



Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

1111 E. Main Street, Suite 1400, Richmond, Virginia 23219

P.O. Box 1105, Richmond, Virginia 23218

(800) 592-5482 FAX (804) 698-4178

www.deq.virginia.gov

Ann F. Jennings
Secretary of Natural and Historic Resources

David K. Paylor
Director
(804) 698-4000

To: The Honorable Ralph S. Northam, Governor

 The Honorable Ann F. Jennings
 Secretary of Natural and Historic Resources

 The Honorable Janet D. Howell
 Chair, Senate Committee on Finance and Appropriations

 The Honorable Chap Petersen
 Chair, Senate Committee on Agriculture, Conservation and Natural Resources

 The Honorable Luke Torian
 Chair, House Committee on Appropriations

 The Honorable Kenneth R. "Ken" Plum
 Chair, House Committee on Agriculture, Chesapeake and Natural Resources

 The Honorable David L. Bulova
 Vice-Chair, Chesapeake Bay Commission

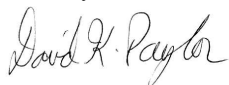
 The Honorable Robert S. Bloxom, Jr.
 Member, Chesapeake Bay Commission

 The Honorable Nancy D. Guy
 Member, Chesapeake Bay Commission

 The Honorable Emmett W. Hanger, Jr.
 Member, Chesapeake Bay Commission

 The Honorable Lynwood W. Lewis, Jr.
 Member, Chesapeake Bay Commission

 Dennis H. Treacy
 Member, Chesapeake Bay Commission

From: David K. Paylor 

Date: January 1, 2022

Subject: Alexandria Combined Sewer Overflow Outfall Progress Report (2021)

In accordance with the 2017 Virginia Acts of Assembly Chapters 826 and 827, the Department of Environmental Quality is transmitting the attached 2021 General Assembly Report for Virginia Pollution Discharge Elimination System (VPDES) Permit VA0087068 from Alexandria Renew Enterprises (AlexRenew).

If you have any questions concerning this report or would like a hard copy of this report, please contact Brandon Bull, Water Policy Manager, at (804) 698-4092.



October 21, 2021

Tom Faha, Director
Virginia Department of Environmental Quality
Northern Regional Office
13901 Crown Court
Woodbridge, VA 22193-1453

Subject: 2021 General Assembly Report for Virginia Pollution Discharge Elimination System (VPDES) Permit VA0025160

Dear Mr. Faha:

In accordance with Part V, Paragraph I.5 of the Virginia Pollutant Discharge Elimination System (VPDES) Permit VA0025160, Alexandria Renew Enterprises (AlexRenew) is submitting this letter to report on the implementation status of the approved 2018 Long Term Control Plan Update (LTCPU).

AlexRenew has continued to make significant progress implementing the LTCPU over the past year. The 2021 General Assembly Report will provide updates on:

- Implementation status;
- Third party coordination and permitting milestones;
- Cost and funding;
- Stakeholder outreach efforts; and
- A look ahead to major milestones anticipated in 2022.

The approved LTCPU, branded as "RiverRenew" since July 2018 (referred to herein as "Program"), includes four major projects:

- **108 to 116 MGD Expansion Project (108 to 116 MGD).** Upgrades to AlexRenew's primary pumping capacity at the Water Resource Recovery Facility (WRRF).
- **Building J Facilities Relocation and Decommissioning Project (Building J).** Relocation of facilities including the WRRF laboratory, chiller system, and instrumentation and controls system; and demolition of AlexRenew's former administrative building.
- **Site Security and Access Project (Site Security).** Upgrades to AlexRenew's existing access points and site security system to accommodate construction associated with the Tunnel System Project at the WRRF.
- **Tunnel System Project.** 12-foot diameter, 2-mile-long storage and conveyance tunnel; 6-ft diameter, 0.5-mile-long conveyance sewer; 20-million-gallon-per-day tunnel dewatering pumping station; 130-million-gallon-per-day wet weather pumping station; and wet weather treatment.

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Implementation Status of Projects at the WRRF

The **108 to 116 MGD Project** was completed in December 2020, providing AlexRenew with the ability to handle 116 MGD through preliminary and primary treatment. This represents a major Program milestone toward meeting the goals defined in the LTCPU.

