

Combined Sewer System and the Long Term Control Plan Update Stakeholder Group – Meeting Notes

Meeting #4 –February 4, 2016



Meeting Attendees	
<i>CSS Stakeholder Group</i>	<i>City of Alexandria</i>
Skip Maginniss	Bill Skrabak
Rich Brune	Lalit Sharma
Lee Hernly	Erin Bevis-Carver
Stacy Langsdale (<i>absent</i>)	
Kate Mackenzie	<i>Greeley and Hansen LLC (engineering consultant)</i>
Elizabeth McCall	John McGettigan
Stephen Milone	Dustin Dvorak
Randy Randol	
Brett Rice	<i>Clyde Wilber LLC</i>
Dixie Sommers (<i>absent</i>)	Clyde Wilber
Jack Sullivan	
Tom Walker	<i>Waterford, Inc.</i>
Chuck Weber	Paul Coelus

The meeting convened at 7:00 pm with welcome comments by City staff member, Lalit Sharma.

The Ad Hoc Combined Sewer System Plan Stakeholder Group (Group) members began by reviewing and accepting the meeting notes from the Group meeting held January 7, 2016. The agenda for the meeting was introduced and Mr. Sharma opened the meeting with a technical presentation.

Highlights from the meeting are listed below:

- Lalit Sharma provided an introduction to the technical presentation going over the agenda as well as explaining the City’s overall strategy including the primary and complementary strategies.
- Mr. Sharma then reviewed the infrastructure sizing tables presented at the previous meeting on January 7, 2016. He summarized what was heard from the group and presented the Staff’s preliminary sizing recommendation as follows:
 - For CSO-003/004, propose a 10-ft diameter tunnel
 - For CSO-002, propose either a 10-ft diameter tunnel or a 3.0 million gallon tank
- The capital spending projection was then presented to the group, along with an estimated annual cost impact per household. This showed the potential timeframe in which the CSO-003/004 and CSO-002 projects would be constructed. More work still needs to occur in order to determine the impact on rates for City residents, this information will be presented at a future meeting in April.
- A discussion question was then presented to the Group regarding infrastructure sizing. A summary of that discussion is presented on the following pages.
- John McGettigan then began the technical presentation on tunnel alignments and tank sites. Beginning with the CSO-003/004 tunnel alignments, the potential construction impacts were presented by showing the current DC Water First Street Tunnel project as

Combined Sewer System and the Long Term Control Plan Update Stakeholder Group – Meeting Notes

Meeting #4 – February 4, 2016



an example tunnel project. The dropshaft shown in the photographs is similar in size to the shafts that would be constructed for the CSO-003/004 tunnel.

- Three (3) tunnel alignments for CSO-003/004 were presented, all shafts are 20-30 feet in diameter and 60-100 feet deep. The tunnels presented are all 10-feet in diameter:
 - Alignment 1: consists of 4 shafts and all straight tunnel segments. One of the dropshafts is located in the African American Heritage Park.
 - Alignment #2: consists of 5 shafts and straight tunnel segments. One of the tunnel segments passes underneath buildings and another passes underneath a Dominion Virginia Power substation.
 - Alignment #3: consists of 3 shafts and a curved tunnel segment. This tunnel is located underneath Hooffs Run and the AlexRenew WRRF.
- Four (4) potential locations for the upstream dropshaft were presented:
 - Location 1: requires relocating Hooffs Run.
 - Location 2: requires closing Duke Street for up to 2 years during construction.
 - Location 3: does not require closing Duke Street; however it would not be possible to curve the tunnel enough to pass beneath Hooffs Run, so a turning shaft would be required at one of the other three locations.
 - Location 4: does not require closing Duke Street, but the construction would be on private property and the City may have to purchase either a part or all of the property at 1501 Duke Street.
- Three (3) joint tunnel alignments for CSO-002 were presented. The tunnels are all 10-feet in diameter:
 - Alignment 1: located entirely within City right-of-way (Green Street) or on AlexRenew property. Passes underneath a building on AlexRenew's site which is not desirable.
 - Alignment 2: located within private cemeteries and the VDOT right-of-way. It may not be possible to construct a shaft at the southwest corner of the AlexRenew site due to the other plant utilities at this location.
 - Alignment 3: located underneath the City right-of-way (Franklin Street) and cemeteries. Additional infrastructure would need to be constructed to convey the combined sewer on Royal Street northward to the initial dropshaft.
- Three (3) separate tunnel alignments for CSO-002 were presented. Since these tunnels are shorter in length, they would need to be 18-feet in diameter to store the same volume. This would require larger shafts located throughout Old Town.
- A comparison of a joint tunnel vs separate tunnels was presented. Based on the information presented in the table, the Engineer's Recommendation is that a joint tunnel would be preferable because it would be more cost effective. When you start building shorter tunnels with larger diameters economies of scale are lost.
- Four (4) potential tank sites were presented. Each of the tanks shown represent 3.0 million gallons of storage:
 - Alternative 1: provides opportunities to clean up the embayment, tank located under a parking lot and in a resource protection area (RPA) on private property (Bridgeyard Apartments).

