

Student Membership History and Forecast

Each year, VDOE collects statistics on the number of students enrolled in public school on September 30th. Student counts are reported by grade assignment. Table 1. shows Fall Membership counts from the past five years and Table 2. shows the forecasted Fall Membership counts for the next five years.

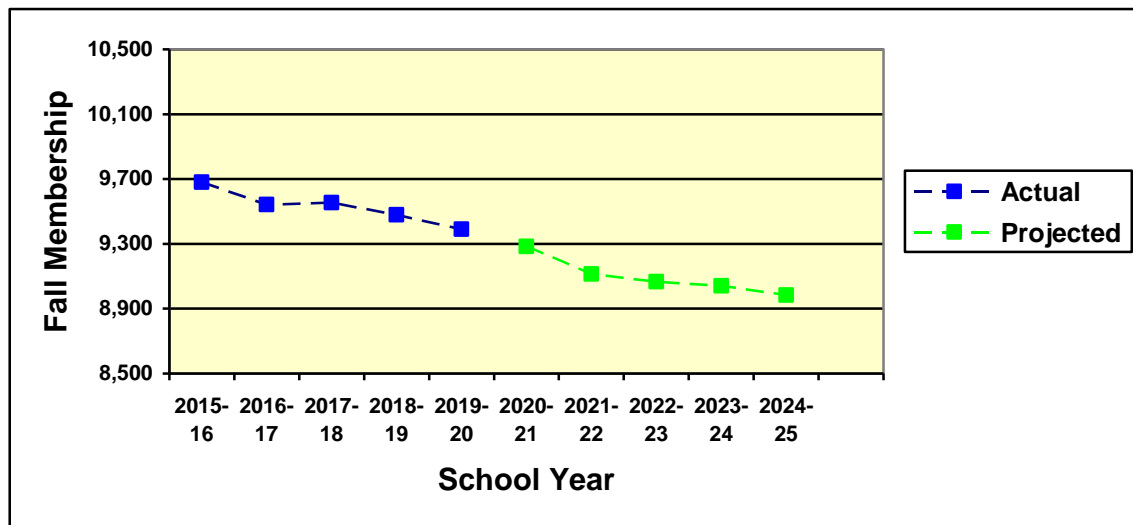
Table 1. 2015-16 to 2019-20 September 30 Fall Membership

School Year	2015-16	2016-17	2017-18	2018-19	2019-20
Fall Membership	9,680	9,542	9,554	9,480	9,391

Table 2. 2020-21 to 2024-25 Forecasted Fall Membership

School Year	2020-21	2021-22	2022-23	2023-24	2024-25
Fall Membership	9,283	9,115	9,066	9,040	8,984

Figure 1. 2015-16 to 2024-25 Fall Membership Forecast



Forecast Methodology

All forecasts are an extrapolation of the past, involve some level of judgment, and inherently contain a range of error. For these reasons, a consistent methodology along with sound judgment is important when creating and evaluating the forecast.

The forecasting methodology used to predict the number of students who will attend Bedford County Public Schools for the next five years is the cohort progression method. The accuracy of this forecasting method will be analyzed and used to monitor and refine the process in the future.

The cohort progression method involves applying an average growth rate over time to the current year's membership by grade level cohort. The calculation is based on birth data, which is used to forecast kindergarten enrollment and student membership by grade. Birth data by place of residence is obtained from the Virginia Department of Health, Division of Health Statistics (<http://www.vdh.state.va.us/healthstats>). For Bedford County, the birth data for 2017 and 2018 has not been posted and therefore, the number of births for 2016 was used in membership calculations for 2022-23 and 2023-24. The K-12 student membership numbers are obtained from the Virginia Department of Education

(VDOE) fall membership (September 30) report
http://www.doe.virginia.gov/statistics_reports/enrollment/fall_membership/index.shtml).

The cohort-progression ratio is the number of students in a particular grade divided by the number of students in the previous grade in the previous school year. In other words, it is the rate of students in the cohort being “promoted” to the next grade level. This ratio varies by year and grade level based on families moving in and out of the county, students transferring to different schools within the division, student retention, and other factors. The cohort-progression ratio incorporates all the different factors affecting student enrollment, retention, and promotion in one number.