The **Building J Project** was largely completed in April 2021 with the demolition of the existing building and substructure. Completion of this work on-schedule was critical to prepare the site for follow-on Tunnel System work, which began in May 2021. Remaining work for Building J includes staff training for the new systems, turnover of spare parts, and the development of operations and maintenance manuals.

The **Site Security Project** was completed in May 2021, which provides AlexRenew with upgraded gates and security facilities at WRRF access points to manage the additional traffic volumes associated with the Tunnel System Project.

The completion of physical work associated with these projects was essential to paving the way for Tunnel System Project work at the WRRF and meeting the Program milestone set forth in the LTCPU.

Implementation Status of the Tunnel System Project

Following a two-step procurement process that was outlined in the 2020 General Assembly Report, AlexRenew awarded the \$454.4 million Tunnel System Project to Traylor-Shea Joint Venture (Traylor-Shea) on November 17, 2020. Notice to Proceed with design-build services was subsequently issued on December 1, 2020. The issuance of Notice to Proceed on time marked the successful completion of the ambitious planning, preliminary design, permitting, and procurement phases for the Tunnel System Project. In spite of a government shutdown, global pandemic, and other hurdles, this work was kept on-track to meet the Program's mandated July 1, 2025 completion date.

The Traylor-Shea design-build team consists of Traylor Bros, Inc. and J.F. Shea Co. a joint venture, with support from Jacobs Engineering and Kokosing Construction Co. Traylor-Shea brings an extensive background and direct, local experience to execute this unique project. Additionally, over 90 percent of the Project's work is anticipated to be conducted by firms based in Alexandria or the greater Washington metropolitan area.

Tunnel System Project work will be constructed at four distinct construction staging areas, that include AlexRenew's WRRF, Pendleton Street (Outfall 001), Royal Street (Outfall 002), and Hooffs Run (Outfalls 003 and 004). A construction staging area is a physical area of land designated for the Traylor-Shea to occupy and construct the proposed facilities. Figure 1 illustrates the locations of the construction staging areas, while Figure 2 provides a summary of the construction schedule by phase for each area.



Figure 1. Tunnel System Project Construction Staging Areas

| Construction Staging Area | 2021 | | | | | 2022 | | | | | 2023 | | | | | 2024 | | | | | 2025 | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|---|---|---|---|---|------|---|---|---|---|------|---|---|---|---|------|---|---|---|---|------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N |
| AlexRenew | [Blue bar spanning from Jan 2021 to Dec 2024] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pendleton St | [Blue bar spanning from Jun 2021 to Jun 2024] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Royal St | [Blue bar spanning from Jul 2021 to Jul 2024] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hooffs Run | [Blue bar spanning from Aug 2021 to Aug 2023] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Note: Schedule is generalized and subject to change

Figure 2. Tunnel System Project Construction Schedule

Due to the design-build nature of the Tunnel System Project, work since Notice to Proceed has primarily focused on the development of final design packages to support follow-on construction activities. The Tunnel System Project has 60 design packages that will be progressed through 30, 60, 90, and 100 percent design phases. To support this process, site surveys, utility investigations, and preconstruction surveys were conducted at each construction staging area and along the Waterfront Tunnel alignment. Table 1 summarizes the major milestones reached this year and percent complete for design and construction work.

Table 1. Implementation Status for the Tunnel System Project

| Staging Area or Component | Proposed Facilities | Major Milestones | Percent Complete | |
|---------------------------|--|---|------------------|--------------|
| | | | Design | Construction |
| AlexRenew | 35- and 65-foot diameter shafts; 20 and 130 MGD pumping stations; superstructure | <ul style="list-style-type: none"> Design packages advanced to 60 percent Utility relocations and site mobilization completed in October 2021 Shaft support of excavation started Oct 2021 | 55% | 5% |
| Pendleton St | 35-foot diameter shaft; diversion chamber; overflow structure | <ul style="list-style-type: none"> Warehouse demolished in November 2020 Design packages advanced to 60 percent Site mobilization started in October 2021 | 55% | 5% |
| Royal St | 37-foot diameter shaft; diversion chamber | <ul style="list-style-type: none"> Design packages advanced to 30 percent | 50% | 0% |
| Hooffs Run | 0.5-mile long, 6-foot diameter sewer interceptor; diversion chamber | <ul style="list-style-type: none"> Design packages advanced to 60 percent | 60% | 0% |
| Waterfront Tunnel | 2-mile long, 12-foot diameter tunnel constructed by tunnel boring machine (TBM) | <ul style="list-style-type: none"> TBM purchase order completed with Herrenknecht AG in May 2021 TBM structural components started fabrication in September 2021 | 70% | 2% |

