City of Alexandria, Virginia

MEMORANDUM

DATE: APRIL 10, 2012

TO: THE HONORABLE MAYOR AND MEMBERS OF CITY COUNCIL

FROM: RASHAD M. YOUNG, CITY MANAGER

SUBJECT: BUDGET MEMO #30: NEW SANITARY SEWER PROJECTS IN THE PROPOSED CAPITAL IMPROVEMENT PROGRAM

The purpose of this memorandum is to outline for City Council the significant changes to Sanitary Sewer Fund capital projects included as part of the Proposed FY 2013 – 2022 Capital Improvement Program (CIP). A description of the projects, the need for each project, and the potential impact on ratepayers is included in this memorandum. This information will also be covered at City Council's April 10, 2012 work session on the Sanitary Sewer Master Plan.

Specifically, funding has been added to the Proposed FY 2013 - 2022 CIP for the following Sanitary Sewer projects:

Project	**FY 2013 – 2022 New Funding**
Alexandria Sanitation Authority (ASA) Advanced Wastewater Treatment Facility Capacity	$35,220,000
Wet Weather Management Facility (50% Share)	$31,500,000
(1) Holmes Run Sewershed Infiltration/Inflow and Rehabilitation	$7,700,000
Total	$74,420,000

(1) Total funding in the Proposed FY 2013 – 2022 CIP is $19.9 million, of which $12.2 million had been planned as part of previous Capital Improvement Programs. The $7.7 million represents the amount of new funding required to fully fund the project.

ASA AWTF Capacity

The City has developed growth forecasts for development build-out conditions (post year 2040). Based on these forecasts, the City is projected to exceed its wastewater allocation at the Alexandria Sanitation Authority (ASA) Advanced Wastewater Treatment Facility (AWTF) sometime after 2040. ASA has indicated that their facility can be expanded / upgraded to treat an additional four (4) million gallons per day (MGD) and have provided a total capital cost estimate of $29.0 million in 2011, which adjusted for inflation and estimated project timing increases to $35.2 million. The major construction portion of the project would take place between FY 2020 – 2022. An additional $1.0 million to complete the project would not be needed until the FY 2026 – 2030 time frame. This cost is based on hydraulically expanding the plant at the same time as other anticipated upgrades (as existing process equipment reaches the end of its useful

life). Thus, although the need for increased flow capacity is not anticipated until after 2040, it would be more cost-effective to perform the hydraulic expansion while other upgrades are occurring based on the timeline provided by ASA. It is noted that costs provided are for an additional 4 MGD of flow and do not include the costs related to any additional nutrient (phosphorous and nitrogen) loads associated with these flows. Options for addressing these added nutrient loadings are being evaluated. The City is not expected to reach its nutrient limits until after 2040 (when the existing flow allocation is forecasted to be reached), so the need to address has not been included as part of the 10-year CIP. The costs to address nutrient loads are likely to be in the form of buying already permitted (but not used) nutrient load capability from other jurisdictions, or paying for offsets such as rural land preservation, or farm runoff mitigation. The costs also do not yet include to-be-determined increases to the City in prior and future ASA capital costs due to a higher City percentage share of ASA capital costs caused by the addition of this 4 MGD in capacity.

Another option to provide an additional 4 MGD would be to purchase 4 MGD of wastewater treatment capacity at the ASA facility from Fairfax County, as they have indicated that they may not have a need to utilize their full allocation at ASA. Fairfax County has estimated the cost for this purchase to be approximately $56.0 million (estimated in 2011 dollars), based on Fairfax's sunk costs for the construction of 4 MGD at the ASA facility. This option would not require any offset of nutrient loadings. This option initially appears to be significantly more costly than constructing additional capacity at ASA; however, the City will be continuing discussions with Fairfax County concerning this option.

Wet Weather Management Facility

During periods of extreme wet weather, stormwater enters the City's sanitary sewer collection system through cracks and leaks in the sanitary sewer infrastructure. This has the potential to lead to sewer back-ups in homes and businesses throughout the City. Past sewer back-ups have been recorded and many of them occur in the vicinity of the ASA interceptor sewers, especially the Commonwealth Interceptor and the Holmes Run Trunk Sewer. In addition, wet weather flows in the sewer can cause sanitary sewer overflows (SSOs), where raw sewage is discharged to receiving waters before being treated. There are two SSO locations in the City – at the ASA Four Mile Run Pumping Station and immediately upstream of the ASA treatment facility. SSOs are not permitted by the State and are required to be reported when they occur. Due to forecasted growth in the City (and Fairfax County), there is concern that growth will lead to increased SSOs in the future and create additional potential for sewer back-ups.

