

The Last Ten Years

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The city staff recently prepared a spreadsheet showing the student population for the years 2000 thru 2010 in the 10 elementary schools that serve the city. They also showed the new dwelling units constructed and the expected yield of students from those new dwelling units. The current discussion of the role of the Adequate Public Facilities Ordinance makes this new resource particularly interesting. In the following report I will discuss the implications of this data.

The following table shows data from the census as well as data derived from the recent spreadsheet.

Year	Pop.	Elem. S.	% students	Homes
2000	47388	3550	16	17980
2010	61818	4000	14	24327
added	13230	450	-2	6347

The table looks straight forward and simple, but a lot went on in the ten years that is not seen in the table. During the ten years covered about 33,000 new people were put on the voter rolls. Since the net gain is about 13,000, that means about 20,000 left Rockville. The election registration covers about 78% of the adult population (in agreement with the national average) so that the actual number of people involved is greater. The new people bought or rented homes. A survey of the most recent voter rolls showed that people bought or rented in the same relative ratio as the preexisting population, about 40% rental and about 60% purchase. That means about 1000 already built homes per year changed hands. The 6347 new homes constructed over the ten years were mostly located in the new King Farm and Fallsgrove communities. Using Montgomery County Public Schools observed values for students per home, a total of 932 new elementary school students should have been generated by the new housing as compared to the 450 actually experienced.

In the consideration of student population, again, a lot went on that does not show on the table. The values shown in the table for student population represent that portion coming from the part of the school boundaries within Rockville. During the ten year period the elementary school population completely turned over by moving on to junior high. In addition, students left and were added, by the continual change in population as monitored by the voter roll additions and losses. The local birthrate of the population also added new students.

The following graphs will show, for each year, the total school population and a dashed line showing the cumulative expected new students generated by the new housing. This dashed line is normalized so it starts at the same value in 2000 as the student population. Note that the student population in these graphs has not been reduced to reflect the fraction actually living in Rockville. Note also that the dashed curve only reflects the effect of any new housing built in Rockville. The effect of new housing, if any, built outside the city but within the school boundaries is not known.

Graphs for only four of the ten schools, Beall, College Gardens, Ritchie Park, and Twinbrook will be shown. Rosemont and Farmland are located outside the city and are below core capacity. Maryvale, Meadow Hall, Fallsmead, and Lakewood have had negligible housing construction.

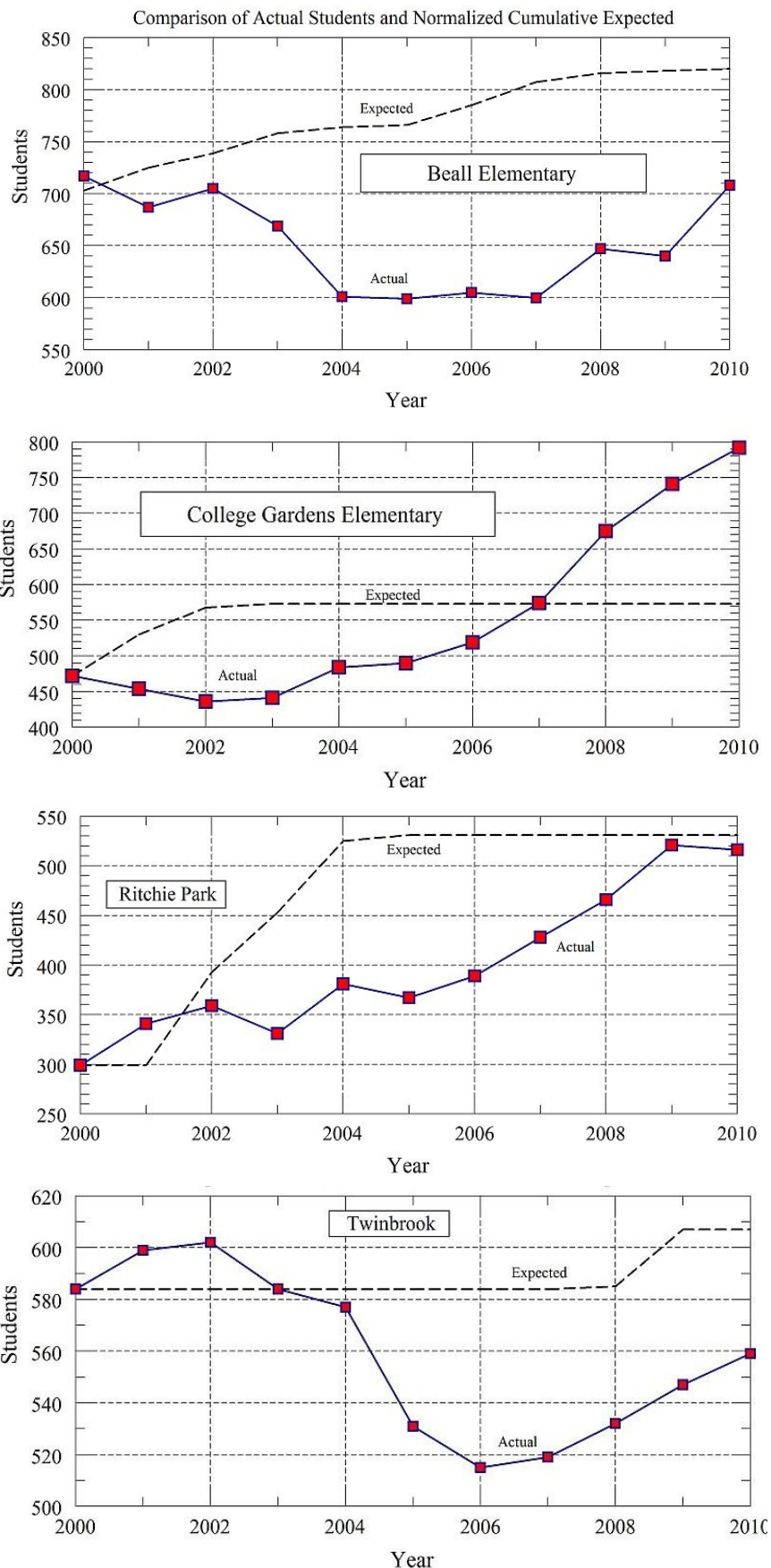
The four schools shown make up the elementary schools in the Richard Montgomery cluster. As can be readily seen from the graphs the four schools vary greatly.