Combined Sewer System and the Long Term Control Plan Update Stakeholder Group – Meeting Notes

Meeting #4 –February 4, 2016



- Alternative 2: tank located under Royal Street entirely within the City right-of-way and will restrict access to the Jones Point Park during construction.
- Alternative 3: tank would be constructed in the embayment and could be constructed such that public access to the waterfront is increased. There may be potential permitting issues and ownership/easement issues are still being researched to determine if it is viable.
- Alternative 4: located within Jones Point Park, however because of the design it would be the cheapest and quickest to construct.
- During the discussion on CSO-002 storage tanks the Group asked National Park Service (NPS) representatives (Jason Newman and Joshua Nadas) for their initial impressions on each of the tanks. The representatives provided the following feedback for each of the tanks:
 - Alternative 1: no issues with this alternative, however they may provide comments on the viewsheds if they are affected.
 - Alternative 2: the tank should stay out of the community garden and mitigate access issues to the park either by vehicles or pedestrians.
 - Alternative 3: there may be some issues with riparian rights along the embayment, if there are no issues, then they don't foresee any problems. They are currently researching this issue and owe this as well as a written response to the tank locations to the City.
 - Alternative 4: they do not support this alternative. They are currently developing a park plan for underneath the bridge and the surrounding area and do not have the tank in their plan.
- The Engineer's Recommendation is that Tunnel Alignment #3 for CSO-003/004 is the preferred alignment and that Tunnel Alignment #1 should still be considered as a viable alternative. It was recommended that Tunnel Alignment #2 be removed from further consideration. For CSO-002, the Engineer's Recommendation is to construct a storage tank instead of a storage tunnel primarily because tunnels are more expensive and would require construction at multiple locations in Old Town, while tanks only require construction at one location. At this stage in the plan, all tank sites are still under consideration and the final LTCPU document will not select a final tank site. The final LTCPU will simply commit to a minimum volume.
- A question related to the proposed tunnel alignments versus storage tank sites for CSO-002 was then presented to the Group for discussion. A summary of that discussion is presented on the following pages.
- Bill Skrabak then presented the City's proposed Green Infrastructure Strategy. This included implementing green infrastructure city wide with a commitment in the LTCPU to spend \$1-2 million during the first permit cycle (2018-2023). City staff asked for feedback from the Group on any changes they would make to the strategy. A summary of that discussion is presented on the following pages.

Meeting was adjourned at 9:10 pm.

Combined Sewer System and the Long Term Control Plan Update Stakeholder Group – Meeting Notes

Meeting #4 – February 4, 2016



The following is a general summary of the questions and discussion from the CSS Stakeholder Group and the response provided by City staff and their consultants. This summary discusses the general concepts and not the individual questions verbatim.

The slides on the rate impact show the CSO-003/004 infrastructure project starting before the CSO-002 project, what is the reasoning behind the phasing shown?

In addition to the proposed CSO-003/004 tunnel, the City has some other future sewer projects in the area of CSO-003/004 that could potentially be combined with the LTCPU. In addition to the integration with other projects, the CSO-003/004 project requires the greatest percent reduction of the overflows and discharges in to a much smaller waterbody, although the total volume of overflow from CSO-002 is greater (larger source of bacteria).

While the CSO-003/004 project is shown first, it could be possible that negotiations with the Virginia Department of Environmental Quality (VDEQ), landowners, or other foreseen conditions could delay the project and the CSO-002 project could be constructed first. Regardless of what order the projects are constructed in, both projects must be completed by 2035 to remain in compliance with the regulatory requirements.

How were the rates shown on the slides developed? Are treatment costs and operations and maintenance costs included?

