



FutureThink

Formerly DeJONG-HEALY

DAYTON PUBLIC SCHOOL DISTRICT

Montgomery County K-12 School Districts
Enrollment Projections Report
December 2017

INTRODUCTION

Based on a request from the Montgomery County ESC, **FutureThink** was contracted to develop enrollment projections for the 16 school districts in the County. This report contains the enrollment projections for Dayton Public School District.

This report contains ten-year enrollment projections, which were developed by analyzing the following data:

- ▶ Live birth data
- ▶ Historical enrollment
- ▶ Community school enrollment
- ▶ Open enrollment
- ▶ Community demographics
- ▶ Housing information

The projections presented in this report are meant to serve as a planning tool for the future and represent the most likely direction of the District.

Montgomery County ESC

HISTORICAL ENROLLMENT

Over the past ten years, student enrollment in the Dayton Public School District has decreased by 2,478 students in grades K – 12, including ungraded students. Total enrollment for the 2016-17 school year is 12,434 students.

Dayton Public School District
Historical Enrollment

Grade	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
K	1,167	1,141	1,140	1,203	1,190	1,258	1,244	1,171	1,095	1,013
1	1,249	1,194	1,143	1,165	1,140	1,132	1,159	1,133	1,135	1,035
2	1,193	1,188	1,121	1,103	1,093	1,068	1,017	1,083	1,052	1,064
3	1,136	1,170	1,124	1,083	1,076	1,044	1,016	1,011	1,082	1,043
4	1,097	1,094	1,116	1,103	1,043	1,025	996	891	923	953
5	1,055	1,123	1,014	1,114	1,109	1,033	1,031	961	883	885
6	1,096	1,041	1,107	1,046	1,087	1,046	977	938	928	807
7	1,092	1,096	1,070	1,106	1,086	1,097	1,071	977	938	851
8	1,170	1,064	1,045	1,063	1,061	1,025	1,059	1,062	980	878
9	1,798	1,651	1,403	1,481	1,413	1,291	1,356	1,408	1,366	1,267
10	1,115	1,029	1,043	1,015	1,038	1,079	984	1,010	1,054	1,005
11	890	839	832	811	766	782	848	817	857	870
12	814	787	745	828	802	736	758	815	731	719
K - 12 Total	14,872	14,417	13,903	14,121	13,904	13,616	13,516	13,277	13,024	12,390
Ungraded	40	0	35	54	48	52	41	38	47	44
Grand Total	14,912	14,417	13,938	14,175	13,952	13,668	13,557	13,315	13,071	12,434

Source: Ohio Department of Education, EMIS

Dayton Public School District
Historical Enrollment by Grade Group

Grade	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
K - 5	6,897	6,910	6,658	6,771	6,651	6,560	6,463	6,250	6,170	5,993
6 - 8	3,358	3,201	3,222	3,215	3,234	3,168	3,107	2,977	2,846	2,536
9 - 12	4,617	4,306	4,023	4,135	4,019	3,888	3,946	4,050	4,008	3,861
K - 12 Total	14,872	14,417	13,903	14,121	13,904	13,616	13,516	13,277	13,024	12,390
Ungraded	40	0	35	54	48	52	41	38	47	44
Grand Total	14,912	14,417	13,938	14,175	13,952	13,668	13,557	13,315	13,071	12,434

