



Board of Selectmen

Ware Town Hall, Meeting Room, 126 Main Street

Regular Meeting Minutes – Tuesday, September 24, 2019 at 7:00 p.m.

Meeting Opened by Chairman Carroll

Present: Selectman John E. Carroll, Selectman Keith J. Kruckas, Selectman Tracy R. Opalinski, Selectman Alan G. Whitney, Town Manager Stuart Beckley, Clerk Mary L. Midura, Deputy Fire Chief Edward Wloch, Interim DPW Director Gilbert St. George-Sorel

Absent: Selectman Nancy J. Talbot

Opening Remarks, Announcements, and Agenda review by Chair

Selectman Opalinski noted the Northeast Fine Arts Exhibition at Workshop 13 and Art Works beginning September 28 to October 12, Fridays, Saturdays and Sundays, 1-5pm.

Carol Zins spoke about the First Friday Club with specials at businesses, starting next week, and please support local businesses. The Ware History Hunt will be October 12 with a \$500 first prize.

Danielle Sousa, WCBA, presented funds raised at the Sparkle Run to Ware Lions Club for fireworks \$1,000, \$500 Care for the Troops, \$230 United Church, and \$230 Ware Flair.

Cathy Cascio noted the passing of John Lasek, ADA Coordinator.

Consent Agenda

- **Approval of August 13, 2019 and September 3, 2019 Minutes**
- **Approval of One-Day Beer & Wine License: Workshop 13, Northeast Fine Arts Exhibition, September 28, 2019**
- **Toll Road Application: Ware Fire Department for MDA, Sunday, October 6, 2019**
- **Toll Road Application: Ware Knights of Columbus Council 183 Tootsie Roll Drive, Saturday, October 12, 2019**
- **Special Event Permit Application: Grenville Woodland Playground Committee Presents Zombie 5K Run/Walk, Saturday, October 19, 2019**
- **Special Event Permit Application: Ware Knights of Columbus Halloween Parade, Friday, October 25, 2019**
- **Toll Road Application: Ware Rotary Club, November 2 & 3 or November 9 & 10, 2019**

Selectman Whitney made the motion to approve the Consent Agenda (Selectman Carroll noted the Toll Road for Ware Fire Union, not the department); Selectman Opalinski seconded the motion. The motion passed on a vote of 4 Yes, 0 No, 1 Absent (Selectman Talbot).

Scheduled Appearances - none

Old Business

- **Review: Dangerous/Nuisance Dog, Westbrook Avenue**

Chairman Carroll noted that the owner is not present due to health issues. Mr. and Mrs. Hill were present to state that the dog got out the day after the last Board of Selectmen's meeting, and attacked again with leash trailing and no muzzle. They observed the owner driving in reverse chasing the dog. After the dog attacked and jumped on Mr. Hill, the owner did not speak to them as he took the dog to his truck. The Hills' dog received puncture wounds.

The Animal Control Officer (ACO) was not present. The owner has sent emails to the Board stating they are getting quotes for a fence. Selectman Opalinski questioned Town Manager Beckley regarding options. Mr. Beckley noted the law states the Board can declare the dog dangerous and to be put down. It has also been indicated that the owner could bring the dog to her father's home. Selectman Whitney noted the owners agreed to control the dog and are now out of options. He further stated the dog should be put down if it gets out again. Mr. Beckley noted the Board could move to remove the dog until the fence is built. Selectman Opalinski noted there are no-kill shelters. Chairman Carroll suggested the motion be made to remove the dog immediately, until the fence is installed, and if the dog gets out after that, to take action.

Selectman Whitney made the motion to remove the dog immediately, not to return until the fence is installed, and if the dog gets out after that, to have the dog declared a dangerous dog, and put down. Selectman Kruckas seconded the motion. The motion passed on a vote of 4 Yes, 0 No, 1 Absent (Selectman Talbot).

- **LATE FILE: Consideration of Appointment of Interim Fire Chief**

Deputy Fire Chief Ed Wloch was present. Chairman Carroll noted this is not intended to fill the Fire Chief position. This is to give Deputy Fire Chief Wloch power to sign contracts, pharmacy agreement, etc. The intention is to appoint as Interim Chief or Acting. Selectman Opalinski questioned a salary increase or ability to hire/fire; Mr. Beckley confirmed no increase and no ability to hire/fire as the Town has a Strong Chief. Selectman Whitney questioned disciplinary ability; Deputy Wloch noted he received a grievance, but cannot answer it as Deputy Chief.

Selectman Whitney made the motion to Appoint Deputy Fire Chief Ed Wloch as Acting Interim Fire Chief, contingent on HRD's legal unit providing direction about a permissible course. Selectman Kruckas seconded the motion.

Selectman Opalinski asked to clarify this is not to fill a vacancy. The Board noted that clarification.

The motion passed on a vote of 4 Yes, 0 No, 1 Absent (Selectman Talbot).

Acting Interim Fire Chief Wloch stated he had good news: the new pickup has been received and is being outfitted. The SCBA grant has been approved. The Active Threat Grant of \$2,900 for ongoing training has been approved. A \$90,000 AFG for school program of 4 years has been approved.

