



LEHIGH COUNTY AUTHORITY

January 26, 2015

BOARD MEETING AGENDA

1. Call to Order
2. Review of Agenda
 - *Public Participation Sign-In Request*
3. Executive Sessions
4. Approval of Minutes
 - *November 24, 2014 Workshop Meeting Minutes*
5. Public Comments
6. Action / Discussion Items

FINANCE AND ADMINISTRATION

- *Strategic Plan Approval*

WATER

- *Suburban Division – Water Main Replacement Program Cycles 1-3 – Design Phase Approval*

WASTEWATER

- *Allentown Division – WWTP: Digester Cover Replacements – Design Phase Approval*

7. System Operations Overview
8. Staff Comments
9. Solicitor's Comments
10. Other Comments
11. Adjournment

FEBRUARY MEETINGS

Workshop Meeting
Board Meeting

February 9 – 12:00 p.m.
February 23 – 12:00 p.m.

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. 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

November 24, 2014

The Regular Meeting of the Lehigh County Authority was called to order at 12:25 p.m., on Monday, November 24, 2014, Chairman Asa Hughes presiding. Other Members present at the commencement of the meeting were: Tom Muller, Richard Bohner, Emrich Stellar, Norma Cusick and Scott Bieber. Authority Staff present were Aurel Arndt, Liesel Adam, Bradford Landon, Ed Bielarski, Frank Leist, Dan Standish, Robert Kerchusky, Pat Mandes, John Parsons, and Lisa Miller.

REVIEW OF AGENDA

Mr. Arndt stated that the Wynnewood Terrace Pump Station and Force Main Replacement item under Wastewater is withdrawn for this meeting.

EXECUTIVE SESSION

Mr. Arndt stated there would be an Executive Session immediately following the regular agenda items to discuss a personnel matter.

APPROVAL OF MINUTES

September 30, 2014 Regular Meeting Minutes

On a motion by Richard Bohner, seconded by Norma Cusick, the Board unanimously approved the Minutes of the September 30, 2014 Regular Meeting (6-0).

October 13, 2014 Workshop Meeting Minutes

On a motion by Richard Bohner, seconded by Norma Cusick, the Board unanimously approved the Minutes of the October 13, 2014 Workshop Meeting (6-0).

PUBLIC COMMENTS

None.

ACTION AND DISCUSSION ITEMS

2015 WLI Report on Wastewater User Charges

Pat Mandes and Ed Bielarski presented the Proposed 2015 Wastewater User Charges. The LCA WLI Wastewater Rate Annual Comparison Table was reviewed. The effect on rates for an average residential user is a 14.0% decrease. The decrease in WLI rates is primarily due to a reduction in the charges from the City of Allentown Division despite increased in projected efforts to deal with Inflow/Infiltration, debt on the flow equalization basin (FEB) and a WLI Condition Assessment Project. Reserves in the amount of \$500,000 have been included in the rates to offset future increased debt service costs or fund capital projects. In addition, the WLI Test and Seal project in the amount of \$1.3 million dollars is included in the operating budget. Pat Mandes is asking the Board for Preliminary Approval with Final Approval as part of the adoption of the 2015 Budget in December.

On a motion made by Scott Bieber, seconded by Tom Muller, the Board unanimously approved the Preliminary rates, however, the Authority is asking the Staff to explore whether the Capital Expenditure should be included in the final rates (6-0).

2015-2014 Capital Plan Approval

Frank Leist requested Approval of the 2015-2024 Suburban and City of Allentown Capital Plans. He stated that the Authority received review letters from the Lehigh Valley Planning Commission and the City of Allentown. There were no adverse comments received from the LVPC however, there were numerous comments from the City of Allentown. Frank Leist and Ed Bielarski met with the City to discuss the comments and concerns. The City wanted to be assured that their approval of the Capital Plan was not an approval of Major Capital Improvements. Frank Leist said that he will draft a response letter to the City, but Ed and he feel that the meeting has resolved the matter.

