Water Treatment Plant
Wastewater Treatment Plant
Facilities Upgrades

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Introduction

- Why upgrades are needed at the Water Treatment Plant and Wastewater Treatment Plant
- Project Cost Estimates
- Funding Sources
- Rates to Support Needed Improvements
- Answers to Previous Questions Provided Herein
- Additional Questions & Discussion
- Next Steps?

Water Treatment Plant Project

Mandates

- VIRGINIA'S DRINKING WATER RULES AND REGULATIONS

  In the Code of Virginia

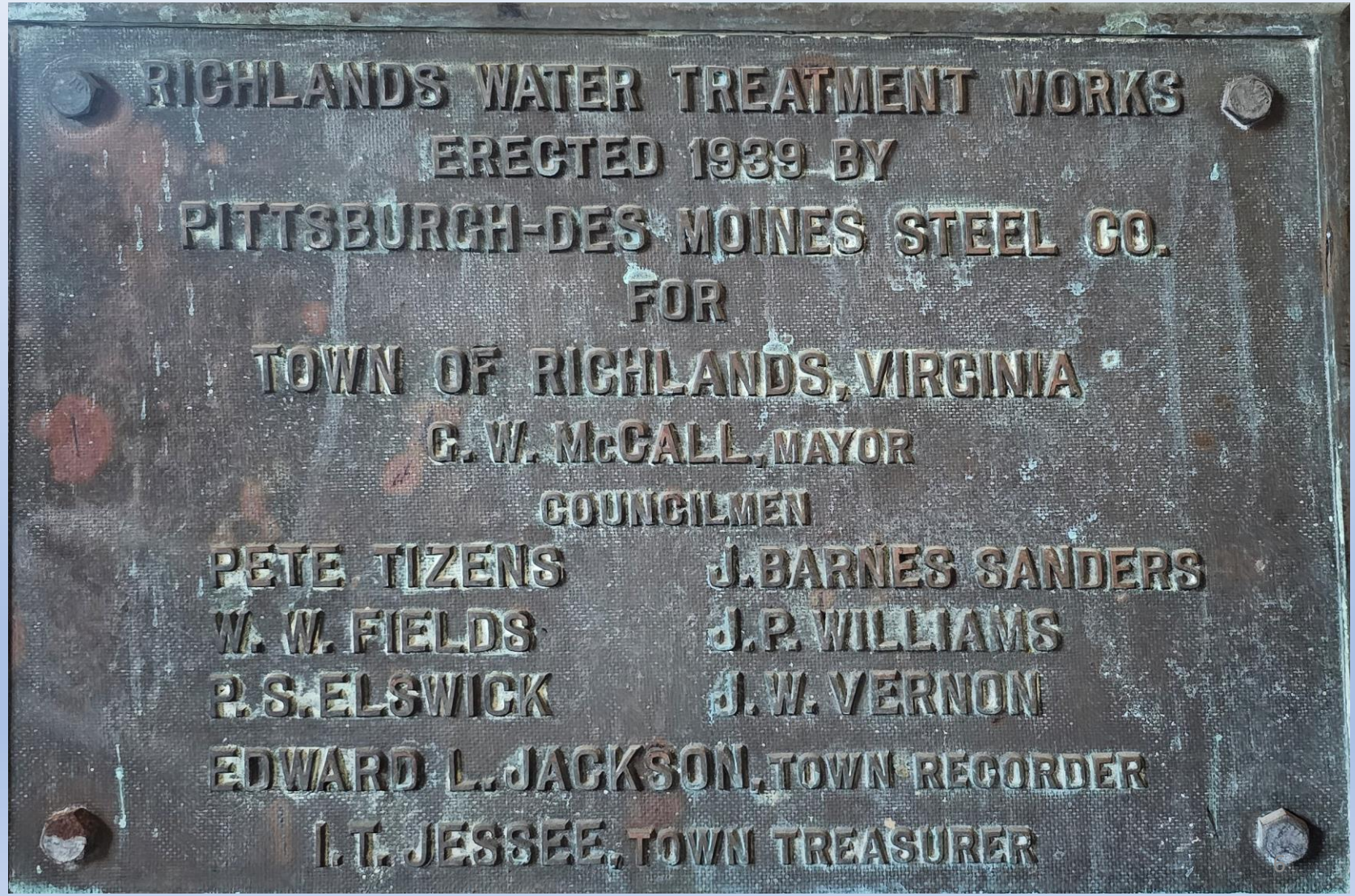
- As early as 1916, the Department of Health has been protecting the purity of drinking water to Virginia citizens. The statutes as stated in the Code of Virginia are periodically amended to:
  - Ensure that all Virginians have safe drinking water;
  - Provide a simple and effective regulatory program for waterworks;
  - Adapt to new health concerns in drinking water treatment and distribution systems;

