PRELIMINARY QUESTIONS
FOR SCOTT FINCHAM
(4-15-24)

Response 05.24.24

On April 15, 2024, Waterford resident, Mark Denicore, sent an inquiry about the potential Village of Waterford water project. Responses to the questions have been summarized by Loudoun County Department of General Services (DGS) and Loudoun Water (LW) staff. Although some questions cannot be answered in the detail requested this early in a project, staff have responded accordingly.

It is important to note that the intent of Loudoun County's Water and Wastewater Program (Program) is to assist and work alongside communities experiencing issues with deficient or non-existent water or wastewater systems. Staff are invited into a community to discuss their water and wastewater concerns through the submittal of an application. The Program provides a standardized process to gauge a community's interest, determine a community's need, and establish a measurable method to prioritize community requests. However, participation in the program does not exclude any community residents from petitioning the Loudoun County Board of Supervisors (BOS) for resolution through other public processes, nor does it limit the powers of the BOS to take action to resolve identified public health issues.

Residents can find more information and available documents at:

- Waterford Study: 2022 Waterford Feasibility Study
- Waterford Updates: loudoun.gov/waterfordwaterproject
- Paeonian Springs Updates: loudoun.gov/paeoniansprингswaterproject
- Program Documents: loudoun.gov/waterprojects

Responses to Resident Questions:

The following responses are provided by DGS and LW project management staff and reflect the Program's current practices but does not reflect the ultimate recommendation of staff or executive leadership of either organization, or the final decision of their respective boards. Please note, due to the unique nature of each community, the responses provided are specific to this community. The responses below may be revised as a project progresses.

General Questions:

1. According to the Loudoun County website, in February 2023, the Loudoun County Board of Supervisors directed County staff to evaluate interconnected communal waste and wastewater systems for Waterford and Paeonian Springs.

a. What is the status of the County's evaluation?

Loudoun County has entered into an agreement with Loudoun Water to assist the County with the evaluation of interconnected community water and wastewater systems. The design team, comprised of Loudoun County, Loudoun Water, and Dewberry Engineers (Project Consultants) are currently evaluating the feasibility of interconnected systems. The study will evaluate the technical feasibility of the

joint/interconnected systems to serve the two villages and develop a preliminary cost estimate. Based on the work completed to date and with some critical assumptions, the design team has determined that the interconnected system is technically feasible.

b. Has the County's evaluation been reduced to writing?

The report is currently in the "Draft" phase. It is anticipated that the final report will be completed in Summer 2024.

c. If so, can we obtain a copy of the County's evaluation?

Our standard procedure is to make the Final document available to the public after it is presented to the BOS.

2. When will the County begin holding public outreach/input/engagement sessions regarding the proposed interconnected project?

Following completion of the final report and BOS action at a future BOS business meeting where the BOS will vote on the item. Once the BOS approves the item, staff will develop a public outreach plan on gathering input from residents on the interconnected systems.

a. When will the County provide the public with an opportunity to approve/reject the proposed interconnected project?

It is important to recognize that the interconnected concept is not a project until we receive direction from the BOS, which will occur during a public meeting.

Public "approval" of the project is not required; however, residents may sign up to speak during the public comment portion of any BOS business meeting. Residents do not have to wait until the project is presented to the BOS for a final decision; residents may provide public comment on this subject during any BOS business meeting.

Residents would also have the opportunity for public comments when the Commission Permit (CMPT) and Special Exception (SPEX) are brought forward before the BOS and Planning Commission for consideration. A CMPT or SPEX application would require a public hearing; therefore, residents may provide public comment during the public hearing for those applications. Both of these applications would be required in order to implement a new community water system solution.

3. As you know, many people live in western Loudoun County due to its rural character.

a. What safeguards does the County plan to put in place to limit development if the proposed interconnected community water/sewer system comes to fruition?

The 2019 General Plan is the adopted policy of the County BOS, which is implemented through regulations in the Loudoun County Zoning Ordinance. The General Plan land use polices for the Rural Policy Area are outlined in Chapter 2,

starting at 2-92. The General Plan Utilities and Infrastructure Policies are outlined in Chapter 6, starting at 6-9. The Zoning Ordinance utility regulations are found in Section 7.08.

Applications for new community water/wastewater systems must be reviewed by the Planning Commission for consistency with applicable General Plan policy. This is the CMPT process. The General Plan requires any application involving utilities to obtain a CMPT which insures that the proposed utilities are compatible with the policies of the General Plan and establishes a specific service area for the allowable connections. The relevant reference to policies in the General Plan addressing a CMPT include the following provisions in Chapter 6, Rural Policy Area – Onsite and Community Systems:

- Strategy 4.6.C. "Support construction of community systems for existing rural communities facing a potential public health risk. In such cases, the community system may be available to undeveloped lots within the existing community to support development that extends the viability of the community and is consistent with the scale, density, and character of the community."
- Strategy 4.6.E "Require a Commission Permit establishing a defined service area, prior to the construction of any community water or wastewater system".

b. Will the County prohibit future/new residences and businesses from connecting to the proposed interconnected community water/sewer system?

