Arlington County Solids Master Plan
Stakeholders Meeting
June 22, 2017
7:00 pm To 8:30 pm

Attendees (citizens):	Staff and Consultants:
John Seymour (E2C2)	Mary Strawn
Sandra Borden (CCCA)	Tom Broderick
Jesse Boeding (CivFed)	Lisa Racey
Suzanne Sundberg (CivFed)	Samantha Villegas
Paul Guttridge (AHCA)	Patti Psaris
Charlie Hughes (ARCA)	
Sarah McKinley (NCAC)	
Michael Battaglini (CCCA)	
Joan McIntyre (ACE)	

Meeting Summary

Tom welcomed the group and turned it over to Samantha who provided an overview of the meeting. The purpose of meeting was to: review the master plan process, progress since December 2016, the technologies evaluated, the selected alternative: Thermal Hydrolysis Process/Anaerobic Digestion (THP/AD), financing; and next steps. Samantha also thanked all the stakeholders for their input, which influenced many of the decisions along the way.

Mary provided a general review of the planning process, explaining how the technologies were evaluated and ranked. Since December, staff have worked with graduate students at Virginia Tech to determine the optimal operating conditions for the digestion process. The study indicated that Arlington County can expect typical biogas production rates and a stable digestion process. The study also provided insight into the best dewatering practices to reduce odors.

When evaluating technologies, both internal and external stakeholders expressed a strong preference for Class A biosolids. Class A solids have greater public acceptance, more outlets for distribution, fewer restrictions on application, offer more pathogen reduction, and fewer hauling costs and the associated greenhouse gas emissions. Mary shared a chart that illustrated the region on the whole is trending toward a Class A biosolids. THP/AD produces a Class A biosolids product.

The County continues exploration into how best to reuse the biogas created from the THP/AD process: either through CHP (combined heat and power) or CNG (compressed natural gas). The most attractive option currently appears to be CNG because of variety of end users near the plant, including the County's ART bus facility.

Mary indicated that the County Manager supported the recommendation of the Thermal Hydrolysis/anaerobic digestion (THP/AD) solution, and he asked that the regional solution also continue to be evaluated.

Mary reviewed the financing plan and reminded the group that bonds will be floated to cover a portion of the capital costs. All costs (capital, operating, and debt) are self-funded through the water-sewer rates. One influencing factor on timing of the solids master plan is the timing of a Washington Aqueduct project on the drinking water side. This project could potentially push the solids master plan implementation out another two years to ensure the County doesn't incur too much debt at one time and is able to keep rates stable.

Over the next two years the staff will finish the report, complete an emissions study, continue to explore the regional solution, determine the proposed end use for the gas, complete the design for Phase 1 (immediate needs) projects, and finalize the schedule for Phase 2 and 3 projects. Over the next three to five years, the staff will update the plan with new information, consider any changes in the industry or technologies, begin formal negotiations with outside entities, and hire a design engineer.

Mary capped the presentation by restating how valuable the stakeholder process has been and that staff intends to continue it throughout the next phases. The stakeholder group decided to reconvene in approximately six months to review the results of the emissions study and to discuss updates on the regional option.

Mary asked for any feedback on or changes needed to the stakeholder process:

- Stakeholders thought that the frequency of the meetings (roughly quarterly) was appropriate.
- Citizens appreciated the sound engineering, clear presentations, and patience County staff showed during this process.
- Stakeholders thought the evaluation process was intriguing. Ranking pairs was a clever way to capture the complex relationships between different areas. The process was time consuming, but worth the effort.
- Stakeholders enjoyed participating in thoughtful discussions. They liked the concept of energy recovery from the biogas, that the process could be safely managed, and that the end result was a Class A product. Citizens appreciated the sound engineering, clear presentations, and patience County staff showed during this process.
- Stakeholders would like to learn more about potential regional solutions. It would have been helpful to know about and consider a regional option along with the other alternatives. If another utility is interested, has capacity, and is well-run and produces a Class A product, then the regional option should be evaluated to see the magnitude of costs involved, including the tipping fee.
- Stakeholders enjoyed seeing the process evolve. Typically, a stakeholder group is given a 200-page document and the County meets with them to navigate through it. In this

process, citizens were able to watch the thought process and see how staff debated the alternatives and the effort they put into “getting it right”. It was beneficial to set up the group at such an early point in the process and get feedback so early on.

- It would be helpful for AC staff to provide an article that could be run in the local HOA’s newsletter.
- Stakeholders felt that this process included many potential environmental benefits like providing biosolids to the community and generating energy.