Mandates

- Town of Richlands, Town Charter
- **§ 2.3. Powers relating to public works, utilities, and properties.**
- In addition to the powers granted by other sections of this Charter, the town is empowered:
- To own, operate, and maintain waterworks… for the purpose of providing an adequate water supply to the town and of piping and conducting the same; to lay, erect, and maintain all necessary mains and service lines, either within or without the corporate limits of the town for the distribution of water to its customers and consumers, both within or without the corporate limits of the town and to charge and collect water rates therefor; …

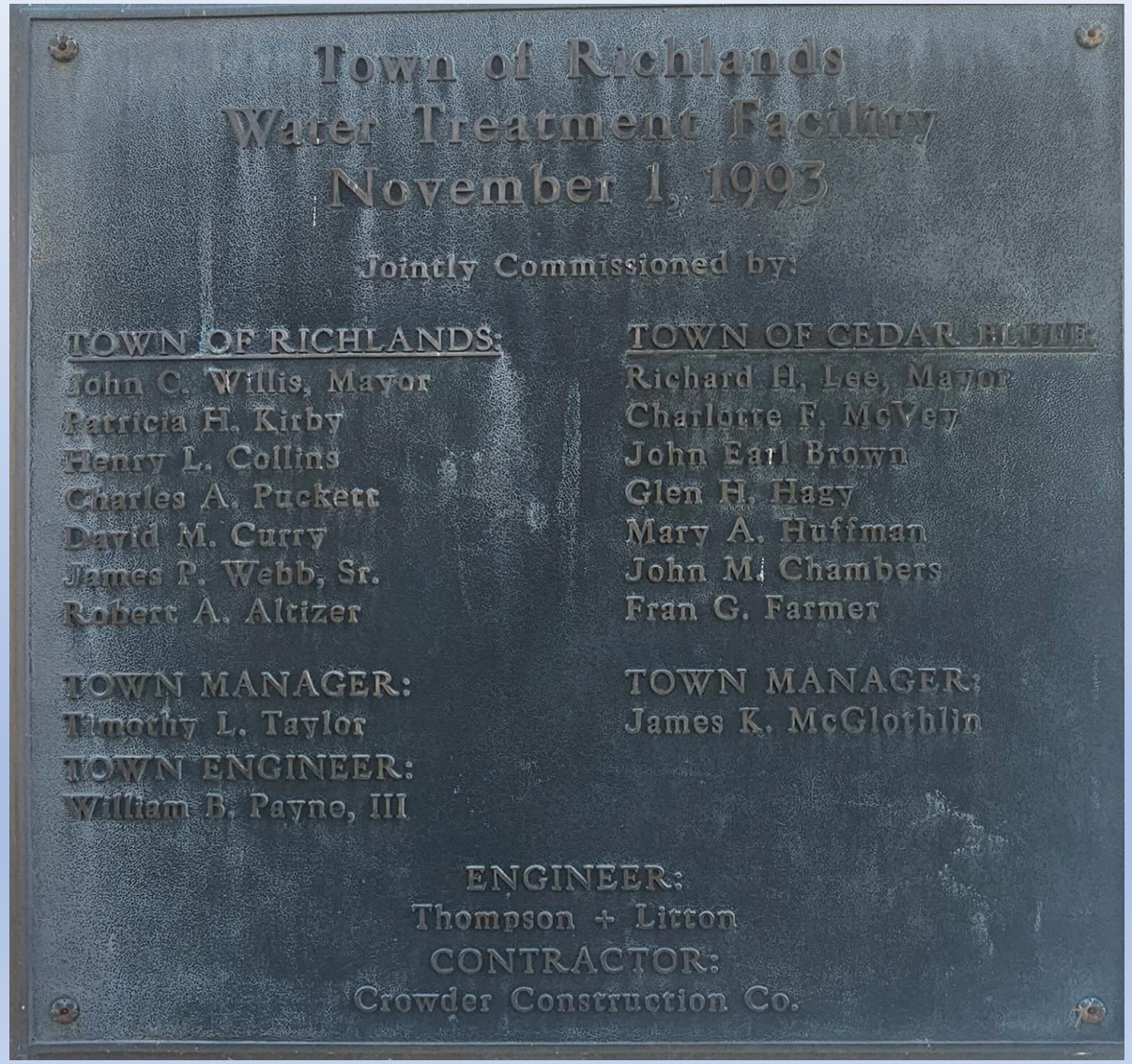
Why Upgrades Are Needed

Water Treatment Plant was constructed in 1939



Why Upgrades Are Needed

- Water Treatment Plant was last upgraded in 1993.
- Average treatment equipment typically lasts 15 – 25 years.
- Richlands is at year 30!
- Specific Examples Follow



Sedimentation Basins have been patched to make it until project updates are completed

Sedimentation Basin

- Contains excessive sludge from raw water intake and is held until released to WWTP.
- Demonstrates the need for sludge removal system.
- Without doing so, continues making process at WWTP difficult, time consuming, and more expensive.
- More expensive for WTP as well.

