

**School Enrollment  
Projections  
for the  
Berlin  
Central School District**

*August 2006*



**Capital District Regional Planning Commission**

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# **Berlin Central School District School Enrollment Projections**

## **Introduction**

In June 2006, Questar III requested that the Capital District Regional Planning Commission to prepare district-wide school enrollment projections for the Berlin Central School District through the 2010-11 school year.

The following is a description of the data, assumptions, activities, and trends which may influence the number of students enrolled in the Berlin School District. The projections can be located in the accompanying tables.

## **Data Base and Assumptions**

Two methodologies were applied leading to the preparation of a final set of projections: cohort survival and demographic multipliers. Supporting data included the following:

1. The 1980, 1990, and 2000 Census information on the number of persons and housing units located within the school district;
2. Historical school enrollment data beginning with the 1985-86 school year;
3. Annual birth data for the period 1980-2003;
4. Building permit data to determine the number of housing units added or deleted due to demolitions, new construction, or rehabilitation within the District for the period 1982-2003; and
5. Anticipated residential building activity in the School District through 2009.

The grade-to-grade cohort survival method involved the preparation of three sets of projections based upon 5, 10, and 20-year historical enrollment data. The five-year survival ratio method took the average grade-to-grade survival ratio from the previous five years and projected that average forward to establish school enrollment by grade for the period 2006-07 through 2010-11. The projected kindergarten enrollment was based on the actual and estimated number of live births in the Towns of Berlin, Grafton, Petersburg, and Stephentown from 2001 to 2005. The survival ratio was derived by dividing the number of kindergarten students in any given year by the number of births five years earlier.

A similar methodology was employed to prepare projections based on 10 and 20 years of historical enrollment data. For all three cases, data were derived from the October enrollment statistics provided by the District and exclude all private school enrollment and BOCES students.

A fourth set of projections was prepared using a demographic multiplier method. This method was based on an evaluation of the number of students by grade residing in each of the housing units in the district. The number of housing units by type was estimated using 1990 and

2000 Census information supplemented by annual building permit data. Dividing annual school enrollment by grade into the number of housing units by type for the period 1998 through 2005 derived the demographic multiplier. Based on the review of the single-family home demographic multipliers for each year between 1998 and 2005, demographic multipliers for the five-year projection period were developed. Information from the planning or building departments in each of the municipalities in the school district provided a basis from which residential building activity could be projected over the next five years.

Data limitations and the nature of the projection methodologies produce uncertainties in the projections. To reduce these uncertainties, additional data sets were evaluated prior to the preparation of a final set of projections. These include private school enrollment and grade assignment policies. The final set of projections was prepared based upon the four sets of projections along with a review of other factors.

### **Historical Enrollment Trends**

The data shown in Table 1 (see Tables section) represents the number of students enrolled by grade between 1985-86 and 2005-06. The School District enjoyed a period of stable enrollment with moderate growth between 1985 and 1998-99, when the overall enrollment hit a twenty-year peak at 1,180 students. Since 1998-99, overall enrollment has dropped by 14% and each of the past five years has been a new historical low, with this year hitting 1,013 students.

As shown on Table 2, enrollment in Grades K-5 declined by 22% in the five years between 1998-99 and 2003-04. Since 2003-04 K-5 enrollment has increased by 16 students to 447. After moderate increases in the late 1980's there were 10 years of stable enrollment leading up to 1998-99. Kindergarten enrollment saw a significant decline in 1997-98 and has never rebounded. This decline resulted in the 22% drop during the five-year period ending in 2003.

With the exception of an increase then decline during the early 1990's, Grades 6-8 enrollment had held fairly steady through 2004-05. The 2005-06 enrollment of 248 middle school students is 20 less than 2004-05. This decline was expected and should continue as Kindergarten classes started becoming smaller in 1997-98 and that year's Kindergarten class is now in 8<sup>th</sup> Grade.

The 1985-86 High School enrollment, representing the last of the Baby Boom generation, is by far the largest 9-12 enrollment in the 20-year history. The four years after 1985-86 showed a 19% decrease in 9-12 enrollment. High School enrollment bottomed-out at 275 students in 1992-93 before climbing back above 300 the next year. Since 1993-94, High School enrollment has remained stable between 302 and 330.

