



LCA Main Office:
1053 Spruce Road
Wescosville, PA 18106
610-398-2503

Agendas & Minutes Posted:
www.lehighcountyauthority.org

LEHIGH COUNTY AUTHORITY

Published: March 2, 2026

BOARD MEETING AGENDA – March 9, 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. Approval of Minutes

- *February 23, 2026 Board Meeting minutes*

4. Committee Reports

5. Public Comments

6. Action / Discussion Items:

FINANCE AND ADMINISTRATION

- *Digital / IT Master Plan (Approval) (tan) (digital Board packet, pages 8-57)*

WATER

WASTEWATER

- *Suburban Division – Industrial Pretreatment Plant Master Plan (Discussion)*

7. Monthly Project Updates / Information Items (1st Board meeting per month) (digital Board packet, pages 58-65) – **March 2026 report attached**

8. Monthly Financial Review (2nd Board meeting per month)

9. Monthly System Operations Overview (2nd Board meeting per month)

10. Staff Comments

11. Solicitor's Comments
12. Public Comments / Other Comments
13. Board Member Comments
14. Executive Sessions
15. Adjournment

UPCOMING BOARD MEETINGS		
March 23, 2026	April 13, 2026	April 27, 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

February 23, 2026

The Regular Meeting of the Lehigh County Authority Board of Directors was called to order at 12:00 p.m. on Monday, February 23, 2026, Chairman Amir Famili presiding. The meeting was hybrid via in-person attendance 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, Sean Ziller, Peter Dent, and Minal Amin were present for roll call and remained for the duration of the meeting. Ted Lyons was present for roll call but left the meeting at 12:52 p.m. Kevin Baker entered the meeting at 12:06 p.m. and was present 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.

Chairman Famili introduced a new member of the Board, Minal Amin, and invited her to provide a brief summary of her background and experience.

REVIEW OF AGENDA

Liesel Gross stated that there are no changes to the agenda; however, there will be an Executive Session at the conclusion of the regular meeting to discuss potential property acquisition.

APPROVAL OF MINUTES

February 9, 2026 Meeting Minutes

On a motion by Linda Rosenfeld, seconded by Sean Ziller, the Board approved the minutes from the February 9, 2026 meeting as presented (7-0).

PUBLIC COMMENTS

None.

Board of Directors – Election of Officers

Chairman Famili reported that Sean Ziller served as the Nominating Committee. Mr. Ziller provided a report detailing the following slate of nominations for 2026 officers:

Amir Famili, Chair	Ted Lyons, Treasurer
Jeff Morgan, Vice Chair	Kevin Baker, Assistant Treasurer
Linda Rosenfeld, Secretary	Sean Ziller, Assistant Secretary

Chairman Famili asked if there were any other nominations, which there were not. Chairman Famili then closed the nominations and asked for a vote from the Board to complete the election. The Board unanimously elected the officers for 2026 as nominated: Amir Famili as Chair, Jeff Morgan as Vice Chair, Ted Lyons as Treasurer, Kevin Baker as Assistant Treasurer, Linda Rosenfeld as Secretary, and Sean Ziller as Assistant Secretary (7-0).

Safety Process and Procedures

Ed Klein and Jeff Nelson presented the 2025 Safety & Risk Management review along with the Strategic Action Plan for 2026. They reviewed the 33 safety incidents that occurred in 2025 including 13 vehicle incidents, 9 incidents requiring first aid only, and 11 incidents classified as recordable due to medical attention required beyond first aid. Mr. Nelson reviewed certain safety initiatives completed in 2025, including equipment compliance efforts and standardization of fire resistant clothing for employees who complete electrical work. He also reported that the Authority has revamped its insurance model with a new insurance consultant and insurer for more effectiveness and lower costs. Also in 2025, the Authority implemented a new safety management database system called EHS Insight, and implemented a contractor qualifications program to better manage contractor compliance with safety and insurance requirements.

Mr. Nelson reviewed the root causes of the 2025 incidents and the corrective actions to address them. These corrective actions directly support the 2026 goals of moving from reactive reporting to proactive prevention, specifically targeting the high volume of incidents with a root cause related to situational awareness. Key gaps were identified as ergonomic strain, hidden secondary hazards, and visibility deficits. Strategic solutions to these gaps are pre-task safety assessment, formalized hazard identification, and establishing a baseline for visibility safety. In addition to addressing these items in 2026, additional focus will be placed on driver safety training, standardization of tools, and continued work on the protective personal equipment program.

There was discussion regarding the recording of the incidents and assigning corrective action and communicating it to all employees. There was also discussion regarding near misses. Reporting of near misses has increased, which helps to prevent other incidents from occurring. Peter Dent suggested working with the NFPA and IFC regarding hazardous materials. Chairman Famili stressed the importance of promoting a culture of safety in 2026. Mr. Nelson stated that he is developing a framework for Safe Work Practices and also a Point of Work Assessment tool which would be a complacency checklist for employees to review safety functions related to that job. Chairman Famili reinforced that the Authority's safety goal should be zero incidents and that employee safety is the number one priority.

Suburban Division – Applewood Pump Station and CLD Well Station Upgrades

Amy Kunkel provided an overview of the project to meet existing and future water demand from the Applewood Pump Station. The station is currently equipped with three pumps – a jockey pump, a booster pump to supplement flow and pressure as needed, and a fire pump. This project will replace the jockey pump with two new jockey pumps and new variable frequency drives (VFDs). Additional upgrades to the station include piping modifications, valve and pipe replacement, cleaning and painting existing piping, HVAC and electrical upgrades, and repairs to cracked walls.

This project also includes upgrades to the chemical feed systems at Wells 5, 6, and 9 in the Central Lehigh Division (CLD). Improvements to the well sites include upsizing the disinfection systems and chemical feed storage capacities, and HVAC and electrical system upgrades.

Peter Dent asked if the tanks for hypochlorite are permanent. Ms. Kunkel confirmed the tanks are permanent, and the vendor fills the tanks.

On a motion by Sean Ziller, seconded by Peter Dent, the Board approved the Capital Project Authorization for the design phase – Applewood Pump Station and Wells 5, 6, and 9 in the amount of \$164,200.00 which includes the Professional Services Authorization to CHA for design and bid phase in the amount of \$139,200.00 (7-0)

Allentown Division – Large Diameter Valve Rehabilitation & Replacement Program

Chuck Volk provided an overview and background of the project to replace large diameter valves that are in poor condition or inoperable in the City of Allentown. Mr. Volk said the first cycle of the project is substantially complete but requires additional pavement restorations because of additional roadway openings that require a change order for the contract exceedances. The project required additional insertion valves, line stops, and related fittings to accommodate unforeseen subsurface conditions.

On a motion by Peter Dent, seconded by Linda Rosenfeld, the Board approved the Capital Project Authorization: Construction Phase Change Order to Joao Bradley Construction Co., Inc. in the amount of \$106,998.00 (7-0).

Allentown Division – WFP HVAC Upgrade Phase 2

Anton Siekmann explained the project noting that Phase 2 of the project consists of HVAC upgrades to the Laboratory, Operators control room, and the entire second floor at the Water Filtration Plant. The project has been approved by the City of Allentown as a Major Capital Improvement and is eligible for Capital Cost Recovery. The upgrade will improve the heating and cooling of these occupied spaces and improve temperature control for the staff that utilize these areas on a regular basis.

On a motion by Linda Rosenfeld, seconded by Sean Ziller, the Board approved the Capital Project Authorization – Construction Phase in the amount of \$1,533,822.90 which includes the Professional Services Authorization – Construction Administration – CHA Consulting in the amount of \$115,200.00, HVAC Contract Award to ASL Refrigeration, Inc. in the amount of \$1,206,370.00, the Electrical Construction Contract Award to Bilitier Electric in the amount of \$97,252.90 (7-0).

Suburban Division – KISS Act 537 – Upper Western Lehigh Pump Station & Force Main

Amy Kunkel gave an overview of the Upper Western Lehigh Interceptor Pump Station project. She explained that after a sinkhole was repaired in November 2025, a second sinkhole formed to the east of the original sinkhole and directly over the existing interceptor. Earth Engineering Inc. recommended that grouting be installed to minimize damage to the interceptor lines. This change order is a time and material-based estimate for the investigation, design, and repair of the sinkhole.

On a motion by Peter Dent, seconded by Jeff Morgan, the Board approved the Capital Project Authorization Amendment No. 2 Construction Change Order #3 to Contract 1 to Blooming Glen Contractors Inc. in the amount of \$152,875.83 (7-0).

Suburban Division – Industrial Pretreatment Plant Master Plan

Liesel Gross provided a presentation and update of the Pretreatment Plant (PTP) stating that this is an extremely important facility to the region because of the service it provides to the industries located in the service area. The PTP also provides benefits due to the high performance of the plant, which creates more organic capacity in the system that is available for other downstream users. Ms. Gross highlighted the engineering evaluations that have been completed to date.

The challenge of the project relates to determining an appropriate funding mechanism and long-term cost-sharing approach, which has been difficult due to the limited number of direct customers but recognition of broad regional benefit. She reviewed projected cash flows of the PTP for the next 10 years, noting a significant deficit occurring beginning in 2028 due to the loss of revenue from Boston Beer when they complete their on-site pretreatment facility. She explained that discussions are

ongoing with the County of Lehigh and Upper Macungie Township regarding upfront contributions to the capital project. However, capital contributions alone will not correct the financial structural challenge that generates the deficit in the years ahead. A more robust long-term cost-sharing agreement is required. If this is not achieved, Ms. Gross stated that the Authority may be required to consider shutting the PTP down. The result of a PTP shutdown would include new stringent requirements for all industrial users to develop their own pretreatment systems on-site, along with potential costly upgrades at the Kline's Island Wastewater Treatment Plant.

There was some discussion regarding the agreements with the municipalities and industrial users in the service area, as well as PTP capacity and the region's future growth potential. Ms. Gross explained that the current recommended approach to the PTP upgrade would include the potential for about 1 million gallons of additional capacity for future industrial growth. Peter Dent asked about impact of a proposed data center locating in Upper Macungie Township at the former Air Products site. Ms. Gross stated that no plans have been received for a data center, so it is too early to provide an opinion on the impact. However, she noted that the Air Products site is located downstream of the PTP.

MONTHLY FINANCIAL REVIEW

Ed Klein provided a presentation of the December 2025 Financial statements noting variances from the Budget. Net income was favorable for the Suburban Water and Wastewater divisions, but down in the City Division due to the delayed closing on the grant funding for the lead service line replacement program. Performance on primary financial metrics was positive for 2025 with the exception of the Suburban Wastewater Division falling below 180 days cash on hand as a result of using reserves for some capital improvements in an effort to limit borrowing.

MONTHLY SYSTEM OPERATIONS OVERVIEW

Andrew Moore reviewed the January 2026 report noting that water production and water levels in Schantz and Crystal Springs, and the Lehigh River are lower than normal as a result of the drought conditions. He also noted that the flow at Kline's Island Wastewater Treatment Plant is lower in January which is also related to the drought. In February, DEP moved Lehigh County from a drought watch to a drought warning. The Authority is asking customers to reduce water consumption by 10 to 15%. Mr. Moore reported that in January, 13 main breaks occurred in the City of Allentown due to abnormally cold temperatures. There were also two permit exceedances at the Sand Spring Wastewater Treatment Plant related to ammonia. There was a line break that pumped an excessive amount of water to the Sand Spring plant in January, causing a loss of biomass which resulted in the permit exceedances.

Chairman Famili thanked the Authority employees for their work and repair efforts during this very cold weather.

STAFF COMMENTS

None.

SOLICITOR'S COMMENTS

None.

PUBLIC COMMENTS / OTHER COMMENTS

None.

BOARD MEMBER COMMENTS

None.

EXECUTIVE SESSION

An Executive Session will be held following the close of the regular meeting to discuss potential property acquisition.

ADJOURNMENT

There being no further business, the Chairman adjourned the meeting at 2:01 p.m.

Linda A. Rosenfeld
Secretary

MEMORANDUM

Date: March 9, 2026

To: LCA Board of Directors
Liesel Gross, CEO

From: Stephen Boone, Asset Management Engineer

Subject: Digital / IT Master Plan

MOTIONS / APPROVALS REQUESTED:

No.	Item	Amount
1	Capital Project Authorization: Digital / IT Master Plan	\$425,084
1A*	Professional Services Authorization: Black & Veatch – Digital / IT Master Plan	\$395,084

*Included in the Capital Project Authorization

AUTHORIZATION OVERVIEW:

LCA seeks to develop a comprehensive Digital / Information Technology (IT) Master Plan to modernize its technology environment and align with strategic goals. This initiative will enable LCA to enhance operational efficiency, improve customer experience, strengthen infrastructure resilience, ensure cybersecurity compliance, and will position LCA as a resilient, data-driven utility prepared for future challenges and regulatory requirements.

The following are the main options the Master Plan will explore to develop the roadmap:

1. Enhance Operational Efficiency
 - a. Automate manual processes through supervisory control and data acquisition (SCADA), geographic information systems (GIS), and computerized maintenance management systems (CMMS) integration.
 - b. Evaluate opportunities to reduce non-revenue water through smart metering and leak detection.
 - c. Improve field crew productivity with mobile work order and asset management tools.
2. Strengthen Infrastructure Resilience
 - a. Modernize SCADA and telemetry systems to ensure 24/7 monitoring and control.
 - b. Implement predictive maintenance using internet of things (IoT) and analytics to reduce unplanned outages.
 - c. Establish a disaster recovery and business continuity plan for all critical technology systems.
3. Improve Customer Experience
 - a. Launch a customer portal with real-time usage data, billing, and service requests.
 - b. Enable proactive customer notifications for outages, leaks, and high usage alerts.
 - c. Increase customer satisfaction scores through digital engagement tools.
4. Advance Data-Driven Decision Making
 - a. Centralize data from operational technology (OT) and IT systems into a unified data platform.
 - b. Deploy dashboards and key performance indicators (KPIs) for operations, finance, and customer service.
 - c. Use artificial intelligence (AI)/machine learning (ML) to forecast demand, detect anomalies, and optimize system performance.

5. Ensure Cybersecurity and Compliance
 - a. Maintain compliance with AWWA G430 and NIST cybersecurity frameworks.
 - b. Conduct annual cybersecurity risk assessments and penetration testing.
 - c. Improve role-based access control and multi-factor authentication across systems.
6. Foster a Digitally Skilled Workforce
 - a. Provide ongoing training in cybersecurity, data literacy, and digital tools.
 - b. Create a digital innovation lab or pilot program for emerging technologies.
 - c. Develop a succession plan for IT/OT leadership and knowledge transfer.

The project will include a comprehensive assessment of LCA’s digital systems across IT and OT, including SCADA, GIS, CMMS, AMI, enterprise data management, cybersecurity, operational workflows, and organizational structure. The assessment will inform a future-state digital vision aligned with LCA’s operational priorities, regulatory obligations, and customer service goals. The resulting roadmap will be owned by LCA and will be designed to evolve over time, enabling LCA to revisit priorities, adjust sequencing, and respond to changing conditions while maintaining enterprise alignment.

FINANCIAL:

To be funded by LCA Internal Service / Administration.

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 – Project Initiation & Planning
• Task 2 – Current State Assessment
• Task 3 – Stakeholder Engagement
• Task 4 – Vision & Guiding Principles
• Task 5 – Gap Analysis & Prioritization
• Task 6 – Governance & Policies
• Task 7 – Strategic Initiatives & Software Mapping
• Task 8 – Document Management and Digitization
• Task 9 – Data Lake / Data Warehouse
• Task 10 – Digital Twins for Water and Sewer Systems
• Task 11 – Workforce & Change Management
• Task 12 – Implementation Roadmap
• Task 13 – Performance Measurement

**Refer to Black & Veatch Proposal dated January 28, 2026 for detailed work breakdown*

CONSULTANT SELECTION PROCESS:

A Request for Qualifications (RFQ) was sent to ten consulting firms. Five firms responded and provided a qualifications package and were subsequently sent the Request for Proposals (RFP). All five firms responded with a proposal by the 1/28/2026 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. The scoring process is objective and Black & Veatch unanimously scored highest among all reviewers. A summary comparison of the fees is provided below:

	Arcadis	Black & Veatch	Carollo	EMA	Stantec
Total:	\$335,000	\$395,084	\$499,218	\$219,056	\$496,497

Black & Veatch has performed consistently well on prior LCA projects, including technology projects, delivering high quality results on time and at the contractual budgets. They have familiarity with our data landscape through multiple related projects (outlined below). They recognized document management as one of our critical needs to be addressed by this planning effort and designated a subconsultant (Nexinite) with strong qualifications in this space to lead that task. 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 March 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: March 9, 2026
 Staff Member Requesting Authorization: Stephen Boone
 Department: Engineering & Asset Management
 Short Description / Title of Project / Purchase: Digital / IT Master Plan
 Project Number (if applicable): 11009

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 – Digital / IT Master Plan	\$395,084
Staff & Contingency	\$30,000
	\$
	\$
	\$
	\$
Total Amount Requested (this authorization):	\$425,084

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.)

LCA seeks to develop a comprehensive Digital / Information Technology Master Plan to modernize its technology environment and align with strategic goals. This initiative will enable LCA to enhance operational efficiency, improve customer experience, strengthen infrastructure resilience, ensure cybersecurity compliance, and will position LCA as a resilient, data-driven utility prepared for future challenges and regulatory requirements. 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

Digital/Information Technology Master Plan

January 28, 2026



Future-ready digital planning grounded in decades of utility experience



A roadmap designed to align technology investments with real operational and business value



Black & Veatch experience with LCA's digital landscape sharpens insight and accelerates value



January 28, 2026

Stephen Boone, Project Manager
Lehigh County Authority
1053 Spruce Road
Allentown, PA 18106

RE: Request for Proposal - Digital/Information Technology Master Plan

Dear Mr. Boone:

Black & Veatch is pleased to submit this proposal to support Lehigh County Authority's (LCA) Digital/Information Technology Master Plan. Like many of the utilities we advise, LCA is at a defining point where key change decisions will shape future performance, operational efficiency, resilience, and affordability. Black & Veatch is committed to being the partner that translates this opportunity into an achievable and lasting transformation. Working closely with LCA, Black & Veatch will develop a practical, future-ready Master Plan that elevates digital capabilities and unlocks LCA's ability to achieve its strategic and operational goals.



A Proven Partnership Powered by Our Shared Understanding

Black & Veatch's deep experience with LCA spans leadership, engineering, operations, asset management, and IT. Over the past several years, we have worked side-by-side with all levels of LCA staff to develop KPI frameworks, executive dashboards, project performance reporting, and an enterprise data warehouse strategy. This experience has given us a thorough understanding of LCA's systems, data environment, organizational culture, and day-to-day operational realities. The benefit is the Master Plan effort will launch with alignment and insight rather than a ramp-up period, allowing the team to focus immediately on the decisions that matter most.



An Integrated, Mission and Outcome Driven Digital Strategy

Digital transformation is about enabling better decisions, improving operational efficiency, strengthening resilience, and supporting a digitally enabled workforce. It is not about deploying new tools or advanced technology without these benefits. Black & Veatch treats IT, OT, enterprise data, and documents as an integrated digital ecosystem aligned with how LCA actually plans, operates, and delivers service. Supported by strong governance and a shared data foundation, this strategy ensures information is accessible in context, supports both day-to-day operations and long-term planning, and enables confident, cost-informed decisions across the organization.



Future-Ready, Cybersecure Planning Designed for Utilities

Cybersecurity and resilience are embedded into Black & Veatch's planning from the outset. Our work is informed by decades of utility delivery experience and aligned with industry frameworks such as AWWA G430 and NIST. Every recommendation considers operational risk, regulatory compliance, and the increasing reliance on digital systems to run the utility safely and efficiently. The result is a future-ready digital roadmap that is secure, governable, and sustainable within LCA's staffing, budget, and operational constraints.



Cross-Industry Best Practices Tailored to LCA's Exact Needs

In addition to our extensive experience supporting water and wastewater utilities, Black & Veatch draws on proven practices from power generation, industrial, and energy sectors. These industries operate complex, asset-intensive systems under demanding reliability and cybersecurity requirements. These best practices are not applied generically. They are pressure-tested, right-sized, and intentionally tailored to LCA's digital maturity, priorities, and operating environment. Specialized partners further strengthen this team, bringing deep expertise in areas such as document management and digitization to ensure legacy information becomes a strategic asset rather than a burden.



We Are Invested in LCA's Long-Term Success

Most importantly, Black & Veatch is genuinely invested in LCA's long-term success. Since beginning our digital work together in 2024, we have partnered closely with LCA to shape a shared vision for how digital and data capabilities can strengthen the way the utility operates. This Master Plan represents the opportunity to accelerate realization of that shared vision into a plan that aligns stakeholders, reduces risk, accelerates value and positions LCA for a future where these digital investments will fuel increased operational and financial performance.

We appreciate the opportunity to continue our partnership with the Lehigh County Authority and would be honored to support this important initiative. We look forward to working together to shape a resilient, secure, and future-ready digital foundation for LCA and the communities it serves.

Very truly yours,

Black & Veatch Corporation



Joe Stromwall, PE, CCM
Vice President



Ben Cownie, PE
Project Director

1 | Executive Summary

Lehigh County Authority (LCA) is at a pivotal moment in its digital evolution. Increasing demands for operational efficiency, infrastructure resilience, cybersecurity, customer engagement, and data-driven decision-making are creating both urgency and opportunity.

Black and Veatch will partner with LCA to deliver a decision-ready Digital/IT Master Plan that is internally aligned, externally defensible, and positioned for successful Board approval at the end of the nine-month schedule. Through a structured, gated, and stakeholder-driven approach, Black & Veatch will help LCA define a clear, actionable path for modernizing its digital and technology environment and translating strategy into execution.

Black & Veatch Brings the Right Experience and Our Team Knows LCA

The Master Plan will be grounded in LCA's operational realities and guided by a governance structure designed to clarify decision authority, align priorities to an agreed-upon enterprise "North Star," and enable progress rather than create friction. Governance will be used as a mechanism to surface risks, dependencies, and trade-offs early, ensuring that decisions drive required change and that leadership remains informed and aligned throughout the process.

The plan will be developed through structured engagement with the Project Steering Committee and cross-functional stakeholder groups, including executive leadership, technical staff, and operations and business representatives. This approach will promote shared understanding, clear accountability, and timely decision-making, resulting in a roadmap that LCA leadership and the Board can confidently approve and implement.