As addressed above, a water and wastewater service area boundary for a community system is established by a CMPT. Only parcels located within the defined CMPT boundary can be approved for connection. Any parcel in the boundary may connect to the system if they meet all other County land use permitting requirements to construct and connect.

c. What legal vehicle will the County put in place to ensure that future/new households and businesses are prohibited from connecting to the proposed interconnected community water/sewer system in perpetuity?

See responses for (a) and (b) above.

4. Is the County proposing "special water/sewer districts" or "service areas" for Waterford and Paeonian Springs?

As stated above, if the project is approved by the BOS, a water service area for the proposed community water system would be established as part of the CMPT process. A service district as described by the Code of Virginia (COV) under §15.2-2400, et seq., is currently not proposed by staff.

a. Has the County established proposed community water/sewer service areas for Waterford and Paeonian Springs?

Not yet. Service areas will be established as part of the CMPT process. A map identifying the current study areas under evaluation can be located at the community links provided above under available documents.

It is important to note the existing Waterford sewer service area was established by CMPT in 1975, and staff are considering the extent of the sewer service area for creation of the water service area. The final service areas may be refined during the CMPT process.

b. Will the "study" areas in the Water Feasibility Studies become the proposed "service" areas for each community?

See response for (a) above.

c. Does the County have a map of the proposed service areas for Waterford and Paeonian Springs?

See response for (a) above.

d. What is the County's process for expanding service areas once the service areas are established?

Any changes to the established service area would require an applicant to go back through the public CMPT process. The Waterford sewer service area for example has been established since 1975 with no changes.

5. The Waterford Water Feasibility Study dated March 31, 2022, includes maps of the proposed community water system. Are there similar maps for the proposed interconnected system?

The distribution system (water pipe network) map for the village included in the 2022 study is conceptual only and to date remains unchanged. Extending public water to Waterford will require groundwater wells, a Water Treatment Plant (WTP), raw water mains from wells to the WTP, and distribution mains. Therefore, not knowing the final location of wells or the WTP, no decision on alignment has been made, other than the intent is to use the Clarkes Gap Road Right of Way and easements on parcels adjacent to Clarkes Gap Road. Staff are developing planning level alignments but are subject to change as the design advances.

6. The Waterford Water Feasibility Study includes an as-planned schedule for the design and construction of the proposed community water system. Is there a revised proposed schedule for the proposed interconnected system?

Currently, both the Paeonian Springs and Waterford projects have funding for design only. The goal is to complete the design and permitting by December 2026. We anticipate if a construction project was approved, the duration would likely take around three years to complete from Notice to Proceed (or start of construction project).

7. If a revised schedule for the proposed interconnected system does not exist, what are the as-planned durations for each aspect of the proposed project (e.g., conceptual design, detailed design, construction)?

If an interconnected system was pursued, the Waterford water system design and construction would be anticipated to move forward in two tracks.

Track – 1: This includes the design and construction of wells, a treatment plant, and water mains from the plant (located south of Waterford). The conceptual design is expected to be available by the first quarter of 2025. Final design and permitting are expected to be completed by December 2026. Construction duration is expected to be about three years, but the beginning of construction will depend on construction funding availability.

Track – 2: This includes the design and construction of water distribution mains within Waterford. Currently, the County is evaluating the option of designing and constructing water mains in Waterford with the larger infrastructure improvement project. The schedule for the larger infrastructure project is not yet available. For more information about the Village of Waterford Preserving the Landmark Infrastructure project visit loudoun.gov/waterford.

As the interconnected study is finalized and potential well locations located, a more detailed schedule will be refined.

Water:

1. Is the option of solving individual well problems in Waterford with individual solutions still available (Option #1)?

The feasibility study recommends a long-term permanent solution to the issues.

Private owners may pursue individual solutions on their private wells. However, the success of such pursuit may be limited or short-term due to small lot sizes, existing low yields for the property owners currently experiencing water concerns, and density of structures not allowing for new drilled wells, proper setbacks, and other permitting and regulatory requirements. Please note, groundwater field investigations were not carried out during the Feasibility Study, and there is no guarantee that newly drilled wells will provide adequate yield.

2. What is the County's estimated cost to hydrofrack a private well (Option #1)?

No cost estimate was provided.

There is limited documentation in Loudoun County indicating that hydrofracking would produce a sustainable yield increase and there is a risk it could create additional quantity or quality issues for adjacent parcels.

