



**FAIRFAX COUNTY
PUBLIC SCHOOLS**

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TO: Sterling Wheeler, Branch Chief
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FROM: Denise M. James, Director
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SUBJECT: School Impact Analysis of Tysons Advance Alternatives

DATE: January 31, 2008

Executive Summary

The Tysons study contains the potential for substantial growth within the Tysons area and the need to update the existing Comprehensive Plan to plan for the future of metro rail through Tysons Corner. FCPS anticipates an increase in student enrollment and existing deficits in capacity and classrooms are projected. Additional student membership also is anticipated from approved rezoning applications in the Tysons area that are still in the development process, which has the potential to add hundreds of additional mid/high rise residential units and will further impact future school enrollments as these developments build out.

The chart below illustrates the total number of dwellings and the projected student yield.

Scenario	Total # of dwellings	Total student yield	
Existing	8,056	785	
Base Case	16,259	1,264	+479 students over existing
Prototype A	36,250	2,828	+1,564 student over base case
Prototype B	49,956	3,897	+2,633 students over base case

The Base Case scenario represents:

- Increase number of dwellings is 2.0 times over existing number of dwellings.
- ES – deficit of 27.8 classrooms or 0.77 of a new 36 classroom elementary school.
- MS – deficit of 88 student spaces or .088 of a middle school with a capacity of 1,000 student spaces.
- HS – deficit of 288 student spaces or 0.115 of a high school with a capacity of 2,500 student spaces.

The Prototype A scenario represents:

- Increase number of dwellings is 4.49 times over existing and 2.2 times over base case.
- ES – deficit of 61.2 classrooms or 1.7 of a new 36 classroom elementary school.
- MS – capacity deficit of 309 student spaces or 0.309 of a middle school with 1,000 student spaces.
- HS – capacity deficit of 768 student spaces or 0.307 of a high school with 2,500 student spaces.

The Prototype B scenario represents:

- Increase number of dwellings is 6.2 times over existing and 3.07 times over base case.
- ES – deficit of 86.4 classrooms or 2.4 new 36 classroom elementary school.
- MS – capacity deficit of 460 student spaces or 0.46 of a middle school with 1,000 student spaces.
- HS – capacity deficit of 1,097 student spaces or 0.438 of a high school with 2,500 student spaces.

Traditionally, capacity and classroom deficits have been addressed through interior architectural modifications; temporary/modular buildings; increase in classroom size; or a boundary area study. However, in the Tysons area greater planning is needed to accommodate the projected student increase. This may include urban style schools, use of commercial office space, and smaller school sizes. In order to accommodate the projected increase in student enrollment from the proposed scenarios, planning, coordination, and financial commitments from developers and the County is needed to accommodate the anticipated rise in student enrollment.

Background

This is in response to an email dated December 11, 2007, seeking input on two proposed alternatives to the existing base case scenario (the current Comprehensive Plan recommendation) for the Tysons Land Use Study Area. The two alternatives are Prototypes A and B.

- Prototype A proposes to increase the planned density within 1/3 mile of the four planned metro rail stations in the Tysons area. The total development area for this scenario is approximately 96 million square feet, including 36,000 dwelling units.
- Prototype B proposes to increase non-residential density within 1/3 mile of the metro rail stations and increase residential density within 1/2 mile of the metro rail stations. Prototype B also includes “form-defining” transit circulators that increase density (primarily residential) along circulator routes that will connect the metro rail stations to areas within Tysons that are beyond walking distance. The total development for this scenario is about 127 million square feet, including approximately 50,000 dwelling units.

Tysons study area districts and corresponding FCPS sites

The Tysons study area contains eight study area districts and within each district there are several school boundaries, which are shown below. Maps of these boundaries are attached.