A joint study by the City, ASA and Fairfax County was completed in November 2010 which recommended a Wet Weather Management Facility to mitigate SSOs and basement back-ups for up to the five-year storm event. The Wet Weather Management Facility includes the following components: increasing the peak flow through the ASA AWTF from 108 to 116 MGD (through primary treatment), relocation of CSO Outfall 004 from Duke Street to just outside the ASA treatment facility, construction of a 500,000 gallon storage tunnel between the existing and proposed CSO Outfall 004, and a wet weather pumping station to reduce the surcharging in the interceptor sewers in order to reduce the incidence of SSOs and basement back-ups. The total project cost is anticipated to be shared equally between Fairfax County and the City, estimated at $51.2 million in 2011 dollars and adjusted to $63.0 million based on inflation and project timing.

The City's share is estimated at $31.5 million. The major construction portion of this project would take place between FY 2017 – 2018.

Holmes Run Sewershed Infiltration/Inflow and Rehabilitation
This project provides for the evaluation and remediation of infiltration/inflow by rehabilitating City-owned sanitary sewers and manholes in the Holmes Run sewershed. Many of the sewers and manholes are old and deteriorated, and require rehabilitation. During wet weather, infiltration and inflow into the sanitary sewers have created overload conditions contributing to SSOs and basement backups. The field work and monitoring is being performed by dividing the 4,600 acre sewershed into sections and proceeding through each section, prioritized by the amount of water entering the system. Leaking sewers and connections (which allow excessive infiltration/inflow to enter sewers), and deteriorated sewers requiring remediation, are being identified via street by street closed circuit television inspection of sewers. The results of this field work are being evaluated to develop remediation projects that include the relining of sewers and manhole repairs.

Field investigations performed to date have shown that the sewers in the Holmes Run sewershed, although constructed more recently than the newly rehabilitated Commonwealth and Four Mile Run sewersheds, will most likely require a higher percentage of remediation than that of the older sewersheds due to the condition of the existing infrastructure. Therefore, an additional $7.7 million is included in the Proposed FY 2013 – 2022 CIP to complete this work, bringing total project funding to $19.9 million in the Proposed FY 2013 – 2022 CIP.

Proposed Project Funding
The Proposed FY 2013 - 2022 CIP includes new bond funding for these projects totaling $74.4 million. It is important to note that the General Obligation Bonds paid by sewer fee revenue are considered "double barreled" bonds by the rating agencies which means they are supported primarily by the sewer fee revenue but are also guaranteed by the full faith and credit of the City. These are not included in the local government debt ratios as long as the sewer system is self-supporting. To pay the associated resulting debt service, increases in the Sewer Line Maintenance Fee will be needed, projecting a rate adjustment from the existing $1.25/1,000 gallons of water used to $2.27/1,000 gallons by FY 2022. The first increase is not scheduled until FY 2015 based on current project timing and cost estimates. The chart below provides an overview of potential rate increases to the Sewer Line Maintenance Fee based on current cost estimates and project timing, and is subject to further refinement in the coming years ahead.

	FY 2013	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**
Beginning FY Rate	$1.25	$1.25	$1.25	$1.38	$1.38	$1.47	$1.77	$2.05	$2.05	$2.27
Proposed % Increase	0.0%	0.0%	10.0%	0.0%	7.0%	20.0%	16.0%	0.0%	12.0%	0.0%
New Rate	$1.25	$1.25	$1.38	$1.38	$1.47	$1.77	$2.05	$2.05	$2.27	$2.27

Additionally, in the coming fiscal year, staff will be examining potential material increases to the Sewer Line Connection Fee charged to developers to offset costs for sanitary sewer system

expansion. Additional rate increases to the base Sewer Line Maintenance Fee and Sewer Line Connection Fee to pay for these projects would need to be considered by City Council on an annual basis. These projections do not yet include any potential costs of added capital investment which may be needed as the result of combined sewer outfall (CSO) permit renewal requirements. As project scope, timing and cost estimates are further developed in the coming year, staff will present City Council with proposed comprehensive financing plan alternatives.

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