Exterior of Sediment Basins.
Actively leaking from various cracks.

Filtering

- Next to last step in the treatment process prior to becoming drinking water.
- The purpose is to filter incoming water to remove small particulate that have not settled in the basins.
- Filter media replacement is imminent.
- Filter bed rehabilitation possibly needed due to age of system.

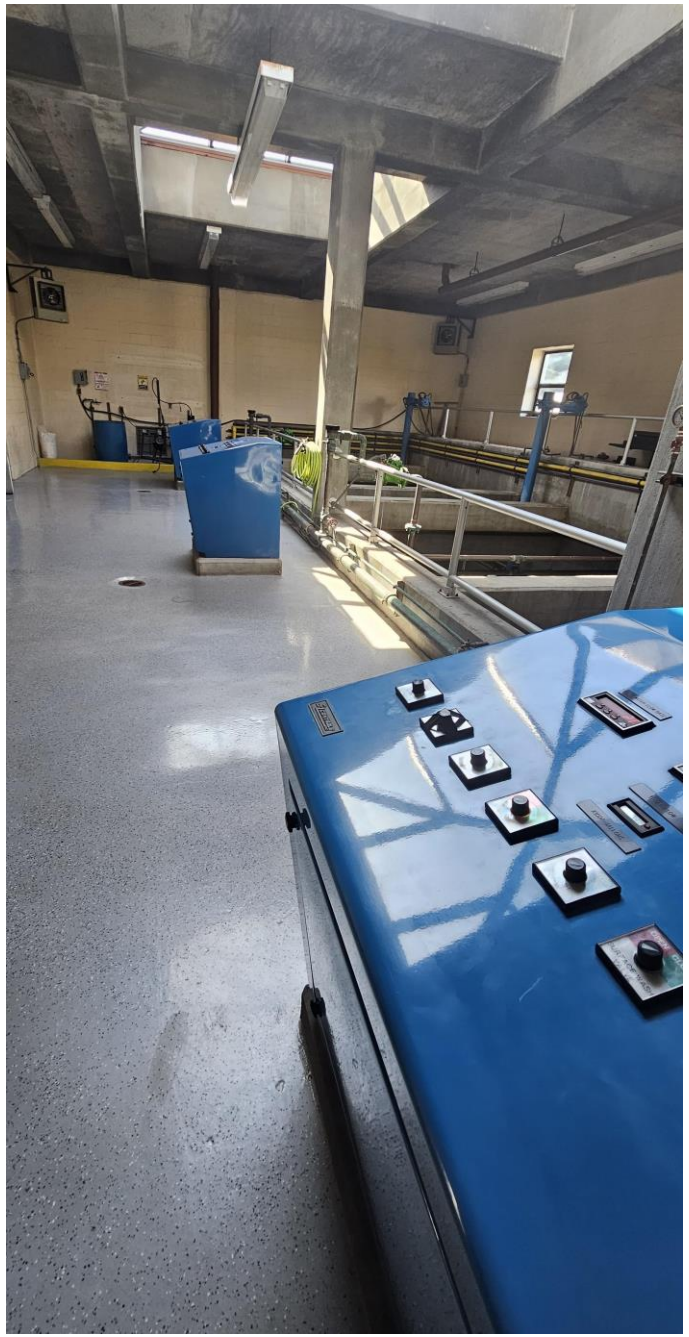
Reduced Pressure Zone

- Backflow prevention device.
- Improperly positioned as is and must be moved out of this pit in order to meet current regulations.

SCADA System.
Computerized monitoring system. Obsolete.

Filter Consoles

- Used to open and control valves thru various processes including backwashing and maintenance.
- System is outdated. Parts difficult to impossible to obtain.
- Note the black tape on the right panel modules that are inoperable.



Pipe Gallery, age 30 years.
Majority of the valves need replacing.

Effluent Valve

- Picture on left contains valves taken out of service due to mechanical failure. Note condition.
- Picture on right shows valve and actuator (in red and silver) that have been replaced by staff.
- Remaining valves are in dire need of replacement.

Brick Yard Booster Pump

- Pumps treated water to the tank that provides drinking water to the hospital & surrounding area and to Tazewell County.
- Mostly Inoperable for the past 4-6 years.
- Results in more staff hours at the Water Plant.
- Sent for repair multiple times; however, manufacturer no longer recognizes the pump.

Airport Storage Tank

- 1M gal. Storage tank.
- Hospital relies on this tank for its use.
- Plays key role for the entire Town and Tazewell County.
- During a recent inspection, determined it needs significant rehabilitation.