<u>Eastside</u>	<u>North Central</u>	<u>Northwest</u>	<u>Tysons West</u>
Freedom Hill ES	Spring Hill ES	Spring Hill ES	Spring Hill ES
Westgate ES	Westbriar ES	Westbriar ES	Westbriar ES
Kilmer MS	Cooper MS	Kilmer MS	Cooper MS
Longfellow MS	Kilmer MS	Longfellow MS	Kilmer MS
Marshall HS	Longfellow MS	Marshall HS	Longfellow MS
McLean HS	Langley HS	McLean HS	Marshall HS
	Marshall HS		McLean HS
	McLean HS		
<u>Tysons 123</u>	<u>Tysons 7</u>	<u>Tysons East</u>	<u>Old Courthouse South</u>
Spring Hill ES	Spring Hill ES	Westgate ES	Freedom Hill ES
Westbriar ES	Westbriar ES	Kilmer MS	Kilmer MS
Kilmer MS	Kilmer MS	Longfellow MS	Marshall HS
Longfellow MS	Longfellow MS	Marshall HS	
Marshall HS	Marshall HS	McLean HS	
McLean HS	McLean HS		

Actual student count

The chart below shows the actual number of students for the 2007-2008 school year that are attending a Fairfax County public school in the study area districts.

District	Actual # of students attending ES	Actual # of students attending MS	Actual # of students attending HS	Total
Eastside	140	55	161	356
North Central	130	50	52	232
Northwest	49	11	20	80
Old Courthouse	34	11	13	58
Tysons Central 123	0	0	0	0
Tysons Central 7	24	6	10	40
Tysons East	8	4	5	17
Tysons West	1	0	1	2
TOTAL	386	137	262	785

Residential types in these districts tend to be low-rise multi family dwellings and town homes, which have a higher projected student yield than mid/high-rise dwellings that are proposed for this district.

Student yield ratio

Student yield ratios are used in calculating the potential for additional students for proposed residential rezoning applications. This information is also used in preparing annual enrollment projections and updates. Student yield ratios are based on countywide averages and represent a snapshot in time. The student yield ratios are updated periodically to reflect changes in the ratios by unit type.

To project the student yield, a ratio is applied to each type of dwelling (single family detached, single family attached, multi family low-rise, and multi family high-rise) and multiplied by the number of dwelling units. For the proposed alternatives, the student yield ratio for mid/high-rise dwelling units was used to calculate the number of projected students. The mid/high-rise student yield ratio is 0.043 for elementary, 0.011 for middle, and 0.024 for high school.

Projected student yield

The projected student yield for each alternative is shown below. The base case reflects what is currently recommended under the Fairfax County Comprehensive Plan. Prototype A and B reflect projected student yields based on the proposed number of dwelling units for each district based on the current countywide student yield ratio for mid/high rise development.

Base Case (current Comprehensive Plan adjusted for 4 rail stations)

District	Current Planned Dwelling Units	Projected student yield for ES	Projected student yield for MS	Projected student yield for HS	Total
Eastside	3,628	156	40	87	283
North Central	3,112	134	34	75	243
Northwest	870	34	10	21	65
Old Courthouse	575	25	6	14	45
Tysons 123	2,111	91	23	51	165
Tysons 7	1,927	83	21	46	150
Tysons East	1,099	47	12	26	85
Tysons West	2,937	126	32	70	228
TOTAL	16,259	696	178	390	1,264

Advanced Prototype A

District	Proposed Dwelling Units	Projected student yield for ES	Projected student yield for MS	Projected student yield for HS	Total
Eastside	4,633	199	51	111	361
North Central	4,501	194	50	108	352
Northwest	1,405	60	15	34	109
Old Courthouse	919	40	10	22	72
Tysons Central 123	4,100	176	45	98	319
Tysons Central 7	9,665	416	106	232	754
Tysons East	5,696	245	63	137	445
Tysons West	5,331	229	59	128	416
TOTAL	36,250	1,559	399	870	2,828

Advanced Prototype B

District	Proposed Dwelling Units	Projected student yield for ES	Projected student yield for MS	Projected student yield for HS	Total
Eastside	7,220	310	79	173	562
North Central	10,176	438	112	244	794
Northwest	3,461	149	38	83	270
Old Courthouse	3,814	164	42	92	298
Tysons Central 123	5,940	255	65	143	463
Tysons Central 7	9,129	393	100	219	712
Tysons East	5,321	229	59	128	416
Tysons West	4,895	210	54	117	381
TOTAL	49,956	2,148	550	1,199	3,897

There is a projected increase of 479 total students in the base case scenario over the existing total student attendance for the study area; a projected increase of 1,564 total students in Prototype A scenario over the base case scenario; and a projected increase of 2,633 total students in the Prototype B scenario.