New Business

- **Application for Sewer Abatement – Laverdiere**

Mr. Laverdiere was present for the application. He noted he has lived on Walnut Street for 18 years, and his bill was usually \$200-300, but in August was \$534. He has eight family members living there with a large yard. He noted that he called the water department with no response. He visited the water department office and was given an application for sewer abatement, with the suggestion that he have a new meter installed. He stated that the installer informed him that the meter cost was \$200. He asked for a free meter, but the director would not approve it. He is looking for an abatement. He did note that he has a big lawn and his sons watered the lawn several times. Chairman Carroll gave his own example of bills at \$400 and \$1,400 with no special consideration of his role as a Water and Sewer Commissioner. Mr. Laverdiere noted he is a veteran and has never previously come to a Board meeting.

The Board of Selectmen took no vote on this application.

- **Update on DPW projects**

Mr. St. George-Sorel updated the Board on the Spring Street project, Elm Street project, Aeration Tank Cleaning, Guardian Energy Project, Water Filtration Plant, Main Street Reconstruction project, Old Belchertown Road Bridge, Water, Wastewater, Highway projects, and noted a need for a Warrant article for the November 18, 2019 Special Town Meeting. (Attachment plus Ware WPCP Treatment Evaluation from Tighe & Bond). Selectman Kruckas noted the Hardwick infrastructure and sewer problem of capacity. Mr. St. George-Sorel noted the need for a lengthy discussion to look at alternative option, and there would be a need for an inter-municipal agreement. The Main Street Reconstruction project may go to bid in winter with start in Spring 2020. Selectman Whitney questioned the cost of remote reading of water meters; Meters cost \$150 and the plan is to replace all meters, as the old meters do not integrate well with the new system. Selectman Opalinski questioned the timeline of the new plant; Mr. St. George-Sorel noted the emphasis on nitrogen because of algae. Selectman Opalinski questioned if there will be a report on revenue, and Mr. St. George-Sorel answered that he wants to note the actual money that comes across the counter.

- **Police Chief Request: Civil Service Candidate List for Two Vacant Full-Time Police Officer Positions**

Selectman Whitney made the motion to request Civil Service Candidate List for Two Vacant Full-Time Police Officer Positions. Selectman Kruckas seconded the motion. The motion passed on a vote of 4 Yes, 0 No, 1 Absent (Selectman Talbot).

Chief Crevier noted that his son is in the process. He requested that the Board vote to ask the Palmer Police to run the civil service selection process.

Selectman Kruckas made the motion to request Palmer Police to Run the Civil Service Selection Process. Selectman Whitney seconded the motion. The motion passed on a vote of 4 Yes, 0 No, 1 Absent (Selectman Talbot).

Chief Crevier distributed pink badges to the Board for Breast Cancer month. Chief Crevier noted No Shave November with each officer donating \$100. Chairman Carroll asked how the new phone system has worked; Chief noted the system has been well received.

- **Resignation: Josh Kusnierz, Cannabis Committee**

Selectman Kruckas made the motion to accept the resignation, with regrets. Selectman Whitney seconded the motion. The motion passed on a vote of 4 Yes, 0 No, 1 Absent (Selectman Talbot).

- **Resignation: Brenda Cooper, Community Development Authority**

Selectman Opalinski made the motion to accept the resignation, with regrets. Selectman Whitney seconded the motion. The motion passed on a vote of 4 Yes, 0 No, 1 Absent (Selectman Talbot).

There are now two open positions on the CDA.

- **Application for Appointment: Ware Cultural Council – Lynn Rude, Term to Expire September 30, 2022**

Selectman Whitney made the motion to approve Appointment of Lynn Rude to Ware Cultural Council, Term to Expire September 30, 2022. Selectman Opalinski seconded the motion. The motion passed on a vote of 4 Yes, 0 No, 1 Absent (Selectman Talbot).

- **Open Warrant for Special Town Meeting November 18, 2019**

Selectman Whitney made the motion to Open the Warrant for Special Town Meeting November 18, 2019, and to Close the Warrant October 10, 2019 at 3:00 p.m. Selectman Opalinski seconded the motion. The motion passed on a vote of 4 Yes, 0 No, 1 Absent (Selectman Talbot).

- **Set Public Hearing for 7:05 p.m. Tuesday, October 15, 2019 for Transfer of License #00011-RS-1326, Change of Manager, and Transfer of Common Victualler License # 4, Proposed Licensee: Mak-8-Mass, Inc. d/b/a Debbie Wong Restaurant, Proposed Manager: Ho Mak**

Selectman Whitney made the motion to Set the Public Hearing for 7:05 p.m. Tuesday, October 15, 2019 for Transfer of License #00011-RS-1326, Change of Manager, and Transfer of Common Victualler License # 4, Proposed Licensee: Mak-8-Mass, Inc. d/b/a Debbie Wong Restaurant, Proposed Manager: Ho Mak. Selectman Opalinski seconded the motion. The motion passed on a vote of 4 Yes, 0 No, 1 Absent (Selectman Talbot).

- **Approval of Main Street Traffic Rules**

Selectman Whitney made the motion that the Board of Selectmen hereby approved and accepts, and authorizes the Town Manager to sign, the Traffic Control Agreement with Mass DOT, Agreement No. 109135, copy attached (“The Agreement”). Pursuant to the rights, powers, and authority vested in the Board of Selectmen by G.L. c. 40 § 22, G.L. c. 85 § 2, G.L. c. 89 § 8 & 9, G. L. c. 90 § 18 and all other applicable statutes, regulations and legal precedent, the Board of Selectmen hereby adopts, enacts, accepts and establishes all of the “Specific Provisions” of the Agreement including all provisions relative to traffic, parking, signage, bike lanes, traffic control beacons, devices & signals, pavement and other markings and traffic islands as rules, orders, and regulations of the Town of Ware, said rules, orders, and regulations to be effective upon written approval by the Mass DOT. Selectman Kruckas seconded the motion. The motion passed on a vote of 4 Yes, 0 No, 1 Absent (Selectman Talbot).