Since work at AlexRenew is on the critical path of the Tunnel System Project, construction activities were significantly advanced over the other construction staging areas. At the time of this report, construction of the 35- and 65-foot diameter, 12 story deep shafts was starting at AlexRenew. This work will be supported by a collection of large crawler cranes, which are currently situated on the 1.8-acre site as shown in Figure 3. Following the completion of these shafts, the TBM will be launched from this site next summer. The timely completion of this work is essential to managing a project with zero float. To date, the Program remains on-schedule to meet the mandated July 1, 2025 completion date.



Figure 3. AlexRenew Construction Staging Area, readying for shaft construction on October 12, 2021

Third Party Coordination and Permitting Milestones

As presented in previous General Assembly Reports, AlexRenew assumed responsibility of the Combined Sewer System Virginia Pollution Discharge Elimination System (VPDES) Permit (VA0087068) from the City of Alexandria in September 2018. As part of the renewal process for the WRRF VPDES Permit (VA0025160), AlexRenew requested that the two (2) permits be consolidated. Following AlexRenew's VPDES Permit renewal application, VDEQ determined that the application was administratively complete in August 2019. AlexRenew and VDEQ continued to coordinate permit finalization and issuance throughout 2020 and VDEQ issued the consolidated VPDES Permit on June 17, 2021. The requirements and limitations in the consolidated VPDES Permit are effective from July 1, 2021 through June 30, 2026.

Since the submission of the 2020 General Assembly Report, AlexRenew received the remaining major permits required for the Program and continued to coordinate closely with the City of Alexandria to obtain plan approvals and associated permits required for construction. Permitting milestones include the following:

- **U.S. Army Corps of Engineers** issuance of the Clean Water Act Section 404/Section 10 Permits in November 2020;
- **Virginia Department of Environmental Quality** issuance of the Clean Water Act Section 401 Water Quality Certification in November 2020;
- **National Park Service** issuance of the Construction and Right-of-Way Permits for work within Jones Point Park in February 2021 and the bed of the Potomac River in April 2021;

- **City of Alexandria** and AlexRenew executed a Memorandum of Understanding in September 2021 documenting a streamlined permitting approach to align with the unique nature of the Tunnel System Project design-build process; and
- **City of Alexandria** issuance of over 40 construction permits and plan approvals to support final design and construction activities.

AlexRenew will continue to coordinate with the City of Alexandria through the coming year on remaining construction permits and final plan approvals for the Program. Additionally, AlexRenew has secured most rights-of-way, easements, and agreements for the Program. One remaining easement is under final negotiation.

Program Cost and Funding

Award of the Tunnel System Project and the substantial completion of the three projects at AlexRenew’s WRRF provided greater cost certainty for the Program. As illustrated in Figure 4, the capital cost of the Program is projected to be \$615 million with a total spend to date of approximately \$153 million.