Black & Veatch has already supported LCA through targeted subject matter expert engagement related to CMMS modernization, including evaluation of CityWorks limitations, identification of operational pain points, and consideration of viable implementation paths. Black & Veatch is also completing a data warehouse



FIRM NAME | Black & Veatch Corporation

CLIENT CONTACT

Joe Stromwall, PE
489 5th Avenue, New York, NY 10017
(646) 779-8365
StromwallJR@bv.com

PROJECT MANAGER OFFICE CITY/STATE

Allen Brunson - Charlotte, NC

discovery and assessment for LCA, including current-state evaluation, future-state definition, gap assessment, and roadmap development. Together, these efforts have provided Black & Veatch with a practical understanding of LCA's organizational philosophy, digital footprint, and operating philosophies, allowing the Master Plan to build directly on recent progress rather than starting from scratch.

The project team will be led by Allen Brunson, who has planned, designed, and delivered enterprise data and analytics architectures for large utilities, including Charlotte Water, supporting governance, cross-departmental decision-making, and scalable digital platforms. The team will also include industry-leading subject matter experts across CMMS, AMI, CIS, cybersecurity, digital twins, IT, OT, and SCADA systems, supported by Black & Veatch's dedicated Organizational Change Management (OCM) team to ensure alignment, adoption, and long-term sustainability.

Black & Veatch will be supported by Nexinite, a specialized subcontractor with expertise in electronic document management and the automated digitization and integration of legacy drawings and records. Nexinite brings hands-on experience successfully implementing secure, scalable solutions, which help utilities convert paper based and siloed information into structured, searchable, and governed digital assets. Nexinite will assess LCA's current document management practices and future state options, providing decision ready recommendations that will reduce staff effort, improve discoverability, and ensure seamless integration with LCA's broader data model and enterprise systems.

Approach, Stakeholder Engagement, and Work Plan

Black & Veatch's approach will treat IT systems, OT and SCADA environments, enterprise data, analytics, and documents as components of a single, integrated digital utility ecosystem designed to reduce data silos, avoid duplicative investments, and ensure that operational, financial, and customer decisions are based on consistent, trusted information.

The project will begin with a comprehensive assessment of LCA's digital systems across IT and OT, including SCADA, GIS, CMMS, AMI, enterprise data management, cybersecurity, operational workflows, and organizational structure. These findings will inform a future-state digital vision aligned with LCA's operational priorities, regulatory obligations, and customer service goals.

Black & Veatch will apply a practical, business-first philosophy in which the enablement or enhancement of business capabilities drives the technology roadmap. Recommendations will focus on measurable outcomes such as improved reliability, reduced operational effort, faster decision-making, and lower lifecycle costs. Technology investments will be sequenced to reflect real-world lead and lag relationships between business needs and system implementation, avoiding misalignment and rework.

Black & Veatch's methodology maintains clear traceability from identified pain points to gaps, from gaps to initiatives, and from initiatives to executable projects. This ensures that each recommendation can be directly

tied to a defined business need or operational capability, supporting transparency and defensible decision-making.

Stakeholder engagement will be structured, intentional, and decision focused. Black & Veatch will work closely with the Project Steering Committee and defined stakeholder groups to build shared understanding and ownership across the organization. OCM-led workshops will be designed to inform decisions by clarifying priorities and key constraints. Each major project phase will conclude with a formal decision gate supported by concise, decision-ready materials that clearly present options, costs, risks, dependencies, and recommended sequencing.

Cybersecurity will be embedded as a foundational design principle across architecture, governance, and operations. All recommendations will align with AWWA G430 and NIST cybersecurity frameworks and address both IT and OT environments, supporting secure operations, disaster recovery, and business continuity.

Training, support, and change management will be incorporated throughout the project, including digital literacy, cybersecurity readiness, supervisory and workforce training, and field mobility practices. Black & Veatch will also explore options for fostering structured innovation and succession planning to strengthen institutional knowledge and long-term resilience.

The resulting roadmap will be owned by LCA's governance body and delivered as a living model rather than a static document. It will be designed to evolve over time, enabling LCA to revisit priorities, adjust sequencing, and respond to changing conditions while maintaining enterprise alignment.



Keys to Success for this Study

- Clear governance that enables timely, informed decisions through defined authority and enterprise alignment
- Structured engagement of a Project Steering Committee and cross-functional stakeholder groups
- A decision-driven, gated delivery model that produces a defensible, Board-ready Master Plan
- Business capabilities driving the technology roadmap and investment sequencing
- Cybersecurity-by-design across architecture, governance, and operations
- Industry-leading expertise across CMMS, AMI, CIS, cybersecurity, and digital utility platforms
- Architecture designed for advanced analytics with a clear pathway to AI and machine learning as data maturity increases
- A dynamic roadmap supported by practical tools and processes that enable LCA to independently update priorities, sequencing, and dependencies as conditions evolve into the future

Change is Inevitable. Your Roadmap Will be Ready.

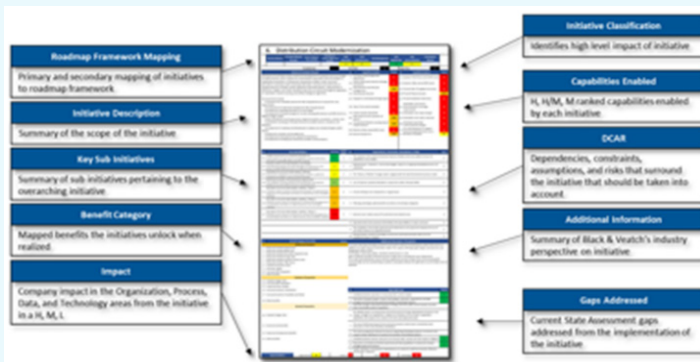
Black & Veatch recognizes that the only certainty in digital and technology planning is that a roadmap will not remain static.

Priorities shift, technologies advance, and external conditions change, often in ways that cannot be fully anticipated during planning. Rather than treating change as a risk, Black & Veatch intentionally designs roadmap deliverables to accommodate it.

Black & Veatch brings proven experience delivering dynamic, updatable digital roadmaps that support real world decision making as priorities, budgets, and technologies evolve. Through work with large, complex clients such as CPS Energy, Black & Veatch has supported grid modernization programs using roadmap tools that enable prioritization, budgeting, sequencing, and scenario planning across multi-year investment horizons.

For LCA, this approach will ensure the Master Plan remains actionable and relevant well beyond initial adoption. It will support ongoing governance and investment decisions while equipping staff with practical tools to independently maintain, update, and evolve the roadmap as organizational needs and conditions change.

Roadmap Budget Planning Worksheet



Roadmap Initiative List



Roadmap Schedule

2 | Company Background and Experience

Black & Veatch is a leading, global engineering, construction, and consulting company specializing in infrastructure development in the fields of energy, water, and telecommunications. Our Mission sets the bar high—Building a World of Difference®. Living up to this ideal involves delivering reliable and advanced infrastructure solutions to our clients’ most complex challenges, helping to improve and sustain the quality of life around the world.

Founded in 1915, Black & Veatch is an employee-owned company based in Overland Park, Kansas, with over 12,000 professionals operating out of more than 120 offices worldwide. Through this network of collaboratively connected offices, service to clients is delivered with a commitment to professional excellence and innovation. As evidenced by the latest rankings in Engineering News Record (ENR), consistent recognition as one of the Top Design Firms and Contractors demonstrates deep knowledge of the industries served.

2024 ENR RANKINGS
 TOP 500 DESIGN SOURCEBOOK

 <ul style="list-style-type: none"> 14 Top 500 Design Firms 11 Sanitary & Storm Sewers 10 Water Treatment & Desalination 8 Water Supply 8 Wastewater Treatment Plants 10 Sewer & Waste 6 Water Transmission Lines & Aqueducts 	 <ul style="list-style-type: none"> 1 Solar Power 3 Power 4 Fossil Fuel 5 Transmission & Distribution 13 Nuclear Plants 	 <ul style="list-style-type: none"> 10 Telecommunications 3 Towers & Antennae
---	---	--

Professionals at Black & Veatch earn this kind of recognition by understanding clients’ business needs and objectives. The company possesses the financial and technical resources to expertly execute projects. Furthermore, long-lasting relationships are valued, and rapport is believed to enable superior customer service and support.


BLACK & VEATCH

OVERVIEW

FOUNDED IN

1915



100+

OFFICES

12K+

GLOBAL
WORKFORCE



7,000+

ACTIVE PROJECTS

WORLD-WIDE



2024



5.1 B

REVENUE

10TH

LARGEST

EMPLOYEE-OWNED

COMPANY

IN THE U.S.

Black & Veatch Corporation

Black & Veatch Corporation is a wholly owned subsidiary of Black & Veatch, Inc. These professionals include experienced industry executives, senior analysts and technology experts from across the electric, water, oil, natural gas and technology industries. This experience—combined with seamless access to the company’s world-class engineering, procurement, construction and operations capabilities, experienced senior executives, economists, senior policy experts and regulatory officials, engineers and internationally respected subject-matter experts—makes Black & Veatch especially qualified to realize the goals of our clients.

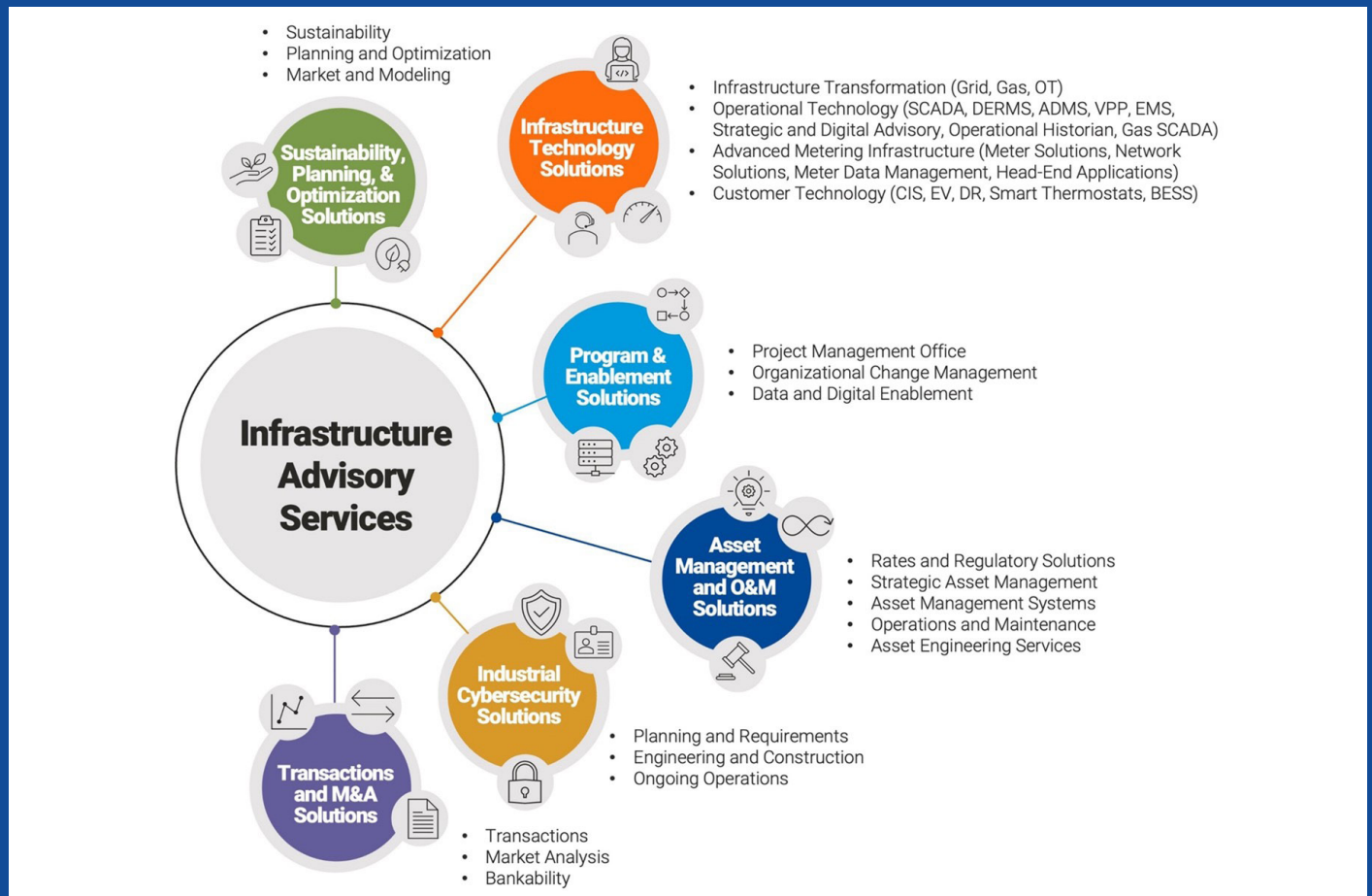
Black & Veatch’s diverse consulting service offerings span financial, process and technology solutions, and many of our experienced professionals possess cross-functional skills including asset management, cost of service/rate design, business process/workflow analysis, and implementation services. The following is a graphic representation of the wide range of services offered by Black & Veatch.

Lehigh County Authority | Digital/Information Technology Master Plan

Black & Veatch 8

Infrastructure Advisory

Integrated Advisory Solutions Supporting LCA's Digital and IT Modernization



Infrastructure Advisory is Black & Veatch's integrated consulting team purpose-built to support complex, enterprise-wide initiatives like LCA's Digital / IT Master Plan. The team brings together expertise across SCADA and operational technology, IT/OT integration, cybersecurity, customer information systems (CIS), asset management, data warehousing and analytics, digital twins, and change management. This integrated model reflects how utilities plan and operate, enabling coordinated, practical recommendations rather than siloed solutions. Infrastructure Advisory teams deliver these multi-disciplinary digital transformation efforts every day, helping utilities confidently plan, prioritize, and modernize.

IT, Cyber, and Digital Transformation Experience

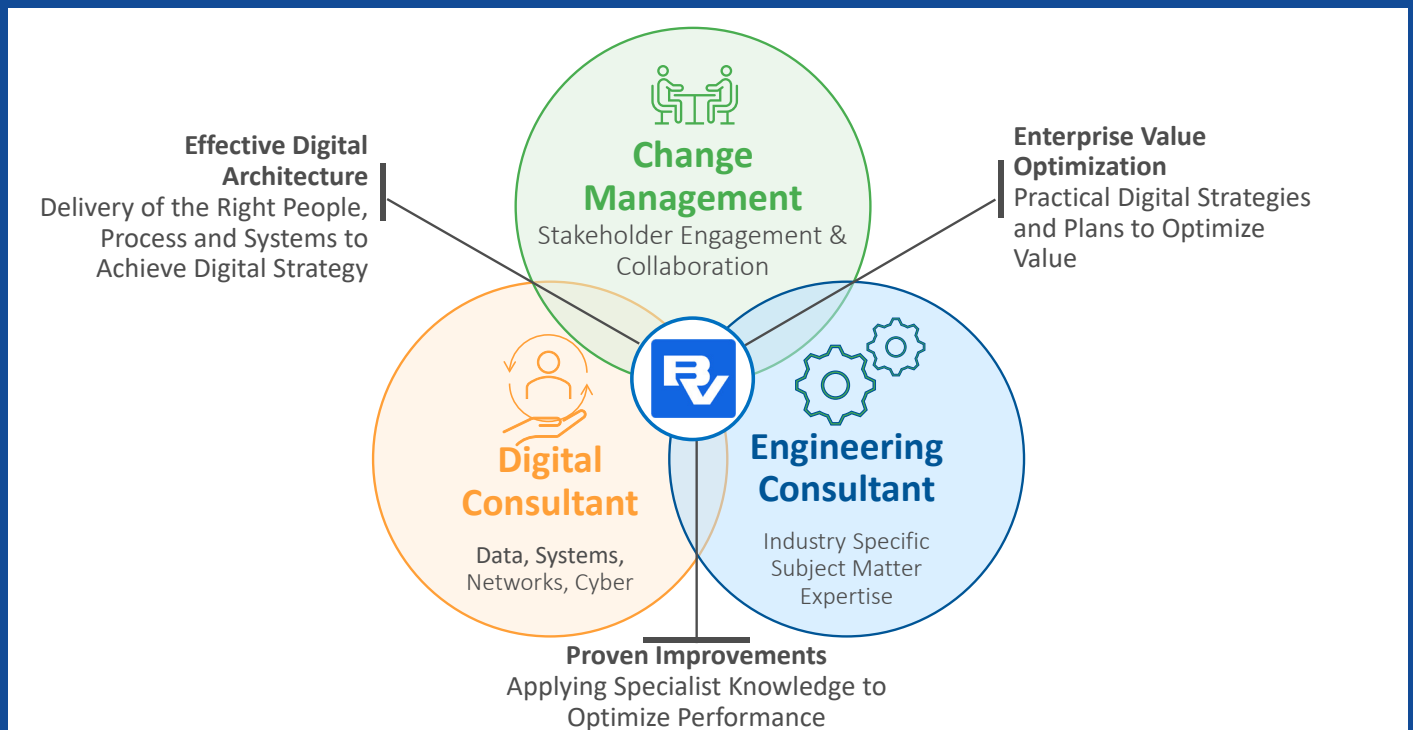
Our team's IT, cyber, and digital transformation experience spans enterprise data architecture, IT/OT integration, and analytics enablement. We not only help to define the future state and establish the plan for implementing the improvements, but also have the capabilities and expertise to assist with the management and execution of the plan. For our clients, as highlighted with one of our project examples below for a confidential nation-wide leading Industrial client, we served as architects and managers helping to integrate operational systems, compliance tools, ERP, lab information,

historian feeds, and a third party environmental reporting platform to create governed, scalable visibility into critical operational and environmental data. Using a top down, business driven methodology, we designed an enterprise data warehouse and star schema models optimized for analytics, regulatory reporting, and KPI development, and paired those with training, process documentation, and recurring operational meetings to drive sustainable adoption.

Our integrated data architecture approach delivers a unified data foundation, scalable compliance- and operations-aligned dashboards, faster decision-making through automated data flows, and significant reductions in manual reporting.

Black & Veatch is LCA's best partner to achieve your goals

Integrated Advisory Solutions Supporting LCA's Digital and IT Modernization



Black & Veatch uniquely combines digital consulting, engineering subject matter expertise, and organizational change management under one roof. Our team structure will pair deep water and wastewater engineering knowledge with expertise in data, systems, cybersecurity, and IT/OT, while addressing the people and process changes required for the successful adoption and implementation of the Digital/IT Master Plan.

We also bring utility sector digital expertise directly relevant to LCA's scope. With Polk County Utilities (FL), Black & Veatch led the selection of a new CMMS, conducted a digital maturity assessment, and implemented role based dashboards across maintenance, compliance, capacity/performance, and asset risk—establishing a strong foundation for long term transformation by improving data quality, integration, and accessibility across the organization.

Equally important, Black & Veatch already understands LCA's systems and priorities. We feel we are in a unique and privileged position for this project, having already been working with the Authority to help establish KPI frameworks, dashboards, data strategies, and asset management tools—this experience reduces ramp up time and derisks delivery. Our proposed Approach & Work Plan translates LCA's future state vision into a phased, practical roadmap that aligns initiatives with business value, organizational readiness, and long-term sustainability.

Black & Veatch will deliver an implementable Digital/IT Master Plan that reduces risk, strengthens resilience, improves efficiency, and positions LCA for future technologies. Our roadmap is phased to deliver immediate wins, intermediate modernization, and long term digital advancement, with cybersecurity and SCADA considerations integrated alongside data governance, EDMS/CMMS strategy, and analytics enablement.

Because we already know LCA's environment and have demonstrated success in similar utility programs, Black & Veatch can move quickly from discovery to decisions—connecting strategy to execution and ensuring the plan drives measurable value rather than becoming shelfware.

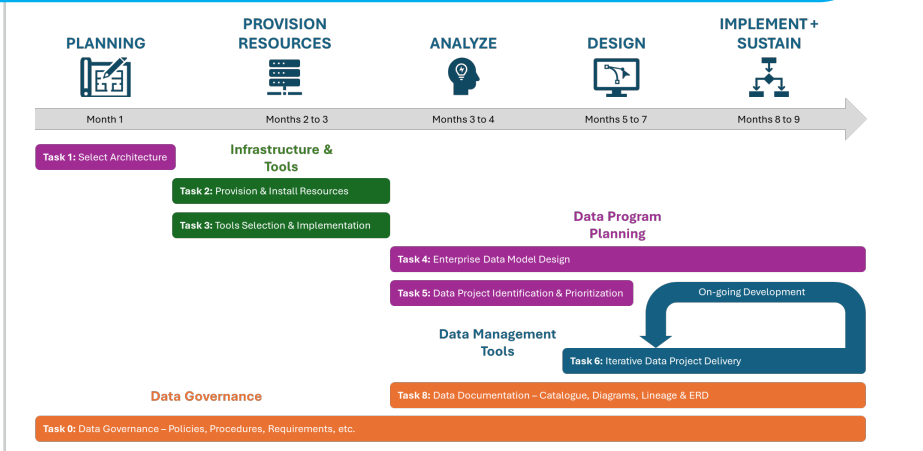
In addition to our provided project experience write-ups, on the following page is a chart that highlights the numerous projects that Black & Veatch has successfully completed across the county for utilities with a similar need and vision for their technology future.

Table 1. Black & Veatch Similar Utility Technology Modernization Experience

Project Name	Current State Evaluation	Stakeholder Engagement and Vision Planning	Gap Analysis and Planning	Governance/ Policy	Strategic Initiatives & Utility Modernization	Document Management Improvements	CMMS Support	Workforce & Change Management	Roadmap Development	Performance Measurement
Polk County Digital Transformation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Confidential Industrial Client Digital Transformation	✓	✓	✓		✓	✓		✓	✓	✓
CPS Energy OT Strategy and Roadmap	✓	✓	✓	✓	✓	✓			✓	✓
Seminole Tribe of FL SCADA Master Plan	✓	✓	✓		✓				✓	✓
City of Wilmington CIS Replacement	✓				✓			✓	✓	✓
Moulton-Niguel Water District Digital Advisory & Data Program Modernization	✓	✓	✓	✓	✓	✓		✓	✓	✓
Scottsdale Water CMMS Selection and Implementation Support	✓	✓			✓		✓	✓	✓	
Lehigh County Authority Digital Planning Services	✓	✓	✓	✓	✓	✓		✓	✓	✓
City of North Port Asset Management Program Development	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
City of Clearwater EAMS Implementation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Digital Planning Services

Lehigh County Authority | Allentown, PA



Insights Applied to LCA

Black & Veatch has already developed a strong understanding of LCA’s digital landscape, data environment, and operational realities, along with trusted working relationships across business, operations, and IT. This shared context and continuity will accelerate alignment and execution of this project - particularly the CMMS "quick win" and Task 9: Data Lake / Warehouse.

