



Combined Sewer System and the Long Term Control Plan Update Phase 1 Responsiveness Summary

Overview

A 540-acre area of Old Town Alexandria is served by a Combined Sewer System. This kind of system has only one pipe which conveys both sewage and stormwater to a local wastewater treatment plant. Many older cities in the United States are served by combined sewers. During rain events and when the local wastewater treatment plant cannot handle the flows, Alexandria's combined sewers discharge excess flows into local waterways. The City's current combined sewer permit, issued by the Virginia Department of Environmental Quality (VDEQ) in 2013, requires the City to reduce these outflows in order to reduce the level of certain bacteria, particularly in Hunting Creek.

Since 1999, the City of Alexandria has been actively working to reduce the impact of its combined sewer system under a Long Term Control Plan approved by VDEQ. This initiative is also an essential component of the City's Eco Alexandria Charter, adopted by City Council in 2009, which guides both the City and residents towards environmental sustainability over the next 20 years and beyond. In 2014, the City began an update to the plan (known as the Long Term Control Plan Update or LTCPU) that continues this commitment. Informing, educating, and being responsive to the public's input as the plan is developed is a key component of the LTCPU project.

Background on Community Involvement

The City's overall public participation goal for the LTCPU is to inform and educate the public about the update. Additionally, the City will actively seek to involve the affected public in the decision making process. Throughout the LTCPU project, the City will satisfy the statutory/regulatory requirements for public participation through outreach that reaches a broad and inclusive range of stakeholders. In so doing, the City also seeks to arrive at the best possible alternative for the LTCPU.

The specific **goals** for the City's Public Participation Plan are:

1. **Inform.** Increase stakeholder awareness of combined sewer systems and the LTCPU project and opportunities for public participation;
2. **Educate.** Develop basic knowledge or understanding of the LTCPU project and the potential effects of decision alternatives among stakeholders; and
3. **Be Responsive.** Awareness, consideration and responsiveness on the part of the City about stakeholders' views on the project and project alternatives.

The goals for Phase 1 of the LTCPU update are informational and educational. The City seeks to establish the context for the project and the project need (including general information about the CSS and the LTCPU Work Plan, along with overall scope and goals), discuss the inclusion criteria for potential projects and a wide range of alternatives, highlight how the public can be involved, and review the project timeline.¹

As part of Phase 1 of the LTCPU public participation process, the City of Alexandria hosted a Public Meeting on February 5, 2015, to discuss the City's Combined Sewer System, present potential CSO

¹ The focus during this phase, as the City's DEQ permit stipulates, is to "explain combined sewer systems, the impacts on surface waters, progress to date on minimizing the impacts, the proposed LTCPU milestones/schedule to comply with the Hunting Creek TMDL and shall allow for public comments and inquiries."



Combined Sewer System and the Long Term Control Plan Update Phase 1 Responsiveness Summary

Control Strategies, present the City's evaluation criteria, and solicit feedback from the community. There were 18 participants from the general public.

Opportunities to use the EPC as a working group for the City's plan and to engage community groups they represent across the City throughout the process were explored during Phase 1. City staff members updated the EPC at its January meeting about the LTCPU project and reviewed the agenda for the February 5 public meeting with attending members. EPC members were also asked to publicize the February 5 meeting to Alexandria stakeholder groups in which they participate.

In accordance with the City's DEQ permit regarding the February 5 public meeting, the City sought to "conduct the meetings at such times as to maximize attendance."² It also requires the City to "utilize at least three (3) forms of media to inform the public concerning the place, time and purpose for these meetings." In accordance with this requirement, the City used several outreach tools to promote the meeting, including print ads in the *Alexandria Times* and *Alexandria Gazette* newspapers, notices in the City's e-newsletter, entries on the official City calendar, postings on the City's website, social media comments, and direct contact (phone calls and meetings) with several civic associations. The City's Public Participation Plan identifies several channels it is using to communicate with a range of stakeholders throughout the project's duration.

