

Memo

To: Matt Dean, John Gardner, Rick Maxey
From: Joe Burch
Date: 1/6/2014
Re: 2014-15 45-Day ADM Forecast

Attached please find the 2014-15 45-Day ADM Forecast. As always if you have any questions/comments/concerns about these figures, please let me know as soon as possible.

IMPORTANT NOTES FOR THE 2014-15 FORECAST

- **Overview:** Horry County Schools once again continued to see enrollment growth in 2013-14. The district grew by 871 K-12 students bringing the total K-12 45-Day ADM to 39,011. This represents a K-12 growth rate of 2.28% over 2012-13. Forecasts for 2014-15 indicate a growth rate of 2.27% or 887 students.
- **Kindergarten:** Birth data used in enrollment forecasting is tallied by month thereby accounting for this enrollment date requirement. This indicates total births “eligible” for kindergarten five years later.

In 2013-14, kindergarten enrollments were again less than the birth rate in Horry County five years previous. This is the third year in a row this has occurred. Since 1997, kindergarten enrollments have typically indicated a net in-migration of new students. In 2007-08 Horry County births totaled 3,287. In 2013-14 (five years later) kindergarten enrollment was 3,120, a decrease of roughly 5% over the 2007-08 birth rate. This is indicative of an Out-Migration of parents with children in these age groups.

Based on the Census data and state birth/death data the current fertility rates in Horry County have dropped below “replacement” level. A population that maintained a Total Fertility Rate (TFR) of 3.8 over an extended period of time without a correspondingly high death or emigration rate would increase rapidly, whereas a population that maintained a TFR of 2.0 over a long time would decline (unless it had a large enough immigration). However, it may take several generations for a change in the total fertility rate to be reflected in the birth rate. This phenomenon carries forward for several generations and is called population momentum or population-lag effect.

The TFR for Horry County is 1.97. A TFR of 2.1 is necessary to maintain replacement levels. For the purposes of short and long range forecasting this data must be considered. Future kindergarten forecasts will continue to reflect this trend.

- Child Development and Pre-K Self Contained ADM's are not forecasted.
- School choice options resulting from the effects of No Child Left Behind (NCLB) and schools not meeting Adequate Yearly Progress (AYP) are not forecasted for the coming year. Schools already under choice options are forecasted as normal, assuming that the effects of choice from previous years are already reflected in the membership.
- Existing/Recurring Student Transfers are already reflected in each school's membership data. Predicting the number of new transfers, or the number of existing transfers that may return to their base school, is beyond the scope of these forecasts.

