MEMORANDUM

DATE: APRIL 15, 2016

TO: THE HONORABLE MAYOR AND MEMBERS OF CITY COUNCIL
MARK B. JINKS, CITY MANAGER

FROM: SKIP MAGINNISS, CHAIR AD HOC COMBINED SEWER SYSTEM PLAN STAKEHOLDER GROUP (STAKEHOLDER GROUP)

C: MEMBERS OF THE AD HOC COMBINED SEWER SYSTEM PLAN STAKEHOLDER GROUP
WILLIAM SKRABAK, DEPUTY DIRECTOR, T&ES

SUBJECT: Report and feedback on draft framework of the Combined Sewer System Long Term Control Plan Update (LTCPU)

The Virginia Department of Environmental Quality (VDEQ) completed the Hunting Creek Total Maximum Daily Load Study for Bacteria in 2010 which resulted in load/discharge allocations for overflows from the City's Combined Sewer System (CSS). The CSS permit issued to the City by VDEQ in 2013 required City to update its Long Term Control Plan (LTCP) to address Hunting Creek TMDLs. Planning for mitigation of Combined Sewer Overflows is important not only to keep the City in compliance with its environmental permit obligations, but also for maintaining the City's environmental stewardship, and is consistent with the City's Eco-City Alexandria Environmental Action Plan.

T&ES staff, along with its consultants presented complex technical information in an easy to understand form which facilitated an excellent discussion not only among the members of the Stakeholder Group, but also from members of the public who were invited to comment after each agenda item was presented.

OVERALL FRAMEWORK OF DRAFT LTCPU

The framework of the Long Term Control Plan Update (LTCPU) primarily comprises of implementation of store and treat technology complimented with green infrastructure and targeted separation in three of the four outfalls in the system that discharge into Hunting Creek or its tributary Hooffs Run. Specifically the proposed framework includes:

1. Construction of a 1.6 million gallon storage tunnel to store and treat combined sewage from the Hooffs Run (CSO-003 and CSO-004) combined sewershed. This tunnel would be 10-foot in diameter and approximately 2,700-feet in length.
2. Construction of a 3.0 million gallon storage tank to store and treat combined sewage from the Hunting Creek (CSO-002) combined sewershed.
3. Enhanced implementation of green infrastructure as a complementary strategy citywide.
4. Continued implementation of the Area Reduction Plan, which calls for sewer separation as a condition of redevelopment.

5. A two-phased approach for CSO-001 where Phase I includes implementation of green infrastructure and sewer separation while the CSO-002/003/004 projects are being implemented. Following the completion of these projects, the City would begin Phase II which includes an assessment of the effectiveness of Phase I and the planning of infrastructure at CSO-001 to address future regulatory requirements.

The proposed combined sewer facilities will reduce the number of overflows from CSO-002, CSO-003, and CSO-004 from 50-70 per year to 4-6 per year on average. The planning level capital cost for the LTCPU is equal to $125-$188 million (2015 dollars). It is anticipated that the construction of the CSO-003/004 tunnel will be implemented first with construction being completed on or around 2025. Design and construction will proceed for the CSO-002 storage tank will then proceed, with construction being completed by 2032.

STAKEHOLDER GROUP RECOMMENDATIONS

Based on the information presented by Staff and subsequent Stakeholder Group discussions, and input received from the public at the meetings, the Stakeholder Group recommends that City Council approves the framework of the Long Term Control Plan.

The Stakeholder Group believes that the framework plan developed by Staff, with input from Stakeholder Group and public, is reasonable and achieves appropriate balance between regulatory drivers, cost implications, and improvements to water quality and environment. The plan also addresses CSO-001 (Oronoco Bay) and allows for sequential implementation of the projects. While construction impacts were taken into account in development of the plan and project recommendations, the Stakeholder Group recommends continued engagement with public as specific projects are developed further and implemented.

