



LCA Main Office:
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Wescosville, PA 18106
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Agendas & Minutes Posted:
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LEHIGH COUNTY AUTHORITY

Published: January 20, 2026

BOARD MEETING AGENDA – January 26, 2026 – 12:00 p.m.

In-Person or Virtual Meeting Attendance Options Available: Meetings of the LCA Board of Directors will be held at LCA's Main Office as well as online using the Zoom Meetings application, which includes a telephone option. Public participation is welcomed both in-person or virtually. Instructions for joining the meeting online or by phone are posted on the LCA website in the morning on the day of the meeting, prior to the start of each meeting. You may also issue comment to LCA via email to LCABoard@lehighcountyauthority.org in advance of any meeting or view the meeting at a later time by visiting the LCA website. Please visit <https://www.lehighcountyauthority.org/about/lca-board-meeting-videos/> for specific instructions to join the meeting if you are attending virtually. If attending in-person at LCA's Main Office, please follow all safety and sanitation protocols posted.

1. Call to Order

- NOTICE OF MEETING RECORDINGS

Meetings of Lehigh County Authority's Board of Directors that are held at LCA's Main Office at 1053 Spruce Road, Wescosville, PA, may be recorded for viewing online at lehighcountauthority.org. Recordings of LCA meetings are for public convenience and internal use only and are not considered as minutes for the meeting being recorded, nor are they part of the public record. Recordings may be retained or destroyed at LCA's discretion.

- *Public Participation Sign-In Request*

2. Review of Agenda / Executive Sessions

- Additions to Agenda (vote required if action will be taken)

3. Customer Bill Dispute Hearing

- *747 Lumber Street, Allentown PA*

4. Approval of Minutes

- *January 12, 2026 Board Meeting minutes*

5. Committee Reports

- *October 27, 2025 meeting minutes - approved*
- *January 12, 2025 meeting minutes - draft*

6. Public Comments

7. Action / Discussion Items:

FINANCE AND ADMINISTRATION

- *Resolution No. 1-2026-1: Authorizing Statewide Local Share Assessment Grant application for Equipment purchase (Approval) (blue) (digital Board packet, pages 12-13)*
- *Resolution No. 1-2026-2: Authorizing Application for PENNVEST Financing, lead Service Line Replacement Project, Cycle 3 (Approval) (green) (digital Board packet, pages 14-15)*
- *LCA Strategic Plan – Progress Reporting (Discussion) (pink) (digital Board packet, pages 16-23)*

WATER

WASTEWATER

- Allentown Division – KIWWTP Holistic Solids Management Study (Approval) (**yellow**) (digital Board packet, pages 24-60)
- Allentown Division – KIWWTP Plastic Media Trickling Filter – Change Order (Approval) (**salmon**) (digital Board packet, pages 61-71)

8. Monthly Project Updates / Information Items (1st Board meeting per month)
9. Monthly Financial Review (2nd Board meeting per month) – **report to be distributed at a meeting in February**
10. Monthly System Operations Overview (2nd Board meeting per month) (digital Board packet, pages 72-73) – **December 2025 report attached**
11. Staff Comments
12. Solicitor’s Comments
13. Public Comments / Other Comments
14. Board Member Comments
15. Executive Sessions
16. Adjournment

UPCOMING BOARD MEETINGS		
February 9, 2026	February 23, 2026	March 9, 2026

PUBLIC PARTICIPATION POLICY

In accordance with Authority policy, members of the public shall record their name, address, and discussion item on the sign-in sheet at the start of each meeting; this information shall also be stated when addressing the meeting. During the Public Comment portions of the meeting, members of the public will be allowed 5 minutes to make comments/ask questions regarding non-agenda items, but time may be extended at the discretion of the Chair; comments/questions regarding agenda items may be addressed after the presentation of the agenda item. Members of the public may not request that specific items or language be included in the meeting minutes.

REGULAR MEETING MINUTES

January 12, 2026

The Regular Meeting of the Lehigh County Authority Board of Directors was called to order at 12:00 p.m. on Monday, January 12, 2026, Chairman Amir Famili presiding. The meeting was hybrid via in-person and video and audio advanced communication technology (“ACT”), using the Zoom internet application, including telephone option. Each Board member and other attendees of the meeting were able to hear each other attendee and be heard by each other attendee. The public could also participate in the meeting in-person or via ACT, using the Zoom internet application, including telephone option. A Roll Call of Board members present was taken. Amir Famili, Jeff Morgan, Linda Rosenfeld, Kevin Baker, Sean Ziller, and Peter Dent were present for Roll Call and remained for the duration of the meeting.

Attorney Kevin Reid of the KingSpry law firm, the Authority’s Solicitor, was present along with Authority Staff, Liesel Gross, Ed Klein, Andrew Moore, Chris Moughan, AJ Capuzzi, Chuck Volk, Phil DePoe, Taylor Stakes and Lisa Miller.

Chairman Famili announced that the Board received their electronic and hard copies of the Board packet in advance. A copy of the packet is also available online.

REVIEW OF AGENDA

Liesel Gross stated there are no changes to the agenda; however, an Executive Session to discuss a topic with the Solicitor is planned to follow the close of the regular meeting.

APPROVAL OF MINUTES

December 8, 2025 Meeting Minutes

On a motion by Linda Rosenfeld, seconded by Peter Dent, the Board approved the minutes from the December 8, 2025 meeting as presented (6-0).

PUBLIC COMMENTS

None.

LCA Munis ERP System Planning & Re-Implementation

Liesel Gross introduced the project, stating this presentation is intended to be a project overview with no Board action required. The re-implementation of the Munis ERP system has been an organization-wide effort, with every employee participating in some way to achieve the goals of the project. She recognized the project steering committee members – Ed Klein, Chris Moughan, and Brooke Neve – and Todd Marion for their roles in the project. She then provided an overview of the project goals that were developed during the 2021 strategic planning effort, and reviewed Board authorizations that have been approved over the past three years. She noted that the original “go live” date was planned for January 1, 2025, but delayed by six months to July 1, 2025, to allow for additional end-user training and set-up to occur. She then introduced Brooke Neve who served as the project manager to provide more details.

Ms. Neve provided detailed information on the modules and features implemented and examples of improved processes. She noted that the biggest change was in the general ledger string. This change now allows for departmental budgeting and reporting. The addition of Project Accounting, Human Capital Management, Tyler Content Manager, and Employee Access now allow for reduction in paper and captures information directly in the database. Utility Billing and Tyler Cashiering

processes were updated to capture all data electronically making it easier to locate data in a customer account.

Ms. Neve also noted the success of the project relied on the huge team effort by all departments and employees. She reviewed gaps that were identified including the need to map administrative processes and document them, and the need for increased change management and employee engagement. She informed the Board that because of the complexity of the intermunicipal agreements, the billing processes associated with those agreements will continue to be managed externally instead of within the Munis ERP system.

Ms. Neve concluded the presentation by noting the next steps, including process documentation, end-user training, integrations with other systems, and additional module implementations.

Peter Dent asked how the Munis program ties in with the engineering and operational data. Chris Moughan explained that the Munis system is primarily a financial system, but it can be integrated with other systems. In addition, the Authority will be developing a digital master plan in 2026, with plans to create greater capacity for data analysis, reporting, and integration.

There was additional discussion regarding the departmental budgeting process. Amir Famili commented that a six-month delay in the start-up of a large program implementation should be considered somewhat standard, and he thanked the team for bringing it all together. He also asked how employees were adapting to the change from paper to computer. Brooke Neve said there is a high percentage of people using the system because some of the changes included an elimination of the availability of paper process, such as paper timesheets that no longer exist. There was some additional discussion about reporting requirements, process improvements, and system security.

Capital Project Management / Project Excellence Initiative

AJ Capuzzi provided a presentation regarding the Project Excellence initiative, which was developed to help the Authority staff improve on project performance in the area of budget and schedule adherence. He provided details of the goals, tools, activities, and strategies that they have been working on. He said the goals of the project are to understand and improve project health to get a clear understanding of what is going on with the projects in terms of their scope, schedule, budget, quality, and results. In the presentation, Mr. Capuzzi reviewed details of the tools and reporting used to assist with project performance. A new MS Lists tool was implemented to track all contracts, and a Power BI dashboard developed to report on results. Project schedule templates have been standardized. The Procore software implementation has also been completed, and approximately 38 percent of the Authority's projects are included in Procore today. Reporting tools include monthly project status updates, an overview dashboard, metric explorer, completed contracts, and notes overview. The Procore system also provides for shop drawing reviews, extensive project document management, and daily construction management reports.

Mr. Capuzzi then provided examples of the metrics that are proposed to be used in quarterly reporting to the Board, which focus on financial performance compared to budget and forecast. The staff is seeking feedback on these metrics to determine what would be the most useful data to share with the Board. Amir Famili thanked the team for the presentation and the work that has been completed. He noted that his primary concern is that the staff has the tools needed to properly manage the Authority's growing capital program and keep up with tracking financial and schedule performance, and enabling data-driven decisions and process improvements. Kevin Baker suggested that the Board would be interested in seeing any project scope changes and understanding the implications on the overall capital program. Linda Rosenfeld asked that something be added to the Board reports to show what the Board has approved for a project and how that compares to final project costs when the project is complete. Amir Famili suggested the database be

modified to include a place to capture lessons learned, which can be analyzed for trends and improvements made based on those trends.

Mr. Capuzzi thanked the Board for this feedback. He concluded the presentation with a review of the goals for 2026, which include developing the final form of project reporting for the Board, completing \$62.2 million in capital improvements, entering 100 percent of all capital projects into Procore, integrating the Munis ERP with Procore, and offering Project Management Institute training for key project managers.

Industrial Pretreatment Plant Master Plan

Liesel Gross updated the Board on the funding options for the Industrial Pretreatment Plant, including potential partnerships with Upper Macungie Township and the County of Lehigh. No decision has been made at this point, and conversations are ongoing. She discussed the change in leadership at the County, which will require some additional time to make connections with new elected officials. The Township is also conducting a deeper review of the Authority's prior engineering work. This item will remain on the Authority's agenda until a resolution is able to be brought forward for Board action.

MONTHLY PROJECT UPDATES / INFORMATION ITEMS

Liesel Gross stated that the three items discussed today will come off the report next month. She noted that the safety report will move to a meeting in February and also noted there will be a review of the strategic plan at the next meeting in January. Andrew Moore noted that the Authority recently received an innovation award from PWEA for the Sand Spring wastewater treatment plant project.

STAFF COMMENTS

None.

SOLICITOR'S COMMENTS

None.

PUBLIC COMMENTS / OTHER COMMENTS

None.

BOARD MEMBER COMMENTS

Jeff Morgan and Kevin Reid commented on the updates to the Sunshine Act regarding the method and timing related to making changes to a public meeting agenda.

EXECUTIVE SESSION

An Executive Session will be held after the close of the regular meeting to discuss a topic with the Solicitor.

ADJOURNMENT

There being no further business, the Chairman adjourned the meeting at 1:17 p.m.

Linda A. Rosenfeld
Secretary

Lehigh County Authority Board of Directors

Governance Committee

Meeting Minutes

Meeting Date & Time: Monday, October 27, 2025 at 10:45 a.m.

Meeting Location: Lehigh County Authority, 1053 Spruce Road, Allentown, PA 18106

Agenda:

1. Call to Order

Committee Chair Peter Dent called the meeting to order at 10:45 a.m.

2. Roll Call

Committee members present:

Committee Chair – Peter Dent

LCA Board Chair – Amir Famili

Linda Rosenfeld

Ted Lyons

Committee members absent: None

LCA Staff: Liesel Gross, CEO (non-voting)

3. Approval of Minutes

On a motion by Linda Rosenfeld, seconded by Ted Lyons, the Committee approved the minutes of the August 25, 2025 Governance Committee meeting (4-0).

4. Board Vacancies

The Committee discussed the two vacancies on the Authority's Board of Directors and how to get them filled with candidates who will provide value to the Authority's operation. Two possible candidates have been shared with the Authority, and the Committee would like to learn more about them and possibly meet them. There was also some discussion about more proactive outreach to potential candidates that have appropriate background. Action steps discussed include the following:

- Liesel Gross will send the Board Member Expectations document to the County, along with an outline of Authority Board responsibilities and time commitments.
- Liesel Gross will ask the County to coordinate a visit or phone call with the two possible candidates. If the candidates can meet in person with the Governance

Committee, that would be idea. As an alternative, Amir Famili would talk with the candidates individually.

- Ted Lyons would conduct outreach with specific community members who may be well suited to serve on the Authority's Board.

5. Additional Board Committees

The Committee discussed the need for a Finance Committee, with more research required to determine the appropriate duties of a Finance Committee. There was some discussion about the need for greater oversight of the audit process as well as financial policy and decision-making.

Ted Lyons will prepare for the next Committee meeting by developing a draft charter for a Finance Committee after completing some preliminary review of other organizations' committee structures.

6. CEO Review Process & 2026 Schedule

The Committee discussed the timing and informal process of the CEO's annual review. It would be beneficial for the Committee to understand more about what other municipal authorities do for this function. Liesel Gross stated that she has good connections with several municipal authorities of a similar size in Pennsylvania and can ask for their process information to share with the Committee.

7. Board of Directors Efficacy

The Committee discussed conducting a survey or poll of the Board members to determine perceptions about Board performance and effectiveness. The Board completed a review earlier in 2025 that may provide some insights on what the Board members view as the primary duties and responsibilities of the Board. Liesel Gross will send out a summary of that review to the Committee for further discussion.

8. New Business

The Committee would like to consider some form of off-site meeting or system tour after the two Board vacancies have been filled. This kind of event would provide for team-building within the Board, allow for more discussion of Board member roles and responsibilities, and allow for in-person visits with key staff.

9. Public Comment

None.

10. Committee Meeting Schedule

Liesel Gross noted that the following schedule for the 2026 Governance Committee meetings has been advertised:

- January 12, 2026
- April 13, 2026
- July 13, 2026
- October 12, 2026

11. Adjourn

Peter Dent adjourned the meeting at 11:35 a.m.

Lehigh County Authority Board of Directors

Governance Committee

Meeting Minutes – DRAFT

Meeting Date & Time: Monday, January 12, 2026 at 10:45 a.m.

Meeting Location: Lehigh County Authority, 1053 Spruce Road, Allentown, PA 18106

Agenda:

1. Call to Order

Committee Chair Peter Dent called the meeting to order at 10:45 a.m.

2. Roll Call

Committee Chair – Peter Dent

LCA Board Chair – Amir Famili

Linda Rosenfeld

LCA Staff: Liesel Gross, CEO (non-voting)

Ted Lyons – Absent

3. Approval of Minutes

Peter Dent approved the minutes to the October 27, 2025 Governance Committee meeting following no objections.

4. Board Vacancies

The Committee reviewed the status of the two vacancies on the Authority’s Board of Directors. Due to the change in administration at the County of Lehigh, one appointment was delayed in December. Liesel Gross will discuss the Board appointments with the new County administration and County Executive in January.

5. Peer Authority Benchmarking (report from CEO)

Liesel Gross had solicited feedback from five municipal authority executives regarding Board governance topics, roles and responsibilities of committees, and executive performance evaluation processes. A review of this feedback was provided to the Committee, with some discussion. Peter Dent noted that the committee structure described by other similar organizations appears to add value, but there is a concern about wanting to avoid adding work for the staff rather than adding value to the organization. The Committee will review the information and plan for more discussion at the next Committee meeting.

6. Finance Committee – Draft Charter

A draft Finance Committee charter was distributed and discussed. The Committee discussion focused on the lack of financial expertise on the current Board of

Directors, which should be a primary consideration for the County's appointment of new Board members. Until this occurs, the formation of a Finance Committee may not be as beneficial as it could be otherwise.

The Committee members agree that the audit process is likely the top priority for the Finance Committee, including reviewing the process for hiring a new auditor every three to five years.

The Committee asked Liesel Gross to review the draft Finance Committee charter and peer authority feedback on their finance committee structures with the CFO to determine which duties of the Committee would be most valuable to the organization in the near-term horizon.

7. CEO Review Process

The Committee reviewed the current process for evaluating the CEO's performance, which includes an annual report of achievements and development opportunities, followed by review of any salary adjustments. The peer authority feedback gathered included some additional ideas and examples of performance evaluation forms that are in use by other similar organizations. Peter Dent provided an example of an executive performance evaluation form that may be useful. Amir Famili suggested this responsibility generally falls to the Authority Board Chair to coordinate and manage. For the current year, the existing process will continue, and Liesel Gross will plan to provide a report of goal achievement at the next regular Board meeting in January.

8. Board of Directors Efficacy

a. 2026 Off-Site Meeting / Tour

Due to the current vacancies on the Authority Board and the winter weather, the Committee agreed to postpone discussion of an off-site meeting and/or system tour until the Committee meeting scheduled for April 2026.

9. New Business

None.

10. Public Comment

None.

11. Committee Meeting Schedule

- April 13, 2026
- July 13, 2026
- October 12, 2026

12. Adjourn

Peter Dent adjourned the meeting at 11:35 a.m.

RESOLUTION NO. 1-2026-1

(Duly adopted 26 January, 2026)

AUTHORIZING THE SUBMISSION OF A PENNSYLVANIA STATEWIDE LOCAL SHARE ASSESSMENT GRANT REQUEST; DESIGNATING LEHIGH COUNTY AUTHORITY OFFICIALS AUTHORIZED TO EXECUTE ALL DOCUMENTS AND AGREEMENTS IN CONNECTION WITH THE REQUESTED GRANT AND ASSIST IN OBTAINING THE REQUESTED GRANT, AND PROVIDING FOR OTHER MISCELLANEOUS MATTERS.

WHEREAS, the Lehigh County Authority (the “Authority”) is a body corporate and politic, organized by the Board of County Commissioners of the County of Lehigh, Pennsylvania (the “County”) under the provisions of the Pennsylvania Municipality Authorities Act, 53 Pa. C.S. §5601 et seq., as amended (the “Act”); and

WHEREAS, the Authority owns, leases, and/or operates public water and sewer systems in the greater Lehigh Valley of Pennsylvania; and

WHEREAS, the Board of the Lehigh County Authority (the “Authority Board”) has determined to request a grant under the Pennsylvania Statewide Local Share Assessment Grant Program (the “LSA Grant Program”) for financial assistance for the purchase of vehicles and specialized fleet equipment, including but not limited to a jet/vac combination truck, a tandem-axle dump truck, and a crane-equipped utility truck, which will be used to directly support the Authority’s ongoing water system valve replacement and maintenance initiatives, as well as other water and wastewater operations, in order to improve operational efficiency, enhance worker safety, and maintain reliable service throughout the Authority’s service area, including the City of Allentown, in the County of Lehigh (the “Project”); and

WHEREAS, in accordance with the LSA Grant Program requirements, the Board desires to declare its approval of the grant request for Project, and designate an Authority official(s) authorized to execute documents and agreements and assist in obtaining the requested grant.

NOW, THEREFORE, the Authority Board hereby resolves as follows:

SECTION 1. The Lehigh County Authority, of the County of Lehigh, Pennsylvania, hereby requests a Statewide Local Share Assessment grant of One Million Dollars (\$1,000,000) from the Commonwealth Financing Authority to be used for the Project.

SECTION 2. Liesel Gross, Authority Chief Executive Officer and Edward Klein, Authority Chief Financial Officer, individually and collectively, are hereby designated as the official(s) (the “Designated Officials”) to execute all documents and agreements between the Lehigh County Authority and the Commonwealth Financing Authority,

and any other related Commonwealth entities, to facilitate and assist in obtaining the requested grant.

SECTION 3. The Designated Officials, and other Authority officers, individually and collectively, are hereby authorized, empowered and directed on behalf of the Authority to execute any and all papers and documents, and to do and cause to be done any and all acts and things necessary, proper, or convenient, for the execution or carrying out purposes of this Resolution.

On motion of _____, seconded by _____, this resolution was adopted the 26th day of January 2026.

Tally of Votes: Yeas _____ Nays _____



I, Kevin C. Reid, of the law firm of King, Spry, Herman, Freund & Faul, LLC, Solicitor to the Lehigh County Authority, do hereby certify that the foregoing is a true, correct and complete copy of a Resolution No. 1-2026-1 which was duly adopted by the Authority Board at a public meeting of the Authority Board held on January 26, 2026 after notice thereof had been duly given as required by law, at which meeting a quorum was present and voting, and which Resolution has been recorded in the Minutes and is now in full force and effect on the date of this certification.