## Grade-To-Grade Survival Ratios

A review of the historical grade-to-grade survival ratios show mixed results for this year's ratios compared to the historical averages. The following table identifies the grade-to-grade survival ratio last year compared to the five and ten-year averages for each grade.

### Grade-To-Grade Survival Ratios

	<b>2004-05 to 2005-06</b>	<b>5-Year Average</b>	<b>10-Year Average</b>
Birth to Kindergarten	0.852	0.756	0.874
Kindergarten to 1st	1.045	1.012	1.021
1st to 2nd	1.042	1.021	1.017
2nd to 3rd	1.000	1.034	1.016
3rd to 4th	1.043	0.975	0.985
4th to 5th	1.013	0.984	1.005
5th to 6th	0.940	1.095	1.073
6th to 7th	0.917	0.978	0.976
7th to 8th	0.943	0.917	0.977
8th to 9th	1.200	1.185	1.099
9th to 10th	0.709	0.747	0.808
10th to 11th	0.978	0.923	0.918
11th to 12th	0.932	0.898	0.894

With the exception of 2<sup>nd</sup>-to-3<sup>rd</sup>, this year's survival ratios for grades K to 5 were generally higher than the historical averages. The 2<sup>nd</sup>-to-3<sup>rd</sup> ratio is significantly lower than the historical averages. The Kindergarten-to-1<sup>st</sup> ratio is slightly lower than the 10-year average, but significantly higher than the 5-year average. The major difference between the historical averages for K-to-1<sup>st</sup> is due to some Department of Health geocoding changes made in 1996.

In Grades 6-8, the ratios are generally lower than the historic averages. The 5<sup>th</sup>-to-6<sup>th</sup> and 6<sup>th</sup>-to-7<sup>th</sup> ratios are much lower than the historic averages, while the 7<sup>th</sup>-to-8<sup>th</sup> ratio is lower than the 10-year average, but higher than the 5-year average.

In the High School, with the exception of the 9<sup>th</sup>-to-10<sup>th</sup> ratio, survival ratios were higher than the historic averages.

## **Live Births and Building Activity**

The number of resident live births in the Towns of Berlin, Grafton, Petersburg, and Stephentown since 1980 are listed in Table 3. Though the School District encompasses only a portion of each of these towns, the number of town-wide births is the most comprehensive data set available for computing survival ratios. New York State Health Department figures show that between 1980 and 1991, the number of annual live births were consistently in the 90's, averaging 95 for that 11-year period. Since 1991, the towns have averaged 83 live births per year, staying generally in the 80's but occasionally returning to the 90's or dropping to the 70's or even 60's in 2001. This represents an average of 12 fewer infants per year, which when multiplied by the 13 grades, nearly makes up the amount of enrollment lost since 1998-99.

It should also be noted that the trend toward lower birth numbers is Countywide. In 1990, there were 2,276 live births in Rensselaer County and that number steadily declined to 1671 in 2002 before rebounding slightly to 1767 in 2003 (Table 7).

As shown on Table 4, since 1987, single-family home construction within the School District has averaged 42 houses per year with occasional outliers such as 70 in 2002, 59 in 1988, and 28 in 1993. Overall, home construction has been fairly consistent with a moderate increase over the past 5 years due to the hot real estate market.

Development in the School District is limited by a lack of sewer and water infrastructure, and rough terrain that makes site planning more difficult. The nearest sewer or water lines are in the middle of Sand Lake and in eastern Brunswick. Beyond those challenges, Rensselaer County is notorious for difficult septic soils, making large-scale on-site based developments even more difficult in areas without sewer service.

## School Enrollment Projections

Table 6 provides the district-wide projections through the 2010-2011 school year. Highlights of some of the trends expected during the next five years are:

- Overall, enrollment is expected to decrease from 1,013 students this year to 929 in 2010-11. Consistent enrollment is expected in 2006-07 with steady declines over the following four years.
- Enrollment in Grades K-5 is expected to remain the same in 2006-07 and then decline moderately over the following four years, ending up with 19 fewer students in 2010-11 than in 2005-06.
- Enrollment in Grades 6-8 is projected to decline moderately over the next two years and then level off around 230 students.
- Enrollment in Grades 9-12 is projected to remain consistent through 2008-09 and then decline significantly over the following three years, dropping to 271 students in 2010-11.