Hydrofracking of private wells is not an identified practice found in Chapter 630 Virginia Private Well Regulations and the Loudoun County Codified Ordinance (LCCO) other than:

1040.10.g.(1)

Hydraulic fracturing of wells may be permitted by the Director of Health under Section1040.06 and shall be considered on a case-by-case basis.

For more information on hydrofracking see Appendix D of the 2022 Feasibility Study and consult with the Loudoun County Health Department (LCHD), Environmental Health Division at 703-777-0234 regarding LCCO 1040 or the Private Well Regulations.

3. Would the County consider providing households with financial assistance to hydrofrack their wells (Option #1)?

No financial assistance from Program funds would be provided to hydrofrack a private well.

4. Is the option of people sharing wells in Waterford still available (Option #2)?

Community members in Waterford requested shared wells be evaluated in the Study. Although shared wells may be technically feasible the practice is not supported as a long-term community water solution. Challenges associated with shared wells can be reviewed on section 4.2.2 pages 21 and 22 of the 2022 Feasibility Study. The option to further explore the concept and validate the feasibility of using private "shared" wells as a solution to individual well problems in Waterford would remain the responsibility of individual property owners.

It should also be noted that shared wells have been tried in Waterford by individual residents over the years with no indication it helped to solve the long-term issues in Waterford. Shared wells were also listed in the 2019 application by residents as having quantity and quality issues.

The term "shared" well is also not identified in the Virginia Private Well Regulations or in the LCCO 1040. For more detailed questions on policy and shared wells, staff would suggest contacting the LCHD to discuss in more detail:

1040.09 (e):

Any new well which is the water source for a private water supply system shall be located within the boundary of the lot it serves.

5. Would the County consider providing households with financial assistance to install shared wells (Option #2)?

No financial assistance from Program funds will be provided to install a private well.

In the past, the Loudoun County Department of Housing and Community Development has administered programs whereby federal funds were used to drill private wells for qualified low-income households. DGS is not aware of any specific programs currently in effect for this purpose.

6. Why are shared wells not allowed for non-residential property?

The consultant is interpreting information received from conversations with the LCHD during development of the 2022 Feasibility Study.

The reference is likely referring to commercial establishments meeting the LCCO 1040.01 definitions below:

> *(m) "Public individual well" means a well serving one commercial or industrial unit.*
>
> *(n) "Public water supply system" means a water supply system serving two or more dwelling, commercial, agricultural or industrial units, or any system serving more than twenty-five persons, or the public.*

A shared well is not defined in the ordinance, and any non-residential well is considered public per the ordinance. Further details can be provided by the LCHD.

7. Could non-residential property share wells with other property held by the same business?

See response to question 6 above.

8. The Waterford Water Feasibility Study indicated that the estimated cost for the community water system (Option #3) just for Waterford is $10.5 million. What is the County's estimated cost of the interconnected water/sewer system?

The current interconnected system planning level construction cost estimate is approximately $52 million in 2024. Please note that the industry standard acceptable range for cost estimate at this level of project definition is -20% to +30% of the estimate. Furthermore, this estimate is for 2024 and does not assume cost escalation to the midpoint of construction. This includes a water and wastewater solution for Paeonian Springs. Waterford's estimated share of the cost, which only includes a portion of the water system, is approximately $12 Million in 2024. Note these are construction cost estimates, and not the life cycle cost of the system.

9. Does the County have current actual well yield data for all of Waterford's wells? The Waterford Water Feasibility Study appears to be based on old and incomplete data.

Is current actual well yield data for all wells known? No.

The 2019 Waterford Feasibility study was scoped to include a desktop study of readily available records only. A Health Department well record report (where available) identifies the air lift yield as tested by the well driller at time of the installation, therefore most Health Department records may not reflect existing conditions. In Waterford, residents had the opportunity to supply any additional information they had when the household survey was distributed, such as any additional yield information.

10. What is the County's desirable well yield for a residence?

No specific desirable well yield is referenced. A desirable well yield varies between homes, and the peak water demand yield needed may change as homes are sold, household occupancy grows, or intended use or water needs of the residence/building changes.

In general, anything under 3 gpm per State and 5 gpm per County requires measures for additional storage and/or testing to verify adequate sustained flow, so 3 gpm was used as the basis for evaluating parcels for potentially inadequate yield rates.

Virginia Private Well Regulations:

> *"Yield" means the quantity of water, usually measured in volume of water per unit time, which may flow or which may be pumped, from a well or well field.*
>
> *12VAC5-630-370. Water quality and quantity. A. Class IV wells exempt. The water quality requirements contained in this section apply only to Class III private wells. Class IV private wells (wells not constructed as a source of drinking water) are not subject to any quality requirements. These regulations contain no well yield requirements. See 12VAC5-630-460 for suggested minimum well yields for residential supplies.*
>
> *12VAC5-630-460. Water system yields for residential use wells. A. All drinking water systems that utilize one or more Class III wells shall be capable of supplying water in adequate quantity for the intended usage. All such systems, with a capacity less than three gallons per minute, shall have a capacity to produce and store 150 gallons per bedroom per day and be capable of delivering a sustained flow of five gallons per minute per connection. Systems with a capacity of three gallons per minute or more do not require additional storage.*

LCCO 1040:

The LCCO outlines the minimum yield requirements and testing procedures required to prove the sustainable yield of new wells. Below are some brief sections from the Ordinance but reviewers should read through LCCO 1040 and follow up with the LCHD with any additional policy questions they may have.