Kevin C. Reid, Esquire Date
King, Spry, Herman, Freund & Faul, LLC
Lehigh County Authority Solicitor

(SEAL)

Attest:

Lisa J. Miller Date
Executive Administrative Support Specialist

RESOLUTION NO. 1-2026-2

(Duly adopted 26 January 2026)

A RESOLUTION OF LEHIGH COUNTY AUTHORITY APPROVING THE SUBMISSION OF A FINANCIAL ASSISTANCE APPLICATION TO THE PENNSYLVANIA INFRASTRUCTURE INVESTMENT AUTHORITY (PENNVEST) FOR FUNDING FOR THE REPLACEMENT OF PUBLIC AND PRIVATE LEAD SERVICE LINES AND SERVICE LINES OF OTHER MATERIALS REQUIRING REPLACEMENT IN THE AUTHORITY'S ALLENTOWN DIVISION WATER SYSTEM IN ORDER TO MEET REQUIREMENTS OF THE U.S. ENVIRONMENTAL PROTECTION AGENCY'S LEAD AND COPPER RULE REVISION ENACTED IN 2021 AND LEAD AND COPPER RULE IMPROVEMENTS ENACTED IN 2024, AND PROVIDING FOR OTHER MISCELLANEOUS MATTERS.

WHEREAS, the Lehigh County Authority (the "Authority") is a body corporate and politic organized by the Board of County Commissioners of the County of Lehigh, Pennsylvania under the provisions of the Pennsylvania Municipality Authorities Act, 53 Pa. C.S. §5601 *et seq.*, as amended (the "Act"); and

WHEREAS, the powers of the Authority are exercised by its Board of Directors, who have full authority to manage the properties and business of the Authority, *inter alia*; and

WHEREAS, the City of Allentown, Pennsylvania (the "City") owns the Allentown Sewer Utility System and the Allentown Water Utility System (the "System"); and

WHEREAS, pursuant to the terms and conditions of the Allentown Water and Sewer Utility System Concession and Lease Agreement, dated initially as of May 1, 2013, as amended, supplemented and restated from time to time (collectively, the "Concession Agreement"), by and between the City and the Authority, the City leased to the Authority, and the Authority leased from the City, the System, upon the terms and conditions set forth therein; and

WHEREAS, the Authority Board desires to undertake a project, identified as City of Allentown Lead Service Line Replacements, Cycle 3 - 2026, (the "Project") in the Allentown Water Utility System consisting of the replacement of public and private lead service lines and service lines of other materials requiring replacement in order to meet requirements of the U.S. Environmental Protection Agency's Lead and Copper Rule Revision enacted in 2021 and the Lead and Copper Rule Improvements enacted in 2024; and

WHEREAS, the Authority Board desires to apply to the Pennsylvania Infrastructure Investment Authority (PENNVEST) for financial assistance in paying the Project's costs.

NOW THEREFORE, be it resolved by the Board of this Authority, as follows:

Section 1. The Authority shall be, and is hereby, authorized to submit a Financial Assistance Application (the "Application") to the Pennsylvania Infrastructure Investment Authority (PENNVEST), for the purpose of financing/partially financing the construction, rehabilitation and/or extension of the Authority's Allentown Water Utility System, including the Project.

LCA Strategic Plan (2022-2027)






2025 Initiatives & Targets – Progress Report: January 2026

Overview

Lehigh County Authority (LCA) adopted an updated Strategic Plan in December 2021, which included a refreshed look at our Mission, Vision, Values and Priorities. An ambitious list of strategies, activities, and tasks were developed to support the achievement of LCA’s plan over the next five years. This progress report was developed to help our employees and Board of Directors keep a sharp focus on the plan and, specifically, the work we plan to achieve in the current year. While not all inclusive, the initiatives and targets outlined in this report describe the breadth of activities LCA focused on in 2025.





The report below provides a brief description of each initiative, the Strategic Plan Priority area it addresses, the LCA leadership team member leading the effort, and the current status (dark green = complete; light green = started, ongoing; yellow = started, behind schedule; red = not started). A dashboard of key performance indicators is included on the last page of this report.

Organizational Strategies






1. Full strategic plan “refresh”	All Strategic Priorities	L. Gross	
2. Develop water / sewer rate affordability strategy (rate design, grants, partnerships)	Financial Stewardship Regional Collaboration & Leadership Customer Engagement & Support	L. Gross	
3. Develop long-term staffing plan (in-sourcing approach, succession plan, recruiting)	Operational Excellence Financial Stewardship Employee Engagement & Safety	L. Gross	
4. Complete building optimization study & master plan	Employee Engagement & Safety	A. Capuzzi	
5. Achieve bondholder consent necessary to become eligible for Pennvest funding	Financial Stewardship	E. Klein	

Regional Sewer Plan




6. Municipal approvals received and Act 537 Plan submitted to DEP	Regional Collaboration & Leadership System Capacity & Reliability	P. DePoe	
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7. Intermunicipal Agreement concepts finalized, prepared for drafting legal language	Financial Stewardship Regional Collaboration & Leadership System Capacity & Reliability	L. Gross	
8. Regional sewage billing meter program standards defined	Regional Collaboration & Leadership Financial Stewardship	P. DePoe	
9. PTP 2.0 business / funding plan & concept design complete	Financial Stewardship Regional Collaboration & Leadership System Capacity & Reliability	L. Gross	
10. Develop strategy and standards for Allentown I&I Source Reduction Program	Operational Excellence System Capacity & Reliability	P. DePoe	

Tyler EERP







11. Successful "go live" of financial, human resources, and billing modules (7/1/2025)	Financial Stewardship Customer Engagement & Support Employee Engagement & Safety	C. Moughan & E. Klein	
12. Employee Self Service, Customer Access (Tyler Payments) implemented	Financial Stewardship Customer Engagement & Support Employee Engagement & Safety	C. Moughan	
13. Procore integration with Tyler EERP	Financial Stewardship	A. Capuzzi & C. Moughan	
14. CMMS and Inventory module implementation plan developed	Operational Excellence Financial Stewardship	C. Moughan & A. Capuzzi	
15. Employee training documentation and ongoing training	Employee Engagement & Safety	C. Moughan	

Lead (Pb) Program





16. Cycle 1 lead replacement project complete, with process documentation	Operational Excellence	C. Moughan & A. Moore	
17. Cycle 2 lead replacement project designed & bid; Cycle 3 grant application (February 2026)	Operational Excellence Financial Stewardship	A. Capuzzi & A. Moore	
18. LCRR compliance sampling completed	Operational Excellence	A. Moore	

19. Develop in-house capacity for canvassing & call center	Operational Excellence Financial Stewardship Employee Engagement & Safety	C. Moughan	
20. Inventory development plan and public communication	Operational Excellence Customer Engagement & Support	A. Moore & T. Stakes	




Employee Engagement & Safety

21. Achieve full staffing in Human Resources	Employee Engagement & Safety	M. Mason	
22. Implement employee onboarding enhancements	Employee Engagement & Safety	M. Mason	
23. Develop organizational plan for employee training & development	Employee Engagement & Safety	M. Mason	
24. Implement safety drills	Employee Engagement & Safety	E. Klein	
25. Full review of all personal protective equipment (PPE) and requirements	Employee Engagement & Safety	E. Klein	
26. Full implementation of updated incident tracking system & communication	Employee Engagement & Safety	E. Klein	

Asset Management (AM)

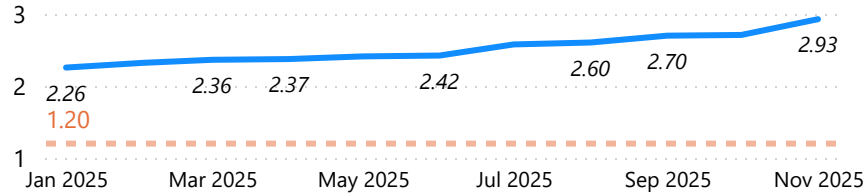
27. AM plans developed for 50% of Suburban Division systems	System Capacity & Reliability	A. Capuzzi	
28. AM plan developed for WFP	System Capacity & Reliability	A. Capuzzi	
29. Implement data collection and reporting on new AM metrics	Operational Excellence Financial Stewardship System Capacity & Reliability	A. Capuzzi	
30. Develop / update AM approaches for linear assets	System Capacity & Reliability	A. Capuzzi	

Other Priority Projects

31. Risk & Resilience Plan update (City plan due to US EPA 3/31/2025)	Operational Excellence	A. Moore	
32. Emergency Response Plan update & drill	Operational Excellence	A. Moore	
33. PTP critical improvements project construction	System Capacity & Reliability	C. Volk	

Financial

2025 Debt Service Coverage Ratio - Total LCA



Debt Service Coverage Ratio - Current

City Division	Suburban Wastewater	Suburban Water
2.99	3.08	2.56

Unrestricted Days Cash On Hand

City Division	Suburban Wastewater	Suburban Water
406	200	266

*Target of 180 days.

Customer Care

DEVELOPING METRIC

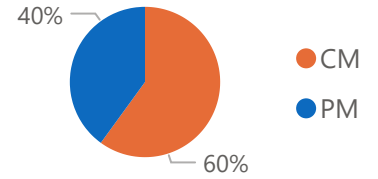
Capital Program

DEVELOPING METRIC

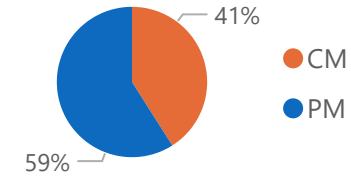
Asset Management

2025 Corrective Maintenance vs. Preventative Maintenance Hours

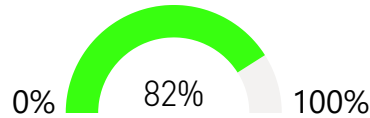
Field Services



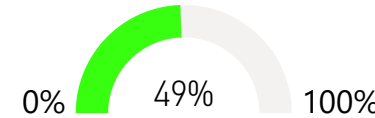
Plants



Field Services Program Design



Plant Program Design



*Metric to show 2025 progress on preventative maintenance program redesign and implementation

Safety

Days No Vehicle Accident

14

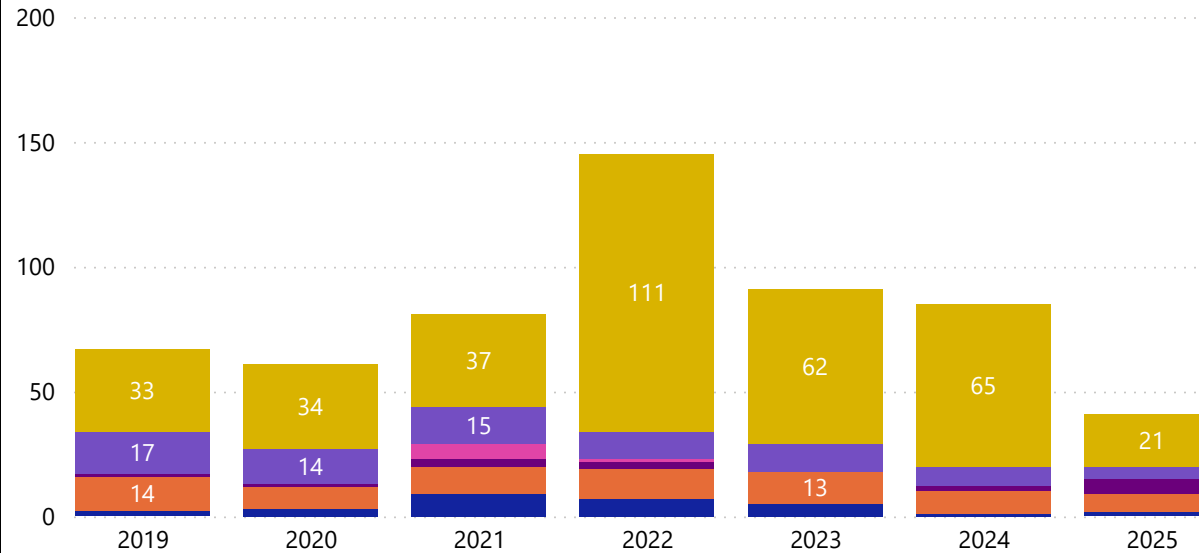
Days No Lost Time

112

Of Recordable Injuries YTD

11

Environmental Compliance



● Boil Water Advisory ● Bypass ● NOV ● SDWA Violation ● SSO ● Wastewater Permit Exceedance

Employees

Total Employees

181

Average Age

44.3

Average Yrs of Service

9.4

Total Vacancies

9

LCA Strategic Plan (2022-2027)

2026 Initiatives & Targets: January 2026

Regional Leadership

Developing trust with our customers and community leaders is important. Our communications program and community engagement program will expand in 2026, and we're going to focus on making sure LCA has a seat at the table when decisions are being made about topics like growth, system consolidation, environmental programs, affordability initiatives, and more. We have a lot to contribute to these conversations!

Staff Owner: Liesel Gross, Chief Executive Officer

Actions:

1. Finalize PTP solution / decision and business plan & start design	Q1
2. Identify other community partners and events where LCA needs to "show up" to be part of the conversation	Q1
3. Kick off next phase of negotiations for Kline's Island Sewer System (KISS) intermunicipal agreements	Q1
4. Develop LCA branding / name recognition campaign	Q2
5. Develop business case for system consolidation & streamlining	Q3

Technology

We are surrounded by technology every day, and it's changing rapidly. But LCA has not always kept pace with advancements in technology. There are so many opportunities to streamline our work, make employees' jobs easier, automate customer service interactions, and integrate systems to help us make decisions. In 2026, we're going to create a vision for the next generation of technology for LCA, and in the process make sure that employees have the tools they as our programs grow.

Staff Owner: Chris Moughan, Director of Service & Technology

Actions:

6. Complete new technology master plan, including job description for data analyst	Q2
7. Develop plan for document management	Q2
8. Develop common-core technology training program based on needs of all employees and/or specific department needs	Q3
9. Develop LCA change management approach for tech adoption	Q3

Facilities & Security

Employees deserve safe and healthy work spaces! We understand some of LCA's buildings have not been well maintained over time, and some critical upgrades are needed. LCA is growing, and we need to create new space for new employees. Along the way, we also need to make sure security is handled in a consistent way across all facilities.

Staff Owner: AJ Capuzzi, Director of Engineering & Asset Management (projects)
Chris Moughan, Director of Service & Technology (program)

Actions:

10. Finalize plan for Field Services staffing location & building improvements	Q2
11. Complete phase 1 security improvements design - all facilities	Q3
12. Complete phase 1 renovations at KIWWTP (focus on areas to improve employee health and safety)	Q4
13. Complete phase 1 recommendations from building optimization study for Main Office & use of Brookside Road property	Q4

Affordability

LCA faces rapid growth in costs due to new requirements like the lead pipe replacement program and major sewer system upgrades. We know that as things move forward, our rates will need to increase significantly as well. In 2026, we will develop a water rate affordability plan to support customers who are already having trouble paying their bill. This is an important effort that shows our dedication and service to the community.

Staff Owner: Liesel Gross, Chief Executive Officer

Actions:

14. Complete rate design & affordability study, including long-term capital financing plan (Allentown Division focus)	Q1
15. Evaluate effectiveness of existing customer hardship fund program and collections procedures	Q1
16. Implement customer outreach plan on monthly payment options	Q2
17. Pursue & track grants, including addition of at least 1 new grant program to LCA's standard mix of applications	OG
18. Develop community and legislative engagement plan on topics related to the value of water, rates, and affordability	OG

Lead Program

While a lot of progress has been made on developing LCA's lead pipe replacement program, we still have a lot of work to do! This program affects many different departments internally, and a very high level of external customer interaction is required for the program to be successful. A key focus area in 2026 will include advancing our inventory program so we have a better understanding of how to move forward with removing all lead pipes from the water system by 2037.

Staff Owner: Andrew Moore, Director of Plant Operations

Actions:

19. Develop internal / external dashboard to track & communicate progress on lead pipe replacements and inventory program	Q1
20. Lead replacement project Cycle 2 kickoff	Q1
21. Lead replacement project design & Pennvest funding decision	Q2
22. Develop plan for expanding lead service line inventory program for all water divisions	Q2
23. Complete City Water Ordinance update to include provisions supporting lead pipe replacement program	Q3
24. Enhance and expand customer & community engagement program	OG

Employee Safety

LCA's greatest resource is our employees. We need employees to go home unharmed every day, and there is always more we can do to support this critical goal. We've made some enhancements in how we track incidents so we can improve our program, and we need to ensure employees have the training and tools needed to work safely every day. Let's keep growing in this area!

Staff Owner: Ed Klein, Chief Financial Officer

Actions:

25. Implement root cause & trend analyses with EHS steering committee	Q1
26. Standardize safety onboarding process for new employees	Q2
27. Develop / enhance employee communication on safety topics, including safety training	Q2
28. Conduct at least one safety drill at each LCA work location	Q4
29. Evaluation and distribution of personal protective equipment (PPE)	OG

Project Management Metrics

LCA's capital investment needs are expanding rapidly, and our annual capital budgets now exceed operating expenses. These projects have a major impact on LCA's financial performance, customer rate affordability, service quality, and much more. Having a transparent and accurate way to measure performance of project delivery is important in building trust and accountability to our Board, financial institutions, and our customers.

Staff Owner: AJ Capuzzi, Director of Engineering & Asset Management

Actions:

30. Full implementation / use of Procore for 100% of all capital projects	Q1
31. Project Excellence dashboard & quarterly Board reporting finalized	Q1
32. Implement root cause / trend analysis for project schedule delays	Q2
33. Complete Munis-Procore integration for project accounting	Q2
34. Develop team communication & method for visualizing interdependent projects at water and wastewater plants	Q2

Other Top Focus Areas for 2026:

- Communications & Community Engagement (Taylor Stakes)
- Staffing Plan (Liesel Gross)
- Employee Learning & Development (Mark Mason)
- Regional Sewer Plan Implementation (Phil DePoe)
- Munis Integrations & Process Enhancement (Chris Moughan)
- Employee Engagement (Mark Mason)
- Asset Management (Steve Boone)

MEMORANDUM

Date: January 26, 2026

To: LCA Board of Directors
Liesel Gross, CEO

From: Stephen Boone, Asset Management Engineer

Subject: Allentown Division – KIWWTP Holistic Solids Management Study

MOTIONS / APPROVALS REQUESTED:

No.	Item	Amount
1	Capital Project Authorization: Allentown Division – KIWWTP Holistic Solids Management Study	\$245,788
1A*	Professional Services Authorization: Black & Veatch – KIWWTP Holistic Solids Management Study	\$195,788

*Included in the Capital Project Authorization

AUTHORIZATION OVERVIEW:

One of the long-term strategies under evaluation for the Kline’s Island Sewer System (KISS) is to reduce the scope of treatment at LCA’s Pretreatment Plant (PTP) as part of a full-scale upgrade of the facility or possibly discontinue operation of the facility. This will result in higher amounts of organic loading being transported downstream to the Kline’s Island Wastewater Treatment Plant (KIWWTP) for final treatment, but with such loads remaining within the KIWWTP permitted capacity of 70,000 pounds per day of BOD.

To prepare KIWWTP for this potential increase in organic loading, LCA is currently performing a full-scale demonstration of chemically enhanced primary treatment (CEPT) at KIWWTP. This demonstration is testing the CEPT system’s efficacy in removing more organic solids from the liquid stream at the primary settling tanks to protect downstream process performance. The current test results appear positive. Should CEPT be implemented as a permanent treatment system at KIWWTP, the increased solids loadings to the anaerobic digesters and dewatering units will require upgrades to meet performance requirements. This was cursorily studied in the KIWWTP Master Plan Update of 2024, in which one of the core recommendations was to perform additional robust evaluations of the overall solids management systems at KIWWTP.

As a result of the Master Plan recommendations and the potential for CEPT implementation, this proposed Solids Management Study will comprehensively evaluate the KIWWTP solids handling systems in anticipation of increased organic loadings. It will assess existing infrastructure (including digesters, dewatering units, and biosolids management practices) through detailed process documentation, equipment condition analysis, and operational performance review. Future solids generation will be projected using dynamic modeling tools, accounting for growth and process changes. Alternatives will be developed for digestion upgrades, dewatering technologies, and biosolids end-use strategies, with special attention to emerging contaminants such as PFAS. Regulatory and environmental impacts will be analyzed, and a phased implementation plan will be created, supported by life cycle cost analysis and funding strategies. Final deliverables will include technical documentation, conceptual designs, and stakeholder engagement materials. This holistic approach to evaluating solids handling requirements will also support improved project planning and sequencing for the many projects that are anticipated at KIWWTP.

FINANCIAL:

To be funded by the LCA Allentown Division.

THIS APPROVAL:

Lehigh County Authority (LCA) intends to retain the services of Black & Veatch to provide these services. These services include, but are not limited to, the following:

Professional Services*
• Task 1 – Existing Condition Assessment
• Task 2 – Future Load Projections
• Task 3 – Regulatory and Environmental Review
• Task 4 – Facility Goals and Gap Analysis
• Task 5 – Alternative Analysis
• Task 6 – Cost and Financial Analysis
• Task 7 – Phasing and Implementation Planning
• Task 8 – Final Deliverables
• Task 9 – Project Management

**Refer to Black & Veatch Proposal dated December 10, 2025 for detailed work breakdown*

CONSULTANT SELECTION PROCESS:

A Request for Proposals (RFP) was sent to three engineering consulting firms – AECOM, Black & Veatch, and Hazen & Sawyer. All firms responded with a proposal by the 12/10/2025 due date. Proposers were asked to provide a scope and fee that aligned with the tasks set forth in the RFP. A thorough review of each responding firm’s proposal was conducted independently by the three lead LCA staff members for this project. A standardized scoring matrix was utilized for individual scoring and ranking. Based on the independent proposal reviews and group discussions to reach a consensus, Black & Veatch was selected as the top firm to perform this work. A summary comparison of the fees is provided below:

	AECOM	Black & Veatch	Hazen & Sawyer
Total Project:	\$284,875	\$195,788	\$494,320

Black & Veatch has performed consistently well, delivering high quality results on time and at the contractual budgets. The following LCA projects have been completed recently by Black & Veatch:

- Water Filtration Plant Tracer Study (November 2023)
- Water Model Review and Pipeline Network Update (December 2023)
- Asset Management and Business Intelligence Roadmap (November 2024)
- Kline’s Island Wastewater Treatment Plant Master Plan Update (December 2024)
- Data Warehouse Discovery (To be completed early 2026)

SCHEDULE:

With a notice to proceed in early February 2026, it is anticipated all work will be completed by the end of October 2026.