With this report coming so close to the opening of the 2006-07 school year, we are able to accurately predict the 2006-07 Kindergarten enrollment, as the incoming class has already been screened and assigned to classes. Kindergarten is, by far, the most difficult grade to predict as many things can happen during the five years between birth and enrollment. Adding to the difficulty is the reality that Kindergarten is optional in New York. Further complicating the problem is that the Department of Health does not keep live birth data by school district, but rather by town and there are serious errors in the 2004 data sets, making them unusable.

In spite of all the difficulties associated with kindergarten projections, the numbers clearly show that the School District and Rensselaer County have experienced a real decline in births over the past 13 years and that also shows up clearly in the declines in elementary enrollment during the past eight years. The reason behind this is also quite clear, the demographic group that gave birth to today's High School students around 1990, is much larger than the group that gave birth to today's 1<sup>st</sup> Grade students in 2000. In 1990, there were 1,320 people in the 25-34 age group living in the four towns that make up the majority of the School District, while in 2000 there were only 971 people in this age group (Table 8). Fewer people in this age group naturally result in fewer children being born. This is a national trend. In 1990 the 25-34 age group included a portion of the Baby Boom generation while in 2000 the age group did not include that large demographic.

# **TABLES**

**TABLE 1**  
**Berlin Central School District**  
**Historical School Enrollment : 1985-1986 to 2005-2006**

	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
K	84	106	100	96	89	96	80	91	91	94	72	98	80	84	86	81	54	74	68	66	75
1	94	79	92	87	95	101	115	93	105	94	99	78	97	81	85	89	77	55	75	71	69
2	84	98	81	87	87	81	83	105	73	94	86	98	83	104	83	83	88	76	59	81	74
3	80	74	95	87	95	83	86	86	102	76	99	85	102	82	96	92	81	84	73	69	81
4	77	79	82	104	90	94	79	88	86	100	69	96	90	101	86	97	88	77	78	75	72
5	85	78	82	83	107	93	95	77	75	86	103	72	93	100	99	77	93	87	78	83	76
6	85	87	79	85	93	114	99	107	84	84	93	103	79	101	99	103	83	96	95	96	78
7	83	89	82	82	96	94	109	93	111	78	89	82	102	79	95	94	102	80	103	87	88
8	76	87	94	80	77	86	89	106	91	108	75	91	91	106	83	91	88	97	73	85	82
9	101	90	101	111	74	82	79	86	112	104	115	78	84	100	99	95	110	109	112	86	102
10	85	82	66	81	89	63	67	64	71	91	78	103	72	75	88	78	71	80	74	89	61
11	72	78	75	61	61	74	72	61	66	64	83	70	92	67	70	73	71	63	80	73	87
12	91	71	71	59	59	63	62	64	55	52	54	78	61	83	60	56	64	68	64	67	68
<b>Sub-total</b>	<b>1,097</b>	<b>1,098</b>	<b>1,100</b>	<b>1,103</b>	<b>1,112</b>	<b>1,124</b>	<b>1,115</b>	<b>1,121</b>	<b>1,122</b>	<b>1,125</b>	<b>1,115</b>	<b>1,132</b>	<b>1,126</b>	<b>1,163</b>	<b>1,129</b>	<b>1,109</b>	<b>1,070</b>	<b>1,046</b>	<b>1,032</b>	<b>1,028</b>	<b>1,013</b>
Ungraded	20	27	29	33	18	24	14	19	15	20	63	57	49	17	12	10			8		
<b>Total</b>	<b>1,117</b>	<b>1,125</b>	<b>1,129</b>	<b>1,136</b>	<b>1,130</b>	<b>1,148</b>	<b>1,129</b>	<b>1,140</b>	<b>1,137</b>	<b>1,145</b>	<b>1,178</b>	<b>1,189</b>	<b>1,175</b>	<b>1,180</b>	<b>1,141</b>	<b>1,119</b>	<b>1,070</b>	<b>1,046</b>	<b>1,040</b>	<b>1,028</b>	<b>1,013</b>

**NOTES:**

BOCES students not included in above tabulations

Source: Berlin Central School District Fall Enrollment Figures.