The Stakeholder Group recommends engaging potential stakeholders early in the process of implementing the LTCPU in order to avoid conflict and influence coordination, especially as it relates to construction. The Stakeholder Group recognizes that the funding required to implement the LTCPU is substantial, and therefore it is important that the City explore funding options for implementing the LTCPU to avoid additional debt as part of the City's Capital Improvement Program (CIP). The Stakeholder Group generally agreed with the City's proposed implementation schedule in order to stay in regulatory compliance; however, the City should look for opportunities to accelerate the implementation of the LTCPU to meet environmental goals sooner if it can be done in a fiscally responsible manner.

The Stakeholder Group voted to accept this memorandum with 10 members voting to accept, 2 members absent (Stephen Milone and Brett Rice), and 1 member abstaining (Jack Sullivan). Mr. Sullivan wrote an individual supplementary view that is included as Attachment 1. Although Mr. Sullivan supports what is proposed for CSOs-002/003/004, he believes that the LTCPU framework should go further in addressing overflows at CSO-001.

BACKGROUND AND PROCESS

On June 23, 2015 the Alexandria City Council adopted Resolution No. 2683 to form the Ad Hoc Combined Sewer System Plan Stakeholder Group (Stakeholder Group) to provide Staff with input the Long Term Control Plan Update (LTCPU) for addressing combined sewer overflows.

The Stakeholder Group had four objectives:

1. *"Provide staff of Transportation and Environmental Services (T&ES), Management & Budget (IMB), Office of Historic Alexandria (OHA), Recreation, Parks and Cultural Activities (RPCA) and Alex Renew with recommendations on how a primary combined sewer system control strategy can accomplish the City's environmental goals and permit requirements while minimizing impacts to the community;*
2. *Review and monitor the preparation of the Long Term Control Plan Update, including ongoing permit and other regulatory issues, engineering and analysis of potential locations of future combined sewer infrastructure facilities, and consideration of an implementation plan schedule and funding strategy;*
3. *Serve as a central information-receiving/dissemination body related to the City's Long Term Control Plan Update;*
4. *Receive input from the public during development of the Long Term Control Plan Update."*

The 13-member group, appointed by the City Manager, was comprised of constituents that represented various interests throughout the City. Members of the Stakeholder Group and their representation are provided in Attachment 2.

A series of monthly meetings were held at which Staff and their consultants presented information on the LTCPU and progress on its development. Attachment 3 provides a listing of the Stakeholder Group meetings including dates and topics covered.

At each of these meetings, staff presented a series of discussion topics in order to generate discussion among the Stakeholder Group and to gather feedback on key decisions for the LTCPU. Technical information was presented and questions from the members of the Stakeholder Group were addressed. Formal meeting notes were prepared following each meeting and presented to the Stakeholder Group for their review and approval. Comments from the public were also received and recorded at each of the meetings. This memorandum summarizes the discussion between Staff and the Stakeholder Group and feedback provided by the Stakeholder Group and public at the meetings. This memorandum is intended to present the general recommendations from the Stakeholder Group and is not intended as a transcript of all feedback gathered at the meetings.

STRATEGY DISCUSSION

Staff and their engineering consultant have developed an overall framework for the LTCPU which recommends that store and treat infrastructure will be the primary strategy to address the Hunting Creek Bacteria Total Maximum Daily Load (TMDL) for CSO-002, CSO-003, and CSO-

004. Three store and treat infrastructure options were presented to the Stakeholder Group to consider. These infrastructure options included a combination of underground tunnels and tanks to accomplish the store and treat strategy. For CSO-002 (Royal Street), the City's engineering consultant recommended a storage tank at the south end of Royal Street over a storage tunnel. The storage tank is less expensive and limits the areas of disruption within Old Town. For CSO-003/004, the City's engineering consultant recommended a storage tunnel from Duke Street, running south along Hooffs Run, and terminating at the AlexRenew site for CSO-003/004. The Stakeholder Group generally supported the engineering consultant's recommendations. Members of the Stakeholder Group noted care and diligence should be exercised during any excavations due to the potential for archeological artifacts. Staff has engaged the City archeologist and has plans for an archeologist to be onsite during excavation activities.

