

Response to Questions on the FY 2013 Budget

Request By: Supervisor Herrity

Question: Please provide benchmark data comparing Fairfax County’s construction costs against those being experienced by neighboring jurisdictions. Could design costs be reduced significantly by using previous design models for similar types of facilities?

Response: *(Note: A response to this question is being prepared by both the County and FCPS. This is the County response. The FCPS response is included as question #58 on page 93 of this Q&A package.)*

Benchmark Construction Costs

Benchmark cost information comparing Fairfax County DPWES’ construction only costs for building projects to comparable costs for other jurisdictions in the region is reflected in the following table of average construction costs. The local jurisdiction benchmark costs are for years 2008 to current. The Fairfax County averages were for years 2008 or later to be comparable with the local jurisdiction benchmark.

Facility Type (\$/SF)	Benchmark Average (\$/SF)	Fairfax County Average (\$/SF)
Library	\$384	\$253
Fire Station	\$316	\$335 *
Police Station	\$200	\$180
Parking Garage	\$ 55	\$ 51

*Fire station costs vary depending on the fire and rescue requirements for each jurisdiction.

DPWES staff worked with independent construction cost estimators to obtain the benchmarking information for recent, similar projects in other jurisdictions. Jurisdiction included Silver Spring MD, Montgomery County MD, Prince Georges County MD, Culpepper VA, Leesburg VA, Arlington VA, Howard County MD, Charlottesville, VA, Henrico County VA, Falls Church VA, and Warrenton, VA. These jurisdictions were selected based on the number of similar projects constructed since 2008. The data was compiled from the construction bids provided by two independent cost estimators. The cost benchmarking information indicates that DPWES’ construction costs per SF are in line with, or lower than, costs for other jurisdictions in the region for comparable facility types.

There a wide variety of factors that influence the actual construction cost to Fairfax County for building projects. Such factors include: 1) Economic conditions at the time of bid, 2) Level of quality specified for the facility in the construction documents, 3) Cost savings achieved from Value Engineering, 4) Complexity of the work and whether it is all new work, renovation, or capital renewal work, and 5) Required site development costs to meet regulatory requirements. A brief discussion of these factors is, as follows:

Economic Conditions: The construction cost is heavily influenced by the prevailing economic conditions that exist in the regional construction market at the time of bidding. In the past 3-4 years Fairfax County and other localities in the region have benefitted from very competitive construction bidding, with a large supply of contractors bidding for a limited volume of construction work. The cost of materials, supplies and equipment also has a direct impact on the construction cost, and those costs have generally been depressed in recent years.

Level of Quality Specified in Construction Documents: The level of quality that is required for our construction projects directly impacts the cost, with higher quality project specifications generally costing more. The level of quality specified in County projects is driven by: 1) Aesthetic and operational expectations of the communities and County's regulatory planning and zoning agencies, 2) Operational requirements of the customer agencies such as police, fire and rescue, library and transportation, and 3) Life cycle operations and maintenance cost considerations as represented by Facilities Management Department.

Value Engineering (VE): In accordance with the Board of Supervisors' Policy, a formal VE process is conducted for all building projects with a construction value of over \$5 million. VE is also typically administered by DPWES for building projects valued below \$5 million. The intent of VE is to retain the same scope, quality, and functionality for the project, but to do so in a more cost effective manner. VE is conducted at the 35% design stage in an effort to assure the best value for the project, and the historic results of VE studies reflects an average return on investment of approximately 45:1.

Complexity of Work: The construction cost per square foot of building area is significantly impacted by the nature of the construction work being performed, including such factors as: 1) New work versus renovation work, 2) Occupied versus unoccupied renovation work, 3) Requirements for phased construction work, 4) Environmental remediation, and 5) Extent of IT and security systems and equipment. Many County CIP building projects deal with the replacement or capital renewal of existing facilities that are in excess of thirty years old. In some cases the projects entail full demolition and rebuild; other cases entail expansion and varying amounts of capital renewal work. Most of these projects require some type of phased construction, environmental abatement, and upgrades to building systems, equipment and technology to accommodate current building systems and IT into the facilities.

Site Development Costs: The majority of current CIP building projects that are managed by DPWES involve building replacement or capital renewal of older facilities that were originally developed in the mid-1980's or earlier. These sites are typically very small and do not meet the environmental site regulations required for current facilities. The costs to retrofit older facility sites for stormwater detention, water quality, adequate outfall, parking requirements, tree cover and other issues is often substantial. Innovative site work provisions such as underground detention, porous pavement/asphalt, rain gardens and sand filters are often used to bring older sites up to standards. As part of DPWES's commitment to the Board of Supervisors Environmental Agenda and to being a good steward of the environment, DPWES strives to meet all regulatory site requirements and avoid requests for waivers.

Use of Previous Design Models

For projects managed by DPWES, staff continuously utilizes successful design standards from previous projects in an effort to reduce cost, and improve quality and efficiency. DPWES staff routinely utilizes the NACO award winning Guidelines for Architects and Engineers that reflects building system and equipment requirements identified by Facilities Management Department (FMD) and lessons learned from previous projects. DPWES also utilizes the NACO award winning Fire Station Design Manual and a Police Station Design Guideline that have been developed and updated over time to reflect standard approaches for these facility types. DPWES is working with Library Administration to formalize a Library Design Guideline, and also implements design guidelines for structured parking facilities. DPWES also utilizes standard space programs as the basis for the scoping for libraries, fire stations, police stations, and district supervisor's offices. Although a standard building floor plan is not used, the spaces within the floor plan are generally consistent and adapted to the site and any specific requirements of the particular facility. The design standards are dynamic documents that are regularly updated to reflect evolving requirements of the customer agencies; FMD's changing requirements for maintenance, durability, and consistency; industry changes in systems and equipment; the evolution of sustainable design; and the recurring changes to regulatory requirements and approaches.

DPWES previously adapted a single fire station building plan for use on two different sites. This was done over twenty years ago, on two green field sites, with mixed results. Due to the differences in the site configurations, the building and site plans for the fire stations had to be significantly altered to work within the specific constraints associated with each site. Any savings realized on these projects were minimal due to the specific design modifications required for each site.

In the current County environment, green field sites are virtually non-existent. A significant portion of the current CIP projects are renovation and expansion projects for older County facilities. These renovation and expansion projects are intended to address the capital renewal of older County facilities that were originally built over twenty five years ago. The majority of County building projects are also prominent facilities in the community and the appearance and operations of the facilities are the subject of significant community input. Building sites and community expectations vary significantly, so it is extremely difficult to site adapt a standard design in different locations in the County. Individual building designs often reflect the character of the surrounding communities and neighborhoods. The sites associated with building renovation and expansion projects, and capital renewal projects, in the current County CIP tend to be extremely tight. Due to the tight sites and the current regulatory site requirements, the proposed building work usually has to be designed specifically to work with the individual site constraints. However, projects are generally based on a standard program for each facility and the standard program is adapted to include the unique program requirements of the customer agency based on the specific geographic and demographic locations. Examples of unique program elements to be reflected in the facility design include joint professional and volunteer fire stations; and fire stations with special operational units such as HazMat, Swift Water Rescue, and Technical Rescue Operations Team. Police station and libraries frequently have special program requirements to respond to the unique demographics of their specific location.