

2021-2022 RiverRenew Stakeholder Advisory Group

Meeting No. 2

April 15, 2021



SAG Meeting No.2 Outline

 **Questions From SAG Meeting No. 1**

 **RiverRenew.com Website Refresh**

 **Rate Adjustment Update**

 **Tunnel Boring Machine 101**

Break

 **Right of Entry to Support Surveys and Monitoring**

 **Tunnel Project Construction Update**

 **Next Steps**

 **Public Comment Period**

Tonight's Speakers



Karen Pallansch
Chief Executive Officer



Caitlin Feehan
Program Director



Justin Carl
Program Manager



Mike Krulc
Project Director, Tunnel Project

Virtual Meeting Best Practices

Video

- **Camera turned on** for SAG members, when possible

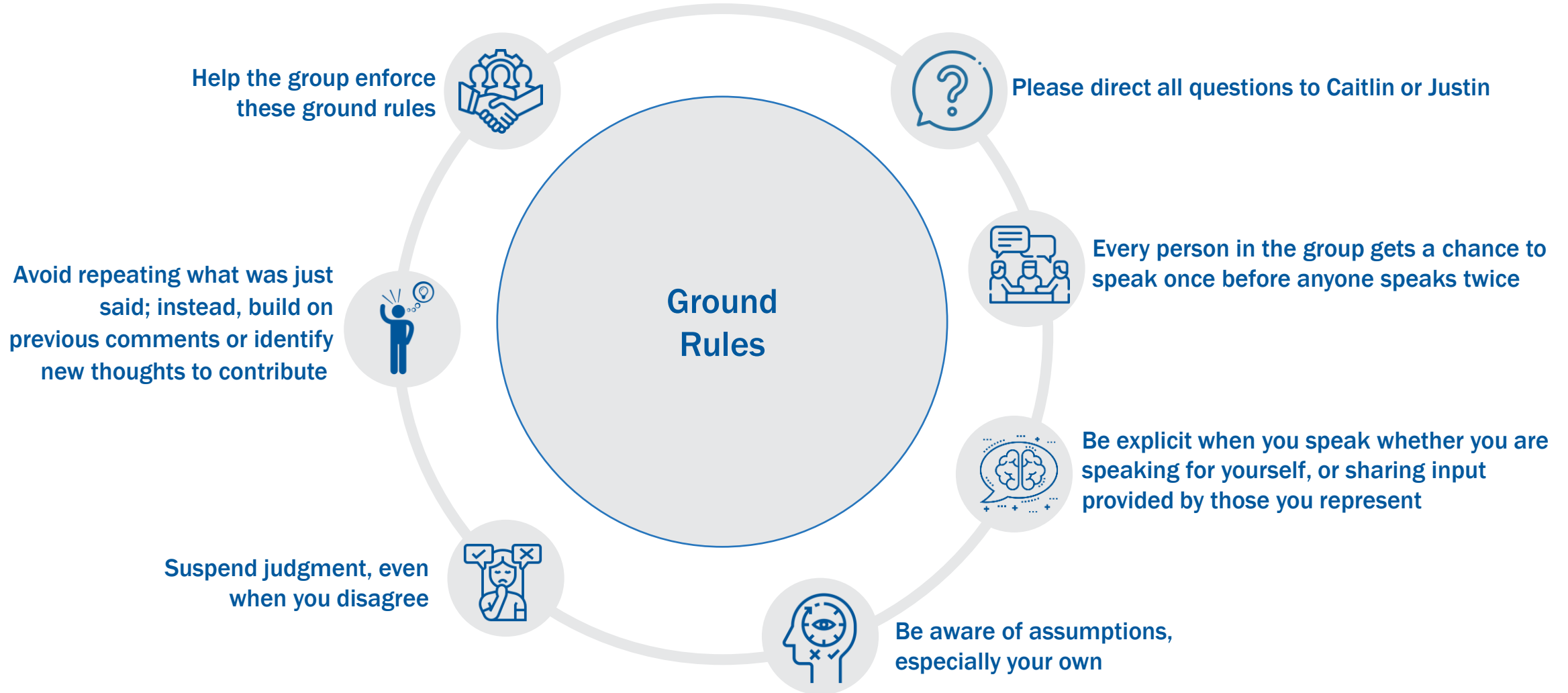
Audio

- **Microphones muted** unless speaking
- Avoid speaking over or interrupting each other (**see Ground Rules**)

Participation

- Questions for **SAG members only** will be taken **after each section**
- Please use the **“Raise Hand”** button to ask a question
- Questions will be **answered in the order received**
- **Public comment** will be taken at the end of the meeting. Each speaker will be allotted **3 minutes**

Ground Rules for a Productive SAG Meeting



SAG Feedback



Review and **monitor**
construction/program
progress



Communicate progress to
the community by leveraging
existing networks



Identify concerns and **receive**
input from the public



Provide recommendations
regarding mitigation of
construction impacts

A black and white photograph of a historic town, likely Annapolis, Maryland. The foreground shows a body of water (the Annapolis River) with a small boat. The middle ground is filled with dense, multi-story historic buildings, many with red brick and white window frames. A prominent church steeple with a clock face is visible in the center. The background shows a hillside with more buildings and trees under a clear sky.

Questions from SAG Meeting No. 1

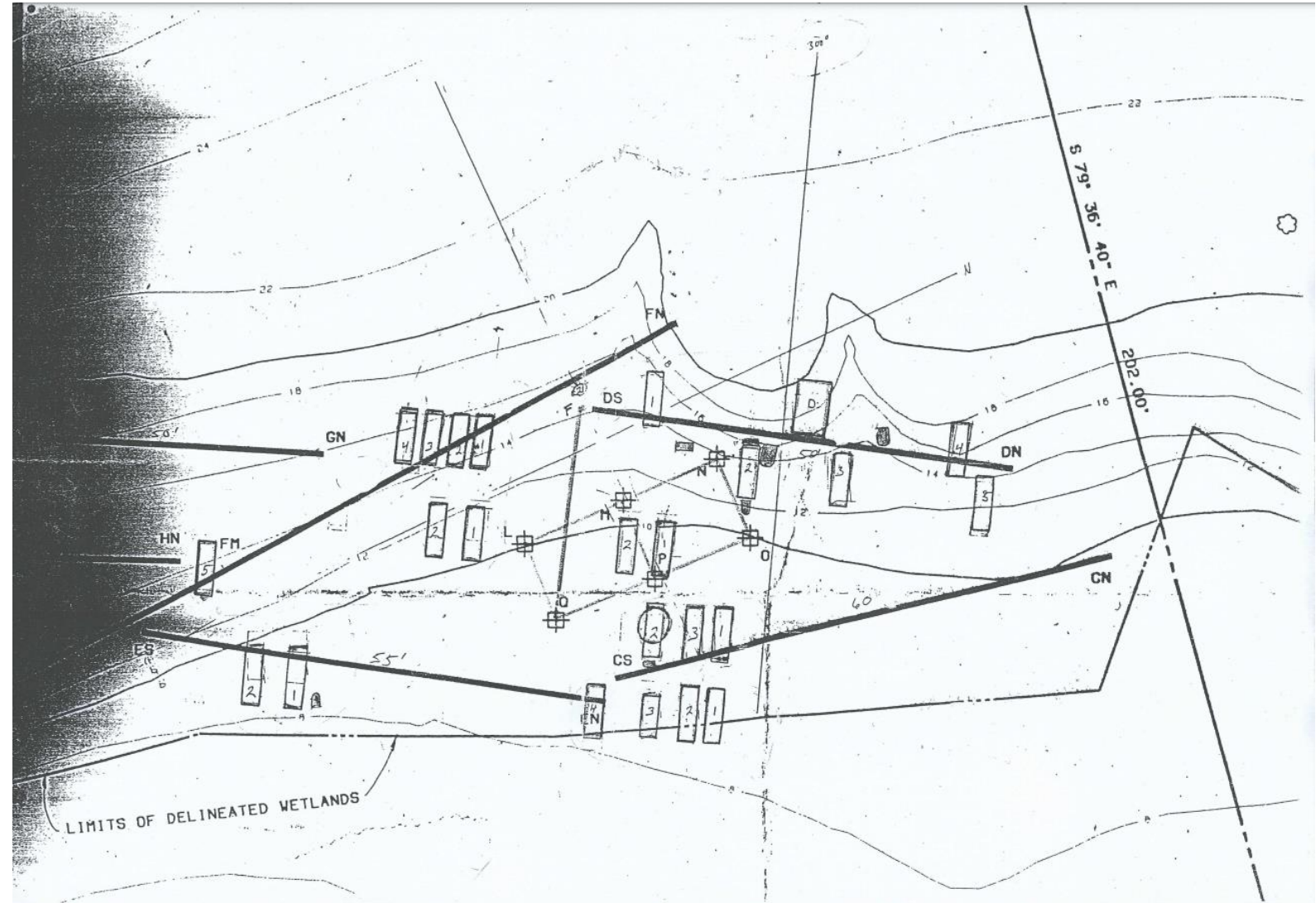
1992 Archeological Survey of Baptist Cemetery Graves