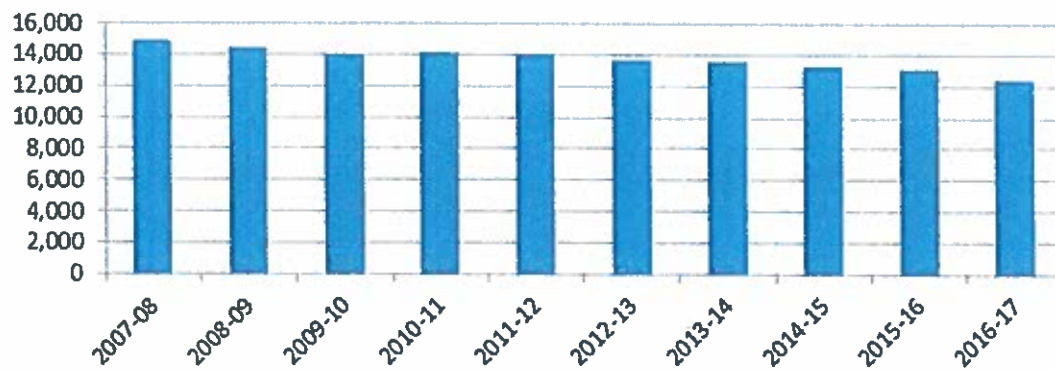
Source: Ohio Department of Education, EMIS

Please note that for years 2014-15 through 2016-17, the 11th and 12th grade enrollment does not include students who attend a JVSD full-time.

Montgomery County ESC

The following graph illustrates the District's K – 12 enrollment history from 2007-08 through 2016-17.

Dayton Public School District Historical Enrollment



Montgomery County ESC

OPEN ENROLLMENT

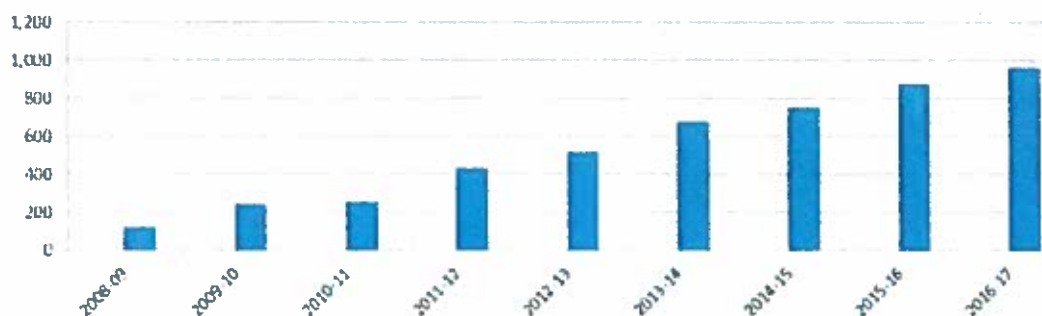
Since 2008-09, the number of Dayton Public School District students “open enrolling” out of the District has increased from 127 to 967 students. There are no students “open enrolling” into the District. Significant changes in the number of students “open enrolling” into or out of the District from year to year can impact enrollment projections and should be monitored.

Dayton Public School District
Open Enrollment - OUT

Grade	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
K	4	6	14	23	44	45	31	33	46
1	9	8	10	26	30	53	56	42	47
2	2	17	8	22	30	36	56	73	53
3	11	14	20	21	32	32	39	67	77
4	3	20	16	35	37	42	40	49	78
5	5	11	19	30	34	48	50	54	64
6	9	13	16	27	29	47	57	59	59
7	7	17	17	32	32	34	54	76	75
8	4	20	16	24	38	41	44	66	79
9	21	17	26	63	68	79	84	96	117
10	21	43	23	40	61	92	74	89	102
11	21	33	38	47	46	80	84	75	86
12	10	26	32	45	35	48	82	98	84
Ungraded	0	0	0	0	4	0	0	0	0
Grand Total	127	245	255	435	520	677	751	877	967