FUTURE AUTHORIZATIONS:

To be determined.



1053 SPRUCE RD * P.O. BOX 3348 * ALLENTOWN, PA 18106-0348
 610-398-2503 * email: service@lehighcountyauthority.org
 www.lehighcountyauthority.org

REQUEST FOR BOARD AUTHORIZATION

Board of Directors Meeting Date: January 26, 2026
 Staff Member Requesting Authorization: Stephen Boone
 Department: Engineering & Asset Management
 Short Description / Title of Project / Purchase: KIWWTP Holistic Solids Management Study
 Project Number (if applicable): 50659

Capital Expense: (check all that apply)

- Capital Project >\$250,000
 - Construction / Other Contract(s)
 - Professional Services Authorization
 - Initial Authorization
 - Amended Authorization
- Professional Services Authorization >\$100,000
- Equipment Purchase >\$250,000
- Upsizing / Extension >\$250,000
- Aggregate Change Order >10% of contract and >\$100,000
- Stand-Alone Change Order >\$50,000

Operations Expense:

- Construction / Other Contract >\$250,000
- Professional Services Authorization >\$100,000
- Equipment / Other Individual Item >\$250,000
- Emergency Authorization >\$50,000
- Aggregate Change Order >10% of contract and >\$100,000
- Stand-Alone Change Order >\$50,000

LCA Enterprise Fund: Allentown Division Suburban Water Suburban Wastewater Internal Service / Admin

Current Project Phase: N/A (skip to Description) Planning Conceptual Design Design / Bid Construction

Prior Authorization(s):

Date	Phase	Description	Amount Authorized
			\$
			\$
			\$
Total Prior Authorizations:			\$

Current Authorization Requested:

Description	Amount Requested
Professional Services Authorization: Black & Veatch – KIWWTP Holistic Solids Mgmt. Study	\$195,788
Staff & Contingency	\$50,000
	\$
	\$
	\$
	\$
Total Amount Requested (this authorization):	\$245,788

Future Authorizations:

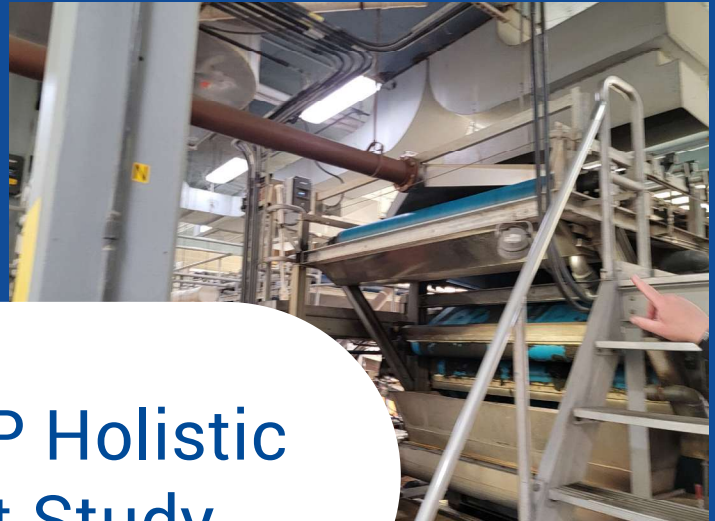
Phase	Note / Description	Estimated Cost
	TBD	\$
		\$
Estimated Total Project Cost:		\$

Short Description: (please attach supporting documentation, cost justification, trade-in values, proposals, memos, etc.)

This study will comprehensively evaluate the wastewater treatment facility's solids handling systems in anticipation of increased organic loadings and CEPT implementation. It will assess digesters, dewatering units, and biosolids management practices through detailed process documentation, equipment condition analysis, and operational performance review. Future solids generation will be projected accounting for growth and process changes. The consultant will develop and compare alternatives for digestion upgrades, dewatering technologies, and biosolids end-use strategies. Regulatory and environmental impacts will be analyzed, and a phased implementation plan will be created, supported by life cycle cost analysis and funding strategies. Final deliverables will include technical documentation, conceptual designs, and stakeholder engagement materials. See proposal from Black & Veatch for project details.

Purchasing Procedure: Formal Bid Request for Proposal Cooperative Purchasing Group / CoStars N/A - Emergency

Motion: _____ **Second:** _____ **Approved?** _____ **Certified by:** _____



Lehigh County Authority

Kline's Island WWTP Holistic Solids Management Study

December 10, 2025



Forward Looking Holistic Approach



Cost Effective & Operations Focused Study



Sustainable Biosolids Pathway



December 10, 2025

Lehigh County Authority
Stephen Boone, PE, Project Manager
1053 Spruce Road
Allentown, PA 18106
stephenboone@lehighcountyauthority.org

RE: Proposal for Kline's Island Wastewater Treatment Plant Holistic Solids Management Study

Dear Mr. Boone:

Black & Veatch is committed to helping Lehigh County Authority (LCA) achieve a holistic solids management strategy that anticipates future load shifts, enhances digestion and dewatering performance, and ensures compliance with evolving regulatory requirements, including PFAS considerations. We recognize the critical decisions LCA faces in developing a comprehensive approach—one that streamlines capital planning, addresses long-term sustainability, and responds to emerging regulatory drivers.

Our team brings the expertise, experience, and collaborative approach needed to deliver a study that is cost-effective, operations-focused, and actionable. We look forward to partnering with LCA to achieve these goals through:



Technical Expertise to Bring You Confidence in a Successful Project.

Black & Veatch leads the industry in developing innovative yet practical solutions for solids management. Building on our successful collaboration with LCA on the Kline's Island WWTP Master Plan, we will take a deeper dive into solids processes with greater detail and granularity.

Our approach includes:

- Evaluating multiple technological alternatives and ranking them using agreed-upon criteria.
- Performing lifecycle and present worth analyses for long-term value.
- Assessing operational impacts, MOPO considerations, and maintenance practicality.
- Incorporating emerging contaminant strategies, including PFAS mitigation.
- ✓ Developing conceptual layouts and implementation pathways for each alternative.

Fully Engaged Team for Accountability and Responsiveness.

Our leadership and technical specialists are committed to advancing LCA's solids handling vision and delivering sustainable solutions that benefit ratepayers:

- **Matt Crow, PE** - Project Manager (20+ years experience in water/wastewater projects).
- **Mark Lang, PE** - Deputy Manager and Technical Specialist (40+ years wastewater and solids expertise).
- ✓ **Engin Guven, PE** - Technical Advisor (specialist in solids handling technologies).

Practical Implementation through Clear and Consistent Communication.

We will ensure the study reflects LCA's organizational goals and stakeholder expectations by communicating clearly and consistently at each stage of the project. This will include facilitating collaborative workshops with LCA staff and stakeholders early on. In these sessions, we will identify operational preferences and integrate them

into our design concepts. We will also provide clear, actionable recommendations for phased implementation. As a result of working in lockstep with your staff and stakeholders, our implementation will be both practical and customized to your needs.



Operations-Focused Layout that Serves You Today and Tomorrow.

Our team will design layouts that simplify operations while balancing maintenance needs. We accomplish this by conducting plant walkthroughs to gather real-time feedback from operations staff. We develop layouts that minimize operator burden and improve accessibility, and we incorporate flexibility for future upgrades and regulatory changes.



Proven Track Record of Commitment to LCA.

Black & Veatch has consistently delivered projects on time and within scope, including our work for LCA on the Kline's Island Master Plan, Tracer Study, and our peer review of the WaterGEMS hydraulic model. We are fully committed to working alongside you, to understand your project goals, and to deliver a successful final project.

Thank you for the opportunity to continue our partnership with LCA and look forward to delivering a study that provides clear, actionable guidance for solids management at Kline's Island WWTP.

Very truly yours,

Black & Veatch Corporation

Joe Stromwall, PE, CCM
Vice President

Matt Crow, PE
Project Manager

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Black & Veatch's biosolids expertise, ongoing work on numerous projects with LCA and previous work on the Kline's Island WWTP Master Plan, make us the ideal partner for the LCA Holistic Solids Study.

1

Executive Summary

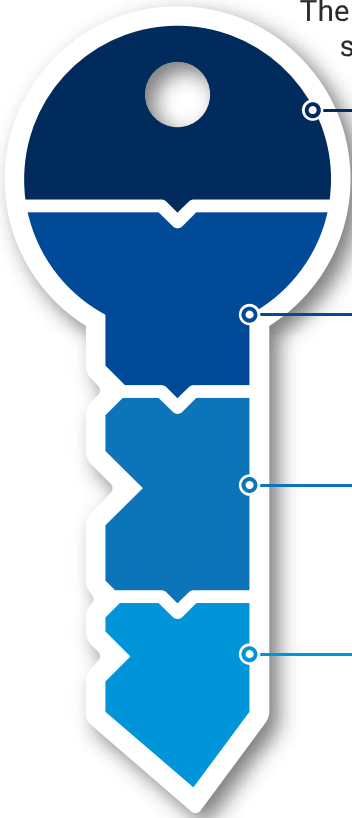


1. Executive Summary

1.1 Keys to Success

After the initial data collection and review of existing information provided by LCA, we recommend a workshop to develop and to expand upon the overall project goals and critical success factors.

The following methodology prioritizes efficiency, stakeholder engagement, and sustainable solutions that deliver maximum value to LCA and its ratepayers.



Define Study Drivers and LCA Goals

Conduct a thorough review of all drivers to ensure efficient resource use and alignment with LCA-wide planning priorities. Establishing Level of Service (LOS) goals is a critical component for guiding the enterprise, its systems, and assets.

Foster Stakeholder Engagement

Engage all stakeholders in the planning process to ensure their input is heard and concerns addressed. Building consensus and support strengthens buy-in and promotes successful implementation.

Streamline Decision-Making

Implement a consistent decision-making process to enhance efficiency and minimize delays. Documenting key decisions helps maintain schedule and budget throughout the planning process.

Develop Long-Term Strategy Goals

Create a long-term strategy that aligns near-term needs with LCA's ultimate objectives. This approach supports a sustainable, operations-friendly, and resilient study that maximizes benefits for LCA ratepayers.

1.2 Why Black & Veatch

Leveraging regional and global experience and knowledge provides the highest value to LCA. The Black & Veatch team will build on the success of previous collaboration with LCA and the development of the Master Plan. This experience was instrumental in fostering strong partnerships with operations and LCA stakeholders, paving the way for the next logical step: expanding the prior study to examine solids processes from a holistic perspective. Leveraging lessons learned and our extensive regional and master solids expertise, the Black & Veatch team will deliver high-quality, comprehensive outputs that maximize value for LCA as part of this study.

Why Black & Veatch

Deep familiarity with KIWWTP and LCA operations

- **Benefit:** Reduced learning curve and faster delivery.
- **Proof:** Successful completion of KIWWTP Master Plan and ongoing business intelligence support.

National biosolids expertise and innovative solutions

- **Benefit:** Future-proof strategies for compliance and sustainability.
- **Proof:** Leadership in WEF biosolids programs and PFAS research initiatives.

Transparent cost and schedule management

- **Benefit:** Predictable outcomes and alignment with CIP planning.
- **Proof:** Documented track record of on-time, on-budget delivery for similar projects.

1.3 Black & Veatch is the Right Choice

Incorporating all viewpoints and needs instills trust and confidence.

Black & Veatch will partner with LCA to deliver a comprehensive Holistic Solids Study designed to provide actionable insights and long-term value. Informed by input from planning, engineering, and operations staff, and supported by evaluations that consider risk and life cycle costs, this study will give LCA a robust foundation for decision-making. Through a **collaborative, workshop-driven approach**, your team will gain a deeper understanding of solids processes, enabling the development of a planning-level platform that establishes a clear roadmap for efficient, resilient, and cost-effective solids management for future generations of operators.

Our ultimate goal is to empower LCA with dynamic tools and knowledge that enable rapid, informed responses to changing conditions. Unlike static master plans of the past, Black & Veatch will provide an integrated, interactive planning system that adapts to new scenarios, ensuring decisions are made with full visibility into system and financial impacts. Project triggers and decision-support tools will help prioritize improvements that align with LCA's objectives, maximizing operational flexibility and financial stewardship.

This innovative planning framework will analyze alternatives based on life cycle cost, regulatory trends, population projections, and economic and non-economic factors. By doing so, LCA will be equipped to select projects that meet current, future, and emergency needs—delivering sustainable solutions that protect resources, optimize performance, and provide maximum benefit to ratepayers.

1.4 Firm and Key Contact Details

Firm Name: Black & Veatch

Client Contact for Proposal: Matt Crow

Email: CrowMM@bv.com

Phone: 979.575.5823

Project Manager's Closest Office Location: 489 5th Avenue, 24th Floor,
New York, NY 10017

Project Manager's Virtual Work Location: Greater Philadelphia Area

A Collaborative, Workshop-Driven Approach



2

Company
Background and
Experience



2. Company Background and Experience

2.1 About Black & Veatch

Black & Veatch is a leading global engineering, consulting, and construction company with the mission of Building a World of Difference®. Founded in 1915, Black & Veatch specializes in infrastructure development in water, energy, telecommunications, and environmental markets. Our services include planning, preliminary and detailed design, permitting, procurement, bidding services, construction administration and inspection, startup, commissioning, and training services.

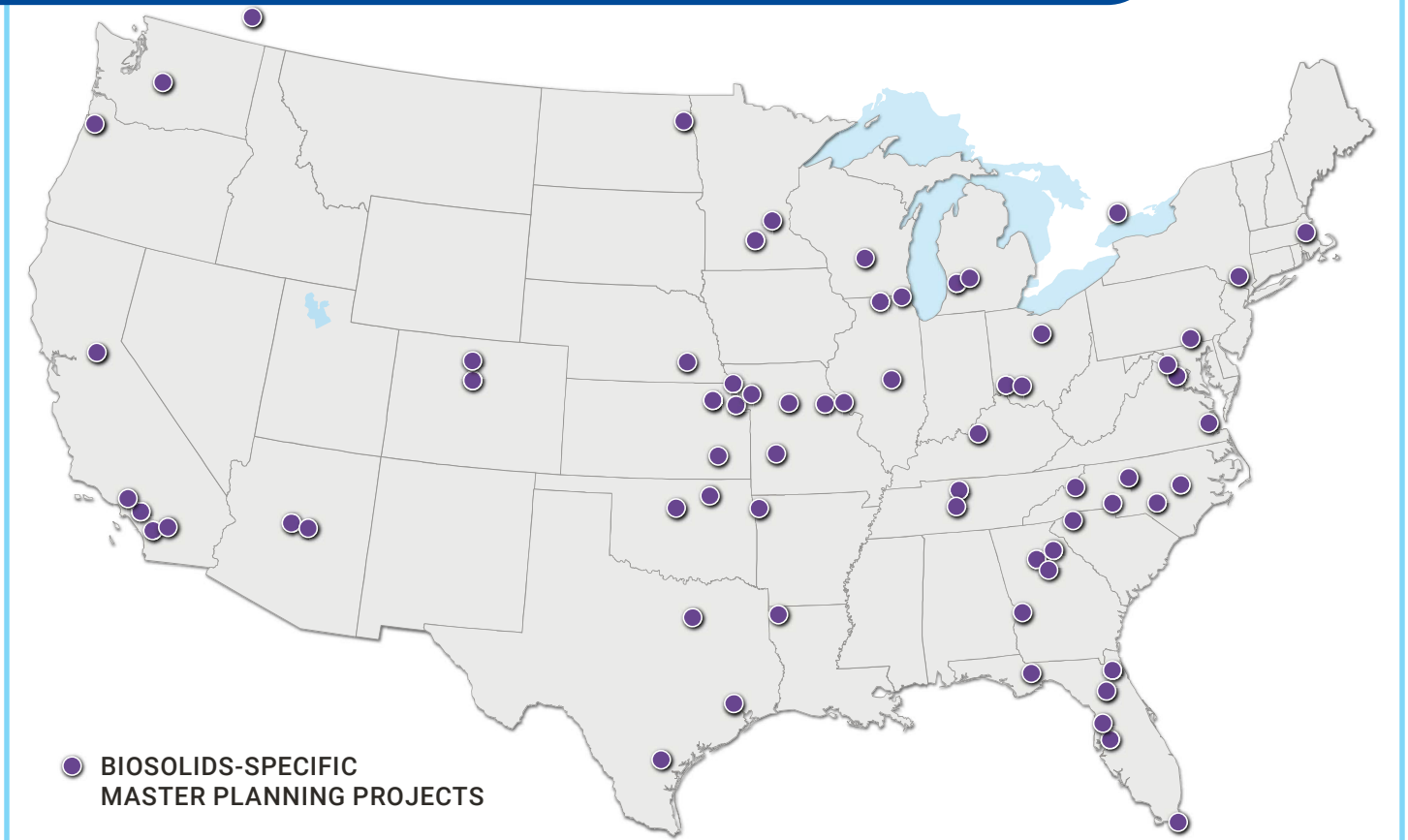
Our Team Brings Industry Best Expertise in Biosolids Handling & Management

We have completed a wide range of biosolids handling planning, design, and construction projects for many agencies in North America. Our team understands

the technical, regulatory, financial, risk, and operation issues associated with a sustainable biosolids program. Black & Veatch has worked with a number of regional clients to chart their course to sustainable biosolids management. We have provided insight and strategies to map out their goals, metrics, and deliver practical, implementable short- and long-term strategies. As the core mission of water and wastewater utilities evolves to embrace sustainability and resource recovery, Black & Veatch has led the industry in incorporating energy reduction and energy and nutrient recovery practices as part of wastewater and biosolids treatment.


We draw on our experience in solids planning to deliver practical, effective solutions tailored to client needs. The following pages feature selected projects that demonstrate our expertise and the thoughtful planning behind each approach.

Black & Veatch's Nationwide Biosolids Specific Master Planning Experience

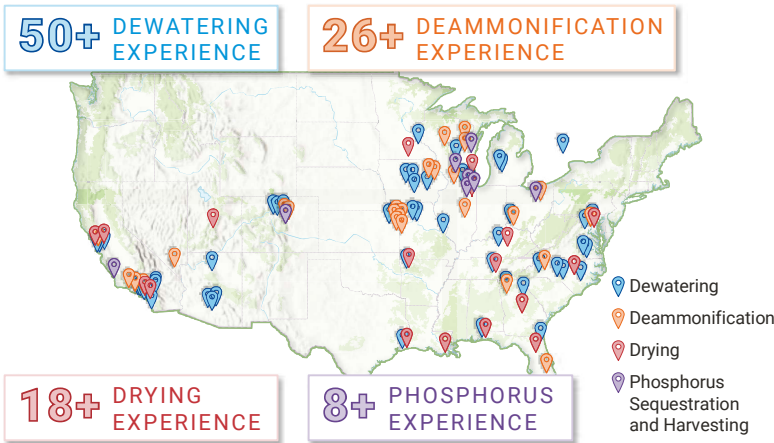


Relevant Project Experience

Black & Veatch is a leader in the planning, design, construction, and successful commissioning of solids handling and resource recovery projects throughout the U.S. We designed landmark projects similar in scale and complexities as the goals outlined in the Holistic Solids Study such as

 the award-winning **IRWD - Michelson Water Recycling Plant Biosolids and Energy Recovery Facilities Project** (CASA Outstanding Capital Project - Large Agency Award) and the **City of San Jose - Digested Sludge Dewatering Facility**.









Our Nationwide Solids Handling and Resource Recovery Experience



Innovative Leaders in Dewatering, Digestion and Resource Recovery Solutions

With our track record of delivering highly successful projects that are similar to yours in scope and complexity, we will set LCA up for success, based on strong, data-driven decision-making processes and lessons learned.