THE AFRICAN AMERICAN HERITAGE PARK,
ALEXANDRIA, VIRGINIA

ADRIAN D. ANDERSON

ALLAN WESTOVER
PRINCIPAL INVESTIGATOR

TELLUS CONSULTANTS
MINNEAPOLIS, MINNESOTA
1992



Existing Commonwealth Interceptor Route between Duke Street and AlexRenew

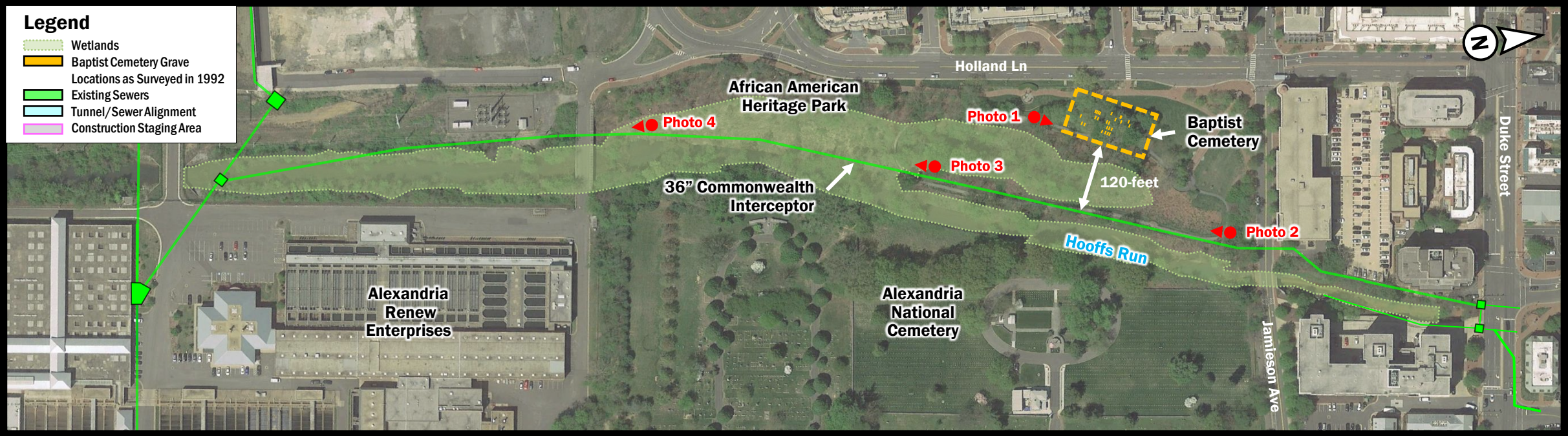


Photo 1. Baptist Cemetery Headstones



Photo 2. Asphalt Path Along Hooffs Run



Photo 3. End of Asphalt Path Along Hooffs Run



Photo 4. AlexRenew North Bridge

Proposed Hooffs Run Interceptor Route between Duke Street and AlexRenew

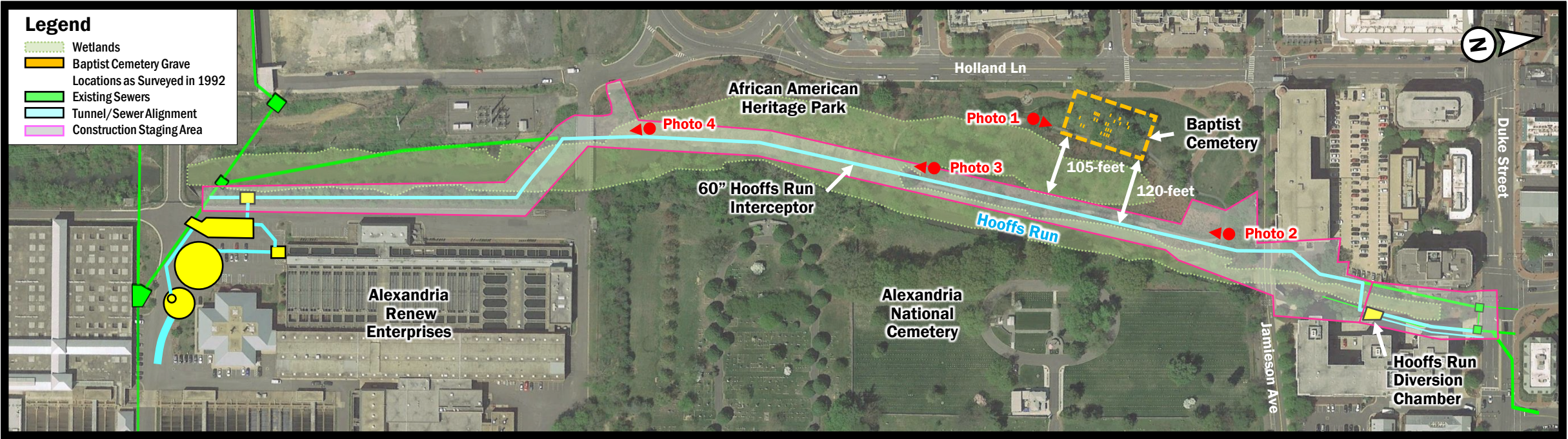


Photo 1. Baptist Cemetery Headstones



Photo 2. Asphalt Path Along Hooffs Run

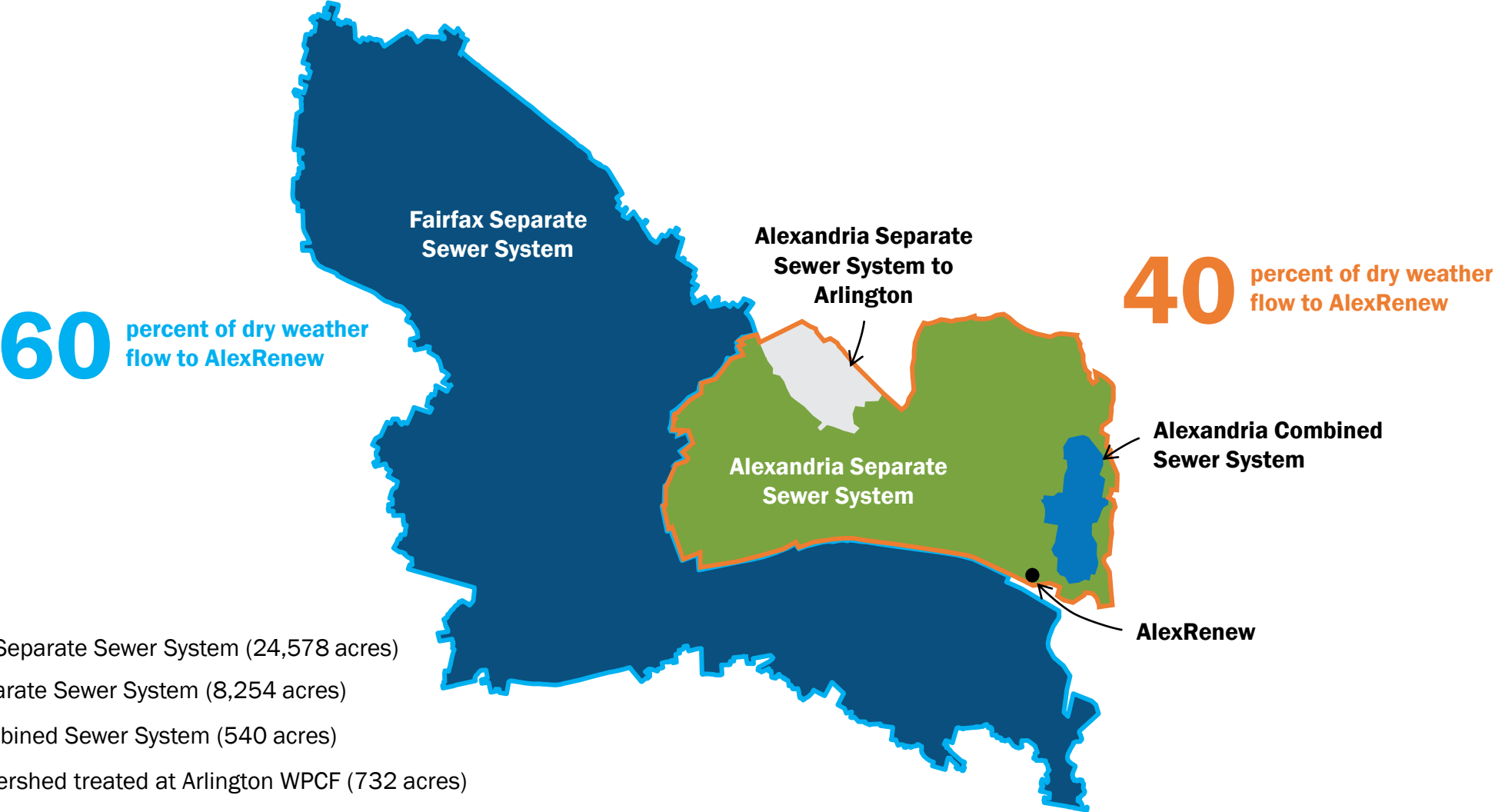


Photo 3. End of Asphalt Path Along Hooffs Run

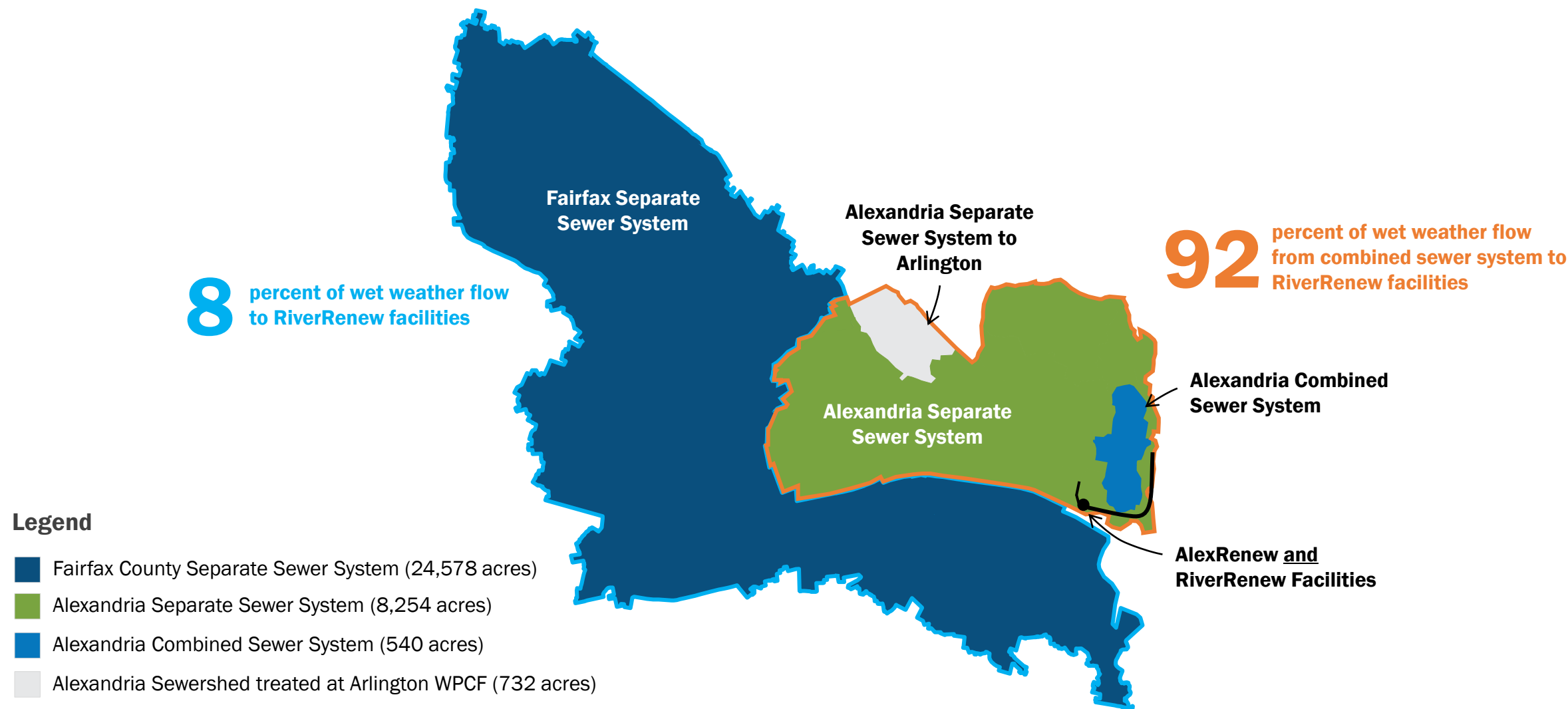


Photo 4. AlexRenew North Bridge

During Dry Weather, the Flow Split between Alexandria and Fairfax is 40 Percent and 60 Percent

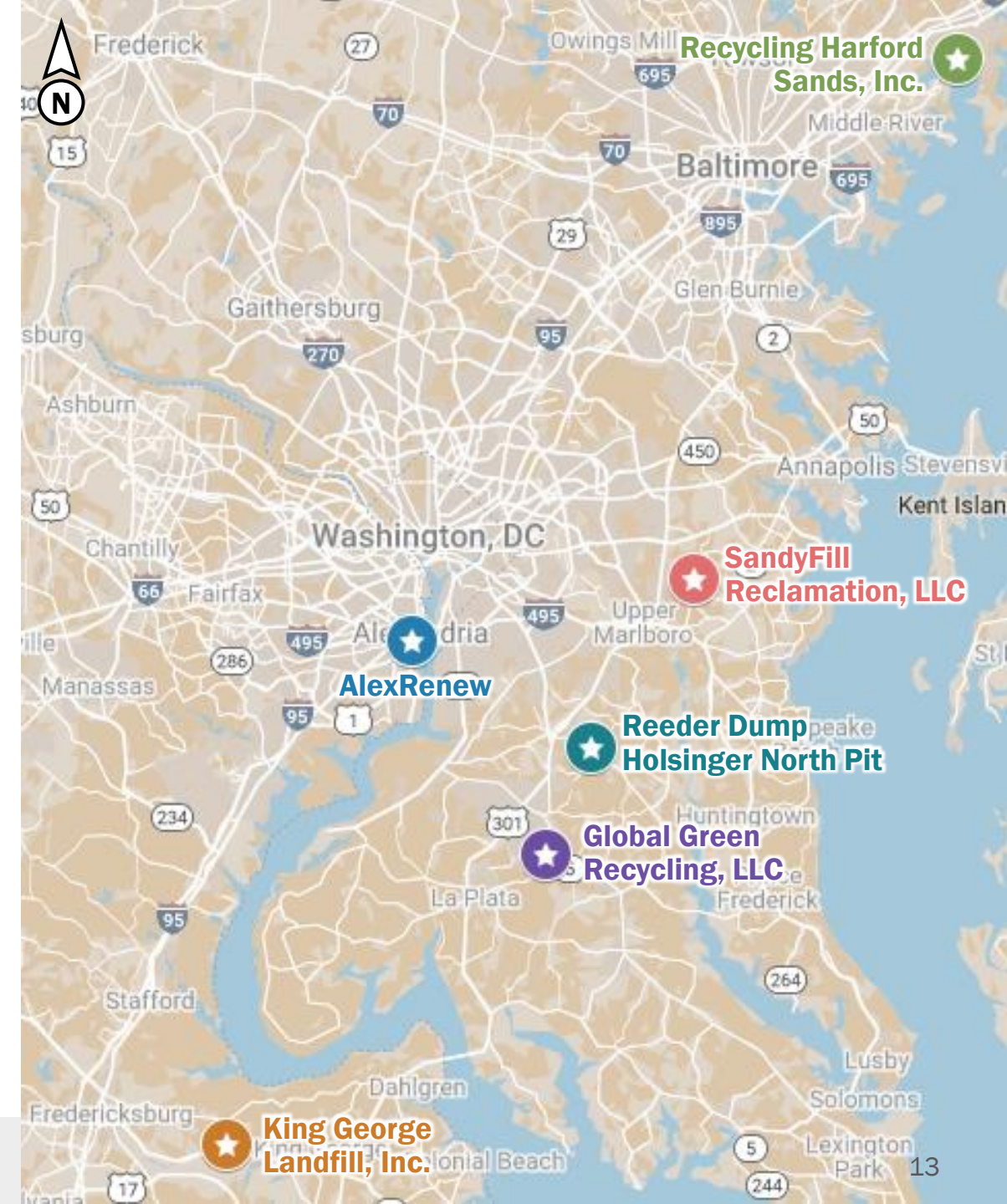


The Wet Weather Flow Percentages Delivered to RiverRenew Facilities from Alexandria and Fairfax Established the RiverRenew Cost Share



Potential Disposal Sites for Tunnel Project Excavated Materials

Potential Disposal Site	Location
King George Landfill, Inc.	King George, VA
Global Green Recycling, LLC	Waldorf, MD
Reeder Dump Holsinger North Pit	Brandywine, MD
SandyFill Reclamation, LLC	Harwood, MD
Recycling Harford Sands, Inc	Joppatowne, MD



An aerial, black and white photograph of a city, likely New Haven, Connecticut. The image shows a dense urban landscape with numerous buildings, streets, and green spaces. A large body of water, the New Haven Harbor, is visible in the lower-left corner, featuring a marina with many docked boats and a few sailboats. A prominent bridge or overpass structure is visible in the upper-left quadrant. The overall scene is a wide-angle, high-altitude view of the city and its waterfront.

RiverRenew.com Refresh

A scenic photograph of a waterfront park. In the foreground, a paved path leads from the right towards the water, with a black metal bench and a tall black lamppost on the right. A rocky shoreline separates the path from the water. In the background, a large blue building with a corrugated metal roof is visible behind some trees. A bridge is also visible in the distance across the water.

Investing in Healthier Waterways for Alexandria

Dive into AlexRenew's ambitious environmental initiative to help save our waterways from millions of gallons of combined sewer pollution each year.

[LEARN MORE ▶](#)

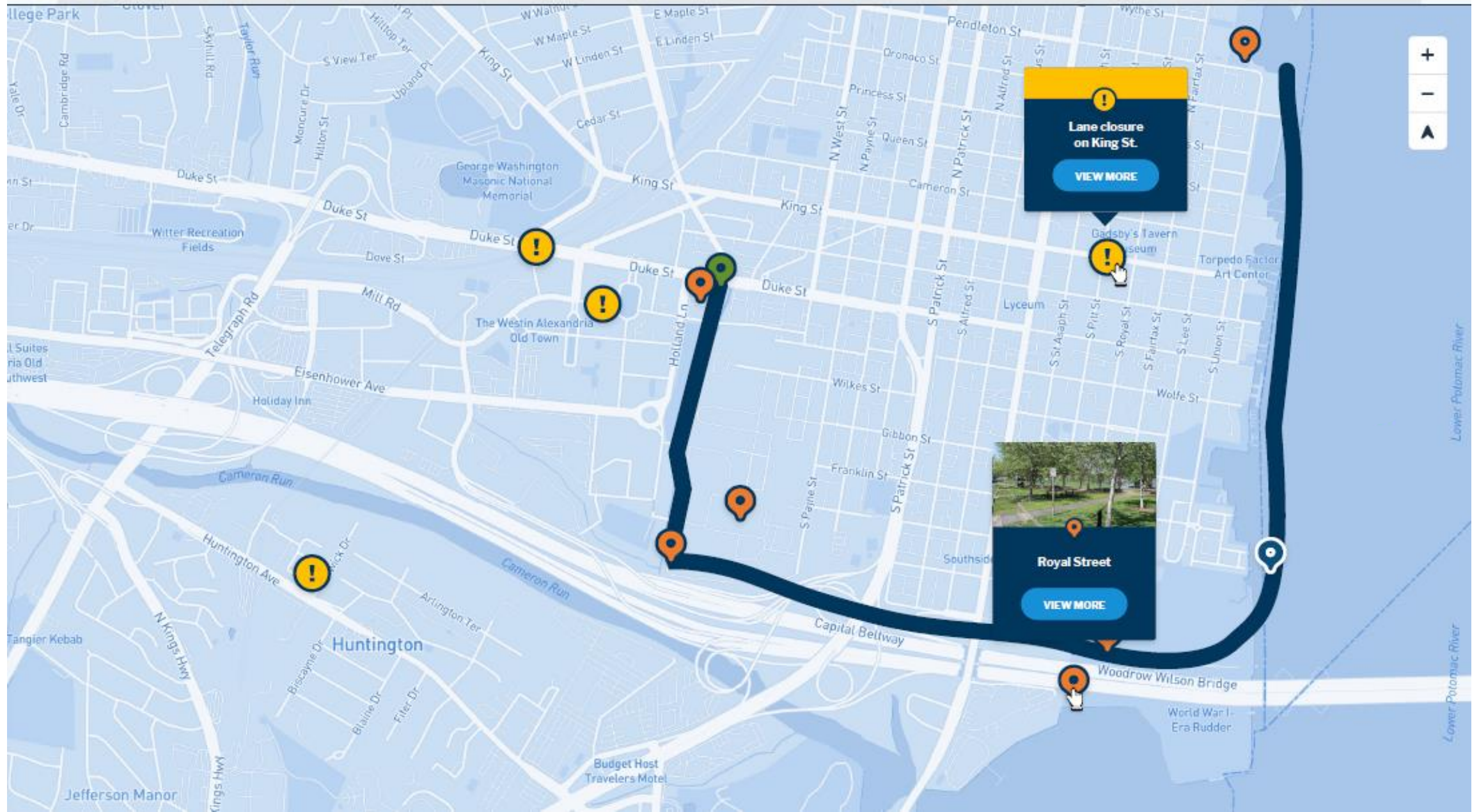
INTERACTIVE TUNNEL PROJECT MAP

Waterfront Tunnel

Hooffs Run Interceptor

Traffic Alerts

Construction Staging Areas





Alexandria's Pollution Problem

As the largest infrastructure project in Alexandria's history, RiverRenew will prevent millions of gallons of combined sewage from polluting our rivers and streams each year.

Combined sewage is a mixture of rainwater and sewage that overflows to the Potomac River, Hunting Creek, and Hooffs Run throughout the year on rainy days. These overflows take place at four existing locations, called outfalls, around Alexandria. As little as one-quarter inch of rain causes these overflows, filling our waterways with 140 million gallons of untreated sewage each year.

Through RiverRenew, we will manage these combined sewer overflows to achieve cleaner, healthier waterways for Alexandria.

Latest News

[SEE ALL PROGRAM UPDATES](#)

Holland Lane Construction Update

RiverRenew is setting the stage for healthier waterways with the preparation of ...

[LEARN MORE →](#)

Making Way for Healthier Waterways

AlexRenew will pave the way for the RiverRenew Tunnel Project with the ...

[LEARN MORE →](#)

Jones Point Park Archeological Site Investigations

AlexRenew is conducting pre-construction archeological investigations within ...

[LEARN MORE →](#)



Meet Cloe!

Hi, I'm Cloe the Tunnel Boring Machine. Looking for a fun way to learn more about RiverRenew and how it will help Alexandria's waterways? Come with me!

Check out my page for interactive learning activities and games for water lovers of all ages.