The rates shown were developed based on the net present worth (NPW) in 2015 dollars, this includes capital costs, contingencies, treatment costs, and O&M costs. They represent the costs to fully fund both projects without using funding from the existing sewer rates. A revised slide has been included at the end of these meeting notes showing the upper range of potential costs. More work needs to be done to determine the impact to the existing sewer rate for both the City of \$1.25/1,000 gallons. Over the next couple months we will run the rate models and determine what impact there will be on sewer rates and how it will affect other upcoming projects. This information will be presented at the CSS Stakeholder Group Meeting in April.

Based on the figures presented at the meeting, is a joint tunnel or two separate tunnels for CSO-002 better hydraulically?

Connecting the CSO-002 tunnel to the CSO-003/004 will add hydraulic complexity and require additional hydraulic structures in order to have everything operate as intended. However only one pump station will be required to dewater the tunnel system. With two separate tunnels, two dewatering pump stations will be needed to empty the tunnels back in to the sewer system after a rainfall event.

Is a curved tunnel more expensive than a straight tunnel?

For the tunnel size we are evaluating (10-foot diameter) there are a lot of contractors that have the equipment necessary to construct straight tunnels. This will create competition and the costs could come in lower. With curved tunnels, it requires a different class of contractors who are capable of constructing curved tunnels, so there is a greater potential for reduced competition and the costs could be higher. However, with the curved tunnel we are

Combined Sewer System and the Long Term Control Plan Update Stakeholder Group – Meeting Notes

Meeting #4 – February 4, 2016



able to eliminate a shaft from the project. Shafts are expensive to construct so it is possible that the additional cost of a curved tunnel would be offset by having one less shaft.

How deep does a tunnel need to be to go under buildings?

Tunnels can be constructed under existing buildings, even those that are on piles. With the construction of any tunnel there is the risk of the ground settling, construction under a building doesn't necessarily increase that risk, but if there is a problem it could be much harder to fix. In discussions with our tunnel experts they recommend that if a tunnel is going to be under a building it should be at least 200 feet underground.

Will constructing a dropshaft at Location 4 impact the building at 1501 Duke Street?

During construction the parking lot will be closed and that space will be used as a laydown area for the contractor. The building itself will remain open and the City will work with the building owner to accommodate parking elsewhere. Following construction the parking lot will be restored, however the City will own the portion of the parking lot where the shaft has been constructed.

For the dropshaft location in Duke Street, can Duke Street remain open during construction?

Based on the diameter of the shaft and the laydown space required during construction it is most likely not possible to keep Duke Street open. While the shaft diameter may be smaller than Duke Street, the addition of cranes, material, and truck traffic would likely necessitate the closure of all lanes in this area.

Has the City worked with archaeology on the tunnels and tanks?

The City has received a letter from the archaeologist stating that the tunnel alignments and dropshafts for CSO-003/004 should not have any archaeological impacts. The City will have an archaeologist on site during excavation to record and monitor the excavation as it occurs.

How deep are the storage tanks at CSO-002?

Each of the tank alternatives have different dimensions while storing the same 3.0 million gallons.

- Alternative 1 is 30-feet deep
- Alternative 2 is 39-feet deep
- Alternative 1 is 36-feet deep
- Alternative 1 is 17-feet deep – this tank is much shallower than the others because it is not a tank in the traditional sense. This could be thought of as a large boxed culvert that would be precast offsite and assembled onsite. This would make construction much cheaper and faster than a traditional tank.

How long will it take to construct the tanks at CSO-002?

With the information available at this time we are anticipating that it will take 2 to 2.5 years to construct the storage tank depending on which alternative is selected.

Combined Sewer System and the Long Term Control Plan Update Stakeholder Group – Meeting Notes

Meeting #4 –February 4, 2016



How will the tanks be dewatered?

The tank will have two dewatering sump pumps located in the bottom. Following a rainfall event and once the flow in the sewers has receded, the pumps will turn on and dewater the tank back into the sewer system nearby where it will flow to AlexRenew for a high level of treatment.

Can a tank be constructed under the Woodrow Wilson Bridge?

Construction of a tank requires a significant amount of truck traffic as well as cranes and excavators. It would be very difficult to fit this equipment under the bridge. Additionally, this is National Park Service land, so additional permitting and easements would be required. The Virginia Department of Transportation (VDOT) who owns and operates the bridge might not allow a tank to be constructed under it. While it is not impossible to construct a tank under the bridge, it would be very difficult and very expensive.

