ENVIRONMENTAL ENGINEERING

DESCRIPTION

The Department of Environmental Engineering consists of six functional sections supported by a small administrative staff. Engineering Services provides plans review and field inspection services for commercial and residential projects. Drainage Maintenance Operations perform a wide variety of maintenance functions on drainage facilities located in easements throughout the county. Work performed is either initiated in-house or in response to requests from residents. Geographic Information Services maintains and enhances the Geographic Information System (GIS) in order to provide accurate, timely, and cost effective information to county agencies as well as to outside parties. The Street Signs Division fabricates and installs new or replacement street signs for all roads in the county. The Water Quality Division implements a comprehensive water quality program including compliance with the county's National Pollution Discharge Elimination System (NPDES) permit requirements. This section also works on development and implementation of watershed management strategies, enforcement of the Illicit Discharge Ordinance, as well as on stream quality and restoration activities.

FINANCIAL ACTIVITY

	FY2002 Actual	FY2003 Adopted	FY2004 Biennial Planned	FY2004 Adopted	Change FY2003 to FY2004	FY2005 Projected	FY2006 Projected	FY2007 Projected
Personnel	$2,412,045	$2,546,000	$2,546,000	$2,688,800	5.6%	$2,688,800	$2,688,800	$2,713,400
Operating	539,544	529,800	529,800	452,500	-14.6%	452,500	452,500	452,500
Capital	173,218	157,500	50,500	79,000	-49.8%	79,000	186,000	79,000
Total	$3,124,808	$3,233,300	$3,126,300	$3,220,300	-0.4%	$3,220,300	$3,327,300	$3,244,900
Revenue	678,093	400,600	420,700	429,100	7.1%	485,000	509,600	532,200
Net Cost	$2,446,715	$2,832,700	$2,705,600	$2,791,200	-1.5%	$2,735,300	$2,817,700	$2,712,700
FT Pos.	56	58	58	58	0	58	58	59

BUDGET ANALYSIS AND EVALUATION

The Environmental Engineering Department continues to face the impact of the Chesapeake Bay Preservation Act (CBPA) on the erosion and sediment control review process. This has resulted in storm water quality control being required in almost all new construction projects. Review and research of new and innovative best management practices (BMP's) increase overall review time. An additional impact on this area is the resubmission of subdivision plans for approval of requested alterations to plans that have already been county-approved. These resubmissions averaged 58.6% of all new submissions from FY98 through FY2002 and are averaging 52% of submittals in FY2003. While approximately 40% of these re-submissions are the direct result of the county requesting minor changes to conform with record plats, the remainder are requests from the private sector for changes of convenience that often require substantial review efforts. Resubmitted, previously approved plans account for about 34% of staff review time -- the equivalent of one engineer position. During FY2002 the average number of days to complete a review of a re-submitted, previously approved plan increased to 17 days from 14 in FY2001. The number of re-submitted, previously approved plans increased to 54 in FY2002 as compared to 49 in FY2001.

Included in the FY2004 budget is the implementation of a new fee of $1,000 for re-

submittal of a previously county-approved subdivision plan. This fee is anticipated to generate about $20,000 in FY2004. Future revenue generated from this fee is anticipated to experience a downward trend as the private sector implements process improvements within their own organizations.

The Inspections Operation Division of Environmental Engineering is still in the process of migrating to the new Community Development Information (CDIS) and POSSE™ systems as new modules come on line. Installation of the entire Chesterfield Development Information System is anticipated to be completed in FY2004. The new system will positively impact the workload of the department and will enable all Community Development departments to access site plans, tentative subdivision plans, and to render automated case comments back to a developer without having to utilize hard copy paper files. The new system will assist the department in continuing with technological advances needed in order to keep up with ever-changing private sector needs and expectations.

The Virginia Department of Conservation and Recreation, which oversees the state erosion and sediment control regulations, conducted an in-depth operations review of the inspections operation. The result of the review has positively impacted the division with the in-house development of a project tracking system for plans review and construction. The new system tracks each project from its initial submission through construction plans review and to state road acceptance for subdivisions and certificates of occupancy for commercial sites. Once fully implemented, the system will permit any department user to determine the current review status of a project, how many inspections it has received and when, and will allow inspectors to generate correspondence regarding inspections and violations based on the data entered into the system.

The Drainage Maintenance operation performs maintenance on drainage facilities located in county-owned easements throughout the county. Work performed is either section-initiated in response to requests or citizen complaints, or through the department's GIS mapping project. The section has an equipment replacement schedule to plan for systematic replacement of all equipment. The FY2004 budget funds replacement of an equipment trailer, $10,000; a cement mixer, $5,000; a tractor, $29,000; and an air compressor, $15,000.