LEARN MORE

In Our Community

[VIEW ALL EVENTS](#)



SAG Meeting (Virtual)

Feb. 4, 2021
1:00 PM
Location
Alexandria, VA 22314

[+ Add to iCal](#)
[+ Add to Outlook](#)
[SHARE](#) 



Earth Day

Apr. 22, 2021
1:00 PM
Location
Alexandria, VA 22314

[+ Add to iCal](#)
[+ Add to Outlook](#)
[SHARE](#) 



Water Discovery Day

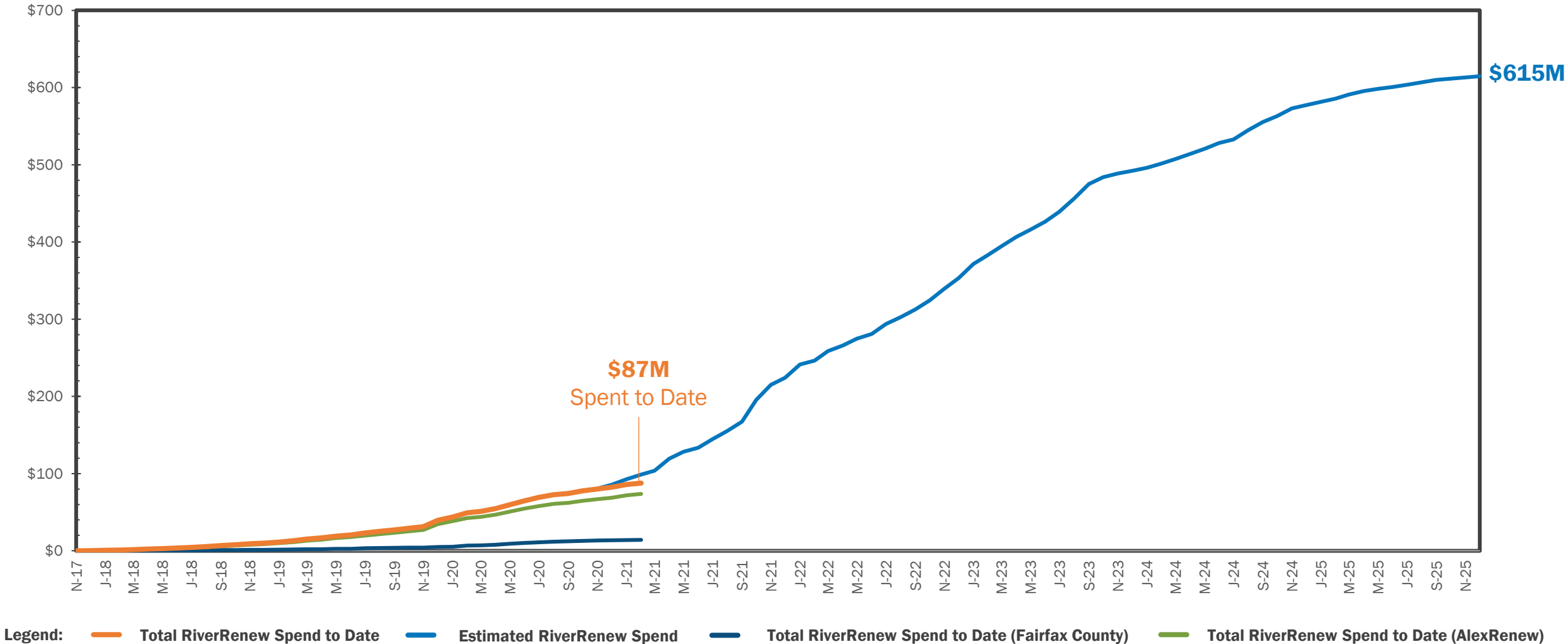
Sept. 14, 2021
1:00 PM
Location
Alexandria, VA 22314

[+ Add to iCal](#)
[+ Add to Outlook](#)
[SHARE](#) 

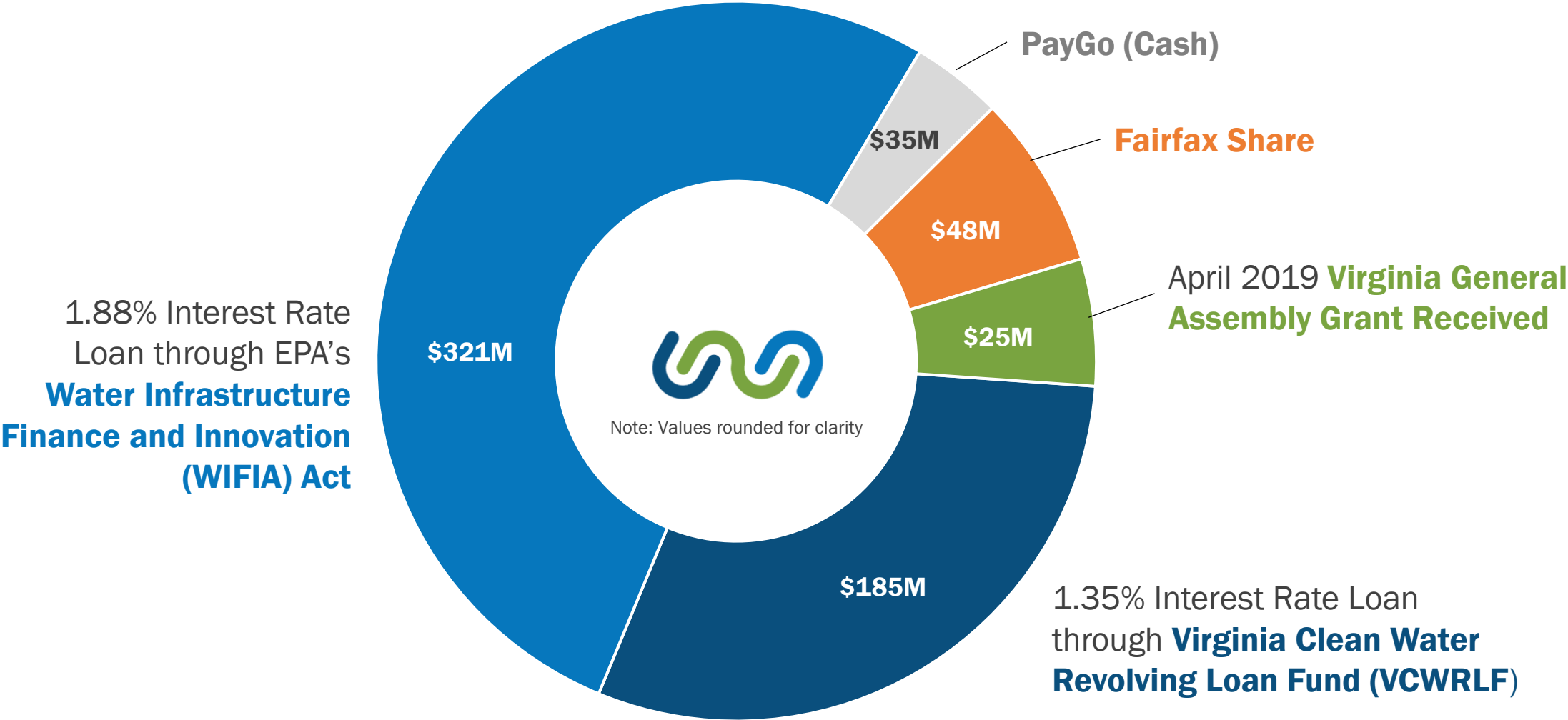


Rate Adjustment Update

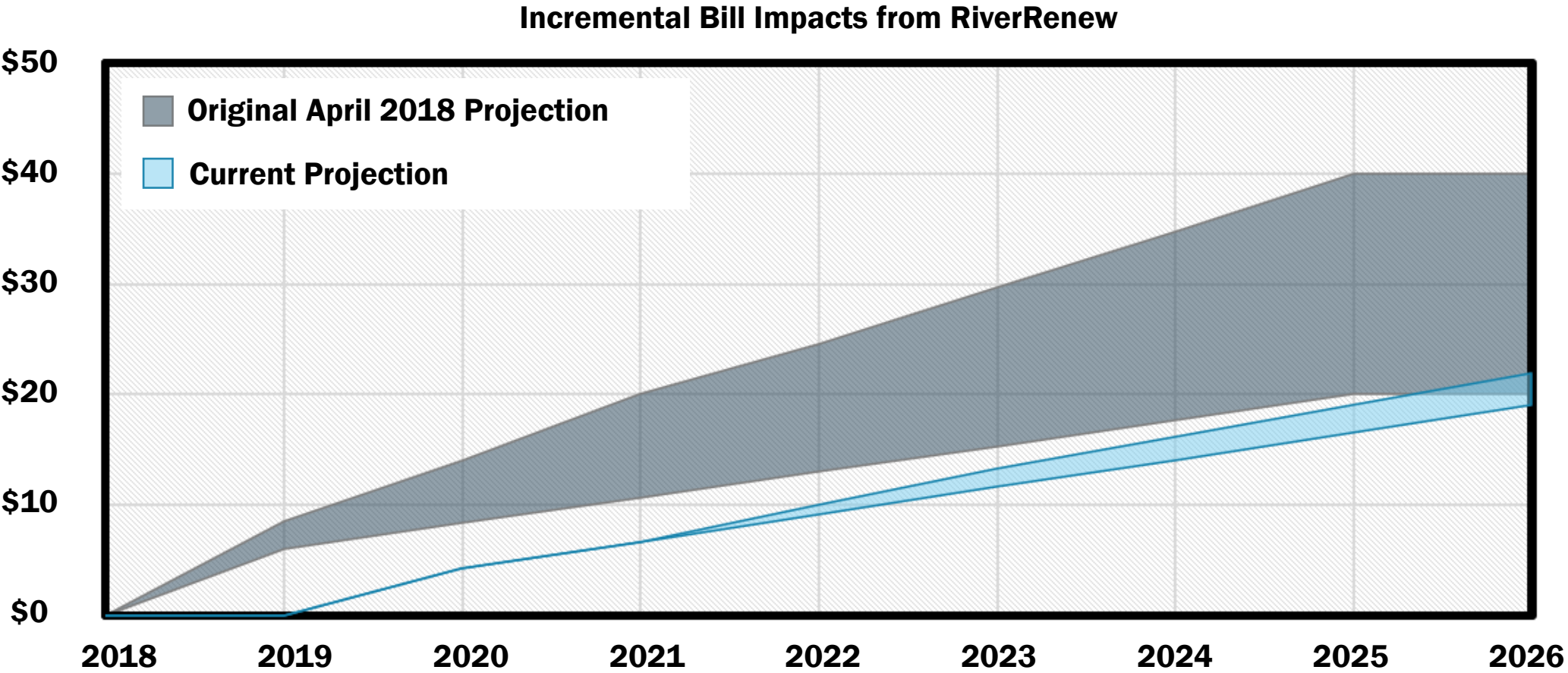
RiverRenew Spending Plan



RiverRenew Capital Funding Plan



Current RiverRenew Fee Projections Are on the Lower End of Original Projections from April 2018 Due to Locked-in Historic Low Interest Rates



Note: Based on 4,000 gallons consumption, excluding City charge

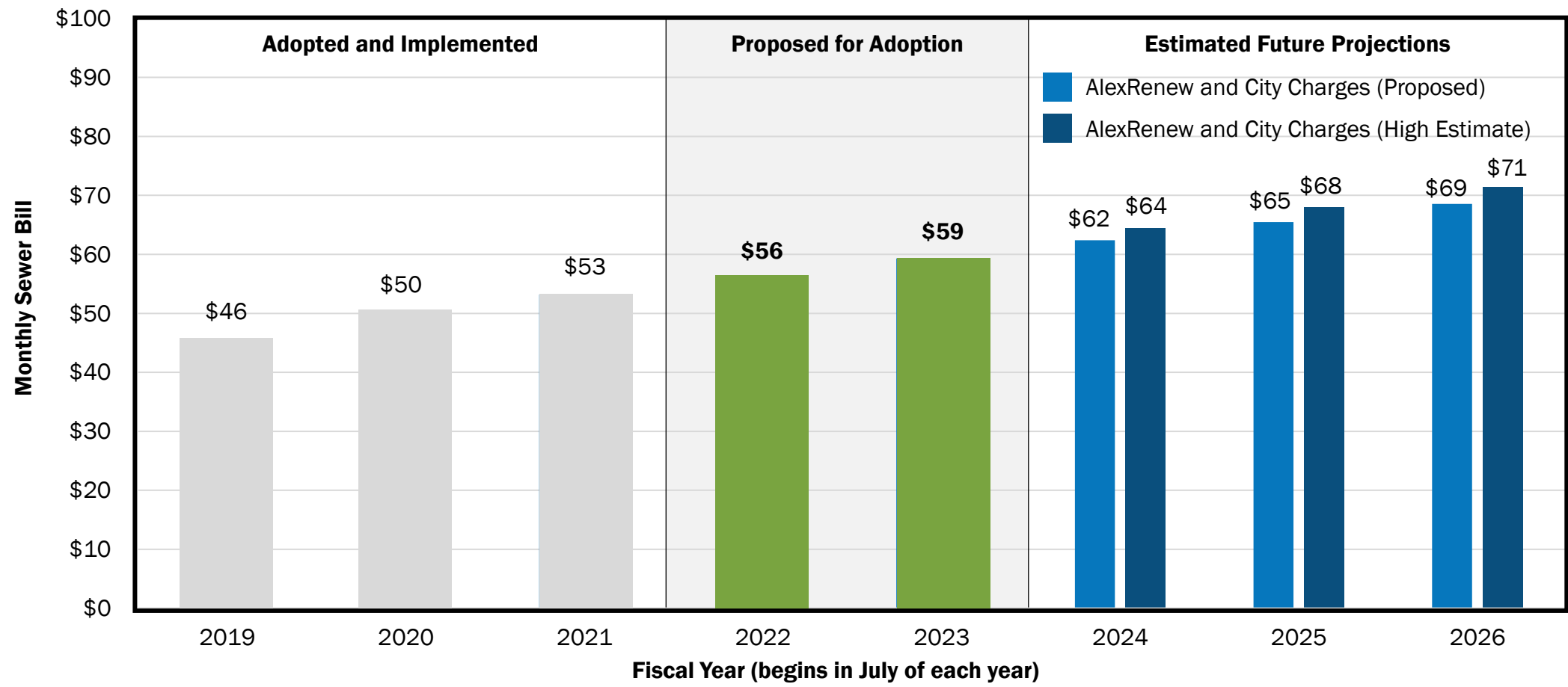
AlexRenew is Proposing a Rate Adjustment for the Next Two Fiscal Years

Proposed Two-Year Rate Adjustment	Fiscal Year	Beginning on:	Maximum Rate Adjustment
	2022	July 1, 2021	6.9%
	2023	July 1, 2022	6.5%

Benefits of a Two-Year Rate Adjustment:

-  **Maximizes efficiency** of staff and consultant time
-  **Allows for adjustment** of rates as conditions evolve
-  **Provides certainty** for CIP funding, particularly in FY 2022-23 when Tunnel Project spending peaks

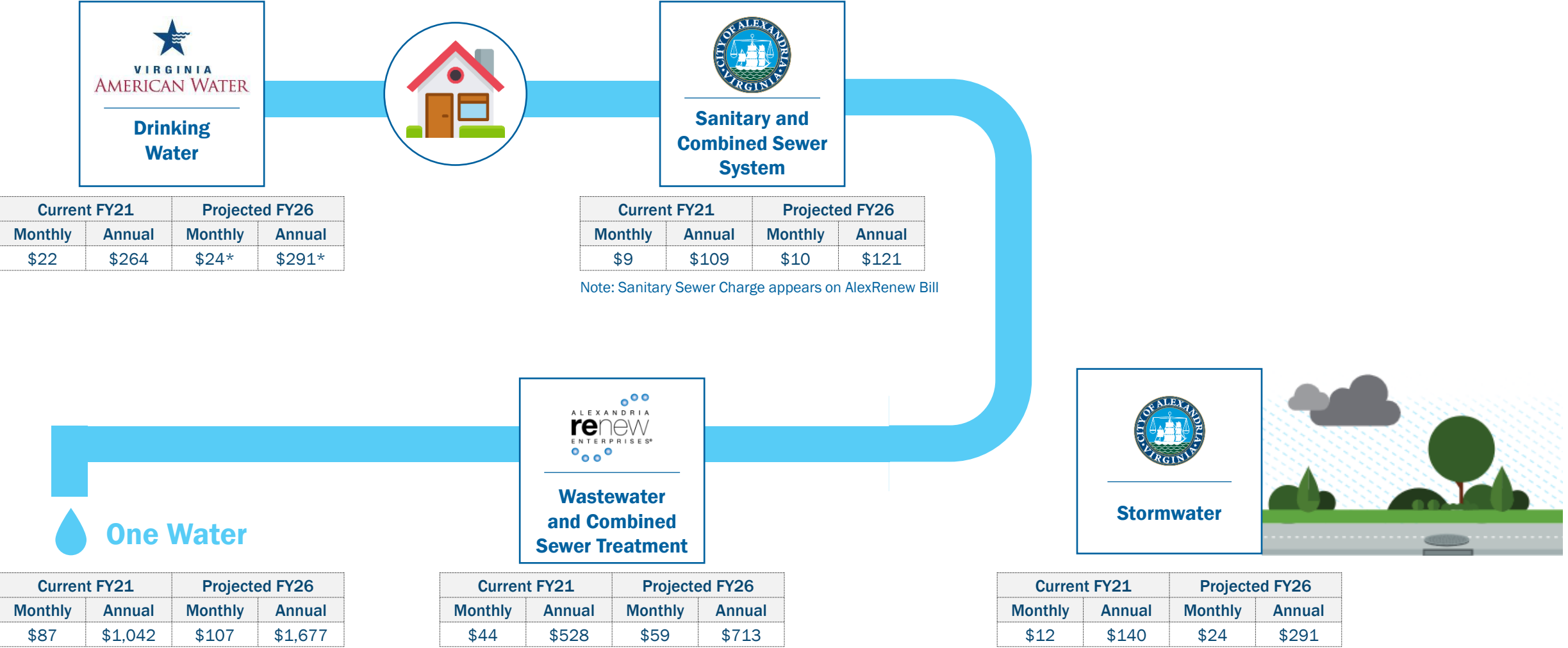
Estimated Future Projections Including Proposed Adjustments in Fiscal Years 2022 and 2023



Note: Based on 4,000 gallons consumption, including estimated City charge as of January 2020; Assumes City sewer charge does not increase from its \$2.24 per KGAL charge.