Through a series of related projects beginning in 2024, Black & Veatch has developed a strong working relationship and a detailed understanding of Lehigh County Authority’s operational priorities, reporting needs, and data environment. This experience, built through direct collaboration with both business and IT stakeholders, provides valuable context and continuity as LCA undertakes its Digital/IT Master Plan. The work focused on improving performance visibility and project transparency while identifying the data and infrastructure foundations required to support accurate, repeatable analytics. Across these engagements, Black & Veatch applied a consistent, practical approach centered on understanding the current state, defining a desired future state, identifying gaps, and developing actionable roadmaps..

Asset Management KPI & Business Intelligence Roadmap

Black & Veatch facilitated in-person working sessions with LCA stakeholders to identify asset management KPIs most relevant to executive and operational decision-making. These KPIs were prioritized based on business importance and feasibility using available data. Building on this foundation, the team developed a phased business intelligence roadmap that identified a focused set of high-priority dashboards and outlined the steps required to begin increasing data maturity in a structured and achievable manner..

Project Excellence Reporting

Black & Veatch supported the modernization of project management reporting practices across the organization by designing and implementing integrated Project Excellence tools using Microsoft Lists and Power BI. These efforts resulted in portfolio-level dashboards that improved visibility into project status, progress, and delivery, enabling leadership to better monitor performance and make informed decisions.

Project Dates

2024 - Ongoing

Value of Services Provided

\$150K

Key Team Members

Ben Cownie
Allen Brunson

Client Contact

Stephen Boone, PE
Asset Management Engineer
(484) 788-9560
stephenboone@lehighcountyauthority.org

Project Elements

- Data Warehouse Assessment
- Enterprise System Evaluation
- Existing State
- Future State
- Gap Analysis
- Roadmap Development
- KPI Prioritization
- Power BI Dashboard Development

Data Warehouse Discovery & Assessment

Black & Veatch documented the current state of LCA's data landscape, including data sources, data flows, and storage practices, to establish a clear baseline understanding. The team defined future-state considerations for structuring and managing data to support accurate analytics and performed a gap analysis to identify constraints and dependencies. These findings informed a practical data roadmap designed to guide scalable and reliable analytics initiatives.

Outcomes & Value

These engagements improved leadership visibility into project delivery while establishing a consistent, structured approach to evaluating reporting and analytics needs. Black & Veatch clarified the data and infrastructure required to support reliable dashboards and reduced risk by identifying gaps and dependencies before scaling analytics efforts. The work also strengthened alignment between business users and IT by creating a shared understanding of reporting capabilities and priorities. Collectively, these outcomes positioned LCA for increased success following this Digital / IT Master Plan by establishing a clear data foundation and a business intelligence and data warehouse roadmap.

Challenges Overcome:

- Fragmented data across multiple systems limited consistent visibility and confidence in reporting.** Black & Veatch worked with LCA to document the data landscape, clarify key data relationships, and define a clear path toward integrated reporting, establishing a foundation for improved transparency and more reliable, data driven decision making.
- Misalignment between MUNIS project numbering and the Board-level Capital Improvement Program structure.** This misalignment constrained consistent, unified reporting of the desired financial metrics. Black & Veatch collaborated with LCA staff to define an approach and plan to reconcile and integrate these data sets, creating a roadmap for developing future CIP dashboards and reports supported by aligned definitions and governed data.
- CMMS challenges highlighted the importance of foundational readiness.** Early assessment of CityWorks functionality limitations and data quality issues demonstrated that system modernization must be paired with governance, workflow clarity, and data standards to support long-term success.
- Shared definitions build trust in data.** Misalignment between project numbering in MUNIS, financial reporting structures, and Board-level CIP reporting highlighted the need for more governance and defined business process workflows to achieve reliable reporting.
- Transparency strengthens adoption.** Portfolio-level Project Excellence dashboards improved visibility into project status and performance, reinforcing the value of consistent, repeatable analytics for leadership and operations.
- Planning must account for organizational readiness.** Success for Project Excellence depended not only on technical solutions, but also on stakeholder engagement, training, and change management to ensure new tools were adopted and actively used.

Lessons Learned:

3 | Project Team

Black & Veatch has assembled a team of national experts to collaborate and lead the development of LCA's IT Master Plan. With extensive experience in technology planning/roadmaps, and operational technology improvements, Black & Veatch is well-equipped to guide LCA through this transformative journey.

The project leadership team was carefully selected based on their expertise tailored to the project scope. Our key project leadership group includes Allen Brunson, a seasoned professional with 24 years of utilities technology experience, has led successful business transformation programs for large utilities like Charlotte Water and multi-billion dollar industrial clients; Ben Cownie, with over 20 years of experience has led digital transformation planning and execution projects around the Country, and has intimate knowledge of LCA's technical landscape, operational processes, and drivers/demands of leadership – having been supporting LCA through projects for the past 2 years; and David Jost, an Executive Transformational Senior Leader with over 30 years of IT leadership experience and a proven track record in driving digital transformation and strategic planning for Utilities.

Specialized subject matter experts (SMEs) in key areas such as Operational Technology (OT) & Enterprise Asset

Management (EAM), OT & Geographic Information Systems (GIS), Cybersecurity, Advanced Metering Infrastructure (AMI), and Information Technology (IT), and Digital Twins have been carefully chosen to develop a comprehensive roadmap for the modernization of LCA's technical environment. Doug Preece, a seasoned leader in technology road mapping projects, has spearheaded initiatives like the CPS Energy enterprise OT strategy and roadmap project. Similarly, SMEs like Laurie Kusmaul bring a wealth of expertise in OT, demonstrated by her recent successful project for the Seminole Tribe of Florida, which is also highlighted as a reference. By harnessing the knowledge and experience of these experts, strategic alignment of people, processes, and platforms is achieved to elevate customer experience, boost operational efficiency, and foster long-term resilience.

The collective expertise of this team, demonstrated through successful completion of similar projects, combined with their commitment to LCA, positions them as the ideal choice to drive the department's modernization initiative forward. The task leads will be responsible for planning and overseeing the assessment, gaps, and improvement plans for their respective specialty areas, as well as providing specialized guidance and support for the overall roadmap development effort. **On the following page is the project organization chart and core team one-page resumes.**

Experts Who Understand Your Facility and Goals

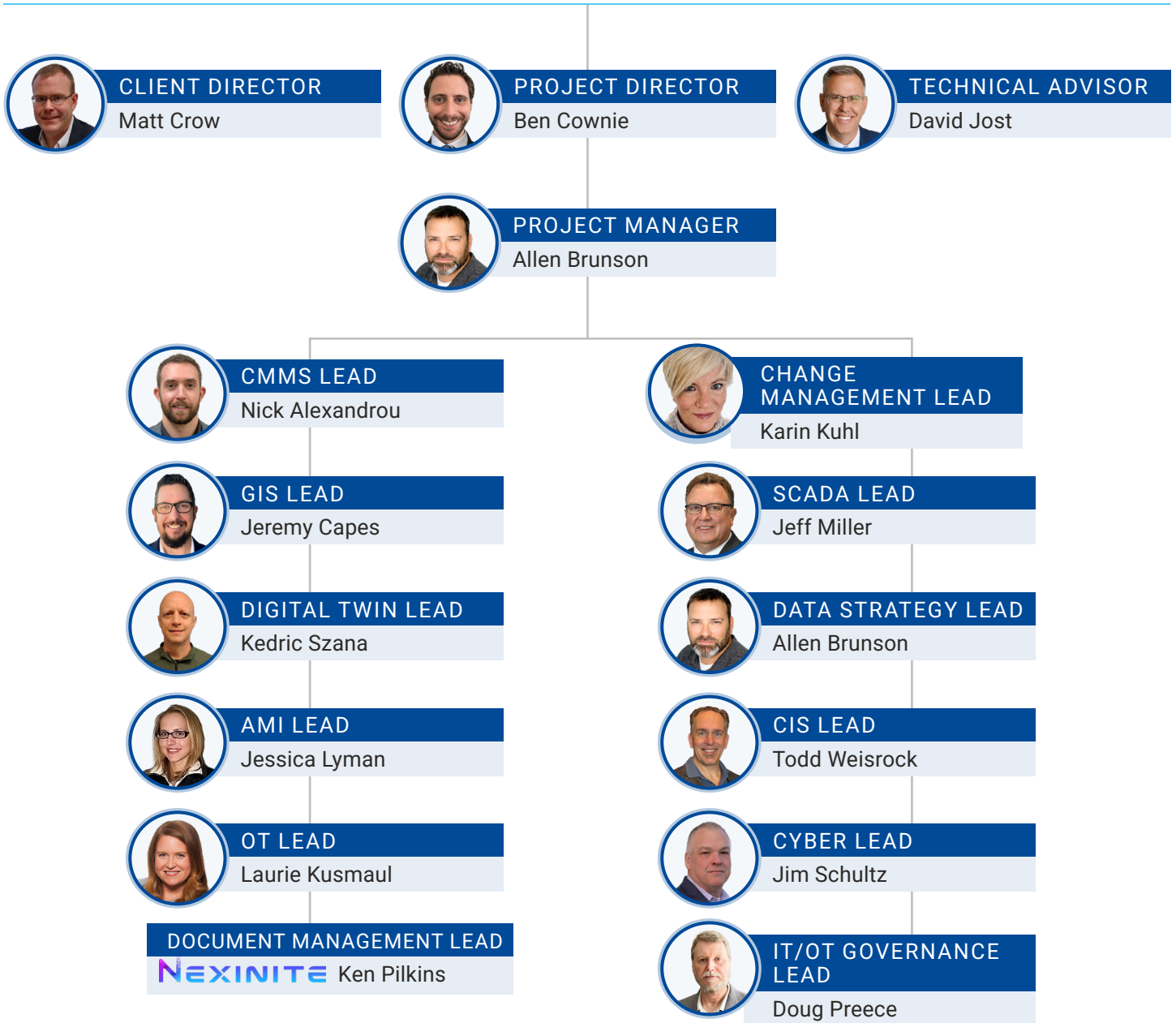
Our team has in-depth LCA organizational and facility knowledge.



We value collaboration and have successfully worked on LCA projects such as Kline's Island WWTP Master Plan, Tracer Study at Allentown Water Treatment Plant, peer review of WaterGEMS hydraulic model, and the ongoing business intelligence support services.

Team Organizational Chart

LEHIGH COUNTY AUTHORITY



Matt Crow, PE | Client Director



Matt's technical expertise and long-standing relationships with mid-Atlantic utilities position him to lead strategic engagement and ensure LCA's master plan aligns with operational needs while delivering innovative, cost-effective solutions.

With over 15 years of experience managing water and wastewater projects across the U.S., Matt has delivered facilities up to 600 MGD and projects ranging from \$2M to \$100M. Over the past decade he has built strong relationships with utilities including Philadelphia Water Department, DC Water, WSSC Water, and others. Matt combines technical expertise in plant and pump station design, hydraulic analysis, wet weather flow management, and 3D design with strategic positioning skills that have driven key contract wins.

Education

- MS, Civil Engineering
- BS, Civil Engineering
- AS, Chemistry

Years Experience

- 21

Professional Registration

- PE - WA

Why Matt?

- Expertise in plant and pump station design, hydraulic analysis, and wet weather flow management
- Proven success leading projects up to \$100M and facilities up to 600 MGD
- Skilled in advanced 3D design and digital integration for complex infrastructure

Key Projects

- Lehigh County Authority | Klines Island Wastewater Master Plan
- Lehigh County Authority | Business Intelligence Support Services
- Lancaster Area Sewer Authority | Plant Nutrient Upgrades

Ben Cownie, PE | Project Director



As Project Director, Ben will leverage his two decades of experience in utility and infrastructure planning to deliver a Digital/IT Master Plan that will modernize LCA's technology environment and support data-driven decision-making. His leadership will ensure the plan is grounded in operational realities, aligned with organizational priorities, and positioned for successful implementation.

As Black & Veatch's Digital Solution Lead, Ben specializes in guiding utilities toward maximizing the value of their data and IT systems as they advance their digital maturity. Ben brings a strong big-picture perspective and is an expert at translating stakeholder needs into positive, actionable strategies, turning complex technology environments into clear roadmaps that are rolled out, adopted across the organization, and deliver lasting value.

Education

- BS, Electrical Engineering

Years Experience

- 20

Professional Registration

- PE - NY

Why Ben?

- Has led digital initiatives for LCA since 2024, bringing deep familiarity with systems and stakeholders, and priorities
- Passionate about data visualization and storytelling, delivering clear, decision-ready insights for leadership and operations
- Personally invested in the success of LCA's digital transformation

Key Projects

- Lehigh County Authority | Digital Initiatives (AM KPI & BI Roadmap, Project Excellence, Data Warehouse Assessment)
- Polk County | Digital Transformation Planning
- Confidential Industrial Client | Digital Transformation

Allen Brunson, PE | Project Manager



As Project Manager, Allen will leverage more than 24 years of experience in utility planning, technology, and program delivery to manage the Digital/IT Master Plan from planning through execution. His leadership will ensure the effort remains well-governed, technically sound, and aligned with LCA's priorities and timeline.

Allen planned and led the development of Charlotte Water's utilities data warehouse and enterprise system integrations, building a foundation for analytics, reporting, and data-driven decision-making. He is an expert in translating complex technical initiatives into well-structured, executable plans and has successfully led LCA's Data Warehouse Discovery and Assessment project, giving him direct familiarity with LCA's data environment and needs.

Education

- MBA, Business Analytics
- BS, Biological Systems Eng.

Years Experience

- 24

Professional Registration

- PE - GA, NC

Why Allen?

- **Six Master Plan Studies completed, served as Lead on two**
- Led enterprise data warehouse and system integrations for Charlotte Water, delivering scalable analytics foundations
- Led digital transformation planning for Moulton-Niguel Water District and participated in implementation vendor selection
- Successfully led LCA's data warehouse discovery project, bringing proven experience and continuity to the effort

Key Projects

- Lehigh County Authority | Data Warehouse Discovery and Assessment
- Confidential Industrial Client | Digital Transformation
- Moulton-Niguel Water District | Digital Advisory & Data Program Modernization

David Jost | Technical Advisor



As Technical Advisor, David will apply his extensive experience in enterprise IT leadership and digital transformation to guide LCA's modernization strategy, ensuring secure, scalable solutions that ensure long-term value and operational resilience.

David Jost has 32 years of experience driving digital innovation and enterprise technology strategies across energy, healthcare, and government sectors. He has managed technology portfolios exceeding \$500M and led initiatives that modernized customer information systems, advanced metering infrastructure, and enterprise analytics platforms. David's expertise spans cybersecurity, cloud strategy, and organizational change management, making him a trusted advisor for complex digital transformations.

Education

- Graduate Certificate, Project Management
- BS, Finance and Information Systems

Years Experience

- 32

Why David?

- **Ten Master Plan Studies completed, served as Lead on eight**
- 25+ years leading enterprise technology and digital transformation
- Success managing \$500M+ technology portfolios
- Expertise in cybersecurity, cloud strategy, and advanced metering infrastructure

Key Projects

- Alliant Energy | Enterprise Data & Analytics Transformation
- Alliant Energy | Modernized Customer Information System; Wisconsin, United States
- Alliant Energy | Technology Roadmap & Governance

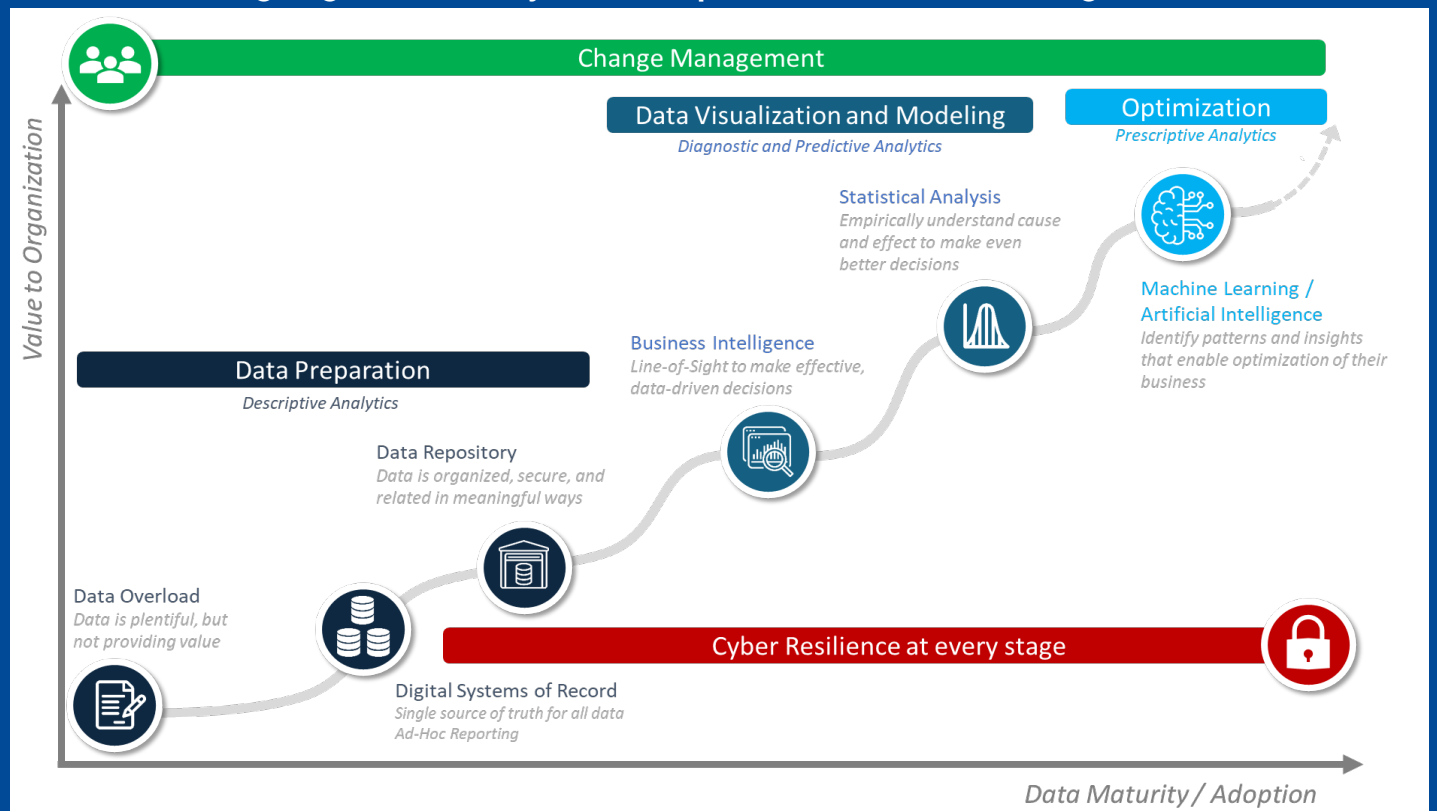
4 | Approach and Work Plan

Black & Veatch understands LCA's future-state vision and we want to be the partner that helps you set the roadmap to get there.

This Digital/IT Master Plan will guide LCA toward a more connected, resilient, and information-driven utility environment. The future-state vision illustrated in the graphic on the following page reflects how LCA can align systems, data, and insights in ways that directly support business and operational needs.

In this future state, core systems will be integrated where it matters most, with purpose and intention, to enable key workflows, shared understanding, and effective decision-making. Integration is not pursued for its own sake, but to ensure that operational, financial, spatial, laboratory, and historical information is accessible in context and aligned with how LCA's teams actually work. This will allow staff to spend less time reconciling information across systems and more time using it to take effective action.

With Increasing Digital Maturity and Adoption Comes Increasing Value to LCA

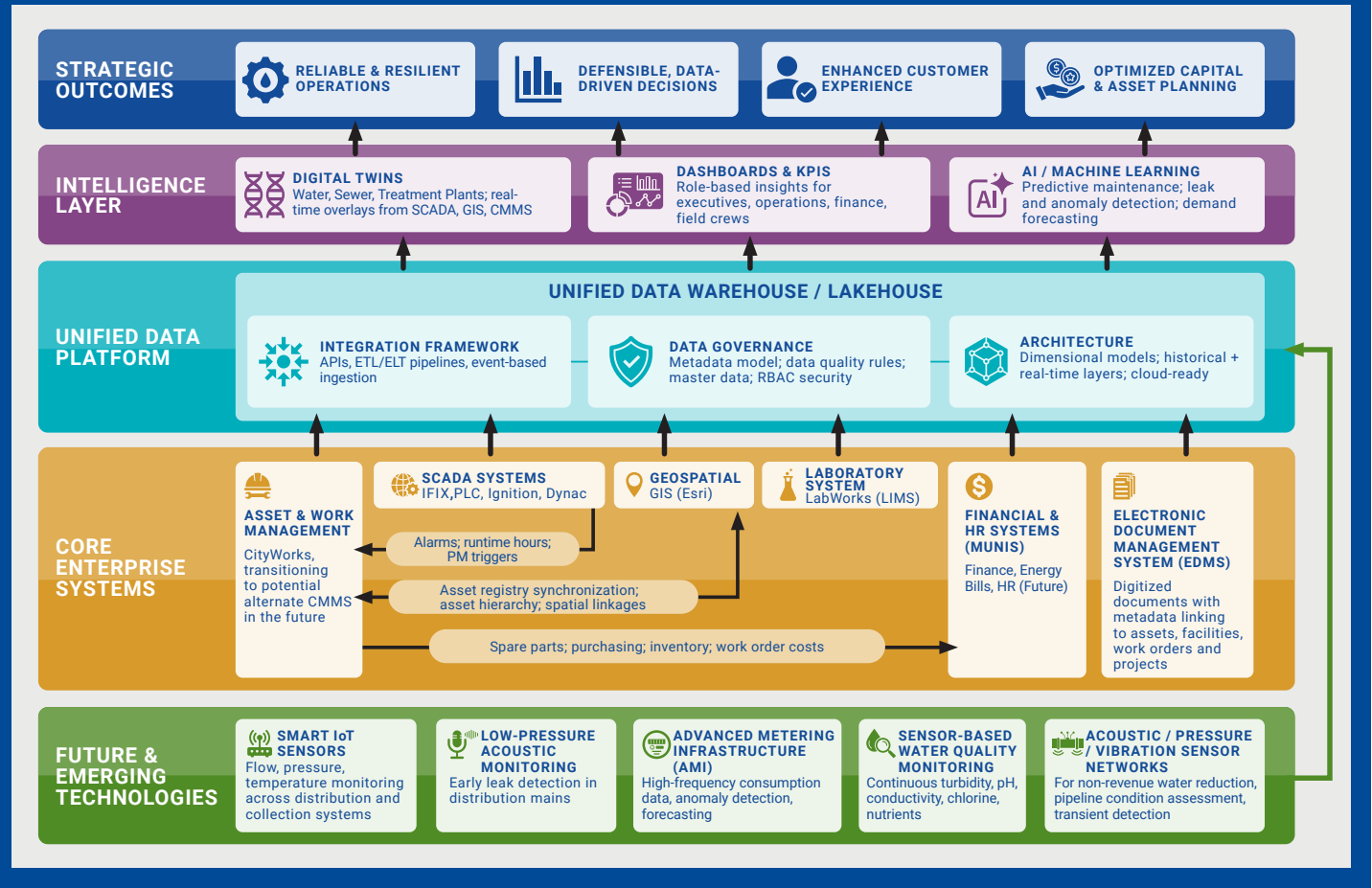


This Master Plan will be designed to advance maturity across short, medium, and long-term horizons while incorporating adoption, organizational change, and cybersecurity so that each phase delivers increasing value, ultimately positioning LCA to realize the emerging benefits of AI.