See 1040 Appendix IV (e) (4) (D)

> *(f) Minimum Yield for Domestic Wells.*
>
> > *(1) Each well shall be tested and approved for yield in accordance with paragraph (f)(2) hereof. Replacement wells servicing an existing improved property are exempt from this requirement.*
> > *(2) All wells drilled with a yield determined to be less than five gallons per minute, according to subsection (b) hereof, shall be tested as follows* **...**
> > *(3) The criteria for approval shall be a minimum yield of one gallon per minute for six hours of continuous pumping after the well has been pumped out as provided in paragraph (f)(2)B. hereof* **...**

11. What percentage of Waterford households do not meet the County's standard desirable well yield?

See question 10 above.

12. What is the County's target in gallons/minute/household if a community water system is installed? 1.2 gpm?

Not determined by the County, but Loudoun Water's Engineering Design Manual requires 1.2 gpm per connection for groundwater-supplied community systems. More information on Loudoun Water's community water system design criteria is available online at https://www.loudounwater.org/sites/default/files/manual_Oct_2016.pdf#page=135

13. The original Waterford Water Feasibility Study involves drilling six well for 173 gpm of water. How many wells would be needed for the proposed interconnected community water system?

Loudoun Water design standard requires a minimum of three wells, each producing a minimum of 0.6 gpm per connection. The number of wells needed for the interconnected community system will be known only after completing the groundwater investigation, which is currently in progress. There are additional criteria if more than three wells are needed to meet the required yield. More information on Loudoun Water's community water system design criteria is available online Here.

The six wells shown in the 2022 Waterford Feasibility Study are potential sites based on a desktop study. The actual number of wells required needs to be confirmed through further groundwater investigation. Currently, there are no plans to carry out further groundwater investigation within Waterford.

14. How much water on a gpm basis would be needed for the proposed interconnected community water system?

The target yield for the groundwater wells for the proposed interconnected community water system is approximately 414 gpm (241 gpm for Paeonian Springs + 173 gpm for Waterford), in accordance with Loudoun Water's Engineering Design Manual requirements.

15. Will the proposed interconnected community water system involve the installation of one or more water holding tanks?

Based on limited hydraulic modeling and design activities to date, the design team does not see the need for any type of storage tank outside the water treatment facility fence. This will be further evaluated taking into consideration the well locations, available yield, and potential fire flow demands.

16. Will the proposed community water system involve the installation of a water treatment facility?

Yes. The type of treatment needed will be determined after the water quality test is conducted during the groundwater investigation phase. Any contaminant found in the groundwater will need to be treated to the EPA Maximum Contaminant Level (MCL) using conventional technology that meets the criteria outlined in Chapter 7 of the Loudoun Water Engineering Design Manual.
https://www.loudounwater.org/sites/default/files/manual_Oct_2016.pdf#page=135

17. Has the County selected proposed site(s) for the proposed community wells, water tank(s), water treatment facility?

The County has not selected the sites. The design is in an early phase, and there is not sufficient information available to select sites, also see question 18 below.

18. Has the County conducted any studies to determine whether the proposed community wells will supply sufficient water to serve both communities?

Groundwater consultants conducted a desktop study and identified areas along Clarkes Gap Road with high yield potential. Subsequently, the consultants conducted geophysical surveys in parcels where the owners authorized access. Future groundwater investigation work will inform well yields and potential sites for wells and water treatment facilities.

19. Has the County conducted any studies to determine the impact of the proposed community wells on the existing wells of adjacent properties?

This testing/study will be performed as part of future groundwater investigation. Please note that Loudoun Water's community water system policy 7.2.P.10 for new groundwater wells requires testing to ensure no impact on preexisting wells. See section 7.2.P.10 in Chapter 7 of the Loudoun Water Engineering Design Manual.
https://www.loudounwater.org/sites/default/files/manual_Oct_2016.pdf#page=135

20. Has the County secured the necessary property to install the proposed community wells, water tank(s), and water treatment facility?

The design is in an early phase, and there is not sufficient information available yet to select sites and begin discussions with the property owners. The design team secured authorization from property owners to conduct a geophysical survey only at this time.

21. Will households have the option of keeping their individual water system and not connect to the proposed community water system?