In reviewing the projections, the Tysons 123, Tysons 7, Tysons East, and Tysons West districts have the greatest total student (elementary, middle, and high school students) projected increase in the Prototype A and B scenarios. One reason for this significant increase is few residential areas currently exist in those districts. The Prototype A and B scenarios would increase residential uses in those districts; thus increasing the potential student yields.

Past student yields

Based on past projections for mid/high-rise development, the actual number of students attending FCPS has been lower than what was estimated through the projected student yield ratio. This could be due to a number of demographic factors such as income and marketing and the fact that, initially, high rise urban developments generally don't attract families with school aged children. To illustrate this point, the following chart lists several mid/high-rise developments that are comparable based on proximity to a metro rail station or similar in urban density and design characteristics as proposed for the Tysons study area. In each of the developments reviewed, the current student yields are below what would be projected.

Development	Total # of actual students (2007-2008 school year)	Total projected student yield
Hunters Branch/Regency (east of Fairlee)	91	167
Halstead at Metro Center (Dunn Loring)	8	21
Westbriar Condos (Dunn Loring)	19	35
Regency at McLean	9	42
The Gates of McLean	27	44

Anticipated impacts from approved development

In addition, several rezoning applications have been approved and are currently in the development process with pending site plan submission or approval. Additional student enrollment is anticipated from these developments. The chart below provides a summary of these applications and the projected student yield, which would be in addition to what has been projected above.

Rezoning Application	Total # of Dwelling Units	Total student yield	ES	MS	HS	School
RZ 2004-PR-044 Tysons Corner Center	1,345 MFHR	139	38	15	85	Westbriar ES Kilmer MS Marshall HS
RZ 2006-PR-028 Tysons Crescent	919 MFHR	70	39	9	22	Westbriar ES Kilmer MS Marshall HS
RZ 2007-PR-001 DSF Long	955 MFHR	73	40	10	23	Shreveewood ES Kilmer MS Marshall HS
RZ 2006-PR-12 CB Companies	2 SFD	0	0	0	0	Shreveewood ES Kilmer MS Marshall HS
RZ 2005-PR-039 Dunn Loring Metro	720 MFHR	54	30	7	17	Shreveewood ES Kilmer MS Marshall HS
RZ 2005-PR-003 Dunn Loring Metro Apts.	30 MF	3	2	0	1	Shreveewood ES Kilmer MS Marshall HS
RZ 2003-PR-008 Lincoln Property Co.	570 total (478 MF & 92 SFA)	87	52	10	25	Freedom Hill ES Kilmer MS Marshall HS

Facility analysis

For the purposes of the Tysons Study, the chart below illustrates the capacity of each school in the study area, the current and projected enrollment and the projected capacity/room balance. The chart does not include student yield projections from the Prototype A and B scenarios or other approved development within the Tysons district.

School	Capacity	2007-2008 Enrollment	2008-2009 Projected Enrollment	2012-2013 Projected Enrollment	2008 Projected Capacity or Room Balance*	2012-2013 Projected Capacity or Room Balance*
Freedom Hill ES	465	531	561	595	-5 rooms	-6 rooms
Spring Hill ES	747	879	918	957	-8 rooms	-10 rooms
Westbriar ES	386	442	477	499	-5 rooms	-5 rooms
Westgate ES	341	331	347	365	-1 room	-1 room
Cooper MS	1,100	904	944	917	+156 capacity	+183 capacity
Kilmer MS	850	1,064	988	1,012	-138 capacity	-162 capacity
Longfellow MS	1,115	1,058	1,144	1,046	-29 capacity	+69 capacity
Langley HS	1,850/2,100	2,083	2,084	2,050	+16 capacity	+50 capacity
Marshall HS	1,500	1,325	1,360	1,429	+140 capacity	+71 capacity
McLean HS	1,725	1,768	1,772	1,744	-47 capacity	-19 capacity

*Room balance is used to measure the classrooms in excess or in deficit at elementary school level. A new elementary school contains 36 classrooms. Capacity is the measure of student spaces available at the middle and high school levels. Middle and high schools are constructed with capacities of 1,000 and 2,500 student spaces, respectively.