The City also presented twenty (20) LTCPU presentations to civic groups in the City during this phase, which provided an opportunity to ask questions and provide feedback. The public also could submit questions via email, fax, and telephone.

Below is a summary of the questions and comments received from the public during Phase 1.

Summary of Comments Received and City Responses

A total of six of feedback forms were received following the February 5 public meeting and responses are synopsized below.

All survey respondents indicated that the goals of this project were clearly explained at the meeting. Respondents also said the meeting either met (one) or exceeded (four) their expectations. One individual said the meeting both met and exceeded their expectations and wrote "Thank you for having this meeting."

The City also asked the public to provide their thoughts about the importance of the proposed evaluation criteria and suggest any additional criteria that should be considered. The feedback they provided will inform the City's weighting of these proposed criteria. A compilation of responses to this question is provided below in Table 1. Note that in a few instances, individuals checked more than one column listed for a criterion.

² The LTCPU meeting was scheduled on February 5; after the meeting was scheduled, a second City meeting (on the pending City budget) also was slated for the same day and time. Following the meeting, some residents commented that this was not ideal as they had to choose between the two meetings to attend.

Combined Sewer System and the Long Term Control Plan Update Phase 1 Responsiveness Summary



Table 1: Proposed Evaluation Criteria				
Proposed Criteria ³	Please Check One for Each Criteria			
	High Importance	Moderate Importance	Low Importance	Not Important
Capital Cost ⁴	2	2	2	
Combined Sewer Overflow Reduction (Volume) ⁵	3	2		
Effectiveness ⁶	4	2		
Expandability ⁷	2	2	3	
Implementation Effort ⁸		2	2	
Net Environmental Benefit ⁹	5			
Impact to the Community ^{10, 11}		2		1
Credit Trading between the Combined Sewer and the Storm Sewer Systems ¹²	1		1	2
Permitting Issues				
Required Operation and Maintenance (including cost) ¹³	1	4		
Other (please specify):				

³ One survey respondent created categories that grouped the proposed criteria: Qualitative Values (Combined Sewer Overflow Reduction/Volume, Effectiveness, Impact to the Community, Net Environmental Benefit), Quantitative Values (Capital Cost, Combined Sewer Overflow Reduction/Volume, Implementation Effort, Expandability, Required Operation and Maintenance), Measurable (Combined Sewer Overflow Reduction/Volume), Needs Further Investigation (Credit Trading between the Combined Sewer and the Storm Sewer Systems), and Future Measurement (Capital Cost, Combined Sewer Overflow Reduction/Volume, Implementation Effort, Required Operation and Maintenance).

⁴ One survey respondent placed the “X” for this criterion on the left side of the column.

⁵ One respondent added “Elimination” to the response form next to the Combined Sewer Overflow Reduction (Volume) criterion.

⁶ One respondent added “though not just bacteria” to the response form next to the Effectiveness criterion; this respondent also placed the “X” for this criterion on the right side of the column. Another respondent checked two columns for the Effectiveness criterion (“High Importance” and “Moderate Importance”). A third respondent added vertical arrow beneath a dotted line and above a solid line to the right of Effectiveness.

⁷ The Expandability criterion was inadvertently listed twice (two separate rows) on the printed survey. The responses include one respondent who answered the question twice with different answers (both are counted) and also placed the “X” on the right side of the column in the first row listed (under “Moderate Importance”). A second respondent provided a checkmark in both lines for the criterion; this response was counted only once since both rows listed the same level of importance. A third respondent wrote, “appears 2x” and “Mentioned twice; It must be important!” and also wrote “planning” next to Expandability on the second row listed; the respondent also placed the “X” for this criterion on the left side of the column and drew a line from the first Expandability row to the second one.

⁸ One respondent placed an “X” on the line in between “Moderate Importance” and “Low Importance” for the Implementation Effort criterion.

⁹ One respondent placed four checkmarks in the “High Importance” column for the Net Environmental Benefit criterion.

¹⁰ The Impact to the Community criteria was not included on the online version of the survey (completed by one respondent of the five represented).