In addition to the store and treat primary strategy, complementary strategies such as green infrastructure, sewer separation, and other potential opportunities will be implemented as well. The LTCPU can be thought of as a pyramid with store and treat forming the base and the complementary strategies helping to control combined sewer overflows even further.

TUNNEL ALIGNMENTS AND TANK SITES

Staff presented alignments for the CSO-003/004 storage tunnel to the Stakeholder Group. A storage tank was not considered for these outfalls due to available space limitations. Three preliminary alignments were presented and two alignments one of which being preferred, were recommended for inclusion in the LTCPU. **The Stakeholder Group agreed with Staff's recommended alignment.**

Staff asked the Stakeholder Group if a storage tunnel or storage tank should be implemented for CSO-002. **The general consensus was that a storage tank should be implemented for CSO-002.** This was mainly due to the lower cost of a storage tank compared to a tunnel and that construction of a storage tank would have less disruption in Old Town than a tunnel. Four potential storage tank site alternatives were presented to the Stakeholder Group and discussed. Although each site poses its own challenges, the Stakeholder Group agreed with Staff's recommendation to evaluate all sites further once the LTCPU has been submitted.

INFRASTRUCTURE SIZING DISCUSSION

The Stakeholder Group was presented with a series of infrastructure sizing options for the store and treat infrastructure that satisfied the regulatory requirements. Infrastructure sizing options, along with their associated costs, were compared to potential additional benefits. Specifically, the cost was compared to the reduction in overflows per year, total overflow volume and the potential water quality benefits. A significant majority of the Stakeholder Group recommended **a 10-ft diameter storage tunnel (1.6 million gallons) for CSO-003/004 and a 3.0 million gallon storage tank for CSO-002 for inclusion in the LTCPU**. The primary reasons for this recommendation were that larger sizing would help accommodate climate change and future regulatory uncertainty. Two members of the Stakeholder Group preferred the minimum infrastructure sizing to meet the regulatory requirements (8-foot tunnel (1.0 million gallons) for CSO-003/004 and 2.0 million gallon tank for CSO-002) and one member was open to larger

infrastructure (12-foot tunnel (2.3 million gallons) for CSO-003/004 and 4.0 million gallon tank for CSO-002).

GREEN INFRASTRUCTURE

A significant portion of the meetings focused on the implementation of green infrastructure within the LTCPU. Advantages discussed by the Stakeholder Group included reducing impervious areas, reducing runoff, water quality improvements, and other ancillary benefits. Several members of the Stakeholder Group identified potential synergies with the City's recent tree canopy and green alleys initiatives. The Stakeholder Group recommended that City staff across all departments work together as much as possible to realize these synergies of green infrastructure. Disadvantages of green infrastructure included potential impacts to the historic fabric of Old Town; constructability and effectiveness in Old Town, including disruption and parking impacts; and limited benefits in terms of the combined sewer overflows (e.g., volume and bacteria reductions). The Stakeholder Group generally recommended that green infrastructure should not be confined to the combined sewer system area and instead **a commitment in the LTCPU should be made to implement green infrastructure throughout the City**. Several members of the Stakeholder Group stressed that green infrastructure should only be considered where it is cost effective. Further, the Stakeholder Group encouraged the City to explore the possibility of implementing green infrastructure in conjunction with normal maintenance, along with efforts by other City entities, such as archaeology. City staff ultimately recommended that $1-2 million would be spent on green infrastructure during the next permit cycle (2018-2023) and then an adaptive management approach would be adopted in subsequent 5-year permit cycles based on the effectiveness. The Stakeholder Group generally agreed with staff's recommendation.