Combined Sewer System and the Long Term Control Plan Update Stakeholder Group – Meeting Notes Meeting #4 –February 4, 2016



Infrastructure Sizing Analysis Discussion:

The Stakeholders were asked for their comments on the following:

City staff is recommending a 10-foot diameter tunnel and a 3.0 million gallon storage tank for the infrastructure sizing.

- *Did we capture the discussion on sizing accurately?*
- *Do you agree with this recommendation?*
- *Do you have any additional input or concerns?*

Infrastructure Sizing Analysis Discussion Responses

- Stephen Milone: I think you captured our discussion on sizing from the last meeting very well and accurately.
- Chuck Weber: The size is not a hard requirement with VDEQ, you should negotiate with VDEQ on the tunnel size but use the minimum size as the City's starting point.
- Randy Randol: We should be negotiating the sizing with VDEQ, not amongst ourselves. You should use the most cost effective tunnel size as the starting point for the negotiation.
- Public Comment: The City should strive for zero overflows. It would also be helpful to see the impact to households for the other tunnel sizes as well.

Tunnel Alignments and Tank Sites:

The Stakeholders were asked for their comments on the following:

The City staff, and their consultant, have identified several alignment and tank options to control overflows from CSO-003/004 and CSO-002. We have presented the advantages, disadvantages, and range of costs for each option.

- *Given the Engineer's Recommendation of storage tanks over tunnels for CSO-002, what are your concerns? What are your thoughts about the locations? What should be considered to minimize construction impacts?*

Tunnel Alignments and Tank Sites Discussion Responses

- Stephen Milone: The initial shaft for CSO-002 Tunnel Alignment #1 is located at the intersection near St. Mary's Catholic School and would disrupt people picking up and dropping off their children. The City should construct Tank Alternative #3 with public amenities on top to improve access to the waterfront. While CSO-002 Tunnel Alignment #3 seems like it would be the easiest to construct (going through the cemetery as opposed to under the AlexRenew building), the tank construction is confined to one area.
- Chuck Weber: The construction of several shafts throughout Old Town will be more disruptive and more expensive than the construction of the storage tank. The City should implement a storage tank.
- Remainder of the Group: There was a general consensus among the remaining members that a tank was preferred over a tunnel for CSO-002.

Combined Sewer System and the Long Term Control Plan Update Stakeholder Group – Meeting Notes *Meeting #4 –February 4, 2016*



Green Infrastructure Strategy:

The Stakeholders were asked for their comments on the following:

Over the last several meetings information on the potential green infrastructure strategy has been presented. Based on feedback from the group this strategy includes:

- *A commitment in the LTCPU*
- *Green infrastructure will be implemented city-wide*
- *\$1-2 million commitment for the first permit cycle (2018-2023)*

Do you agree with the recommended green infrastructure strategy? What changes, if any, would you propose?

Green Infrastructure Strategy Discussion Responses

- Randy Randol: You should continue to get feedback from the regulators over the next 20 years to determine if green infrastructure is still viable. You should also coordinate the potential green infrastructure projects with the ongoing historic alleys survey.
- Jack Sullivan: You should integrate this with the existing stormwater program that the City has to reduce stormwater impacts on the receiving waters.
- Tom Walker: It would be better to spend this money on public education and facilities that the public maintains rather than on City-led green infrastructure projects. Get the community involved and invest the money on empowering groups of people. \$1-2 million seems low.
- Elizabeth McCall: Implementing green infrastructure throughout the city is going to be a challenge archaeologically. There are historic sites throughout the city, some of which have yet to have been discovered. The City archaeologist should play a role in advising the City where to site green infrastructure projects. The more you can engage the community in green infrastructure projects the better.
- Stephen Milone: We need to see something more concrete like the plan DC has developed; the way this was presented it seems exploratory. The City should work with the Environmental Policy Commission to add more trees, remove asphalt, and be more holistic in the approach to implementing green infrastructure.
- Chuck Weber: You need to develop a way to measure the success of green infrastructure to evaluate how much more to implement in the future.
- Skip Maginniss: It seems like people in the CSS Stakeholder Group support a financial commitment instead of a quantitative commitment. I think the amount of money is good to start with.

The next CSS Stakeholder Group meeting will be **Thursday, March 3, 2016 from 7-9 pm** in the Sister Cities Conference Room 1101.