Staff have no intention of recommending a required connection, but construction of any system is unlikely to move forward without a percentage (still to be identified) of property owners willing to commit to connecting. A minimum number may be necessary for the BOS to support the project and a minimum number of connections may be necessary for the water treatment system to properly operate.

Staff are often asked about COV §15.2-2400, et seq., and Loudoun Codified Ordinance 1066.09 regarding required connections. 1066.09 applies only to wastewater, and for COV §15.2-2400 see question 24 below.

Staff would also suggest speaking with the LCHD on when connections may be required or recommended by their department to meet a setback requirement, approve a health clearance, or, for example, when applying for a Building Permit.

22. If a resident chooses not to connect to the community water system, will he/she still be obligated to pay for the proposed community water system?

The Water and Wastewater Fund (Fund) established for the Program is regulated by the Water and Wastewater Projects Funding Policy (Funding Policy) adopted by the BOS. The Funding Policy can be located at: loudoun.gov/waterprojects.

Assuming "No" funds or only a portion of funds are provided by the County or through grants, then financing as described in the Funding Policy under Community Type B may be the only additional option available for a community to consider. If a project is financed using a funding mechanism such as a special assessment, or taxing district for both water and wastewater, then payment by all property owners within a water and/or wastewater service area can be required whether a connection is established or not, because the ability to connect exists.

The Funding Policy states:

> *Community Type B- Communities with less than 51% of low-to moderate income households will pay 100% of project costs. The County may assist these communities by establishing service districts and funding mechanisms such as special assessments, taxing districts, and tax incremental financing. Communities designated as Type B will be required to pay for feasibility studies as part of project repayment.*

Again, it is important to note the Funding Policy does not limit the powers of the BOS to take additional action outside the policy guidelines to use the Fund or other funds to support an identified public health issue or community need. All final financial decisions will be based on BOS guidance and approval.

23. If a property is sold in Waterford, will the subsequent property owner(s) be permitted to keep their individual water system, or will they be forced to connect to the proposed community water system?

Connection discussions in these situations would likely fall between the realtor, seller, buyer, and lender.

It is assumed that this hypothetical question refers to an existing structure that is simply being sold, and that the community system already exists. In this scenario, Loudoun Water staff would not be involved with the real estate transaction. Staff would however suggest speaking with the LCHD to verify whether there are potential scenarios where their department could be involved and require connection.

24. Does the Virginia Code allow Loudoun County to force households to connect to the proposed community water system?

Yes, the service district funding model under Code of Virginia §15.2-2400, et seq., authorizes the County to require connection for all properties within the service district. However, as stated above, staff are not currently proposing a service district funding model. If a service district were proposed in the future, the legal requirements, including public notice and hearing, outlined in Code § 15.2-2400, et seq., would be followed.

25. Will the County require households that are currently served by "shallow" wells to connect to the proposed community water system?

Again, a connection is not required under the Program and staff have no intent to suggest a requirement to the BOS.

LCCO 1040.13 states:

> *(a) General Requirements. Shallow wells are not desirable from a public health standpoint and shall not be used for new construction, except when deep wells attempted have been nonproductive, as it is normally possible to obtain sufficient water from a deep well.*

Staff suggest reading 1040.13 in its entirety and following up with the LCHD to determine if there are scenarios where the LCHD could require a shallow well owner to connect to an available community water system.

It is important to remember that shallow and dug wells which exist in Waterford are not constructed to the same standards of drilled wells installed under today's Virginia Private Well Regulations and "are not desirable from a public health view" as stated in 1040.13. Should a connection not be made, homeowners should educate themselves on potential risks and protections needed to keep their families safe, as the potential for ground water contamination may be more likely. The LCHD could also advise on the potential risks associated with shallow or dug wells for residents to consider when making a connection decision.

26. If a resident connects to the community water system, will he/she need to abandon his/her existing well?

If a homeowner connects to the community system, the existing well would be disconnected from the house to prevent backflow or cross contamination issues with the community water system.

However, based on previous conversations with the LCHD the existing well could remain in service for non-potable use if the well is still serviceable, and assuming the well creates no setback issues to the community system or becomes a source of groundwater contamination.

If the well is not going to be active it should be properly abandoned, and a permit will need to be applied for at the LCHD.

27. If so, what is the County's estimated cost to abandon an existing well?

$1500 was estimated in the 2022 Waterford Feasibility Study; however, a recent follow up call to a contractor to identify an updated range for an abandonment in Loudoun County in 2024, appeared to be closer to $2,000 and $5,000. Abandonment costs will depend on the specifics of the well install and challenges that may be associated with the abandonment.

28. What legal vehicle exists to ensure that households can maintain their individual water systems in perpetuity?

No known legal vehicle.