HORRY COUNTY SCHOOLS
2014-15
45-DAY ADM FORECAST

SCHOOL	K	1	2	3	4	5	6	7	8	9	10	11	12	2014-15	2013-14	CHANGE
AYNOR HIGH										251	230	210	136	827	809	18
CAROLINA FOREST HIGH										795	560	453	403	2,211	2072	139
CONWAY HIGH										495	407	322	284	1,508	1515	(7)
GREEN SEA FLOYDS HIGH							85	109	84	109	80	59	72	598	604	(6)
LORIS HIGH										275	201	171	177	824	784	40
MYRTLE BEACH HIGH										403	315	297	236	1,251	1200	51
N MYRTLE BEACH HIGH										383	342	293	242	1,260	1297	(37)
SOCASSEE HIGH										415	441	373	350	1,579	1542	37
ST JAMES HIGH										449	370	381	299	1,499	1445	54
EARLY COLLEGE										100	92	87	87	366	362	4
AYNOR MIDDLE							218	210	214					642	634	8
BLACK WATER MIDDLE							255	230	261					746	762	(16)
CONWAY MIDDLE							188	193	219					600	614	(14)
FORESTBROOK MIDDLE							422	375	363					1,160	1096	64
LORIS MIDDLE							248	236	251					735	725	10
MYRTLE BEACH MIDDLE							354	344	379					1,077	1042	35
N MYRTLE BEACH MIDDLE							340	374	390					1,104	1098	6
OCEAN BAY MIDDLE							400	397	413					1,210	1204	6
ST JAMES MIDDLE							380	387	436					1,203	1172	31
WHITEMORE PARK MIDDLE							206	240	197					643	649	(6)
AYNOR ELEMENTARY	111	111	106	112	124	116								680	676	4
BURGESS ELEMENTARY	105	131	133	137	126	86								718	695	23
CAROLINA FOREST ELEMENTARY	139	140	152	163	159	148								901	874	27
CONWAY ELEMENTARY	115	82	119	87	113	113								629	619	10
DAISY ELEMENTARY	104	104	109	90	100	86								593	540	53
FORESTBROOK ELEMENTARY	143	170	177	156	162	130								938	922	16
GREEN SEA FLOYDS ELEMENTARY	99	100	103	93	90	107								592	573	19
HOMWOOD ELEMENTARY	106	96	100	95	102	105								604	593	11
KINGSTON ELEMENTARY	103	68	90	66	63	61								451	594	(143)
LAKEWOOD ELEMENTARY	144	164	164	134	153	130								889	864	25
LORIS ELEMENTARY	125	136	151	123	132	134								801	660	141
MIDLAND ELEMENTARY	87	94	104	79	83	101								548	520	28
MYRTLE BEACH ELEMENTARY			366	353										719	678	41
MYRTLE BEACH INTERMEDIATE					335	325								660	672	(12)
MYRTLE BEACH PRIMARY	362	381												743	736	7
NORTH MYRTLE BEACH ELEMENTARY (#3)	108	99	93	106	99	106								611	700	(89)
NORTH MYRTLE BEACH INTERMEDIATE (#2)	112	132	117	119	141	140								761	673	88
NORTH MYRTLE BEACH PRIMARY (#1)	135	134	150	116	122	103								760	714	46
OCEAN BAY ELEMENTARY	104	101	126	117	107	114								669	652	17
PALMETTO BAYS ELEMENTARY	104	90	103	81	92	81								551	547	4
PEE DEE ELEMENTARY	128	125	112	133	117	114								729	710	19
RIVER OAKS ELEMENTARY	120	129	136	129	111	103								728	679	49
SEASIDE ELEMENTARY	113	121	97	91	121	121								664	669	(5)
SOCASSEE ELEMENTARY	123	125	118	121	114	94								695	684	11
SOUTH CONWAY ELEMENTARY	98	98	99	78	88	95								556	532	24
ST JAMES ELEMENTARY	134	146	156	157	144	159								896	862	34
WACCAMAW ELEMENTARY	127	136	125	136	115	127								766	747	19
TOTAL	3,149	3,213	3,306	3,072	3,113	2,999	3,096	3,095	3,207	3,675	3,038	2,646	2,286	39,895	39,011	884

2014-15 APPROVED ATTENDANCE AREA REALIGNMENTS ARE INCLUDED

METHODOLOGY FOR ENROLLMENT FORECASTS IN HORRY COUNTY SCHOOLS

DEMOGRAPHICS

Demographic changes in the enrollment of Horry County Schools will be influenced by fluctuations in many factors, including size of the system's general population, geographic and age distribution, quantity and types of housing, average family size, holding power of the schools, income levels and birth rates. Forecasting is not an exact science of prediction, but rather involves informed and educated projections, using various methods to increase the probability of the final predictions. Forecasting an exact future population is simply not realistic. Information was received from the following agencies in an attempt to obtain the most accurate forecast of students to be educated during our projection period.