No changes in the Suburban Plan are proposed, but there are a few changes on the City Plan, including:

Project AD-S-15 Sanitary Sewer Manhole Collars & Water Tight Covers - the City will be funding more manholes;
Project AD-S-19 Riparian Manhole Inspections – deleted from the plan;
Project AD-S-4 Sanitary Sewer Main Replacements and/or Rehabilitation – disputed by the City;
Project AD-W-16 Pre-Lease Valve Replacements – done in 1 year as opposed to 3 years.

On a motion made by Tom Muller, seconded by Norma Cusick, the Board unanimously approved the 2015-2024 Suburban Division and City of Allentown Capital Plans (6-0).

Allentown Division – WWTP – Replacement of Motor Control Centers

John Parsons gave an overview of the project. He is asking for approval of the Construction Phase of the project. The General Construction Contract was re-bid because no bids were received from the first bid advertisement. He is looking for approval of the Capital Project Authorization for the Construction Phase for \$2,254,137 which includes the Electrical Contract to Diefenderfer for \$1,833,000, the General Contract to Blooming Glen for \$142,700, and the Professional Services Authorization to CDM Smith Inc. for \$37,410. Some discussion followed.

On a motion made by Tom Muller, seconded by Emrich Stellar, the Board unanimously approved the Professional Services Authorization Amendment No. 2 in the amount of \$37,410.00 (6-0).

On a motion made by Scott Bieber, seconded by Richard Bohner, the Board unanimously approved the Capital Project Authorization, including the Electrical Contract and the General Contract, in the amount of \$2,254,137.00 (6-0).

2015 SCARP Program Management

Pat Mandes requested the Board for Approval of a Capital Project Authorization and Professional Services Authorization Amendment 20 in the amount of \$50,000 for Arcadis to provide I & I Program Management through 2015.

On a motion made by Scott Bieber, seconded by Emrich Stellar, the Board unanimously approved the Capital Project Authorization Amendment 20 and the Professional Services Authorization Amendment 20 in the amount of \$50,000.00 (6-0).

SYSTEM OPERATIONS OVERVIEW

Bob Kerchusky provided an overview of current Wastewater activity. The Belt Press refurbishing project is underway and working well.

Dan Standish provided an overview of current Water activity. There were a couple of Main breaks in the City which is common this time of year.

Pat Mandes updated the Board on the issue of Molybdenum contamination of biosolids at the Pretreatment Plant and Kline's Island Wastewater Treatment Plant. She reported that the Authority has resumed land application of biosolids from the plants, as the Molybdenum has decreased to acceptable levels. While the Molybdenum levels were above the permit thresholds, the Authority had been land-filling the material, with an estimated increased cost of \$400,000. LCA has consulted with an attorney and received a preliminary report regarding liability and methods to recapture this cost from the responsible party(ies). Some discussion followed.

Aurel Arndt read an email received from Board member Norma Cusick asking for further discussion on municipalities' reporting requirements and information sharing regarding the USEPA Administrative Order. She referenced the need for the public to be informed and having municipalities report their progress would be helpful in improving public communications. Bob Kerchusky stated that the municipalities report their wastewater flows to LCA but have no contractual obligation to provide the progress reports to LCA or on the

Authority's website. Pat Mandes explained that LCA sends the reports on behalf of WLI signatory municipalities to regulatory agencies, and these reports are available on the Authority's website. Some discussion followed.

STAFF COMMENTS

None.

SOLICITOR'S COMMENTS

None.

OTHER COMMENTS

None.

EXECUTIVE SESSION

The Chairman called for an executive session at 2:00 p.m. to discuss a personnel matter at which time the staff, except for Mr. Arndt, left the meeting.

The session ended at 2:20 p.m.

ADJOURNMENT

There being no further business, the Chairman adjourned the meeting at 2:20 p.m.

Richard H. Bohner
Secretary

FINANCE & ADMINISTRATION

ACTION ITEMS

1. **Strategic Plan - Approval**

Attached is the Proposed 2015 Strategic Plan Update which is recommended for Approval. We will make a brief presentation to explain the proposed Plan and entertain comments and questions prior to considering adoption (*goldenrod*)

DISCUSSION ITEMS

1. **None.**

INFORMATION ITEMS

1. **CMMS Upgrade and Expansion Project**

Pilot Configuration of the CityWorks application is complete. Pilot phase training for plant personnel was completed the week of November 17th. and December 8th. Android and iOS tablets are being evaluated by plant and field personnel. 'Go Live' is scheduled for March 2015.