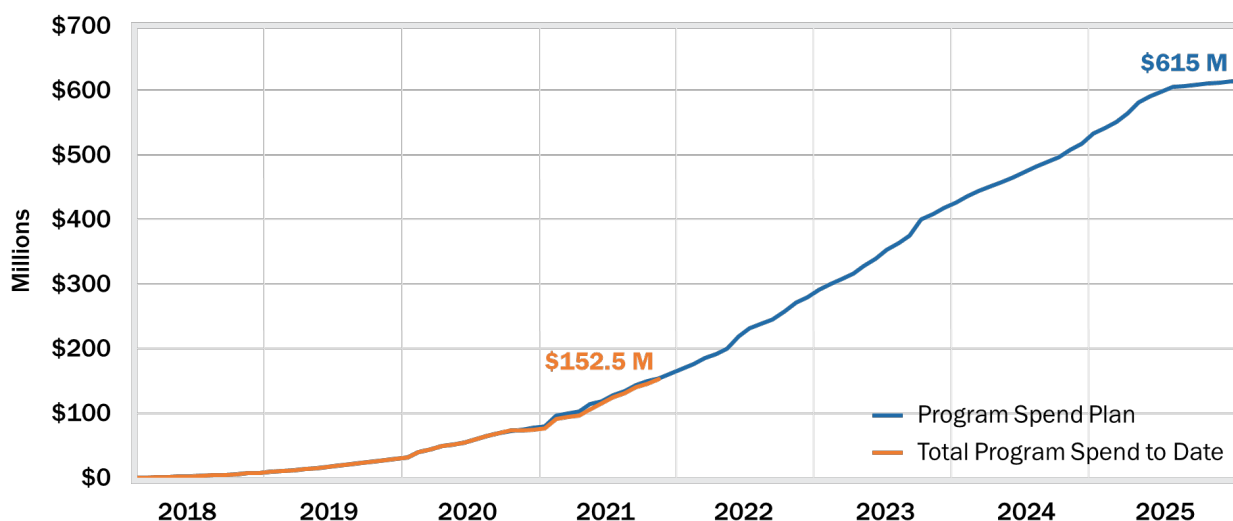


Figure 4. Estimated Program Spending and Total Program Spend to Date through September 2021

AlexRenew has solicited funds from a variety of sources to support this significant investment and minimize rate impacts on its customers. As illustrated in Figure 5, this funding strategy includes low-interest state and federal loans repaid through sewer rate increases and state grants through the Virginia Public Building Authority (VPBA) and American Rescue Plan (ARP). The status of each of these funding sources are further discussed in this section.

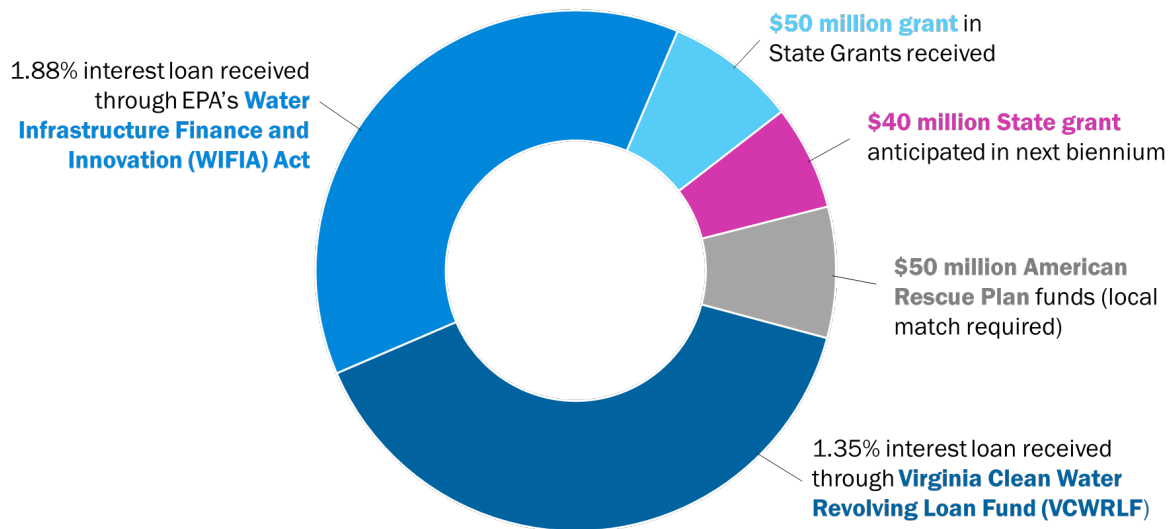


Figure 5. Program Funding Sources

Low-Interest Loan Programs

In February 2021, AlexRenew secured a \$321 million loan with an interest rate of 1.88 percent through EPA's Water Infrastructure Finance and Innovation Act. That same month, AlexRenew closed on a \$185.7 million loan with an interest rate of 1.35 percent through the Virginia Clean Water Revolving Loan Fund (VCWRLF). This marked the single largest loan in the VCWRLF's history.