Data and documents will no longer be confined to individual applications or repositories. Drawings, inspections, manuals, and as-built records will become integrated resources that can be readily accessed by field crews, engineers, planners, and leadership when and where they are needed. This will ensure that critical information supports day-to-day operations as well as longer-term planning and asset management.

Shared intelligence will enable proactive operations, improve coordination across LCA teams, and support defensible asset and capital planning. Role-based dashboards, performance metrics, and analytical capabilities will translate information into action, allowing LCA to anticipate issues, manage risk, and allocate resources with greater confidence. As operational insight improves, customer experience is strengthened through increased reliability, transparency, and responsiveness.

Our Shared Understanding of LCA's Future Digital Utility Architecture



The future state will be intentionally designed to evolve over time, establishing a flexible foundation that can be extended to incorporate additional data sources, more advanced analytics, and future and emerging technologies as LCA's priorities and digital maturity continue to grow. The goal is a digital and IT environment that ensures new capabilities can be adopted incrementally, without disrupting existing operations or introducing unnecessary complexity.

This project will translate this vision into a practical, phased, and achievable roadmap, ensuring that each initiative advances LCA toward this integrated, extensible digital utility in a way that is aligned with business value, organizational readiness, and long-term sustainability.

A Phased Approach Designed to Support Stakeholder Alignment

The project will be structured as a **phased, outcome-driven journey designed to move from understanding to actionable recommendations and a sustainable path forward within a nine-month schedule, as shown in the figure on the following page.** Each phase builds intentionally on the one before it, ensuring that insights

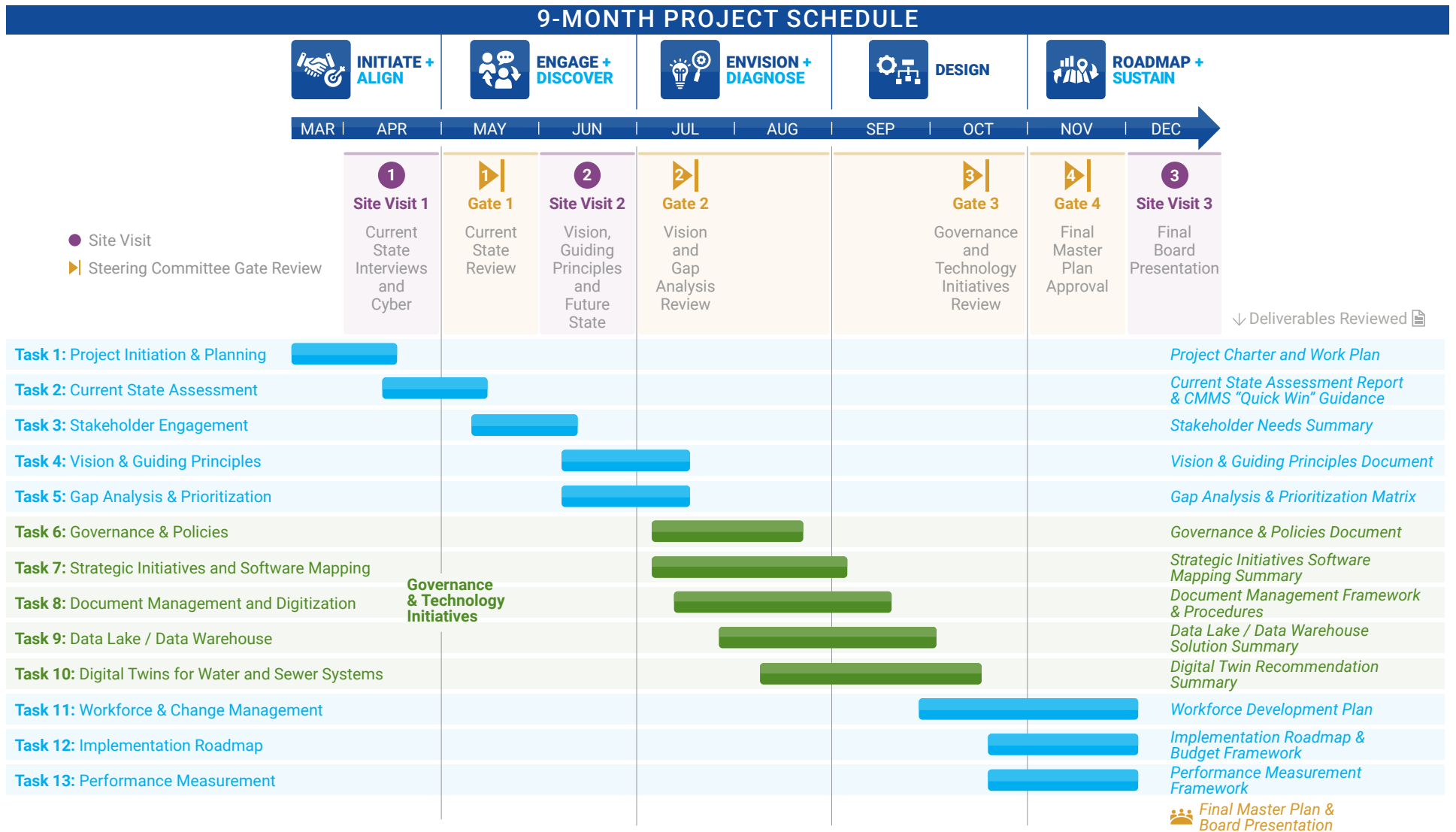
gathered early directly inform downstream decisions, investments, and implementation planning.

The first two months will focus on establishing a strong foundation through project initiation, current-state assessment, and stakeholder engagement. Throughout this period, deliverables will be produced to document findings, capture stakeholder input, and confirm priorities. These early outputs will create transparency and allow the project team and leadership to validate direction before progressing further.

The project will then transition into envisioning and diagnosing future needs, including the development of guiding principles and a structured gap analysis. These activities will be supported by clear, decision-oriented deliverables that articulate where the organization is today, where it is aiming to go, and what must change to get there. This will ensure that future-state recommendations are grounded in both business objectives and practical constraints. As the project advances into design and enablement, governance, policies, strategic initiatives, and enabling technologies are developed in parallel. Deliverables in this phase are intentionally sequenced to support informed decision-making, allowing leadership to evaluate options, trade-offs, and priorities as they emerge rather than waiting until the end of the effort.

Approach and Work Plan

The final phase will focus on translating strategy into action through workforce and change considerations, implementation planning, performance measurement, and long-term sustainability. These efforts will culminate in a consolidated master plan and implementation roadmap that integrates project deliverables. This final package will be presented to the Board for review and approval, providing a clear, defensible, and actionable path forward that reflects both LCA's vision and capacity to execute.



BOARD-READY, LOCALLY SUPPORTED

Black & Veatch's gated deliverables are written for decision-makers, with clear trade-offs and cost envelopes. Our regional leadership and on-call advisory team provide continuity into mobilization and early execution, ensuring momentum post-approval.

Stakeholder Engagement Plan and Meetings

The following pages describe Black & Veatch's overall delivery framework for this project, including the proposed stakeholder groups and roles, engagement model and meeting cadence, and the phased, decision-gated structure used to support efficient Steering Committee alignment.

This section also summarizes planned meetings and workshops, along with our methodology for developing and finalizing deliverables. Detailed descriptions of Tasks 1 to 13 begin on page 38.

Success of this Master Plan will center on structure, transparency, and collaboration, bringing the LCA team together around a shared digital direction. Throughout the project, staff engagement will be purposeful and targeted, respecting people's time by involving each group only when their input is essential.

While virtual collaboration will be the primary working mode to efficiently manage costs and staff availability, in-person engagement remains a critical component of our approach. The plan is structured around three intentional, in-person site visits, timed strategically at key moments in the project to build relationships, strengthen collaboration between the Black & Veatch and LCA teams, and establish a shared understanding that enables more productive, focused virtual working sessions throughout the remainder of the effort and supports faster alignment and clearer decision-making.

The meeting philosophy will emphasize purposeful engagement, efficient use of staff time, and decision-ready discussions. The project will follow a predictable structure



and cadence so that LCA participants know what to expect and understand how each touchpoint advances the work.

Stakeholder Groups and Roles

The project will rely on a coordinated set of stakeholder groups that will work together to provide guidance, review content, validate assumptions, and support decision making.



Thanks to the OCM team, we were able to hear how people are feeling about the new system, what they need, and what will help them in their new ways of working."

Project Manager, Central Hudson

Right-Sized Participation

Meetings will be designed to involve only those groups that are directly contributing to a specific task or decision. Technical sessions will be reserved for specialists. Operational and business leaders will be engaged when business processes and functional needs shape the solution. Executive leadership will participate at key Decision Gates where strategic alignment and approvals are required.

Predictable Cadence

We will maintain a consistent rhythm of project management check ins, workshops, and formal Gate Reviews. This approach will support progress across tasks, ensure that issues are addressed early, and allow LCA to anticipate and plan for involvement throughout the nine month schedule.

A Gated, Decision-Driven Structure

The project will be organized around a series of formal Gate Reviews that will serve as structured decision points. Each gate will align with major phases of work and corresponding deliverables, providing clear opportunities for review, feedback, and approval by the Steering Committee.

This gated approach represented below will ensure that progress is deliberate and well aligned, allowing findings and recommendations to be validated before the project advances to the next phase. During these reviews, the Steering Committee will evaluate findings, provide direction, and approve movement to the next phase of work.



Gate 1: Current State Review

Confirm LCA's baseline conditions and establish agreement on the foundational findings needed to move into visioning. During this gate, the Steering Committee will review and approve the Current State Assessment Report, CMMS quick win guidance, and the Stakeholder Needs Summary. Approval at this stage will ensure that all teams share a common understanding of existing systems, challenges, and opportunities before defining the future state.



Gate 2: Vision and Gap Analysis Review

Validate LCA's future digital direction. The Steering Committee will review the Vision and Guiding Principles Document and the Gap Analysis and Prioritization Matrix. Approval at this step will confirm the strategic direction for modernization and will establish the priorities that will guide governance, policy development, and the design of technology initiatives.



Gate 3: Governance and Technology Initiatives Review

Confirm the policies and technical foundations that will enable LCA's digital transformation. The Steering Committee will review the Governance and Policies Document, the Strategic Initiatives and Software Mapping Summary, the Document Management Framework and Procedures, the Data Lake and Data Warehouse Solution Summary, and the Digital Twin Recommendation and Summary. Approval will provide alignment on the architecture, governance structure, and modernization initiatives that will shape the implementation roadmap.







Gate 4: Final Master Plan Approval

Final decision point prior to the Board presentation. The Steering Committee will review and approve the complete Master Plan, including the Workforce Development Plan, the Implementation Roadmap and Budget, and the Performance Measurement Framework. Approval at this stage will confirm that the Master Plan reflects LCA's priorities, is ready for implementation, and provides a clear and achievable roadmap for the Authority's digital future.

The table below summarizes the proposed meetings planned to support execution of the project tasks and deliverables.

Table 3. Planned Project Meetings and Touchpoints

MONTH	MEETING	FORMAT & DURATION	INVOLVEMENT	DELIVERABLES REVIEWED	PURPOSE & KEY OUTCOMES
1	Project Kickoff & Initial Discovery	In-Person/ Hybrid ½ Day	<ul style="list-style-type: none"> Steering Core Team Technical WG Ops/Business WG 	<ul style="list-style-type: none"> Project Charter and Work Plan 	Launch the project, confirm scope and communication expectations, and gather field-level insights related to SCADA/OT assets, documentation practices, workflows, and operational systems.
1–9	Bi-Weekly Project Management Meetings/ Working Sessions	Virtual 30–45 min	<ul style="list-style-type: none"> Core Team 		Maintain coordination, review progress, identify and mitigate risks, track action items, and support continuous alignment across teams. As-needed working sessions to support project tasks.
1	Site Visit #1: IT, Data & Cyber Deep Dive	Virtual 3 hours	<ul style="list-style-type: none"> Technical WG Core Team 		Establish technical baseline across IT systems, OT/ SCADA infrastructure, cybersecurity posture, data architecture, and software licensing.
2	Site Visit #1 Current State Stakeholder Interviews	Virtual Two 2-hour sessions	<ul style="list-style-type: none"> Ops/Business WG Technical WG Core Team 		Document functional needs, pain points, process challenges, and digital readiness across departments.
2	 Gate 1: Current State Review	Virtual 2 hours	<ul style="list-style-type: none"> Steering Core Team Technical WG 	<ul style="list-style-type: none"> Current State Assessment Report & CMMS ‘Quick Win’ Guidance Stakeholder Needs Summary 	Review and approve findings from the Current State Assessment, CMMS recommendations, and stakeholder needs. Establish a validated foundation for visioning work.
3	Site Visit #2: Vision, Guiding Principles, and Future State Workshop	In-Person 1 full day	<ul style="list-style-type: none"> Core Team Technical WG Ops/Business WG 		Develop a shared Future State Vision, define guiding principles, frame future-state capabilities, validate major gaps, and discuss opportunities for modernization and AI/analytics.
4	 Gate 2 Review: Vision & Gap Analysis	Virtual 2 hours	<ul style="list-style-type: none"> Steering Core Team 	<ul style="list-style-type: none"> Vision & Guiding Principles Document Gap Analysis and Prioritization Matrix 	Approve the Future State Vision, guiding principles, and gap prioritization framework to set the foundation for governance and initiative design.
5	Governance & Policy Design Workshop	Virtual 2 hours	<ul style="list-style-type: none"> Core Team Technical WG 		Design Session: Refine Governance roles, Cyber policies, and Doc Management standards. Outcome: Draft Governance Framework.

MONTH	MEETING	FORMAT & DURATION	INVOLVEMENT	DELIVERABLES REVIEWED	PURPOSE & KEY OUTCOMES
6	Technology Initiatives Design Workshops	Virtual 4 x 2 hours	<ul style="list-style-type: none"> Core Team Technical WG Ops/Business WG 		Design strategic technology initiatives across software modernization, document management and digitization, data lake/data warehouse architecture, and digital twin capabilities. Establish the technical direction and functional requirements that will support interoperability, modernization, and future-state digital utility operations.
7	 Gate 3 Review: Governance & Technology Initiatives	Virtual 2 hours	<ul style="list-style-type: none"> Steering Core Team 	<ul style="list-style-type: none"> Governance & Policies Document Strategic Initiatives and Software Mapping Summary Document Management Framework and Procedures Data Lake/Data Warehouse Solution Summary Digital Twin Recommendation Summary 	Review and approve governance framework, cybersecurity and compliance updates, document management recommendations, modernization initiatives, and enterprise data strategy.
8	Workforce & Change Management Session	Virtual 1.5 hours	<ul style="list-style-type: none"> Ops/Business WG Technical WG Core Team 		Identify organizational roles, staffing needs, training requirements, change management considerations, and long-term workforce development needs.
9	 Gate 4 Review: Final Master Plan Approval	Virtual 2 hours	<ul style="list-style-type: none"> Steering Core Team 	<ul style="list-style-type: none"> Workforce Development Plan Implementation Roadmap and Budget Performance Measurement Framework Master Plan Report 	Review and approve the full Master Plan before Board presentation. Confirm alignment on recommendations, roadmap, budget ranges, and organizational impacts.
9	Site Visit #3: Final Board Presentation	In-Person 1 hour	<ul style="list-style-type: none"> Steering Core Team 		Present the finalized Master Plan to Board representatives, summarize key findings and recommendations, and support leadership in advancing the plan toward adoption.

Deliverable Development and Review Approach

Deliverables developed as part of this project will be created through a structured, collaborative, and transparent process designed to support stakeholder alignment at each stage of the work.

Each deliverable will be developed as a draft and shared with the core project team and relevant technical working groups for review and comment. A two-week review period will be provided to allow sufficient time for thoughtful input while maintaining project momentum.

For each deliverable, a detailed comment log will be maintained to formally capture feedback, questions, and recommendations from stakeholders. This approach will ensure that input is documented, tracked, and addressed

in a consistent and traceable manner. Following the review period, comments will be reconciled and incorporated into a refined final deliverable.

Final deliverables will be presented to the Steering Committee during the appropriate gate reviews for discussion, validation, and formal sign-off. This gated review process will confirm alignment with LCA's priorities, ensure readiness to proceed to subsequent phases, and support confident executive- and board-level decision-making.

All deliverables will be intentionally designed to serve as integrated chapters of the final Digital/IT Master Plan report. Rather than stand-alone documents, each deliverable will build upon prior work, collectively forming a cohesive, practical, and actionable Master Plan.

Table 4. Project Deliverables Overview

DELIVERABLE	PURPOSE	KEY OUTCOMES
Project Charter and Detailed Work Plan	Establish shared understanding of scope, objectives, governance, and delivery approach	Clear project direction; agreed schedule and milestones; defined roles and decision-making structure
Current State Assessment Report & CMMS Quick Win Guidance	Document existing IT/OT systems, maturity, risks, and constraints	Comprehensive system inventory; identified strengths and gaps; actionable CMMS guidance
Stakeholder Needs Summary	Capture business needs, pain points, and priorities across departments	Validated requirements; alignment across stakeholders; inputs for vision and roadmap
Vision & Guiding Principles Document	Define future-state digital vision and guiding principles	Shared future-state direction; criteria for evaluating initiatives and investments
Gap Analysis and Prioritization Matrix	Identify gaps between current and future state and prioritize initiatives	Transparent prioritization; clear basis for roadmap sequencing
Governance & Policies Document	Define governance structure, roles, and standards	Clear accountability model; updated cybersecurity and data governance policies
Strategic Initiatives and Software Mapping Summary	Define key initiatives and map enabling technologies	Clarity on initiatives; software recommendations; integration opportunities
Document Management Framework and Procedures	Define approach for digitizing and managing documents and drawings	Practical digitization strategy; EDMS recommendations; metadata standards
Data Lake/Data Warehouse Solution Summary	Define scalable enterprise data architecture	Unified data approach; governance and access protocols; analytics foundation
Digital Twin Recommendation and Summary	Assess feasibility and value of digital twins	Clear applicability assessment; integration considerations; prioritized recommendations
Workforce Development Plan	Prepare organization to support digital transformation	Skill gap assessment; training roadmap; succession planning
Implementation Roadmap and Budget Framework	Translate strategy into phased execution plan	Sequenced initiatives; cost estimates; resource planning
Performance Measurement Framework	Define KPIs and success metrics	Clear performance tracking; continuous improvement framework
Final Master Plan & Board Presentation	Consolidate all deliverables into a single Master Plan	Board-ready roadmap; actionable and defensible digital strategy

The following sections describe the approach to each task that will comprise the Digital/IT Master Plan. Building upon the overall project framework, stakeholder engagement model, and deliverable development approach described above, each task description will focus on how the work will be executed in a practical, structured, and outcome-oriented manner.

For each task, our approach will incorporate key lessons learned from comparable digital and IT master planning efforts across the water, wastewater, energy, and infrastructure sectors. These lessons will inform how activities are sequenced, how stakeholders are engaged, and how recommendations are shaped to reflect organizational capacity, operational realities, and long-term sustainability for LCA.

In addition to outlining task-specific activities, each section will highlight the added value and differentiators that Black & Veatch will bring to that component of the project. This will include insights gained from cross-industry experience, proven approaches for translating strategy into execution, and practical techniques for driving alignment, reducing risk, and supporting confident decision-making. Together, these elements will ensure

that each task not only meets the requirements of the Master Plan, but contributes meaningfully to a cohesive, actionable roadmap for LCA’s digital future.

Task 1: Project Initiation & Planning

Task 1 will establish the foundation for a disciplined, transparent, and well-governed Digital/IT Master Plan focusing on aligning LCA and Black & Veatch on objectives, scope, governance, decision-making structure, and delivery expectations before detailed assessment and design activities begin.

The task will begin with a formal Project Kickoff and Initial Discovery session, which will serve as the first on-site engagement of the project. This initial in-person meeting will be intentionally designed to both launch the work and build strong working relationships between the LCA and Black & Veatch teams. Bringing key stakeholders together early will allow the project team to establish shared expectations, strengthen collaboration, and develop a deeper, on-the-ground understanding of LCA’s operational environment that will inform all subsequent work.

Project Charter

Establishing Shared Purpose and Accountability from Day One



Project Charter: LCA Digital & IT Master Plan

Purpose

Articulate a clear and shared vision for how digital and information technology can enable LCA to operate as a connected, resilient, and data-informed utility in service of its communities.

Goal

Define a future-ready Digital / IT Master Plan that guides LCA’s evolution toward smarter operations, stronger collaboration, and more confident decision-making through intentional, sustainable digital investment.

OBJECTIVES

- **Improve Operational Efficiency**
Streamline and automate workflows through better integration of SCADA, GIS, CMMS, and enterprise systems to improve reliability and productivity.
- **Strengthen Infrastructure Resilience**
Modernize monitoring and operational technologies to support proactive maintenance, reduce outages, and improve system reliability.
- **Enhance Customer Experience**
Enable digital tools and system integration that support responsive service, transparent information, and proactive customer communication.
- **Advance Data-Driven Decision Making**
Establish a unified data foundation that supports trusted reporting, performance metrics, and future analytics.
- **Ensure Cybersecurity and Compliance**
Embed cybersecurity, governance, and regulatory requirements into all modernization recommendations.