Source: Ohio Department of Education, EMIS

Dayton Public School District
Open Enrollment - Out



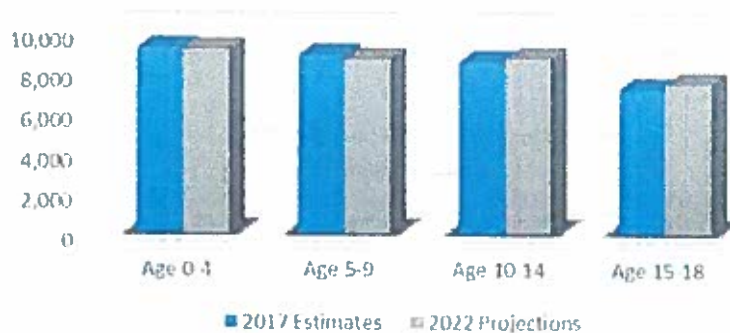
Montgomery County ESC

The total population in the District is 150,545. This population is projected to decrease by 144 people, or less than 1%, over a 5-year period. The 0-18 year-old population in the District currently totals 33,894. This population is projected to increase by 148 people, or less than 1 percent. The median age is projected to increase by approximately 2%, from 36.8 to 37.5 years of age.

Dayton City School District	2017 Estimates	2022 Projections	Change 2017-22	Change 2017-22 (%)
Total Population	150,545	150,401	-144	-0.1%
Age 0-4	9,225	9,162	-63	-0.7%
Age 5-9	8,892	8,679	-213	-2.4%
Age 10-14	8,559	8,727	168	2.0%
Age 15-18	7,218	7,474	256	3.5%
Total Age 0-18	33,894	34,042	148	0.4%
Median Age	36.8	37.5	0.7	1.9%

Source: ESRI

Dayton City School District
Population Estimates & Projections by Age
Group



Montgomery County ESC

ENROLLMENT PROJECTION

Enrollment projections were developed after analyzing the data collected in this report. The projections indicate a decrease of 1,362 students from the 2016-17 to the 2026-27 school year. The following tables and graph illustrate projected enrollments by grade and by grade group through the 2026-27 school year.

Dayton Public School District
Projected Enrollment

Grade	2016-17 Actual	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
K	1,013	1,158	1,158	1,028	1,043	1,045	1,044	1,043	1,043	1,042	1,042
1	1,035	1,144	1,144	1,018	990	1,004	1,006	1,005	1,005	1,004	1,004
2	1,064	1,056	1,056	965	955	928	942	944	943	943	942
3	1,043	1,007	1,007	911	960	950	924	937	939	938	938
4	953	968	968	876	825	870	861	837	849	851	850
5	885	936	941	948	865	815	860	851	827	839	840
6	807	906	893	872	885	808	761	803	794	772	783
7	851	883	909	887	880	893	815	768	810	801	779
8	878	871	840	815	867	860	872	796	750	791	783
9	1,267	1,230	1,271	1,041	1,066	1,134	1,124	1,141	1,041	981	1,035
10	1,005	742	697	814	779	797	848	841	854	779	734
11	870	562	527	718	680	650	666	708	702	713	650
12	719	535	515	725	658	623	596	610	649	643	653
K - 12 Total	12,390	11,998	11,926	11,618	11,453	11,377	11,319	11,284	11,206	11,097	11,033
Ungraded	44	43	40	40	39	39	39	39	39	39	39
Grand Total	12,434	12,041	11,966	11,658	11,492	11,416	11,358	11,323	11,245	11,136	11,072

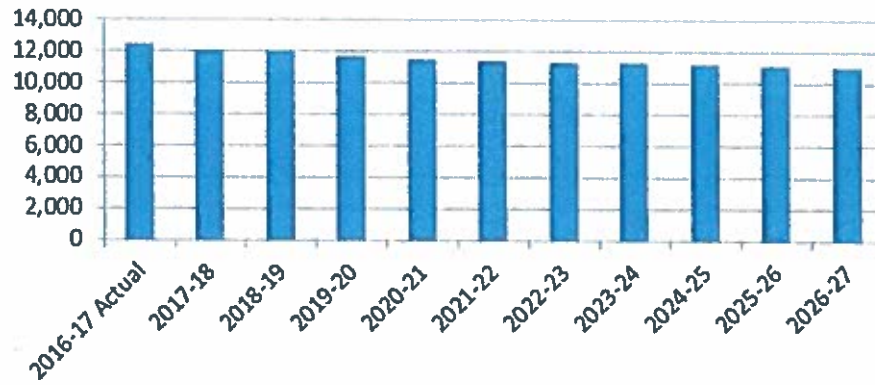
Source: FutureThink

Dayton Public School District
Projected Enrollment by Grade Group

Grade	2016-17 Actual	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
K - 5	5,993	6,269	6,274	5,746	5,638	5,612	5,637	5,617	5,606	5,617	5,616
6 - 8	2,536	2,660	2,642	2,574	2,632	2,561	2,448	2,367	2,354	2,364	2,345
9 - 12	3,861	3,069	3,010	3,298	3,183	3,204	3,234	3,300	3,246	3,116	3,072
K - 12 Total	12,390	11,998	11,926	11,618	11,453	11,377	11,319	11,284	11,206	11,097	11,033
Ungraded	44	43	40	40	39	39	39	39	39	39	39
Grand Total	12,434	12,041	11,966	11,658	11,492	11,416	11,358	11,323	11,245	11,136	11,072

Source: FutureThink

Dayton Public School District Projected Enrollment



CONCLUSION

As with any projection, the District should pay close attention to live birth counts, enrollment in elementary schools, community school enrollment, open enrollment, and any housing growth. Each of these factors will have an impact on future student enrollment.

FutureThink is pleased to have had the opportunity to provide the District with enrollment projection services. We hope this document will provide the necessary information to make informed decisions about the future of the Dayton Public School District.



K-12 District Enrollment Projections

Predicting Future Enrollment

Predicting future enrollment levels presents a significant challenge for school districts across the United States. Accurate, reliable enrollment projections allow school districts to conduct actionable facilities planning, anticipate staffing needs and class sizes, and set budget priorities.



Inform Facilities Planning



Estimate Staffing Needs



Anticipate Budget Priorities

Hanover's Enrollment Projections capability offers districts the opportunity to estimate district-level enrollment each year through 2021. This capability will help district partners address pressing practical and operational questions such as:

- **What will our district look like in five years?**
- **How does our future enrollment compare to our current capacity?**
- **How will population change affect our district's ability to serve our students?**

Hanover's Approach

Hanover uses historical enrollment trends and present rates of population change (birth rate data) to estimate future school district enrollment using a **Cohort Survival Model**. This is done by calculating two mechanisms: the Kindergarten Capture Rate and the Cohort Survival Rate, explained in further detail below.

Kindergarten Capture Rate



The Kindergarten Capture Rate estimates the percentage of children who are born in a district that ultimately enter public school at the Kindergarten level. Hanover estimates this rate for each individual

district using several years of existing fertility rate estimates and kindergarten cohort size data to predict the "capture rate." The Kindergarten Capture Rate is

then applied to future years of birth rate data to estimate the size of the Kindergarten cohort with a five-year delay. Essentially, the children born in 2010 become the Kindergarten cohort of 2015.

Cohort Survival Rate



Once the Kindergarten cohort size is estimated, Hanover's methodology uses an average "survival rate" to predict changes in cohort size year over year as students move through each grade level.

In doing so, the methodology considers in-migration and out-migration, as well as students moving in and out of public or private school at specific grade levels, assuming that patterns for the next five years are similar to the previous five years.

Data Sources

Hanover draws this data from two publicly available sources:

- [American Community Survey \(ACS\)](#)
- [National Center for Education Statistics, Elementary and Secondary Information System \(EISi\)](#)

Using publicly-available data means that our approach is tailored to your district context without needing to request your internal data.

Limitations

Hanover's model relies on national district-level enrollment data, which is currently only available through academic year 2014-15. Second, the Cohort Survival Model does not consider trends in housing, such as student-per-housing-unit rates. As such, this model does not account for rapid development or sudden new migration trends, such as a boom in new housing developments in a given district or the sudden closure of a major employer that causes many families to leave. Finally, the enrollment model may not capture sudden increases in non-district, public charter schools that enroll students who may have ordinarily gone to the school district, if trends are more rapid than over the last five years.

Dayton Public Schools

Figure 1 below presents the preliminary results of our analysis, indicating that enrollment in Dayton Public Schools is expected to decline over the next five to six years.

Figure 1: Birth Rate 5 Years Prior (2012-2017)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Births (5 years Prior)	2,682	2,575	2,881	2,446	2,176	2,091	2,010	2,145	2,081	2,121

Figure 2: Average Grade-Level Survival (2012-2017)

	K*	1	2	3	4	5	6	7	8	9	10	11	12
Survival Rate	46%	93%	93%	97%	94%	99%	95%	102%	96%	130%	74%	78%	103%

Note: Kindergarten survival reflects the percentage of children born five years ago enrolling in district Kindergarten. The grade-level survival figures reflect the enrollment at each grade level as a percentage of enrollment a year prior in the grade below.

Figure 3: K-12 Enrollment Projections, Dayton Public Schools, 2016-2021

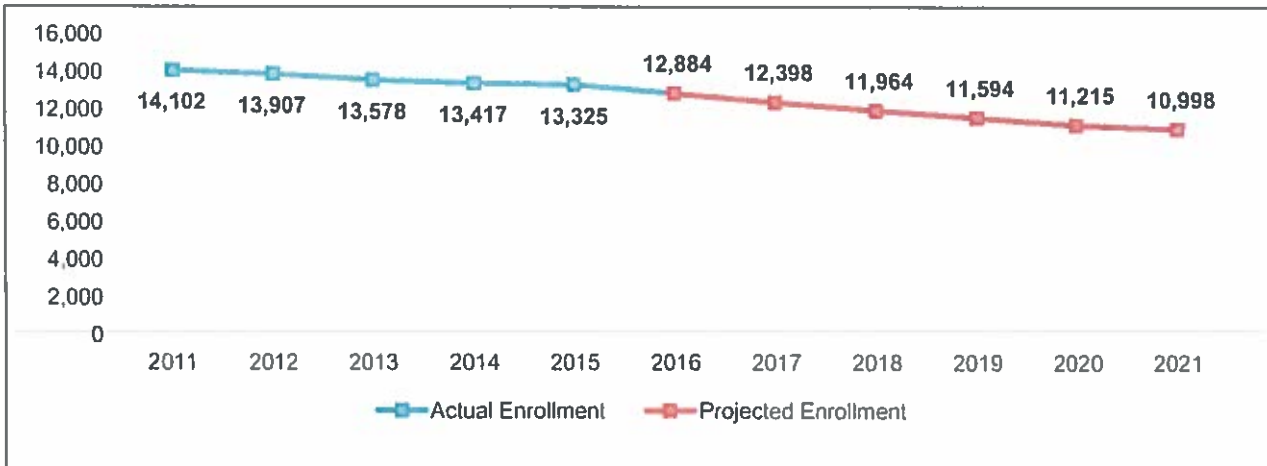


Figure 4: Projected Enrollment by Grade Level, Dayton Public Schools, 2016-2021

Grade level	Actual	Projected					
	2015	2016	2017	2018	2019	2020	2021
Kindergarten	1,168	997	958	921	983	954	972
Grade 1	1,131	1,090	931	895	860	918	890
Grade 2	1,083	1,049	1,011	863	830	797	851
Grade 3	1,012	1,050	1,017	980	837	804	773
Grade 4	893	950	985	954	920	786	755
Grade 5	963	885	941	976	945	911	778
Grade 6	943	910	836	889	923	894	861
Grade 7	974	959	926	850	904	938	909
Grade 8	1,062	939	925	892	820	872	905
Grade 9	1,414	1,376	1,217	1,198	1,156	1,062	1,130
Grade 10	1,010	1,052	1,023	905	891	860	790
Grade 11	817	786	819	796	704	693	669
Grade 12	855	841	810	843	820	725	714