As part of the FCPS Capital Improvement Program (CIP), a 10 room addition/250 student spaces at Langley HS is expected to be completed for the 2008-2009 school year, renovation of Freedom Hill ES is expected to be completed for the 2009-2010 school year, renovation to Longfellow MS is expected to be completed for the 2011-2012 school year, and renovation planning funding for Marshall HS. Overall enrollment in the Langley HS, Marshall HS, and McLean HS pyramids is expected to increase by the 2012-2013 school year.

The greatest need for additional classrooms and capacity space by the 2012-2013 school year is anticipated for Freedom Hill ES (6 room deficit), Spring Hill ES (10 room deficit), Westbriar ES (5 room deficit), and Kilmer MS (will exceed capacity by approximately 162 students).

In general, a new elementary, middle and high schools are constructed with capacities of 900, 1,000 and 2,500 students respectively.

Since there is no available elementary school capacity, the projected elementary student yield for Prototype A scenario would require the equivalent of 1.7 elementary schools (or 61.2 classrooms). Adjusting for existing capacity at the middle school level, there would be projected capacity deficit of 309 student spaces for the 2012-2013 school year, which equates to 30.9% of a middle school. At the high school level, there would be a projected capacity deficit of 768 student spaces school year, which equates to 30.72% of a high school.

Under the Prototype B scenario, 2.4 elementary schools (or 86.4 classrooms) would be required based on total projected elementary school students. At the middle school level, there would be a projected capacity deficit of 460 student spaces which equates to 46% of a middle school. At the high school level, there would be a projected capacity deficit of 1,097 student spaces, which equates to 43.88% of a high school. Based on the projections for the Prototype A and B scenarios, capacity and classroom deficits are projected for the 2012-2013 school year.

Cost

At the elementary school level, the present cost to construct a new 36 room school is approximately \$25 million. The present cost to construct a new middle and high school is approximately \$54 million and \$104 million, respectively. Funding for school planning, renovation, and construction costs generally comes from the approval of a bond referendum.

The average square foot per student is 123 square feet for an elementary school student; 160 square feet for a middle school student; and 165 square feet for a high school student. The construction cost per student at the elementary, middle, and high school levels is \$165; \$190; and \$205, respectively.

As capacity and room deficits occur, trailers and modular additions may be utilized for classroom space. A modular addition contains several classrooms and bathroom facilities. The average cost for an eight room modular addition is \$2 million.

Recommendations

Traditionally, capacity and classroom deficits have been addressed through interior architectural modifications; temporary/modular buildings at each school site; increasing classroom sizes; or a boundary area study. In the Tysons area, the potential for nontraditional and creative approaches exists in addressing facility needs. Such approaches may include:

- Evaluating the potential for a secondary school to be located at Marshall High School.
- Creating a greater sense of place for Tysons by creating feeder schools specific to the Tysons development area – the Tysons study area contains several different feeder schools.
- Developing educational specifications and designs to function in an ultra-urban setting. This may include smaller sized schools sharing building space in an office building which has been done in other school jurisdictions. Similarly, the Fairfax County Police Department has located police satellite stations in commercial office space, providing a separate and security facility for public safety officers.
- Dedicating land through proffers could be used to create smaller school sites.
- Locating the elementary level in commercial office space. An elementary school could be located in several floors of a commercial building with space needed for school buses. Parking could be

provided in shared office parking garages. Secure outdoor recreation space could also be provided on rooftop garages or on ground level surface space.