¹¹ One respondent placed an “X” on the line in between “Moderate Importance” and “Low Importance” for the Impact to the Community criterion.

¹² One respondent placed an “X” on the far right outside the row for the Credit Trading between the Combined Sewer and the Storm Sewer Systems criterion.

¹³ The notation indicating cost was not listed with the Required Operation and Maintenance criterion on the printed survey.



Combined Sewer System and the Long Term Control Plan Update Phase 1 Responsiveness Summary

Additional input about the criteria provided under “Other” included:

- Don’t want to be penny wise & pound foolish – spend now or spent more later – want a durable system that works and has maximum environmental benefit. The short term inconvenience must be tolerated by the 1% affected
- One print survey respondent changed the Expandability criterion by crossing it out and writing “Speed”; this respondent also marked it as “High Importance.”

Based on their understanding of the preliminary advantageous and disadvantages of each of the potential combined sewer overflow control strategies presented, respondents also were asked to indicate their thoughts on each strategy in terms of it being favorable, neutral or unfavorable. A compilation of responses to this question is provided below in Table 2.

Table 2: CSO Control Strategies			
CSO Control Strategy	Please Check One for Each CSO Control Strategy		
	Favorable	Neutral	Unfavorable
Storage Tunnels ¹⁴	4		1
Storage Tanks	4	1	
Sewer Separation ¹⁵	2	3	2
Green Infrastructure ¹⁶	3	3	
Disinfection ¹⁷	1	1	4
Outfall Relocation ¹⁸		1	4

The City also sought feedback on other Combined Sewer Overflow (CSO) Control Strategies the City should consider evaluating and any specific concerns about the strategies it discussed. Responses included:

- I’m not qualified to answer this
- Suggest 2 tanks/tunnels – one at North Terminal area; other at or near Jones Point. Prefer under the river.
- Capturing floatable trash & treating other pollutants along w/ bacteria is very important
- Disinfection – I’m not a fan of addressing only the bacteria portion of the larger issue – what if they start regulating nutrients/chemicals/other, and this strategy does nothing to address
- Consider other impacts: FLOODING; Credit Trading between GSS & SSS

Additional input on information on future community meeting topics also was requested, in addition to changes to the meeting format that the City should consider. Community feedback included:

¹⁴ One respondent circled “Storage Tunnels” and “Storage Tanks” together and wrote two comments alongside: “also consider: FLOODING” and “useable, landscaped water retention areas within New Development: outdoor Plazas; amphitheatre.”

¹⁵ One respondent checked both “Neutral” and “Unfavorable” for the Sewer Separation strategy.

¹⁶ One respondent wrote “Combination only” next to the checkmark placed in “Neutral” for the Green Infrastructure strategy and also circled “Green Infrastructure”. Another respondent placed a “!” next to the Green Infrastructure strategy.

¹⁷ One respondent who rated the Disinfection strategy “Unfavorable” wrote “unless by natural means” in the margin.

¹⁸ One respondent did not rate the Outfall Relocation strategy, but placed an “X” over the word “Relocation” and substituted the words “Modifications ‘Daylighting’.”



Combined Sewer System and the Long Term Control Plan Update Phase 1 Responsiveness Summary

- How resolving the CSS problem is related to the City’s Chesapeake Bay cleanup requirements
- A pie chart showing the percentage of the total polluted water that the VDEQ permit forces Alex to mitigate – what benefit in the end will the 99% & 80% reduction @ Hoofs Run & Hunting Creek bring? What kind of water after spending all this money are our tax dollars buying?
- Cost-benefit calculations
- Institute the voting buttons?¹⁹

Other thoughts provided by the public on the forms included:

- Bill – you and Mr. Sharma did a good job last night
- Hope to get response to Dyke Marsh questions.
- Difficult problem here – keep up the good work. Have you looked at barging the overflow out? ☺
- Outfall Modifications: open canal for Hooffs Run to HC in lieu [of] closed pipe. Cascade effect “creek bed.” Sunlight as disinfectant?