PROJECT | CLIENT  Projects featured on following pages

PROJECT CLIENT	Plant Size (MGD)	PROJECT TYPE PROJECT ELEMENTS												
		Technical Evaluation and Alt. Analysis	Basis of Design	Preliminary Design	Detailed Design	Construction	Mechanical Dewatering	Additional Cake Processing	Cake Storage/Truck Load-out	Nutrient Recovery	Deammonification	Construction in Operating Plant	Odor Control	
 Kline's Island WWTP Master Plan Allentown, PA	32	●					●	●						
 Update Niagara 2021 Biosolids MP Ontario, CAN	18	●					●	●						●
 Divisional Solids Management Feasibility Study Ontario, CAN	18	●					●	●	●	●				●
 Regional Biosolids Evaluation Lakeland, FL	8	●	●					●		●				●
 G.E. Booth WRRF Plant 3 Primary Clarifier Improvement and Odor Control Design Project Ontario, CAN	229	●							●			●		●
 Neuse River Resource Recovery Facility Solids Handling Improvements Raleigh, NC	50	●	●	●	●		●	●	●			●		
 Clarkson and G.E. Booth WRRF Schedule C Ontario, CAN	277	●					●	●	●	●				
 Southwest Ohio Regional Solids Management Study Greene County, OH	45	●					●	●						●
Hyperion WWTP Facilities City of Los Angeles, CA	450	●	●	●	●	●						●		
Biosolids Dryer Facility City of Brentwood, CA	7.5	●	●	●	●				●			●		
Blue River Biosolids Facility Project Kansas City, MO	120	●	●	●	●	●	●		●		●	●		
Tomahawk Creek Wastewater Expansion Johnson County Wastewater, KS	20	●	●	●	●	●	●				●	●		
Biosolids Strategic Plan Encina Water Authority, CA	36	●	●	●	●	●	●	●	●			●		
Southerly Renewable Energy Facility NEORS, OH	120	●	●	●		●		●	●			●		

Kline's Island Wastewater Treatment Plant Master Plan

Lehigh County Authority, Pennsylvania



LCA will benefit from the experience Black & Veatch gained in CIP development and implementation planning. The asset management planning and energy conservation aspects of this project are also directly relevant.

Black & Veatch recently partnered with LCA to support the development of the KIWWTP Master Plan. The Master Plan focused on the prioritization of an implementation plan to balance capital and operating expenditures and achieve long-term financial sustainability.

The Master Plan also addressed aging infrastructure, projected flow and load increases, and emerging challenges, such as PFAS regulations and potential nutrient limits. Key objectives include expanding wet weather treatment capacity from 80 million gallons per day (mgd) to 132 mgd to reduce sanitary sewer overflows, implementing chemically enhanced primary treatment (CEPT) to manage increased solids loading, and upgrading critical systems such as SCADA, pumping stations, and digesters. The plan also emphasized asset management, architectural improvements, and long-term sustainability measures like energy efficiency and resource recovery.

The Master Plan included a CIP to outline the phased implementation of:

- Immediate-term projects (0–2 years) focus on CEPT, sludge piping upgrades, and 100 mgd hydraulic improvements
- Near-term (2–5 years) includes sludge storage, digester mixing, and SCADA modernization
- Mid-term (5–10 years) covers the 132 mgd hydraulic expansion and major architectural upgrades
- Long-term (10–20 years) addresses process rehabilitation and odor control
- Event-driven projects, such as denitrification filters and PFAS thermal treatment, are also included to prepare for potential regulatory changes.



Working closely with the LCA stakeholders, Black & Veatch developed a phased Capital Improvement Plan that LCA will use to guide future program improvements.

Key Team Members

- Stephen Gitungo
- Patrick Dunlap
- Joe Stromwall
- Baoqiang Li
- Ed Carpenetti
- Matt Crow

Client Reference

Stephen Boone, PE
Asset Management Engineer
484.788.9560
stephenboone@lehighcountyauthority.org

Key Project Elements

- Projected Future Hydraulic and Organic Loading
- Regulatory Review
- Asset Assessment
- Identification of System Improvement Priorities
- Development of a CIP
- Establishment of a Phased Implementation Program

Contract Value

\$ 316,000

Start and End Dates

2024 - 2025

Third-Party Subcontractor Arrangements

None

Black & Veatch also recommended studies targeting PFAS monitoring, nitrification stress testing, chlorine contact tank hydraulics, and integrated strategies for biosolids and leachate management, ensuring KIWWTP remains resilient and adaptable to future demands.

Additional drivers in the planning process included aging infrastructure, potential permit modifications, potential changes in influent wastewater characteristics, optimization liquid stream and solids stream. processes, energy production, and compliance with the Pennsylvania Department of Environmental Protection (PADEP) Act 537 Sewage Facilities Planning requirements.

Challenges and Solutions

Major Capacity Increase. One of the main challenges of this project was increasing wet weather capacity from 80 to 132 MGD. Black & Veatch addressed this by implementing several hydraulic and conveyance improvements and media replacement, among other items needed for process reliability.

Concensus Building. The Black & Veatch team needed to balance financially and environmentally sustainable solutions along the pathway of the next 20

years. Prioritizing solutions by ranking them with the stakeholders allowed the team to gain consensus on the right way forward.

Calibrating Expectations. It was essential for the project team to build realistic expectations of what was achievable within the LCA organization. Black & Veatch addressed this challenge by setting immediate and near-term goals, enabling the integration of innovative and reliable processes.

Lessons Learned

Conveying Information Clearly. The Black & Veatch team needed to integrate previous planning studies from multiple consultants, the future CIP, and synthesized data into a comprehensive and digestible format. Organization was essential.

Early and Frequent Engagement. Stakeholder engagement early and often through workshops was key to building consensus.

Strong Communication. Frequent, clear communication from start to finish helped prevent misalignment with all involved parties.

4

Approach & Work
Plan



4. Approach & Work Plan

No two planning studies are exactly alike. Every planning project warrants a project-specific, client-specific approach. The technical approach we propose for this study has been developed in response to factors unique to LCA and its current solids program.

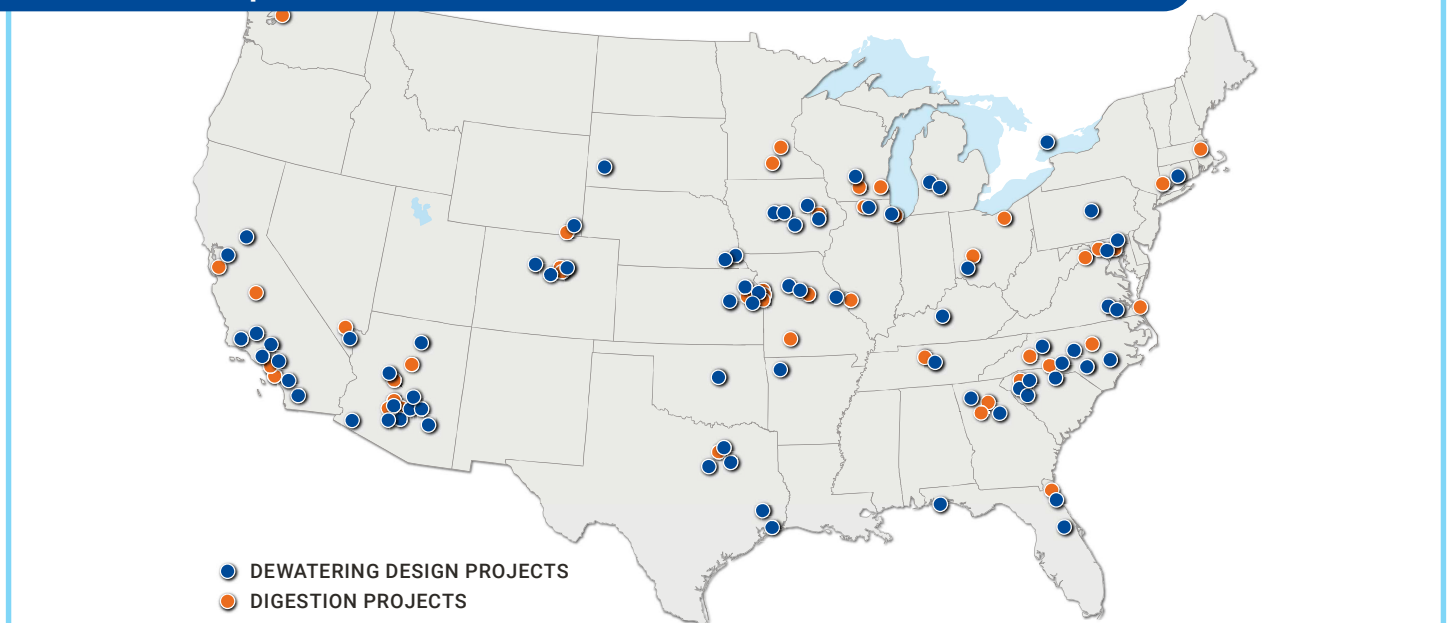
4.1 Project Understanding

Effective dewatering and digestion form the backbone of LCA's long-term solids management strategy. This approach balances downstream impacts on plant processes while maintaining a future-focused approach to land application and adapting to an evolving regulatory landscape. Much of the solids management and associated equipment at Kline's Island is at the end of its service life, and/or is difficult and costly to maintain. This study must identify, shortlist, and recommend upgrades to support LCA's long-term strategy and must be safe, reliable, maintainable, and cost-effective. The study must also deliver adequate solids processing capacity to address current and future needs.

As highlighted in our [Technical Approach](#), a holistic solids study is composed of numerous components, each critical to ensure operational success and reliability of the entire system. **Although upgrades to dewatering, digestion, cake collection and conveyance, and control systems form the core of this project, we must also prioritize the other improvements that keep that core functioning effectively.** The study must include considerations for: electrical and controls upgrades to extend the life of equipment and reduce maintenance requirements; HVAC and odor control improvements to deliver a code-compliant facility which is comfortable and safe to work in; and access and lifting enhancements that make maintenance activities safer and easier for LCA staff in the conceptual layout(s).



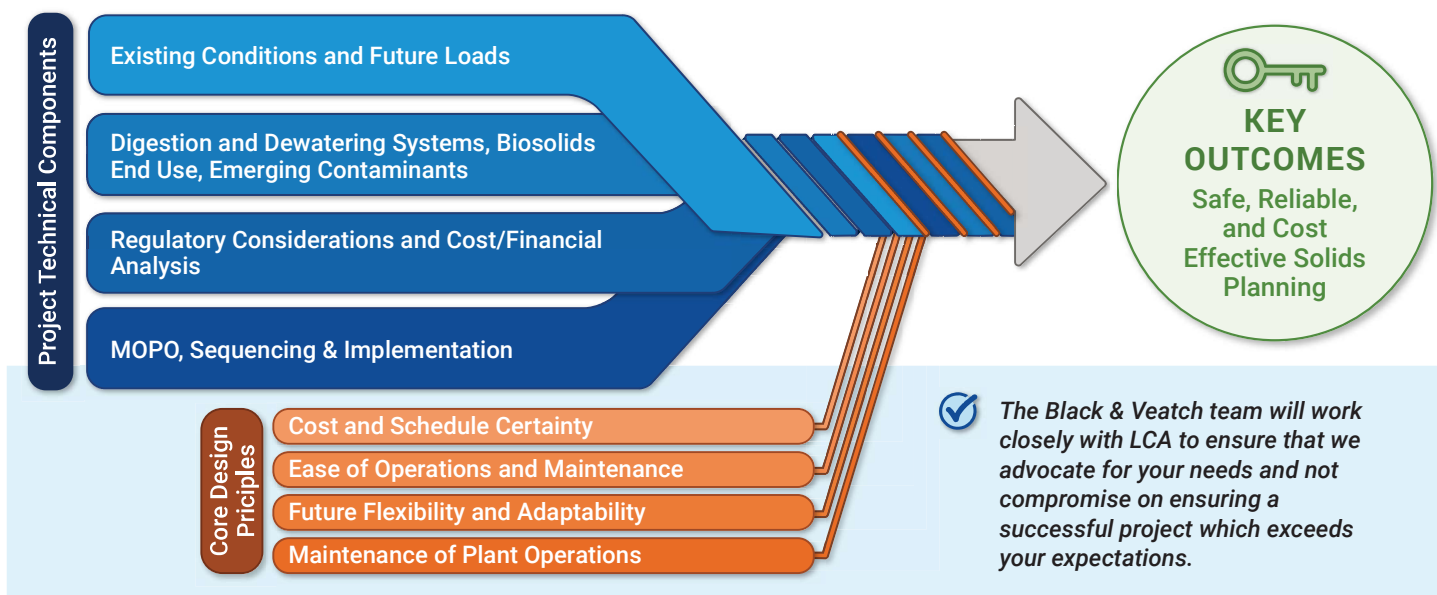
Black & Veatch's Nation Wide Digestion And Dewatering Nationwide Experience



Given the specialized nature of the planned improvements, **LCA will benefit from selection of a proven, integrated team which incorporates subject matter experts (SMEs) and design leads with demonstrated, relevant project experiences.**

The condition of the existing solids handling and related processes at Kline’s Island will require building upon the successful partnership of the previous Master Plan. Our team’s experience on dozens of similar solids handling

and biosolids master plans/studies will allow us to deliver the right solutions in a timely and cost-effective manner without compromising LCA’s input and decision making. We also understand the critical importance of fiscal health and responsibility that LCA must deliver for all capital improvement projects; **this study requires a team that can provide an aggressive yet achievable schedule alongside accurate capital cost estimates.**



4.2 Technical Approach and Project Delivery

Practical, Integrated And Demonstrated Approach

As illustrated in the figure on the following page, this approach organizes the project workflow into four overarching steps, each building on the previous one.

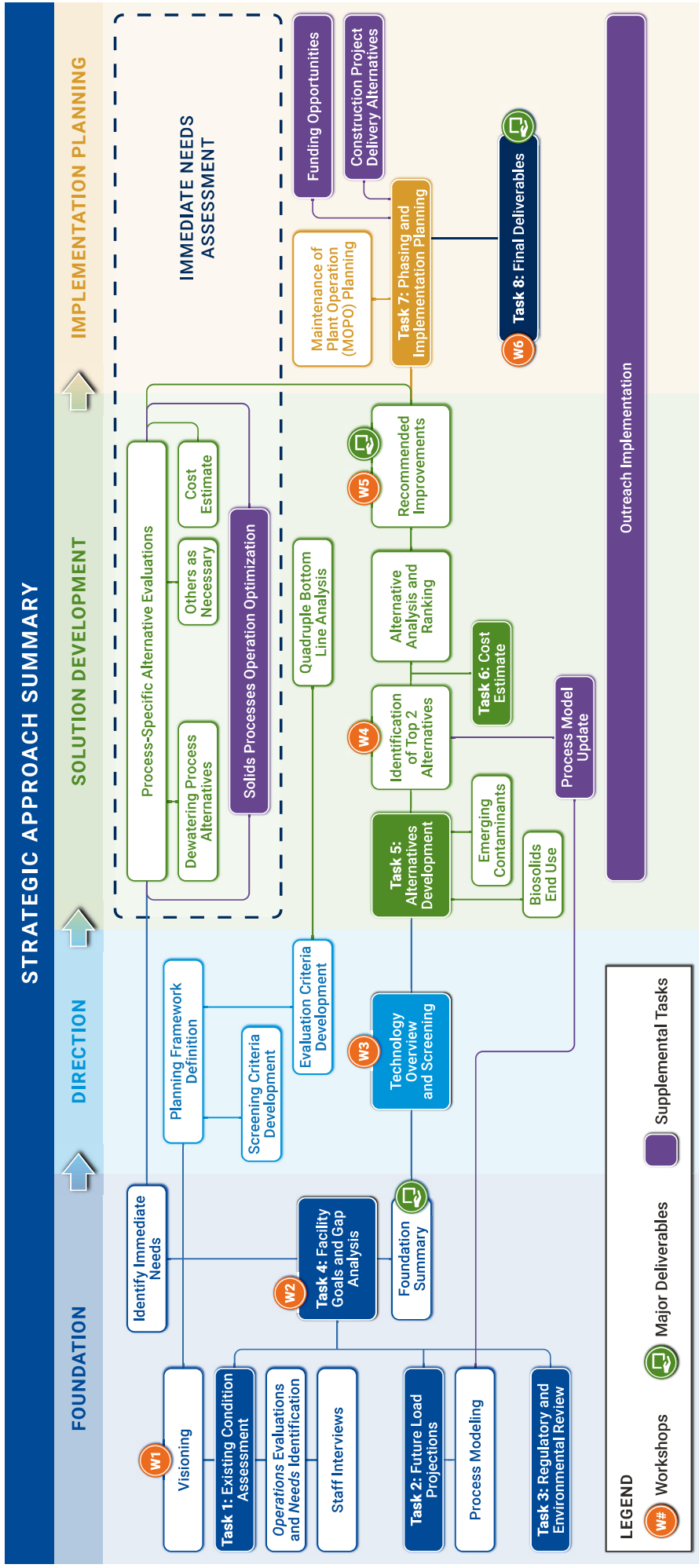
Foundation lays the groundwork for subsequent project work, identifying specific needs that must be addressed to meet project objectives, as well as regulatory pressures and market conditions that could shape proposed solutions. It will also allow the project team to determine immediate needs at the LCA that may be expedited for implementation in the short term.

Direction helps the project team to determine where we want to be based on a framework developed with LCA and beginning with a methodical screening to narrow the potential technologies to those most suitable for the LCA’s goals and drivers.

Solution Development develops and evaluates the alternatives at both plant-specific and regional levels building on the needs identified, framework developed, and technologies selected. Alternatives will be assessed using a “quadruple bottom line” approach.

Implementation Planning transforms recommendations into a phased roadmap that can be coordinated with LCA’s CIP for 5-year and 20-year planning periods and available funding.

In addition to these technical-focused tasks, project management effort will run throughout the life of the project. This includes workshops that are viewed as critical to the successful completion of the project, as they facilitate the collaboration that will be necessary to ensure that the project meets LCA’s objectives, while providing an opportunity for “real time” feedback to expedite project delivery. Workshops will be supplemented by monthly progress meetings, which provide an additional opportunity to share information on the project.



Black & Veatch's proposed strategic approach for the LCA Holistic Solids Study features a series of workshops and technical memorandums to gain consensus with all stakeholders and lay the groundwork for holistic planning to benefit LCA for years to come.

Foundation

This phase provides the foundation for subsequent project work, identifying specific pressures – both internal to LCA and external – that must be addressed to meet project objectives.

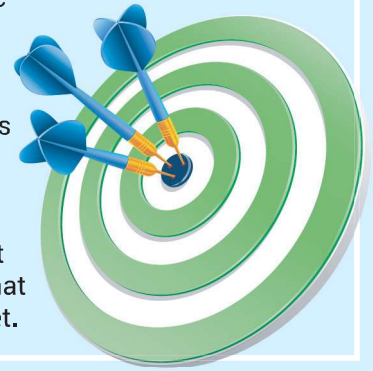
Visioning Workshop

The visioning workshop will serve to introduce the project teams, provide an overview of the project scope, and lay out the project work plan for individual tasks. Because information that Black & Veatch requests will be sent to LCA in advance of this meeting, there will also be an opportunity to discuss issues, if any, identified by the preliminary review of data received from LCA. Critically, this workshop will also serve to identify LCA's "critical success factors" for the project, which will guide Black & Veatch efforts and ensure that the biosolids program meets Authority's expectations and provides a robust roadmap for biosolids management.

VISIONING WORKSHOP

Identifying and addressing critical success factors ensures the project stays on target

The Visioning Workshop provides an opportunity for LCA to share your vision of success for this project. BV will lead an interactive session at the meeting to define what specific outcomes LCA would need to qualify the project as a success. These "critical success factors" will be added to the Project Work Plan and referenced throughout the project execution to ensure that LCA objectives are met.



Existing Program and Facility Review

This effort will include a review of information related to solids management, as well as interviews with LCA staff and contract employees. The intent is to gain a thorough understanding of solids management at a granular level to identify both challenges and potential opportunities with respect to short-term optimization and long-term resilience. This effort will include an assessment of current costs as a baseline for subsequent alternative comparisons.

Data Collection. Before starting the Facilities Assessment, the Black & Veatch team will review available records and reports on solids management operations and incorporate insights from our Master Plan regarding anticipated changes in liquid treatment and plant capacity. We will analyze applicable data to support solids characterization, facility assessment, and evaluation of potential sidestream impacts. In addition to reviewing data and documents, our team will conduct a group interview with operations and maintenance staff to better understand daily challenges. The information gathered will inform solids quantity projections, assess the capacity and condition of major solids processing components, and identify operational and maintenance challenges.

Facilities Assessment. An assessment will be made of the operations and physical facilities at the KIWWTP. This will include a site visit to the facility to interview

plant staff, document current operational practices, and note challenges and concerns with current processes. The site visit will also note the age, conditions, and limitation of current facilities. The assessment will not be a detailed asset by asset condition assessment but will note general facility conditions and potential for medium and long-term operations.

Flows/Loads and Solids Characteristics Confirmation & Process Model

Under this task, the Black & Veatch team will update existing model developed for the Master Plan to confirm and augment solids quantities and characteristics data provided by LCA. This will provide information both for short-term process assessments and long-term planning. Plant flow projects will be provided by LCA for Black & Veatch's use.

Regulation and Trend Assessment

Biosolids regulations – and regulatory activities that affect biosolids management – have been a growing concern. The Black & Veatch team will bring both our local and national expertise with biosolids regulations to summarize existing regulations, regulatory and policy trends and, critically, the potential ramifications of those trends on biosolids management for LCA.