29. What is the estimated cost of the proposed interconnected community water system?

The current planning level capital cost estimate for the interconnected community system is $52 million. We note that the industry standard acceptable range for cost estimate at this level of project definition is -20% to +30% of the estimate. Furthermore, this estimate is for 2024 and does not assume cost escalation to the midpoint of construction. Of this total, the cost estimate for the interconnected water system is approximately $25 million in 2024. These estimates will be refined as the design phase progresses.

30. What is the estimated cost to maintain the proposed interconnected community water system on an annual basis?

The Operational & Maintenance (O&M) cost will depend on the ultimate treatment technology selected and other treatment plant features. Based on experiences with other community systems, Loudoun Water's annual O&M cost estimate is approximately $132,000 in 2024 for the interconnected water system. Property owners would only be responsible for paying their individual usage rate, on a quarterly basis, per Loudoun Water's Rates, Rules and Regulations, and not the estimated O&M costs noted here.

31. How will the cost of the interconnected community water system be paid? General County funds? Special tax district?

A funding strategy has not yet been developed. Staff will bring the Interconnected System Study results to the BOS in the future, in which the Item will include staff recommendations and an explanation of funding needs.

Assuming "No" funds or only a portion of funds are available by the County or grants, or if financing from an outside institution or agency is not available, a funding mechanism such as a special assessment, or taxing district as described in the Water/Wastewater Program Funding Policy are potential options the County could choose to finance a project. Staff have no intention of proposing a service district and will work with the community to identify available funds to complete the project; however, if a funding mechanism such as a special assessment or tax district was necessary to support a project, a service district would be required.

All final financial decisions will be based on BOS guidance and approval.

32. How many households need to connect to the proposed community water system to ensure that the Project is economically viable?

The County initiated the project based on an application from the Waterford community to address public health and community sustainability concerns. As such, the County has not conducted an analysis to evaluate the economic viability of the project.

33. What County fees would a resident be charged if he/she decides to connect to the proposed community water systems?

Waterford residents would not be charged the Loudoun Water availability fee (sometimes referred to as a hook up or tap fee) required by customers in the central service area.

Loudoun Water Fee: Loudoun Water's Rates, Rules, and Regulations effective at the time of connection request and available on Loudoun Water's website will apply. For 2024, the cost of a residential water meter is $315, and the administrative fee to connect is $87.

Loudoun County Fee: The County may establish a connection fee to be charged to vacant (or unimproved) parcels if the system is constructed using County funding. Typically, County connection fees are limited to vacant properties within a service area because connection of "vacant" lots to the utility system does not constitute the mitigation of a public health concern and therefore, public funds are not supported to be used for that purpose. Consequently, an appropriate cost recovery proportionate to the benefit is required.

Please note that the owner is also responsible for all costs associated with work on the private side, including extending the service line from the meter to the home, potential plumbing upgrades that may be necessary to handle increased pressure, and abandonment of wells (if needed). Also, see question 34 below.

34. What is the anticipated cost for a resident if he/she chooses to connect his/her house to the proposed community water system?

The most recent cost estimate for connection to a community water system in 2023 was $8,000 to $15,000. This estimate excludes well abandonment cost. Differences in individual household costs will vary based on factors such as the following: distance from the home to utility line connection point, property topography, soil depth (rock), and historical features. In addition, contractors can vary in costs, and staff would suggest residents consider requesting proposals from multiple contractors and consider working together to seek a cost reduction from a contractor for multiple installations.

35. If connected to the proposed community water system, how will the resident be charged for water usage? By the gallon? Based on current Loudoun Water rates?

Waterford and Paeonian Springs customers will pay the same rate as the Central System customers and by gallon. Current rates are available online at https://www.loudounwater.org/schedule-rates-residential-customers

A 2024 estimate for a customer using 5,000 gal a month or 15,000 gal/quarter would likely pay around $84.25 a quarter.

36. The survey conducted in Waterford indicates that only 17 out of 154 properties (11%) would be willing to connect to the proposed community water system. How would such a low connection rate justify the installation of the proposed community water system?

The survey results along with summary statistics were provided to the BOS and were not intended to justify the system. No interpretation was provided in the Board item. Survey results, number of respondents and residents comments were included as part of the February 21, 2023 Board Item #09g.

37. What number of households need to connect to the proposed community water system to make the project financially viable?

The County initiated the project to address public health and community sustainability concerns. As such, the County has not conducted an analysis to evaluate its economic viability.

38. With respect to Table 4.4 (Waterford Options Matrix) of the Waterford Water Feasibility Study:

a. Why is locating wells for Option #2 ranked a "1" and locating wells for Option #3 ranked a "3"? Both options involve drilling 6 wells, correct?

Option 2 ranked a 1 because a single shared well needed to be found in proximity of parcels that want to share, and these locations are in areas of existing low yield.

Option 3 ranked a 3 because community wells can be located at higher yielding areas, so it is less of a challenge and are intended to be operated and managed by a public authority which provides additional flexibility.

The study provided only an estimate of the number of wells required. The actual number of wells required will be determined through further groundwater investigation.

b. Why is the cost of Option #2 (i.e., $159k) ranked a "4" and Option #3 (i.e., $10.5 m) ranked a "2" when the cost of Option #1 is 66 times more expensive?

It is assumed the question has a typo and you are referring to Option # 3 being 66 times more expensive. Please note that $159K for Option # 2 assumes four homes only (approx. $40K per home) whereas the cost for Option # 3 is for the entire service area. Strictly on a capital cost basis, Option # 2 is cheaper on a per-home basis and, therefore, ranked higher at 4 than Option #3, which is ranked 2.

c. Why are all six factors being weighted equally? Aren't some factors more/less important than others?

It is agreed there could be several different ways these factors can be selected and weighed. The team involved in the Feasibility Study selected the factors and determined that equally weighing the factors was appropriate to rank the potential solutions relative to one another.

d. Why doesn't this matrix include a factor for the probability of increased development?

The purpose of the Feasibility Study is to address public health needs and not subdivision / development. See above response.

Sewer:

1. What is the current capacity of Waterford's existing wastewater treatment facility?

The Waterford Wastewater Treatment Plant's current permitted capacity is 58,000 GPD.

2. What is the status of the County's plan to replace Waterford's existing wastewater treatment facility?

The wastewater treatment plant (WWTP) in Waterford is wholly owned and operated by Loudoun Water. Loudoun Water already has a project underway to upgrade the existing WWTP to meet the new ammonia limits set by the Department of Environmental Quality (DEQ). This effort is separate from the County water & wastewater program's interconnected system discussion.

The interconnected system Draft study has found it technically feasible to convey Paeonian Springs sewage to the Waterford (WWTP) for treatment and discharge. Provided future design and permitting proceeds as planned, the Paeonian Springs project would expand the Waterford WWTP in the future to accommodate sewage flow from the community.

3. What is the anticipated timeframe for replacing Waterford's existing wastewater treatment facility?

Loudoun Water anticipates completing the Waterford WWTP upgrade project as needed to serve the Waterford community by the end of 2027. The construction of interconnected system projects, which would include expanding the wastewater treatment plant to handle Paeonian Springs flow, will depend on funding availability. If construction funds are secured by the time the design is completed, the Waterford WWTP expansion to treat Paeonian Springs flow is expected to be completed by the end of 2029.

4. How will the new wastewater treatment facility differ from the existing wastewater treatment facility?

Loudoun Water's upgrade project will replace the lagoon-based treatment system with an advanced wastewater treatment system. Loudoun Water's current upgrade project is independent of an interconnected project. Please contact Loudoun Water for additional information.

5. Will the footprint of the existing sewer treatment facility need to be expanded?

No additional land acquisition will be required for the project. The upgrade of the Waterford WWTP by Loudoun Water and the potential further expansion in the future by a County interconnected system project to treat Paeonian Springs flow will all be achieved within the existing Loudoun Water owned parcel.

6. What safeguards will the County put in place to ensure that the new wastewater treatment facility will be compatible/consistent with the nature of a national historic landmark?

Loudoun Water's upgrade project is independent of the County's project. Please contact Loudoun Water for project information. The County project that will potentially expand the Waterford WWTP to incorporate the Paeonian Springs flow will require a CMPT to include a cultural and historical review and public comment period.

7. What is the planned capacity of the new wastewater treatment facility?

Loudoun Water's Waterford WWTP upgrade project will not increase the plant's permitted capacity. The plant's permitted capacity will remain at 58,000 gallons per day, all reserved for Waterford. Regarding the County's interconnected project, the preliminary flow calculations based on Loudoun Water's flow estimate criteria and the Paeonian Springs community systems service area currently being considered have revealed a design flow of 75,000 gallons per day. Provided the service area remains unchanged after the CMPT, the Waterford WWTP will need to be expanded to accommodate an additional 75,000 gallons per day for a total capacity of 133,000 gallons per day.

8. Is the County considering sending the Paeonian Springs sewerage elsewhere? Hamilton? Leesburg?

Several wastewater solution options were evaluated in the 2019 Paeonian Springs Feasibility Study, including conveying flow to a nearby existing town utility system. The County is not currently considering sending Paeonian Springs wastewater to Hamilton or Leesburg.

9. Is the County considering the installation of a wastewater treatment plant in Paeonian Spring?

Previous studies evaluated wastewater solutions within or near Paeonian Springs. However, at the BOS Business Meeting on February 21, 2023 Item #09g staff were directed to further evaluate the potential of interconnected community systems to address water and wastewater needs for the Villages of Waterford and Paeonian Springs. The design team put on hold further consideration of the option of installing a new wastewater treatment plant in Paeonian Springs until the interconnected system feasibility study is finalized.