- Current and past enrollment forecasts conducted by district staff.
- State of South Carolina Department of Health and Environmental Control
- Horry County Planning Department
- Myrtle Beach Planning Department
- North Myrtle Beach Planning Department
- Conway Planning Department
- Towns of Aynor, Loris, Atlantic Beach, and Surfside Beach
- Grand Strand Economic Outlook Board
- BB&T Center for Economic and Community Development
- Waccamaw Regional Planning Council
- SC Budget and Control Board
- Various local and regional private companies
- U.S. Department of Education, National Center for Education Statistics
- U.S. Bureau of Census, Population Division

As with any forecast, it is impossible to be 100% accurate. Demographics can, and will, change. One significant hurricane landfall in or near Horry County could disrupt migration trends and hence our assumptions. Trends in the tourism industry or serious economic conditions can also affect Horry County's long-range forecasts and even short-range forecasts as well. That is why any long-range construction program for schools needs to be evaluated annually for consistency and to identify emerging trends and react accordingly to them.

ANALYSIS OF DATA USED IN FORECASTS

The SC Department of Education funds public school districts based on what is termed Average Daily Membership (ADM). This ADM figure is an average of the student attendance for that period.

Horry County Schools utilizes 45-Day ADM data for both short and long-range membership projections.

SHORT-RANGE MEMBERSHIP FORECASTS

COHORT-SURVIVAL PROCEDURE

The procedure used for forecasting short-range public school memberships for grades 1-12 in Horry County Schools is referred to as a Modified Cohort-Survival Forecast. This procedure is probably the most widely used for making short-range membership forecasts. The procedure for developing Kindergarten membership forecasts is similar, but slightly different and will be explained separately.

The data requirements for implementation of this procedure are:

1. Forecasted Kindergarten membership for each year of the forecast period.
2. A matrix of grade-to-grade/school-to-school survival ratios.

The forecast period is the range of years for which membership is to be forecasted. A survival ratio is the quotient obtained by dividing the membership of one grade for a school year into the membership of the next higher grade a year later. The survival ratios are different for each school and for each grade level. However, the survival ratios for a given grade level within the district, as a whole, tend to remain relatively constant from year to year.

There are some cases when these ratios do change dramatically. These changes are typically related to instances of industrial facilities opening or closing, or shift in the attendance lines, or high growth areas. Generally the survival ratios are close to 1.0. A survival ratio less than 1.0 indicates the net effect of pupils moving out of the district, non-promotions, dropouts, in-district migration, transfers to private schools, etc. A survival ratio greater than 1.0 indicates the net effects of pupils moving into the district, promotions, retentions, transfers from private schools, etc.

MATRIX OF SURVIVAL RATIOS BY GRADE

The matrix of survival ratios is computed by dividing the membership of grades K-11 into the membership of grades 1-12 of the succeeding year.

PUBLIC KINDERGARTEN MEMBERSHIP FORECASTS

Producing accurate forecasts for the number of Kindergarten students in any given year is one of the more challenging and difficult areas of the student forecast process. We now discuss the various advantages and disadvantages of three different methods of projecting Kindergarten students.

Cohort-Survival Method

The Cohort-Survival method traditionally projects the number of Kindergarten students by lagging district area births by five years and calculating the ratio of births to Kindergarten students. This ratio varies somewhat over time of all the grade progression ratios, mostly due to the five-year time lag.

Kindergarten Trend Forecast Method

Another, very simple approach to forecasting the number of Kindergarten students in a given year is to extend the existing trend into the future. This can be done statistically by doing what is called “regression” analysis, essentially creating a “best fit” line to the annual point data and extending that line into future years. This can be done for an overall trend, or to project more recent trends forward. An obvious advantage to this method for forecasting Kindergarten numbers is that it is simple and straightforward. A disadvantage is that this method is not tied to any other supporting data that might influence the number of future Kindergarteners, such as birth data.

Door to Door Method

In researching methodologies, there are some school districts throughout the United States that use a Door to Door method of forecasting Kindergarten memberships. Districts actually get PTO's, district staff, and other volunteers to visit every dwelling unit in their service area during the summer to inquire about students who will be starting Kindergarten that year. Obviously this method yields extremely accurate 1 year forecasts. Unfortunately, in a district like Horry that is over 1,100 square miles and boasts over 150,000 dwelling units, this method is unrealistic.