Facility Goals and Gap Analysis Workshop

In this workshop, Black & Veatch will present the findings of the previous work and discuss any comments LCA had on the findings. The group will then review the draft gap analysis and generate additional goals for the project. Included in this discussion will be the interplay between regulatory and market conditions and the impact these will have on the viability of future solids processing alternatives.

Foundation Technical Memorandum

A technical memorandum will be developed to document the findings including gap analysis and goals for the project. The gap analysis will provide the framework for defining the direction of future alternatives evaluations and will be presented for LCA's consideration, revision, and concurrence before moving forward with the next project phase.

Direction

This phase builds upon the common understanding developed previously and begins to look forward to solutions, setting the stage with evaluation framework development, then followed by a technology screening, and culminating in the development of alternative concepts based upon preferred technologies.

Black & Veatch will build upon the results of visioning and gap analysis workshops to develop separate criteria for technology screening and alternative evaluations. Screening criteria are high level and support a "fatal flaw" analysis to quickly eliminate technologies that do not align with LCA's objectives, while evaluation criteria support a more detailed assessment of alternatives and the identification of more nuanced differentiators between alternatives. Evaluation criteria will also be weighted by LCA's staff via a "Pairwise Metric Comparison" approach. This exercise has historically been performed during in-person workshops, but Black & Veatch has developed a more user-friendly version of this exercise that can be done virtually and, going forward, is preferred even for in-person workshops because of its ease of use for participants.

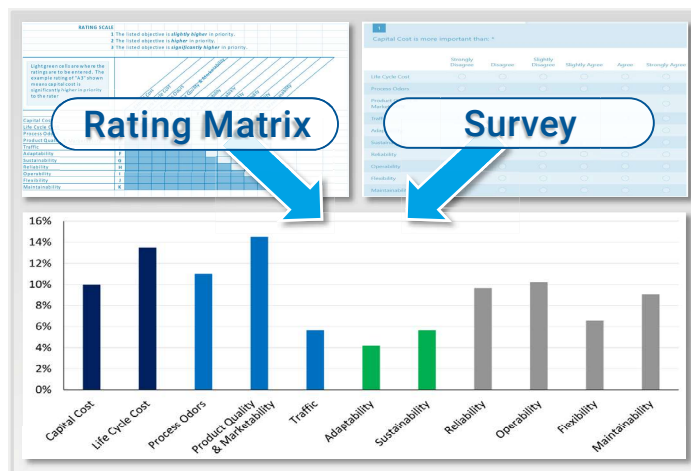
Technology Overview & Screening

This task will focus on the development and assessment of alternatives to address the challenges outlined in Understanding of LCA's Needs. Based on our experience, the most effective approach to biosolids

Addressing LCA's Immediate Needs

Recognizing that LCA will not be able to integrate all of the recommendations at once, Black & Veatch expects that there will be some projects that need to be expedited to allow LCA to operate the plant's solids processes reliably. These projects will be fast-tracked to be included in the 5-Year CIP plan.

- **Condition Assessment.** Based on the findings of the facility assessment task under Foundation, any improvements that affect the operation of the plant could be included in the 2026 CIP plan without being delayed by the rest of the evaluations.
- **Allow LCA to Expedite Critical Projects.**
- **Provide Operational Optimization.** The team will build upon the findings from the Understanding phase to identify areas where operational or process changes might reduce overall solids management costs or allow for resource recovery. Task efforts will focus on the bottlenecks and opportunities identified.



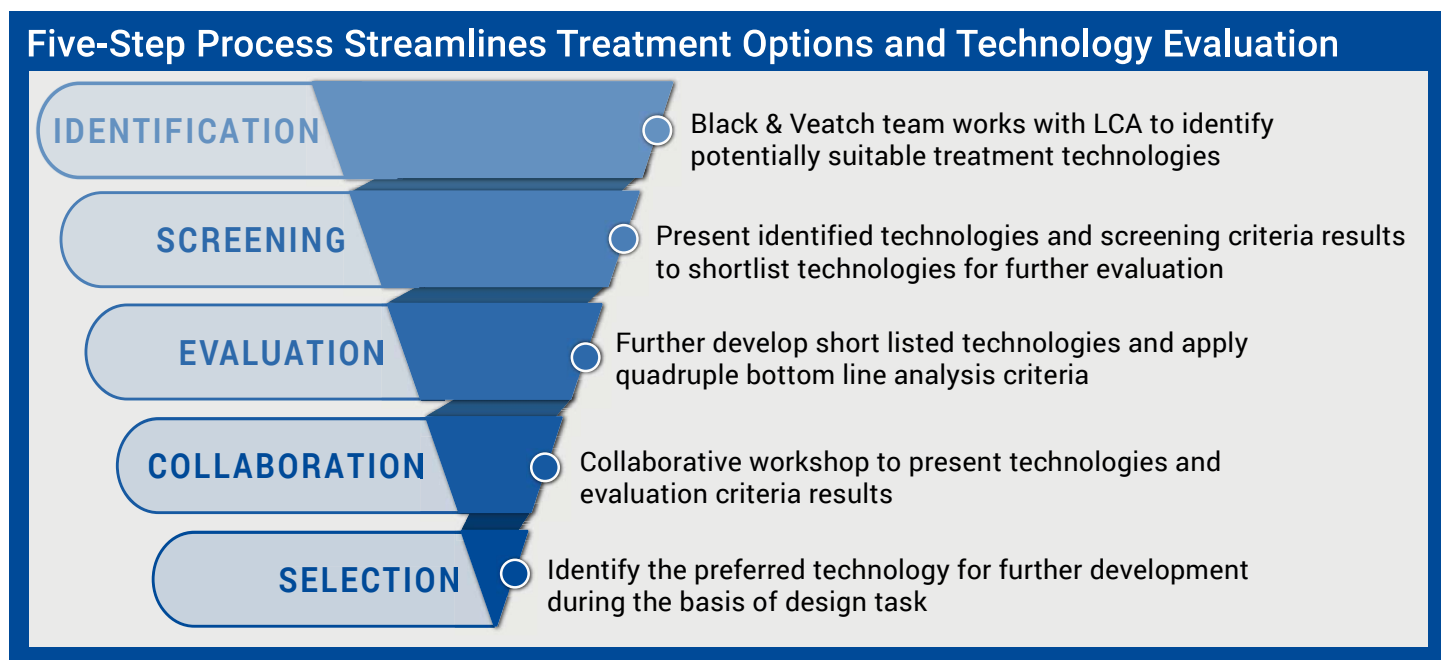
Black & Veatch used a Paired Metric App during a technology rating workshop with several Southwest Ohio Regional Utilities to engage members' criteria and preferences. The tool enhanced overall engagement, and participants praised its simplicity and easy-to-use interface with visual outputs.

technology evaluation is a Five-Step Process – with an initial screening step followed by a more detailed evaluation of alternatives – as shown below. The initial screening step ensures that a wide array of proven and emerging technologies are considered. The evaluation of short-listed technologies focuses on viable alternatives that are of interest to LCA.

We will work with LCA staff to develop high-level pass/fail criteria for the screening that reflect LCA's objectives. We will then leverage our experience from

regularly evaluating these biosolids technologies to quickly apply the criteria and share the findings with LCA with the goal to short-list technologies for further evaluation.

After preferred technologies are selected, the team will develop process flow schematics for potential alternative concepts/process trains to be further evaluated. Working with the LCA, these alternatives will be refined prior to detailed evaluation.



Solution Development

This phase focuses on identifying preferred solutions that will be a cornerstone of the Holistic Solids Management Study, developing alternative concepts to a level that they can be evaluated using the established criteria, and also including an optimization assessment to support the development of short-term solutions.

Evaluation Criteria Development

In addition to cost, qualitative evaluation criteria are critical to ensure that the proposed plan meets Authority's objectives. Toward this end, we suggest a "quadruple bottom line" approach to evaluation criteria development. This approach adds a fourth element –

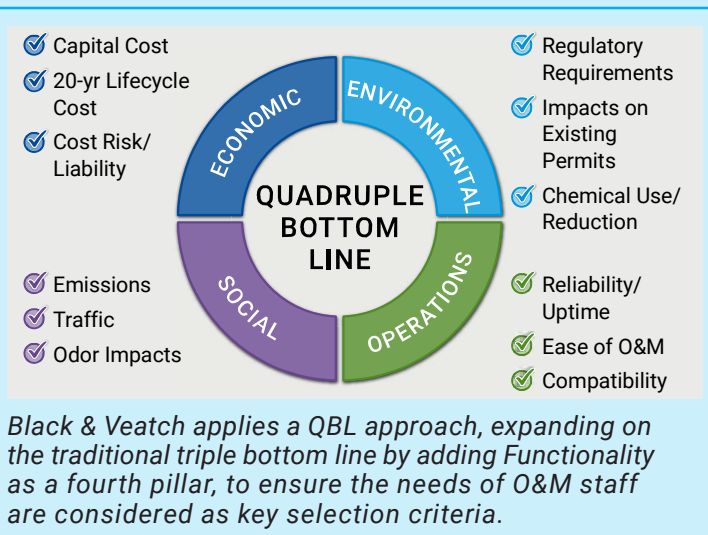
"functionality" – to a traditional sustainability-focused Triple Bottom Line analysis to capture O&M and related concerns. The figure below illustrates potential criteria that might be considered for a QBL analysis.

As presented in the Direction phase above, the evaluation criteria will be discussed with LCA during the Framework Definition workshop and finalized with all stakeholder's input. The weight for each criterion will be determined with LCA's participation using the Pairwise Metric Comparison method and used for the alternative's evaluations.

Following the identification and screening steps, our team will further develop the short-listed technologies utilizing the following factors to support the Quadruple Bottom Line (QBL) Analysis.

- Mass balance
- Basic equipment sizing and capacities
- Conceptual layouts
- Hauling requirements
- Conceptual costs
- Energy demand/production
- Chemical demand
- Revenue from harvested nutrients
- Other information needed for detailed analysis

Our work approach includes evaluation and alternative analyses workshops for information transfer and decision making. We present alternatives and facilitate our evaluation with LCA staff to reach a consensus on the preferred technology for design.



Alternatives Development

Under this task, preferred technologies will be developed to support the QBL analysis. This will include basic equipment sizing, conceptual layouts, hauling requirements, conceptual costs, energy demand/production, and other information needed for detailed analysis. Site-specific alternatives will include plans for long-term process configurations at each plant, and potential medium-term solutions that might address issues identified in the Understanding and Immediate Needs phases. This effort will be supported by process modelling to both reflect potential impacts of solids process changes on the plant and facilitate team's ability to quickly refine alternatives and answer what if questions before alternatives are finalized.

Proposed alternatives will be presented as figures and tables for LCA review and input before beginning detailed analyses.

Qualitative and Cost Evaluation

Both site-specific and regional alternatives will be subjected to a detailed evaluation based upon both

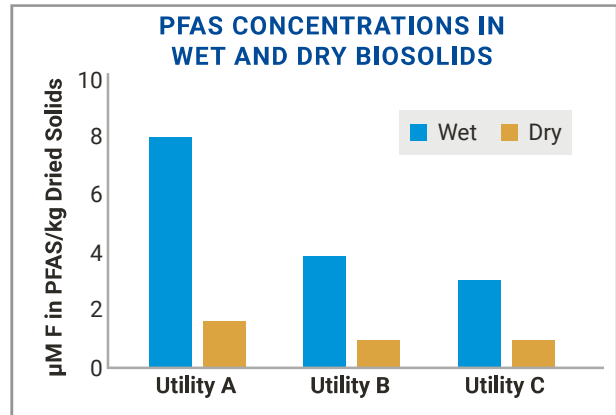
qualitative and economic criteria defined through efforts described above. For the evaluations, we will apply evaluation criteria and their associated metrics to preliminarily assign scores to each alternative using structured decision-making tools, such as a Quadruple Bottom Line analysis. This tool will provide graphic outputs that enable stakeholders to quickly grasp the importance of various criteria ("what-if") and allow the efficient screening and evaluation of options. Black & Veatch will prepare a preliminary scoring of the alternatives, which will be reviewed with LCA staff during a workshop. Feedback will be used to refine the evaluation. This evaluation effort will result in alternatives that are ranked in accordance with LCA's priorities.

Preferred alternative arising from this evaluation will be carried forward as recommendations and refined with respect to implementation, delivery and phasing.

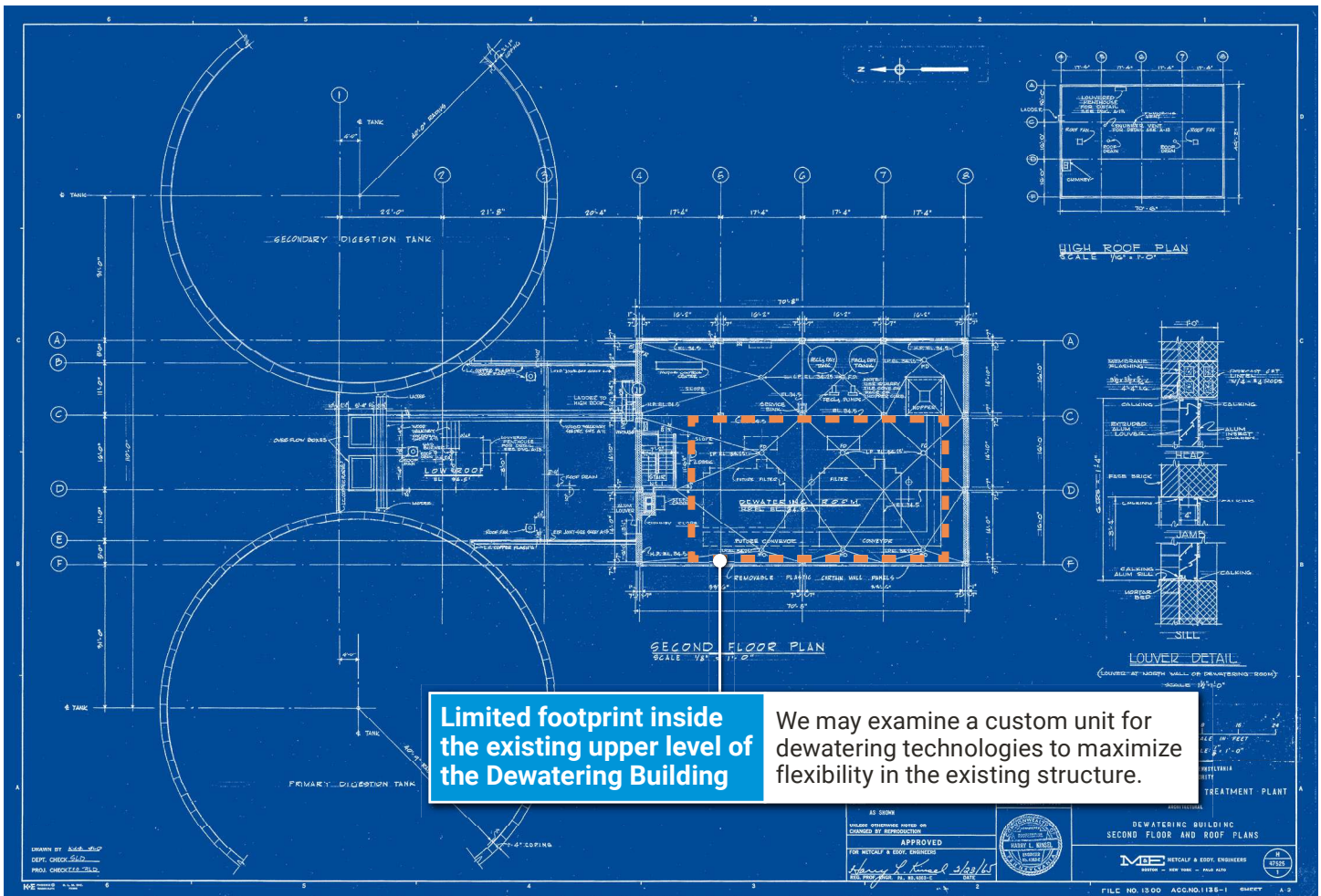
Drying Reduces PFOA/PFOS in Biosolids

Black & Veatch has been at the leading edge of the research showing the potential for drying to reduce the concentration of PFOA/PFOS in biosolids. In a recently published paper, Black & Veatch's Patrick McNamara shows that thermal drying can reduce PFAS in biosolids by 70%.

Patrick and Lynne Moss are kicking off a new Water Research Foundation (WRF) project: TC24-01 - Breaking the Forever PFAS Cycle: Recycle Stream Treatment to Reduce PFAS Loading to WRRF Influent and Biosolids. This project will evaluate PFOA/PFOS destruction technologies on sidestreams such as pressate to eliminate recycling these contaminants through the plant.



Black & Veatch is leading the WRF project, understanding the value proposition for thermal processing to mitigate PFOA/PFOS in biosolids. Since 2000, Black & Veatch has been involved in the design of 16 drying facilities.



Implementation Planning

Once short and long-term recommendations have been identified, additional efforts (Strategy Development) are required to advance these selections to a long-term resilient strategy that is flexible enough to adapt to changing regulatory, cost, and other pressures.

- Operational Integration.** Black & Veatch's overarching goal with operational integration will be to create a collaborative environment around any new assets, integrating processes, support activities, and workflow procedures through enhanced digital capabilities. We will guide the LCA's diverse work group through the planning process, not limited to just a basic understanding of the planned new facilities, but also the interactions and tie-ins of the new facilities with existing plant processes and controls, integration of operations and maintenance tasks, and incorporation of the new assets into the asset management tool.
- Triggers and Schedules.** We expect that the biosolids improvements will be delivered in a phased approach reflecting a variety of factors. These could range from the end of the existing contract to regulatory changes, capacity needs, or other triggers and drivers. Black & Veatch will identify potential phasing approaches reflecting these triggers to prepare an implementation schedule to management multiple, concurrent tasks.
- Maintenance of Plant Operations (MOPO).** This step is often overlooked, yet it can ruin a master plan fast. Our O&M team will use their experience to ensure the plan will enable LCA to continue servicing its customers.



Black & Veatch has led numerous dewatering evaluations including studies involving pilot demonstrations.

At Gwinnett County, GA, Black & Veatch coordinated pilot testing and subsequent economic evaluation of various dewatering technologies including centrifuges, belt filter presses and screw presses. This photo shows a screw press pilot at Crooked Creek WRF.



Project Financing and Funding.

Once a schedule is developed, the impact on existing and future capital improvement plans (CIPs), debt service, customer rates and potential finance options must be assessed. With the advantage of long-term planning, major financial impacts can be managed over a long-term that will limit sudden impacts to budgets or rates. The availability of grant and low-interest loan programs will also be assessed. Financing and funding strategies will dovetail with previous analyses; financial planning and funding opportunities often come with strict schedules and requirements.

Construction Project Delivery.

Different delivery approaches will be considered for new biosolids facilities that may be recommended. As with product delivery, Black & Veatch will bring our expertise with alternative project delivery into a comparison of relative merits and pitfalls of various delivery approaches for LCA's consideration. Approaches to be explored include program versus independent project delivery, design-bid-build (DBB), design-build (DB), design-build-operate (DBO), design-build-own-operate (DBOO), and construction manager at risk (CMAR).

4.3 Roles and Responsibilities for Consultant and LCA

This is a complex, multi-faceted Study which requires effective project management to ensure its successful delivery. As demonstrated by our work on the ongoing and past work with LCA, Black & Veatch's approach to project management focuses on executing our work in a collaborative, predictable, and proven manner. For this Study we will build on established processes to ensure that quality work products are delivered on time and within budget.

Communication & Collaboration

Open, frequent, and clear communication is essential to any project. We will hold regular project updates with LCA management staff and frequently collaborate with your operations staff through workshops to guarantee efficient, effective decisions are made.

Effective workshops will ensure that all parties understand the workshop scope and the expected outcomes. Our experience shows that smaller, frequent workshops allow participants to focus on a few key concepts which fosters more open, effective collaboration. Our Technical Approach includes a preliminary workshop schedule that allows for key decisions to be made at the appropriate time without excessive drain on LCA's valuable time

Integrated Tools to Foster Communication

Black & Veatch has developed tools to effectively foster and document the collaboration. At the start of the Project, we will prepare a Project Management Plan (PMP) specific to the goals and objectives of this Project, and which outlines our plan for effectively managing delivery to LCA. The features and benefits of this plan are presented below.

Quality Assurance/Quality Control

Black & Veatch's QA/QC approach is a comprehensive program that controls quality in all project aspects. This quality program encompasses everyone on the project; however, on this project Engin Guven and Chris DeBardiallo will be responsible for incorporating Black & Veatch's QA/QC policies and practices into the Study documents. We understand that quality studies, through analysis and solid conceptual layouts result in the steady foundation to allow LCA to enter into design phase a future date with confidence that all of the right questions have been "asked and answered".

