

**Summary of Public Facilities Analyses
 For Base Case and Prototypes A and B**

Fairfax County staff briefed representatives of County agencies and private utilities on the two prototypes in December, 2007. Each agency was provided with relevant maps and data and was asked to perform a general analysis of the two prototypes as well as the Base Case.

Summary of Land Use Prototypes

Prototype	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	32,517	16,259	161,545	72.5 million sq. ft. (27 % residential)
Prototype A	72,500	36,250	158,973	96.3 million sq. ft. (45 % residential)
Prototype B	99,912	49,956	202,816	127.5 million sq. ft. (47 % residential)

For this round of analysis, facility providers were asked to address urban rather than suburban standards; conservation measures; and the impact of new technologies on their services. They were also asked to provide estimated costs for capital facilities. Copies of the facility providers' formal written responses will be available on the Tysons website, www.fairfaxcounty.gov/tysons. Section headings that are underlined and shown in blue below contain clickable links to these documents, for those desiring additional information.

This summary focuses on the number of capital facilities needed to serve new development at Tysons. In cases where the same number of facilities are needed to serve both Prototypes A and B, the staging of facility construction would vary over time. That is, the third fire station might be needed sooner under Prototype B than Prototype A.

[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 %
Prototype A	562 MVA	160%
Prototype B	741 MVA	243%

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

To accommodate growth at the level of the Base Case, the Fire & Rescue Department (FRD) recommends relocation and expansion of the existing facility at Tysons, Station 29, from Spring Hill Road to county-owned land on Jones Branch Drive. FRD also plans for a new station in the vicinity of Old Meadow and Chain Bridge Roads. This station is needed because the closest station to the east, McLean (Station 1), and the closest station to the west, Station 29, do not provide adequate response time to serve development on the east side of Tysons.

To accommodate growth in Prototypes A and B, FRD would require a second new station in the vicinity of International Drive and Chain Bridge Road. The new fire stations at Tysons are planned to contain 24,000 square feet with 5 to 6 bays and the following apparatus: two engines, two medics, one specialty unit (truck or rescue), and one support unit. In addition, one of the stations at Tysons will need to include a battalion management team which includes a battalion chief and an EMS supervisor to oversee all emergency service delivery throughout Tysons.

The new stations are anticipated to be located at the base of a commercial or residential building, with the ground level containing the apparatus bays. The second and third levels would include classroom training facilities, battalion management offices, and offices for fire prevention and support personnel. In addition to the urban form of the proposed new fire stations, their staffing and apparatus are also provided to urban levels. This will enable FRD to serve Tysons from stations within Tysons, rather than the suburban model of calling on stations from throughout the county. This is necessary to provide adequate response time to high rise buildings and high density development.

Fairfax County Park Authority

The Park Authority currently provides about 85 acres of parkland at the lower-density edges of Tysons. To serve new development at Tysons, the Park Authority recommends 1.5 acres of parkland per 1,000 residents. In addition, they recommend the provision of 1 acre per 10,000 employees. These service level standards are based on a review of multiple urban locations and take into consideration the use of outdoor places before, during and after the work day by residents and workers alike. Based on these standards, the Base Case and the two Prototypes would require the following additional park acreage:

Scenario	Local Parkland Needed Under New Standards
Base Case	41 acres
Prototype A	97 acres
Prototype B	132 acres

The Park Authority further recommends the creation of a three-tiered urban park system that adds and connects public and private open space, trails, leisure and recreational spaces. The first tier is urban pocket parks ranging from one-quarter acre to one acre in size. These are designed to attract visitors for casual, social outdoor activities such as outdoor cafes, fountains, and performance spaces. Urban pocket parks are often integrated into substantial developments with private ownership and maintenance.

The second tier is urban park nodes of from one to five acres; they may be owned, managed and/or maintained through public or private entities, or public-private partnerships. These parks should provide facilities such as gardens, water features, tot lots and playgrounds, fitness courses and trails, multi-use courts, and plazas.

The third tier is a large, centrally accessible public park located in the urban core of Tysons near a planned Metro station entrance. The Park Authority recommends that this park be located in the Tysons 7 District, and that it be publicly owned and maintained, possibly with assistance from partnership groups. It should include a range of athletic and recreational facilities, as well as a gathering space for performances, restrooms, water features and display gardens. Ideally, this park should be at least 10 acres.

Fairfax County Police Department

The Police Department believes that the current McLean District station is ideally located to continue to provide service to both Tysons Corner and the communities around McLean. However, the McLean District could not absorb all of the increased workload associated with growth at Tysons under any of the three scenarios, while maintaining its current service area. Therefore, FCPD recommends that the County expedite construction of a new station in the Merrifield/Dunn Loring area. This station is currently in the Capital Improvement Program but not yet assigned to a year. Once a Merrifield/Dunn Loring station is underway, FCPD would reallocate workload among its existing districts, to reduce the size of the McLean District's service area.

For Prototypes A and B, FCPD also recommends the establishment of a small satellite office in the urban core of Tysons. This would support the foot patrols and bike patrols anticipated to serve the Tysons Central 7 and Tysons Central 123 Metro station areas. The satellite office could be co-located with a future Fire & Rescue station, such as the one proposed for the International Drive and Chain Bridge Road area; it could be co-located with a Metro Transit Police station; or it could be a storefront within a larger commercial property.

Finally, both the Police and Fire Departments recommend that developers of high-rise commercial building in Tysons be encouraged to add helicopter landing facilities to their roof structures where feasible, and to make them available for public use during emergencies. The presence of such helipads would provide quick helicopter access to the urban core of Tysons, and would be very desirable in emergency operations.