- **Acknowledgement of Open Meeting Law Complaint**

Selectman Whitney made the motion to Acknowledge an Open Meeting Law Complaint. Selectman Kruckas seconded the motion. The motion passed on a vote of 4 Yes, 0 No, 1 Absent (Selectman Talbot).

Comments and Concerns of Citizens - None

Town Manager Report

October 7 – Bike and Pedestrian Plan Forum, 7 p.m.

October 17 – East Quabbin Rail Trail Ribbon cutting, 4 p.m. at Frohloff Farm

Mary Midura has placed minutes from the following Committees on the Town’s website. Council on Aging, Community Development Authority, Cemetery Commission, Finance Committee, Historical Commission, Parks and Recreation Commission, Conservation Commission, Cannabis Committee, and Open Space Committee.

Mary, with cooperation from the Police Department, also organized the disposal sale of a surplus Crown Victoria cruiser. Using the municipal bid system, the sale price was \$1450.

Maple Street Vehicles. The truck parked on town property on Maple Street has been removed. Many unregistered vehicles remain on the adjacent properties. The building inspector will issue another round of orders and fines. This is occurring on other properties in Town as well.

The Beaver Lake Dam project is reported to be on schedule. The Lake Association is addressing the issues of the area’s residents. The Conservation Commission is holding the wetlands hearing on the Old Belchertown Road Bridge on October 9.

I attended the Mass Municipal Human Resources Conference and the Western Massachusetts legislative forum on transportation and a presentation of the State’s Economic Development Plan with the Secretary of Housing and Economic Development. There is a large focus on designing and implementing services for rural areas of the State.

The Planning, Parks, and Water Department met with designer and project contractor regarding the Ware Dog Park to be constructed on Pleasant Street. The Town will install the required water pipe. Neighbors using the parking lot will be notified to move their vehicles to a specific area during project operations. Construction will commence on September 30.

With the Parks Commission's permission, a film company used the Reed Pool on Sunday for a short scene.

Gypsy moths and other insects and blights in the past few years significantly damaged the health of the Town's tree canopy. The Cemetery Commission reviewed the trees in Aspen Grove last week. There are approximately 30-35 trees which should be removed. This is in addition to the hundreds of trees along town streets that were damaged and are now dangerously weak. Some work can be done by the DPW crew, and some by National Grid, but some work will require a tree contractor. The Tree warden, Parks Manager, and Highway Supervisor will work on a proposal to bring to Town Meeting for funding.

The Treasurer, building Inspector, Parks Manager and Planning Director have reviewed the tax taking properties in town, including those that the Town has already taken possession. Recommendations were made as to whether the town should (1) take and hold the property for future projects, (2) auction the property, or (3) auction the debt (majority). The Treasurer will start the procedure for debt auction. The departments will also meet with the Town's takings attorney to prioritize final takings.

The SMK Elementary boiler project is moving along and should be completed on schedule with final completion scheduled for October 15. The Middle School windows and doors project is being reviewed by the School Building Committee. Bidding should occur in December.

The Insurance Advisory Committee will begin their monthly meetings beginning September 25.

Selectman Kruckas stated his concern about the process of new hires, and requested an update to the Board in 6 months on each new hire, to include complaints, how problems are addressed and handled. Selectman Opalinski questioned if reviews have been done by department heads.

Selectman Kruckas made the motion for Town Manager to report to the Board on new hire department heads after 6 months. Selectman Whitney seconded the motion. The motion passed on a vote of 4 Yes, 0 No, 1 Absent (Selectman Talbot).

Resident Cathy Cascio noted her approval of a 6-month personnel review. Emma Monahan, Ware River News reporter, asked for clarification on the vote.

Selectman Opalinski asked the progress of the by-laws committee; Mr. Beckley noted he could provide an update at the next meeting.

Adjournment

Executive Session: MGL Chapter 30A, Section 21(a) #3 Litigation

Selectman Whitney made the motion to Adjourn Regular Session at 8:35 p.m. to go into Executive Session; MGL Chapter 30A, Section 21 (a) #3 To Discuss Litigation Strategy With Respect To Clearly and Imminently Threatened and/or Demonstrably Likely Litigation by Fire Chief Thomas Coulombe. Vote May Be Taken. NOT TO RECONVENE IN OPEN SESSION. Discussion in Open Session Would Have a Detrimental Effect on Negotiations by Litigation. Selectman Opalinski seconded the motion. The motion passed on a roll call vote of 4 Yes, 0 No, 1 Absent (Selectman Talbot).