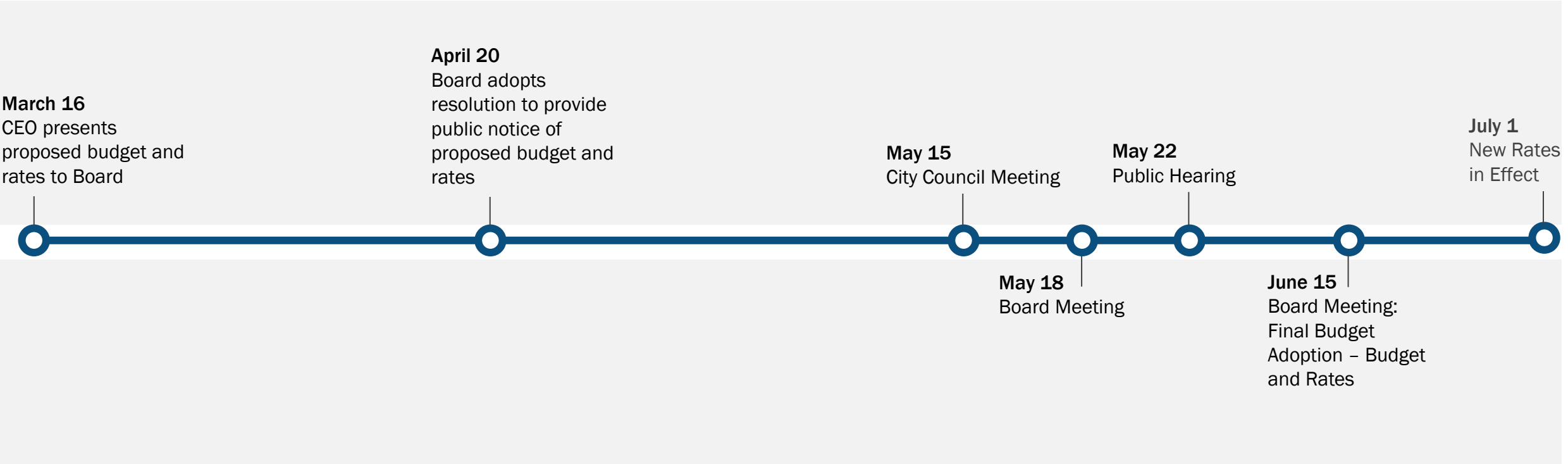


Estimated Cost of One Water in Alexandria, VA



Note: Based on known current increase projections from various Alexandria water entities

Fiscal Year 2022-2023 Rate Adjustment Timeline



Community Outreach Strategy for Rate Adjustment

SAG Feedback Requested



Digital

- AlexRenew.com
- RiverRenew.com
- Social Media (Facebook, Twitter)



Printed Materials

- Bill Stuffer



Community Meetings

- RiverRenew Stakeholder Advisory Group
- Council-Board Workgroup



Press and Media

- Press Release



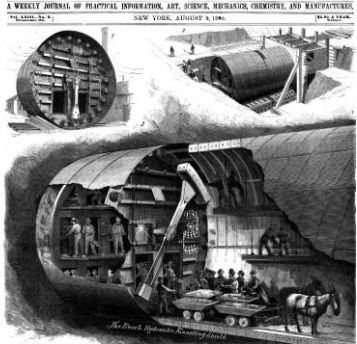
Paid Advertising

- Print Ads
- Digital Ads

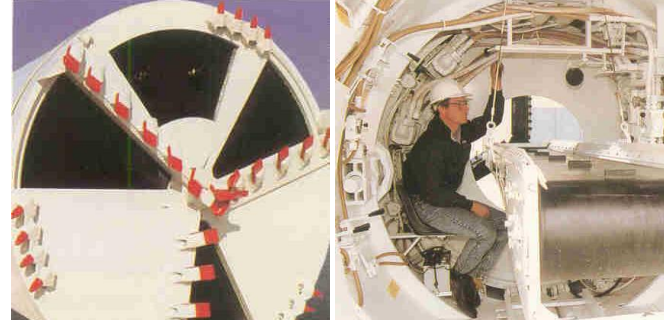
The background image is a high-contrast, black and white photograph of the interior of a tunnel boring machine (TBM). The scene is dimly lit, with a strong light source emanating from the right side, creating a bright glow and casting long shadows. The structure is composed of various metal components, including large, curved pipes or ducts that run along the top and sides. On the left, there are complex mechanical structures, possibly part of the conveyor system or the machine's support. The overall atmosphere is industrial and somewhat mysterious due to the low light and the scale of the machinery.

Tunnel Boring Machine 101

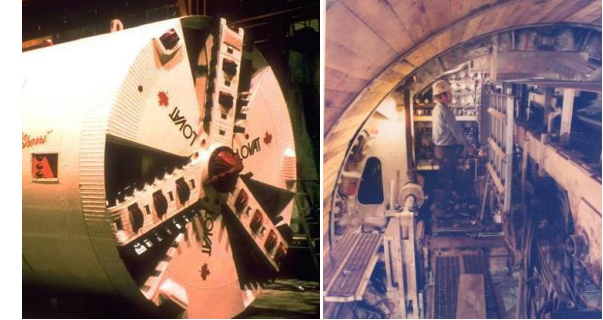
Tunneling Timeline – 1890s to Present Day



1890s
First Tunneling Shields
Used

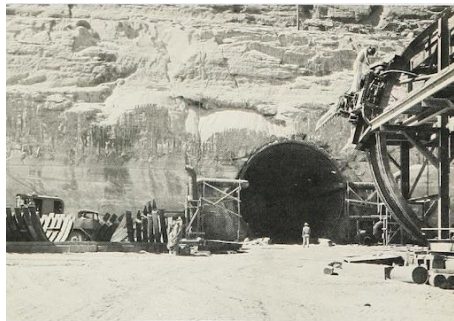


Late 1970s
Wheel Excavators Saw
Wider Use



Early 1990s
First Earth Pressure
TBMs Used

Late 1940s
Coal Saw – Fort Randall Dam,
South Dakota

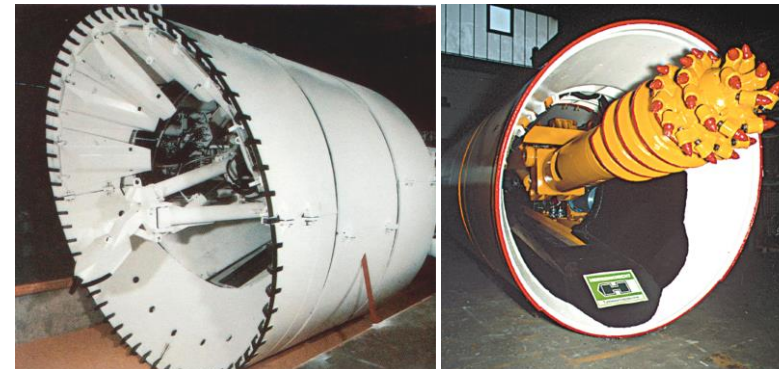


Early 1950s
Mittry Mole – Oahe
Dam, South Dakota



THE "MOLE" SHOWING ITS 26 FOOT CUTTING FACE, USED IN DIGGING UP TUNNELS AT SITE OF Oahe DAM NEAR PIERRE, S.D., THE DIGGER IS OWNED BY MITTRY CONSTRUCTORS OF LOS ANGELES AND IS 6-1/2 FEET HIGH, 105-4-10-21. 1353 1310.36 8-10-55

Late 1980s
Digger Shields
Began to be Used



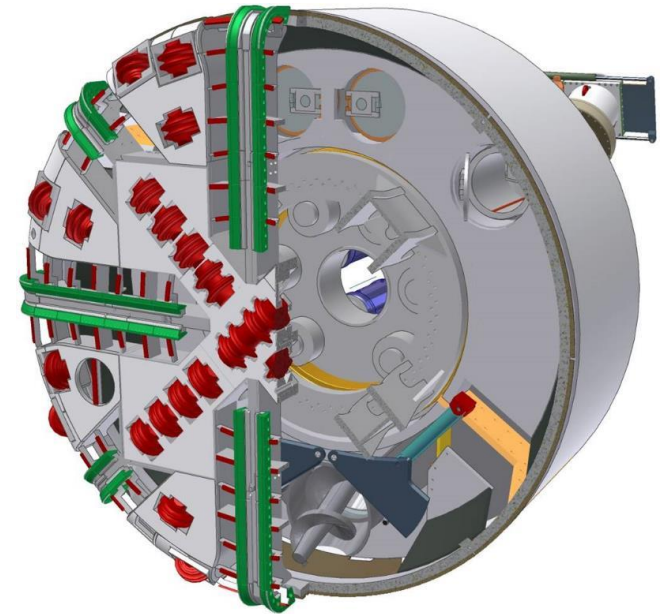
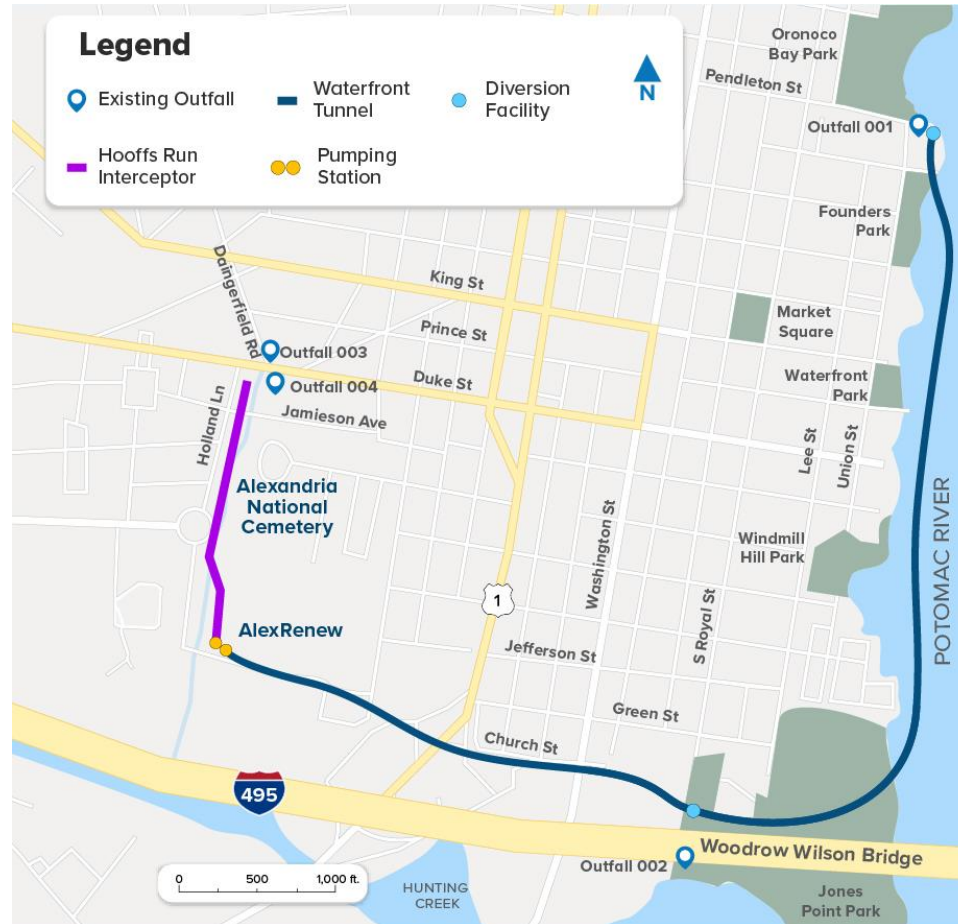
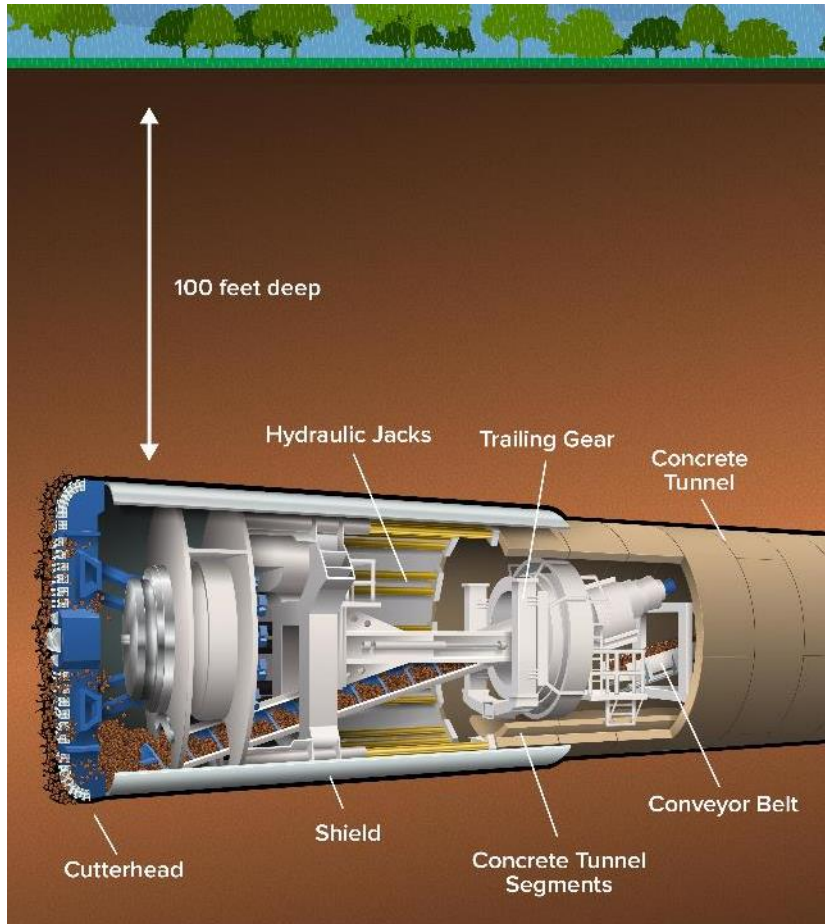
2000s
TBM Technological
Advances