Grants

In August 2021, the Virginia General Assembly approved a \$50 million grant to support the Program through House and Senate Bills 7001. The funds were a result of Governor Ralph Northam's proposed \$411.5 million investment in ARP money to improve aging water and sewer infrastructure and restore waterways. In order for AlexRenew to receive the funds, a technical amendment was proposed to both bills requesting a change of the recipient from the "City of Alexandria" to the "City of Alexandria, Virginia Sanitation Authority." This amendment was not adopted during the August legislative session, but conferees committed to address the issue in January 2022.

Additionally, AlexRenew received a \$25 million grant through VPBA bonds in August 2021 to support the Program. AlexRenew and the City of Alexandria are grateful for the ongoing support of financial assistance for the Program through this state-locality partnership, enabling investment in large, needed infrastructure. AlexRenew and the City of Alexandria will continue to work with the General Assembly for additional VPBA authorizations of \$40 million in the next biennium.

Sewer Rate Adjustments

To manage long-term Program debt, AlexRenew's Board of Directors approved the second two-year rate adjustment in June 2021. The first rate adjustment was implemented in 2019, and subsequently reduced in 2020 due to the ongoing pandemic. This investment in Alexandria's clean water future required AlexRenew to increase existing wastewater treatment rates by 6.9 percent on July 1, 2021,

and proposed a 6.5 percent increase on July 1, 2022. This equates to about a \$4 per month for each of these increases, or an average increase of about \$50 per year for the average residential customer.

For the average residential customer, current projections show a greater than \$20 per month increase in residential sewer bills required to fund the 40-year debt service for the Program. Additionally, AlexRenew will be burdened with a maximum debt capacity for about 40 years, limiting its ability to respond to needed asset renewals and updates to regulatory requirements in a timely fashion. AlexRenew will continue to work diligently to manage its debt capacity and minimize the impacts of rate shock on Alexandria residents.

Stakeholder Outreach

AlexRenew continues to focus on stakeholder outreach. The primary goals of outreach over the last year were to introduce the design-builder to the community; prepare the community for upcoming construction activities; present the adopted budget and associated sewer rate adjustments; educate Alexandrians of all ages, and celebrate breaking ground on the largest infrastructure project in Alexandria's history.

Ongoing Coordination with Program Advisory Groups

Consistent with previous phases of the Program, City Council approved the formation of a Stakeholder Advisory Group (SAG) in September 2020 to monitor the progress of the Tunnel System Project through final design and construction. The SAG, consisting of nine members, has convened four times since January 2021. AlexRenew anticipates that City Council will adopt a resolution in December 2021 to extend the SAG for one additional year. AlexRenew will continue to meet with the group on the third Thursday of every other month as construction ramps up in the community.

In accordance with the 2018 Outfall Transfer Agreement between AlexRenew and the City of Alexandria, the City Council-AlexRenew Board Workgroup has continued to be engaged on a quarterly basis over the last year. The Workgroup consists of Mayor Justin Wilson, Councilwoman Amy Jackson, AlexRenew Board Chair John Hill and Vice Chair James Beall. The group continues to serve as a liaison to review progress on Program implementation. The Workgroup is also apprised of Program activities through a quarterly report.

Digital Programming

Throughout the year, AlexRenew continued to enhance the Program's digital presence. In July 2021, a completely refreshed and more interactive RiverRenew.com was launched to support the construction phase of the Tunnel System Project. The new site includes dedicated pages for each construction staging area where the community can follow along with construction work through time-lapse cameras. The AlexRenew time-lapse camera has been in operation since June 2021 and can be viewed here: riverrenew.com/construction/alexrenew. Additionally, weekly original #TunnelTakeover content is posted on AlexRenew's social media channels. This collection of videos can be viewed at vimeo.com/showcase/7227109.

Community Meetings and Listening Sessions

Following award of the Tunnel System Project, AlexRenew hosted a community listening session in February 2021 to introduce the design-build team and provide a status update on the project. This session was followed by a more detailed series of four meetings focused on each construction staging area between May and July 2021. Due to the ongoing pandemic, the meetings were held virtually and the recordings can be viewed at riverrenew.com/community/community-listening-sessions. Subsequent community listening sessions are being planned for January 2022 and other key times throughout the next year as construction progresses.