Several questions were posed at the February 5 public meeting and at presentations provided by City staff to community groups during phase 1. These questions are categorized below in Table 3 with responses.

Table 3: February 5 Public Meeting Questions/Comments and Responses	
Question/Comment	City Response
LTCPU Project Information	
Will the presentation be online?	Yes.
The original long term control plan report was completed in 1999; what has been done since 1999?	<p>Since the original Long Term Control Plan for the City of Alexandria was established in 1999, select overflow mitigation efforts have been implemented in the City’s combined sewer system in accordance with EPA’s Nine Minimum Controls. New structures that more effectively convey flow to the treatment plant have been installed. Maintenance and repairs have been performed on the CSS to ensure that it is operating effectively, and portions of the CSS have been separated reducing the overall CSS area.</p> <p>The City’s Area Reduction Plan, or “ARP,” has been implemented for nearly 10 years, helping to separate more than 13 acres from the combined sewer system. The ARP has required all redevelopment projects within the CSS to separate the combined sewers serving the property or to pay into a fund that will be used for City-led sewer separation projects. The City plans to complete the Payne and Fayette Sewer Separation project in 2015, which will separate 90 properties from the combined sewer system.</p>
Water Quality Benefits	
Besides Hunting Creek, will there be other Water Quality Benefits? In the Potomac River, Waterfront? Will it address CSO 001? It should.	<p>The TMDL regulatory requirement is specifically for Hooff’s Run and Hunting Creek. Hunting Creek is a tributary of the Potomac River.</p> <p>The TMDL regulatory requirement is specifically for CSOs-002, 003, and 004; however, the City is including CSO-001 in the comprehensive planning.</p>

¹⁹ The respondent circled the question number on the form

Combined Sewer System and the Long Term Control Plan Update Phase 1 Responsiveness Summary



Table 3: February 5 Public Meeting Questions/Comments and Responses	
Question/Comment	City Response
Frequency of Overflows	
What amount of rain can cause an overflow?	It depends on the recent weather history. If there has been preceding storms and the ground is saturated, it could be as little as 0.10” of rain will cause an overflow. If the preceding days have been dry, then the system can accommodate additional rain without an overflow.
Bacteria	
What is the Bacteria? <i>E. coli</i> ?	Yes, the bacteria is <i>E. coli</i> . In addition to the City’s combined sewer system, other sources of bacteria in Hunting Creek include: wildlife, pets, and stormwater. AlexRenew (the wastewater plant) contributes a small amount of bacteria, but only after it has been through a very high level of treatment.
Regulatory Requirements	
What is the penalty for not meeting the regulatory requirements?	[The City intends to meet the requirements]; however, if they are not met, the City could face a Consent Order from EPA or ultimately significant financial penalties.
Legally, when is the soonest you have to start reducing the amount of sewage into the water system?	We have permit requirements to remove 5 million gallons of stormwater per year from 2013 to 2018.
The City’s Combined Sewer	
How is flow monitored and/or measured in the combined sewer system? How frequently?	The City uses a calibrated model to estimate flows in the combined sewer system. When the model was originally set up, the City completed extensive flow monitoring and bacteria sampling, and along with rainfall data, was able to calibrate the model. In the previous discharge permit (2007 – 2013), the City completed flow monitoring and bacteria sampling a single outfall each year, rotating through all the outfalls. In the current permit (2013-2018), the City collects and analyzes a sample during a rain event for a single outfall on a quarterly basis. The outfall to be sampled changes each year.
For 99% and 80% reduction, what measurements are employed? Are they continuous or automatic?	It is not continuous monitoring. The monitoring episodes were rotated over the years, which helped us develop a model that we currently use to model the CSO system.
CSO Strategies	
As construction progresses, how does it affect monitoring?	There will be direct monitoring of any flows diverted to AlexRenew.
I’m confused by your terminology. Outfall Relocation is not a technology.	We will further explain the Outfall Relocation strategy later in the presentation.
How big is 17 acres? How many City blocks?	7 – 8 City blocks.
Is the sewer system going to last? Are you expecting any failures?	Under the existing permit, we are required to maintain and operate the current system. There have been significant investments in evaluating the system. The technology to rehabilitate the pipes would be less disruptive than new sewer separation system.