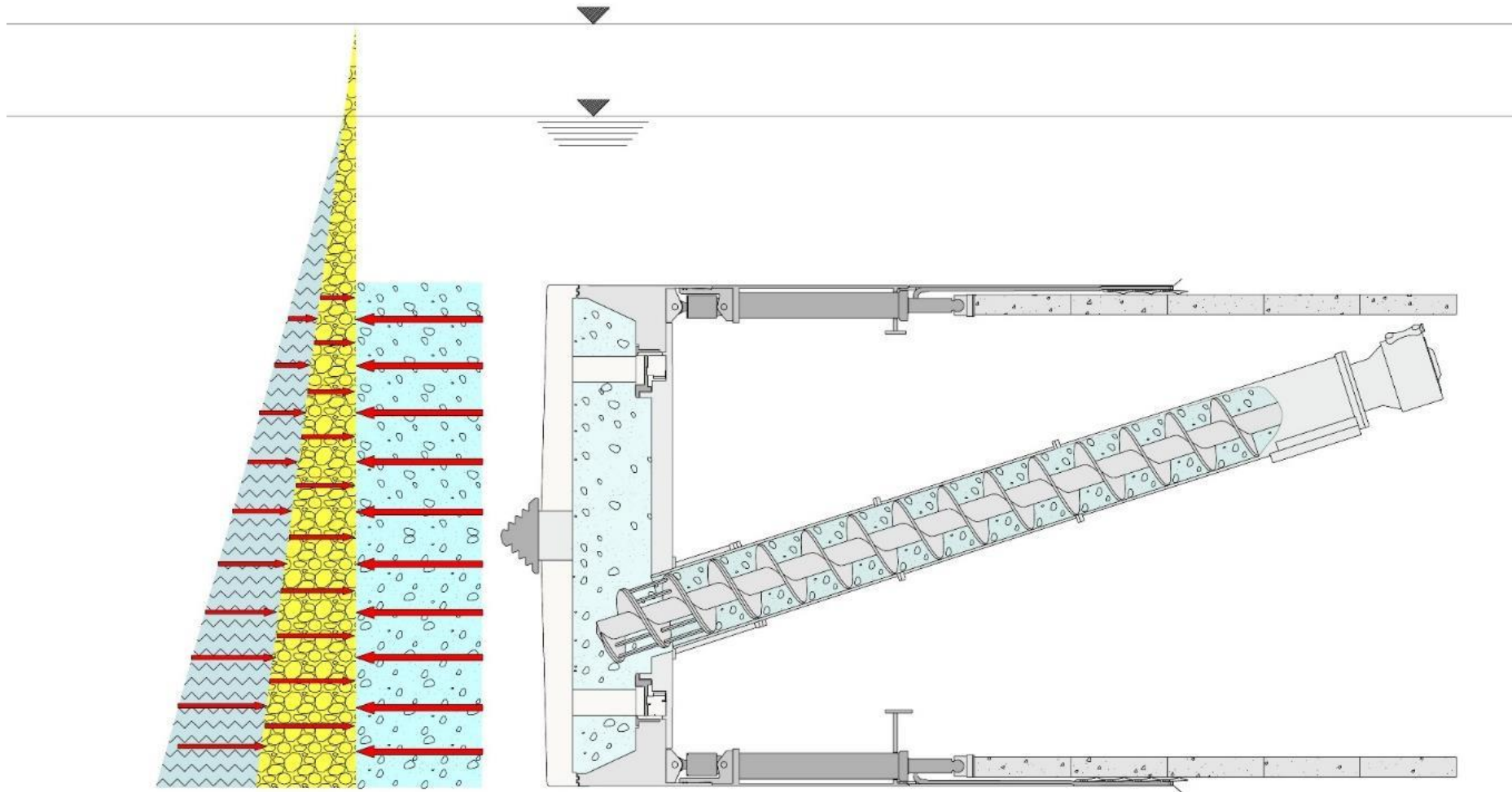
A History of Tunneling in the Washington Metropolitan Region



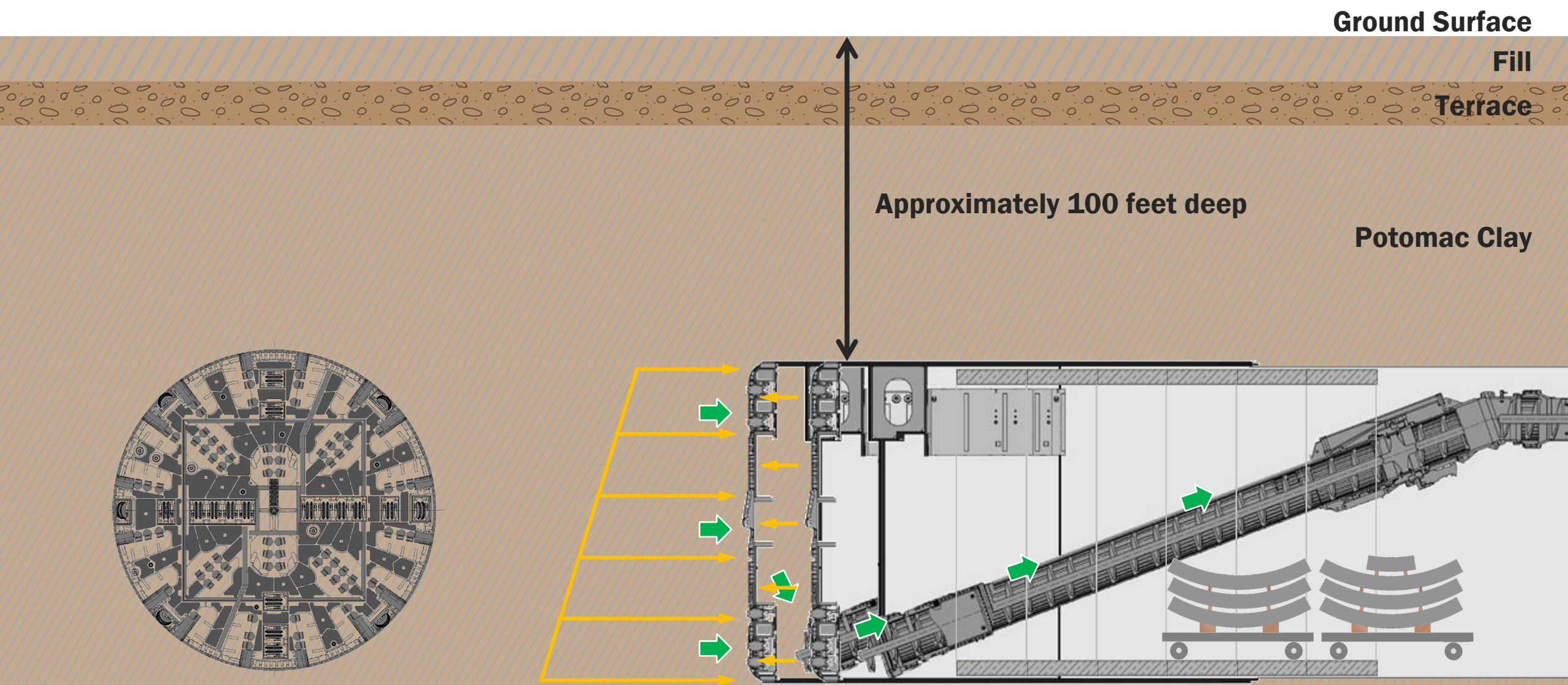
The Waterfront Tunnel will be Built with a Tunnel Boring Machine



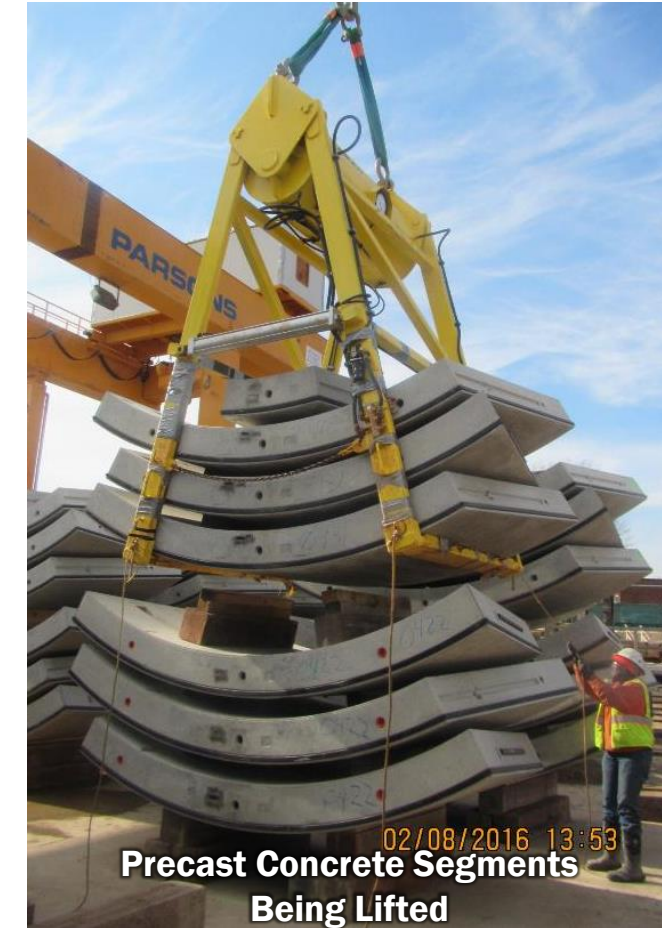
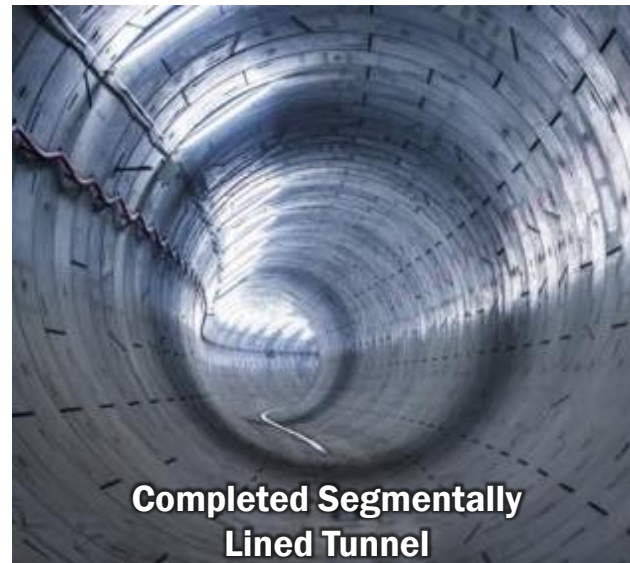
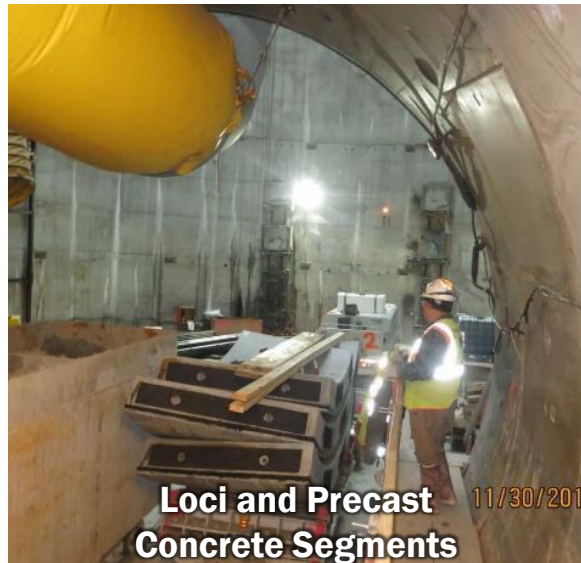
The Earth Pressure Balance Principle



Typical Earth Pressure Balance Tunnel Boring Machine Operation



Precast Concrete Segments are Used to Support the Earth and Form the Tunnel



Lifting a Precast Tunnel Segment to its Final Location

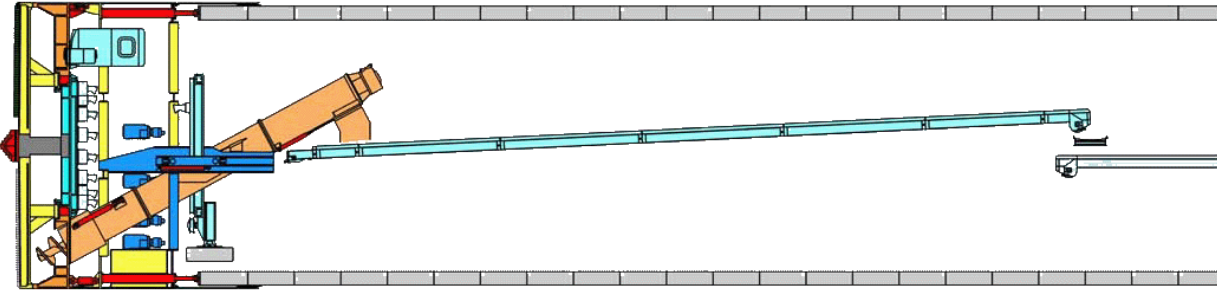


What is Muck?



How is Muck Transported Out of the Tunnel?

Continuous Belt Conveyors



Vertical Belt Conveyors



Photo credit: The Robbins Company; <https://www.robbinstbm.com/products/conveyors/vertical/>

How Do We Steer a TBM to Get Precise Line and Grade?



Continuous surveying of TBM location



TBM orientation adjusted to target position based on preset tunnel alignment coordinates

Where in the World is Schwanau?

