

Public Facilities Initial Analyses Report
 Tysons Land Use Task Force

Fairfax County staff briefed the following public facility/utility providers on the four test scenarios in May and June. Each agency was provided with relevant maps and data and was asked to perform a general analysis of the impacts that the different scenarios would have on their operations.

Summary of Test Scenarios

Scenario	Residents	Dwelling Units	Employees	Total Square Feet of Development (% Residential)
Existing (2005)	16,112	8,056	106,871	44.4 million sq. ft. (20 % residential)
Base Case	35,226	17,613	161,545	74.1 million sq. ft. (29 % residential)
Test Scenario A (Pushing the Envelope)	89,975	44,987	246,695	135.7 million sq. ft. (40 % residential)
Test Scenario B (Employment Emphasis)	62,310	31,155	191,024	101.1 million sq. ft. (37 % residential)
Test Scenario C (Housing Emphasis)	76,000	38,000	164,205	100.4 million sq. ft. (45 % residential)

Since most of the County’s public facility standards are based on a suburban environment, many of the providers indicated that they would research standards for comparable urban areas. The results of these analyses, which are summarized below, should be viewed as preliminary assessments that illustrate the difference in public facility and infrastructure impacts among the test scenarios.

Dominion Virginia Power

Dominion currently operates a substation on Tyco Road, which served a peak load of 216 MVA (megavolt-amperes) during summer 2005. This substation could be expanded to serve 400 MVA under normal conditions. The following table shows the projected load for each of the scenarios, including electricity for Metrorail operations.

Projected Electricity Loads

Scenario	Projected Load	% Increase from 2005
Base Case	480 MVA	122 %
Test Scenario A (Pushing the Envelope)	842 MVA	289 %
Test Scenario B (Employment Emphasis)	629 MVA	191 %
Test Scenario C (Housing Emphasis)	587 MVA	171 %

Because each of the scenarios is above the potential capacity of the existing substation, a new substation would need to be built. The ideal location for such a facility is south of the

intersection of Route 7 and Spring Hill Road, adjacent to the existing transmission line. This would be a conventional walled substation and would require up to 2.5 acres of land.

Fairfax County Fire & Rescue Department

FRD's Planning Section is researching urban models of facilities and operations that would effectively serve a high density area. They indicate that the Base Case, Test Scenario B (Employment Emphasis), and Test Scenario C (Housing Emphasis) would require a second station in addition to the existing Tysons Station 29 on Spring Hill Road. Test Scenario A (Pushing the Envelope) would require two additional stations. Under all scenarios it is likely that Station 29 would be relocated or expanded to provide service for an urban Tysons. All new facilities would need appropriate equipment and personnel.

Fairfax County Park Authority

The Park Authority currently owns about 100 acres of parkland in Tysons Corner, all of which is at the edge of the study area. It recommends that future development should preserve and enhance these facilities, especially the environmentally-sensitive stream valley parks. Park planners also encourage private development of publicly-accessible urban parks and plazas through the development process; open space provided in the recently approved Tysons Corner Center redevelopment is an example.

Under the County's existing parkland standards (5 acres of local parks per 1,000 residents and 13 acres of district and countywide parks per 1,000 residents), the need for parkland under the three test scenarios would range from 1,100 to 1,650 acres. Because the upper limit of this range is equal to the total amount of land in Tysons, the Park Authority recommends creating new standards for urban parks. The new standards would be 1.5 acres of local parkland for every 1,000 residents. Such parks would be 0.5 – 5 acres in size and would be located within ¼ mile of intended users. In addition, new developments would contribute funds for the creation of district and countywide parks and larger recreational facilities that serve Tysons residents but are located outside its boundaries.

Scenario	Local Parkland Needed Under New Standards
Base Case	48 acres
Test Scenario A (Pushing the Envelope)	138 acres
Test Scenario B (Employment Emphasis)	93 acres
Test Scenario C (Housing Emphasis)	114 acres

The Park Authority also recognizes that, under all scenarios, future residents of Tysons Corner may require different forms of open space than those who live in suburban neighborhoods. High-rise dwellers without yards will need common spaces for socializing, exercising, dog walking, gardening, and outdoor leisure. Other recommendations include a three acre "Central Park" in the core of Tysons and an overall park plan that links trails, urban parks, and community focal points.

Fairfax County Police Department

The McLean District Station currently provides service to Tysons Corner, McLean, Wolf Trap, Merrifield, a portion of Great Falls, and the communities around Falls Church. Tysons-specific coverage consists of 3-4 patrol officers during the day and evening and 2-3 officers during the midnight shift. In addition, two detectives are assigned to the Tysons retail corridor. The Tysons business area currently produces approximately 10,000 calls-for-service (CFS) per year.

FCPD projects that the CFS total for Tysons would increase to 22,000 under Test Scenario A (Pushing the Envelope), although this estimate may be conservative because it does not account for the impact of significant retail and hotel growth. Police service would also be affected by the four Metrorail stations and by Tysons’ transformation into a 24/7 urban environment, which would require more patrols at night.

The McLean District station would not be able to absorb such an increase in workload, so FCPD recommends creating a new patrol district for Tysons. A new district would require a new station, which could take the form of a suburban-style station on the periphery of Tysons or a centrally-located urban station. The Police Department is open to locating a station within a Fire Department facility.

Fairfax County Public Schools

The following table outlines the existing school enrollment in Tysons Corner and projected student yields for each scenario. These projections are derived from the current countywide ratios for mid/high-rise dwelling units.