CSO-001 FRAMEWORK

The Hunting Creek Bacteria does not apply to CSO-001 and therefore there is no regulatory requirement to reduce overflows at this time. However, as part of the LTCPU process, staff developed a preliminary strategy for CSO-001 to address the overflows. Staff presented this strategy as a two-phased approach:

- *CSO-001 Phase I – Continue sewer separation and implement Green Infrastructure in the Pendleton sewershed to reduce overflows at CSO-001 over time.*
- *CSO-001 Phase II – Reassess the level of control following substantial completion of other CSO projects (CSO-002/003/004), performance of CSO-001 Phase I, and future regulatory requirements.*

This two-phased approach for CSO-001provides several advantages. First, it provides an opportunity to leverage redevelopment associated with the North Old Town Small Area Plan (SAP) with continued sewer separation and implementation of green infrastructure to reduce overflows consistent with the Eco-District goals. Second, if a regulatory requirement is eventually imposed, the City will have the opportunity to assess the level of control based on the performance of CSO-001 Phase I and known regulatory requirements.

The Stakeholder Group agreed that this was a reasonable approach and made the most sense for the area. Concerns were raised by two members of the Stakeholder Group that CSO-001 is not being addressed concurrently with other two projects because it is the largest of the three combined sewersheds. In general the Stakeholder Group recognized that the overall approach is reasonable to address outfalls to meet regulatory requirements first, but wanted to be sure City does not neglect this outfall as part of the long-term planning. In addition they recommended that the City continue to work with the Robinson Terminal North redevelopment to make sure that the redevelopment does not preclude future infrastructure needed to address CSO-001.

IMPLEMENTATION PLAN

It is anticipated that the infrastructure projects would be constructed in phases rather than all at once. Based on the needs of the City and synergies with other sewer projects in the City, and for Alexandria Renew Enterprises, the CSO-003/004 storage tunnel will likely be constructed first (between 2019-2025) and the CSO-002 storage tank will be designed and constructed following completion and a performance evaluation of the CSO-003/004 storage tunnel (between 2026-2032). Both projects must be constructed by 2035 as required by the current permit. The implementation schedule included in the LTPCU will be binding and a conservative schedule provides the City the most flexibility. The Stakeholder Group understood the benefits of a phased implementation of the two major infrastructure projects with regards to costs and regulatory commitments. The Stakeholder group supported the schedule as presented for inclusion in the LTPCU, however, recommended the City continue to look for opportunities to accelerate projects, including CSO-001, when beneficial and fiscally responsible and so as not to jeopardize the ability to stay in permit compliance. Additionally, City staff is including in the LTCPU a commitment to assess CSO-001, around 2033-2034, based on the progress of separation and green infrastructure in the Pendleton shed as part of CSO-001 Phase I, and performance of the other CSO projects (CSO-002/003/004).

Staff presented the planning level program costs to the Stakeholder Group, which are equal to $125 million to $188 million (2015 dollars). The LTCPU projects will likely be funded through the sanitary sewer rates. Currently, the average household in Alexandria pays $45-50 per month on their sewer bill. Studies are underway to determine the impact of these projects on the sewer rates, but preliminary estimates indicate that the expected impact will be an increase of $10-15 per month on the monthly sewer bill for these projects. These increases to the billing are expected to be implemented over time. The Stakeholder Group recommended exploring alternative funding sources to limit impacts to the City's Capital Improvement Program.

The Stakeholder Group generally concluded that the overall schedule and costs presented for the LTCPU is a reasonable balance of cost and complying with the new regulations in the allowed timeframe.

LIST OF ATTACHMENTS

Attachment 1 – Supplementary Views of Member Jack Sullivan
Attachment 2 – Members of the Combined Sewer System Stakeholder Group
Attachment 3 – List of Stakeholder Group Meetings

Attachment 1
Opinion Memorandum by member Jack Sullivan

To the Mayor and City Council:

As a member of the CSS Stakeholder Group, I abstained from the vote to approve the City staff-prepared Group recommendations on April 7, but not because of the plans endorsed therein. The staff and consultants have done a creditable job of dealing with the mandate of the Virginia DEQ about remediation at three CSS outfalls, namely #002 at Hunting Creek and #003/#004 emptying into Hooff's Run.