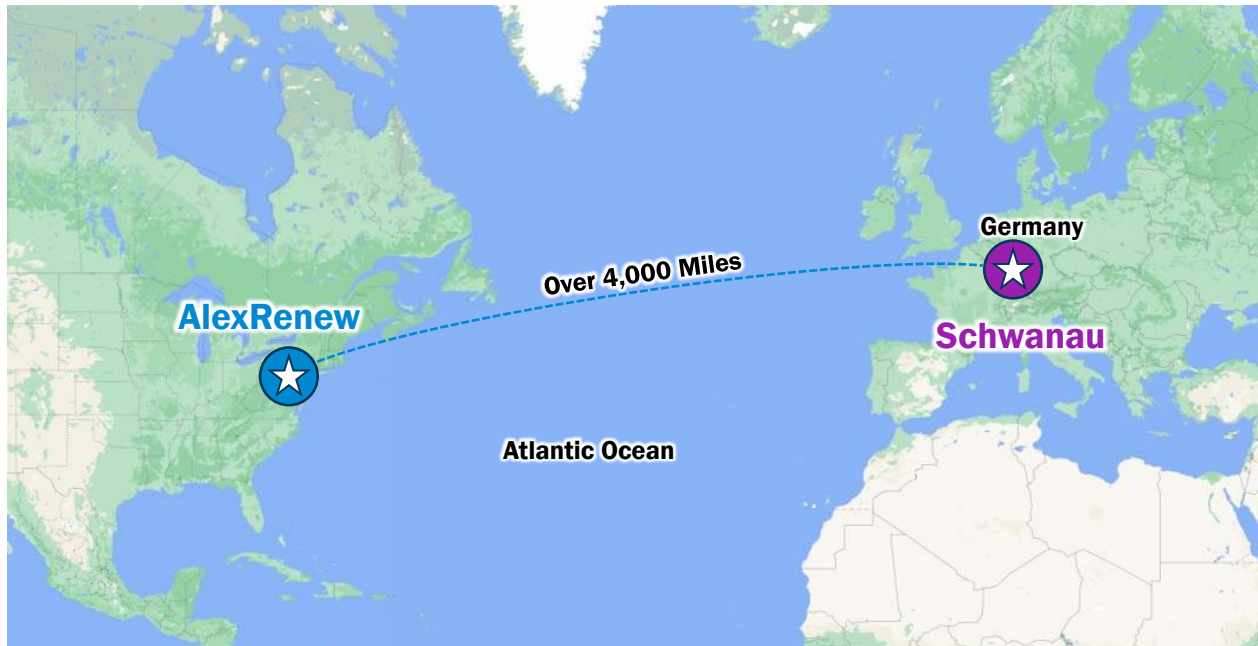
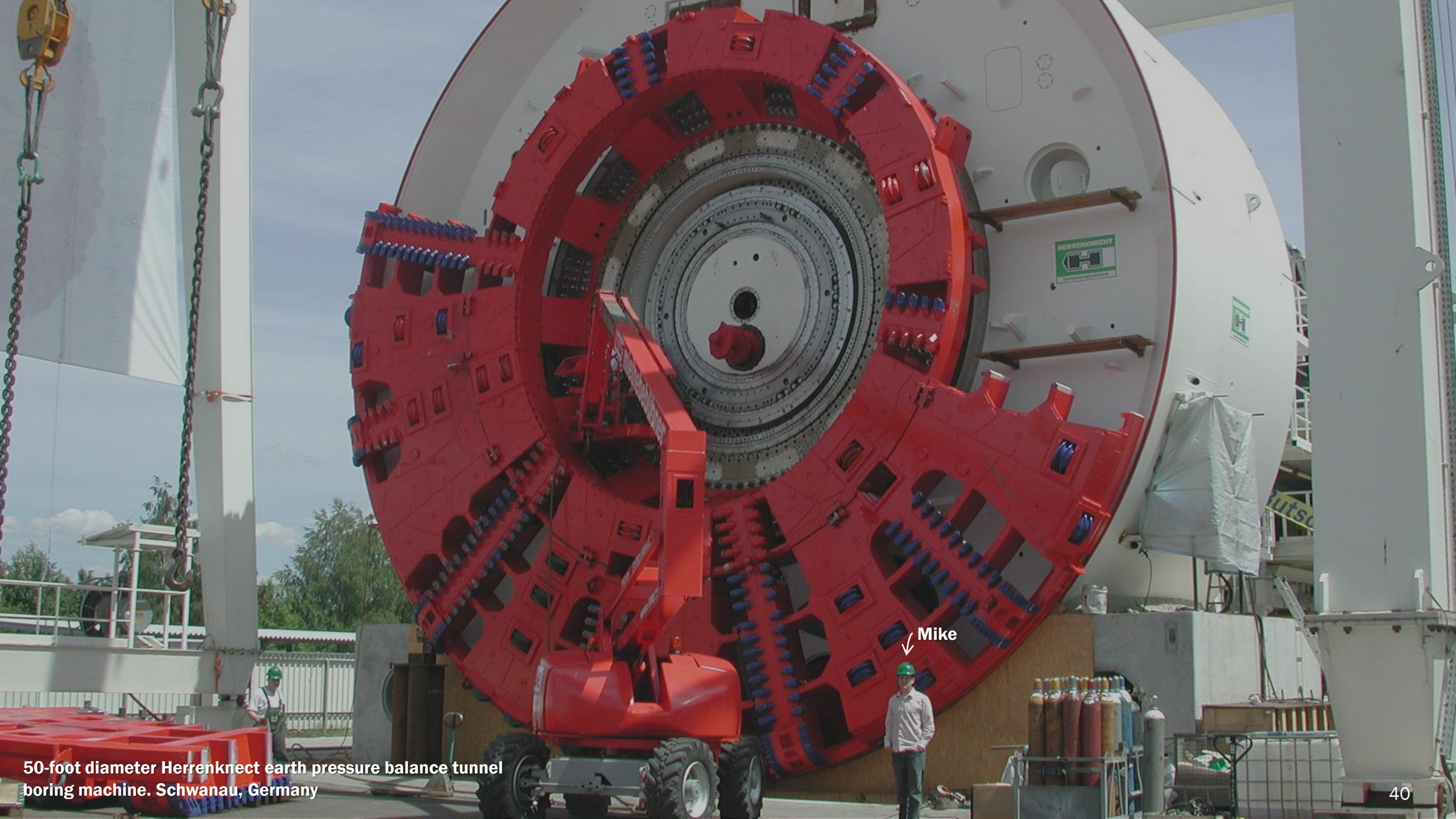
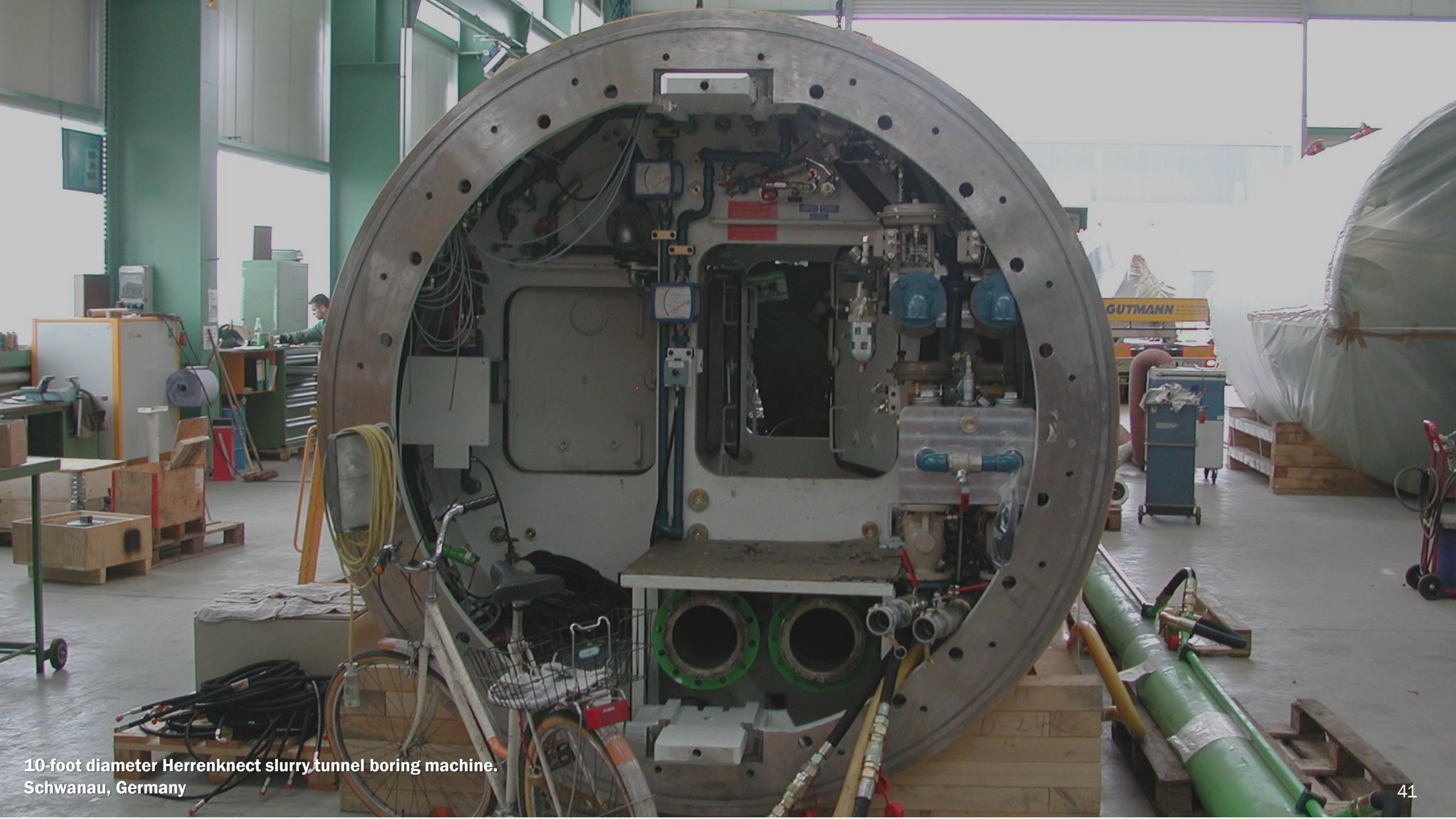


Photo credit: Jurgen Gyro, <https://www.google.com/maps/place/Herrenknecht+AG>



50-foot diameter Herrenknecht earth pressure balance tunnel boring machine. Schwana, Germany

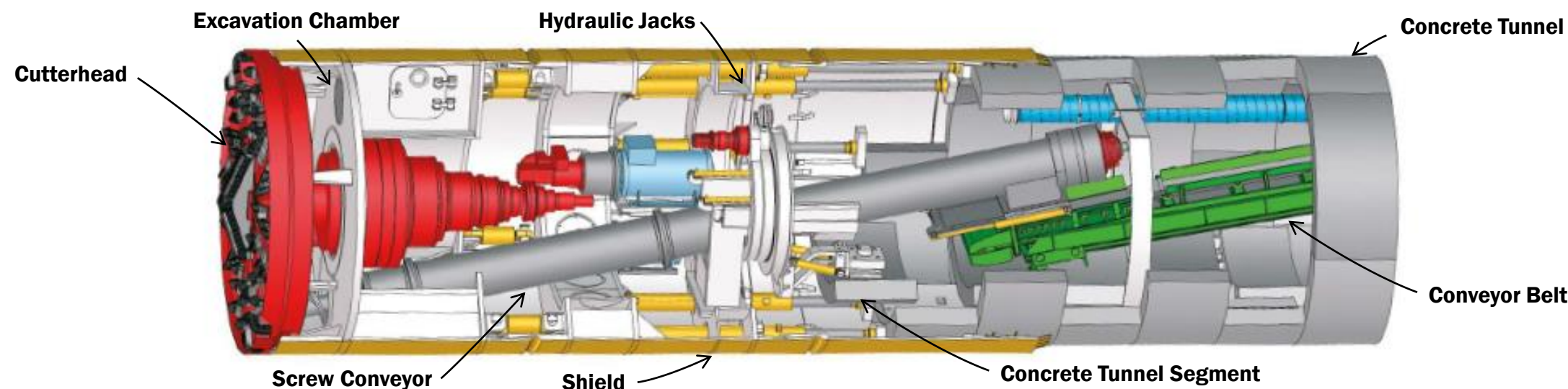


10-foot diameter Herrenknecht slurry tunnel boring machine.
Schwanau, Germany

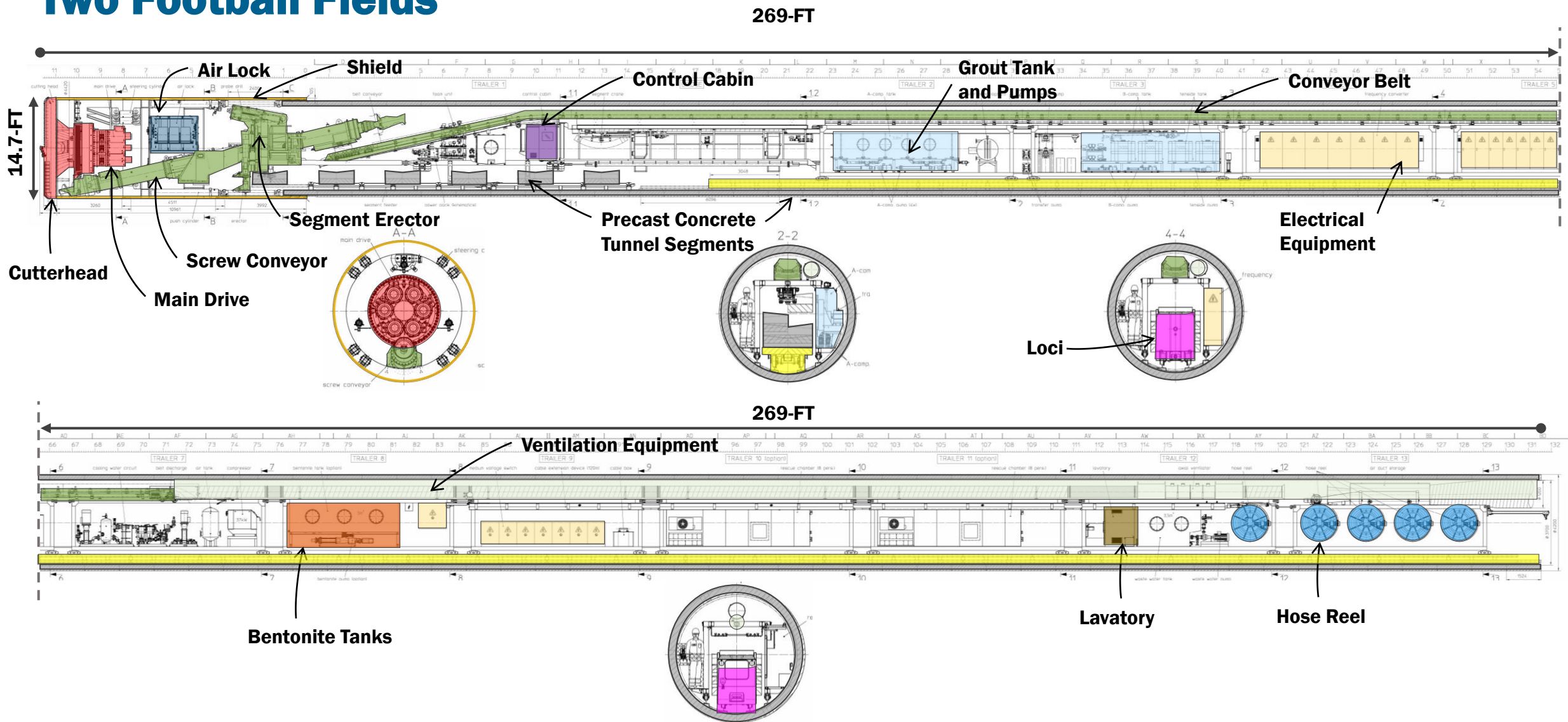
An In-Depth Look at the RiverRenew Tunnel Boring Machine

Major Features

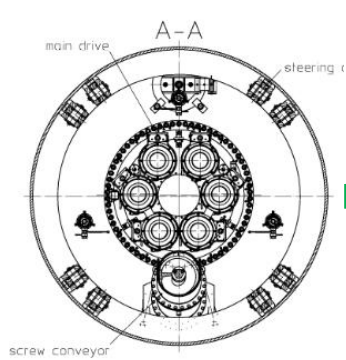
Manufacturer	Herrenknecht
ID OD (ft)	12 14.7
Shield Length (ft)	39.5
Overall Length (ft)	538
# of Disc Cutters	20
Operating Pressure (bar)	4.5 bar
Conveyor Type	Screw and Belt



The Tunnel Boring Machine is an Underground Factory, the Length of Two Football Fields



Scheduling the Tunnel Boring Machine's Trip from Germany to Alexandria

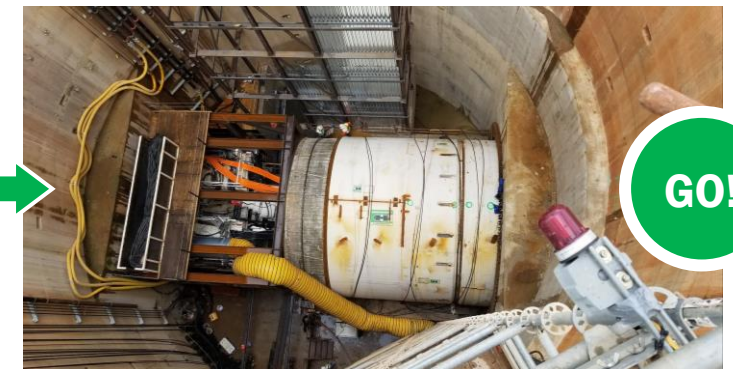
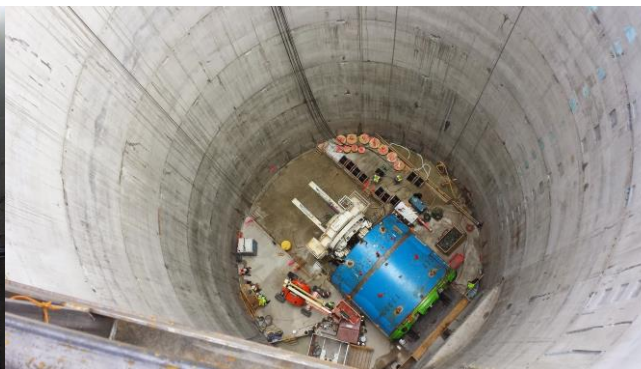


Design
Dec 2020 to Jul 2021

**Manufacture and
Factory Testing**
Jun 2021 to Feb 2022

Shipping
Feb 2022

Delivery
Mar 2022



TBM Unveiling
Apr 2022

Lower TBM into Shaft
May 2022

GO!