OUR TEAM COMMITMENT

- **We move forward together**
We operate as one unified team, committed to shared outcomes and mutual success.
- **We foster psychological safety**
We create an environment where team members feel safe to ask questions, raise concerns, challenge assumptions, and share ideas openly.
- **We act with transparency**
We communicate clearly and honestly about progress, risks, trade-offs, and decisions, ensuring stakeholders have a shared understanding at every stage.
- **We stay aligned on priorities**
We keep LCA’s strategic goals, operational realities, and long-term vision at the center of every decision.
- **We communicate early and often**
We surface issues and opportunities proactively to support informed, timely decision-making.
- **We hold ourselves accountable**
We honor commitments, deliver quality work, and meet agreed timelines.

Black & Veatch regularly develops project charters for complex, multi-stakeholder initiatives. Introducing the charter at project initiation, and revisiting it briefly at each subsequent meeting is effective in establishing shared purpose, alignment, and team accountability. Our approach is to develop a draft charter and dedicate time to refine it collaboratively as a team at kickoff. The charter is then revisited at the start of stakeholder meetings to reinforce alignment, transparency, and team commitments. We have already developed the draft charter above to facilitate a fast start.

The kickoff session will bring together the Steering Committee, Core Project Team, and representatives from the Technical and Operations/Business Working Groups. During this session, the team will confirm project goals, success criteria, communication protocols, escalation paths, and expectations for stakeholder participation across the nine-month schedule. The meeting will also provide an initial opportunity to gather field-level and operational insights related to LCA's SCADA and OT environment, documentation practices, asset information workflows, and cross-departmental coordination.

Following kickoff, Black & Veatch will finalize the Project Charter and Detailed Work Plan, incorporating input from LCA leadership and the Core Project Team. The work plan will define task sequencing, key milestones, dependencies, and the gated review structure that will guide the project from initiation through Board approval. The work plan will also formalize the project management cadence, including bi-weekly project management meetings, planned site visits, and decision gate reviews.

Black & Veatch and LCA will initiate bi-weekly project management meetings, conducted virtually with the Core Project Team. These meetings will establish a predictable rhythm for coordination, progress tracking, risk management, and issue resolution that will continue throughout the duration of the project.

Task 1 Meetings

- Project Kickoff & Initial Discovery
- Bi-Weekly Project Management Meetings

Task 1 Deliverables

- Project Charter and Detailed Work Plan

Tasks 2 and 3: Stakeholder Engagement and Current State Assessment

Tasks 2 and 3 will be executed as an integrated and concurrent effort, combining stakeholder engagement and current state assessment activities into a coordinated and efficient on-site engagement window. This approach will ensure that leadership input, business needs, and technical conditions are assessed in parallel, while minimizing disruption to LCA staff and maximizing shared understanding across the combined LCA and Black & Veatch project team.

A critical component of this phase will be effective stakeholder engagement, led by Black & Veatch's Organizational Change Management (OCM) team. The Black & Veatch OCM team will work closely with LCA to identify key leaders and department heads to participate in engagement activities and will tailor the approach to align with LCA's organizational culture, priorities, and readiness for change.

During the site visit, Black & Veatch will conduct in-person interviews and working sessions with LCA leadership and key department heads. These discussions will document business objectives, operational priorities, pain points, and expectations for the Digital/IT Master Plan. Engagement with leadership will also assess organizational change readiness, including comfort with new technologies, data-driven decision-making, and cross-functional collaboration. Conducting these conversations in person will support deeper dialogue, stronger relationship-building, and a shared understanding of LCA's operational context.

During the same site visit, Black & Veatch – supported by the OCM team – will conduct in-person Current State Stakeholder Interviews with representatives from LCA Operations, Customer Service, Finance, IT, and other business units. These interviews will focus on how systems such as CMMS, GIS, CIS, ERP, LIMS, and document repositories are used in day-to-day work, where manual workarounds exist, and where improved integration, data access, or workflow enablement would deliver the greatest value. Holding these interviews on site will allow Black & Veatch to directly connect stakeholder input to observed processes, documentation practices, and system usage.

In parallel with stakeholder interviews, Black & Veatch will conduct an IT, Data, and Cybersecurity Deep Dive with the Technical Working Group and Core Project Team. This working session will confirm LCA's current technology architecture, including SCADA and OT systems, enterprise applications, data flows, hosting models, cybersecurity controls, disaster recovery capabilities, and software licensing practices. Conducting technical assessment activities concurrently with on-site stakeholder engagement will allow technical findings to be immediately validated against business needs and operational realities identified through interviews.

As part of these concurrent on-site activities, Black & Veatch will conduct a structured review of LCA's CMMS needs assessment, CMMS RFP, and submitted proposals.

Building on prior working sessions and real-time input from users, technical staff, and leadership, Black & Veatch will develop CMMS “quick win” guidance to support near-term decision-making, reduce implementation risk, and increase the likelihood of a successful CMMS modernization effort. This guidance will reflect both system-level considerations and observed operational workflows, ensuring alignment with LCA’s longer-term digital strategy.

Throughout Tasks 2 and 3, Black & Veatch and the OCM team will intentionally use interviews and working sessions to continue building and reinforcing strong working relationships across the project team. This collaborative, on-site approach will promote trust, shared understanding, and alignment, creating a strong foundation for subsequent visioning, prioritization, and roadmap development.

Task 2 and 3 Meetings

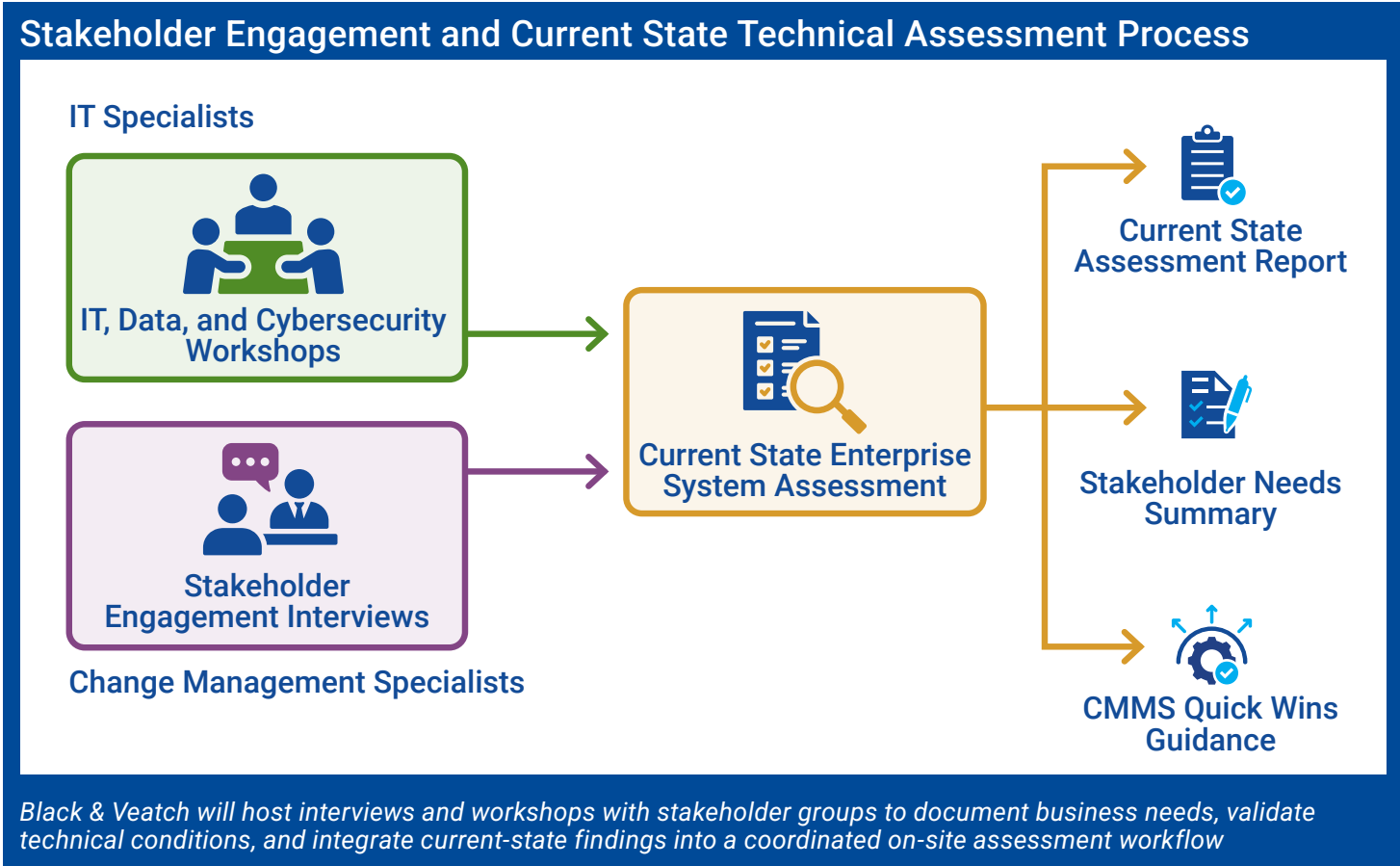
- Site Visit #1 – In-Person Stakeholder Interviews
- Site Visit #1 – IT, Data & Cyber Deep Dive
- Gate 1 Review – Current State

Task 2 and 3 Deliverables

- Current State Assessment Report
- Stakeholder Needs Summary
- CMMS “Quick Win” Guidance

Task 2 and 3 Decision Gate Alignment

Tasks 2 and 3 deliverables will be reviewed and approved during Gate 1: Current State Review, establishing alignment on leadership priorities, business needs, change readiness, and baseline conditions required to proceed with Task 4: Vision & Guiding Principles and Task 5: Gap Analysis & Prioritization.





Added Value and Differentiators

We Already Understand your CMMS Challenges

In July 2025, Black & Veatch conducted two working sessions with key LCA staff, including Stephen Boone, Justin Silberman, and Billy Schanz, to discuss LCA's current challenges with the CityWorks CMMS platform and LCA's interest in evaluating options such as NextGen. In these sessions, LCA described the need for capabilities such as:

- Drag and drop scheduling
- Automated generation of preventative maintenance work orders
- Streamlined creation of work at the asset level
- Improved visibility into parts inventories
- Faster methods for locating assets within the system
- Mobile applications that function reliably offline
- Integration of asset risk scores to support prioritization
- Document storage at the asset record
- Dashboard views that immediately surface overdue work orders
- CMMS integration with its purchasing program to enable a future inventory stockroom.

Black & Veatch provided guidance during these sessions to support LCA during preparation for a CMMS Selection RFP. These discussions gave Black & Veatch a clear understanding of LCA's operational pain points, digital maturity, and future ambitions for modern maintenance and asset management. As a result, Black & Veatch is uniquely positioned to provide meaningful quick win guidance during Task 2 that aligns with LCA's goals and sets the foundation for a successful CMMS modernization effort.

Tasks 4 and 5: Vision & Guiding Principles and Gap Analysis & Prioritization

Tasks 4 and 5 will be executed largely concurrently and will translate the validated findings from Tasks 2 and 3 into a clear future-state direction and a prioritized path forward for LCA's Digital/IT environment. Together, these tasks will ensure that the Master Plan is grounded in LCA's strategic priorities, operational realities, and organizational readiness, while providing a defensible framework for modernization, investment, and sequencing.

Black & Veatch will lead this phase through the Vision, Guiding Principles, and Future State Workshop, which will be conducted as an in-person, full-day working session during the second site visit. This workshop will bring together the Core Project Team, Technical Working Group, and Operations/Business Working Group to collaboratively define LCA's desired future digital state. The session will build directly on the leadership input, business needs, pain points, and change readiness

insights documented during Tasks 2 and 3, ensuring continuity and momentum across project phases.

During the workshop, Black & Veatch will facilitate structured discussions to articulate how technology, data, governance, and workforce capabilities will come together in the future state to support LCA's mission. Topics will include the role of integrated systems, enterprise data and analytics, cybersecurity, document and asset information access, and decision-support capabilities. The discussion will also explore how future-state capabilities can be phased over time to align with organizational capacity, funding realities, and implementation risk.

In parallel, Black & Veatch will work with LCA to define a concise set of guiding principles that will serve as decision filters for evaluating initiatives, technologies, and sequencing choices. These principles will address areas such as interoperability, scalability, cybersecurity, data governance, usability, lifecycle management, and sustainability. The guiding principles will ensure that future recommendations remain consistent, defensible, and aligned with LCA's long-term objectives.

Building on the future-state vision and guiding principles developed through the workshop, Black & Veatch will perform a gap analysis comparing LCA's current capabilities to its desired future state. This analysis will assess gaps across technology, data, governance, cybersecurity, processes, and workforce capabilities. Each gap will be documented in terms of operational impact, risk exposure, and alignment to LCA's strategic objectives.

Black & Veatch will then apply a prioritization framework to evaluate potential initiatives and improvement areas. This framework will consider factors such as business value, risk reduction, regulatory or compliance drivers, implementation complexity, cost considerations, and organizational readiness. The framework will be designed to support informed trade-off discussions, allowing leadership to understand not only what initiatives are recommended, but why certain efforts should be sequenced ahead of others.

Gap analysis and prioritization activities will be supported by targeted working discussions with the Core Project Team and relevant Technical and Operations/ Business Working Groups, coordinated through project management check-ins. These discussions will validate assumptions, refine prioritization criteria, and ensure that outcomes reflect both technical realities and business needs.

Black & Veatch will synthesize the results of this phase into two core deliverables: the Vision & Guiding Principles Document, which captures the agreed-upon future-state direction, and the Gap Analysis and Prioritization

Matrix, which will link the current-state gaps to future-state objectives and recommended initiatives. Together, these deliverables will form the analytical and strategic foundation for governance design, initiative definition, and implementation roadmap development.

Tasks 4 and 5 will conclude with presentation of these deliverables during the Gate 2: Vision and Gap Analysis Review. During this review, the Steering Committee will validate the future-state vision, confirm guiding principles, and approve prioritized gaps and initiatives, establishing clear direction to proceed with governance development and detailed initiative design.

Task 4 and 5 Meetings

- Site Visit #2 – Vision, Guiding Principles, and Future State Workshop
- Working Sessions Supporting Gap Analysis and Prioritization
- Gate 2 Review – Vision & Gap Analysis

Task 4 and 5 Deliverables

- Vision & Guiding Principles Document
- Gap Analysis and Prioritization Matrix

Task 4 and 5 Decision Gate Alignment

Tasks 4 and 5 deliverables will be reviewed and approved during Gate 2: Vision and Gap Analysis Review, confirming LCA's future-state direction and prioritized initiatives and establishing the foundation for Task 6: Governance & Policies and subsequent technology initiatives and roadmap development.

Task 6: Governance & Policies

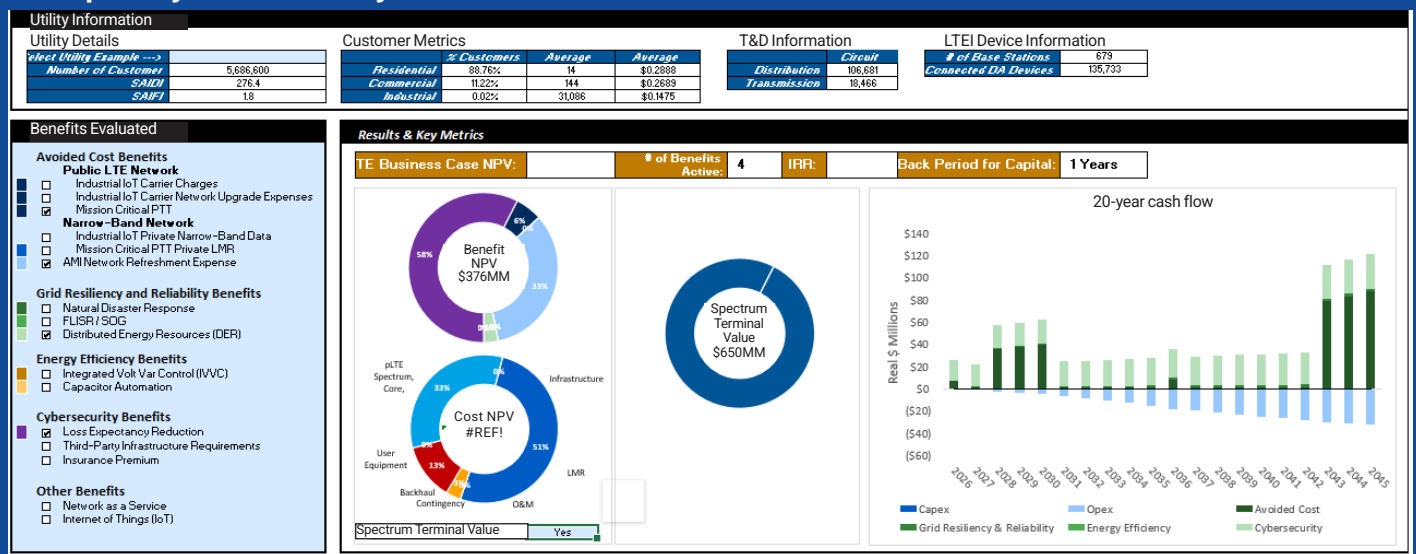
Task 6 will focus on assessing LCA's current IT/OT Governance Structure and Policies and developing a comprehensive IT/OT governance framework for LCA that can be followed and executed as a part of the Technology Master Plan. The goal is to develop a governance and policies document that establishes a clear governance structure (including roles and responsibilities of stakeholders), while providing an overview of existing policies that require update, new policies that must be developed, recommendations on licensing standard practices and hardware lifecycle management and actionable training recommendations that enhance security, compliance, and operational effectiveness across LCA's digital and operational technology environments.

Task 6 will define the Governance Structure and supporting policies needed to develop an actionable plan for LCA to achieve AWWA G430 and NIST cybersecurity compliance. The governance structure will be designed to control the span of authority, increase organizational awareness, and ensure governance decisions drive the changes required to support LCA's enterprise objectives and strategy

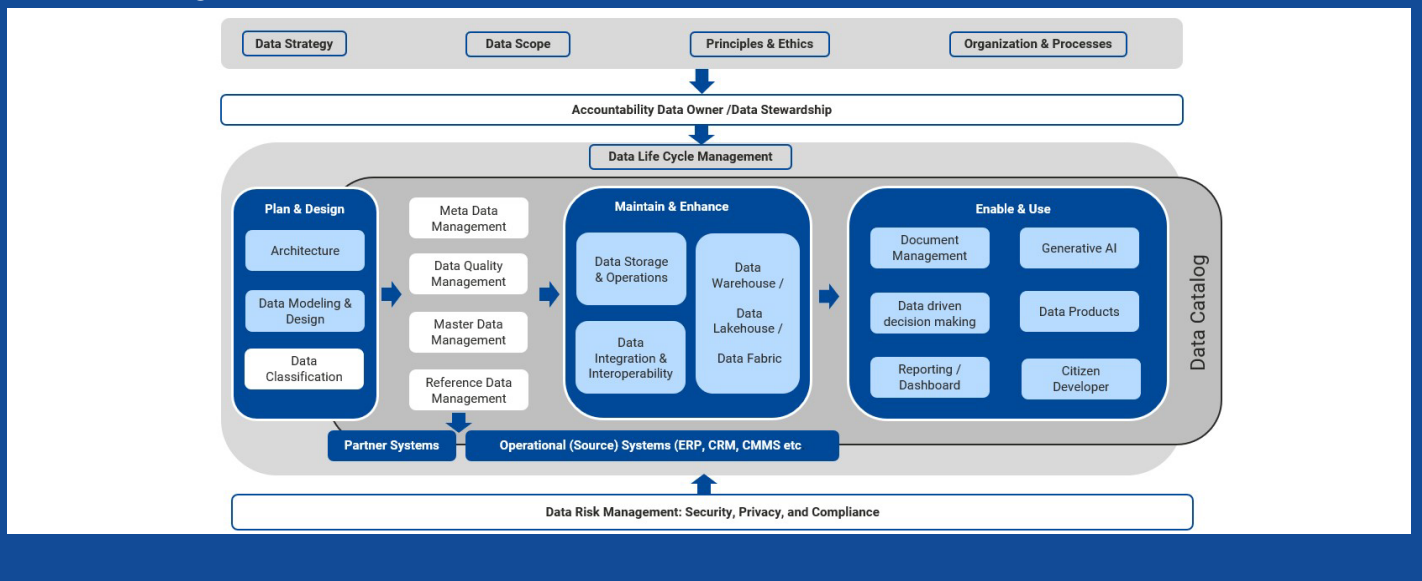
In addition to addressing and developing a roadmap for cybersecurity compliance, hardware lifecycle management, and licensing standards, the Governance & Policies document, which will be the deliverable for Task 6, will also include a Data Program Management Framework. This framework will illustrate how data is governed, managed, and leveraged within a Digital and IT Master Plan. It provides a comprehensive view of how data flows through its lifecycle (from creation and storage to analysis and decision making) under a governance structure that ensures accountability, security, and compliance. This framework serves as the foundation for establishing trusted, high-quality data that enables analytics, reporting, and innovation across the organization. Governance recommendations will also formalize joint ownership of customer impacting technologies, ensuring Customer Operations and IT collaborate in evaluating CIS, AMI, and other service-related initiatives through structured quarterly roadmap reviews.

Governance should be viewed as a process to enable projects to be more successful, not simply as a stage gate process where the focus is on correcting errors or deviations. Review boards and steering committees will be positioned as resources for project teams to seek guidance and assistance early, before risks become issues.

Sample Cyber Security Documentation And Dashboards



Data Management and Governance Framework



Strategic Importance:

- Governance & Accountability: Clear and defined processes, standards, and procedures for cyber security, data governance, and compliance policies.
- Lifecycle Management: Establishes the framework, timeline, standards, and decision criteria for implementing better management practices for hardware and software.
- Risk Mitigation: Addresses security, privacy, and compliance requirements.