**TABLE 2**  
**Berlin Central School District**  
**Aggregate School Enrollment : 1985-1986 to 2005-2006**

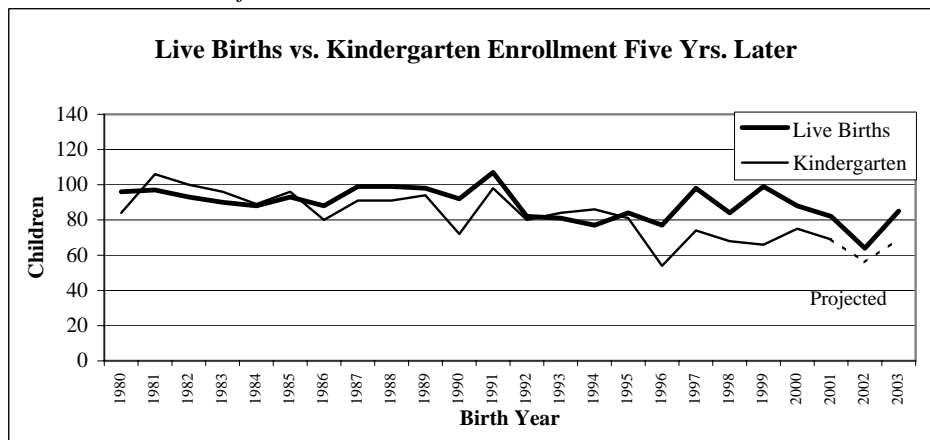
	<b>1985-86</b>	<b>1986-87</b>	<b>1987-88</b>	<b>1988-89</b>	<b>1989-90</b>	<b>1990-91</b>	<b>1991-92</b>	<b>1992-93</b>	<b>1993-94</b>	<b>1994-95</b>	<b>1995-96</b>	<b>1996-97</b>	<b>1997-98</b>	<b>1998-99</b>	<b>1999-00</b>	<b>2000-01</b>	<b>2001-02</b>	<b>2002-03</b>	<b>2003-04</b>	<b>2004-05</b>	<b>2005-06</b>
K - 5	504	514	532	544	563	548	538	540	532	544	528	527	545	552	535	519	481	453	431	445	447
6 - 8	244	263	255	247	266	294	297	306	286	270	257	276	272	286	277	288	273	273	271	268	248
9 - 12	349	321	313	312	283	282	280	275	304	311	330	329	309	325	317	302	316	320	330	315	318
<b>Sub-total</b>	<b>1,097</b>	<b>1,098</b>	<b>1,100</b>	<b>1,103</b>	<b>1,112</b>	<b>1,124</b>	<b>1,115</b>	<b>1,121</b>	<b>1,122</b>	<b>1,125</b>	<b>1,115</b>	<b>1,132</b>	<b>1,126</b>	<b>1,163</b>	<b>1,129</b>	<b>1,109</b>	<b>1,070</b>	<b>1,046</b>	<b>1,032</b>	<b>1,028</b>	<b>1,013</b>
Ungraded	20	27	29	33	18	24	14	19	15	20	63	57	49	17	12	10	0	0	8	0	0
<b>Total</b>	<b>1,117</b>	<b>1,125</b>	<b>1,129</b>	<b>1,136</b>	<b>1,130</b>	<b>1,148</b>	<b>1,129</b>	<b>1,140</b>	<b>1,137</b>	<b>1,145</b>	<b>1,178</b>	<b>1,189</b>	<b>1,175</b>	<b>1,180</b>	<b>1,141</b>	<b>1,119</b>	<b>1,070</b>	<b>1,046</b>	<b>1,040</b>	<b>1,028</b>	<b>1,013</b>

Source: Berlin Central School District Fall Enrollment Figures.