Wastewater Treatment Plant Project

Mandates

- From the Virginia Municipal League:

  "Local elected officials have a difficult job. They are responsible for operating and maintaining a community's sewerage system, planning for future needs and ensuring that systems operate in compliance with increasingly complex and stringent regulations, **while maintaining affordable rates.** In addition, local elected officials must accomplish this in an era where both the federal and state governments have limited money available to assist localities with the rehabilitation of existing systems or mandated improvements."

Mandates

- From the Town of Richlands Charter:

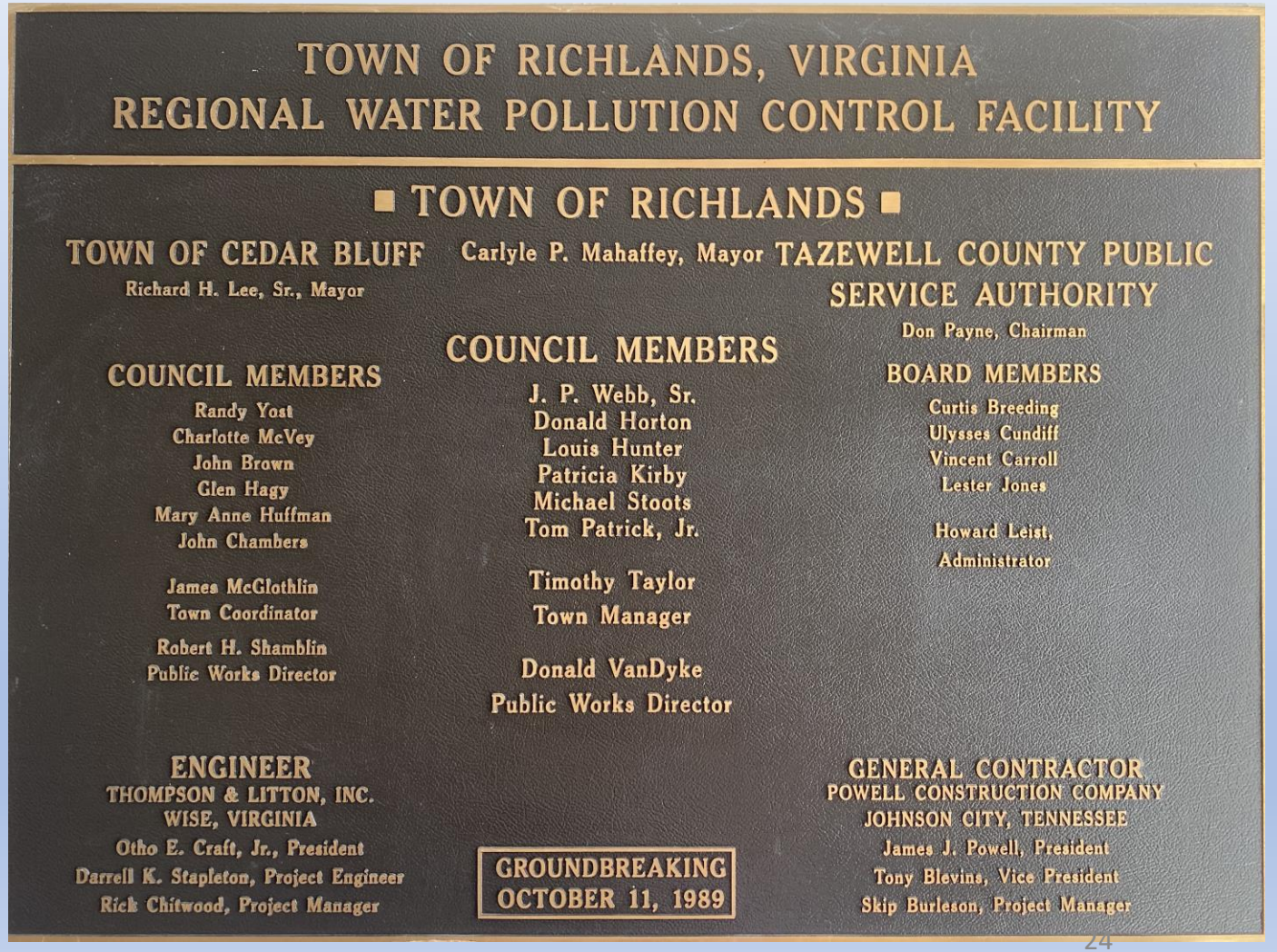
  "To establish, construct, and maintain sanitary sewers, sewer lines, and systems, and to require all property owners within the town to connect therewith; to establish, construct, maintain, and operate sewage disposal plants; … to charge, assess, and collect reasonable fees, tap fees, rentals, assessments, or costs of service for connection with and using the same;"

Why Upgrades Are Needed

Wastewater Treatment Plant was constructed in 1960

Why Upgrades Are Needed

- Wastewater Treatment Plant upgrade started in 1989.
- Average treatment equipment typically lasts 15 – 20 years.
- <u>Richlands is at year 34!</u>
- Specific Examples Follow



Mechanical Bar Screen. Removes solids. Fingers starting to separate. Has already been overhauled in 2002'ish.