B&V MANAGEMENT	PROVEN APPROACH	BENEFIT TO LCA
Communication	➔ Action and decision log with PM updates	✔ Timely and well-informed decisions
Schedule	➔ Detailed work plan and regular review of progress	✔ On-time completion of the Study
Cost	➔ Capital and PW Cost of each selected alternative(s)	✔ Selected alternative is affordable and can be integrated into CIP Planning
Quality	➔ Systematic and consistent review approach	✔ High-quality deliverables and layouts that are feasible and achievable
Operability	➔ O&M-driven phasing implementation	✔ O&M staff buy-in and ownership
Risk	➔ Regular review and updates to project risk register	✔ Mitigated risk

Risk Management

Our risk management plan, along with cost, schedule and quality management will be defined at the onset of the Project with LCA input.

Schedule and Resource Management

A cost and resource loaded schedule will be developed and utilized throughout the project to plan, monitor, and report project progress. This will allow LCA and our team to make real-time, informed decisions.

Scope Management

We will immediately meet with LCA to identify scope changes as they occur. We will track the origin of all change requests to identify scope or quality changes. Deviations to the project scope will require LCA approval prior to implementation.

4.4 Activities and Tasks Required for the Project

We have laid out a detailed plan for how we intend to deliver this study to LCA within our Technical Approach. This plan lays out how each step of the Study, as denoted in the various Tasks in the RFP document, fits into the overall schedule. It also identifies anticipated deliverables, reviews, workshops and other opportunities for collaboration with LCA staff to ensure that we build in adequate time to listen to and incorporate your feedback throughout the project. Our goal is to build upon the successful partnership and delivery for the previous Kline's Island WWTP Master Plan and utilizing many of the same team members to increase efficiency.

TASK 1 Existing Conditions Assessment

Our study starts with Condition Assessments to verify condition of existing assets, with specific attention to:

- Identifying various process mechanical equipment (mixing & heating systems, biogas utilization, dewatering equipment (belt filter press).
- Reviewing operational data and identifying any gaps/pathways for solids optimization, and related optimization for data collection/trending in SCADA.
- Assessing the true performance of the existing digester performance, including loading rates, volatile solids destruction, dewatering efficiency, polymer usage, cake concentrations, and filtrate quality.
- Review staffing levels, operator training and maintenance practices.

The goal of Task 1 will be to identify any gaps, and deficiencies to provide a solid pathway to determine sound solutions that will benefit LCA operations.

Deliverable:

- Visioning Workshop slides and meeting minutes

TASK 2 Future Load Projections

As part of the previous Master Plan, the Black & Veatch and LCA team examined drivers such as population growth, potential industrial & commercial discharges, related increase in nitrogen loading along with traditional BOD & TSS impacts, and some impacts with

planned modifications to the pre-treatment plant. As part of this Study, the previous excel based model will be expanded to incorporate additional flow information (LCA provided), updates on assumptions, and more importantly the impacts with on-going CEPT field trials to aid in long-term planning for solids management.

Additional impacts from dewatering and digestion operations will be considered as this has direct impacts on recycle flow rates volume and characteristics. There may be potential applicability for sidestream treatment to reduce ammonia and phosphorus loading to the main liquid stream treatment process, potentially resulting in more cost-effective treatment in the long term and increase operational flexibility.

Deliverable:

- Updated solids mass balance model incorporating current LCA provided solids data, including CEPT trials, and scenario generation.
- Examination of Sidestream Treatment Feasibility.

TASK 3 Regulatory and Environmental Review

As established in the recent Master Plan, Kline's Island is in compliance with environmental standards and water quality standards established by National Pollutant Discharge Elimination System (NPDES) and Delaware River Basin Commission (DRBC) regulations. The environmental regulation landscape is ever evolving in terms of limits for phosphorus for land application biosolids, and additional concerns with PFAS, microplastics, and pharmaceuticals and emerging contaminants.

The Black & Veatch team will expand upon the regulatory analysis conducted as part of the previous Master Plan, and we will dive into more detail for the ultimate requirements for the biosolids end product for what we see on the horizon for the planning period. This will allow us to work effectively to identify viable technologies that can meet these goals (Task 5), and effective options for land application of the biosolids end product.

Deliverable:

- Regulatory analysis

TASK 4 Facility Goals and Gap Analysis

For alternative development it is imperative that a solids platform is established to determine what the true baseline of the existing Kline's Island WWTP solid process and what is the ultimate end game. As part of the recent Master Plan development Black & Veatch had an opportunity to examine numerous portions of Kline's Island WWTP and establish LOS goals, state of current equipment, etc. This task will expand upon the previous information collected:

Facility Goals Determination

- Determining target flow rates and organic loading parameters for solids handling systems based on projected influent characteristics and incorporating information for CEPT pilot trials and full-scale implementation.
- Establish performance benchmarks for digestion (e.g., volatile solids reduction, gas yield), dewatering (e.g., cake solids concentration, polymer efficiency), and biosolids quality (e.g., Class B compliance, suitability for land application).
- Identify regulatory limits to be met, including nutrient loading restrictions (e.g., phosphorus), pathogen reduction standards, and emerging contaminant thresholds (e.g., PFAS).

Gap Identification

- Evaluate current system capabilities against defined goals and regulatory requirements.
- Identify deficiencies in capacity, process control, equipment performance, and monitoring infrastructure.
- Emphasize missing or underperforming components (e.g., inadequate mixing, insufficient dewatering throughput, lack of sidestream treatment) that may hinder compliance or operational efficiency.
- Recommend targeted upgrades or operational changes to close identified gaps and align facility performance with future needs.

Deliverable:

- Facility Goals and Gap Analysis Workshop Slides and meeting minutes

- Draft and Final Technical Memorandum on Facility Goals and Gap Analysis that will also include findings from the previous tasks.
 - Task 1 – Existing Conditions Assessment
 - Task 2 – Future Load Projections
 - Task 3 – Regulatory and Environmental Review

TASK 5 Alternative Analysis

During the recent Kline's Island Master Plan, LCA and Black & Veatch had an opportunity to examine numerous aspects of the existing Solids Process and potential avenues to optimize the process for the future. This task will build upon that previous analysis by going into even more detail, ask and answer what is the best technological for LCA for long term considerations (operations, regulatory, cost impacts, etc.), and develop a conceptual layout that could be implemented. As part of this Task, Black & Veatch will examine:

In-Depth View of Existing Digestion and Potential Optimization

- Evaluation conversion of secondary digester to primary digester for increase performance, and associated impacts with loading (hydraulic and solids).
- Assess what is the best mixing technology that could be incorporated into the existing digesters (e.g., linear motion, jet/pumped mixing systems, etc.).
- Consider ability to operate the digesters in a different mode (thermophilic, temperature-phased anaerobic digestion (TPAD)).
- Assessing how feasible co-digestion with FOG, food waste, or high-strength waste would be for Kline's Island WWTP.

Investigating Dewatering System Upgrades

- Evaluation of newer dewatering technologies (screw press, rotary presses, centrifuges, etc.) against the existing belt press technologies focusing on throughput, cake solids, polymer demand, and energy use.
- Determining feasibility for automation of solids dewatering feed rate control, and polymer dosing).
- Assessing filtrate quality for these dewatering technologies and impacts on return flows.

Feasibility and Impacts on Biosolids End Use Management

- Determining feasibility of upgrades to Class A (e.g., Advanced alkaline stabilization, composting, drying).
- Evaluation of regional biosolids markets, hauling distances, and tipping fees.
- Determination of potential storage needs for seasonal land application of biosolids, along with contingency planning.
- Assess landfill options if Kline's Island WWTP is forced to use this disposal alternative under a future hypothetical scenario.

Consideration for Emerging Contaminants

- Characterize potential PFAS concentrations in wastewater solids and biosolids.
- Comparing treatment options for removal of emerging contaminants (e.g., pyrolysis, incineration, and advanced oxidation).
- Review regulatory trends and assess potential impacts on future beneficial use programs, including land application restrictions.

Deliverable:

- Draft and Final Technical Memorandum on Alternative Analysis.
- Technology Overview and Screening Workshop slides and minutes.
- Top Two Alternatives Workshop slides and minutes.

TASK 6 Cost and Financial Analysis

Black & Veatch will develop an Opinion of Probable Construction Cost (AACE Class 5 Estimate) separated per Wick's Law (multi-prime construction projects) based on the selected alternatives (up to 2).

Additionally, a 20-year Present Worth analysis will be conducted on up to two selected alternatives to consider capital cost, electrical and chemical consumption, etc. to provide a complete economic condition for the alternatives.

Deliverable:

- Opinion of Probable Construction Cost and Present Worth Analysis for Alternatives in Electronic Format.

TASK 7 Phasing and Implementation Planning

Black & Veatch will consider the practicality of construction for the selected alternatives (up to two) to identify construction feasibility, laydown considerations for the contractor, temporary measures (such as mobile dewatering devices) to keep the solids process in operation, etc.

The main goal of the Phasing and Implementation we will be to identify any measures needed for Maintenance of Plant Operations (MOPO). This will identify high level sequencing requirements and construction constraints to ensure preservation of plant operations through construction:

- Operations reviews will be conducted working with the operational staff throughout Alternative Analysis (Task 5).
- MOPO plans will be prepared to allow normal operations during construction, to the maximum extent.

Black & Veatch will evaluate the identified selected alternatives as noted in Task 5 and select an alternative(s) based on a weighted score evaluation criteria. The following parameters will be utilized in development of the scoring:

- Capital and 20-year life cycle costs.
- Construction feasibility/practicality.
- Temporary measures needed for MOPO and constructability.
- Operational flexibility.
- Service life.
- Energy efficiency.

Deliverable:

- Recommended Improvements Workshop slide and minutes.
- Phasing MOPO Diagrams.
- Scoring matrix for selected alternatives.
- Brief Description.

TASK 8 Final Deliverables

Black & Veatch will compile the various technical memorandums and related documentation developed in Tasks 1 through 7 into a single report outlining the findings and proposed recommend improvements.

Deliverable:

- Final Deliverable Workshop slides and meeting minutes.
- Draft and Final Report, including developed layouts, opinion of probable construction costs, modeling outputs, implementation schedule, etc. into a single document.
- Meeting materials (PowerPoint, handout materials) for Stakeholder Meeting.

TASK 9 Program Management

Progress and Check-In Meetings

Black & Veatch will facilitate and conduct progress and check-in meetings, either live or virtual, to discuss overall progress, critical issues requiring consideration, and gathering input from LCA to advance the overall project.

These meetings are outside design meetings and related workshops. A total of 8 meetings have been allotted throughout the course of design.

As part of the meetings, an agenda and meeting minutes will be distributed to LCA.

Project Administration

Black & Veatch will provide overall project administration and management on an ongoing basis to maintain project progress, budget, and schedule.

Project Schedule

Black & Veatch will develop and maintain a project schedule that will be used to monitor project status and budget throughout the project.

Deliverable:

- Meetings and related meeting minutes.
- Monthly invoicing.
- Schedule updates (as necessary).

5

Schedule



5. Schedule

We anticipate that a fully executed contract would be in place by late-January of 2026, allowing for a project kick-off workshop to occur in early February 2026. As stipulated by the RFP, we have allocated nine months for the overall study, but there may be potential avenues to streamline and reduce the study duration to approximately seven to eight months. We welcome the opportunity to discuss in more detail with LCA.

We have allocated up to one month for LCA to review the Draft Study followed by a Draft Study Workshop meeting for soliciting thoughts and feedback. The finalized Study would be provided within one month and related presentation of the results to the LCA Board. Black & Veatch is committed to completing the Study in a timely manner.

Please refer to the following page for the proposed project schedule, outlining key milestones and timelines. While this schedule reflects our current plan, we remain flexible and are open to adjusting timelines in collaboration with LCA to best meet project needs.

TASK NAME	2026									
	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Overall Project Management	1	2	3	4	5	6	7	8	9	
Progress Meetings										
Holistic Solids Management Study										
Task 1 - Existing Conditions Assessment										
Task 2 - Future Load Projections										
Task 3 - Regulatory and Environmental Review										
Task 4 - Facility Goals and Gap Analysis										
Foundation Technical Memorandum										
Task 5 - Alternative Analysis										
Technical Memorandum										
Task 6 - Cost and Financial Analysis										
Opinion of Probable Construction Costs & Present Worth Analysis										
Task 7 - Phasing and Implementation Planning										
Phasing MOPO Diagrams & Scoring Matrix for Select Alternatives										
Task 8 - Final Deliverables										
Report										
Board Meeting										
Presentation to LCA Board for Holistic Solids Study										

Legend Progress Meetings Workshop Deliverable

7

Cost



7. Cost

In addition to selecting the right firm, the right budget for engineering services is needed for this important "roadmapping" for future solids improvements.

We have developed a budget that aligns with the scope and ensures LCA's goals and objectives can be fully achieved. The right budget enables the most qualified team to deliver the best possible outcome efficiently, on schedule, and with minimal change orders. This budget was built from the ground up, based on the tasks and deliverables outlined in the RFP.

On the following pages, we present the Overall Cost Summary (page 55), which provides a detailed task-by-task breakdown of projected hours and associated

fees in accordance with the RFP specifications. Additionally, the Detailed Hours Breakdown Per Task/ Staff Categories (page 56) offers a comprehensive labor category breakdown, including allocated hours and itemized task-specific expenses. This structured presentation ensures that all cost elements are fully documented and prepared in strict compliance with the requirements outlined in the RFP.

Proposed Fee

Overall Cost Summary

TASK	DESCRIPTION	HOURS	LABOR	EXPENSES	TOTAL
1	Existing Conditions Assessment	72	\$16,205	\$2,000	\$18,205
2	Future Load Projections	91	\$23,203		\$23,203
3	Regulatory and Environmental Review	44	\$9,923		\$9,923
4	Facility Goals and Gap Analysis	135	\$28,533		\$28,533
5	Alternative Analysis	152	\$35,061	\$1,600	\$36,661
6	Cost and Financial Analysis	97	\$26,829		\$26,829
7	Phasing and Implementation Planning	114	\$26,099		\$26,099
8	Final Deliverables	81	\$19,846	\$600	\$20,446
9	Project Management	36	\$5,889		\$5,889
	Total	822	\$191,588	\$4,200	\$195,788

Detailed Hours Breakdown Per Task/Staff Categories

ROLE	PROJECT DIRECTOR	PROJECT MANAGER	LEAD TECHNICAL SPECIALIST	PROJECT ENGINEER	PROJECT ACCOUNTING & BILLING	PROJECT CONTROLS	COST ESTIMATOR	QA/QC & TECH ADVISORS	JUNIOR ENGINEER	SENIOR ENGINEER	OPERATIONS SUPPORT	TECHNICAL SPECIALIST	PROCESS SUPPORT	PROCESS SPECIALIST	CONDITION SPECIALIST	SUBTOTAL HOURS	SUBTOTAL COST	ODC (TRAVEL, PRINTING, ETC.)	TOTAL COST
Task 1 - Existing Condition Assessment	7	9	20						12	12	10	2				72	\$16,205	\$2,000	\$18,205
Task 2 - Future Load Projections		6	48							37						91	\$23,203		\$23,203
Task 3 - Regulatory and Environmental Review		4	20						12					8		44	\$9,923		\$9,923
Task 4 - Facility Goals and Gap Analysis		4	4	16				10	48	8	15	38				135	\$28,533		\$28,533
Task 5 - Alternative Analysis		8	14	48					32	8		20	8	2	12	152	\$35,061	\$1,600	\$36,661
Task 6 - Cost and Financial Analysis		8	8	15			52	6	8							97	\$26,829		\$26,829
Task 7 - Phasing and Implementation Planning		6	21	22					27	14	24					114	\$26,099		\$26,099
Task 8 - Final Deliverables	2	12	6	21			4	2	20	14						81	\$19,846	\$600	\$20,446
Task 9 - Project Management	2	6			20	8										36	\$5,889		\$5,889
Total Hours	4	51	72	210	20	8	56	18	159	85	49	60	8	10	12				
Total Cost	\$640	\$17,655	\$23,035	\$41,256	\$2,300	\$1,265	\$16,936	\$3,840	\$27,977	\$25,075	\$6,141	\$16,894	\$2,286	\$2,950	\$3,338	822	\$191,588	\$4,200	\$195,788

MEMORANDUM

Date: January 26, 2026

To: Lehigh County Authority Board of Directors
From: Amy B. Rohrbach, Project Manager
Subject: Allentown Division – KIWWTP Plastic Media Trickling Filter Rehabilitation – Construction Change Order #2

MOTIONS / APPROVALS REQUESTED:

No.	Item	Amount
1	General Construction Change Order 2 – Allan Myers, L.P.	\$73,649.75

PROJECT OVERVIEW

Kline’s Island Wastewater Treatment Plant (KIWWTP) contains four 100-foot diameter, 32-foot tall, plastic media trickling filters (PMTFs) that were originally constructed in the 1970s and have been in constant operation since. The PMTFs function by taking the effluent that is pumped up from the primary clarifiers to the top of the tanks where a rotating mechanism distributes the effluent across the plastic media surface and it then trickles through the media where it receives biological treatment from the biomass that builds up on the media surface. The PMTFs have had no extended shutdowns and still contain the original media. The media has reached the end of its useful life and needs to be replaced. A construction contract was issued to Allan Myers, L.P. to rehabilitate PMTF #4, and a Notice to Proceed was issued on September 17, 2025.

FINANCIAL

The project received substantially complete design approval from the City on July 28, 2025; therefore, it is considered a Major Capital Improvement (MCI), and costs will be recovered through Capital Cost Recovery Charges (CCRC).

THIS APPROVAL – CONSTRUCTION CHANGE ORDER

This request is for a construction change order to the existing General Construction contract with Allan Myers, L.P.. for the KIWWTP Plastic Media Trickling Filter Rehabilitation project. This change order is necessary to make repairs to the existing steel angle at the top of the filter tower. During the course of demolition, the contractor discovered failed welds on these steel members, with one member falling on the media below. Temporary measures were taken to ensure all remaining members were secured so demolition could continue, but permanent repairs are needed to secure them. Allan Myers is proposing to weld and bolt these sections to the perimeter steel to properly secure. Our engineer, CHA Consulting, has reviewed this proposed repair and found it acceptable.

The total increase to the contract with Allan Myers, L.P. is \$73,649.75.

PROFESSIONAL SERVICES

CHA Consulting, Inc. will continue to provide construction administration services for this project, and no additional services are requested as part of this change order.

PROJECT SCHEDULE

The project is still on target for final completion by April 15, 2026.

FUTURE AUTHORIZATIONS

No future authorization is anticipated for this project.



1053 SPRUCE RD * P.O. BOX 3348 * ALLENTOWN, PA 18106-0348
 610-398-2503 * email: service@lehighcountyauthority.org
 www.lehighcountyauthority.org

REQUEST FOR BOARD AUTHORIZATION

Board of Directors Meeting Date: 1/26/2026
 Staff Member Requesting Authorization: Amy Rohrbach
 Department: Capital Works
 Short Description / Title of Project / Purchase: KIWWTP Plastic Media Tricking Filter Rehabilitation –
 Construction Change Order 2
 Project Number (if applicable): AD-S-24 / Munis Project # 50660

Capital Expense: (check all that apply)

- Capital Project >\$250,000
 - Construction / Other Contract(s)
 - Professional Services Authorization
 - Initial Authorization
 - Amended Authorization
- Professional Services Authorization >\$100,000
- Equipment Purchase >\$250,000
- Upsizing / Extension >\$250,000
- Aggregate Change Order >10% of contract and >\$100,000
- Stand-Alone Change Order >\$50,000

Operations Expense:

- Construction / Other Contract >\$250,000
- Professional Services Authorization >\$100,000
- Equipment / Other Individual Item >\$250,000
- Emergency Authorization >\$50,000
- Aggregate Change Order >10% of contract and >\$100,000
- Stand-Alone Change Order >\$50,000

LCA Enterprise Fund: Allentown Division Suburban Water Suburban Wastewater Internal Service / Admin

Current Project Phase: N/A (skip to Description) Planning Conceptual Design Design / Bid Construction

Prior Authorization(s):

Date	Phase	Description	Amount Authorized
2/7/25	Planning	Preliminary Engineering PSA – CHA Consulting, Inc.	\$50,800.00
4/15/25	Design/Bid	Design & Bidding Phase PSA – CHA Consulting, Inc.	\$65,000.00
6/9/25	Equipment	Costars purchase of Plastic media – Brentwood Industries, Inc. c/o Geiger Pump and Equipment	\$2,251,000.00
9/8/25	Construction	Construction Phase Authorization	\$2,528,955.00
9/17/25	Equipment	Increase to PO for additional base media – Brentwood Industries, Inc. c/o Geiger Pump and Equipment	\$9,143.36
9/18/25	Design/Bid	Design Phase Services Amendment – CHA Consulting, Inc.	\$11,300.00
10/31/25	Construction	Construction Phase Amend 1 – CHA Consulting, Inc.	\$7,500.00
12/8/25	Construction	Construction Change order 1 – Allan Myers, L.P.	\$263,142.00
12/9/25	Equipment	Increase to PO for cutting top layer of media – Brentwood Industries, Inc. c/o Geiger Pump and Equipment	\$8,887.35
Total Prior Authorizations:			\$5,195,727.71

Current Authorization Requested:

Description	Amount Requested
Construction Change Order #2 – Allan Myers, L.P.	\$73,649.75
Total Amount Requested (this authorization):	\$73,649.75

Future Authorizations:

Phase	Note / Description	Estimated Cost
	Future phases for rehabilitation of Filters 1, 2 and 3	\$TBD
Estimated Total Project Cost:		\$5,269,377.46

Short Description: (please attach supporting documentation, cost justification, trade-in values, proposals, memos, etc.)