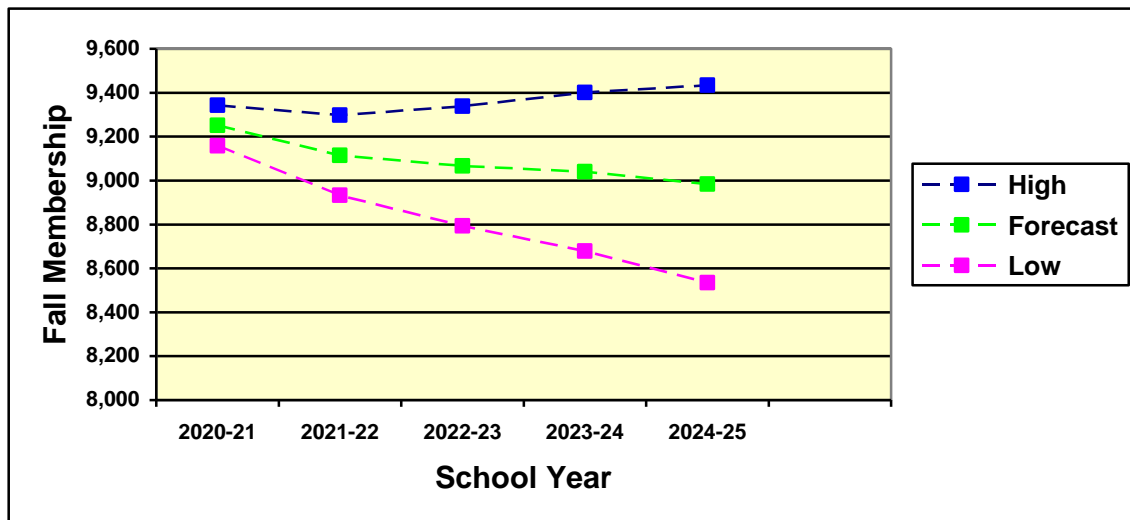
To develop the membership forecast, cohort-progression ratios are calculated between every pair of consecutive grades for the past 10 school years. Mathematical models are then applied to determine the cohort-progression ratio average. The average ratio is applied to the appropriate grade level to project that particular grade forward in time.

Table 3. 2019-20 to 2024-25 Fall Membership by Grade

Year	K	1	2	3	4	5	6	7	8	9	10	11	12	Total
2019-20	702	678	686	675	684	703	689	740	762	766	754	794	758	9,391
2020-21	665	686	679	682	675	695	696	698	747	799	733	726	802	9,283
2021-22	670	652	676	675	678	683	687	705	704	782	763	706	734	9,115
2022-23	690	672	655	670	673	688	676	696	711	738	748	736	713	9,066
2023-24	690	692	675	649	668	683	681	685	702	745	706	721	743	9,040
2024-25	690	692	695	669	647	678	676	690	691	736	712	680	728	8,984

Fluctuating cohort-progression ratios over several years make accurate forecasting difficult. Membership forecast accuracy is based on the accuracy of the selected fall membership ratio average and the accuracy of the forecast from the cohort-progression method. Forecasts also become less accurate with each subsequent year being forecasted. To portray this, the membership forecast with range shows the membership forecast for the following five years with an error range of $\pm 1\%$ the first year and an additional 1% each year thereafter.

Figure 2. 2020-21 to 2024-25 Fall Membership Forecast with Range



Five-Year Membership Forecast by Zone

The same forecast methodology was applied to each school zone in Bedford County. The information provided shows past, present, and projected membership for the Forest Zone, Liberty Zone, and Staunton River Zone.

Forest Zone

Table 4. 2015-16 to 2019-20 September 30 Fall Membership for Forest Zone

School Year	2015-16	2016-17	2017-18	2018-19	2019-20
Fall Membership	4,060	4,059	4,097	4,125	4,087