Additionally, AlexRenew held a public hearing on its FY 2022 budget and sewer rate adjustment in May 2021, prior to the Board of Director's approval.

Education

To help engage younger Alexandrians, AlexRenew introduced Cloe the Tunnel Boring Machine in 2020. This year, AlexRenew released the first in a series of children's storybooks titled "Cloe the Tunnel Boring Machine Builds a Tunnel!" The storybook was issued in both digital and paperback formats in September 2021. Download the eBook and other fun activities, like making your own TBM, at Cloe's Corner: riverrenew.com/community/cloes-corner.

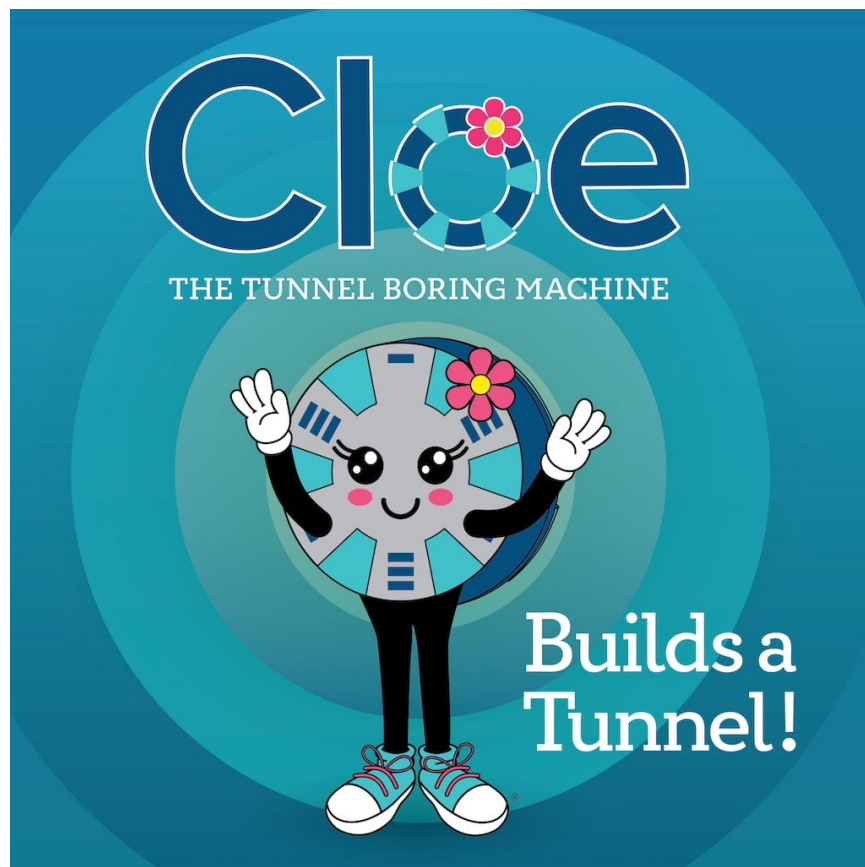


Figure 6. Cover of Cloe Children's Storybook

This year saw the introduction to a few more of Cloe’s friends. Wayne the Crawler Crane was introduced in September 2021 to illustrate the shaft support of excavation process using slurry walls.