Selectman John E. Carroll	Yes√
Selectman Keith J. Kruckas	Yes√
Selectman Tracy R. Opalinski	Yes√
Selectman Nancy J. Talbot	Absent
Selectman Alan G. Whitney	Yes√

Attest: *Mary L. Midura*
Mary L. Midura, Executive Assistant to
Town Manager



TOWN OF WARE

Department of Public Works
4 ½ Church Street
Ware, MA 01082
Tel. 413-967-9620 Fax 413-967-9622

DPW UPDATE – SEPTEMBER 24, 2019

PROJECTS:

Spring Street

- CDBG project has been substantially completed for this year, with the exception of one retaining wall that has to be replaced and some punch list items.
- The project involved replacing the existing water and sewer lines, installing new drainage, installing new granite curb, sidewalks and wheelchair ramps, etc.
- The contractor will return in Spring 2020 to finish the project, i.e. correct any problems that arose during the winter, raise castings to the final grade and place the top course of asphalt on the street.

Elm Street

- Project should be substantially completed by the end of September, early October.
- This project also involved replacing the existing water and sewer lines, improving drainage, installing new sidewalks and wheelchair ramps, resetting existing granite curb, etc.
- The contractor will return in Spring 2020 to finish the project, i.e. correct any problems that arose during the winter, raise castings to the final grade and place the top course of asphalt on the street.
- This project was completed using water and sewer enterprise and Chapter 90 funds and is on time and close to budget.

Aeration Tank Cleaning

- The winter side of the aeration basin (tanks #2 and #4) at the WWTP has been totally cleaned. The Town received a good bid of \$203,000 to do the work.
- While that side was drained, a drain valve from tank #2 was repaired and work has been scheduled on two old plug valves at the rear of the tank that cannot be turned. It makes sense to do these things as part of the project.
- Our consultants, Tighe & Bond, also inspected the tank, since it hasn't been emptied and cleaned in a long time. They took some samples of the concrete from the sides and bottom of the tanks to see how stable the tank is after 37 years and examined the steel supports for the aerator platforms, the piping systems in the tank and the aerator platforms. They will issue a report with recommendations for future repairs to maintain the integrity of this side of the overall aeration tank.
- This tank is critical to the future operation of the plant and will have to be modified to meet expected new permit limits for nitrogen.
- The tank will be refilled beginning November 1st and the other side will be drained.

Guardian Energy Project

- This project at the WWTP has been completed and the Town has been reimbursed for its expenditures, except for enterprise funds which were used as the Town's match.
- The project involved the installation of new motors, variable frequency drives on the motors, additional SCADA equipment to monitor operations, and dissolved oxygen probes in the aeration tanks.
- The Town was required to prepare a final report and include an informational flyer in each water and sewer bill describing the project.

Water Filtration Plant

- We are working with Town Counsel to prove we have title and access to the property the Town has owned since 1886.

Main Street Reconstruction Project

- MassDOT published notice to bid project on August 20th.

- May be a requirement to encumber FHA portion of project before expiration of Federal fiscal year on September 30th.
- Start date is unknown, but most likely Spring 2020. Maybe!!! Possibly!!!

Old Belchertown Road Bridge

- Our consultants, Tighe & Bond Engineers, have prepared a NOI for the Conservation Commission for the project.
- May be considered when ConCom meets on October 9th.
- Once that's completed the design for the repairs will be submitted to MassDOT. Mass DOT will review the plans, make any recommendations and will issue a Chapter 85 permit to make the repairs.
- Timeframe for repairs is uncertain and depends on whether the project will be approved by District #2 in Northampton, or will be sent to Boston.
- The cost of the design is \$62,100.00. The cost of repairs may increase because there is an endangered species at the bridge and additional precautions may be required during the construction phase of the project. Preliminary estimate was approximately \$283,000.000.

OTHER:

Water:

Distribution flushing is taking place and will continue through October. Zone1 has been completed and flushing is taking place in Zone 2.

A leak detection survey of all 42 miles of the water distribution system has been completed. The purpose of such a survey is to:

- Reduce unaccounted for water which must be reported on the Annual Statistical Report.
- Comply with Water Management Act requirements to complete such a survey every 3 to 3½ years.
- Find and repair leaks during the warm weather rather than waiting until the leak suddenly surfaces in the middle of winter and it has to be repaired immediately at higher cost.

The last survey was done in 2012.

- On August 26th, MADEP performed a Sanitary Survey of the water system. All of the system components, i.e. production, treatment, distribution and storage are

evaluated to see if they comply with the drinking water regulations of Massachusetts.

- All six well pumps at Barnes Street were tested and evaluated. A report will be issued for each pump describing its performance and suggested repairs. The last test was done in 2011.
- The meter modernization program continues. The goal is to eventually have all the water meters converted to the remote reads, just like the electric meters.

Wastewater:

- NPDES Permit expired in September, 2018; operating on an expired permit,
- Not sure when we will receive a new permit,
- Could result in significant expenditures; existing WWTP was designed in 1978 and constructed in 1983 – it's old; it was designed to reduce the strength of the wastewater (BOD) by 85%, to reduce suspended solids (SS) by 85%, to convert ammonia nitrogen (NH₄) in human waste to nitrite (NO²) and nitrate (NO³) nitrogen by aeration and to reduce phosphorus by adding salts of aluminum – that's it!!!
- Most likely the town will receive a nitrogen limit it can't meet. This could involve a substantial expenditure of funds.
- See attached preliminary evaluation by Tighe & Bond.