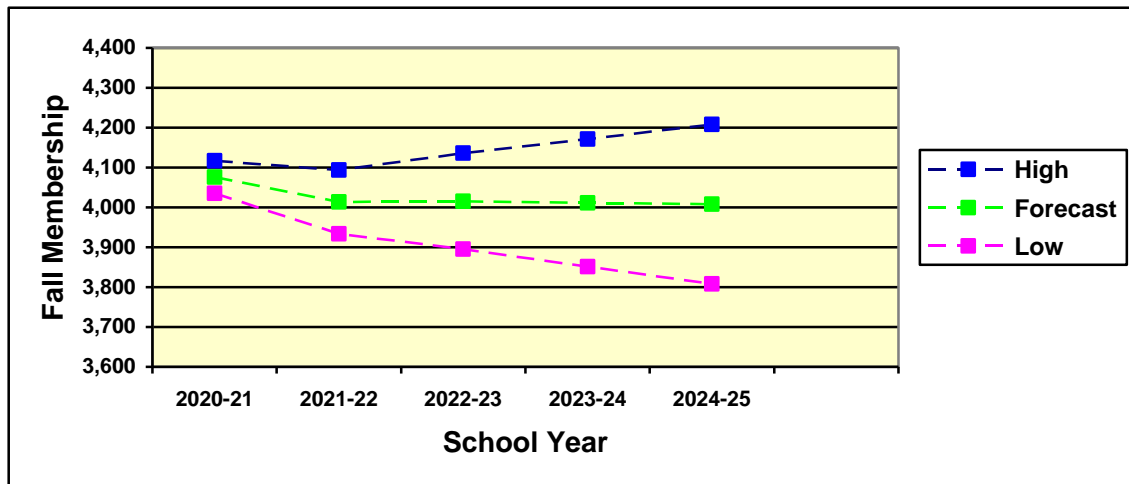
Table 5. 2020-21 to 2024-25 Forest Zone Forecasted Fall Membership

School Year	2020-21	2021-22	2022-23	2023-24	2024-25
Fall Membership	4,076	4,014	4,015	4,011	4,008

Table 6. Forest Zone Membership by Grade 2019-2025

Year	K	1	2	3	4	5	6	7	8	9	10	11	12	Total
2019-20	300	280	314	289	299	297	303	293	329	347	332	374	331	4,087
2020-21	286	305	285	319	290	305	289	308	296	349	337	328	379	4,076
2021-22	295	291	309	289	320	297	296	291	311	312	338	333	331	4,014
2022-23	304	300	296	316	290	328	287	301	296	327	305	332	335	4,015
2023-24	304	309	305	301	316	298	317	292	303	311	318	301	336	4,011
2024-25	304	309	315	310	302	322	288	321	296	318	304	314	304	4,008

Figure 3. 2020-21 to 2024-25 Forest Zone Fall Membership Forecast with Range



Liberty Zone

Table 7. 2015-16 to 2019-20 September 30 Fall Membership for Liberty Zone

School Year	2015-16	2016-17	2017-18	2018-19	2019-20
Fall Membership	2,578	2,527	2,487	2,466	2,450

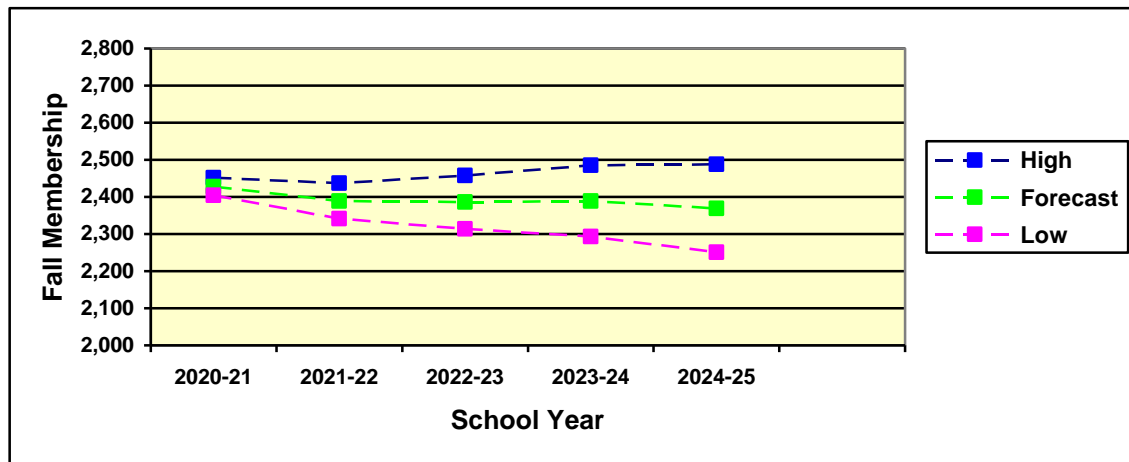
Table 8. 2021-2022 to 2024-25 Liberty Zone Forecasted Fall Membership