School Enrollment Projections

School Level	Existing	Base Case	Test Scenario A (Pushing the Envelope)	Test Scenario B (Employment Emphasis)	Test Scenario C (Housing Emphasis)
Elementary	498	683	1,924	1,302	1,596
Middle	137	163	458	310	380
High	289	390	1,099	744	912
TOTAL	924	1,236	3,481	2,356	2,888

The enrollment projections have been normalized to show the school equivalents for the student population in Tysons. These figures are based on the typical capacity for a new school in the County (900 students per elementary school, 1000 per middle school, and 2000 per high school). The school system’s Office of Facilities Planning Services notes that creative solutions can address capacity issues, such as building urban-style schools, expanding existing facilities, and updating school boundaries to reflect population shifts within the County.

Projected School Facility Needs

School Level	Existing	Base Case	Test Scenario A (Pushing the Envelope)	Test Scenario B (Employment Emphasis)	Test Scenario C (Housing Emphasis)
Elementary	0.55	0.76	2.14	1.45	1.77
Middle	0.14	0.16	0.46	0.31	0.38
High	0.14	0.20	0.55	0.37	0.46

Fairfax County Public Library

While the existing Tysons-Pimmit Regional Library on Route 7 (roughly ½ mile from Magarity Road and 2 miles from the center of Tysons) will continue to serve area residents, Library planners wish to take advantage of the scenarios’ focus on mixed land uses, public transportation, and walkability by adding a new facility within the study area. For the Test Scenario A (Pushing the Envelope), a full service community library of 17,000 square feet, including a meeting room, preferably located in or near a mixed-use, high density area, is recommended. For Test Scenario B (Employment Emphasis), a small community library of 10,000 square feet, preferably located near a Metro station, is recommended. For Test Scenario C (Housing Emphasis), a community library of 12,000 – 17,000 square feet, including a meeting room, is recommended. The Library recognizes that it may be necessary to operate within shared facility rather than a stand-alone building.

Fairfax County Wastewater Management (DPWES)

Tysons Corner is in the Blue Plains Treatment Area, which covers roughly the northern third of the County, including the communities of McLean, Oakton, Reston, Great Falls, Herndon, and most of Vienna. Wastewater from this Treatment Area flows through the Potomac Interceptor to the Blue Plains Advanced Water Treatment Plant in Southwest DC, which is owned and operated by the DC Water and Sewer Authority (DCWASA). The County’s current agreement with DCWASA allows for a capacity of 31.0 million gallons per day (MGD). Any increase in flows will require the County to re-negotiate this agreement. For the most recent 12 month period, the County’s flow to Blue Plains averaged 29.4 MGD.

The following table shows future projections for wastewater flows in the Blue Plains Treatment Area and the length of existing sewer trunk lines that would require replacement under each scenario. The non-Tysons portion of these projections is based on the Metro Washington Council of Governments (COG) forecast for the year 2030.

Wastewater Demand Projections

Scenario	Non-Tysons Flows (MGD)	Tysons Flows (MGD)	Total Flows (MGD)	% Increase Over Base Case Total Flows	% Increase Over Current Capacity	Length of Sewer Lines Needing Replacement
Base Case	31.7	7.3	39.0		26%	30,000 ft.
Test Scenario A (Pushing the Envelope)	31.7	14.9	46.6	19 %	50%	54,000 ft.
Test Scenario B (Employment Emphasis)	31.7	10.9	42.6	9 %	37%	49,000 ft.
Test Scenario C (Housing Emphasis)	31.7	10.9	42.6	9 %	37%	49,000 ft.

Fairfax County Water Authority

Fairfax Water currently serves about 44% of the land area in Tysons Corner, roughly north of Route 123 and west of the Beltway. It calculated water demand in millions of gallons per day (MGD) for the entire study area, as shown in the table below.

Water Demand Projections

Scenario	Average Day Demand	Maximum Day Demand	Peak Hour Demand
Base Case	11.3 MGD	18.1 MGD	29.0 MGD
Test Scenario A (Pushing the Envelope)	21.5 MGD	34.4 MGD	55.0 MGD
Test Scenario B (Employment Emphasis)	15.8 MGD	25.2 MGD	40.4 MGD
Test Scenario C (Housing Emphasis)	15.8 MGD	25.3 MGD	40.5 MGD

The Base Case would have no impact on supply and treatment facilities; the three test scenarios could accelerate the need for additional capacity. All of the scenarios would require additional transmission facilities (pipelines, storage, and pumps) and distribution facilities (water mains). Fairfax Water does not consider these improvements to be impediments to higher densities in Tysons.

Falls Church Water Services

The City of Falls Church currently serves about 56% of the land area in Tysons Corner, roughly south of Route 123 and east of the Beltway. Water Services staff attended a preliminary meeting with County planning staff but has not yet provided an analysis of how the test scenarios would impact operations.

Washington Gas

Washington Gas estimates that Test Scenarios B and C (Employment Emphasis and Housing Emphasis) would each increase output in the gate station serving Tysons by 25% above the Base Case. Test Scenario A (Pushing the Envelope) would increase output by 50% above the Base Case. These projections assume high-rise, multi-family housing units, which uses $\frac{1}{4}$ the amount of gas that a typical single-family home requires. Without knowing the timing of development, Washington Gas is unable to estimate what system improvements would be necessary.