Highway:

Stone Sealing of various roads will begin on Friday, September 27, 2019, as follows:

2019 – ROADS FOR STONE SEALING

1. **Osborne Road:** Beginning at the intersection of Doane Road and Osborne Road, then 11,000 feet along Osborne Road to the intersection of Old Poor Farm Road and Osborne Road – average width = 22'.
2. **Old Poor Farm Road:** Beginning at the intersection of Old Poor Farm Road and Osborne Road, then 2,300 feet along Old Poor Farm Road to the unnamed brook – average width = 18'.
3. **Doane Road:** Beginning at the intersection of Doane Road and Walker Road, then 2,000 feet to the intersection of Doane Road and Greenwich Plains Road – average width = 20'.
4. **Dugan Road:** Beginning at the intersection of Dugan Road and Anderson Road, then 3,900' along Dugan Road to the end of the paved road – average width 16'.

5. **Shoreline Drive:** Beginning at the intersection of Shoreline Drive and Babcock Tavern Road, then 5,700 feet along Shoreline Drive to the end of the paved road - average width = 24'.
 6. **Old County Road:** Beginning at the intersection of Old County Road and Monson Turnpike Road and Old County, then 615 feet to the intersection of Old County Road and Beaver Road - average width = 18'.
 7. **Babcock Tavern Road:** Beginning at the intersection of Beaver Lake Road, then 1,250' along Babcock Tavern Road to the intersection of Babcock Tavern Road and Shoreline Drive – average width = 22'.
 8. **Horseshoe Circle:** Beginning at the intersection of Monson Turnpike Road and Horseshoe Circle, then, 3, 168 feet along Horseshoe Circle back to Horseshoe Circle – average width = 22 feet.
 9. **Indian Hill Road:** Beginning at the intersection of Horseshoe Circle and Indian Hill Road, then 815' to the intersection of Indian Hill Road and Horseshoe Circle – average width = 22 feet.
- Prior to stone sealing, DPW employees placed approximately 900 tons of bituminous concrete with a rented paver on select sections of the roads that were severely rutted, or filled with potholes and that had been repeatedly patched; the roads were then thoroughly swept and patched by hand. Wherever possible, roadside ditches were cleaned and culverts were repaired.
 - Resurfacing and related work is scheduled to take place in October on Woodland Heights and Longview Avenue and on Babcock Tavern Road from Route 9 to Coldbrook Drive in November, weather permitting.
 - Future projects include resurfacing and related work on Church Street, from the former Koziol farm to the culvert near the high-tension electric lines, and on Greenwich Road from Muddy Brook to North Street (I've submitted the attached a warrant article and motion to use some money set aside for this purpose):

Warrant Article for November 18, 2019 Special Town Meeting

Article:

To see if the Town will vote to appropriate a sum of money to be expended for resurfacing and related work on Greenwich Road and to determine the manner of meeting said appropriation, whether by taxation, transfer from available funds, borrowing, or any other means or any combination thereof, or take any other action relative thereto.

Explanation:

This article will allow the DPW to use funds from the Robinson/Roach escrow deposit fund for resurfacing and related work on a section of Greenwich Road. This money comes from payments made by the owners of the Robinson/Roach gravel pit for gravel removed from the pit and must be used on Greenwich Road. The money will be combined with Chapter 90 funds. Currently, there is \$28,981.67 in the fund.

Motion:

I move that the Town vote to appropriate the sum of \$28,981.67 for resurfacing and related work on Greenwich Road and to meet said appropriation by authorizing the use of \$28,981.67 from Town Accountant line item 4000-000-2885 Escrow Deposit – Robinson/Roach.

- Prior to winter there are plans for drainage improvements on Sheehy Road and for improvements to a portion of Lee Road. Some money was set aside by the developer of the property along Lee Road to upgrade the portion of the road above the former Cloutier/Bilz property.



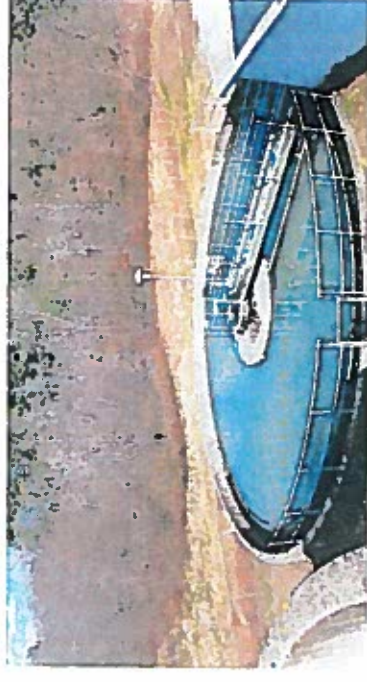
WARE WPCP TREATMENT EVALUATION

July 2, 2019

Ian Catlow & Austin Weidner

CURRENT CHALLENGES

1. Cumbersome Alkalinity Addition
2. Aluminum and Copper Order
3. TP to 1.0 mg/L (summer only)
4. TN to 83.4 lb/d (future annual average)