Note that the rises in the dashed curve representing the expectation of new students due to the building of new housing does not cause a simultaneous increase in the actual number of new students. This would seem to indicate that people moving into the new housing did not bring elementary school children with them.

The curves showing the actual number of students all show the beginning of a rise in population about 2006. It may or not be that there are different reasons for each school for the rise. For example College Gardens experienced growth associated with the new school building.

Ritchie Park is interesting because the school boundaries appear to have been intentionally altered to include the new Fallsgrove subdivision. Had Fallsgrove been part of Lakewood where it would have normally gone, the additional growth would have put Lakewood over its capacity.

In Twinbrook the increase may be caused by the higher birthrate of the ethnic population. Whatever the causes of the population increases, it does not seem to be universally correlated with housing construction.



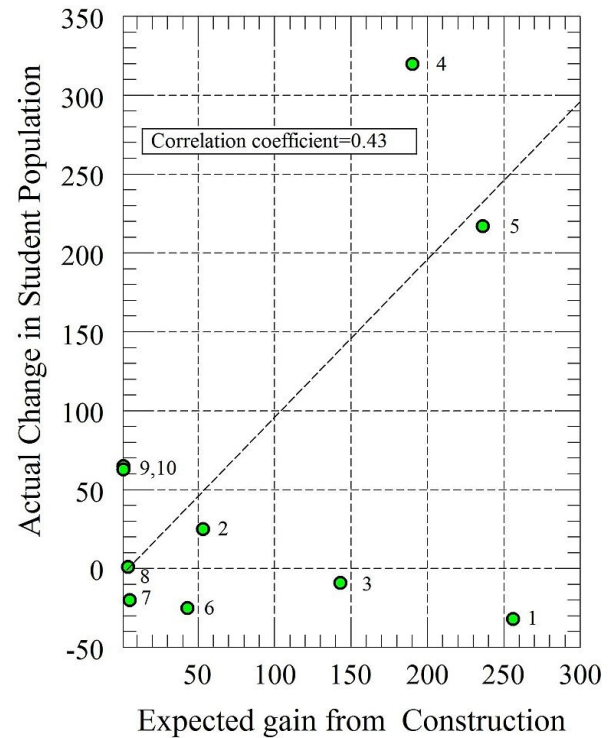
Another approach to determining a correlation between student population and housing construction is to plot the change in the two variables against each other.

The graph on the right shows such a plot covering the period from 2000 to 2010..

Each point on the graph represents the data for a school. The schools are identified by the numbers in the graph in the table below. Also shown in the table are the percent of students from Rockville to that school, the number of new students expected from homes built in Rockville

1.- Rosemont	20%	256	621
2.- Farmland	50%	53	617
3.- Beall	100%	143	526
4.- College Gardens	70%	190	670
5.- Ritchie Park	80%	236	387
6.- Twinbrook	80%	43	541
7.- Maryvale	90%	5	570
8.- Meadow Hall	100%	4	344
9.- Fallsmead	70%	1	574
10.- Lakewood.	30%	1	569

Actual vs Expected Student Gain 2000 to 2010



and finally, the core capacity of the school. The values plotted represent the change from 2000 to 2010 in the total student population (with no correction for Rockville boundaries), and the expected increase in student population from housing construction in Rockville. Strong correlation between the two variables would be indicated in the graph by the clustering of the data points near the diagonal dashed line. Note that the Ritchie Park data point is the only one in the city that looks like it has good correlation. Referring to the previous graph of the Ritchie Park data excellent agreement at 2010 is seen. If the 5 year delay in student population is indeed due to new construction, one might expect the delay to arise from families started at the date of construction. A mathematical calculation from the data of the graph shows a weak correlation coefficient of 0.43 . This is not very good. Good correlation would be indicated by a number close to 1.

Correlations were also calculated for shorter spans.

For the data from 2000 to 2005 the correlation coefficient is -0.03

For the data from 2006 to 2010 the correlation coefficient is -0,01

These short data sets show no short term correlation at all.

In conclusion, the only Rockville school showing what seems to be a correlation of construction and student growth is Ritchie Park However that seems to be because of an intentional manipulation of the school boundaries to include an area whose growth potential was known. For all other schools in Rockville, other variables dominate and mask any effect that might be caused by the construction of new homes. Any future housing construction in Rockville is limited by space to multi-family housing units with low student generating potential. The variables that now dominate and control the growth of student population would seem to be dominant in the future.