Combined Sewer System and the Long Term Control Plan Update Phase 1 Responsiveness Summary



Table 3: February 5 Public Meeting Questions/Comments and Responses	
Question/Comment	City Response
Will there be a need to increase the capacity at the Wastewater Treatment Plant (AlexRenew)?	The City is working closely with AlexRenew on the CSO controls strategies. Since many of the strategies involve storing the flow during a wet weather event and then sending it to AlexRenew after the wet weather event when capacity is available, an increase of capacity at AlexRenew is not anticipated due to the combined sewer improvements.
Moving outfalls – would you store and treat or store and release the wastewater?	It would be a combination of both. The tunnel would end up being longer, and therefore store more flow and would presumably overflow less. The challenge there would be that building a bigger tunnel would mean more easement issues. But this method has been done before in Richmond, VA.
Could the cost of the separation be shared with other utilities? For example provide new power, cable, water line, etc., concurrent with the sewer separation.	Based on past experience, it is unlikely the private utilities would share in the cost of the sewer separation projects. It would also add complexity and extend the schedule.
What is the timeline for determining the cost?	The City will be developing the costs in the coming months. Along with the other evaluation criteria, the City is narrowing CSO Control Strategies to a short list of 2 or 3 project alternatives. These will be presented at Public Meeting in May or June of 2015.
Operation and Maintenance Costs, and Cost Avoidances should be included.	Concur.
Green Infrastructure has lots of benefits; I hope it gets a hard look.	Agree. Green Infrastructure will be evaluated.
How much improvement/reduction in stormwater could you achieve by requiring more permeable and new construction? Or is it a minor factor?	It's not a minor factor. Currently, new construction is going on in the City and we're analyzing this to see what benefits there are. We will have more information when we get to the shortlist of potential strategies. Based on current understanding, green infrastructure doesn't remove sources of bacteria. The bacteria source is still in the mix.
Is the City looking at Trash Traps?	Potentially. For store and treat options, more flow will be sent to the Wastewater Treatment Plant, which will remove the floatable trash. As part of the nine minimum controls, the City already has a robust street sweeping program in the Combined Sewer Area. Additionally, bar screens have been installed on the Royal Street Outfall (CSO-002) to capture floatables before they enter the Hunting Creek embayment.
Implementation	
I am concerned about the timeline – I hope the City will not pass the buck.	In addition to the City's commitment to address this issue, the Long Term Control Plan Update will include an implementation plan. It is anticipated the Virginia Department of Quality (VDEQ) will include milestones in the City's discharge permits, renewed on a 5 year basis, to achieve these milestones.
Is the City considering bonds to fund the projects?	Yes, bonds will likely be part of the funding strategy.
Are the planners and developers associated with the waterfront development, and specifically the Robinson Terminal aware of CSO-001?	Yes.

Combined Sewer System and the Long Term Control Plan Update Phase 1 Responsiveness Summary



Conclusion

The City's Phase 1 outreach met the goals outlined in the LTCPU Public Participation Plan.²⁰ Perhaps most important, the feedback and questions received from the public have provided valuable guidance to City as it considers Phase 2 of its outreach efforts, which will focus on presenting a shortlist of LTCPU alternatives and seeking input about them. During this next phase, the City will actively seek input about the potential benefits and drawbacks stakeholders perceive about the LTCPU alternatives using a variety of outreach tools.

For more information or to provide input about the LTCPU, please contact Erin Bevis-Carter, City of Alexandria Department of Transportation and Environmental Services, at Erin.BevisCarver@alexandriava.gov or 703-746-4154. Feedback may also be submitted online at <http://www.alexandriava.gov/Sewers>.

²⁰ CSS Long Term Control Plan Update Public Participation Plan, City of Alexandria Department of Transportation and Environmental Services, October 2014.