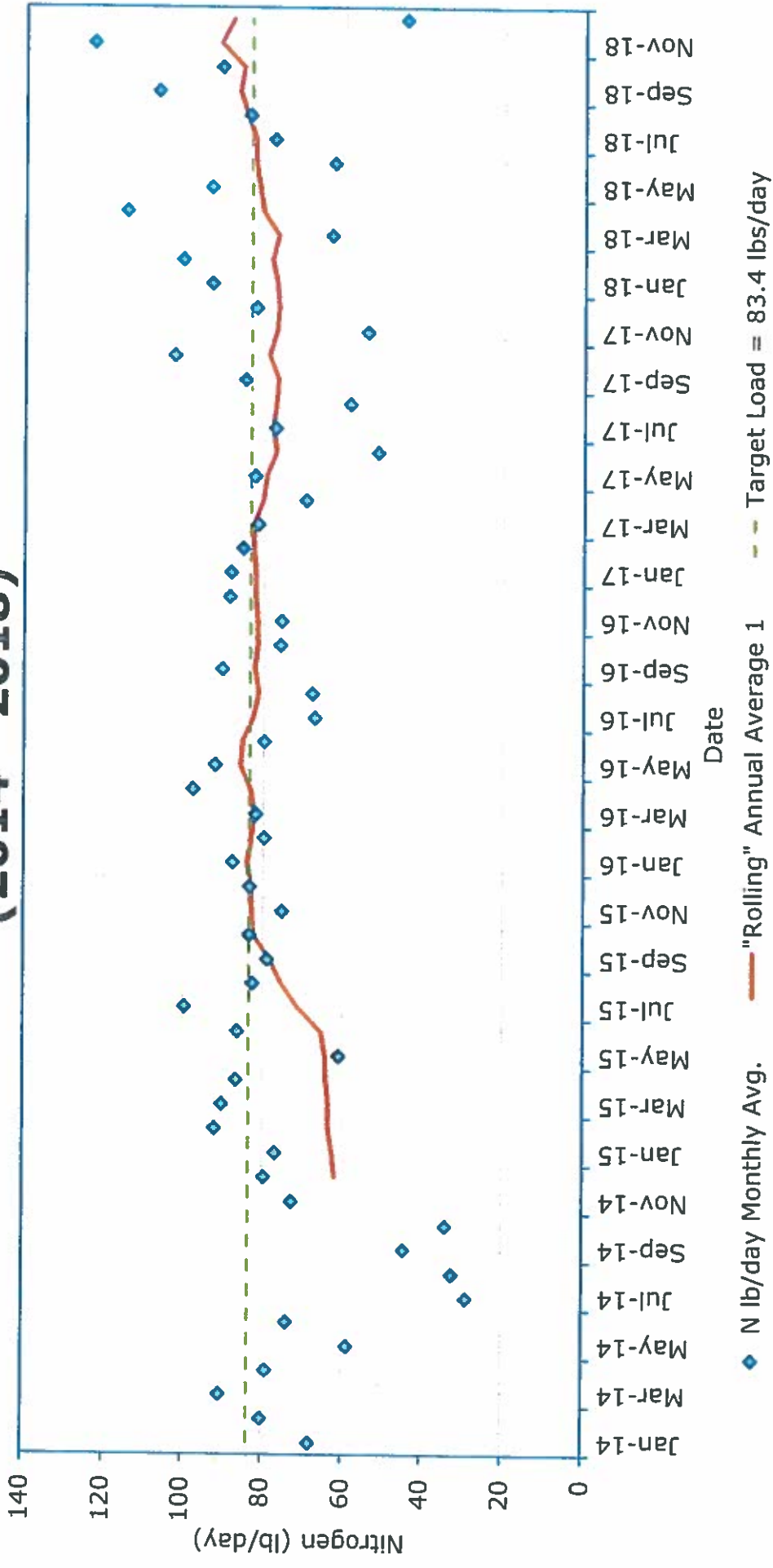


GOALS

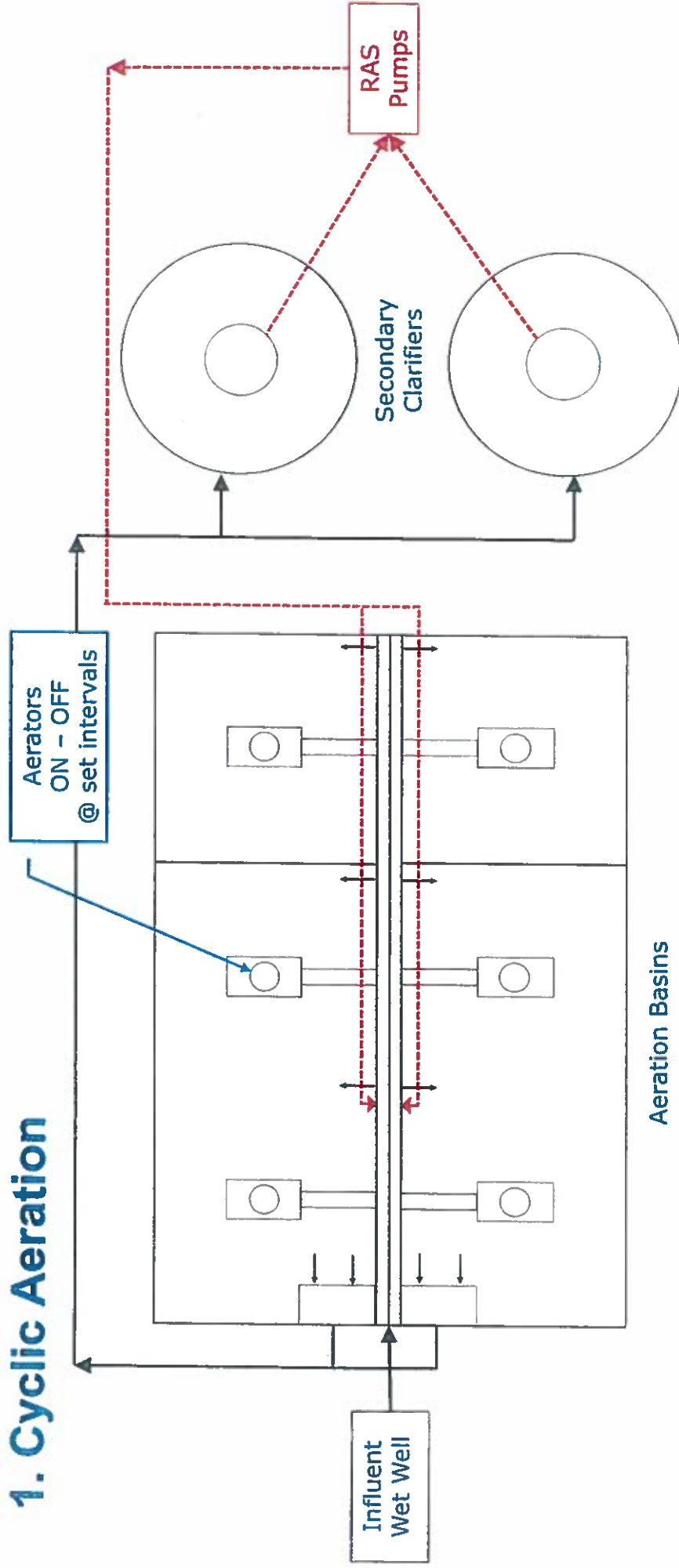
1. Meet all current and future permit limits
2. Simplify Operations
3. No new Tankage
4. Utilize BNR to minimize Chemical Use