Task 6 Meetings

- Governance & Policy Design Workshop and working sessions
- Gate 3 Review – Governance & Technology Initiatives Review Session

Task 6 Deliverables

- Governance & Policies Document

Task 7: Strategic Initiatives and Software Mapping for the Modern Utility

Building on the Current State Assessment (Task 2), Vision and Guiding Principles (Task 4), and the Gap Analysis and Prioritization (Task 5), Black & Veatch will work with LCA to define a coordinated portfolio of modernization initiatives across the Authority’s operational, customer-facing, and enterprise systems. This task will produce a clear, actionable set of initiatives that strengthen interoperability, reduce technical debt, resolve high-impact gaps, and establish the foundations of LCA’s future digital utility architecture.

The purpose of Task 7 is to translate LCA’s future-state vision into a structured set of strategic initiatives and supporting software recommendations. These initiatives will span SCADA, AMI, GIS, CMMS, CIS, EDMS, OT/IT integrations, enterprise data management, and digital twin enablement. Black & Veatch will evaluate each system’s ability to support modern operations, data flows, cybersecurity expectations, and LCA’s desired levels of performance, resiliency, and customer service.



Over the last five years, Black & Veatch work has been outstanding, and I want to express my sincere gratitude for the team's consistent dedication and support. Black & Veatch's availability, willingness to share knowledge, and high level of skills have significantly improved our daily SCADA operations. They have been transparent, open, and honest, which is a crucial characteristic for any vendor, as it fosters trust and ensures smooth, effective collaboration. They've always approached every task with professionalism and a positive attitude, and it's been a pleasure working with them."

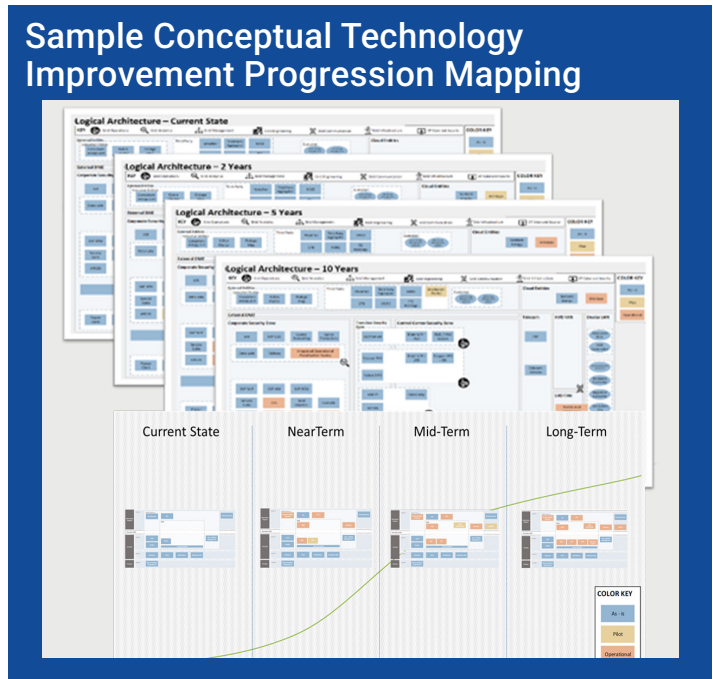
Adam Angiel, Seacoast Utility Authority

Through a series of facilitated workshops, Black & Veatch and LCA will jointly evaluate existing platforms, integration points, modernization opportunities, and operational dependencies. This will include identifying where enabling technologies (APIs, cloud readiness, role-based access, analytics connectors, and mobility capabilities) are required to unlock future operational and customer-centric outcomes.

- **Customer Operations** - supported by CIS and AMI - is a central component of LCA's digital future, influencing billing accuracy, revenue integrity, customer engagement, operational efficiency, and regulatory assurance. Task 7 will define modernization pathways for CIS that enable:
 - More accurate, timely, and transparent billing
 - Enhanced customer insight and engagement
 - Streamlined service coordination between field, customer service, and operations
 - Better integration across AMI, GIS, CMMS, and financial systems
 - Stronger data governance and reporting foundations

The initiatives identified will include the analysis, design, testing, integration, and change-management elements necessary for CIS or customer-facing improvements to succeed—ensuring these recommendations are practical, achievable, and aligned with organizational capacity.

- **AMI Strategy** - A Platform for Operational and Customer Value, AMI will be positioned not simply as a metering technology, but as a platform for enhanced operational awareness and customer experience. Strategic initiatives will define how AMI can enable:
 - Proactive customer engagement through high-usage, leak, and backflow notifications
 - Greater billing accuracy and reduced disputes through higher-quality meter data
 - Richer customer self-service via real-time usage visibility
 - Stronger operational intelligence for forecasting, optimization, and anomaly detection
 - More efficient field operations through remote turn-on/turn-off capabilities where feasible, reducing truck rolls and service delays
 - Improved integration with CIS, GIS, CMMS, and operational analytics



These initiatives will clarify AMI's role in LCA's broader digital ecosystem and provide decision-ready options for optimizing existing metering processes or planning for modernization.

- **CMMS, GIS, SCADA, OT, and Enterprise System Enhancements** - will define modernization initiatives across LCA's core operational systems, including:
 - SCADA: Recommendations to improve reliability, standardization, security, and alignment with future digital twin use cases
 - GIS: Enhancements to asset mapping, spatial accuracy, and integrations with CMMS, CIS, and AMI
 - CMMS: Opportunities to improve preventive/predictive maintenance, asset lifecycle management, field mobility, scheduling, and integration with GIS and procurement systems
 - EDMS: Strategies to improve findability, metadata quality, and linkage to assets, projects, and work orders
 - OT/IT Integration: Standardized approaches for secure, modern integrations across operational systems, telemetry, data pipelines, and enterprise platforms

Each initiative will be evaluated for business impact, technical feasibility, cybersecurity requirements, dependencies, and alignment with LCA's guiding principles.

The final goal of this task is to define specific initiatives across all IT/OT systems, with defined purpose, rationale, integrations, and expected benefits.

- **System Interoperability Architecture** - A future-state depiction of how LCA’s core platforms—SCADA, GIS, CIS, AMI, CMMS, EDMS, data warehouse, and digital twins—interact to support operations, planning, customer service, and decision-making.
- **Criticality and Sequencing Assessment** - A prioritization framework that identifies which initiatives should occur first, which depend on others, and which deliver the highest early value.
- **Inputs to the Implementation Roadmap (Task 12)** - All strategic initiatives will be packaged in a form that feeds directly into the multi-year roadmap and budget ranges. Our recommendations reflect lessons from delivered CIS/AMI, CMMS, SCADA, GIS, and data programs—not solely planning exercises. We specify integration patterns (APIs/eventing), change-management effort, test scope for CIS/

AMI, and owner’s-engineer roles so LCA can move directly from approval to action. Each initiative is packaged with success metrics, dependencies, and a first-90-day mobilization outline for the Implementation Roadmap.

Task 6 and 7 Decision Gate Alignment

Tasks 6 and 7 deliverables will be reviewed and approved during Gate 3: Governance and Technology Initiatives Review, confirming the proposed initiatives and their prioritizations match the direction and expectation of LCA’s stakeholders and leadership.

Task 7 Meetings

- Technology and Initiatives Workshop and working sessions
- Gate 3 Review – Governance & Technology Initiatives Review Session

Task 6 Deliverables

- Strategic Initiatives and Software Mapping Summary Document

Strategic Initiative Development Process



Added Value and Differentiators

Cross-Industry Digital Transformation Expertise

Black & Veatch brings digital transformation specialists who have delivered similar modernization programs for power generation, electric grid operators, and large oil and gas clients. These industries face complex regulatory environments, high reliability requirements, and large-scale asset portfolios that mirror many of LCA’s challenges. By drawing on proven practices from these adjacent sectors, Black & Veatch will provide LCA with broader insight into system integration, risk-based asset management, cybersecurity, and data governance approaches that have already been pressure-tested in demanding operational settings. This cross-industry perspective strengthens the quality and creativity of recommendations and ensures that LCA benefits from leading practices beyond the traditional water utility landscape.

Task 8: Document Management and Digitization

Task 8 will define a practical, scalable approach for modernizing LCA's document management and digitization practices, transforming documents from static records into integrated, decision-support assets. This task will be led by Black & Veatch's sub-consultant, Nexinite, who specializes in electronic document management system (EDMS) strategy.

Nexinite will approach document management as a foundational digital capability, not simply a technology deployment. The effort will integrate current-state assessment, governance, digitization strategy, system architecture, and user adoption to deliver a secure, searchable, and sustainable document management framework aligned with LCA's long-term vision.

Assessment of Current Document and Records Environment

Nexinite will begin with a structured assessment of LCA's current document and records environment, including both paper-based and digital repositories. This assessment will evaluate how documents are created, stored, accessed, and used across departments, as well as usage frequency, compliance requirements, and operational dependencies. The assessment will identify risk areas, redundancies, and opportunities where early digitization could deliver immediate operational value.

Digitization Strategy and Secure EDMS Design

Based on the current-state assessment, Nexinite will define a digitization strategy that emphasizes automation to accelerate timelines and reduce manual effort. This strategy will consider the use of AI-enabled tools to support document classification, optical character recognition (OCR), and metadata creation, enabling documents to become searchable and usable earlier in the digitization process.

The EDMS design will prioritize security, scalability, and usability, with a focus on enabling advanced search capabilities such as natural-language search and enhanced indexing. This approach will improve accessibility for users today while laying the foundation for future capabilities such as AI-assisted document enrichment and retrieval.

Linking Drawings, BIM, and Photographic Data

Nexinite will define an approach for intelligently linking documents to facilities, projects, and assets, treating documents as part of LCA's broader utility data model and asset ecosystem. As-built drawings, O&M manuals,

inspection photographs, and specifications will be associated directly with corresponding assets IDs or locations, allowing contextually relevant documents to surface within CMMS, GIS, and EDMS workflows.

This asset-centric approach will shift document management from an archival function to a capability that actively supports operations, maintenance, capital planning, and decision-making.

Metadata Standards, Indexing, and Retention Policies

Nexinite will develop a robust metadata and records governance framework to support automation, compliance, and findability/accessibility. This framework will align with LCA's existing or future planned retention schedules, legal requirements, and internal business processes, while incorporating best practices from comparable public-sector EDMS implementations.

Software Evaluation and Integration Strategy

Nexinite will evaluate EDMS platform options with an emphasis on vendor-neutral, pragmatic, and cost-effective recommendations. The evaluation will prioritize platforms that integrate effectively with LCA's existing systems and standards, with particular consideration for Microsoft-native solutions such as Microsoft 365, SharePoint, and the Power Platform, where appropriate.

The evaluation will consider integration with GIS, CMMS, BIM, and financial systems, total cost of ownership, ease of use, and long-term sustainability. Recommendations will be designed to maximize LCA's existing investments while maintaining flexibility as needs evolve.

AI-Enabled and Natural-Language Document Access

If aligned with LCA's interests and readiness, Nexinite will outline options for enabling natural-language document search and retrieval, including the potential use of large language models (LLMs). These capabilities can significantly reduce time spent locating documents, improve user experience, and enable more intuitive interaction with historical records, while remaining aligned with governance and security requirements.

Task 8 Meetings

- Task 8 Technology Initiatives Design Workshop
- Gate 3 Review – Governance & Technology Initiatives

Task 8 Deliverables

- Document Management Framework and Procedures

Task 8 Decision Gate Alignment

The outcomes of Task 8 will be synthesized into a comprehensive Document Management Framework and Procedures deliverable. This framework will include digitization standards, metadata and indexing requirements, governance and retention policies, integration architecture considerations, tooling recommendations with clear rationale, and identified opportunities to accelerate implementation and reduce cost through automation. Task 8 deliverables will be reviewed as part of Gate 3: Governance and Technology Initiatives Review.

Task 9: Data Lake/Data Warehouse

Task 9 will refine and define the enterprise data lake and data warehouse strategy required to support LCA's long-term digital, analytics, and decision-support objectives. This task will build directly on prior work already completed by Black & Veatch with LCA's Asset Management and IT teams, allowing the project team to leverage existing assessments, future-state visioning, and roadmap development to complete this task efficiently.

Beginning in 2024, Black & Veatch has worked closely with LCA's Asset Management team and IT leadership, including Chris Moughan, to develop an asset management KPI framework, business intelligence roadmap, and supporting data warehouse/IT architecture vision. This effort included an assessment of LCA's existing data environment, system-specific constraints, reporting limitations, and integration challenges, as well as facilitated workshops to define a future-state data platform aligned with LCA's strategic objectives.

Through this prior work, Black & Veatch documented a clear future-state vision for LCA's data platform, centered on the creation of a centralized, integrated source of truth that decouples analytics from operational systems, supports KPI-driven dashboards, and establishes a scalable foundation for advanced analytics, predictive modeling, and AI-enabled use cases. Asset management was intentionally identified as the initial phase and foundational subject area, with a roadmap to expand into additional domains such as finance, HR, customer, and compliance data over time.

Black & Veatch also completed a structured gap analysis and implementation planning exercise, identifying technical, architectural, governance, and capability gaps between the current state and desired future state. This work defined core technical requirements for the future data warehouse, including centralized

data storage, automated ETL/ELT pipelines, role-based security, scalable architecture, and native integration with Microsoft Power BI. Recommended infrastructure approaches, tools, and phased implementation steps were documented to support controlled, incremental delivery while maintaining flexibility for future growth.

Task 9 will not restart this work, but will instead focus on validating, aligning, and integrating the previously developed data warehouse strategy with the broader objectives, governance framework, and sequencing established through the Master Plan. Black & Veatch will review the existing assessment findings, future-state vision, and implementation roadmap with the Core Project Team and Steering Committee to confirm continued alignment with LCA's priorities and any changes in organizational direction, technology standards, or constraints.

This task will ensure that the data lake and data warehouse strategy is fully aligned with:

- The guiding principles and priorities confirmed through Tasks 4 and 5
- Governance and policy recommendations developed in Task 6
- Technology initiative sequencing, integrations and dependencies identified across the Master Plan.

By leveraging work already completed, Black & Veatch will be able to accelerate delivery, reduce redundant analysis, and efficiently use project budget, while enhancing the quality and relevance of the final recommendations. Where appropriate, updates will be made to reflect new initiatives, emerging technologies, or Steering Committee guidance, but the existing roadmap will serve as the primary foundation for this task.

Task 9 Meetings

- Task 9 Technology Initiatives Design Workshop
- Gate 3 Review – Governance & Technology Initiatives

Task 9 Deliverables

- Data Lake and Data Warehouse Strategy (Updated from the previous Data Warehouse Discovery and Assessment Project)

Task 9 Decision Gate Alignment

Task 9 outcomes will be validated with the Steering Committee as part of the Gate 3: Governance and Technology Initiatives Review, ensuring alignment with approved priorities, governance framework, and implementation sequencing.



Added Value and Differentiators

Black & Veatch Has Already Completed this Work for LCA.

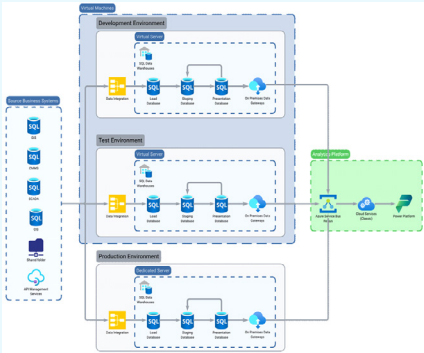
In 2025, Black & Veatch worked with LCA to complete a Data Warehouse Discovery and Assessment as part of the Asset Management KPI and Business Intelligence Roadmap initiative. Through this effort, Black & Veatch partnered closely with LCA’s Asset Management and IT teams, including Chris Moughan, to evaluate LCA’s existing data environment, identify gaps, and define a desired future state for enterprise analytics based on an understanding of current challenges.

- A centralized repository for integrated operational and enterprise data
- Automated processes for data ingestion, transformation, and validation
- Role-based security and compliance controls to protect sensitive information
- A scalable architecture designed to support future expansion across additional data domains
- Advanced reporting and dashboard capabilities using Power BI to support KPI-driven decision-making
- A dedicated data team and training model to sustain and evolve analytics capabilities
- A long-term vision for data-driven decision-making, including predictive analytics and advanced modeling

Black & Veatch will leverage this existing assessment, architecture, and roadmap as a jumpstart for Task 9. Rather than duplicating prior work, Black & Veatch will validate alignment with Steering Committee priorities and integrate these artifacts with governance, sequencing, and implementation recommendations developed through the Master Plan, delivering higher value in less time and at lower cost. **Key reusable artifacts from this work include:**

Data Warehouse Architecture

A future-ready architecture for data integration and analytics developed by Black & Veatch in collaboration with LCA. Clearly illustrates how data will move from core business systems through controlled development, test, and production environments into a centralized data warehouse and analytics platform. During the Master Plan, this architecture will be used to confirm alignment with governance, security, and scalability objectives and to accelerate planning without revisiting foundational design decisions.



Business Data Relationship Matrix

A structured mapping of performance and operational measures to shared business data attributes that will define how KPIs will be calculated based on data across systems. Developed by Black & Veatch, this matrix will inform Master Plan decisions related to data governance, integration sequencing, and KPI standardization, ensuring future analytics initiatives are built on trusted, well-defined data relationships and shared attributes.

Measure	Asset Management	Construction	Engineering	Finance	Human Resources	Information Technology	Operations	Procurement	Public Works	Regulatory	Safety	Support	Training
Asset Health													
Asset Number													
Asset Condition													
Asset Location													
Asset Type													
Asset Value													
Asset Age													
Asset Status													
Asset History													
Asset Performance													
Asset Maintenance													
Asset Cost													
Asset Risk													
Asset Compliance													
Asset Security													
Asset Sustainability													
Asset Innovation													
Asset Resilience													
Asset Flexibility													
Asset Scalability													
Asset Reliability													
Asset Availability													
Asset Quality													
Asset Efficiency													
Asset Effectiveness													
Asset Productivity													
Asset Innovation													
Asset Resilience													
Asset Flexibility													
Asset Scalability													
Asset Reliability													
Asset Availability													
Asset Quality													
Asset Efficiency													
Asset Effectiveness													
Asset Productivity													

Data Pipeline Architecture

A practical example of how raw source data will be transformed into analytics-ready datasets through staged cleansing, integration, and standardization. This Black & Veatch-developed pipeline architecture will demonstrate how LCA’s future-state data platform will operate in practice and will be used during the Master Plan to guide scalability planning, sequencing, and expansion/integrations of additional data domains and sources.



Task 10: Digital Twins for Water and Sewer Systems

Task 10 will evaluate the feasibility, readiness, and appropriate use of digital twins for LCA’s water distribution and sewer systems, determining where digital twin capabilities can deliver measurable operational or planning value, what prerequisites must be addressed, and how digital twins should be phased and integrated as part of the master plan.

Black & Veatch will assess digital twin approaches using industry-standard platforms such as WaterGEMS, WaterSight, InfoWorks ICM, and ICMLive, recognizing that different tools support different operating models, hosting strategies, and use cases. Cloud-based platforms will be evaluated for their ability to leverage centralized data sources for analytics and forecasting, while locally hosted or hybrid options will be considered where flexibility, control, or IT constraints warrant alternative approaches.

Feasibility and Readiness Assessment

Black & Veatch will evaluate the technical and operational readiness required to move from planning-oriented hydraulic models to operationally useful digital twins.

IT and Platform Readiness

Black & Veatch will assess candidate digital twin platforms for alignment with LCA’s IT architecture, cybersecurity requirements, and data strategy. This will include evaluation of hosting models, data flows from the future data warehouse, and system interoperability considerations.

Hydraulic Model Readiness

Black & Veatch will review LCA’s existing water and sewer hydraulic models to determine their suitability for digital twin applications.

Where gaps are identified, Black & Veatch will document specific enhancements required to enable digital twin functionality rather than providing generic recommendations.

Demand and Forecast Inputs

Black & Veatch will assess how system demands are currently estimated and monitored, including whether SCADA data supports spatial breakdowns or total system demand calculations. Existing demand forecasting practices will be documented to inform platform configuration and future-state use cases.

Weather and Rainfall Forecast Data

Black & Veatch will evaluate the availability and use of weather and rainfall data and identify whether additional data sources are required to support digital twin applications, including cost and implementation considerations where applicable.

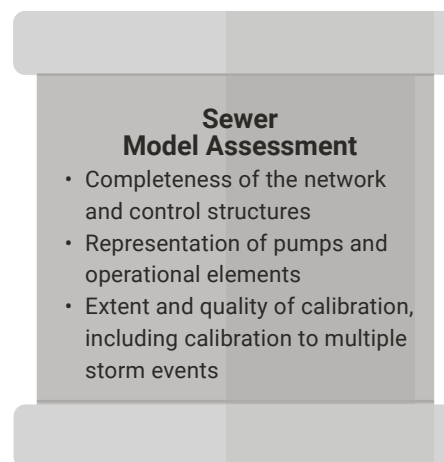
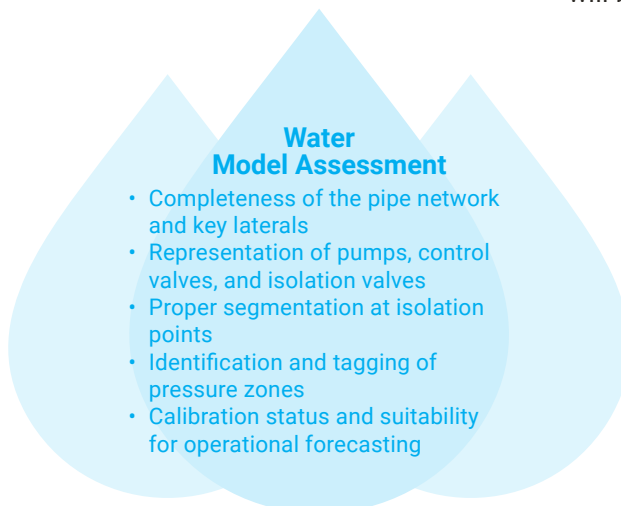
Water Loss

Black & Veatch will evaluate the availability and use of AMI and flow metering data and the type of water loss currently possible to evaluate. Black & Veatch will detail additional data sources that can enhance real-time water loss analysis, including cost and implementation considerations where applicable.

Water and Sewer Digital Twin Considerations

Black & Veatch will differentiate between water and sewer digital twin applications, recognizing their distinct operational characteristics.

For sewer systems, digital twin feasibility will be evaluated primarily around event-based forecasting and response, with emphasis on storm calibration quality and forecast data reliability. Opportunities to incrementally improve model accuracy through post-event analysis will be identified.



For water systems, digital twin feasibility will be evaluated in the context of highly dynamic, real-time operations. Black & Veatch will assess the complexity of integrating SCADA feeds, testing integration paths, and managing data reliability when telemetry is interrupted – which our experience has shown to be critical. These factors will be treated as core feasibility considerations rather than downstream implementation issues.