2. **WEB Map Upgrade Project**

CDM has delivered the updated web map for LCA testing and evaluation. Refinements suggested during the testing phase are being completed. The map will be rolled out to all employees once modifications are complete. **No current activity.**

3. **Recently Purchased Investments – Certificates of Deposit (CDs)**

Fund	Bank	Location	Gross Amount	Date of Purchase	Date Due	Net Rate %
Cons Wtr (2)	People's United Bank	Bridgeport CT	245,000.00	12/10/14	12/12/16	1.00
Cons Wtr (2)	Mercantil CommerceBank Nat'l Assn	Coral Gables, FL	245,000.00	12/17/14	12/19/16	1.00
LLRI CR	Medallion Bank	Salt Lake City, UT	100,000.00	12/17/14	12/16/16	0.95
WW Capac	Medallion Bank	Salt Lake City, UT	100,000.00	12/17/14	12/16/16	0.95
Cons Wtr (2)	Ally Bank	Midvale, Ut	48,000.00	12/11/14	12/12/16	1.10
LLRI CR	PSDLAF Collateralized CD		400,000.00	12/16/14	2/10/15	0.10
Cons Wtr (2)	PSDLAF Collateralized CD		155,000.00	12/16/14	2/10/15	0.10
Cons LL2 (314)	PSDLAF Collateralized CD		245,000.00	12/16/14	2/10/15	0.10
WW Capac	PSDLAF Collateralized CD		600,000.00	12/16/14	2/10/15	0.10
2010 Wtr Cons A	PSDLAF Flex Pool		2,500,000.00	12/16/14	2/10/15	0.10
Wtr R&R	PSDLAF Collateralized CD		1,000,000.00	12/16/14	2/10/15	0.10

Fund Descriptions for Investments:

Cons Wtr (2)	Consolidated Water (2)
LLRI CR	Little Lehigh Relief Interceptor Capital Reserves
Cons LL2 (314)	Consolidated Little Lehigh Relief Interceptor 2
WW Capac	Wastewater Capacity
2010 Wtr Cons A	2010 Water Construction, Series A Bond
Wtr R&R	Renewal and Replacement

WATER

ACTION ITEMS

1. **Suburban Division - Water Main Replacement Program Cycles 1-3 - Design Phase - Approval**

The project consists of the replacement of 1-mile of aged and/or failing Cast Iron water main for each cycle of the project; totaling a proposed 3-miles of water main to be replaced by project end.

Design Phase approval is requested. Reference the attached documentation for additional information (*blue*)

DISCUSSION ITEMS

1. ***None.***

INFORMATION ITEMS

1. **Arcadia West Pumping Station Modifications**

The new high service (fire) pump is being tested on January 15. If the testing goes well, we anticipate declaring substantial completion for the general and electrical contracts this same week. Minor punch list items would still need to be addressed, including fencing and paving when temperatures warm up. Our SCADA contractor is scheduled to test system I/O on January 27th. We anticipate scheduling a DEP inspection of the station in February.

2. **Pine Lakes of Lynn Township Pump Station Upgrade**

Currently this pump station is a hydro-pneumatic system that has proven to be problematic over time. This project will convert the hydro-pneumatic operated equipment to a variable frequency drive controlled double pumping system (along with other miscellaneous improvements). Design proposals were received on October 31, 2014 and are being evaluated by the Staff.

3. **Allentown Division- Schantz Spring Chlorination Issue**

The project is to design and construct a facility or improvements that assure continuous chlorination of the Schantz Spring water supply. Currently alternative options are being evaluated. This Project is identified as Un-Completed Work and will be funded by the City.

4. **Allentown Division – Water Main Replacement Program- Cycle 2**

The project is the replacement of 2-miles of aged and/or failing Cast Iron water main. Conceptual Major Project Approval has been received from the City and design is underway. We anticipate the project to be ready for bid in April 2015, with construction starting in late May 2015. This Project is identified as Schedule-7 Work and will be funded by LCA.