**TABLE 3**  
**Towns of Berlin, Grafton, Petersburg, and Stephentown**  
**Number of Live Births: 1979-2003**

<u>Year of Birth</u>	<u>Number of Births</u>	<u>Yr. to Enter Kindergarten</u>	<u>Number of Kindergarten Students</u>	<u>Survival Ratio</u>
1980	96	1985	84	0.87500
1981	97	1986	106	1.09278
1982	93	1987	100	1.07527
1983	90	1988	96	1.06667
1984	88	1989	89	1.01136
1985	93	1990	96	1.03226
1986	88	1991	80	0.90909
1987	99	1992	91	0.91919
1988	99	1993	91	0.91919
1989	98	1994	94	0.95918
1990	92	1995	72	0.78261
1991	107	1996	98	0.91589
1992	82	1997	80	0.97561
1993	81	1998	84	1.03704
1994	77	1999	86	1.11688
1995	84	2000	81	0.96429
1996	77	2001	54	0.70130
1997	98	2002	74	0.75510
1998	84	2003	68	0.80952
1999	99	2004	66	0.66667
2000	88	2005	75	0.85227
2001	82	2006	69	0.84146
2002	64	2007	56	0.87500
2003	85	2008	69	0.81500

Source: NYS Department of Health  
 Bureau of Health Statistics, Resident Live Births  
*Projections in Italic.*



Note: In the chart, Kindergarten enrollment begins in 1984 and ends in 2008

**TABLE 4**  
**Number of Housing Units**  
**Berlin Central School District**

Year	Beginning of the Year				Net Change During the Year				Total End of Year			
	S.F.	Duplex	Apt.	M.H.	S.F.	Duplex	Apt.	M.H.*	S.F.	Duplex	Apt.	M.H.
1982					9	0	0					
1983					8	0	0					
1984					5	0	0					
1985					15	0	0					
1986					28	0	0					
1987					51	2	0					
1988					59	0	0					
1989					56	0	0					
1990	2,139	145	107	484	46	0	0		2,185	145	107	484
1991	2,185	145	107	484	33	2	0		2,218	147	107	484
1992	2,218	147	107	484	33	0	0		2,251	147	107	484
1993	2,251	147	107	484	28	0	0		2,279	147	107	484
1994	2,279	147	107	484	42	0	0		2,321	147	107	484
1995	2,321	147	107	484	37	0	0		2,358	147	107	484
1996	2,358	147	107	484	38	0	0		2,396	147	107	484
1997	2,396	147	107	484	37	0	0		2,433	147	107	484
1998	2,433	147	107	484	34	0	0		2,467	147	107	484
1999	2,467	147	107	484	38	0	0		2,505	147	107	484
2000	2,505	147	107	484	36	0	4		2,541	147	111	484
2001	2,541	147	111	484	34	0	0		2,575	147	111	484
2002	2,575	147	111	484	70	0	0		2,645	147	111	484
2003	2,645	147	111	484	39	4	0		2,684	151	111	484
2004	2,684	151	111	484	48	2	0		2,732	153	111	484
2005	2,732	153	111	484	48	0	0		2,780	153	111	484
2006	2,780	153	111	484	48	0	0		2,828	153	111	484
2007	2,828	153	111	484	48	0	0		2,876	153	111	484
2008	2,876	153	111	484	48	0	0		2,924	153	111	484
2009	2,924	153	111	484	48	0	0		2,972	153	111	484
2010	2,972	153	111	484	48	0	0		3,020	153	111	484

S.F. = Single Family

Apt. = Apartments

M.H. = Mobile Homes- \*Census Bureau does not track Mobile Home building permits.

*Projections are in Italic.*

Source: U.S. Bureau of the Census, individual town & village building permit issuances.