- Creating business partnerships, office space leasing, and proffers should be considered to yield such commercial facility space.
- Using private shuttle bus service. Typically in ultra-urban environments, public school transportation is not provided. However, shuttle bus service is not uncommon in mid/high-rise developments; likewise such private shuttle service could be provided for school age children in these developments to area schools instead of FCPS school buses.
- Ensuring connectivity, lighted crosswalks, pedestrian signals, etc., to facilitate pedestrian movement between residential areas and school sites.
- Modifying middle and high school sites rather than utilizing commercial office space giving the greater amount of square footage needed at the middle and high school level. This could be achieved through proffer contributions of land or funding, bond referendum, or renovations.
- Coordinating planned school sites and residential development to achieve development of schools within closer proximity to residential developments. This would allow student and parents the opportunity to walk to school and ease parents' trip time/distances between home and school.
- Long range planning and funding for school sites within the Tysons area and the CIP.

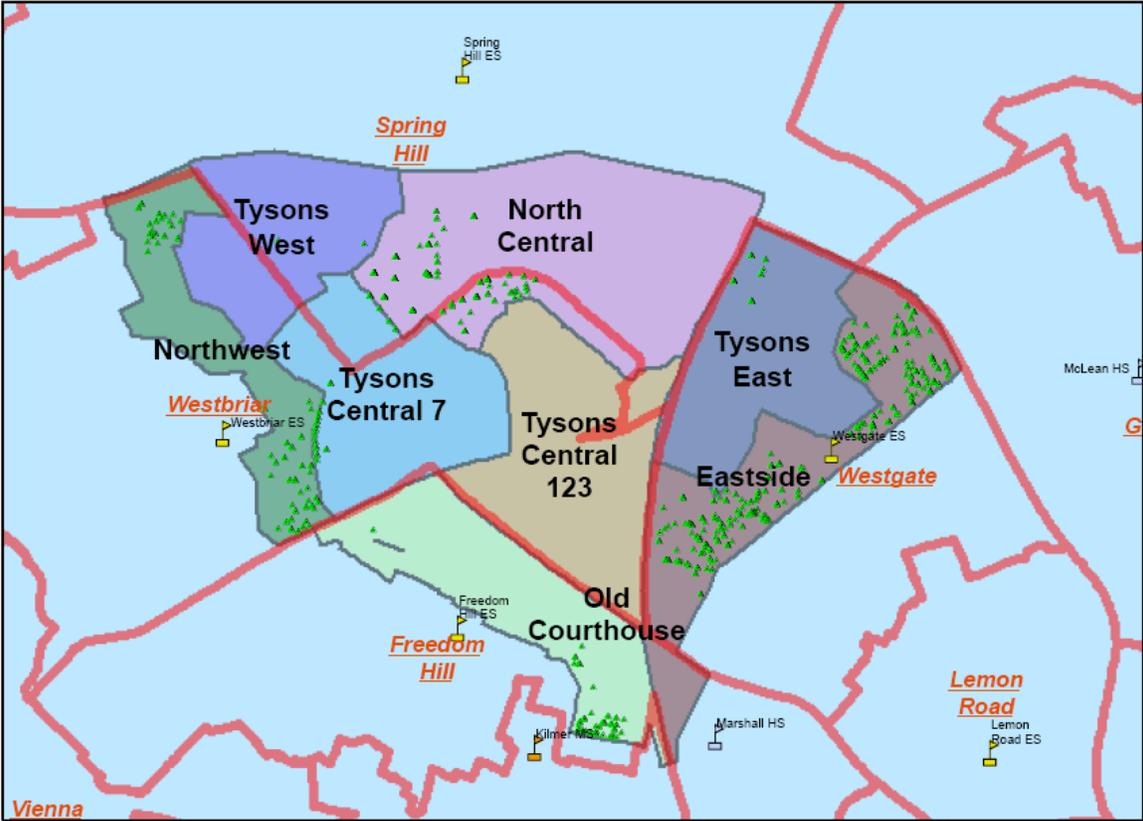
As a general strategy, FCPS may address the elementary school needs with facilities in the Tysons study area, focusing on educational specifications for dense urban development; accommodation for middle and high school needs may be more readily addressed through modifications to existing facilities. As the task force moves forward in its recommendations, FCPS will continue to examine design specifications for urban school settings and how best to accommodate the projected student population under each of the proposed scenarios. Planning, coordination, and financial commitments by developers and the County may be needed in order to accommodate the potential rise in student enrollments as a result of changes to the Comprehensive Plan and subsequent new development in Tysons Corner.