This request is for a construction change order to the existing contract with Allan Myers, L.P. for the rehabilitation of Plastic Media Tricking Filter #4. During demolition, it was discovered that the existing welds on the top perimeter angle steel had failed and are in need to repair. The work associated with this change order will include welding and bolting to reattach these existing steel members and ensure a safe structure.

Purchasing Procedure: Formal Bid Request for Proposal Cooperative Purchasing Group / CoStars N/A - Emergency

Motion: _____ **Second:** _____ **Approved?** _____ **Certified by:** _____



Date: 12/22/2025
Lehigh County Authority, Klines Island PMTF #4

Attn: Mr. David Wodyka, P.E.
dwodyka@chasolutions.com
Email: dwodyka@chasolutions.com
Phone: 484-484-8610

Allan Myers Project No. 2520281

Re: PCO 007 – Repair Top Perimeter Angle

Dave,

Allan Myers received SK-001 on 11/21/2025 detailing requests for additional repairs to PMTF #4, specifically Note 4, Install Bolts on Top Perimeter Angles of PMTF #4. Please see attachments.

The cost to complete this work is \$83,771.00.

Please let me know if you have any questions or concerns

\$83,771
- \$10,121.25 (allowance already in contract)

\$73,649.75 (total CO #2)

Thanks,

Andrew Gretsky

Project Manager
C: 610-633-8684
E: andrew.gretsky@allanmyers.com

Bid Summary Totals Report

Standard Markup Instructions

	Cost Basis	Markup %	Markup
Labor:	10,970	15.00	1,646
Burden:	7,606	15.00	1,141
Perm Matl:	0	15.00	0
Const Matl:	0	15.00	0
Sub:	18,726	15.00	2,809
Eq. Op. Exp:	17,139	15.00	2,571
Co. Equip:	18,330	15.00	2,750
Rented Eq.:	0	15.00	0
Misc1:	0	0.00	0
Misc2:	0	0.00	0
Misc3:	0	0.00	0
Overrides:	0		0
Total:	72,771	15.00	10,916

Selected Bond Table: CO

Previous Run

Summary: 12/22/2025 8:02 AM
 Spread: 12/22/2025 8:02 AM
 Summary run on Takeoff Quan and Adjusted to Bid Quan.

Standard Spreads

Indirect Spread: Total
 Markup Spread: Total
 Addon/Bond Spread: Total

Totals as of Last Spread

	Cost:	Markup:	Total:
Direct:	72,771	10,916	83,687
Indirect:	0	0	0
Addons:	0	0	0
Bond:	84		84
Subtotal:	72,855	10,916	83,771
Pass Through:	0		0
Total:	72,855	10,916	83,771

Direct Cost Report

Activity Resource	Desc	Quantity Pcs	Unit	Unit Cost	Labor	Perm Material	Constr Matl/Exp	Equip Ment	Sub-Contract	Total
-------------------	------	--------------	------	-----------	-------	---------------	-----------------	------------	--------------	-------

BID ITEM = 7 Land Item SCHEDULE: 1 100
 Description = PCO 007 - Repair top Perimeter Angle Unit = EA Takeoff Quan: 1.000 Engr Quan: 1.000

0804-METALS Install Bolts Through Stiffner **Quan: 18.00 EA Hrs/Shft: 9.00 Cal: 45 WC: NONE** ****Unreviewed**

18 Total Pieces of Angle. Installation of QTY 4 pieces of angle as noted in quote at equal distances. 2 crew hours support for each angle to help fit, adjust, relocate scissor lifts, removal of safety straps

MM2F	(Mod) 2 MAN MECH CREW W/ 1/2 FM	36.00 CH	Prod:	2.0000 HU	Lab Pcs:	3.50	Eqp Pcs:	1.50
4WELD	WELDING SUB	1.00 1.00 LS	18,726.000				18,726	18,726
8CRC-999	**KI-Manitowoc 999	1.00 36.00 HR	700.960			25,235		25,235
8SSCL	==> Sunbelt Large Scissor	1.00 1.00 MO	2,040.000				2,162	2,162
8SSML	==> Sunbelt Single Man Lif	1.00 2.00 MO	2,337.300			4,955		4,955
8TPU-301	**PICK UP - F150	0.50 18.00 HR	15.651				282	282
PAFP	Field Manager - Process	0.50 18.00 MH	60.000	2,380				2,380
PAL	PW - Laborer	1.00 36.00 MH	32.090	2,454				2,454
PAM	PW - Millwright	1.00 36.00 MH	53.870	4,154				4,154
PAO1	PW - Operator-Crane (CCO	1.00 36.00 MH	48.300	3,770				3,770
\$64,118.22	7.0000 MH/EA	126.00 MH	[328.52]	12,758		32,634	18,726	64,118

0101 SUPERVISION **Quan: 1.00 EA Hrs/Shft: 9.00 Cal: 45 WC: NONE** ****Unreviewed**

PAZPE	==> PE, SR PE, PM I	1.00 40.00 HR	110.000	4,400				4,400
\$4,400.00			[]	4,400				4,400

0804REINSTAL Reinstallation of broken section **Quan: 1.00 EA Hrs/Shft: 9.00 Cal: 45 WC: NONE** ****Unreviewed**

Reinstallation of section that fell due to failed welds

MM2F	(Mod) 2 MAN MECH CREW W/ 1/2 FM	4.00 CH	Prod:	4.0000 CH	Lab Pcs:	3.50	Eqp Pcs:	1.50
8CRC-999	**KI-Manitowoc 999	1.00 4.00 HR	700.960			2,804		2,804
8TPU-301	**PICK UP - F150	0.50 2.00 HR	15.651				31	31
PAFP	Field Manager - Process	0.50 2.00 MH	60.000	264				264
PAL	PW - Laborer	1.00 4.00 MH	32.090	273				273
PAM	PW - Millwright	1.00 4.00 MH	53.870	462				462
PAO1	PW - Operator-Crane (CCO	1.00 4.00 MH	48.300	419				419
\$4,252.74	14.0000 MH/EA	14.00 MH	[657.04]	1,418		2,835		4,253

====> **Item Totals: 7 - PCO 007 - Repair top Perimeter Angle**

\$72,770.96	140.0000 MH/EA	140.00 MH	[6570.4]	18,576		35,469	18,726	72,771
72,770.960	1 EA			18,576.07		35,468.89	18,726.00	72,770.96

\$72,770.96 * Report Totals *** 140.00 MH 18,576 35,469 18,726 72,771**

>>> indicates Non Additive Activity

-----Report Notes:-----

The estimate was prepared with TAKEOFF Quantities.
 This report shows TAKEOFF Quantities with the resources.

'Unreviewed' Activities are marked.

Bid Date: Owner: Engineering Firm:
 Estimator-In-Charge:

JOB NOTES

Estimate created on: 01/04/2021 by User#: 1024 - Tom Jacoby
 Source estimate used: T:\HEAVYBID\EST\ESTMAST

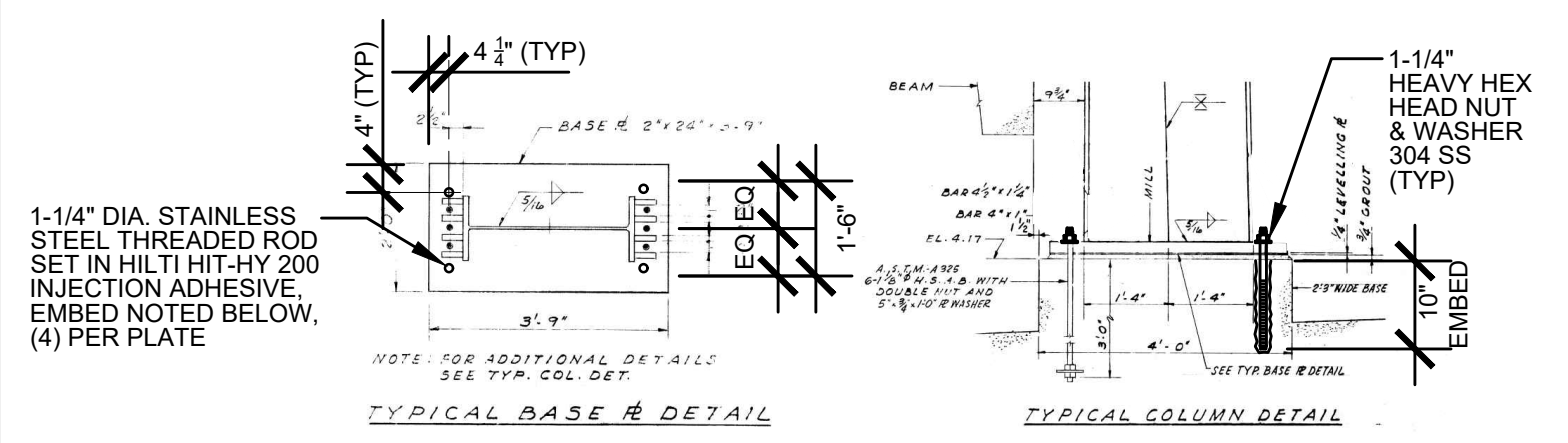
*****Estimate created on: 10/21/2025 by User#: 1024 - Tom Jacoby

No.	Submittal / Revision	Appr	By	Date
1	STRUCTURAL EVALUATION	HOV	AJM	11/21/25

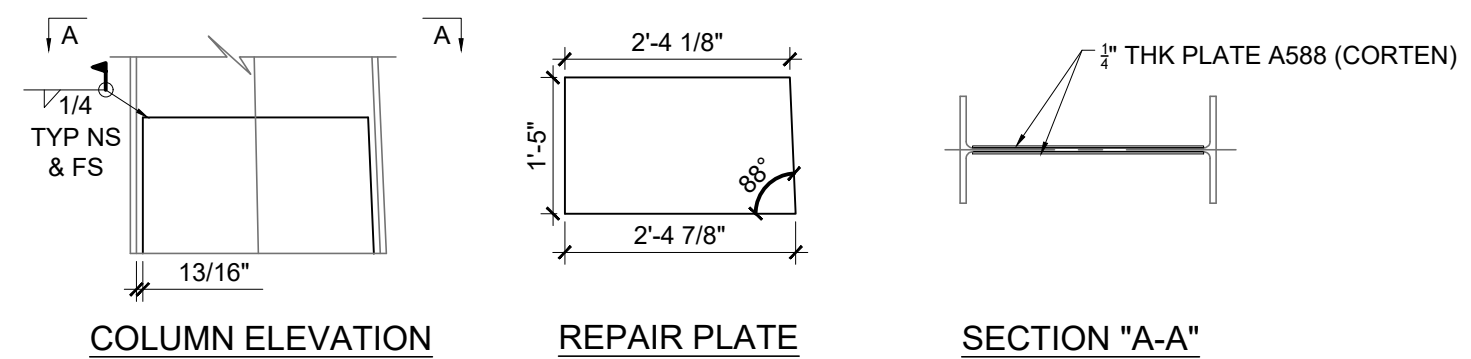
SUPPLEMENTARY PMTF #4 REPAIR DETAILS AND NOTES

Designed By: HOV	Drawn By: AJM	Checked By: HOV
Issue Date: 11/21/25	Project No.: 093585	Scale: AS SHOWN

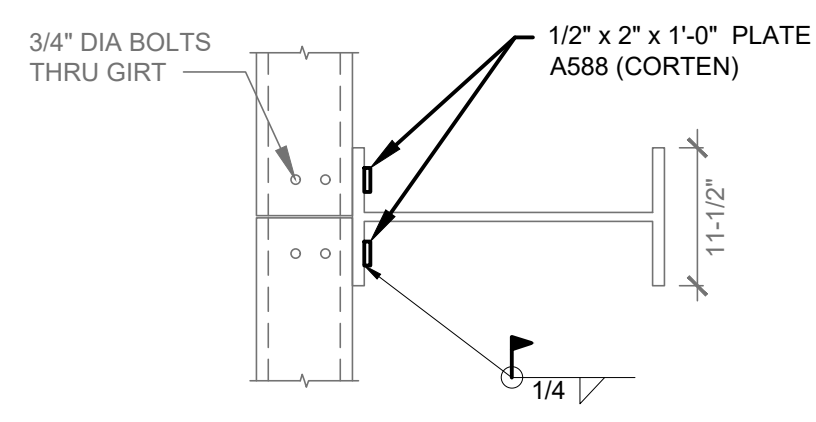
Drawing No.:
SK-001



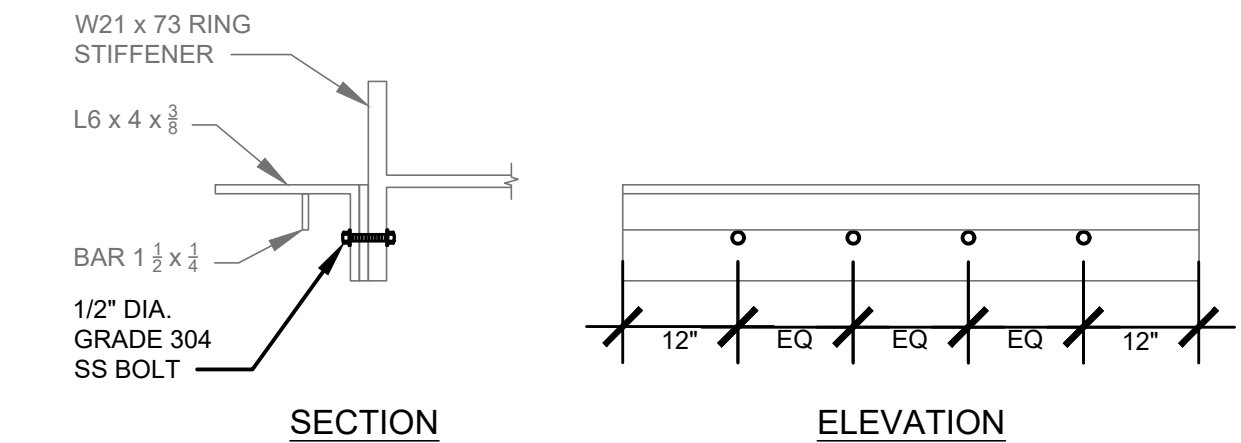
1 COLUMN BASE ANCHOR REPAIR DETAIL
 SCALE: NONE



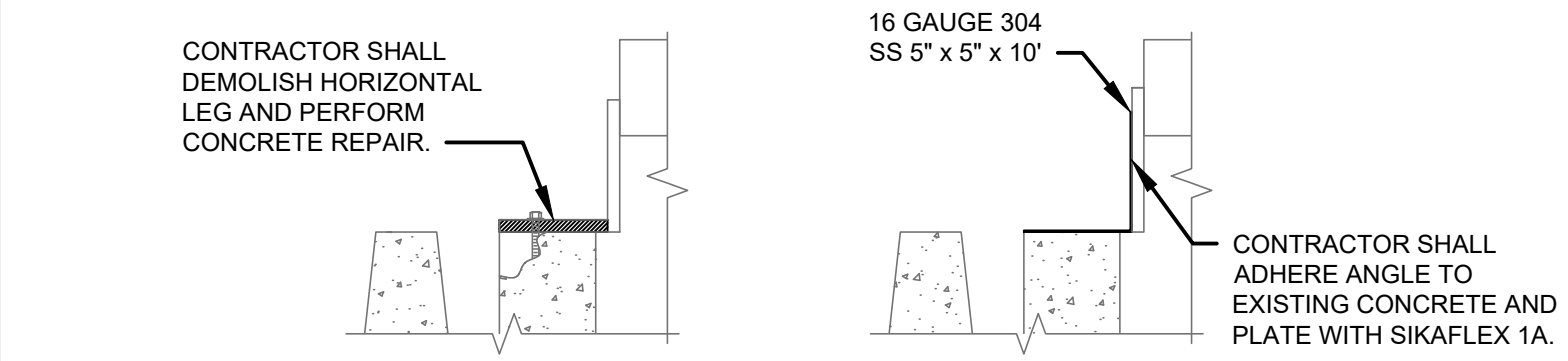
2 COLUMN BASE PLATE REPAIR DETAIL
 SCALE: NONE



3 COLUMN AT GIRT REPAIR DETAIL
 SCALE: NONE

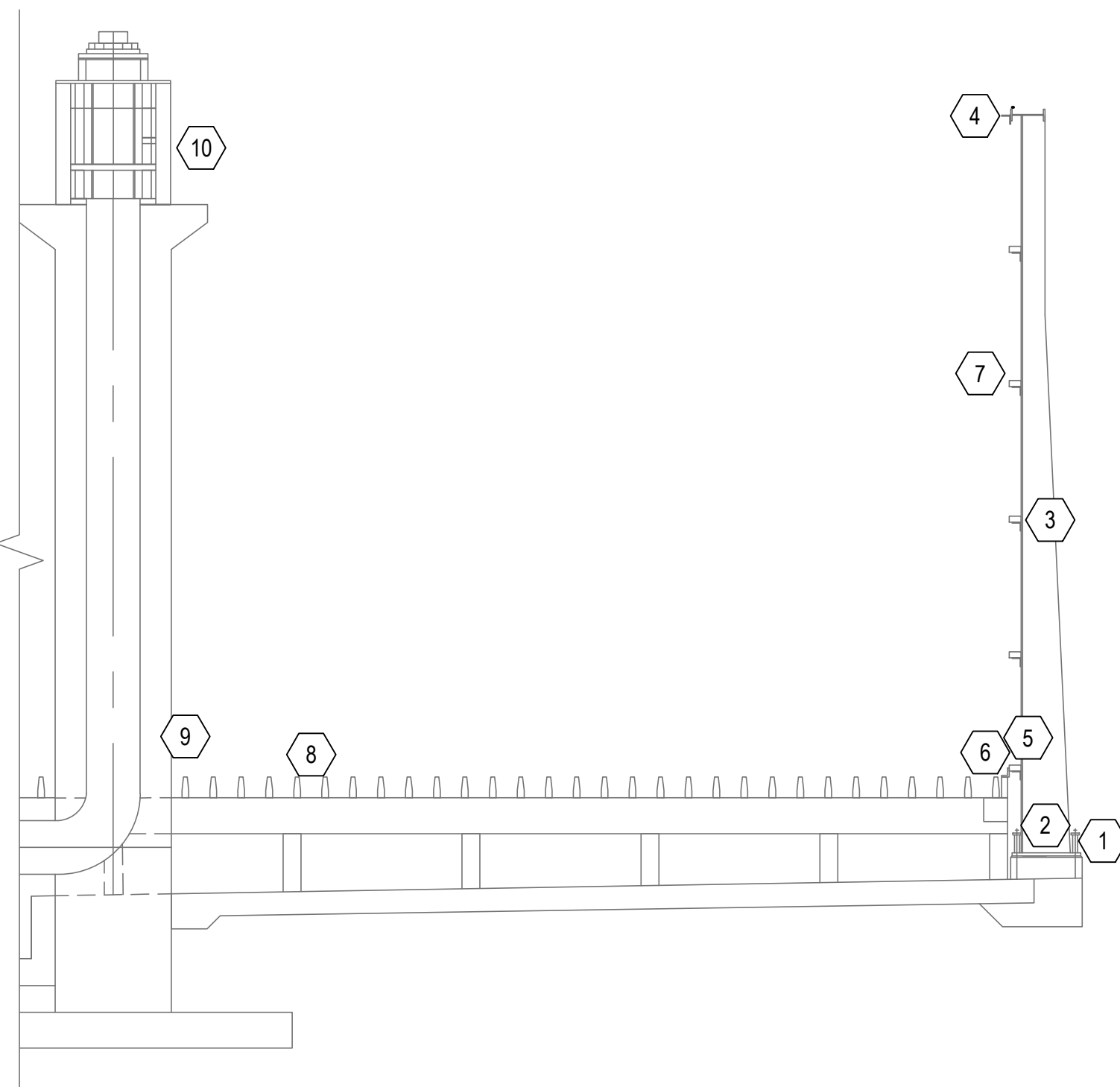


4 TOP PERIMETER ANGLE BOLT REPAIR DETAIL
 SCALE: NONE



5 FRP SUPPORT MEMBER REPAIR DETAIL
 SCALE: NONE

- ALL WELDS SHALL BE IN COMPLIANCE WITH AWS D1.1
- ELECTRODES SHALL BE LOW HYDROGEN E7018



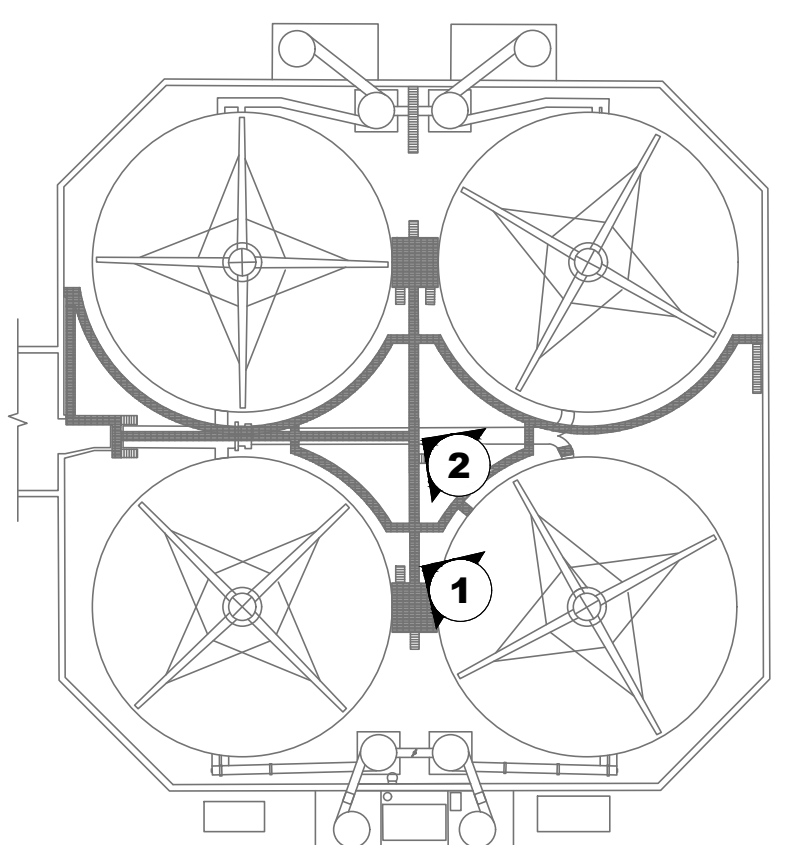
6 PMTF SECTION - REPAIR LOCATIONS
 SCALE: NONE