SAG Homework: Herrenknecht Tunnel Boring Machine Video (9 min)



EPB Shield

Segmental lining with
small diameters

<https://www.youtube.com/watch?v=fVidVJ3Oob4>

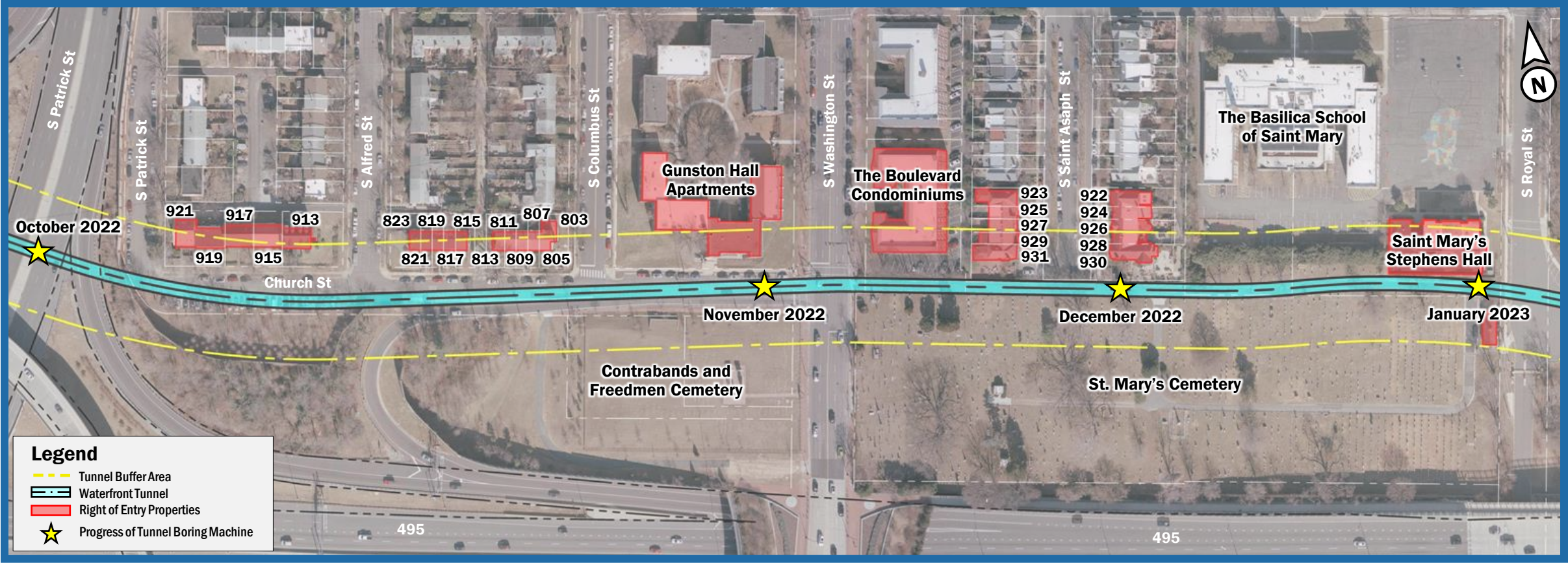
A scenic view of a river with a bridge in the background, overlaid with a green tint. The foreground features a paved path on the left and dense foliage on the right. The word "BREAK" is centered in white, bold, sans-serif font, with a horizontal white line extending from its left side across the middle of the image.

BREAK

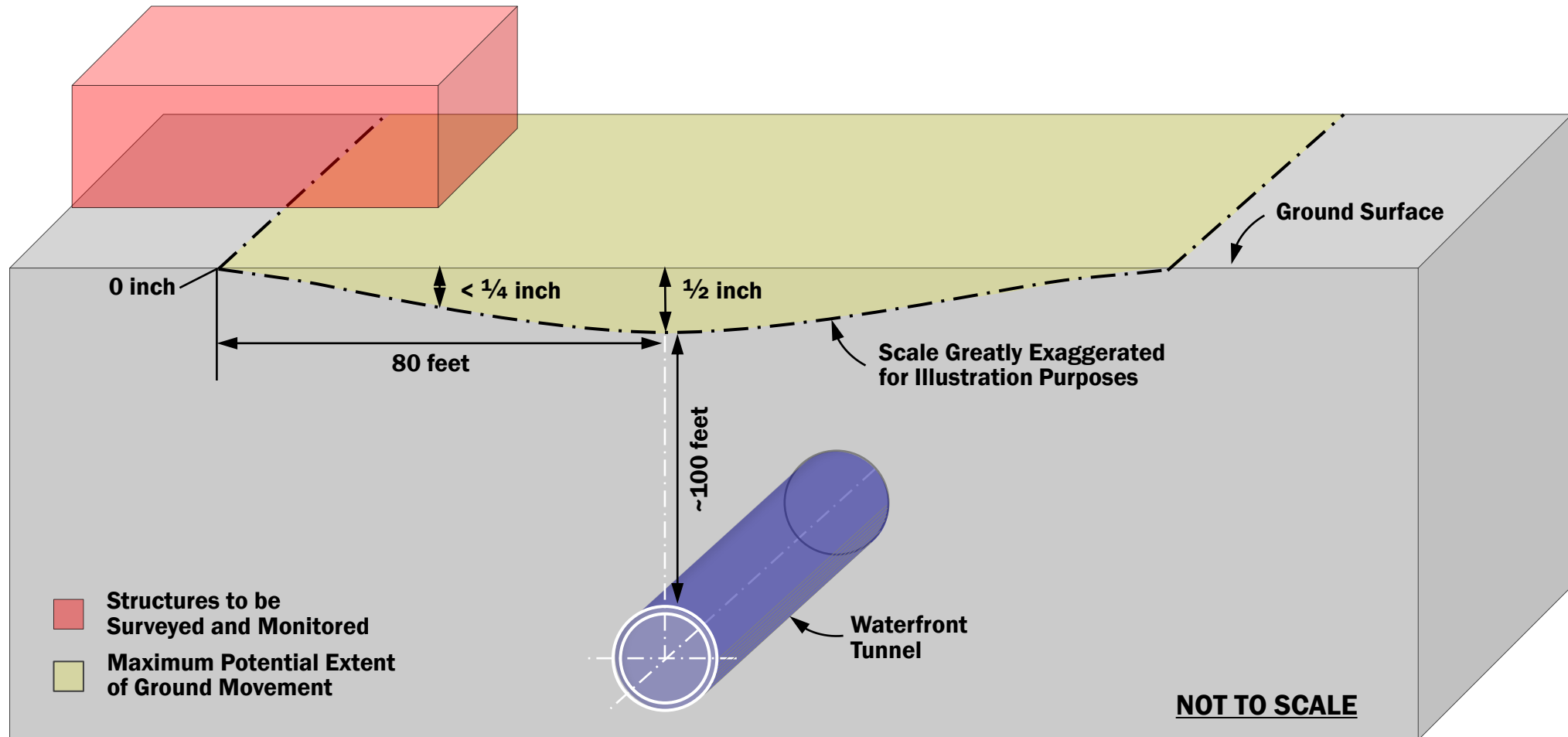


Right of Entry to Support Surveys and Monitoring

Aerial View of Waterfront Tunnel, Buffer Area, and Right of Entry Request Properties



The Tunnel Buffer Area is a Conservative Calculation of the Maximum Extents for Potential Ground Movement



Preconstruction Survey and Monitoring Process

Step 1

**Execute Right
of Entry
Agreement**

May 5, 2021

Step 2

**Preconstruction
Survey
Scheduling**

Late Spring-Summer
2021

- Contact from AlexRenew via phone and email

Step 3

**Preconstruction
Survey**

Summer 2021

- Full interior and exterior inspection of property by qualified representatives
- 1-2 hours

Step 4

**Preconstruction
Condition
Survey Report**

Late Summer-Early Fall
2021

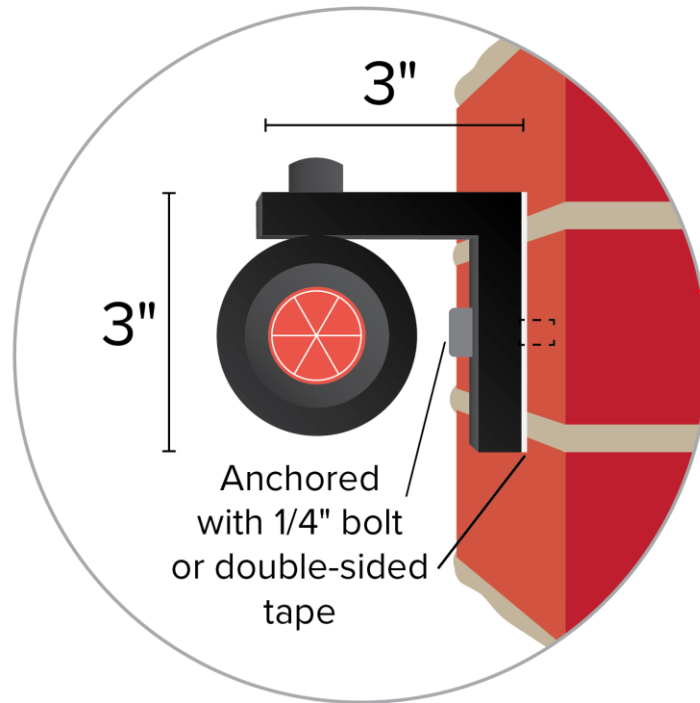
- Written report documenting materials of construction, condition, and any existing damage and/or cracks
- Data will be kept private and secure

Step 5

**Monitoring
Installation**

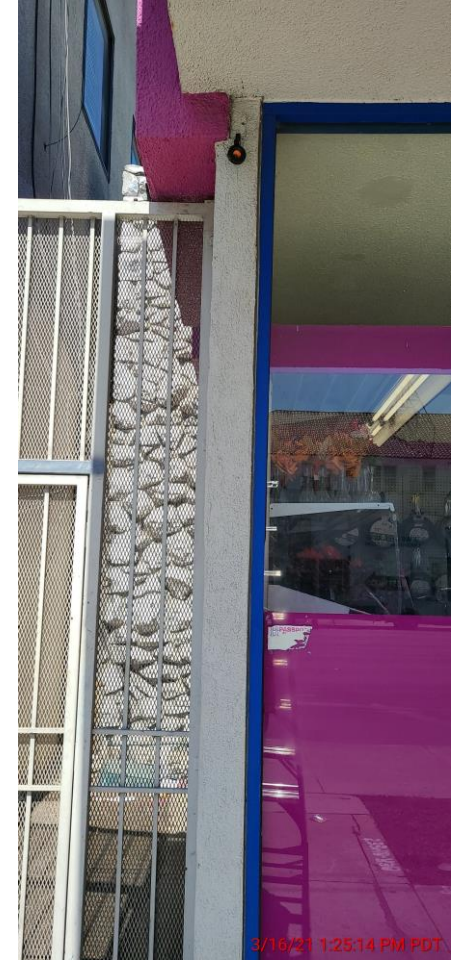
Early 2022

Monitoring Instruments are Typically Installed on Structures within the Tunnel Buffer Area



Monitoring instruments or “targets” are passive devices used to survey the property before, during, and after tunnel construction

Examples of Target Installation on Structures



Other Types of Instruments Typically Installed



Seismograph



Crack Gauge

Monitoring and Postconstruction Survey Process



Tunnel Construction and Monitoring

Summer 2022-Early 2023

- Most monitoring can be done remotely
- Occasional access may be needed to property to read instruments



Postconstruction Survey Scheduling

Early 2023

- Contact from AlexRenew via phone and email



Postconstruction Survey

Spring/Summer 2023

- Full interior and exterior inspection of property by qualified representatives
- 1-2 hours



Postconstruction Condition Survey Report

Summer 2023

- Written report documenting materials of construction, condition, and any existing damage and/or cracks
- Compare to Preconstruction Condition Survey Report
- Data will be kept private and secure



Claims

- File notice of claim or potential claim with AlexRenew
- Supplemental Post-Construction Condition Surveys performed

Any Representative Accessing Private Property is Required to Follow Strict COVID-19 Protocols



Physical screening by a licensed Nurse Practitioner licensed, including but not limited to taking personnel temperatures



Completion of Virginia required **COVID-19 safety training**



Completion of a **self-screening medical checklist** to assess individual health and infection risk



Strict adherence to current **Centers for Disease Control guidelines**

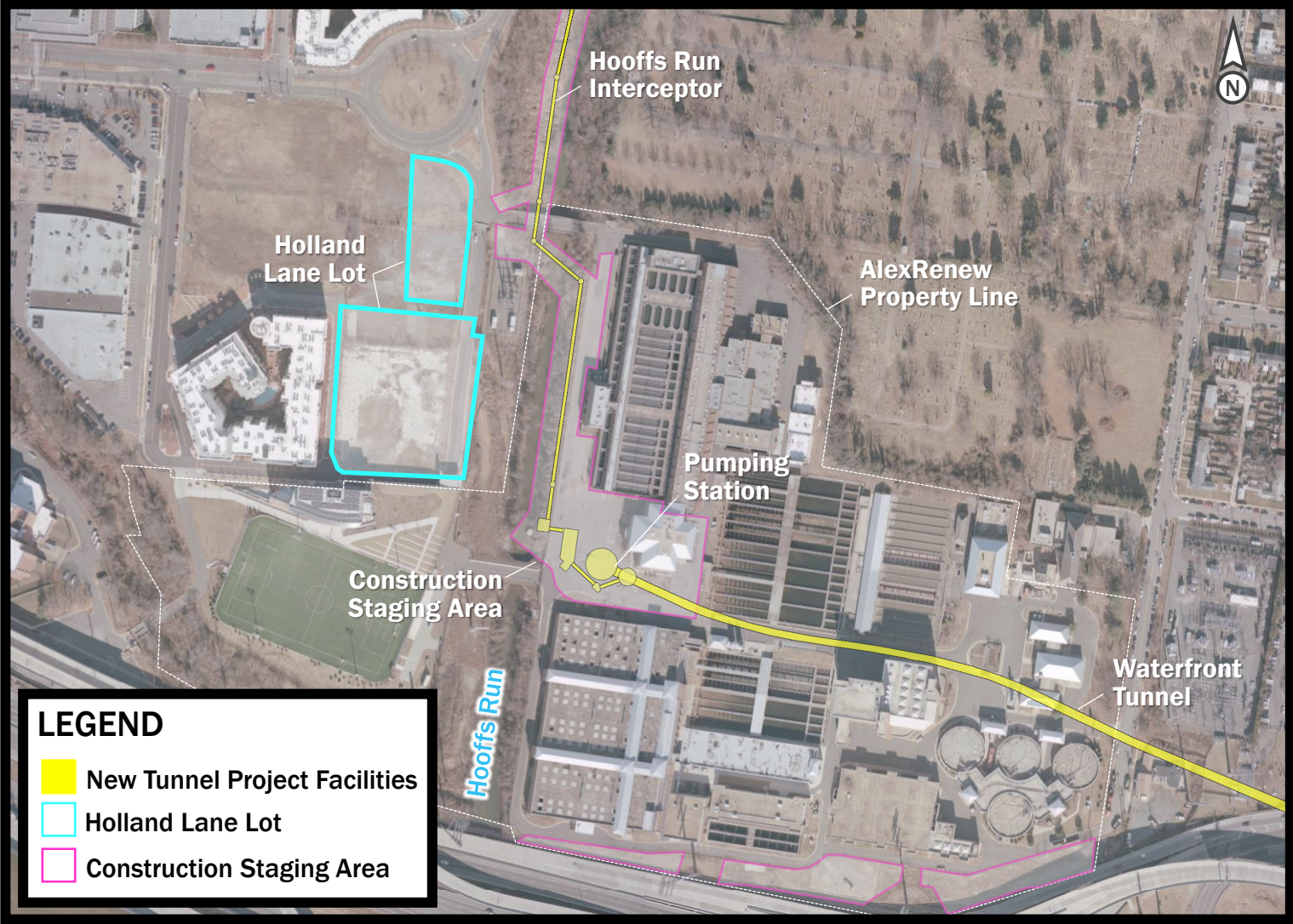


Tunnel Project Construction Updates

Traylor-Shea is Currently Conducting Site Investigations in the Community



Mobilization to the Holland Lane Lot Started in April and will Continue through June