5. **Developments**

Water system construction is occurring in the following developments:

Lehigh Hills, Lot 4, 1 commercial building, UMT
Valley West Estates, Phases 4, 5 & 6, 46 residential lots (sfd), UMT (currently on hold)
West Park, Lot 8, 1 industrial building, UMT

Water system plans are being reviewed for the following developments:

Above & Beyond (personal care facility), 2 commercial lots, UMT
Diocesan Pastoral Center, 2 commercial lots, 3 additional lots and residual lot for existing cemetery, LMT
Grant Street Townes, 18 residential lots (sfa), WashT
Hickory Park Estates, 3 residential lots (sfd), UMT
Hillview Farms, 31 residential lots (sfd), LMT/SWT
Indian Creek Industrial Park, 6 commercial lots, UMilT, water and sewer
Lehigh Hills, 247 residential lots (sfa/sfd), UMT
Liberty at Mill Creek, 2 industrial lots, UMT
Morgan Hills, 40 residential lots (sfd), WeisT, water and sewer
North Whitehall Commercial Center (Walmart), 5 commercial lots, NWT, water and sewer
Shepherd's Corner, 1 commercial lot, LMT
Spring Creek Properties Settlement Subdivision (formerly Spring Creek Properties Subdivision I), 16 commercial and industrial lots, LMT
Trexler Business Center, Lot 1, 1 commercial building, LMT
Weilers Road Twins, 82 residential lots (sfa), UMT
Woodmere Estates, 60 residential units (sfd), UMT

WASTEWATER

ACTION ITEMS

1. **Allentown Division – WWTP: Digester Cover Replacements – Design Phase - Approval**

This project involves the cover replacement of both the Primary Digester No. 1 and the Secondary Digester (the cover for Primary Digester No. 2 was previously replaced in 2010). This Project is identified as Schedule 7 project and will be funded by LCA. Design Phase approval is requested. Reference the attached documentation for additional information (*grey*)

DISCUSSION ITEMS

1. ***None.***

INFORMATION ITEMS

1. **Wastewater Treatment Capacity**

A Pubic Outreach event is being scheduled for early 2015.

2. **Arcadia West WWTP Improvements**

Staffing is working toward closeout of the project. Projected total expenses should be less than the \$3,501,100.00 in the approved budget.

3. **Park Pump Station Fuel Tank Replacement**

The installation of a new 8,000 gallon fuel tank began November 10, 2014. Completion is expected by the end of May 2015.

4. **Allentown Division - PPL Combined Heat & Power (CH&P) Facility**

The Combined Heat and Power (CH&P) facility located at the Kline's Island WWTP which was constructed through Addendum No.3 of Energy Services Master Agreement between the City and PPL Energy Plus fired digester gas on all thirty-one days during the month of October. The CH&P produced a total of 474,393kWh of electricity which reduced the plant's use of commercial power from the grid by 48.7%. To produce the same amount of electricity at a traditional power plant the firing of approximately 379,514 pounds of coal would have been required.

5. **Lynn Township – WWTP Improvements, Phases 1 & 2**

The project will upgrade the WWTP head works. A revised Water Quality Management Part II Permit package was submitted on December 18th. We expect that the improvements will be under way this summer.

6. **Allentown Division – Sanitary Sewer Manhole Lining, Cycle -2**

This annual project will install a lining system (to eliminate infiltration) in approximately 115 aged brick manholes identified by LCA staff. The project is identified as Administrative Order Work to be funded by the City and the design phase will be administratively approved.

7. **Allentown Division – Sanitary Sewer Evaluation Study (SSES)**

This project involved field investigatory work to identify sources of inflow and infiltration (I/I) in the City's sanitary sewer system. The work included closed circuit television (CCTV) inspection of approximately 102,000 linear feet of sanitary sewer mains (ranging in size from 8 to 36 inches in diameter), the inspection of approximately 550 manholes, sewer piping point repairs, smoke testing, and heavy cleaning. All field work is expected to be completed by the end of January. A draft memorandum reporting on the project's findings was submitted to the City and LCA in December. A final version of this memorandum is expected in early February. This project is identified as Administrative Order / Un-Completed Work and will be funded by the City.