The problem is that these steps at best deal with only about half the problem of Alexandria's polluting the Potomac. By the City's own statistics, Alexandria annually puts 11.3 million gallons of sewage — not water with sewage, raw sewage — into the Potomac River. The plan does not, for the most part, touch Outfall #001 that spews its pollution directly into the river from the foot of Pendleton Street. That outfall annually carries the largest amount of CSS pollution, estimated by staff variously from 43% to 50% of the total.

Moreover, there are no serious plans to begin to deal with Outfall #001 until after the projects for the other three outfalls are completed in 2035 and subsequently evaluated. Then planning for that pollution source would begin, with the completion date suggested as possibly 2048. That date seems overly optimistic, given the timetables for the other outfalls.

City staff has suggested that various "green initiatives" proposed for the CSS area will have an effect on remediating the Pendleton Street outfall. At the same time, however, staff has been reluctant or possibly unable to estimate what amount of pollution would be reduced by those steps.

For decades to come during rain events, Outfall #001 will continue to discharge raw sewage across Oronoco Bay, and past Founders Park, the Seaport Center, the City Marina, Waterfront Park, the new waterfront developments, Windmill Hill Park, Ford's Landing, Porto Vecchio, Jones Point Park, and on down the Potomac. Ironically, fixing the other three outfalls will have little or no effect on the Alexandria waterfront.

Staff correctly has pointed out that the District of Columbia currently is putting into the Potomac 20 to 30 times the raw sewage that Outfall #001 accounts for. True, but the District's efforts to meet consent decrees with the EPA will have reduced significantly those outflows into the Anacostia and Potomac Rivers two years from now, with the final fix due in 2022. Subsequently, potentially for at least another 26 years, Alexandria will wear the title of the region's principal polluter of the Potomac.

I find this outcome unacceptable and believe that the City Council should as well. What to do? A good first step would be to mandate the City staff to begin planning within the next two years for the remediation of Outfall #001 with the objective of completing the fix no later than 2038. That is 22 years from now — far from a radical timeframe.

Respectfully submitted, Jack Sullivan, Member, CSS Citizen Stakeholder Group

Attachment 2
Members of the Combined Sewer System Stakeholder Group

Name	Organization
Rich Brune – *Vice-chair*	Parks and Recreation Commission
Lee Hernly	Carlyle Community Council
Stacy Langsdale	At-large member – Carlyle area
Skip Maginniss – *Chair*	Budget and Fiscal Affairs Committee
Elizabeth McCall	Alexandria Archaeological Commission
Kate MacKenzie	At-large member – Porto Vecchio
Stephen Milone	Environmental Policy Commission
Randy Randol	Old Town Civic Association
Brett Rice	Chamber of Commerce
Dixie Sommers	At-large member – Friends of Dyke Marsh
Jack Sullivan	At-large member – Citywide
Thomas Walker	At-large member – Citywide
Chuck Weber	Old Town Civic Association

Attachment 3
List of Stakeholder Group Meetings

Meeting	Date	Topics

Meeting #1	October 7, 2015	• Purpose and Goals
		• City's Combined Sewer System
		• Investing in Infrastructure
		  o Combined Sewer Overflow Strategies
		  o Evaluation Process
		  o Combined Sewer Overflow Strategies – Ranking and Shortlist

Meeting #2	November 2, 2015	• Combined Sewer Overflow Control Strategies: Ranking and Shortlist • • Green Infrastructure Overview and Strategy
Meeting #3	January 7, 2016	• Infrastructure Sizing Analysis • Green Infrastructure Strategy
Meeting #4	February 4, 2016	• Infrastructure Sizing Recommendation • Tunnel Alignments and Tank Sites • Green Infrastructure Strategy Recommendation
Meeting #5	March 3, 2016	• CSO-001 Background • CSO-001 Strategy

Meeting #6	April 7, 2016	• LTCPU Framework
		• Schedule and Implementation Plan
		• Cost and Cost Impact
		• Discussion
		  o Stakeholder Group Recommendations
		  o Memorandum to Council