Integration with Enterprise Systems

Black & Veatch will identify and define recommended integration points between digital twin platforms and LCA's enterprise systems, including

- **SCADA:** Identification of feeds that should drive digital twin behavior versus those used for validation and comparison, recognizing that integration approaches may vary by asset and data quality.
- **GIS:** Evaluation of update strategies to balance as-built timing with the need to represent current system conditions, including recommendations for annual updates and interim updates for critical assets.

- **Asset Management Systems:** Evaluation of how digital twin outputs, such as pressures, velocities, and hydraulic performance indicators, can inform asset condition assessment, risk scoring, and maintenance planning.

Task 10 Meetings

- Task 10 Technology Initiatives Design Workshop
- Gate 3 Review – Governance & Technology Initiatives

Task 10 Deliverables

- Digital Twin Recommendation and Summary

Task 10 Decision Gate Alignment

Task 10 outcomes will be validated with the Steering Committee as part of the Gate 3: Governance and Technology Initiatives Review, ensuring alignment with approved priorities, governance framework, and implementation sequencing.



Added Value and Differentiators



The AWWA Digital Twins Committee Chair will be leading this task

Task 10 will be led by **Kedric Szana**, a recognized digital twin expert with more than 14 years of experience delivering water distribution and sewer/stormwater digital twin solutions globally. Kedric brings a rare, end-to-end perspective from having worked at a water utility, for a digital twin software vendor, and as a consultant supporting digital twin selection, implementation, and operational adoption. He has directly collaborated with Bentley Systems to roadmap how WaterSight can be leveraged for calibration and forecasting. Kedric served as Co-Chair of the AWWA Digital Twins Committee since its formation in 2021 and is now the Chair through 2027, authoring papers, providing firsthand insight into industry best practices, emerging use cases, and common pitfalls. Kedric's experience and insights will provide LCA with a digital twin strategy that is:

- Grounded in practical feasibility rather than theoretical capability
- Informed by deep knowledge of vendor tools, integration challenges, and limitations
- Focused on right-sizing digital twin ambition to operational readiness and data maturity
- Designed to reduce risk, accelerate value, and avoid stalled or underutilized solutions

Task 11: Workforce & Change Management

Black & Veatch is uniquely positioned to drive the success of LCA's Digital/IT Master Plan from development to implementation. At Black & Veatch, we not only have proven and vast technical expertise, but we also have

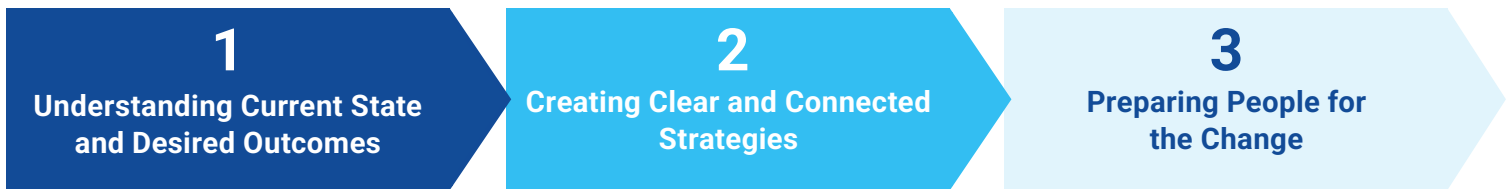
dedicated Organizational Change Management (OCM) resources focused on the people side of change. With deep understanding of human behavior, organizational design, and workforce development, our OCM team will enable LCA to realize the intended benefits of the Digital/IT Master Plan by preparing people for the future.

Without agreement on strategy, conflict and resistance weakens the foundation of trust and business relationships.

An effective organization needs a well-defined strategy that is executed through clear goals, an optimal structure, and a people-first focus. Our OCM team is well-equipped to help LCA’s employees and key stakeholders embrace and adopt change. Far too often, change happens to people without their involvement.

We are especially skilled at creating the right level of engagement to encourage LCA’s workforce to become enthusiastic advocates throughout the development and long-term success of the Digital/IT Master Plan.

Our people-centric process involves three key elements:



1. Understanding Current State & Desired Outcomes

This phase is focused on creating clarity for where we are going while accounting for and anchoring to where we’ve been. Our OCM team will partner with the project team and LCA leadership to create a clear future state vision and success metrics for the change. We will conduct a current state assessment that identifies strengths and gaps in the structure, roles, skills, and staffing levels of the IT Organization. Our OCM team will also conduct a Business Readiness Assessment that evaluates LCA’s capacity to support digital transformation and identifies competing imperatives, to ensure the right level of support and preparedness for the Digital/IT Master Plan. Finally, we will identify any additional operating model efficiencies needed such as business process improvements, clarity in governance, or improvements to ways of working across the organization.

We have done similar analyses in numerous types of change like organizational restructures, system implementations, and the development of strategic roadmaps.

When conducting the current state assessment, it’s important to consider LCA’s past experiences with



change to identify lessons learned and have a better understanding of people’s perceptions and needs for future success. We will use these insights in creating engagement strategies that align to LCA’s culture and existing ways of working.

2. Creating Clear & Connected Strategies

In this phase, our OCM team will collaborate across the project team to create organizational and workforce development plans that will drive the success of the Digital/IT Master Plan. We will leverage our industry experience and understanding of talent management to provide the following recommendations:

- Organizational structure adjustments, including creation of new roles
- Recommended staffing and resource requirements for the initial implementation of the master plan into the sustainment phase
- Integration points between current roles and recommended roles
- Governance, authorities, and decision-making processes

- People management strategies to develop and engage employees
- Employee and stakeholder feedback loop

3. Preparing People for the Change

The ultimate success of the Digital/IT Master Plan depends on both the quality of the plan and the level of preparedness by those intended to implement and use the solution. Equipping people with the knowledge, skills, and abilities to feel ready, confident, and capable of doing their job in the future state is key to achieving desired outcomes. We ensure our organizational structure and workforce plans are underlined by comprehensive change management strategies that drive lasting results for LCA. Our OCM team will define the appropriate level of engagement based on the size, scale and complexity of the change.

Black & Veatch has developed a structured “Frame the Change” approach, grounded in best practices and principles from the Prosci methodology. The activities conducted to frame the change include:

- Understand what is changing and why
- Define success and organizational benefits
- Define stakeholder groups
- Conduct Change Impact Analysis across the following: organizational structure, technology, business process, role and responsibility, mindset and behavior
- Understand current state, future state, impact levels for each stakeholder group
- Identify resistance and mitigation opportunities
- Identify targeted change activities to address key communication needs, including articulating “What’s In It For Me” (WIIFM) for stakeholder groups, establishing effective communication and feedback channels, addressing training requirements, and supporting changes in organizational structure

These activities will provide a clear picture of the change and will help LCA gain buy-in and approval for the Digital/IT Master Plan. We will also provide recommended sustainment strategies to reinforce the change through LCA’s processes and systems, ultimately driving long-term success.

Particular attention will be given to roles within Customer Operations, as CIS and AMI enhancements typically introduce new workflows, data responsibilities, and customer-interaction practices. The change



OCM THAT STICKS

Black & Veatch’s change approach prioritizes executive sponsorship, proactive and reactive resistance management, and explicit backfill strategies for operations and Customer Operations SMEs. This reduces fatigue and protects service levels during CIS/AMI testing, cutover, and stabilization.

strategy will prepare these teams through targeted communications, training, and structured resistance-management planning.

Task 12: Implementation Roadmap

Building on the outcomes of Tasks 4 through 11, Black & Veatch will work with LCA to develop a phased implementation roadmap spanning near-term, mid-term, and long-term horizons. Rather than serving as a static point-in-time document, the roadmap will be delivered as a living, decision-support model that is owned and governed by LCA and designed to evolve over time.

The roadmap will be structured to enable LCA to revisit priorities, adjust sequencing, and respond to changing business, regulatory, funding, and technology conditions while maintaining enterprise alignment with LCA’s strategic goals and digital vision. It will clearly identify dependencies, critical path items, and enabling actions required to implement initiatives in a coordinated and sustainable manner, including:

- Recommended sequencing of initiatives across people, process, data, and technology that reflects both readiness and value
- Defined dependencies and prerequisites, including governance, data maturity, cybersecurity, and change management considerations
- Resource implications, including internal staffing, external support, and skills development needs
- High-level cost considerations, distinguishing capital and operating impacts where appropriate
- Decision gates, milestones, and review points to support ongoing governance, risk management, and alignment over time

A core focus of Task 12 will be delivering practical tools and processes that enable LCA to independently maintain and update the roadmap following adoption of the Master Plan. These tools will support prioritization and

re-sequencing of initiatives as conditions evolve, ensuring the roadmap remains actionable, relevant, and aligned with enterprise objectives.

Black & Veatch will work closely with the Core Project Team and Steering Committee to validate roadmap assumptions and confirm alignment with LCA’s strategic priorities, ongoing initiatives, and funding outlook. Particular attention will be given to aligning the roadmap with initiatives already underway or recently completed, including the MUNIS and Procure implementations, to maximize return on prior investments.

The roadmap will explicitly incorporate organizational change management considerations, ensuring sequencing reflects LCA’s readiness to adopt new capabilities and sustain change over time. This includes identifying early initiatives that deliver visible value and build momentum, as well as those requiring additional preparation before execution.

The outcome of Task 12 will be a roadmap that LCA can use to guide budgeting, staffing, procurement, and program governance decisions over time. It will serve as the blueprint for translating the Master Plan into sustained, successful execution.

Task 12 will conclude with a presentation and validation of the Implementation Roadmap during the Gate 4 Review, where the Steering Committee will review and confirm sequencing, priorities, and next steps prior



Black & Veatch staff are adept at listening to the needs of the County, communicating well and providing high-quality deliverables. They have worked across departments and disciplines to provide the County holistic system recommendations. As a result, the County had gained increased confidence in implementing projects without the fear of negative unintended consequences for evaluating systems in silos. I recommend Black & Veatch's services to other utilities."

Margaret R. Cook, PE
Senior Engineer, Pinellas County

to finalization of the Master Plan, development of the Roadshow Toolkit and presentation to the Board.

Task 12 Meetings

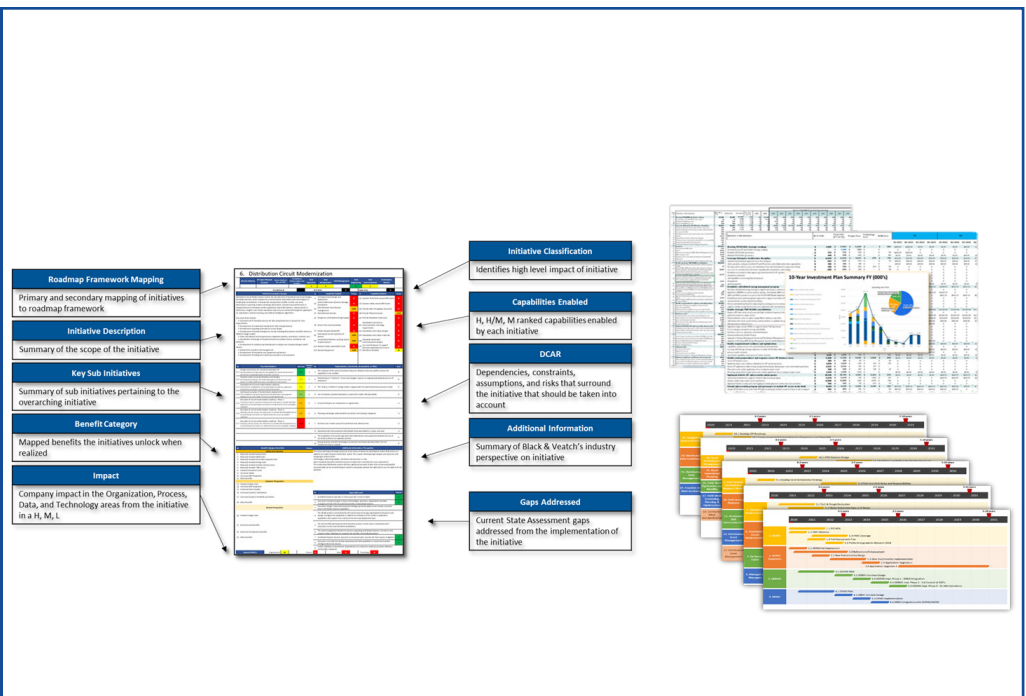
- Roadmap Validation Working Sessions
- Gate 4 Review – Final Master Plan Approval

Task 12 Deliverables

- Implementation Roadmap and Budget Framework
- Roadmap Roadshow Toolkit

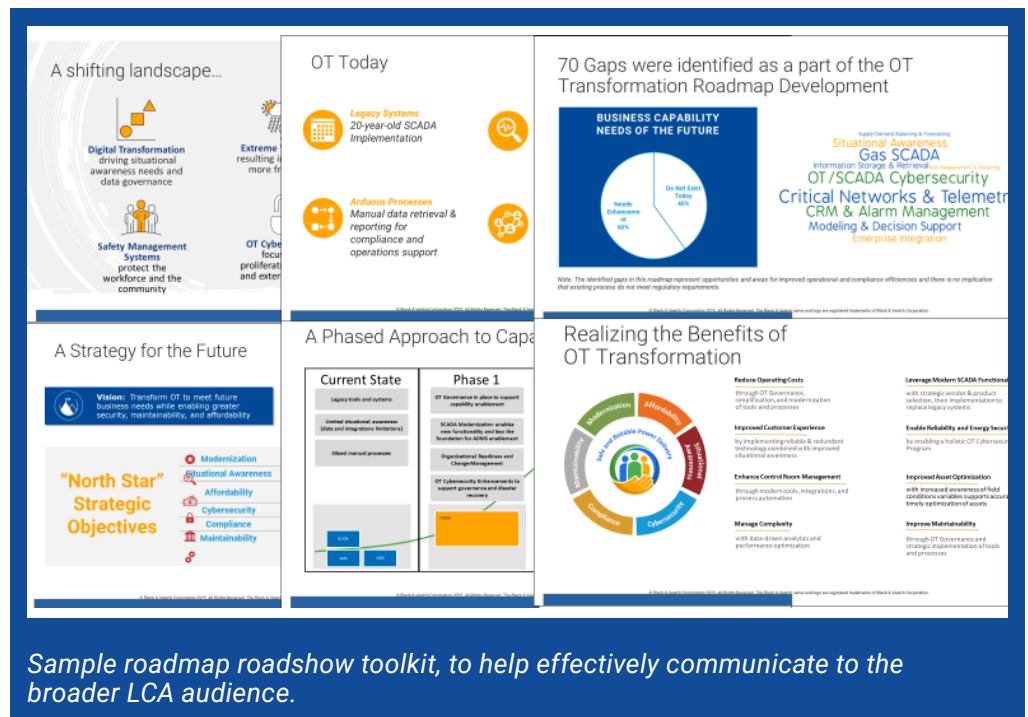
A Living Roadmap Designed to Evolve with LCA

Black & Veatch's Master Plan Framework will deliver an implementation roadmap that consistently defines technology initiatives, expected benefits, dependencies, and sequencing to support prioritization and manage change effectively. The roadmap deliverables will be designed for long-term ownership by LCA and provide practical tools that enable updates to priorities, sequencing, and assumptions over time as organizational needs, funding conditions, and technologies change.



Task 12 Decision Gate Alignment

Task 12 deliverables will be reviewed and approved during Gate 4, confirming the final implementation sequencing and informing completion and finalization of the Digital/IT Master Plan. The Master Plan Report and Board approval will mark the start of LCA’s digital transformation; however, long-term positive results will depend on clearly defining what success looks like, tracking performance against agreed benchmarks, and refining the plan over time as conditions, priorities, and technologies evolve.



Sample roadmap roadshow toolkit, to help effectively communicate to the broader LCA audience.

Task 13: Performance Measurement

Task 13 will define a Performance Measurement Framework that enables LCA to monitor progress, evaluate outcomes, and make informed adjustments as the Master Plan is implemented. A focused set of success indicators and key performance measures aligned with LCA’s strategic objectives will be identified to support leadership visibility into both execution progress and value realization. Performance measures will span multiple dimensions, including those listed in the graphic below. Each performance measure will be supported by clear definitions, data sources, ownership, and reporting cadence.

Task 13 will also define a practical continuous improvement approach describing how performance results, stakeholder feedback, emerging risks, and changing business conditions will be reviewed and

translated into updates to the implementation roadmap. This approach will outline an operating rhythm for periodic portfolio reviews, re-prioritization of initiatives, and annual strategic refreshes to ensure the Master Plan remains current.

Task 13 will conclude with review and confirmation of performance measures and the continuous improvement approach during Gate 4, alongside final validation of the Implementation Roadmap, prior to completion and approval of the Digital/IT Master Plan.

Task 13 Meetings

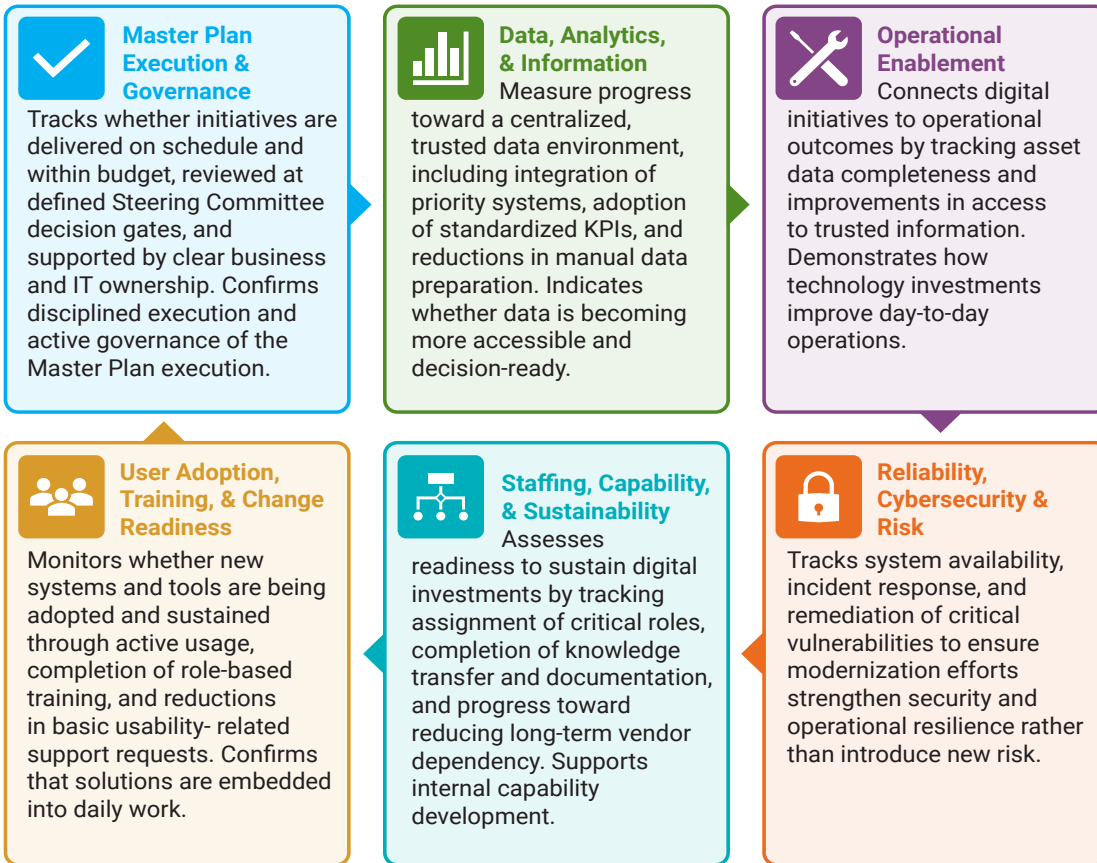
- Gate 4 Review – Final Master Plan Approval
- Working sessions supporting performance measurement

Task 13 Deliverables

Performance Measurement Framework

Master Plan Performance Measurement Framework

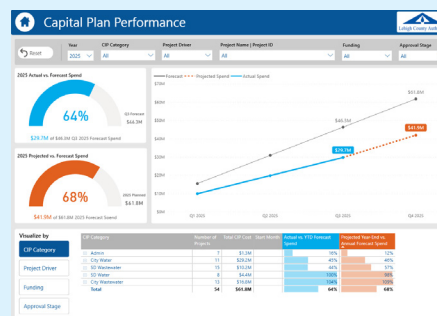
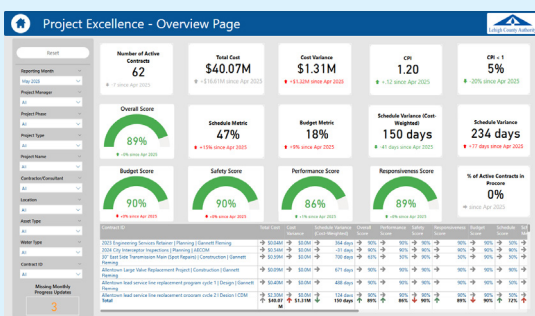
Providing Leadership Visibility into Progress, Outcomes, and Risk



Added Value and Differentiators

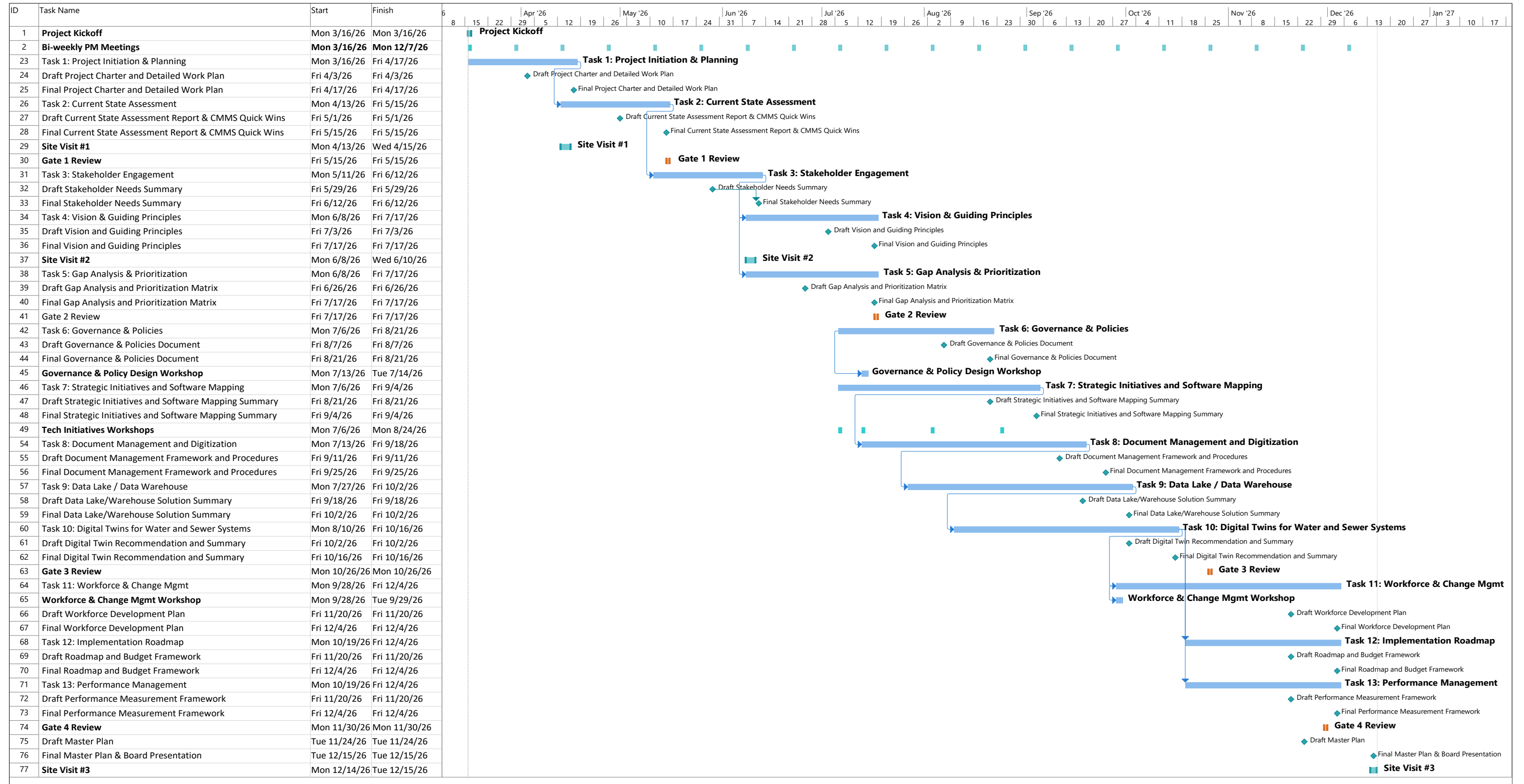
Black & Veatch Has Already Driven Adoption of Reporting and KPI Decision-Frameworks at LCA

Black & Veatch partnered with LCA to enhance the Project Excellence Framework, working closely with stakeholders to refine business processes and deliver reporting that supports both project-level visibility and executive oversight of plan versus actual CIP spending. Through this work, Black & Veatch developed concise, impactful digital reporting tools that help LCA leadership make more informed and timely decisions. This experience gives Black & Veatch a deep understanding of LCA's operational context, data environment, and decision-making needs. The methodologies used to improve Project Excellence will be integrated throughout this Master Plan to ensure that every recommendation is actionable, measurable, and designed to drive meaningful operational and strategic improvements.