8. **Allentown Division – WWTP Belt Filter Presses (BFP)**

This project includes the installation of one remanufactured belt press and the in-place rehabilitation of the other two presses along with two new control cabinets. (This Project is identified as a Schedule 7 project and will be funded by LCA).

On 11/19/14 #3 BFP was returned to service as scheduled. #2 BFP is 100% complete and the unit was returned to service on 12/17/14. #1 BFP is currently being replaced.

9. **Allentown Division – Manhole Collars with Water Tight Frame and Covers – Cycle -2**

This 3-year project will permanently secure the frame and cover of 105 aged brick manholes identified by current LCA staff. This work will eliminate inflow from entering these manholes and eliminate the potential for sanitary sewer overflows (SSO's) from these manholes. The project is identified as Administrative Order to be funded by the City and the design phase will be administratively approved.

10. **Allentown Division - WWTP-Replacement of Motor Control Centers**

This Project will replace five aged motor control centers that provide power on a 24/7 basis to various parts of the WWTP. The Construction Phase of the project has been approved by the Board. Currently the construction contracts are being finalized prior to work proceeding. This Project is identified as Schedule 7 project and will be funded by LCA.

11. **Allentown Division – Roof Rehabilitation and Replacements**

The Project consists of replacing 26 facility roofs that were identified in need of immediate replacement in the Roof Evaluation report performed by D'Huy Engineering. The design of these replacements are currently underway. The entire project will be presented to the City for review as a Major Capital Project, and it will be funded by LCA.

12. **SCADA System Installation – Kline's Island Wastewater Treatment Plant**

Installation of a new SCADA system at the Kline's Island Wastewater Treatment Plant was approved at the January Board workshop. Staff is in the process of completing Agreements with the Contractor. The project will begin once all documents are executed in February. This project is identified Un-Completed Work and will be funded by the City.

January 26, 2015

LEHIGH COUNTY AUTHORITY

STRATEGIC PLAN

Proposed 2015 Update



**December 1988
Revised December 1995,
February 2007, March 2012, January 2015**

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2015 STRATEGIC PLAN UPDATE

FOREWORD

WHAT IS IT?

Lehigh County Authority (LCA) first developed and adopted a Strategic Plan (Plan) in 1988 to provide a road map for its “journey” of delivering water and wastewater (W&WW) service in Lehigh County. Much has changed since then, and this update was undertaken to be sure that our Plan addresses the most significant current and future W&WW needs in the Authority’s service areas and charts a clear and effective way of meeting them.

Implementation of the Plan began in 1988, and some elements of that Plan remain in place in this 2015 update. But other elements have been added, changed or deleted to reflect the changes that have taken place since then. Although we expect to revisit the Plan at least every five years, this update is expected to provide meaningful guidance for many years to come, as did its predecessor. We recognize that both internal and external changes will have an impact on our ability to fully implement this Plan, and future updates will be necessary to address those changes.

The purpose of this Plan is twofold. First, it provides criteria to guide LCA’s efforts in the coming years and help us to evaluate and select specific actions that will bring us closer to achieving our vision. Second, it sets a level of expectation—what we expect of ourselves and what others should expect of us.

PLAN STRUCTURE

The 2015 Update includes the following elements:

Vision – a statement of our dream that is both inspirational and aspirational;

Mission – a statement defining what we plan to achieve to meet the needs and expectations of our key stakeholders and a generalized description of how we plan to achieve that;

Values – a statement setting non-negotiable standards by which we will accomplish our work and provide clear guidance to employees about the expectations we have set.

Critical Goal Categories – key organizational goals that provide the framework for achieving our mission and offer guidance to all managers, department and employees in developing their goals.

The Plan does not include goals typically developed annually by members of the LCA management team. However, every member of that team will develop goals annually that bring us closer to achieving our vision and fulfilling our mission.

In the Vision Statement, the term “water” is meant to include every aspect of water use and management, not just drinking water and wastewater services. Where a statement is limited to only drinking water and wastewater disposal services that is specifically stated.

ACKNOWLEDGMENT

We want to thank all employees for their contributions to this Plan. