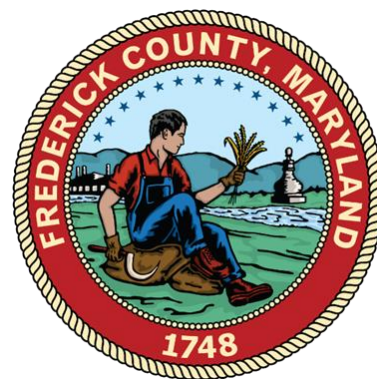


Frederick County Pupil Yield Study

October 20, 2022



Prepared by the Director of Education & Special Initiatives, Office of the County Executive,
in coordination and consultation with Frederick County Planning & Permitting Division,
Frederick County IIT Division, with Student Information Data from Frederick County Public Schools

Introduction

Frederick County Public Schools (FCPS) and the County Planning & Permitting Division have used pupil yield factors since the 1980's for various comprehensive planning and capital facility planning purposes. Beginning in 1998, FCPS conducted a detailed student survey to help develop pupil yield factors by individual school attendance areas. The County conducted updates to the pupil yields using this detailed survey method in 2005, 2007 and 2014 (utilizing data from 2012).

Starting in 2014, the pupil yield data utilized the Geographic Information System (GIS) mapping to align dwelling types with student data more accurately than through a survey. Currently, the County conducts a comprehensive study to update the pupil yield factors approximately every two years. The most recent completed update occurred in 2019.

The County initiated a Pupil Yield Study in the summer of 2022, utilizing an extract of geocoded FCPS student data, as of January 31, 2022. This study was delayed a year, from the anticipated completion date in 2021, in order to allow student enrollments to stabilize following the COVID-19 pandemic. The updated 2022 pupil yield factors should replace the 2019 pupil yield factors, effective November 1, 2022.

Data

Current information for student grade levels and addresses comes from FCPS through the FCPS Student Information System, which is then geocoded. Student counts are determined by where the student lives, rather than where the student attends school.

The County GIS office utilizes and maintains a Housing Unit Inventory (HUI) file. The HUI is a point file with each point representing a housing unit within the County and all of the municipalities, except the City of Frederick and the City of Brunswick. Only post-2010 housing units for the City of Frederick are represented in the HUI. All housing units are represented in the HUI for the City of Brunswick, except for pre-2004 multi-family units. The inventory is updated on a regular basis based on permit information for new residential dwellings and demolition permits. The County removes known active adult communities from the HUI, since no students are generated, and only residences that have obtained a certificate of occupancy are counted.

Calculating the Pupil Yield Factors

The County's GIS team developed two models to conduct the study. One model counted each pupil point by dwelling type for each school attendance area which yielded a count of pupils per dwelling type per school attendance area. The second model applied the HUI and Frederick City Data of Housing Units to calculate the total number of each dwelling type for each school attendance area.

Based on the three dwelling types (single family, town house, and multi-family) pupil yield factors were calculated for each school attendance area as follows:

$$\begin{aligned} & \text{Total number of pupils (for each grade level)} \\ & \div \\ & \text{Total number of dwellings (for each type)} \\ & = \\ & \text{Pupils/dwelling (for each grade level and dwelling type)} \end{aligned}$$

The basic methodology for determining pupil yield rates reflects the number of students within the particular school district compared to the total number of dwellings in that school district.

This methodology provides an average pupil yield rate, since not every new home that is built generates school age children. For the purposes of this study: single-family detached dwellings include mobile homes; townhouse dwellings include duplex dwellings; and, multi-family dwellings include condominiums and apartment (rental) units. This study also includes a unique pupil yield rate specifically for two-over-two dwellings.

Data Anomalies

The utilization of GIS and updated methodologies gives us the ability to match the dwelling type with the number of students at a specific residence. However, anomalies for individual school districts may remain, such as when a school attendance area does not have a particular dwelling unit type, or when a school attendance area does not have any students in a particular dwelling type. In these scenarios, the countywide average for that grade level and dwelling type is applied.

Another anomaly occurs when there are more students attending within a school attendance area than the number of dwelling units for a particular dwelling unit type. This would result in a pupil yield factor of greater than one (1) and use of the countywide average for that school attendance area and particular dwelling type.

2022 PUPIL YIELD RATES

The table below summarizes the countywide pupil yield rates for 2022 and provides a comparison with prior studies. A detailed list of the pupil yield rates by school district and dwelling type is also included in this report. In general, the countywide average of the 2022 pupil yield rates changed slightly compared to the 2019 pupil yield rates.

- At the elementary school level, single family pupil yield rates increased slightly while the townhouse and multi-family rate decreased slightly. This could be the result of more students living in single family units than in 2019, or it could also indicate an increase in this type of dwelling unit with students as compared to 2019.
- At the middle school level, single family dwelling unit types saw a slight increase in pupil yields, while the average pupil yield rates for townhouse units decreased slightly. The pupil yield rates for multi-family units at the middle school level was unchanged from 2019.

- At the high school level, the pupil yield rates for single family and multi-family dwelling units was unchanged when compared to 2019. The pupil yield rate for townhouses increased slightly at the high school level.
- The pupil yield rates for two-over-two dwellings increased at all grade levels, when compared to the 2019 rates. This could be the result of more students living in two-over-two units than in 2019. There was also a substantial increase in the total number of two-over-two dwelling units compared to 2019.
- The highest overall pupil yield rate of 0.41 is at Hillcrest Elementary for townhouse dwelling units. The lowest overall rate is .02 for multi-family dwelling units at Brunswick, New Market and Walkersville Middle Schools.
- The highest rates overall are found in the townhouse dwelling unit type at all levels:
 - Hillcrest ES (0.41)
 - Urbana MS (0.19)
 - Urbana HS (0.23)

Current and Past Countywide Pupil Yield Rates

Dwelling Type	Study Year	Elementary School	Middle School	High School	All Grades
Single Family Detached	1998	0.23	0.14	0.18	0.56
	2005	0.24	0.13	0.18	0.56
	2007	0.23	0.13	0.18	0.54
	2012	0.21	0.11	0.16	0.49
	2017	0.20	0.11	0.15	0.45
	2019	0.19	0.11	0.15	0.45
	2022	0.22	0.12	0.15	0.50
Townhouse	1998	0.20	0.08	0.09	0.37
	2005	0.24	0.10	0.13	0.47
	2007	0.24	0.10	0.13	0.47
	2012	0.27	0.10	0.13	0.49
	2017	0.27	0.12	0.13	0.52
	2019	0.24	0.12	0.13	0.49
	2022	0.20	0.11	0.15	0.45
Multi-Family	1998	0.06	0.02	0.02	0.23
	2005	0.05	0.02	0.02	0.09
	2007	0.05	0.02	0.02	0.09
	2012	0.12	0.04	0.05	0.21
	2017	0.13	0.04	0.05	0.23
	2019	0.12	0.05	0.06	0.23
	2022	0.10	0.05	0.06	0.21
All Dwellings	1998	0.20	0.11	0.14	0.45
	2005	0.21	0.11	0.15	0.48
	2007	0.21	0.11	0.15	0.46
	2012	0.21	0.10	0.14	0.44
	2017	0.20	0.10	0.13	0.43
	2019	0.19	0.10	0.13	0.42
	2022	0.19	0.10	0.13	0.42