Beginning in FY2001 the drainage maintenance operations section began a new program of inspection and maintenance services for best management practices (BMP's) utilized in residential areas. They presently maintain about 85 BMP's county-wide. This number is expected to grow to near 190 BMP's by FY2011. Revenues generated from developers for maintenance of residential BMP's continues to grow and is reserved at the end of each fiscal year. It is anticipated that maintenance on the first BMP's accepted into the program will begin during FY2005.

The Capital Improvement Program (CIP) includes $1.4 million over the term of FY2004-FY2010 and allocates $200,000 per year to prioritized drainage improvement projects countywide. These drainage projects usually occur in subdivisions or housing areas that are more than 25 years old and where storm water drainage issues need to be remedied.

The street sign division of the department will experience a dramatic technological change in FY2004 with the Technology Improvement Program (TIP) funding of a digital sign plotter ($47,000). This equipment will enhance production capacity and accelerate the process, which will in turn eradicate the backlog that exists for street signs.

The Information Systems Technology Department (IST) is facilitating the e-Government Internet initiatives to enhance customer service delivery. During FY2003 and continuing into FY2004, IST will be working to make GIS map products available on the Internet.

The GIS section continues to provide routine system and data maintenance and production of specialized map products and applications. During FY2003 the county approved an ordinance revision that will allow for electronic submission of site plans and multi-family developments and established a $75 fee for those companies that cannot submit electronically. Electronic plan submittals facilitate GIS updates to be completed in a more timely manner. This new fee will assist in the cost of future GIS updates. Again it is anticipated that private

industry will adapt by changing their internal processes and this revenue source will continue to decline.

Water quality programs are mandated by the Federal Clean Water Act through a National Pollution Discharge Elimination System (NPDES) Permit to implement a comprehensive program, inclusive of water quality monitoring, regulation of discharges, and public education and outreach. The purpose of the program is to protect, preserve, and restore surface water resources of the county. Penalties for a violation of the permit can result in enforcement action by either the Department of Environmental Quality or the Environmental Protection Agency. The county's NPDES permit has recently been amended to incorporate the Watershed Assessment and Stream Protection (WASP). The WASP program was developed as a more accurate means of determining the health of county waters and the pollutants that threaten those waters. It reflects a systematic approach toward prioritizing strategies and practices that will reduce or eliminate the numerous sources of pollution. Implementation of this program also supports county wide strategic goal number eight: "to be responsible protectors of the environment".

The FY2004 CIP includes $150,000 to perform stream monitoring at the Mid-Lothian Coal Mines Park. This project will involve stream bank stabilization, flow redirection, and the use of bioengineering techniques along a 2,600 foot area on the banks of the creek located within Mid-Lothian Coal Mines Park. Each year in the CIP, funding is allocated to address water quality preservation within the county.

The FY2004 budget has been reduced by $107,000 for FY2003 one time capital costs and has been increased by $3,600 for an increase in maintenance charges for 800 MHz radios. Also funded within the FY2004 budget is $20,000 for miscellaneous furniture and equipment.

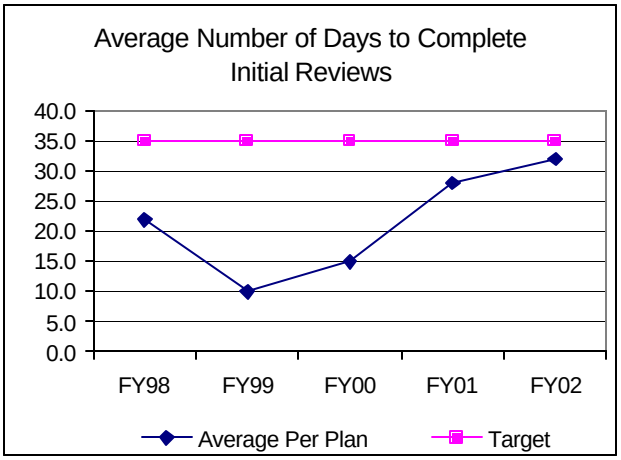
Additional funding requests of $111,000 for replacement personal computers, a tractor and bushhog, and a single axle dump truck have not been included in the FY2004 budget.

HOW ARE WE DOING?