Fairfax County Public Schools

The following table outlines the projected student yields for each scenario. These projections are derived from the current countywide ratios for mid/high-rise dwelling units.

School Level	Base Case	Prototype A	Prototype B
Elementary	696	1,559	2,148
Middle	178	399	550
High	390	870	1,199
TOTAL	1,264	2,828	3,897

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, 1,000 per middle school, and 2,500 per high school). FCPS believes that it will be able to accommodate middle and high school students at Tysons through modifications to existing facilities. To meet the projected elementary school needs, the school system will need new facilities. These may include urban style and smaller sized schools, with the possibility of elementary classrooms being provided in commercial office space.

School Level	Base Case	Prototype A	Prototype B
Elementary	0.8	1.7	2.4
Middle	0.1	0.3	0.5
High	0.1	0.3	0.4

Fairfax County Public Library

To accommodate growth at the level of the Base Case, the Library recommends a specialized mini-library of 4,000 to 5,000 square feet, located in a retail area or within an office building. This facility would have minimal print collections and extensive online access to electronic databases, along with professional staff to assist with research.

To serve development under Prototypes A and B, the Library would require a full-service community library of 17,000 square feet, including a public meeting room. This facility could also be located in a retail area or in an office building. A location near either the proposed Tysons Central 123 or Tysons Central 7 stations would permit the facility to reach both residential and workday populations. Because the new facility at Tysons will be an urban library, parking requirements will be a challenge. The Library believes that the circulator system envisioned in Prototype B would facilitate access to the new community library at Tysons.

Fairfax County Stormwater Management (DPWES)

Staff in the Stormwater Planning Division of DPWES believe that development under the Base Case and the two Prototypes, as well as the existing conditions at Tysons, are similar in terms of impervious cover and stormwater management. However, they believe that redevelopment will provide the County with opportunities to address stormwater management deficiencies and improve on-site controls. This in turn will help with restoration efforts downstream of Tysons.

Specifically, DPWES recommends that applicants for rezoning be requested to remove 30% of phosphorus from existing conditions. They also recommend the adoption of strategies to reduce stormwater runoff volumes and peak flows, such as Low Impact Development. DPWES further recommends that quantity controls be implemented that return water into the ground, reuse it, or significantly delay its runoff into the stream system. Their goal is for the stormwater quantity and quality control rates of redeveloped parcels be returned to the predevelopment condition.

Finally, DPWES recommends that evaluation of adequate outfall extend beyond minimum requirements. Rather than ending within a drainage pipe, the outfall area should extend downstream to the receiving stream channel.

Fairfax County Wastewater Management (DPWES)

Wastewater from Tysons Corner is treated at the Blue Plains Treatment Plant, which is owned and operated by the DC Water and Sewer Authority. As indicated in the analysis this past summer, the wastewater volume of the Base Case (the current Plan) and the three test scenarios were all significantly above the County's allocated treatment capacity at the Blue Plains Plant. In response to the issue of treatment capacity, DPWES has commissioned a consulting study to evaluate alternative means of addressing wastewater treatment. The results of this study are not expected to be available until March. DPWES would like to provide the Task Force with a full presentation of the study findings at that time.

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
Prototype A	15.2 MGD	24.3 MGD	38.9 MGD
Prototype B	20.1 MGD	32.2 MGD	51.5 MGD

The Base Case would have no impact on supply and treatment facilities; the two prototypes could accelerate the need for additional capacity. All of the alternatives 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. A list of prospective water system projects capable of expanding service was provided by Fairfax Water and is included in their analysis posted at the Tysons website.

Regarding conservation measures, Fairfax Water notes that its rate structure allocates expenses for increasing system capacity to those consumers and developers requiring additional capacity. System growth is funded through the collection of peak use charges, paid by customers exhibiting a significant variation in seasonal water use, and system connection charges, paid primarily by land developers. More efficient water use, achieved through green building initiatives, benefits developers by limiting the system expansion component of utility capital investment funded by connection charges. Developers can leverage water conservation measures against building system design decisions to control project costs, and to delay or avoid costs for water system expansion.

Falls Church Water Services

The City of Falls Church currently provides water to about 56% of the land area in Tysons Corner, roughly south of Route 123 and east of the Beltway. The City recently completed a Water System Master Plan Supplement, updating their 2005 Master Plan to address growth at Tysons. The cost of the necessary infrastructure has been estimated and is being included in the City's capital improvement programming through the year 2020. The required improvements are the same for the Base Case and Prototypes A and B, although timing would vary depending on the alternative. Improvements to the water system are expected to be funded by availability fees paid by developers; Falls Church Water does not anticipate raising its commodity charge rate to pay for this infrastructure. Regarding conservation, the City has a peak use charge for excessive water use and has implemented plumbing code requirements for the use of low flow fixtures.

Washington Gas

Washington Gas serves Tysons Corner area through a gate station in the Dranesville area. This gate station is very centrally located in the region's system of gas pipelines, and is therefore considered to be in a "healthy" condition. Washington Gas estimates that Prototype A would increase output in this gate station by 25% above the Base Case, while Prototype B would increase output by 40% above the Base Case. These projections assume high-rise, multi-family housing units, which use about one-fourth as much gas as a typical single-family home.

Washington Gas is currently undertaking a comparison of future demand versus capacity for Fairfax County as a whole, and expects to have the results of its analysis this spring. This analysis would indicate if system improvements are necessary. However, any such improvements will be financed through the utility's rate system.

Telecommunication Providers

For this round of analysis, AT&T Wireless, Sprint Nextel and Verizon Wireless were asked to provide us with information on their capacity to serve growth at Tysons. To date no responses have been received from them.