Questions, Comments, and Reponses

Question/Comment	Response
Is the Arlington County Water Pollution Control Plant (WPCP) classified as a large facility?	Yes.
Were the two biogas usage options (CNG and CHP) factored into the alternatives ranking. Would including the biogas usage affect the ranking summary?	It is not likely since the three AD-based alternatives all included biogas production. Including biogas use would likely provide a clear recommendation between CHP and CNG but not between THP/MAD and MAD. The current plan is to pursue providing CNG to interested parties (Washington Gas/ ART buses/WMATA buses). If this is not feasible, then CHP provides a beneficial use with no external parties.
Were the two opportunities for CHP and CNG presented to the County Manager?	Yes; CHP and CNG were touched on in the meeting with the County Manager. The County Transit Manager is also aware of the project and has expressed interest in using the gas.
Is there any danger in the ART buses will be converted into electric buses in the future?	No, our understanding is they are committed to CNG for the foreseeable future as some of the ART bus routes are not well suited for electric.
Could creating a Class A product benefit the County financially? Could Parks and Recreation use this product to offset their fertilizer costs? If used by County departments and citizens, could this offset some of the hauling costs?	Yes, to all three questions. A Class A product not only expands the product distribution options significantly, but also reduces the biosolids volume and associated trucks by approximately 50%.
Could biosolids/soil amendment product be supplied to Condo Associations for their landscaping needs? Several civic associations struggle with the economics and desire not to use chemical fertilizers. Using biosolids seems like a win in both categories. It seems like this product would have a direct benefit on landscapers in this area.	Yes, we certainly hope so.
In the map of the DC Metro area in the presentation, who landfills their biosolids?	The City of Lynchburg.
If everyone went to a Class A product, would this create more supply than demand?	If everyone went to Class A there would be more options for beneficial reuse and with less volume of biosolids. Class A products can be distributed to residential and commercial users. There are also less restrictions on land application for agricultural users. Some farmers, however, prefer lime stabilized biosolids as it saves them money on soil pH adjustments.
What is the “availability fee”, who pays it, and when?	The availability fee is a one-time, up-front cost for a new water service for a single-family, multi-family, or commercial construction. The builder typically pays it and passes it along to the owner as part of the sale price. The cost is based on the number of new drainage fixture units (sinks,

	toilets, etc.) installed, and therefore the cost varies depending on the type of construction. More information about the charges for new service can be found in the County Code, sections 26-10 through 26-12.
How do the Washington Aqueduct costs compare to the Solids Master Plan?	The cost of the Washington Aqueduct upgrades at the Dalecarlia Water Treatment Plant are not yet known. A placeholder may be included in the next 10-year CIP to account for this proposed project if the cost has not yet been determined.
What is the regional option?	The regional option involves transporting either dewatered or liquid sludge to DC Water for treatment.
When is construction expected to start?	The expectation is that construction will start in approximately FY 2023 and end in FY 2026. The Washington Aqueduct project may push the Solids Master Plan schedule out two years (starting in FY 2025 until FY 2028).
What is the effect on stormwater runoff in areas where biosolids are used?	Biosolids release nutrients slowly, whereas chemical fertilizers are more readily water soluble. This slow-release feature is part of what makes biosolids attractive to landscapers. The biosolids also tend to stay in place more than chemical fertilizers, which may wash away. Therefore, the impact of biosolids on stormwater is reduced when compared to chemical fertilizers when applied correctly.
What is the nutrient mix for biosolids?	The nutrient content of biosolids varies based on the treatment method. For each process considered in the Solids Master Plan, the table below shows the expected concentrations of Nitrogen (N), Phosphorus (P), and Potassium (K). For reference, most biosolids have an N:P:K ratio of 3-6%: 1.5-7%: 0-0.2% whereas the ratio of a commercially available lawn fertilizer is 24%:8%:16%.
What is the primary driver for Arlington to consider a regional solution?	Economics is the primary driver, including the capital costs that would be avoided if we didn't construct the recommended long-range plan here at Arlington. Some concerns about the regional solution are the risks of transporting non-stabilized material and that reliance on an outside agency to provide this critical service.
In the regional option, would sludge be trucked to DC Water or would we build a pipe?	Trucked. The permitting and construction costs involved with piping across the Potomac River would be quite high
Does DC Water currently dump raw sewage into the Potomac?	(Citizen Response): No, as a matter of fact, DC Water has invested $2.6 billion to fix the combined sewer system, which is the cause of sewage sometimes getting into the Potomac.

When does the staff have to make a final decision about a specific technology to stay on that construction schedule?	We have about five years to continue to evaluate technologies and opportunities.
Were there any promising technologies that were new when you started?	Yes, actually the THP/AD we selected was one of the newer ones, and it will have five more years underway when we design and build the system.
Other technologies may develop in five years; will these be considered?	We tried to identify all established technologies. WE&RF had input into the planning process. The concern is that technologies that emerge in the next five years will not be proven at a facility our size. If there is a significant advancement in technology, we will certainly review it against the plan before we start design.
There is a general sense that THP/MAD would improve air quality. What are the emissions sources from treating biosolids? What are the emissions from burning/flaring biogas?	(Citizen Response): It will be worse. (Citizen Response): I think it will be much better. I believe this will be a substantial net positive environmental gain. (County): We have commissioned an emission study to better understand impacts to our immediate environment. We will wait and see what the emissions study says and report back to you.
What is the anticipated frequency of flaring?	There is no average frequency. Every plant operates differently depending on the technology and reuse opportunities being employed. The emission study will need to look at various flare operation scenarios from normal operations to worst case.
Are there any other communities that have decided against digestion because of the flare?	We are not aware of any communities that have decided against anaerobic digestion because of the flare.
If a layperson were to summarize the results of this study, would it be correct to say that THP/AD is the most preferable solution with a Class A output. The final decision is not needed for five years in case something better comes along.	Yes, that is correct.
Several stakeholders indicated that they would like a tour of the facility. Staff should consider inviting Civic Association Presidents.	A tour will be scheduled for later summer or early fall.
Consider inviting Alexandria representatives to future meetings.	Thank you for this suggestion.

Biosolids Nutrient Content:

Parameters	**Class B Lime Stabilized Cake (Arlington County)**	**Class B Digested Cake**	**Class A THP Cake**	**Class A Heat-Dried**
Total Solids (%)	31 - 43	20-27	30-40	92-95
Organic Content (%)	60 (est.)	60-75	50-60	75-80
Nitrogen (%)	3.1 - 3.7	3-5	4-6	4-6
Total Phosphorus (%)	1.2 - 1.6	2-3	6-7	2-3
Potassium (%)	0.1 - 0.2	0-0.05	0.1	0-0.05