Thickener Tank

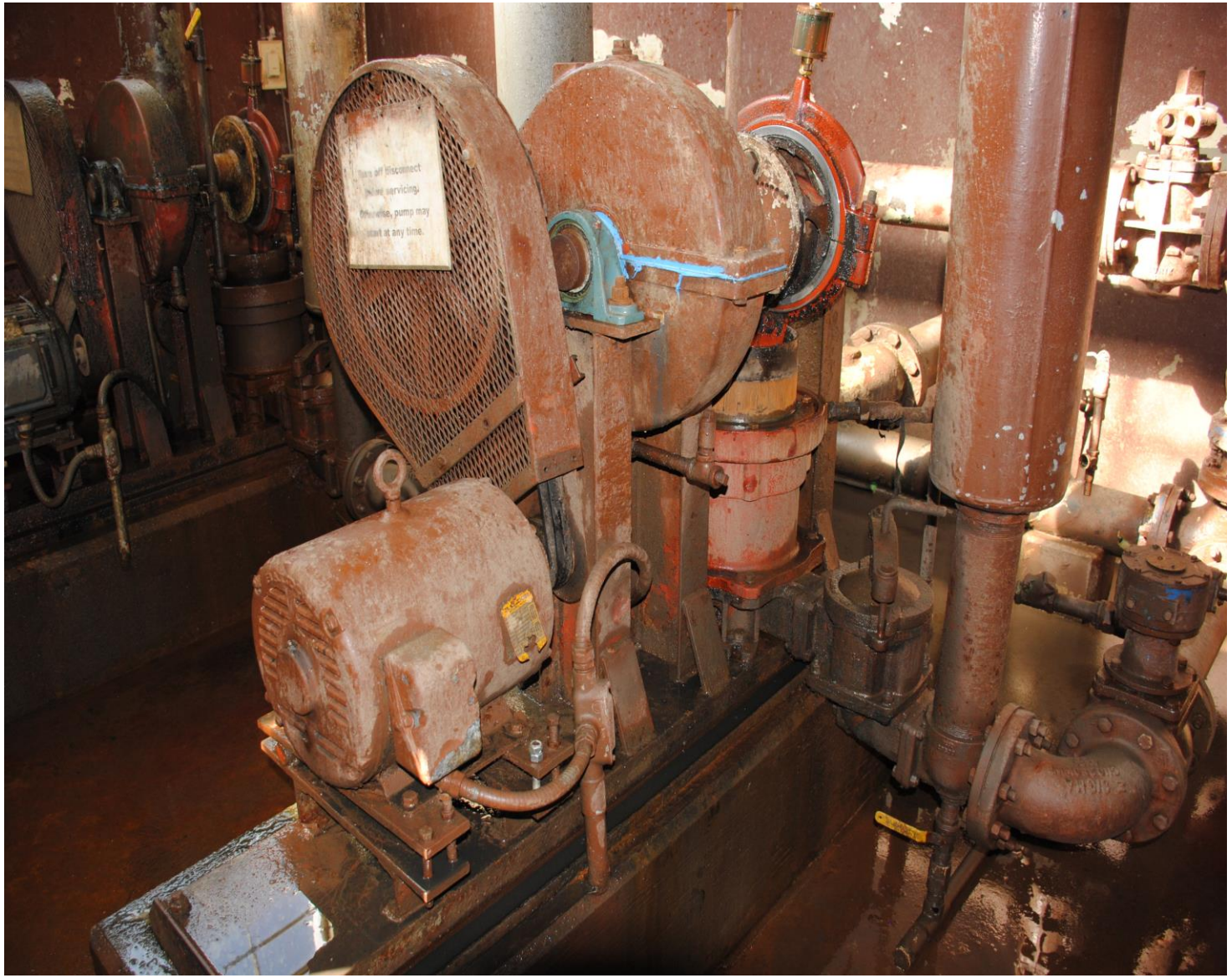
- Used to thicken sludge before it goes to the digestor.
- Components including skimming arm, gear boxes, turntables, etc. are all original to last upgrade.
- If failing, system will overload with solids.

Piston Sludge Pumps

- Part of upgrade 34 years ago.
- Expensive and in need of replacement from repetitive wear & tear.

Piston Pump

- Part of upgrade 34 years ago.
- Gear boxes worn out.
- Expensive and in need of replacement from constant wear & tear.