Horry County Schools

Our approach to forecasting short-range Kindergarten membership is to assume that the number of live births five years prior will approximate the Kindergarten membership of a given year, applying a survival ratio from Birth – K. Over time this method has produced fairly accurate results for Horry County Schools, although it should be noted that any approach to forecasting Kindergarten membership is significantly affected by shifts in migration and demographics. Students in South Carolina must be 5 years old on or before September 1 of the year they wish to enter kindergarten. Birth data used in enrollment forecasting is tallied by month thereby accounting for this enrollment date requirement. The Birth Period for a given year is considered to be the recorded births

for the period from September of a given year through the end of August in the subsequent year. This indicates total births “eligible” for kindergarten five years later.

SCHOOL-BY-SCHOOL FORECASTS

The school-by-school forecast follows the same basic methodology. The district total is used as a Control Total but each school is still projected on its own via Cohort-Survival.

Once the initial grade 1-12 forecasts is established, the Kindergarten forecasts for the district is then disaggregated out to each school. This is accomplished based on the average percentage of the total kindergarten population that the school had for the past 1-3 years, plus any other known factors that local knowledge of the area provides.

Once the K-12 number is established, a comparison is done to the control total. Adjustments based on local knowledge may be made in an attempt to get closer to the overall control total.

ACCURACY

The forecasts are compared and tested for reasonableness with previous year’s actual data, as well as with other models such as the South Carolina Department of Education projections as well as US Census Data for various school age groupings. Adjustments may be made to the Cohort Survival model based on the following factors:

1. changes in the rate or type of new housing development within Horry County
2. changes in economic conditions (e.g. the creation of jobs usually means families are moving in whereas a recession usually means families are moving out)
3. natural phenomena (e.g. hurricanes)

There are also decisions made within Horry County Schools which may have a dramatic effect upon school by school forecasts. These may include:

1. Adequate Yearly Progress (AYP) choice reassignments
2. Out of Zone Student Transfers within the district
3. Opening and closing of charter and private schools throughout the year

Assumptions Used in the Calculation of the Horry Enrollment Forecasts

- a. There will be no short term economic recovery in the next 18 months and the national, state or regional economy does not go into deep recession at anytime during the 10 years of the forecasts; (Deep recession is defined as four consecutive quarters where the GDP contracts greater than 1% per quarter)
- b. Interest rates have reached an historic low and will not fluctuate more than one percentage point in the short term; the interest rate for a 30 year fixed home mortgage stays below 5.5%;
- c. The rate of mortgage approval stays at 1999-2002 levels and lenders do not return to “sub-prime” mortgage practices;
- d. There are no additional restrictions placed on home mortgage lenders or additional bankruptcies of major credit providers;
- e. The rate of housing foreclosures does not exceed 125% of the 2005-2007 average of Horry County;
- f. All currently planned, platted, and approved housing developments are built out and completed by 2020. All housing units constructed are occupied by 2022;
- g. The unemployment rates for Horry County will remain below 9.0%;
- h. The rate of students transferring into and out of Horry County Schools will remain at the 2005-06 to 2011-12 average;
- i. The inflation rate for gasoline will stay below 5% per year;
- j. There will be no building moratorium within the district;
- k. Businesses within the district and the Horry County Area will remain viable;
- l. The number of existing home sales in the district that are a result of “distress sales” (homes worth less than the current mortgage value) will not exceed 20% of total homes sales in the district for any given year;
- m. Housing turnover rates (sale of existing homes in the district) will remain at their current levels. The majority of existing home sales are made by home owners over the age of 55;
- n. Private school and home school attendance rates will remain constant;
- o. The recent decline in new home construction has ended and building rates have stabilized;
- p. The rate of foreclosures for commercial property remains at the 2004-2007 average for Horry County;