1 PHOTO OF MISSING BOLT
 SCALE: NONE

NOTES:

- CONTRACTOR SHALL INSTALL NEW ANCHOR BOLTS AT EVERY COLUMN BASE AROUND EXTERIOR PERIMETER OF PMTF #4, EXCLUDING THOSE ALREADY INSTALLED. REFER TO DETAIL 1 ON SK-001.
- CONTRACTOR SHALL INSTALL CORTEN STEEL PLATES AT EVERY COLUMN BASE AROUND EXTERIOR PERIMETER OF PMTF #4, EXCLUDING THOSE ALREADY INSTALLED. REFER TO DETAIL 2 ON SK-001.
- CONTRACTOR SHALL INSTALL CORTEN STEEL PLATES AT EVERY GIRT TO COLUMN CONNECTION AROUND PERIMETER OF PMTF #4. REFER TO DETAIL 3 ON SK-001.
- CONTRACTOR SHALL INSTALL BOLTS ON TOP PERIMETER ANGLES OF PMTF #4. REFER TO DETAIL 4 ON SK-001. CONTRACTOR SHALL INSTALL CAULKING BETWEEN ANGLE AND RING STIFFENER TO SEAL AGAINST WATER. BOLTS TO BE 1/2" DIA. GRADE 304 SS.
- CONTRACTOR SHALL DEMOLISH HORIZONTAL LEG OF FRP SUPPORT ANGLE, PERFORM CONCRETE REPAIR, AND INSTALL STAINLESS STEEL FLASHING AROUND THE PERIMETER OF PMTF #4. REFER TO DETAIL 5 ON SK-001. STAINLESS STEEL FLASHING TO BE 16 GAUGE 304 SS 5"x5"x10" CURVED TO RADIUS 50'-1 1/2". REFER TO DETAIL 1 ON S-501 FOR FULL DEPTH CONCRETE REQUIREMENTS.
- CONTRACTOR SHALL REPLACE EVERY BOLT ON THE LOWEST GIRT AROUND PERIMETER OF PMTF #4. BOLTS TO BE 3/4" DIA. GRADE 316 SS TO MATCH EXISTING.
 - BROMOCO CT-7571 SEALER WITH PREPARATORY ERW-BD NEUTRALIZER.
 - POR15 RUST PREVENTATIVE COATING WITH PREPARATORY CLEANER DEGREASER, METAL PREP, AND AN OPAQUE TOP COAT FOR UV PROTECTION.
 - APPROVED EQUAL.
- CONTRACTOR SHALL COAT GIRTS AROUND THE PERIMETER OF PMTF #4. GIRTS TO BE COATED ON FOUR SIDES. CONTRACTOR SHALL PROVIDE A SEALANT THAT IS SUITABLE FOR AGED CORTEN STEEL. PRODUCT LIFE SHOULD BE GUARANTEED FOR A MINIMUM OF 5 YEARS. CONTRACTOR SHALL REMOVE LOOSE RUST AND PREPARE VIA MANUFACTURER'S PRODUCT SPECIFICATIONS. ACCEPTABLE PRODUCTS INCLUDE:
 - BROMOCO CT-7571 SEALER WITH PREPARATORY ERW-BD NEUTRALIZER.
 - POR15 RUST PREVENTATIVE COATING WITH PREPARATORY CLEANER DEGREASER, METAL PREP, AND AN OPAQUE TOP COAT FOR UV PROTECTION.
 - APPROVED EQUAL.
- CONTRACTOR SHALL PERFORM CONCRETE SURFACE PATCHING ON JOISTS AS MARKED IN THE FIELD. REFER TO DETAIL 3 ON S-501 FOR SURFACE PATCHING REQUIREMENTS.
- CONTRACTOR SHALL PERFORM CONCRETE SURFACE PATCHING ON CENTER COLUMN AT EXPOSED REBAR. REFER TO DETAIL 3 ON S-501 FOR SURFACE PATCHING REQUIREMENTS.
- CONTRACTOR SHALL CLEAN RUST OFF CENTER DRIVE AND DISTRIBUTOR ARMS AND COAT RUSTED AREAS WITH A GALVANIZED COATING.
- CONTRACTOR SHALL REPLACE A MISSING BOLT AND TIGHTEN AN EXISTING BOLT ON THE LOWER CATWALK WITHIN THE PMTF BASIN. REFER TO PHOTO 1, PHOTO 2, AND PLAN 7 ON SK-001 FOR REFERENCE.
- ALL STEEL SHALL BE A588 WEATHERING STEEL.
- WELDING:
 - ALL WELDING TO THE EXISTING CORTEN STEEL SHALL BE LOW HYDROGEN E8018-C1 OR EQUIVALENT ARC WELDING PROCESS.
 - IF CONTAMINANTS CANNOT BE REMOVED BECAUSE OF INACCESSIBILITY OR EXTRA TIGHT ADHESION, THE FIRST SURFACE PASS SHOULD BE MADE WITH E6010 OR E6011 ELECTRODES WITH A SLOW TRAVEL SPEED; THIS WILL ALLOW THE CONTAMINANTS TO RISE TO THE SURFACE WHERE THEY SHOULD BE CLEANED PRIOR TO THE NEXT PASS. E60XX OR E70XX ELECTRODES MAY THEN BE USED AT THE SAME WELD.
 - DO NOT WELD ON WET OR FROST COVERED SURFACES.
 - WHEN THE STEEL TEMPERATURE OF THE EXISTING STEEL IS BETWEEN 0 AND 32 DEGREES F, THE STEEL SHALL BE PREHEATED AND MAINTAINED AT 70 DEGREES F DURING THE WELDING PROCESS. REFERENCE AWS SPECIFICATION FOR PREHEATING REQUIREMENTS.
- CODES:
 - THE INTERNATIONAL CODE COUNCIL - "INTERNATIONAL BUILDING CODE - 2018"
 - AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) "MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES", ASCE 7-16
 - AMERICAN CONCRETE INSTITUTE (ACI) "SPECIFICATIONS FOR STRUCTURAL CONCRETE IN BUILDINGS," ACI 318, LATEST EDITION
 - THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "SPECIFICATION FOR STEEL BUILDINGS" - LATEST EDITION
 - AMERICAN WELDING SOCIETY (AWS) "STRUCTURAL WELDING CODE" - STEEL, AWS D1.1 MATERIALS



7 PMTF BASIN - PHOTO LOCATIONS
 SCALE: NONE



2 PHOTO OF LOOSE BOLT
 SCALE: NONE

CONTRACTOR SHALL TIGHTEN LOOSE BOLT UNTIL SNUG.

HARDAMAX WELDING & MECHANICAL, LLC
113 COOK ROAD
DUNCANNON, PA 17020
717.982.1225
hardamaxwelding@gmail.com

DATE: December 22, 2025
TO: Ray George, Allan Myers
FROM: Mark Mullen, Hardamax Welding & Mechanical
RE: Proposal for Klines Island – Top Perimeter Repair

Seventy two 3" x 3" x 1/2" Corten steel angles, 6" long 1/2" diameter holes drilled in center of angle for 1/2" stainless steel bolt to be put through existing steel perimeter angle ring. Will mag drill existing steel ring in place and bolt new Corten steel angle to perimeter ring. New angle to be welded in place, will be stick welded with 7018 electrodes. All four sides of new angle will be welded to existing ring.

The 3" x 3" x 1/2" angle, 1/2" stainless steel bolts, nuts and washers to be supplied by Hardamax Welding & Mechanical.

Allan Myers will supply scissor lift and boom lift to reach the ring in order to drill and weld angles in place safely.

Price includes all labor, consumables, travel to complete job.

Total: \$18,726.00

Thank you for the opportunity to serve you!



PC#: 0251
4388 COMMERCE DR
WHITEHALL, PA 18052 2506
484-271-7020

SUNBELT RENTALS, INC.
Salesman: 025109 FLEGLER, TOM (0251)
Typed By: TSCHOCK

Job Site:
KLINES ISLAND 2420278
112 W UNION ST
** LCA WWTP **
ALLENTOWN, PA 18102 4912
C#: 610-584-6020 J#: 484-264-8841

RESERVATION



Customer: 137892
ALLAN MYERS PA, INC
MUST HAVE PO NO PO NO PAY
1805 BERKS RD
WORCESTER, PA 19490

Contract #.. 177991037
Contract dt. 12/12/25
Date out.... 12/16/25 8:00 AM
Est return.. 1/13/26 8:00 AM
Job Loc..... 112 W UNION ST, ALLENTOWN
Job No..... 1 - KLINES ISLAND 24
P.O. #..... 2420278
Ordered By.. GEORGE, RAY
NET 30

Table with 7 columns: QTY, EQUIPMENT #, Min, Day, Week, 4 Week, Amount. Contains equipment details for ELECT SCISSOR NARROW and ART ELECT MANLIFT NARROW J, along with delivery and pickup charges.

*** EQP MSG ***
* Familiarization of the equipment stated on this contract has been offered to the customer.
* All required manuals are provided with the equipment stated on this contract.
* OSHA 1926.453 & ANSI Regulation A92 requires All Boom Lift occupants to wear Personal Fall Protection connected to the designated platform anchorage points. Personal Fall Protection equipment is available for purchase from Sunbelt Rentals.
* If the users of this equipment have any questions contact Sunbelt Rentals.
WARNING Overheight Hazard!! The machine you are loading REQUIRES that you check the height of your load. Maximum Legal Height = 13'6"

DELIVERY CHARGE 175.00
PICKUP CHARGE 175.00

IF THE EQUIPMENT DOES NOT WORK PROPERLY, NOTIFY THE OFFICE AT ONCE MULTIPLE SHIFTS OR OVERTIME RATES MAY APPLY CUSTOMER IS RESPONSIBLE FOR REFUELING, DAMAGES AND REPAIRS

- 1. The total charges are an estimate based on the estimated rental period and other information provided by Customer.
2. Customer assumes all risks associated with the Equipment during the Rental Period, including injury and damage to persons, property and the Equipment.
3. Customer is responsible for and shall only permit properly trained, Authorized Individuals to use the Equipment.
4. If the Equipment does not operate properly, is not suitable for Customer's intended use, does not have operating and safety instructions or Customer has any questions regarding use of the Equipment, Customer shall not use the Equipment and shall contact Sunbelt immediately.
5. Equipment misuse or using damaged or malfunctioning Equipment may result in serious bodily injury or death and Customer agrees that Customer (i) assumes all risk associated thereunder, and (ii) indemnifies Sunbelt Entities for all claims or damages as a result of misuse or use of damaged or malfunctioning Equipment.
6. Customer has received, read, understands and agrees to the estimated charges and all the terms on this page, plus all sections on the reverse side of this Contract ("Sections"), including Release and Indemnification in Section 8 and Environmental Fee in Section 16, which can also be found at www.sunbeltrentals.com/rentalcontract. *Delivery/Pickup Surcharge fee explanation is available at www.sunbeltrentals.com/surcharge.
7. Customer must contact Sunbelt to request pickup of Equipment, retain the Pick-Up Number given by Sunbelt and will be responsible for Equipment until actually retrieved by Sunbelt.
8. Customer waives its right to a jury trial in any dispute as set forth in Section 19.
9. At the election of Sunbelt or Customer, Customer agrees to submit every dispute to arbitration and waives any right to bring a class action as set forth in Section 20.

Continued on the next page...



PC#: 0251
4388 COMMERCE DR
WHITEHALL, PA 18052 2506
484-271-7020

SUNBELT RENTALS, INC.
Salesman: 025109 FLEGLER, TOM (0251)
Typed By: TSCHOCK

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Ordered By.. GEORGE, RAY
NET 30

Table with 7 columns: QTY, EQUIPMENT #, Min, Day, Week, 4 Week, Amount

Ray George 484-264-8841

Sub-total: 3580.00
Tax: 214.80
Total: 3794.80

All amounts are in USD

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Customer is declining Rental Protection Plan (see reverse side for details) _____ (Customer Initials)

Customer Signature Date Name Printed Delivered By Date



INVOICE
SEND ALL PAYMENTS TO:
 SUNBELT RENTALS, INC.
 PO BOX 409211
 ATLANTA, GA 30384-9211

INVOICE NO.	175492429-0001
ACCOUNT NO.	137892
INVOICE DATE	10/28/25
PAGE	1 of 1

INVOICE TO

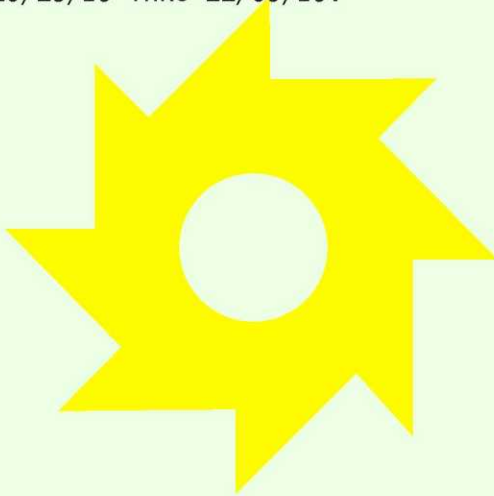
1oz - 1314 - 1341
 ALLAN MYERS PA, INC
 MUST HAVE PO NO PO NO PAY
 1805 BERKS RD
 WORCESTER, PA 19490

JOB ADDRESS

KLINES ISLAND 2420278
 112 W UNION ST
 ** LCA WWTP **
 ALLENTOWN, PA 18102 4912
 484-264-8841

RECEIVED BY	CONTRACT NO.
GEORGE, RAY	175492429
PURCHASE ORDER NO.	
2520281	
JOB NO.	
1 - KLINES ISLAND 24	
BRANCH	
ALLENTOWN PA PC251 4388 COMMERCE DR WHITEHALL, PA 18052 2506 484-271-7020	

QTY	EQUIPMENT #	Min	Day	week	4 week	Amount
1.00	37-40' ELECT SCISSOR WIDE SRT 10006135 Make: JLG Model: 4069LE Ser #: M200012248	325.00	325.00	755.00	1555.00	1555.00
	HR OUT: 596.000 HR IN: staged	TOTAL: 596.000				
		Rental sub-total:				1555.00
	DELIVERY CHARGE					185.00
	PICKUP CHARGE					185.00
	BILLED FOR FOUR WEEKS 10/13/25 THRU 11/09/25.					



Equipment. Service. Guaranteed.

REMIT TO:

SUNBELT RENTALS, INC.
 PO BOX 409211
 ATLANTA, GA 30384-9211

NET 30
 Invoices not paid within 30 days may be subject to a 1-1/2%
 per month charge.

LISA CAMPBELL lisa.campbell@sunbeltrentals.com

SUBTOTAL	1,925.00
SALES TAX	115.50
INVOICE TOTAL	2,040.50

4 WEEK BILL

Lehigh County Authority

System Operations Review - December 2025

Presented: January 26, 2026

<u>Critical Activities</u>	<u>System</u>	<u>Description</u>	<u>Dec-25</u>	<u>2025 Totals</u>	<u>2024 Totals</u>	<u>Permit</u>
			<u>Daily Avg (MGD)</u>	<u>Daily Avg (MGD)</u>	<u>Daily Avg (MGD)</u>	<u>Daily Max (MGD)</u>
Water Production	Allentown	Total	21.72	22.97	22.39	39.0
		Schantz Spring	5.85	6.46	6.82	9.0
		Crystal Spring	3.87	3.88	3.87	4.0
		Little Lehigh Creek	11.99	12.05	11.47	30.0
		Lehigh River	0.01	0.57	0.23	28.0
	Central Lehigh	Total	10.10	11.38	11.49	19.04 MGD Avg
		Feed from Allentown	7.20	7.25	6.88	7.0 MGD Avg 10.5 MGD Max
		Well Production (CLD)	2.90	4.11	4.60	8.54 MGD Avg
		Sum of all (12) other Suburban Water Systems	0.14	0.15	0.15	1.71 Sum of all wells
Wastewater Treatment		Kline's Island	30.62	31.83	34.04	40.0
		Pretreatment Plant	4.13	4.68	4.98	5.75 (design capacity)
		Sum of all (5) other Suburban WW Systems	0.17	0.18	0.19	0.36
			<u>Dec-25</u>	<u>2025 Totals</u>	<u>2024 Totals</u>	<u>2023 Totals</u>
Precipitation Totals (inches)			2.54	37.51	41.88	46.38
Compliance Reports Submitted to Allentown			17	283	278	280
Notices of Violation (NOVs)		(Allentown + Suburban)	0	5	5	3
Sanitary Sewer Overflows (SSOs)/Bypasses		(Allentown + Suburban)	0	9	17	24
Main Breaks Repaired		Allentown	4	16	27	8
		Suburban	0	16	14	12
Customer Service Phone Inquiries		(Allentown + Suburban)	1069	13476	16,690	11,221
Water Shutoffs for Non-Payment		(Allentown + Suburban)	224	2178	2,010	1,995
Injury Accidents		(Allentown + Suburban)	Under Review	9	15	19
Emergency Declarations		Allentown	0	2 @ 15,373	2 @ 228,181.55	2
		Suburban	0	1 @ \$318,754	1 @ 56,662.50	0
Significant Repairs/Upgrades:						
Description of Non-Compliance Events:						
Other:						
On December 5, 2025, LCA and the City of Allentown received a fourth draft NPDES permit for the Kline's Island WWTP. The public comment period has been extended through March 6, 2026.						

Lehigh County Authority
System Operations Review - December 2025
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<u>Critical Activities</u>	<u>System</u>	<u>Description</u>	<u>Dec-25</u>	<u>2025 Totals</u>	<u>2024 Totals</u>
Wastewater Compliance	Allentown	Bypass	0	2	3
		Bypass Volume	0	111,496	1,713,644
		Permit Exceedances	0	0	0
		Sanitary Sewer Overflows	0	5	5
		COA Issued NOVs	0	1	0
		Regulatory Agency issued NOVs	0	2	0
	Arcadia	Bypass	0	0	0
		Bypass Volume	0	0	0
		Permit Exceedances	1	1	1
		Sanitary Sewer Overflows	0	0	0
		NOVs	0	0	1
	Heidelberg Heights	Bypass	0	2	4
		Bypass Volume	0	271,192	2,125,696
		Permit Exceedances	0	1	9
		Sanitary Sewer Overflows	0	0	0
		NOVs	0	0	0
	Lynn	Bypass	0	0	2
		Bypass Volume	0	0	1,010,000
		Permit Exceedances	0	2	2
		Sanitary Sewer Overflows	0	0	0
		NOVs	0	0	0
	Sand Spring	Bypass	0	0	0
		Bypass Volume	0	0	0
		Permit Exceedances	0	18	44
		Sanitary Sewer Overflows	0	0	0
		NOVs	0	0	1
	Wynnewood	Bypass	0	0	0
		Bypass Volume	0	0	0
		Permit Exceedances	0	0	9
		Sanitary Sewer Overflows	0	0	3
NOVs		0	0	1	
Water Compliance	Allentown	Boil Water Advisories	0	2	0
	Central Lehigh	Boil Water Advisories	0	0	0
	Suburban Water Systems	Boil Water Advisories	0	1	1