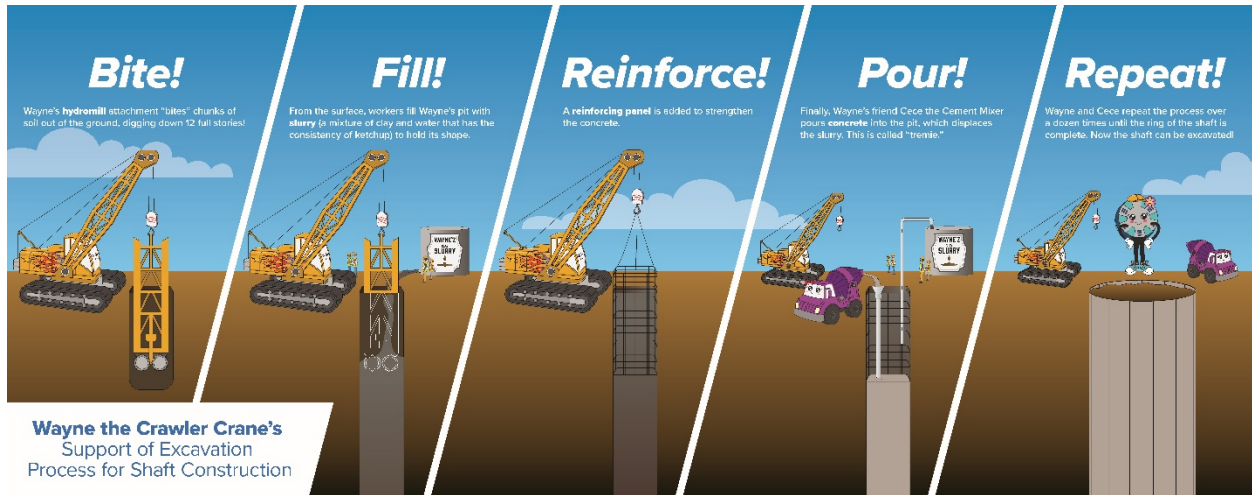


Figure 7. Wayne the Crawler Crane’s Support of Excavation

In July, as manufacturing of the TBM was starting in Germany, AlexRenew asked for the community’s help to name the 250-ton state-of-the art machine. In keeping with tunneling traditions, AlexRenew nominated the names of six groundbreaking women whose outstanding contributions to Alexandria, the environment, or the engineering and construction fields have paved the way for countless others. The winning name will be revealed when the TBM arrives in Alexandria in late spring 2022.



Figure 8. TBM Naming Campaign Banner

Other Events

On September 30, 2021 AlexRenew hosted the RiverRenew groundbreaking ceremony. The event was attended by over 100 esteemed guests and celebrated a historic milestone for healthier waterways in Alexandria. A recap of the event and livestream recording is available at riverrenew.com/news/program-updates/livestream.



Figure 9. Tunnel System Project Groundbreaking at the Pendleton Street construction staging area on September 30, 2021. Pictured left to right are **Mayor Justin Wilson**, City of Alexandria Mayor; **AP Phan**, Outreach Representative for U.S. Senator Mark Warner; **Gaston Araoz**; Regional Director for U.S. Senator Tim Kaine; **Karen Pallansch**, AlexRenew General Manager; **Radhika Fox**, U.S. EPA Assistant Administrator for Water; **Nancy Stoner**, President of Potomac Riverkeeper Network; **Tom Faha**, Northern Regional Director, Virginia Department of Environmental Quality; **Delegate David Bulova**, Virginia House District 37; **Senator George Barker**, Virginia Senate District 39; and **Jason Powell**, Virginia Senate Finance Committee

Next Steps and Closing

To date, the Program remains on-schedule to meet the mandated completion date of July 1, 2025. Over the next few months, construction activities associated with the Tunnel System Project will increase exponentially. By early 2022, it is anticipated that work will be underway at all four construction staging areas and last for several years. With this uptick in construction, the safety of AlexRenew's staff, contracted personnel, and the community is of utmost importance. AlexRenew remains committed to meeting the mandate and maintaining compliance at the WRRF, but it is vital that everyone goes home safe and healthy every day.

Major milestones over the course of the next year include the completion of final design efforts, manufacture and delivery of the TBM, and the start of tunnel mining operations from the WRRF. Upon arrival of the TBM at the WRRF in Spring 2022, AlexRenew will host a “TBM Unveiling Ceremony” to reveal the name and share additional details on the machine. Until then, please follow progress online at RiverRenew.com or via one of AlexRenew’s social media channels.

We remain grateful for VDEQ’s continued support and assistance as we build towards healthier waterways. Should you have any questions or comments, please contact me directly at (703) 232-0096 or karen.pallansch@alexrenew.com.

Sincerely,

A handwritten signature in blue ink, appearing to read "Karen Pallansch".

Karen Pallansch
AlexRenew General Manager

Copy: Douglas Frasier, VPDES/VPA Permit Writer, Senior II, VDEQ
Emily Baker, City of Alexandria, Deputy City Manager
Sarah Taylor, City of Alexandria, Assistant City Manager
Jonathan Rak, McGuireWoods LLP
Preston Bryant, McGuireWoods Consulting