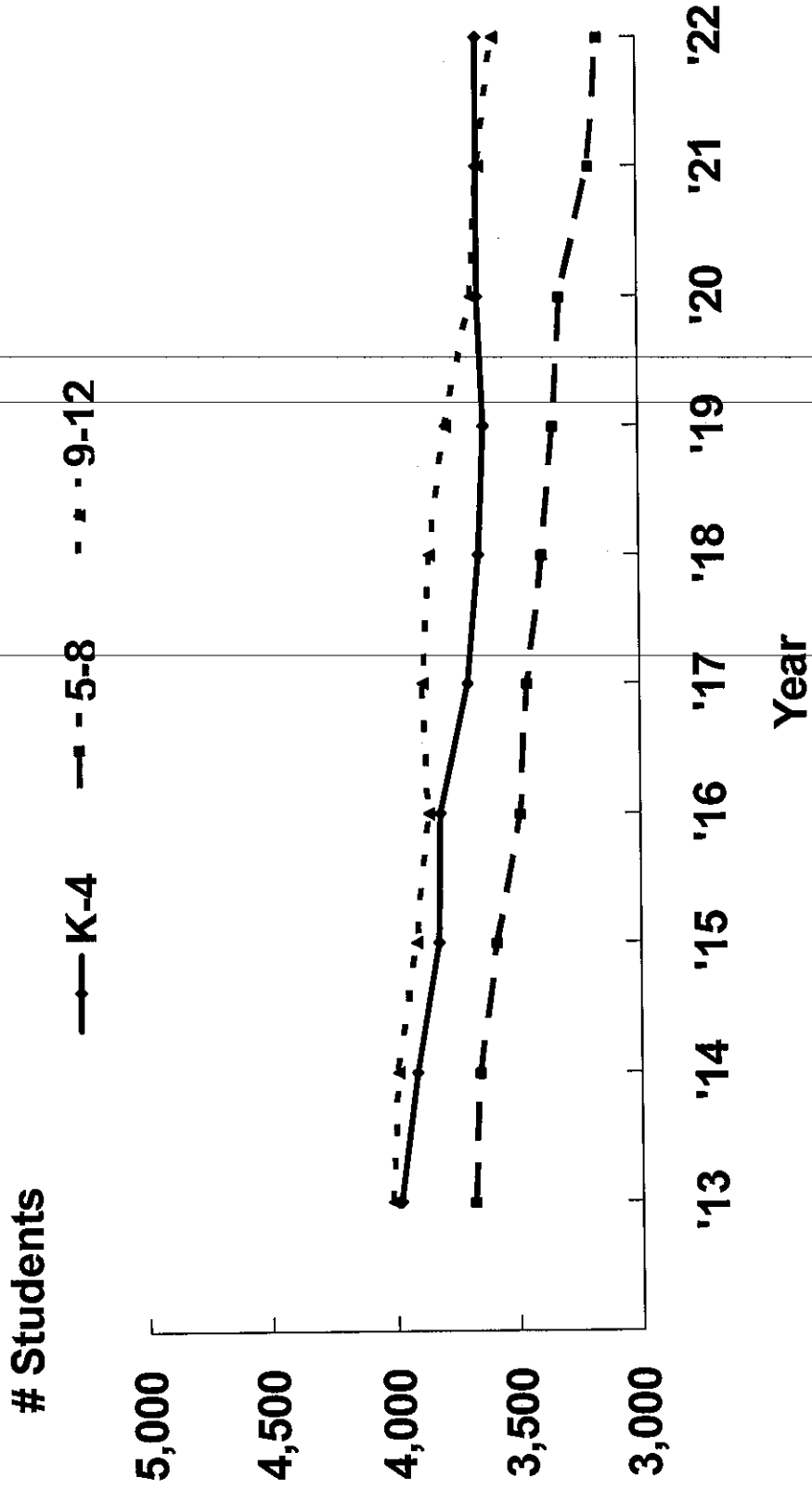
K-12 Enrollment Projection
Based on Live Births

Students

3,000

2,500

2,000

1,500

1,000

500

0

'13 '14 '15 '16 '17 '18 '19 '20 '21 '22

Year