10. What number of Paeonian Springs' households would the proposed interconnected community sewer system be designed to serve?

The number of connections will ultimately depend on the boundary approved for ratification by the County Planning Commission. The service area currently being considered by the design team has 201 Parcels, of which 112 are developed.

11. Have any studies been conducted to determine if Catoctin Creek can handle the additional biological load from the proposed interconnected sewer system?

Based on the review of new treatment technology, available river flow information, and preliminary discussions with DEQ, the design team concluded that the Waterford WWTP could be expanded to treat Paeonian Springs wastewater flow. Further studies, including river

hydraulic analysis and effluent load modeling, will be carried out during the design and permitting phase of the project.

12. The Catoctin Creek is periodically considered "impaired." How does this condition factor into the County's plans?

See 11 above.

13. Does the County envision the water and sewer pipes for the interconnected system being placed in Clarke's Gap Road? If not, where?

The water and wastewater pipes will generally parallel Clarkes Gap Road. The pipes along Clarkes Gap Road will be classified as transmission mains, and Loudoun Water's standard is to install transmission mains in easements or right of ways. However, the final location of the utilities will depend on several factors, including site conditions, environmental impacts, existing utilities, easement discussions, and review and approval from VDOT and other permitting agencies.

14. Will the proposed interconnected sewer system require a pumping station?

Yes, the interconnected wastewater system will require a pump station. The draft feasibility study has found it feasible to convey pumped wastewater to the existing Waterford wastewater system. Please note that a pump station will be required regardless of whether the flow is treated at Waterford or a new treatment plant near the community.

15. Has the County secured the necessary property to install the proposed sewerage pumping station?

The draft interconnected system feasibility study has identified potential parcels for the pump station. After the study is finalized, the County will begin discussions with the property owners.

16. What is the expected cost of the proposed interconnected community septic system?

A new community septic system is not proposed. The interconnected wastewater system, which includes a collection system, pumping station, force main and expansion of the Waterford WWTP, planning level construction cost estimate is approximately $27 million in 2024. Please note that this cost does not include Loudoun Water's cost of upgrading the plants to meet the regulatory requirements. It is further noted that these are construction cost estimates, not the life cycle cost of the system.

17. Who would pay for the interconnected community septic system?

See questions 22 and 31 under the water section, same responses apply.

18. Will households in Paeonian Springs be required to connect to the interconnected community septic system?

See water section, same response applies.

19. How many households need to connect to the interconnected community septic system to make the project economically viable?

The County initiated the project to address public health and community sustainability concerns. As such, the County has not conducted an analysis to evaluate its economic viability.

Public Engagement:

1. The Waterford survey responses do not appear to warrant such a substantial infrastructure expenditure. Only 17 out of 154 properties would connect to the proposed community water system. Can the project's design phase include other methods of public participation that encourage shared learning and decision-making among more people in the Waterford community (e.g., focus groups on actual water needs, financials, environmental impact, historic preservation)?

As mentioned previously, once the interconnected system study is final, staff will be presenting the results to the BOS for guidance and approval of an interconnected system project. Loudoun County's Public Affairs and Communications Office will develop a public information and outreach plan to gather input from citizens' groups and residents. The focus areas mentioned in your question are relevant issues to gather input.

Environmental Impact:

1. How will the proposed project conform with Loudoun County's 2020 Western Hills Water Management Plan (to protect and restore water resources, reduce pollution, assess groundwater use/transboundary balance/drawdown)?

The Western Hills Watershed Management Plan was prepared for the County by a professional environmental consulting firm to summarize the current conditions and propose watershed management recommendations and strategies as a basis for future management of the Western Hills Watershed. The Plan included recommendations, and identifies water quality improvement projects, but did not seek endorsement by the Board for implementation. There are no regulatory or policy elements in the Plan.

The proposed Waterford/Paeonian Springs Interconnected System would be designed and constructed to meet all federal, state, and local environmental regulations, as well as meeting Loudoun Water's criteria for providing adequate, resilient, and redundant groundwater resources. Also, elimination of approximately 150 septic drainfields, some nearing end of useful life, will greatly reduce introduction of nutrients and bacteria into the environment.

Zoning:

1. Will the proposed interconnected water/sewer project be affected by new land regulations for the rural west in the upcoming rewrite of the County's Comprehensive Plan?

The potential interconnected water and wastewater project would comply with the County's current comprehensive plan and zoning ordinance. The entire CMPT process revolves around

demonstrating that a proposed public facility (including a community water and wastewater system) is consistent with the General Plan. If the General Plan is amended before the requisite land use approvals for the proposed Waterford system are obtained, any applicable General Plan amendments would be considered.

Staff would refer you to the Department of Planning & Zoning for a schedule of upcoming actions, but the work plan for 2024 General Plan revisions does not include significant review of Rural Policy Area policies.