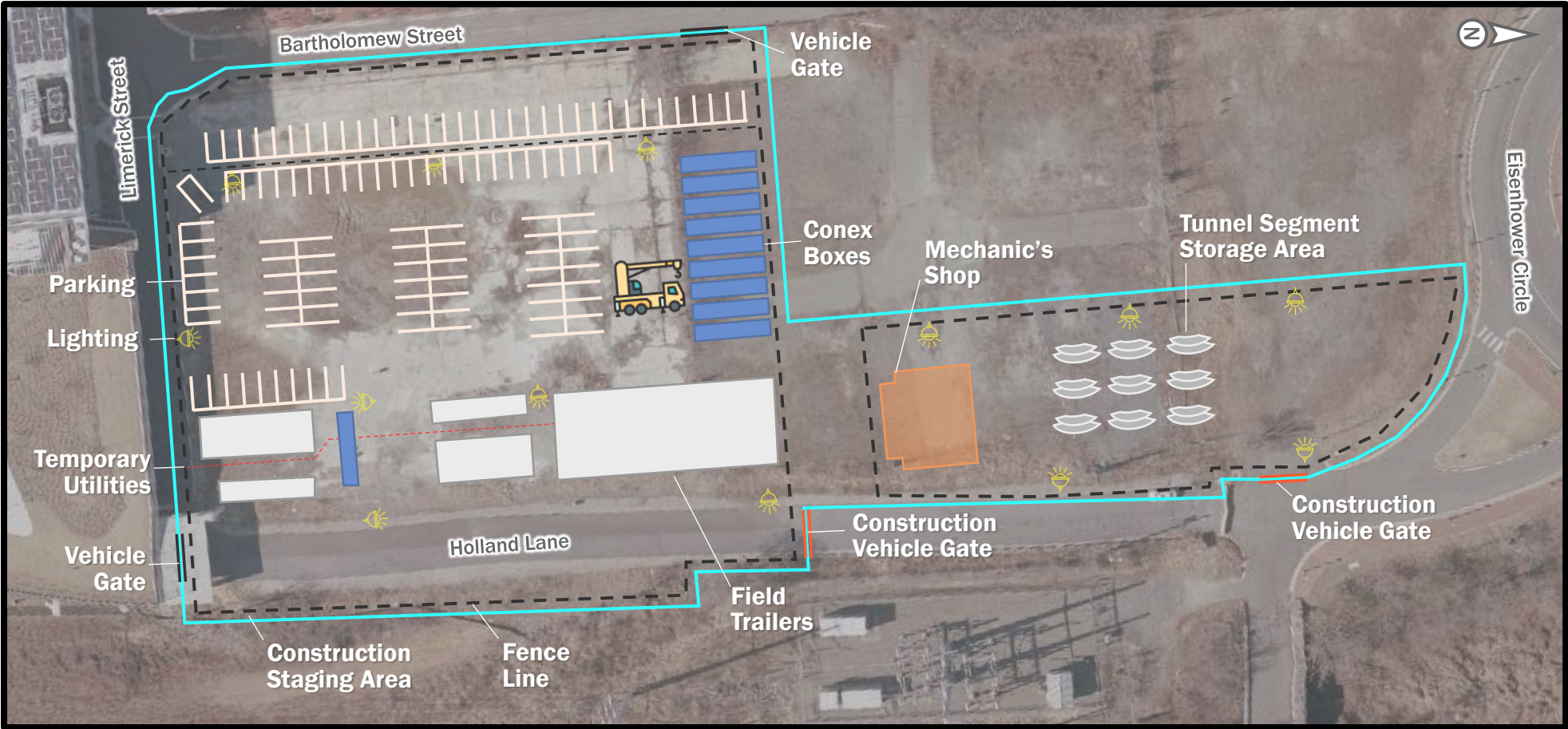
Setting up the Holland Lane Lot to Support the RiverRenew Tunnel Project



Field Trailers:
May – June 2021



Mechanic's Shop:
May – June 2021



Conex Box
Placement:
April 12 – 16



Working Surface:
April 5 – 16



Utility Work: May 2021 – Jun 2021



Tunnel Segments: Mid 2022 – Early 2024

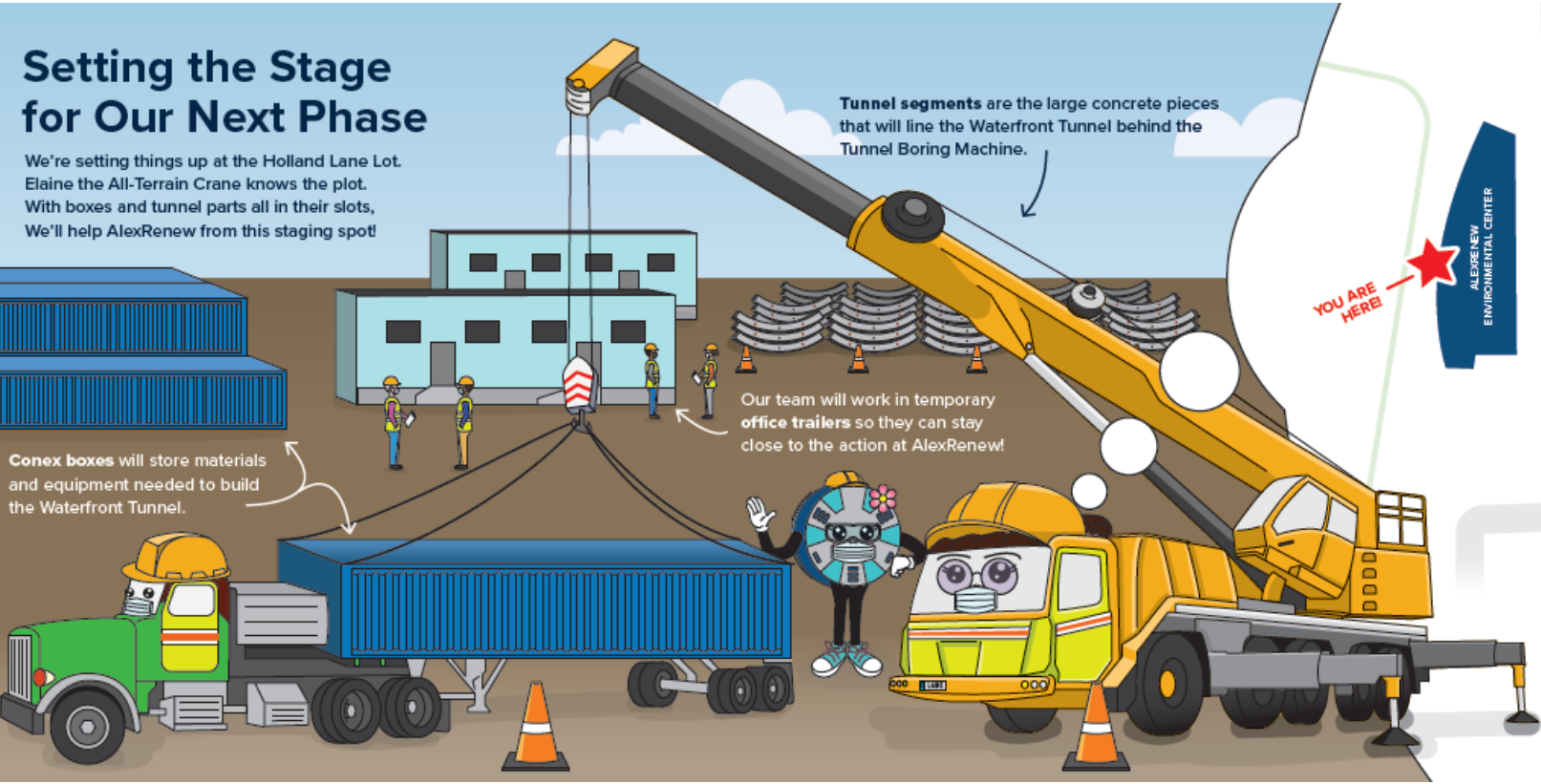


Crane On Site: April 12 - 16

Educational Banner to Help the Community Learn About the Equipment at the Holland Lane Lot

Setting the Stage for Our Next Phase

We're setting things up at the Holland Lane Lot. Elaine the All-Terrain Crane knows the plot. With boxes and tunnel parts all in their slots, We'll help AlexRenew from this staging spot!



Tunnel segments are the large concrete pieces that will line the Waterfront Tunnel behind the Tunnel Boring Machine.

Our team will work in temporary office trailers so they can stay close to the action at AlexRenew!

Conex boxes will store materials and equipment needed to build the Waterfront Tunnel.

YOU ARE HERE!

ALEXRENEW ENVIRONMENTAL CENTER

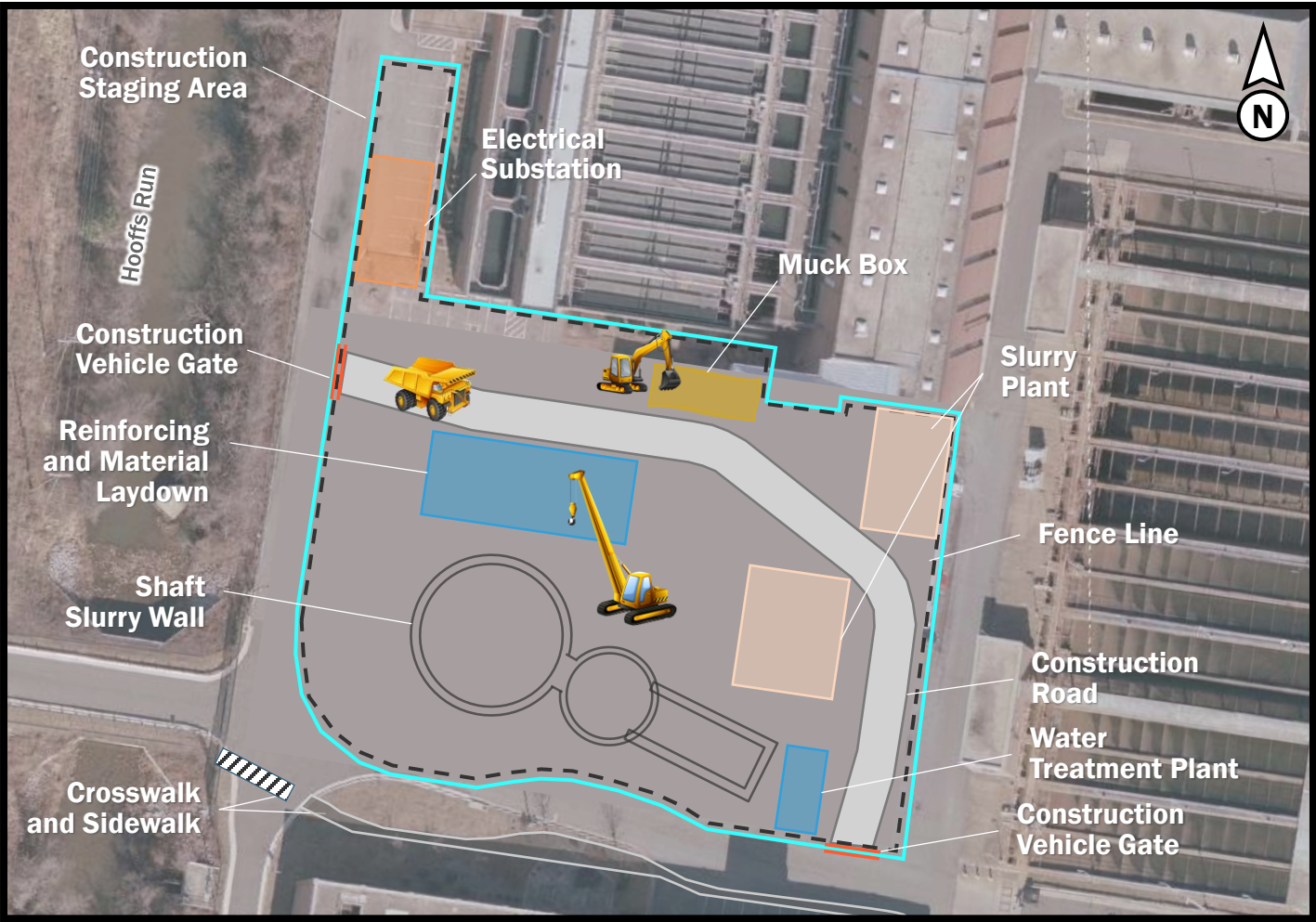
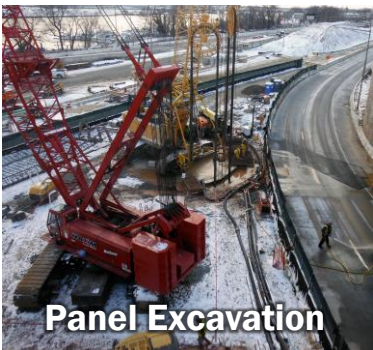
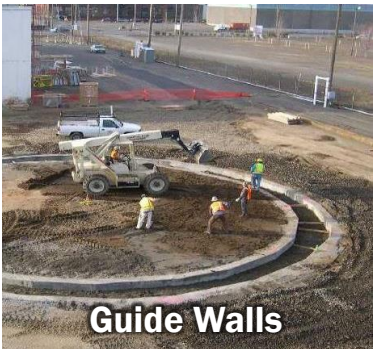


Scan here for a special activity from Elaine the All-Terrain Crane!
To learn more about preparations at the Holland Lane Lot, visit [RiverRenew.com/the-lot](https://www.riverr renew.com/the-lot)



AlexRenew Mobilization is Scheduled for June 2021

The First Phase of Work Is Support of Excavation from August 2021 to January 2022



Tunnel Project Look-Ahead through December 2021

April	May	June	July	August	September	October	November	December
Right of Entry Agreement Open House 4/7	AlexRenew Listening Session 5/20	SAG Meeting No. 3 6/17	Pendleton Street Listening Session 7/15	SAG Meeting No. 4 8/19	Groundbreaking Ceremony	SAG Meeting No. 5 10/21	W.A.T.E.R Fund Virtual Event No. 2	SAG Meeting No. 6 12/16
SAG Meeting No. 2 4/15	Rates Public Hearing 5/22	Duke Street Listening Session 6/24	Royal Street Listening Session 7/22	TBM Outreach to Alexandria Schools	Council-Board Workgroup Meeting		Quarter 4 River Renewer	Council-Board Workgroup Meeting
Council-Board Workgroup 4/19	Quarter 2 River Renewer	Construction Starts at AlexRenew	W.A.T.E.R Fund Virtual Event No.1	Quarter 3 River Renewer	Construction Starts at Pendleton Street		Construction Starts along Hooffs Run	Construction Starts at Royal Street
Website Refresh Launch				RiverRenew Construction Hotline				

Rate Adjustment Outreach
April 21 – June 30

Legend:

- Digital Media
- Events
- Meetings
- General Outreach
- Construction (anticipated)

A black and white photograph of a park. In the foreground, a large tree trunk is on the left, and a paved path leads from the bottom right towards the center. A tall, ornate lamp post stands on the path. The background is filled with various trees and a building in the distance. The text "Next Steps" is centered in the middle of the image, underlined.

Next Steps

Upcoming Meetings and Next Steps

Upcoming Meetings

- Community Listening Session: Mobilizing to AlexRenew Construction Staging Areas **May 20, 6-8pm**
- Rates Public Hearing **May 22, 9:30am**
- Next SAG meeting **June 17, 7-9pm**

Next Steps

- Homework: Watch Herrenkenect **Tunnel Boring Machine Video** (9 min)
- Reach out with **community feedback** or questions
- Check out **new RiverRenew.com** when live
- Follow AlexRenew on **Facebook and Twitter**
- Sign up for ***The River Renewer***

A blue-tinted photograph of a person rowing a boat. The person's hands are visible on the left, gripping a dark oar. The oar is positioned vertically, with the blade submerged in the water, creating a splash. The water surface is covered in ripples. The text "Public Comment Period" is overlaid in the center in a white, bold, sans-serif font, with a thin white horizontal line underneath it.

Public Comment Period



To learn more, visit www.RiverRenew.com