Aeration Basins. Electronic operating system outdated and in need of modern technology.

Aeration Basin. Ammonia is removed here. Has original gear boxes and parts no longer available.

Empty Aeration Basin Cell used for heavy volume. Cannot get replacement parts.

Sludge Press. Main frame has rusted at the main belt drum and is subject to failure.

Sludge Press

- Underside of the top belt of the Sludge Press.
- As can be seen, the drain pans are rusted and beginning to swag.
- If this fails, solids cannot be pressed for disposal.
- Replacement cost approx. $1M.

Sludge Pumps for Belt Press.
Cannot get parts due to its age.

Conduit Box. Gets Water penetration regularly through the conduit.

Ultraviolet Lamp Control Boxes. Aids in disinfection. No longer manufactured.

Glass House

- Part of original 1960 facility.
- Used for sludge storage before it is sent to the landfill.
- Broken glass, doors need replacing.

Effluent Pump Stations used for High Water Conditions. $150K each and obsolete.

Project Cost **Estimates**

- **In 2020:**
  - Water Treatment Plant $3,904,300
  - Wastewater Treatment Plant $10,916,316
  - **Total** **$14,820,616**

- **In 2023:**
  - Water Treatment Plant $5,818,962
  - Wastewater Treatment Plant $15,965,813
  - **Total** **$21,784,775**

An Increase of 47% over this period

Funding Sources

- VDH – Grant
- VDH – Loans
- VRA - Loans
- Business Partners
  - Tazewell County PSA – Water 26%; Sewer 20%
  - Town of Cedar Bluff – Water 10%; Sewer 6%

VRA's credit committee has approved the Town's Clean Water loan (C-515667). We will be distributing a commitment letter in the coming weeks, along with draft financing and funding agreements. These documents will formally detail the security and other conditions and covenants. In the meantime, here is a rough sketch of certain key loan elements committee approved:

- $8,181,452 loan and $2,734,864 of principal forgiveness
- Term of up to 25 years
- 0.5% interest
- Security: Water and sewer revenues and Town's general obligation
- Debt service reserve fund, funded at 1 year's debt service on the loan
- Rate covenant:
  - 100% on all water/sewer fund debt
  - 115% on water/sewer fund debt, excluding the share of annual debt service paid by the PSA and Cedar Bluff

Lender has funding requirements the Town must meet

Prior to closing:

- The Town must adopt rate increases sufficient to meet the rate covenant in the first two full fiscal years after estimated construction completion.
- The PSA and Cedar Bluff must provide their written consent for the pending loan and a commitment to pay their share of debt service.

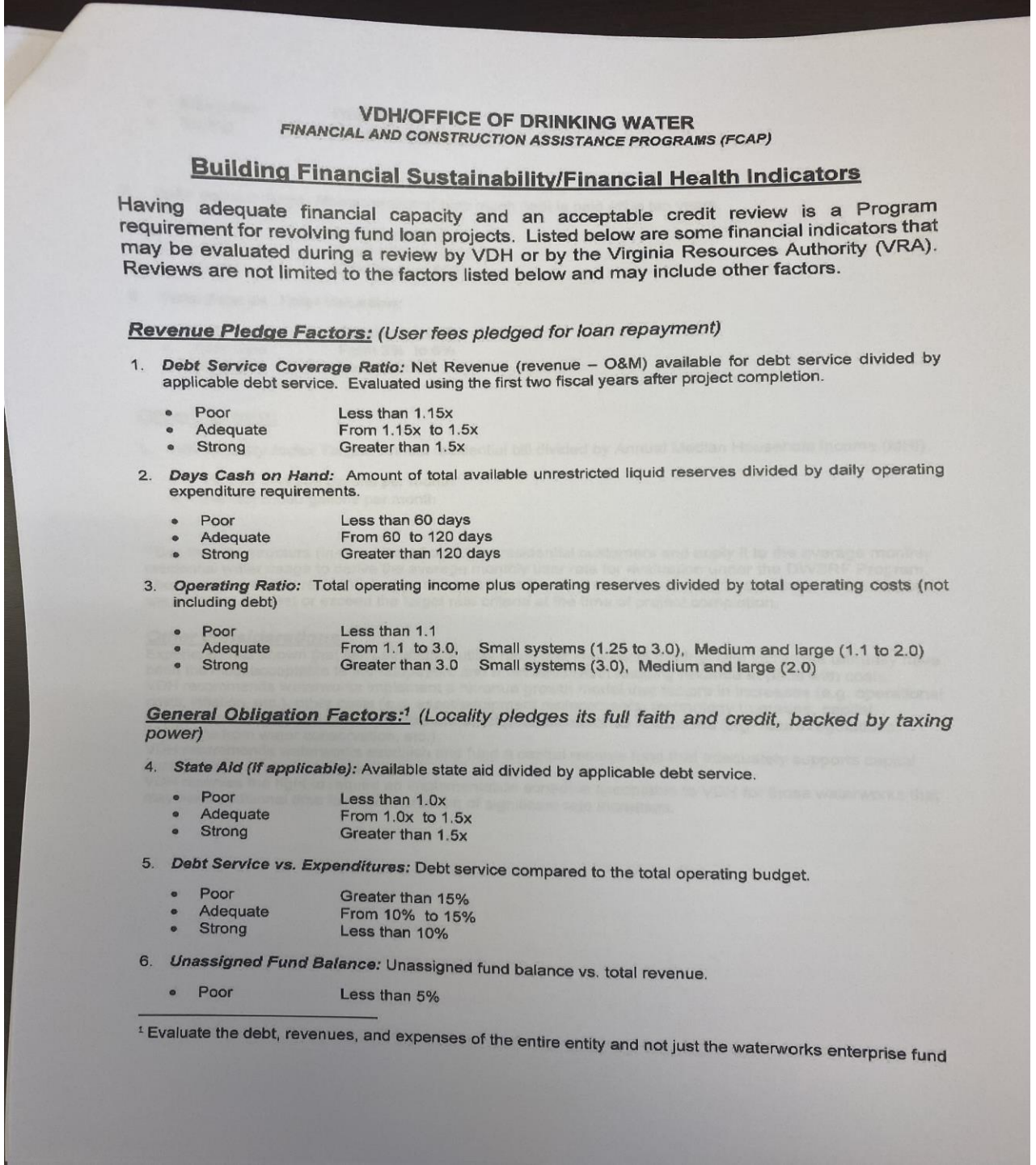
Throughout the life of the loan:

- The Town's audits must show, at a minimum, a combined 120 days cash on hand in the water and sewer fund
- The Town must budget to meet the rate covenant.
- Future amendments to the water and sewer wholesale agreements with the PSA and Cedar Bluff require VRA consent.
- Express VRA consent is required for additional debt with a water/sewer revenue pledge.

The Virginia Department of Health (VDH) has completed a preliminary review of your application for drinking water construction funds, and the letter dated November 19, 2020 indicating that the Town Council will vote and pass a resolution on December 8, 2020 adopting a new rate structure. According to the November 19, 2020 letter the monthly rate for water and sewer combined will be $50.58 and if that is split 50/50 then the rate for water only is $25.29 bringing the Town's water rates above 1 percent of the Town's Median Household Income (MHI). The determination of the funding package is shown below; however, this determination and your inclusion in VDH's Intended Use Plan is contingent on the availability of federal and state funding as well as the conditions below.

Based on the information provided, VDH determined the total funding package for your project is estimated to be **$3,889,000.** The funding package consists of **$400,000 as principal forgiveness** (grant) and **$3,489,000 as a loan with your choice of terms – either 20 years or 30 years** (or the design life of the project, whichever is less). The interest rate on the **20 year loan** will be set equal to **1% below** the 20-year AA municipal bond rate at the time of loan closing. Recently the AA bond rate has varied between 2.5% to 3.5 %. The interest rate on the **30 year loan** has been established at **2.2%**. Both interest rate options are eligible for our Expedited Closing Program. This option will subtract 0.2% from the interest rate, not to drop below 1.0%. To qualify for the Expedited Closing Program VDH requires your loan closing be completed within 12 months of our award letter. If this funding offer is accepted, then you will receive an award letter after this. If you will participate in this special program, please indicate your plans for complying in your response letter. In this response letter, please also include whether you prefer the 20 or 30 year loan term option (not to exceed the design life of the project).

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment
WWW.VDH.VIRGINIA.GOV



VDH/OFFICE OF DRINKING WATER
FINANCIAL AND CONSTRUCTION ASSISTANCE PROGRAMS (FCAP)

Building Financial Sustainability/Financial Health Indicators

Having adequate financial capacity and an acceptable credit review is a Program requirement for revolving fund loan projects. Listed below are some financial indicators that may be evaluated during a review by VDH or by the Virginia Resources Authority (VRA). Reviews are not limited to the factors listed below and may include other factors.