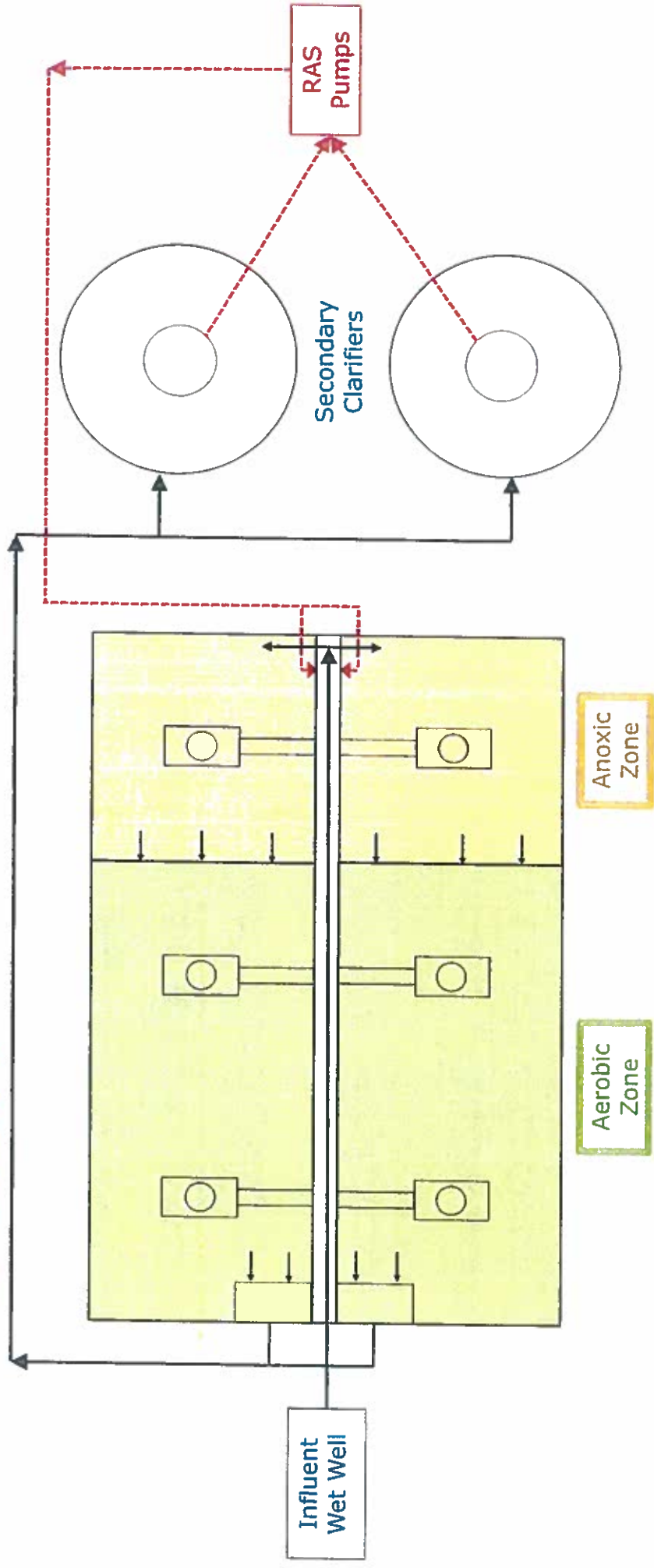
Ware Wastewater Treatment Plant Total Nitrogen Discharge (2014 - 2018)