School Year	2020-21	2021-22	2022-23	2023-24	2024-25
Fall Membership	2,428	2,389	2,386	2,389	2,369

Table 9. Liberty Zone Membership by Grade 2019-2025

Year	K	1	2	3	4	5	6	7	8	9	10	11	12	Total
2019-20	203	192	162	190	171	185	195	196	203	182	186	195	190	2,450
2020-21	182	199	189	159	186	171	189	197	195	209	176	178	199	2,428
2021-22	188	179	194	183	155	184	174	190	196	199	198	168	181	2,389
2022-23	193	185	176	191	181	155	188	177	189	201	191	189	170	2,386
2023-24	193	194	187	180	185	190	160	187	176	191	183	181	189	2,389
2024-25	193	189	187	178	169	186	184	160	191	180	186	185	187	2,369

Figure 4. 2020-21 to 2024-25 Liberty Zone Fall Membership Forecast with Range



Staunton River Zone

Table 10. 2015-16 to 2019-20 September 30 Fall Membership for Staunton River Zone

School Year	2015-16	2016-17	2017-18	2018-19	2019-20
Fall Membership	3,104	3,043	2,956	2,970	2,854

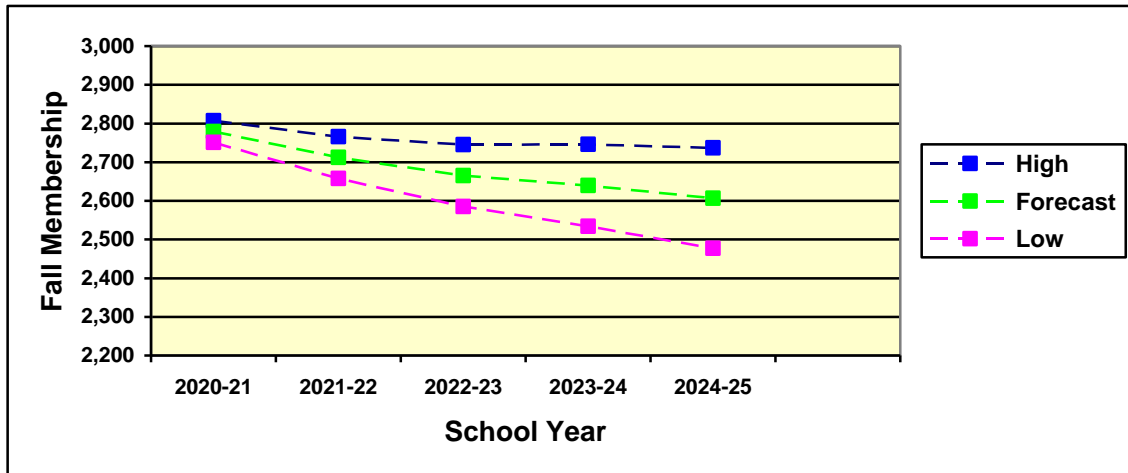
Table 11. 2020-21 to 2024-25 Staunton River Zone Forecasted Fall Membership

School Year	2020-21	2021-22	2022-23	2023-24	2024-25
Fall Membership	2,779	2,712	2,665	2,640	2,607

Table 12. Staunton River Zone Membership by Grade 2019-2025

Year	K	1	2	3	4	5	6	7	8	9	10	11	12	Total
2019-20	199	206	210	196	214	221	191	251	230	237	236	226	237	2,854
2020-21	182	199	204	200	197	218	220	193	256	243	220	222	226	2,779
2021-22	188	182	196	199	201	200	214	221	196	265	224	207	219	2,712
2022-23	193	188	181	192	200	204	198	216	225	206	249	209	204	2,665
2023-24	193	192	187	176	193	201	202	201	221	237	191	234	212	2,640
2024-25	193	190	190	181	177	197	202	204	202	233	222	181	234	2,607

Figure 5. 2020-21 to 2024-25 Staunton River Zone Fall Membership Forecast with Range