Revenue Pledge Factors: *(User fees pledged for loan repayment)*

1. ***Debt Service Coverage Ratio:*** Net Revenue (revenue – O&M) available for debt service divided by applicable debt service. Evaluated using the first two fiscal years after project completion.
   - Poor — Less than 1.15x
   - Adequate — From 1.15x to 1.5x
   - Strong — Greater than 1.5x
2. ***Days Cash on Hand:*** Amount of total available unrestricted liquid reserves divided by daily operating expenditure requirements.
   - Poor — Less than 60 days
   - Adequate — From 60 to 120 days
   - Strong — Greater than 120 days
3. ***Operating Ratio:*** Total operating income plus operating reserves divided by total operating costs (not including debt)
   - Poor — Less than 1.1
   - Adequate — From 1.1 to 3.0, Small systems (1.25 to 3.0), Medium and large (1.1 to 2.0)
   - Strong — Greater than 3.0 Small systems (3.0), Medium and large (2.0)

General Obligation Factors:[1] *(Locality pledges its full faith and credit, backed by taxing power)*

4. ***State Aid (if applicable):*** Available state aid divided by applicable debt service.
   - Poor — Less than 1.0x
   - Adequate — From 1.0x to 1.5x
   - Strong — Greater than 1.5x
5. ***Debt Service vs. Expenditures:*** Debt service compared to the total operating budget.
   - Poor — Greater than 15%
   - Adequate — From 10% to 15%
   - Strong — Less than 10%
6. ***Unassigned Fund Balance:*** Unassigned fund balance vs. total revenue.
   - Poor — Less than 5%

[1] Evaluate the debt, revenues, and expenses of the entire entity and not just the waterworks enterprise fund

- Utility Fund Requirements
  - Acceptable credit review
  - Revenue Pledge Factors
    - Debt Service Coverage Ratio
    - Days Cash on Hand
    - Operating Ratio
- General Obligation Factors
  - State Aid
  - Debt Service vs Expenditures
  - Unassigned Fund Balance

Days Cash on Hand – Water

Current Debt

Unreserved Cash Balance Rolling 12 Month Low	$1,273,275	Based on lowest point during September 2022 through August 2023
Add: ARPA Fund Transfer from General Fund	448	This is a result of paying Sewer and Water Department loans with ARPA funds from the General Fund. An adjusting journal entry is required in the general ledger.
Less: Projected Expenses	(387,033)	Budgeted expense of $1,161,098*4 months/12months
Less: Projected Debt Service Payments	(29,065)	Budgeted payments of $87,195*4 months/12months
Surplus (Shortage)	$857,625	

New Debt

Unreserved Cash Balance Rolling 12 Month Low	$1,273,275	Based on lowest point during September 2022 through August 2023
Add: ARPA Fund Transfer from General Fund	448	This is a result of paying Sewer and Water Department loans with ARPA funds from the General Fund. An adjusting journal entry is required in the general ledger.
Less: Projected Expenses	(387,033)	Budgeted expense of $1,161,098*4 months/12months
Less: Projected Debt Service Payments	(81,966)	Budgeted payments of $245,897*4 months/12months
Surplus (Shortage)	$804,725	

1) Water Fund Balance used for emergency repairs.
2) Will Plant Capacity be increased soon?

Days Cash on Hand – Wastewater

Current Debt

Unreserved Cash Balance Rolling 12 Month Low	($1,534,153)	Based on lowest point during September 2022 through August 2023
Add: ARPA Fund Transfer from General Fund	1,060,466	This is a result of paying Sewer and Water Department loans with ARPA funds from the General Fund. An adjusting journal entry is required in the general ledger.
Less: Projected Expenses	(404,302)	Budgeted expense of $1,212,905*4 months/12months
Less: Projected Debt Service Payments	(14,948)	Budgeted payments of $44,844*4 months/12months
Surplus (Shortage)	($892,937)	

New Debt

Unreserved Cash Balance Rolling 12 Month Low	($1,534,153)	Based on lowest point during September 2022 through August 2023
Add: ARPA Fund Transfer from General Fund	1,060,466	This is a result of paying Sewer and Water Department loans with ARPA funds from the General Fund. An adjusting journal entry is required in the general ledger.
Less: Projected Expenses	(404,302)	Budgeted expense of $1,212,905*4 months/12months
Less: Projected Debt Service Payments	(140,801)	Budgeted payments of $422,404*4 months/12months
Surplus (Shortage)	($1,018,790)	

Sewer Fund Balance does not meet required minimum

Rates to Support Needed Improvements

Water 2,000 Gallons Usage:

	Current	Proposed
Richlands	$19.87	$19.87
Tazewell	$29.25	
Lebanon	$18.25	
Russell	$36.40	

Richlands will have the most up-to-date facility.

Richlands has experienced low rates for many years with its outdated facility.

Rates to Support Needed Improvements

Sewer 2,000 Gallons Usage:

	Current	Proposed
Richlands	$26.03	$36.73
Tazewell	$30.50	
Lebanon	$19.25	
Russell	$36.40	

Richlands has experienced low rates for many years with its outdated facility.

Richlands will have the most up-to-date facility.

Rate Increase necessary to increase Fund Balance due to $900K beginning deficit.

Questions & Discussion

Next Steps

In order to change the rates, a Public Hearing is required.

This is a work session, and any proposed action or next steps must be referred to a future agenda for potential action.