1. Cyclic Aeration

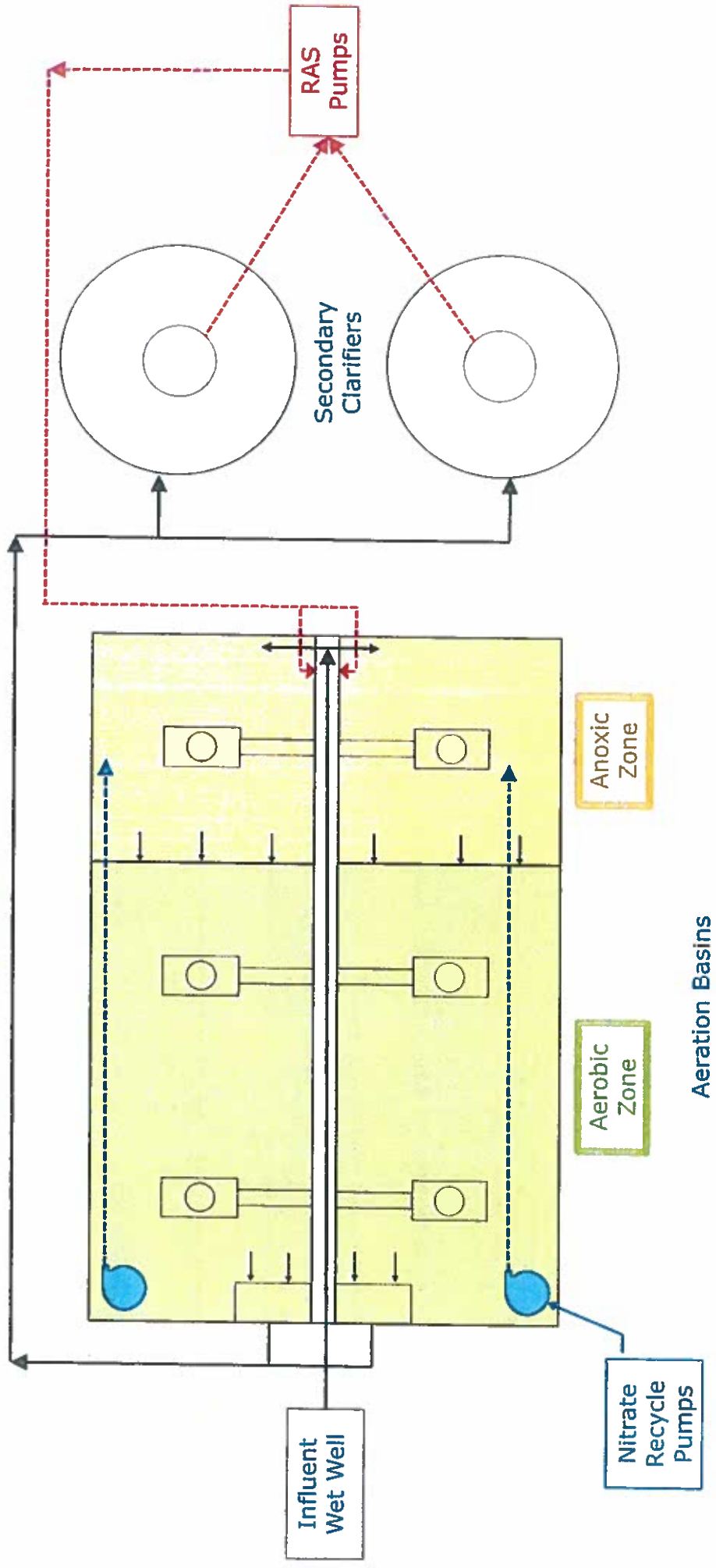


2. Ludzack - Ettinger



Aeration Basins

3. Modified Ludzack - Ettinger



COMPARISON SUMMARY

ALTERNATIVE	CAPITAL COST	OPERATING COST	NITROGEN GOAL	PROS	CONS
Current	0	0	None		
Cyclic Aeration	\$	\$	Moderate Removal	<ul style="list-style-type: none"> • Little to no cost to try • Some alkalinity recovery 	<ul style="list-style-type: none"> • Solids Deposition • Requires piloting • Increased stress on equip / shorter life • Not easily adaptable to flow variations
Ludzack-Ettinger	\$\$\$	\$\$	Moderate Removal	<ul style="list-style-type: none"> • More alkalinity recovery • Improve clarifier settling (less PACl needed) 	<ul style="list-style-type: none"> • Modify Internal Wall • Requires supplemental mixing
Modified Ludzack-Ettinger	\$\$\$\$	\$\$\$	Most Effective Removal	<ul style="list-style-type: none"> • Most alkalinity recovery • Easiest to modify for Bio-P removal 	<ul style="list-style-type: none"> • Modify Internal Wall • Requires nitrate recycle pump & mixer

PHOSPHORUS REMOVAL ALTERNATES

1. Flow pace chemical

- Reduce chemical usage
- Reduce effluent Al concentration
- Reduce sludge generation

2. Switch to Ferric Chloride

- Removes Phos without Al addition
- Safety & Equipment Corrosion issues
- Increased alkalinity consumption

3. Bio-P

- Challenging with current process configuration

ALKALINITY ADDITION IDEAS

- 1. Continue Manual Soda Ash Addition**
 - Less quantity with Nitrogen Removal Upgrades
 - Limited operational control
- 2. Automate Soda Ash Addition**
 - Dissolve soda ash in water tank that drains to headworks
 - Less manual labor
 - Improves control and reliability
- 3. Install Caustic Feed/Storage System**
 - Completely automated feed system
 - No routine solution make up
 - Material Safety Concerns
 - Highest Capital Costs