**2022 Pupil Yield Rates (effective November 1, 2022*)
Frederick County Public Schools**

Elementary Schools	Single-Family	Townhouse	Multi-Family	Total
Ballenger Cr ES	0.26	0.22	0.15	0.21
Blue Heron ES	0.34	0.21	0.04	0.32
Brunswick ES	0.21	0.16	0.03	0.19
Butterfly Ridge ES	0.19	0.28	0.18	0.20
Carroll Manor ES	0.18	0.32	0.03	0.18
Centerville ES	0.39	0.38	0.33	0.39
Deer Crossing ES	0.30	0.24	0.10***	0.29
Emmitsburg ES	0.11	0.09	0.14	0.11
Glade ES	0.23	0.22	0.07	0.21
Green Valley ES	0.26	0.27	0.10***	0.26
Hillcrest ES	0.40	0.41	0.36	0.39
Kempton ES	0.20	0.23**	0.15	0.20
Lewistown ES	0.12	0.23***	0.10***	0.12
Liberty ES	0.12	0.19	0.05	0.12
Lincoln ES	0.17	0.20	0.12	0.17
Middletown ES and PS Total	0.21	0.24	0.06	0.20
Monocacy ES	0.18	0.23	0.16	0.20
Myersville ES	0.16	0.20	0.13	0.16
New Market ES	0.23	0.26	0.10***	0.23
New Midway/Woodsboro ES	0.15	0.02	0.06	0.14
North Frederick ES	0.14	0.14	0.05	0.10
Oakdale ES	0.25	0.29	0.09	0.24
Orchard Grove ES	0.24	0.23	0.08	0.17
Parkway ES	0.11	0.08	0.04	0.07
Sabillasville ES	0.08	0.15	0.07	0.09
Spring Ridge ES	0.20	0.14	0.04	0.13
Sugarloaf ES	0.40	0.35	0.10**	0.37
Thurmont ES and PS Total	0.13	0.16	0.07	0.12
Tuscarora ES	0.32	0.23	0.14	0.23
Twin Ridge ES	0.18	0.16	0.10***	0.18
Urbana ES	0.21	0.34	0.15	0.23
Valley ES	0.16	0.24	0.07	0.16
Walkersville ES	0.17	0.17	0.02	0.15
Waverley ES	0.30	0.31	0.26	0.28
Whittier ES	0.17	0.25	0.05	0.16
Wolfsville ES	0.11	0.23**	0.09	0.11
Yellow Spring ES	0.20	0.18	0.10***	0.20
Countywide Average	0.20	0.23	0.10	0.19
Middle Schools	Single-Family	Townhouse	Multi-Family	Total
Ballenger Cr MS	0.11	0.13	0.05	0.11
Brunswick MS	0.10	0.08	0.02	0.09
Crestwood MS	0.10	0.10	0.05	0.09
Gov TJ MS	0.09	0.07	0.03	0.06
Middletown MS	0.10	0.17	0.06	0.10
Monocacy MS	0.10	0.15	0.10	0.11
New Market MS	0.10	0.12	0.02	0.10
Oakdale MS	0.16	0.12	0.05	0.14
Thurmont MS	0.07	0.08	0.05	0.07
Urbana MS	0.18	0.19	0.08	0.18
Walkersville MS	0.11	0.09	0.02	0.09
West Frederick MS	0.09	0.13	0.05	0.09
Windsor Knolls MS	0.11	0.13	0.06	0.11
Countywide Average	0.11	0.12	0.05	0.10
High Schools	Single-Family	Townhouse	Multi-Family	Total
Brunswick HS	0.14	0.10	0.04	0.13
Catoctin HS	0.10	0.11	0.06	0.10
Frederick HS	0.14	0.17	0.06	0.12
Gov TJ HS	0.12	0.13	0.06	0.10
Linganore HS	0.14	0.14	0.06	0.14
Middletown HS	0.14	0.20	0.06	0.14
Oakdale High	0.20	0.15	0.04	0.17
Tuscarora HS	0.15	0.15	0.07	0.14
Urbana HS	0.22	0.23	0.10	0.22
Walkersville HS	0.15	0.14	0.03	0.13
Countywide Average	0.15	0.15	0.06	0.14
Countywide Average all Schools	0.45	0.50	0.21	0.42
2 Over 2 Dwellings	Elementary 0.18	Middle 0.09	High 0.09	0.08

*Data from FCPS Student Information System, January 2022 **Utilized countywide average due to limited dwelling types ***Utilized countywide avg. due to no students in housing type