Map Attachments:

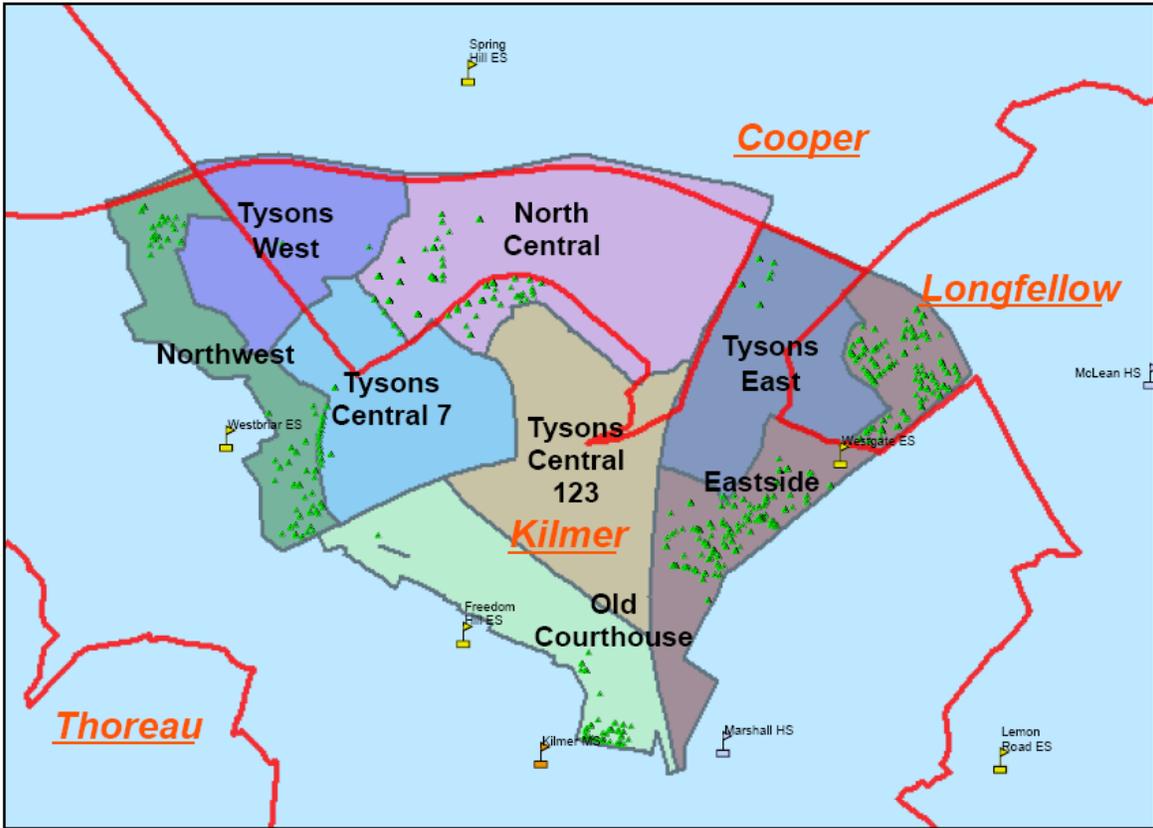
Elementary School Boundaries
 Middle School Boundaries
 High School Boundaries

cc: Stuart D. Gibson, School Board Member, Hunter Mill District
 Phillip A. Niedzielski-Eichner, School Board Member, Providence District
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Tysons Study - ES Boundaries



Tysons Study - MS Boundaries



Tysons Study - HS Boundaries