School Membership Projections for 2020-21

Table 13. School Membership by Grade 2020-21

School	K	1	2	3	4	5	6	7	8	9	10	11	12	Total
BPS	117	123												240
BES			128	108	118	110								464
BIES	24	30	27	19	26	21								147
BNES	59	78	52	55	58	49								351
FES	52	54	50	62	57	71								346
FMS							297	310	299					906
GES	76	79	76	77	72	82								462
HES	40	37	43	42	35	52								249
JFHS										345	332	320	378	1,375
LHS										213	174	179	197	763
LMS							180	195	195					570
MNES	30	26	39	40	33	27								195
MVES	43	48	38	34	46	43								252
NLA	47	43	60	51	41	46								288
ORES	38	42	40	38	40	30								228
SES	53	51	48	50	56	56								314
SRHS										241	227	227	227	922
SRMS							219	193	253					665
TJES	86	75	78	106	93	108								546
Division	665	686	679	682	675	695	696	698	747	799	733	726	802	9,283

Capacities in Bedford County Public Schools

Bedford County Public Schools has not traditionally defined nor determined its own operation capacity data. The most recent assessment of operational capacity by EMG Corporation was presented to the School Board on December 13, 2016. An earlier study by Hayes, Seay, Mattern & Mattern, Inc. (HSMM) was completed in January 2002. The HSMM 2002 report describes its methodology for calculating operational capacities for schools as follows:

Elementary Schools

- 20 students for each general education classroom
- 16 students for each special education and preschool classroom

Middle Schools

- 23 students for each “teaching station” (all areas where courses are regularly taught)
- 10 students for each special education classroom
- Total is then multiplied by an 85% “utilization factor”

High Schools

- 25 students for each “teaching station” (all areas where courses are regularly taught)
- 10 students for each special education classroom
- Total is then multiplied by an 75% “utilization factor”

Note that these do NOT include capacity for any temporary buildings located at a school site, nor do either of these methods account for the capacity of “core” spaces/areas such as restrooms, cafeterias, library media center, etc.

The EMG study used a similar methodology but included a Pre-K multiplier along with options for identifying spaces other than the typical classrooms space such art, music, STEAM, and Pre-K rooms that may have differing enrollments which effect a building’s capacity.

Capturing the impact of preschool programs in a school’s operational capacity is challenging because unlike K-12 programs that are tied to attendance areas, the placement and delivery of preschool programs is somewhat discretionary. The HSMM study does not accurately capture the impact of pre-K programs on school capacity. The EMG study included a methodology to measure the impact of Pre-K programs and staff feels more confident that the EMG capacity for elementary schools is a more accurate measure. EMG capacity is less desirable for measuring middle and high school capacity. To deliver the best measure of capacity, both studies were considered in determining a school’s capacity.

Table 18. School Capacities (HSMM 2002& EMG 2016)

School	Capacity
Bedford ES	620
Bedford Primary School	352
Big Island ES	260
Boonsboro ES	380
Forest ES	389
Goodview ES	656
Huddleston ES	249
Moneta ES	258
Montvale ES	330
New London Academy	301
Otter River ES	260
Stewartsville ES	592
Thomas Jefferson ES	656
Liberty MS	700*
Forest MS	1,200*
Staunton River MS	796
Jefferson Forest HS	1,600*
Liberty HS	1,023
Staunton River HS	1,123
Total	11,745

*Capacity according to architectural design

Bedford County Public Schools Projected Enrollment & Capacities

Table 19. Percent Capacity

School	2020-21 Projected Enrollment	Capacity	Percent Capacity
Bedford Elementary	464	620	75%
Bedford Primary	240	352	68%
Big Island Elementary	147	260	57%
Boonsboro Elementary	351	380	92%
Forest Elementary	346	389	89%
Goodview Elementary	462	656	71%
Huddleston Elementary	249	249	100%
Moneta Elementary	195	258	76%
Montvale Elementary	252	330	76%
New London Academy	288	301	95%
Otter River Elementary	228	260	88%
Stewartsville Elementary	314	592	53%
Thomas Jefferson Elementary	546	656	83%
Forest Middle	906	1,200*	76%
Liberty Middle	570	700*	81%
Staunton River Middle	665	796	84%
Jefferson Forest High	1,375	1,600*	86%
Liberty High	763	1,023	75%
Staunton River High	922	1,123	82%
Total	9,283	11,745	79%

* Capacity according to architectural design

Percent Capacity is the projected enrollment divided by capacity and does not include any changes to school zones or school zone transfers than may occur due to change in policy.

Highlighted Schools recommended as closed to non-residents and in-county zone transfers for 2020-21.