



Albemarle County

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AGENDA DATE: 12/6/2017

TITLE:
Stormwater Infrastructure Management Program

SUBJECT/PROPOSAL/REQUEST: Receive update and provide feedback on cost estimates of a proposed stormwater infrastructure management program to be supported by a stormwater utility.

ITEM TYPE: Regular Information Item

STAFF CONTACT(S): Richardson, Letteri, Kamptner, Henry, Harper

PRESENTER (S): Greg Harper

LEGAL REVIEW: Yes

REVIEWED BY: Jeffrey B. Richardson

BACKGROUND: Through a number of actions, the Board has expressed its interest in the County developing and administering a proactive program to manage portions of the stormwater infrastructure system not already under County responsibility. Stormwater - or *grey* - infrastructure includes conveyance features such as pipes, channels, culverts, manholes, inlets, and other similar features. On September 7, 2016, the Board supported the formation of a stormwater utility - in part to support a recommended grey infrastructure program, and affirmed the level of service recommended by the advisory committee in a 10-year program plan. In addition, the Board has twice in the last two years agreed with private property owners requesting the County take responsibility for infrastructure failures due to the infrastructure serving more than just their private property. The Board's interest is made explicit by the inclusion of a goal in the FY17 - 19 Strategic Plan to "determine role and responsibility of local government for maintaining (stormwater) infrastructure not already dedicated to public use."

The anticipated costs of a grey infrastructure program must be incorporated into the stormwater utility planning. As part of the development of the 2016 stormwater utility recommendations, staff - with the assistance of a consultant - developed preliminary cost estimates for water resources programs to be

supported by the utility, including those related to a grey infrastructure program. On October 4, 2017, staff provided the Board with revised cost projections for all programs except the grey infrastructure program.

STRATEGIC PLAN: *Infrastructure Investment:* Prioritize, plan, and invest in critical infrastructure that responds to past and future changes and improves the capacity to serve community needs. *Natural Resources Stewardship:* Thoughtfully protect and manage Albemarle County's ecosystems and natural resources in both the rural and development areas to safeguard the quality of life of current and future generations.

DISCUSSION: Estimating the cost of the proposed infrastructure program requires first defining the program *scope*. Scope is a function of the *extent* of service (EOS) - or the quantity of infrastructure the County will manage, and the *level* of service (LOS) - or the intensity of work that will be done to manage the infrastructure.

Level of Service

Staff from the Facilities and Environmental Services Department, the Community Development Department, and the County Attorney's Office worked together to envision program LOS based on information collected from other localities, Virginia Department of Transportation (VDOT) protocols, drainage common law, Board sentiment, and local conditions.

The proposed LOS of the envisioned program includes the following:

Mapping The County will continue to develop a geo-database (a database associated with spatial features) of all stormwater infrastructure within the County, no matter the responsible party; the map will contain attribute data such as type, size, material, age, and spatial characteristics, such as length and depth.

Asset management system The geodatabase will serve as the foundation of an asset management system, which will contain additional data - such as condition and responsible party - and facilitate the scheduling and tracking of maintenance and repair work

Assessment and cleaning The County will initially focus on assessing the condition of infrastructure (using video) to identify issues and assign priority to repair and rehab work. Based on the amount of work, staff will determine whether a County crew or contractors would be more cost-effective; accessing storm sewer systems with video equipment requires some level of cleaning (for instance, the removal of debris and sediment).

Repair and rehabilitation Structural issues identified during assessment will be addressed, as appropriate; repairs and rehab may include replacing or lining corroded metal pipes, filling cracks or gaps at joints, and stabilizing eroding channels; work will be prioritized based on the severity of the issue and consequence of failure.

Easements The County would obtain public easements or other rights of entry, as needed, to perform the work.

Staff developed estimates of costs per unit length (mile) of infrastructure to implement the proposed LOS based on data obtained from other localities and industry standards. Cost factors include the age of infrastructure, estimates of the percentage of infrastructure needing repairs and rehab, and the frequency and timing of work.

Extent of Service

In order to estimate the quantity of infrastructure the County will likely manage it was necessary to: 1) predict the total amount of infrastructure throughout the County; and 2) determine the portion of the total amount for which the County would assume responsibility. The remaining infrastructure would continue to be managed by either VDOT or the owner of the property on which the infrastructure lies.

Staff has mapped approximately 185 miles of infrastructure as of November 2017. Staff used two separate methods to predict that there is approximately 225 miles of infrastructure located within the County's urban areas and within residential subdivisions in the rural areas. It is improbable the County will assume responsibility for infrastructure in rural areas outside of residential subdivisions.

Of the total amount of infrastructure outside of VDOT rights-of-way, staff assigned proportions the County would likely manage for a variety of land use categories. The assignments were made using professional judgement informed by an examination of various example properties. For instance, much of the infrastructure located on commercial properties serves only that property - similar to a sanitary *lateral* - but a portion (staff estimates 25%, on average) may convey offsite stormwater through the property - similar to a sanitary *trunk line*. There is likely a public interest in assessing the trunk lines and repairing and rehabbing only a portion of the trunk lines.

The assignments and the resulting amounts of infrastructure for which the County would be responsible are summarized as follows:

Land use	Typical proportion of County responsibility	
	Cleaning and assessing	Repairing and rehabbing
County & school properties	100%	100%
within public easements	100%	100%
SFR - small lots (urban)	100%	60%
SFR - medium to large lots (rural)	5-50%	3-30%
non-SFR (commercial, multi-family residential)	25%	15%
Resulting amount of infrastructure under County management	100 miles	68 miles

Scope and Costs

Using the unit costs developed to reflect the LOS and the quantities of infrastructure reflecting the EOS, staff developed total infrastructure program cost estimates for the 10-year utility planning period. These costs are included with other revised water resource program costs, reviewed by the Board on October 4, 2017, and summarized as Attachment A.

Staff believe the program and cost assumptions described above are appropriate for estimating program costs as part of the process to develop a stormwater utility. Prior to the commencement of the proposed program, staff intends to develop policies dictating the parts of the infrastructure system for which the County would generally have an interest in assuming responsibility. Once the program is launched and as it matures, the policies can be refined and used as guidance to make case-by-case determinations of responsibility.

BUDGET IMPACT: This update on work progress does not have an effect on the budget. The estimated costs of implementing an infrastructure program will be used to inform the development of a stormwater utility.

RECOMMENDATION:

No action is required. This work session is an opportunity for staff to update the Board on work efforts related to establishing a stormwater utility.

ATTACHMENTS:

Attachment A: Stormwater Utility 10-Year Program Cost Estimates