**TABLE 5**  
**Projected Number of Housing Units by Type**  
**Berlin Central School District**

<u>Year</u>	<u>Single Family</u>	<u>Duplex</u>	<u>Apartments</u>	<u>Mobile Homes</u>	<u>Total</u>
2006	48	0	0	0	48
2007	48	0	0	0	48
2008	48	0	0	0	48
2009	48	0	0	0	48
2010	48	0	0	0	48
<b>Total</b>	<b>240</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>240</b>

**TABLE 6**  
**Berlin Central School District**  
**Enrollment Projections : 2006-07 to 2010-2011**

<u>Grade</u>	<u>2005-06*</u>	<u>2006-07</u>	<u>2007-08</u>	<u>2008-09</u>	<u>2009-10</u>	<u>2010-11</u>
K	75	69	56	69	67	67
1	69	77	71	58	71	69
2	74	72	80	74	60	74
3	81	75	73	81	75	61
4	72	81	75	73	81	75
5	76	73	82	76	74	82
6	78	79	76	85	79	77
7	88	75	76	73	82	76
8	82	83	71	71	69	77
9, 10, 11	250	248	233	227	217	206
12	68	67	80	57	65	65
<b>Sub-total</b>	<b>1,013</b>	<b>999</b>	<b>973</b>	<b>944</b>	<b>940</b>	<b>929</b>
Ungraded	0	0	0	0	0	0
<b>Total</b>	<b>1,013</b>	<b>999</b>	<b>973</b>	<b>944</b>	<b>940</b>	<b>929</b>

**Aggregate Enrollment Projections : 2006-2007 to 2010-2011**

<u>Grade</u>	<u>2005-06*</u>	<u>2006-07</u>	<u>2007-08</u>	<u>2008-09</u>	<u>2009-10</u>	<u>2010-11</u>
K-5	447	447	437	431	428	428
6-8	248	237	223	229	230	230
9-12	318	315	313	284	282	271
<b>Sub-total</b>	<b>1,013</b>	<b>999</b>	<b>973</b>	<b>944</b>	<b>940</b>	<b>929</b>
Ungraded	0	0	0	0	0	0
<b>Total</b>	<b>1,013</b>	<b>999</b>	<b>973</b>	<b>944</b>	<b>940</b>	<b>929</b>

\*Actual Fall Enrollment

**TABLE 7**  
**Rensselaer County**  
**Towns of Berlin, Grafton, Petersburg, and Stephentown**  
**Number of Live Births: 1990-2003**

<u>Year of Birth</u>	<u>Rensselaer County</u>	<u>Town of Berlin</u>	<u>Town of Grafton</u>	<u>Town of Petersburg</u>	<u>Town of Stephentown</u>
1990	2276	24	13	25	30
1991	2243	24	14	30	39
1992	2186	10	11	31	30
1993	2096	15	16	24	26
1994	2018	15	16	14	32
1995	1956	14	6	32	32
1996	1945	18	14	15	30
1997	1784	26	12	30	30
1998	1768	20	11	19	34
1999	1742	25	28	19	27
2000	1707	27	15	20	26
2001	1713	12	22	22	26
2002	1671	14	9	22	19
2003	1767	19	6	27	33

Source: NYS Department of Health  
Bureau of Health Statistics, Resident Live Births

**TABLE 8**  
**Rensselaer County**  
**Towns of Berlin, Grafton, Petersburg, and Stephentown**  
**Population Aged 25 to 34 in 1990 and 2000**

<u>Census Year</u>	<u>Rensselaer County</u>	<u>Town of Berlin</u>	<u>Town of Grafton</u>	<u>Town of Petersburg</u>	<u>Town of Stephentown</u>
1990	26,000	305	335	224	456
2000	19,709	211	238	177	345

Source: 1990 and 2000 Census

**TABLE 9**  
**New York State Outside of New York City**  
**Total Live Births**

1956-1965 (1990 25-34 year olds)	1,945,804
1966-1975 (2000 25-34 year olds)	1,542,540
1972-1981 (2006 25-34 year olds)	1,336,886
1976-1985 (2010 25-34 year olds)	1,365,474
1986-1995 (2020 25-34 year olds)	1,528,026

Source: NYS Department of Health

Bureau of Health Statistics, Resident Live Births

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The Capital District Regional Planning Commission is a multi-county regional planning agency established jointly by the counties of Albany, Rensselaer, Saratoga, and Schenectady in 1967 pursuant to the State of New York local law. Its mission is to promote sound and coordinated land use, economic development, and a healthy environment for the entire Region with various studies, plans and policy recommendations. The commission is also charged to carry out any regional projects, which serve the common interests of member counties and adjacent municipalities.