Goal: Meet customer demand for rapid turnaround time in plan review. Supports countywide strategic goal numbers 1, 2, and 7

Objective: Complete initial plan reviews within 35 days of receipt of plan

Measure: Average number of days to complete initial review

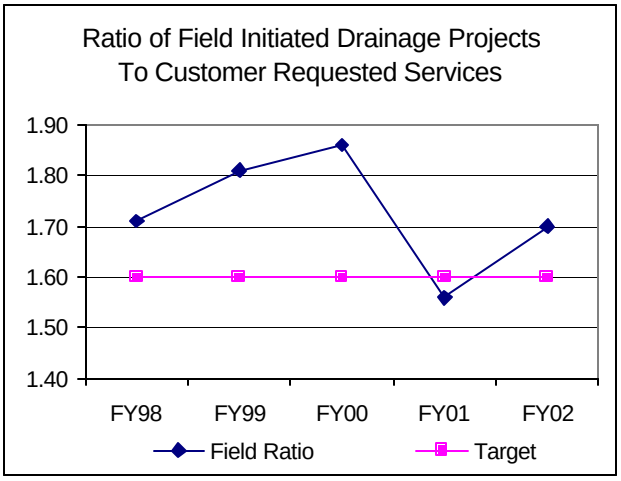


Initiatives

- Focus groups to identify time-consuming issues
- Site plan information on Internet
- Chesterfield Development Information System
- Electronic submission of plans

ENVIRONMENTAL ENGINEERING

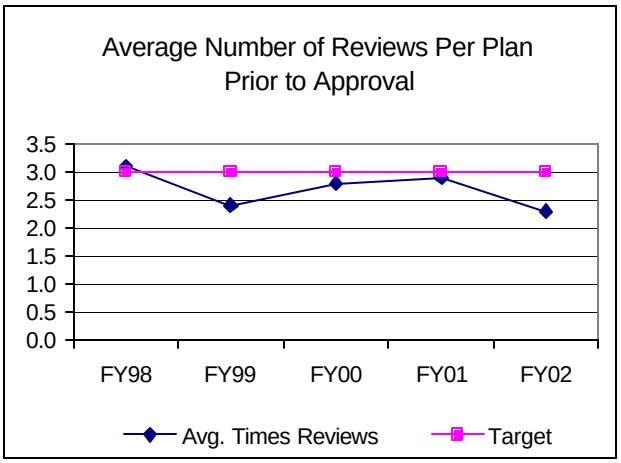
Goal: Proactive Performance of Drainage Maintenance Operations. Supports countywide strategic goal numbers 1, 2, 3, and 4
Objective: Act on drainage maintenance problems before receiving a request for service from customers
Measure: Ratio of field initiated drainage projects to customer requested drainage projects



Initiatives

- Empowerment of staff
- Site inspections

Goal: Reduce rework both for the departmental staff and customers for review of plans. Supports countywide strategic goal numbers 2 and 7
Objective: Reduce the number of review iterations per plan to final approval
Measure: Average number of reviews per plan



Initiatives

- Focus groups to identify recurring problems
- Site plan information on Internet
- Chesterfield Development Information System
- Electronic submittal of plans

ENVIRONMENTAL ENGINEERING

WHERE ARE WE GOING?

Future impacts in the GIS area involve technology updates. In order to continue to set the pace locally and statewide, the county must fund annual software updates and replace antiquated equipment. However, funding for these items is not included in the table above. The alternative to this would be to contract with an outside vendor to perform the monitoring function in order to meet the increased monitoring and testing of the alternative BMP's. The Capital Improvement Program for FY2005-FY2010 includes funding of $1.2 million for stream restoration to assist with these issues.

The CIP funding identifies the initial stream restoration projects that will be undertaken. During FY2005-FY2006, $330,000 was identified for stream restoration at Pocoshock Creek. In FY2006-FY2009, $640,000 has been identified for the Falling Creek Reservoir restoration; in FY2009, $30,000 will address stream restoration at the Falling Creek, east of Walton Lake. An additional $200,000 in FY2010 has not been allocated for a specific project at this time. The CIP also recommends funding in the amount of $200,000 each year to address drainage improvements countywide.

The water quality staff will continue the public education process and implementation of NPDES and WASP. A major area of expense foreseen for the future of water quality is the purchase of a portable monitoring station and creation of an additional staff position.

It is anticipated that by FY2005 fees that have been collected for maintenance of BMP's will be utilized to help offset costs associated with that on-going maintenance program.

Funding in future years FY2005-FY2006 remains flat with $79,000 in capital in each year to address replacement of drainage equipment. During FY2006 an additional $107,000 has been identified for one time capital costs for the BMP program. In FY2007, one new maintenance worker position directly linked to the BMP program has been included.