5 | Schedule

The scope of services described above can be visualized below in our proposed project schedule and sequencing of tasks. This highlights all proposed tasks, workshops, gate reviews, and deliverables. Black & Veatch is proposing a 9 month schedule starting in mid-March, and culminating with a presentation to LCA's board on December 15th.



7 | Cost Proposal

The scope of services described above can be completed for the fees shown below, presented by task and Staff Category to provide transparency into level of effort, labor allocation, and associated expenses.

Black & Veatch proposes to deliver this project on a time and materials basis with a not-to-exceed budget that will be billed monthly, providing LCA clear visibility into project progress and costs.

The proposed budget reflects a reasonable and balanced investment aligned with the complexity of the Digital / IT Master Plan. It includes sufficient effort to support stakeholder engagement, detailed analysis, and high-quality deliverables, while also realizing efficiencies gained from Black & Veatch's prior experience with LCA. Familiarity with LCA's CMMS evaluation and data lake/warehouse initiatives will allow the team to accelerate discovery and value.

The cost also includes fixed expenses to support three in-person site visits, which are critical to collaboration, validation, and alignment.

Table 6. Overall Fee Summary Table

DESCRIPTION	LABOR	EXPENSES & SUBCONTRACTS	TOTAL PRICE
Task 1: Project Initiation & Planning	\$ 12,800	\$ -	\$12,800
Task 2: Current State Assessment	\$ 49,472	\$ 21,420	\$70,892
Task 3: Stakeholder Engagement	\$ 23,751	\$ -	\$23,751
Task 4: Vision & Guiding Principles	\$ 19,532	\$ -	\$19,532
Task 5: Gap Analysis & Prioritization	\$ 30,483	\$ -	\$30,483
Task 6: Governance & Policies	\$ 27,343	\$ -	\$27,343
Task 7: Strategic Initiatives and Software Mapping	\$ 40,821	\$ -	\$40,821
Task 8: Document Management and Digitization	\$ 5,440	\$ 25,000	\$30,440
Task 9: Data Lake/Data Warehouse	\$ 15,695	\$ -	\$15,695
Task 10: Digital Twin	\$ 21,518	\$ -	\$21,518
Task 11: Workforce & Change Management	\$ 29,924	\$ -	\$29,924
Task 12: Implementation Roadmap	\$ 30,694	\$ -	\$30,694
Task 13: Performance Measurement	\$ 14,151	\$ -	\$14,151
Task 14: Project Administration	\$ 27,040	\$ -	\$27,040
Totals	\$ 348,664	\$ 46,420	\$395,084

Table 7. Hourly and Fee Breakdown Per Task and Staff Role

DESCRIPTION	TEAM ROLE (HOURS COST)							
	CLIENT ACCOUNT MANAGER	PROJECT DIRECTOR	TECHNICAL ADVISOR	PROJECT MANAGER	ADMIN	PRINCIPAL	BUSINESS ANALYST	SENIOR BUSINESS ANALYST
Task 1: Project Initiation & Planning	4 \$1,100	16 \$4,148	4 \$1,100	16 \$4,320				
Task 2: Current State Assessment		8 \$2,074		60 \$16,200		48 \$12,960	84 \$12,180	
Task 3: Stakeholder Engagement				12 \$3,240		42 \$11,340	42 \$6,090	
Task 4: Vision & Guiding Principles		12 \$3,111	8 \$2,200	30 \$8,100			25 \$3,625	
Task 5: Gap Analysis & Prioritization		21 \$5,445	4 \$1,100	42 \$11,340		24 \$6,480	67 \$9,715	
Task 6: Governance & Policies		2 \$518	8 \$2,200	16 \$4,320		24 \$6,480	84 \$12,180	
Task 7: Strategic Initiatives and Software Mapping		2 \$518	8 \$2,200	12 \$3,240		94 \$25,380	60 \$8,700	
Task 8: Document Management and Digitization		2 \$518		18 \$4,860				
Task 9: Data Lake/Data Warehouse		2 \$518		34 \$9,180		24 \$6,480		40 \$7,400
Task 10: Digital Twin		2 \$518		8 \$2,160		40 \$10,800		60 \$11,100
Task 11: Workforce & Change Management		2 \$518		8 \$2,160		50 \$13,500		60 \$11,100
Task 12: Implementation Roadmap		8 \$2,074	8 \$2,200	42 \$11,340		32 \$8,640		64 \$11,840
Task 13: Performance Measurement		4 \$1,037		16 \$4,320		16 \$4,320	42 \$6,090	
Task 14: Project Administration	74 \$20,350	4 \$1,037			30 \$3,000			
Total Hours	78	85	40	314	30	394	404	224
Total Cost	\$21,450	\$22,034	\$11,000	\$84,780	\$3,000	\$106,380	\$58,580	\$41,440

Lehigh County Authority – Monthly Report to Board of Directors

Upcoming Board Agenda Items & Project Updates – March 2026

Published: March 2, 2026

PART 1 – Upcoming Agenda Items – Action & Discussion Items

FINANCE & ADMINISTRATION

Project Title: Digital / IT Master Plan

Division / Funding: All Divisions

Status or Action Desired: Approval

Board Action Date: 3/9/2026

Project Phase: Planning Phase

Project Notes: LCA seeks to develop a comprehensive Digital / Information Technology Master Plan to modernize its technology environment and align with strategic goals. This initiative will enable LCA to enhance operational efficiency, improve customer experience, strengthen infrastructure resilience, and ensure cybersecurity compliance.

Staff Responsibility: Stephen Boone

Project Title: Monthly Financial Review

Division / Funding: n/a

Status or Action Desired: Information

Board Action Date: 3/23/2026

Project Phase: n/a

Project Notes: The February 2026 monthly financial report will be presented. Staff Responsibility: Ed Klein

SYSTEM OPERATIONS

Project Title: Monthly Operations Report

Division / Funding: n/a

Status or Action Desired: Information

Board Action Date: 3/23/2026

Project Phase: n/a

Project Notes: The February 2026 monthly operations report will be presented. Staff Responsibility: Andrew Moore & Chris Moughan

WASTEWATER PROJECTS – SUBURBAN DIVISION

Project Title: Industrial Pretreatment Plant Master Plan

Division / Funding: Suburban Division

Board Action Date: 3/9/2026

Status or Action Desired: Approval

Project Phase: Planning Phase

Project Notes: This project involves the preparation of a Master Plan for the LCA Industrial Pretreatment Plant. An initial Master Plan was authorized by the Board on December 13, 2021, with the plan developed in 2022 and delivered in April 2023. The Plan included full-scale condition assessments, review of treatment process optimization, and development of short-term and long-term capital plans. Due to the high cost of facility rehab and expansion, additional value engineering work was completed in March 2024. An external stakeholder engagement process was then initiated to develop additional recommendations for LCA consideration. A review of the stakeholder process and final recommendation for inclusion in the Act 537 Plan was presented at the August 12, 2024 Board meeting. Since that time, significant additional stakeholder engagement has occurred to identify funding sources for a full upgrade to the facility. An update to the PTP evaluation was provided to the LCA Board in August 2025, with a review of the engineering evaluation was provided in September 2025. Beginning in December 2025, staff have presented monthly updates to the LCA Board on discussions with industrial and municipal partners regarding financing of the updated project, and Board approval to enter into negotiations for partner cost-sharing agreements will be requested at a future meeting date, depending on the status or municipal decision-making. Staff Responsibility: Liesel Gross

PART 2 – Project Updates – Information Items

Project Title: Sanitary Sewer Collection System: City of Allentown Manhole Inspections

Division / Funding: Allentown Division

Board Action Date: n/a

Status or Action Desired: Updated

Project Phase: Planning Phase

Project Notes: As part of the Act 537 planning process, a rainfall derived inflow and infiltration (RDII) analysis was performed in the first quarter of 2022 for the City of Allentown system. This analysis shows the overall system suffers from inflow problems. Some of the existing manholes in the City system have inflow dishes and some have been previously inspected. However, due to the critical nature of Act 537 planning, all the manholes need to be inspected. The inspections and subsequent rehabilitation work will be phased over the next 10 years. The Phase 1 inspection commenced in the second quarter of 2023 and the Phase 2 inspections will be completed in 2024. The Program will continue until all manholes in the City system have been inspected and rehabilitated as necessary. Board authorization for the Phase 1 inspection work was granted at the December 12, 2022 meeting. As Act 537 planning progressed in the first half of 2023, the City's Trout Creek Interceptor Basin was identified as being undersized for future peak flow events. In order to expedite the elimination of inflow in this area, an amendment to the December 2022 manhole inspection authorization was granted at the August 14, 2023 Board meeting. The Phase 3 inspection work (Eastside sewershed plus manholes in roadway slated for 2025-2027 repaving) was granted at the October 14, 2024 Board Meeting. This will bring the total authorized inspection amount to roughly 4,300 manholes (of which approximately 3,700 have been inspected). MH Rehab in 2026 (Year 2) consists of approximately 330 manholes and will be executed by internal D&C staff. An additional MH rehab package that will be traditionally bid is expected for authorization in the next quarter. Staff Responsibility: Phil DePoe

Project Title: Kline's Island Sewer System - Act 537 Plan

Division / Funding: City of Allentown (AO)

Board Action Date: n/a

Status or Action Desired: Updated

Project Phase: Planning Phase

Project Notes: Following a hydraulic overload at the Kline's Island Wastewater Treatment Plant in 2018 and 2019, a Chapter 94 violation was triggered, requiring corrective action to address the overload condition and resolve other operational challenges associated with excessive inflow and infiltration into the system. All 15 municipalities flowing into the Kline's Island Sewer System (KISS) approved an Interim Act 537 Plan ("Interim Plan") in September 2020. This Interim Plan outlined steps to be taken from 2021 to 2025 to prepare a long-term Regional Act 537 Plan. The Interim Plan also provided regulatory oversight and control of new connections to the system during the five-year planning period as part of the corrective action plan. Since 2021, the LCA Board has authorized numerous studies, engineering evaluations, and financial analyses to develop the Regional Act 537 Plan. Planning costs have been paid by the City of Allentown using the Administrative Order fund and reimbursed through ongoing billing to signatories and City customers. In April 2025, the Regional Act 537 Plan was finalized, and the formal public review process started, including planning commission review and a formal public comment period. The 15 KISS municipalities all have reviewed and adopted the final plan by Resolution. At the September 8, 2025 meeting, a Resolution was adopted by the Board for the Regional Act 537 Plan. The Act 537 Plan was submitted to PA DEP on October 7, 2025. A 60-day extension letter was received on February 4, 2026 and DEP comments are due on or before April 6, 2026. Staff Responsibility: Phil DePoe

Project Title: KISS System Modeling - Sewage Billing Meter QA/QC Data Analytics and Flow Metering Program

Division / Funding: City of Allentown (AO)

Board Action Date: n/a

Status or Action Desired: Updated

Project Phase: Planning Phase

Project Notes: As part of the Interim Act 537 Plan, the municipalities served by the Kline’s Island Sewer System committed to completing a flow metering and modeling project beginning in 2021. The flow metering data will be used to prepare modeling and identify the capital improvements needed to meet the future sewage capacity needs of the region through 2050. The flow metering will include a mix of temporary meters and the existing sewage billing meters. Data delivery and storage procedures, quality assurance, and flow analytics were implemented in 2020 for these sewage billing meters. Without this meter development program, the data cannot be used from these billing meters. A consulting engineer’s professional service proposal was granted at the April 27, 2020 Board meeting. Costs associated with the development of the QA/QC data analytics and the 2021 flow metering preparation was by the City of Allentown and reimbursed through existing intermunicipal agreements and by City customers through the use of the Administrative Order Fee. The main flow metering program concluded in late October 2021. In 2022 and beyond, a focus will shift onto the long-term goals of the existing sewer billing meters. Addressing the long-term goals of the existing meters is a requirement of the Interim Act 537, and this commitment has been re-affirmed within the Final Act 537 Plan. Proposed plans call for a total data delivery overhaul by 2027. This topic is being addressed by the newly developed KISS subcommittees. Staff Responsibility: Phil DePoe

PART 3 – Open Project List – No Updates

Project Category	Project Title	Division / Funding	Project Phase	Staff Responsibility
Finance & Administration	LCA Strategic Plan - Progress Reporting	All Divisions	n/a	Liesel Gross
Finance & Administration	LCA Building Optimization Study & Master Plan	All Divisions	Planning Phase	Stephen Boone
System Operations	Suburban Water & Wastewater Facilities - SCADA System Upgrade	Suburban Division	Construction Phase	Chris Moughan
System Operations	Watershed Monitoring Program	Suburban Division	Planning Phase	Andrew Moore
Water - Suburban	Applewood Pump Station and CLD Well Station Upgrades	Suburban Division	Design Phase	Amy Kunkel
Water - Suburban	Upper System Pump Station and Main Extension	Suburban Division	Design Phase	Amy Kunkel
Water - Suburban	Emergency Interconnection Agreement (Bortz Property)	Suburban Division	Planning Phase	Phil DePoe & Amy Kunkel
Water - Suburban	2025 Water Meter Replacements	Suburban Division	Construction Phase	Amy Kunkel
Water - Suburban	North Whitehall Division - Second Water System Interconnection	Suburban Division	Design Phase	Amy Kunkel
Water - Suburban	Suburban Division Lead Service Line Inventory Program & Compliance Planning	Suburban Division	Planning Phase	Albert Capuzzi
Water - Suburban	Central Lehigh and North Whitehall Systems – Water Supply Study	Suburban Division	Planning Phase	Phil DePoe
Water - Suburban	Water Main Replacement Program Cycle 8	Suburban Division	Design Phase	Jason Peters
Water - Suburban	Buss Acres Water System Interconnection & PFAS Remediation	Suburban Division	Design Phase	Amy Kunkel
Water - Allentown	Large Diameter Valve Rehabilitation & Replacement Program	Allentown Division	Project Closeout	Chuck Volk
Water - Allentown	Lead Service Line Replacement Project Cycle 1	Allentown Division	Construction Phase	Reni Keane-Dengel

Project Category	Project Title	Division / Funding	Project Phase	Staff Responsibility
Water - Allentown	Water Filtration Plant: PFAS Treatment	Allentown Division	Design Phase	Amy Rohrbach
Water - Allentown	Water Filtration Plant: Fluoride System Upgrades	Allentown Division	Construction Phase	Amy Rohrbach
Water - Allentown	Lead Service Line Replacement Project Cycle 2	Allentown Division	Construction Phase	Anton Siekmann
Water - Allentown	Water Filtration Plant: Redundant Raw Water Line	Allentown Division	Design Phase	Amy Rohrbach
Water - Allentown	30" & 36" East Side Transmission Main Repair Project	Allentown Division	Construction Phase	Jason Peters
Water - Allentown	Lehigh River Pump Station Upgrades	Allentown Division	Design Phase	Amy Rohrbach
Water - Allentown	Allentown Division Lead Service Line Inventory Program & Compliance Planning	Allentown Division	Planning Phase	Reni Keane-Dengel
Water - Allentown	Badger Meter Replacements	Allentown Division	Construction Phase	Amy Kunkel
Water - Allentown	Water Filtration Plant: Emergency Power Design	Allentown Division	Design Phase	Amy Rohrbach
Water - Allentown	Water Main Replacement Program Cycles 9 - 11	Allentown Division	Design Phase	Jason Peters
Water - Allentown	Water Filtration Plant: Filter Upgrade Project	Allentown Division	Construction Phase	Amy Rohrbach
Water - Allentown	Water Filtration Plan: HVAC Upgrades Phase 2	Allentown Division	Construction Phase	Anton Siekmann
Sewer - Act 537	Sanitary Sewer Collection System: City of Allentown Manhole Rehabilitation	Allentown Division	Design Phase	Jason Peters
Sewer - Act 537	Legal Services: Development of New Intermunicipal Agreement(s)	City of Allentown (AO)	Planning Phase	Liesel Gross
Sewer - Act 537	Upper Western Lehigh Pump Station & Force Main	Suburban Division	Construction Phase	Amy Kunkel
Sewer - Act 537	Western Lehigh Interceptor Parallel Survey	Suburban Division	Planning Phase	Phil DePoe

Project Category	Project Title	Division / Funding	Project Phase	Staff Responsibility
Sewer - Act 537	Western Lehigh Interceptor Municipalities Test & Seal Lateral Grouting Project, Year 2 (2025)	Suburban Division	Construction Phase	Jason Peters
Sewer - Act 537	Western Lehigh Service Area - Engineering & Program Support	Suburban Division	Planning Phase	Phil DePoe
Sewer - Act 537	Western Lehigh Interceptor Municipalities Test & Seal Lateral Grouting Project	Suburban Division	Project Closeout	Jason Peters
Sewer - Suburban	Heidelberg Heights Sewer System: I&I Source Reduction Program	Suburban Division	Construction Phase	Chuck Volk
Sewer - Suburban	Pretreatment Plant - Critical Upgrades	Suburban Division	Construction Phase	Chuck Volk
Sewer - Suburban	North Whitehall Township Act 537 Plan	Suburban Division	Planning Phase	Phil DePoe
Sewer - Suburban	Arcadia WWTP Screening System Project	Suburban Division	Construction Phase	Anton Siekmann
Sewer - Suburban	Wynnewood Terrace WWTP Expansion - Developer Cost-Sharing Agreement	Suburban Division	Design Phase	Chuck Volk
Sewer - Suburban	Pretreatment Plant (PTP) Electrical Study	Suburban Division	Planning Phase	Chuck Volk
Sewer - Suburban	Lynn Township Corrective Action Plan	Suburban Division	Planning Phase	Jason Peters
Sewer - Allentown	KIWWTP Holistic Solids Management Study	Allentown Division	Planning Phase	Stephen Boone
Sewer - Allentown	Sanitary Sewer Collection System: I&I Source Reduction Program (LCA Year 2)	Allentown Division	Construction Phase	Jason Peters
Sewer - Allentown	Kline's Island WWTP - Wet Weather Improvements - Phase 1	Allentown Division	Design Phase	Amy Rohrbach
Sewer - Allentown	Kline's Island WWTP - Plastic Media Trickling Filter Rehabilitation	Allentown Division	Construction Phase	Amy Rohrbach
Sewer - Allentown	KIWWTP Redundant PPL Power Feed	Allentown Division	Design Phase	Amy Rohrbach
Sewer - Allentown	Kline's Island WWTP: Substation No. 1 and Switchgear Replacement	Allentown Division	Construction Phase	Amy Rohrbach

Project Category	Project Title	Division / Funding	Project Phase	Staff Responsibility
Sewer - Allentown	Kline's Island WWTP - Building Renovations	Allentown Division	Design Phase	Anton Siekmann
Sewer - Allentown	Kline's Island WWTP: Chemically Enhanced Primary Treatment Study	Allentown Division	Planning Phase	Stephen Boone
Sewer - Allentown	Allentown Division I&I Program – Programmatic Support, Trout Creek & Eastside Basins	Allentown Division	Planning Phase	Stephen Boone
Sewer - Allentown	Kline's Island WWTP: 2025 Architectural and Structural Upgrades	Allentown Division	Construction Phase	Anton Siekmann
Sewer - Allentown	Kline's Island WWTP - Final Settling Tanks 1-4 Upgrades	Allentown Division	Construction Phase	Amy Rohrbach
Sewer - Allentown	Sanitary Sewer Collection System: I&I Source Reduction Program (LCA Year 1)	Allentown Division	Construction Phase	Jason Peters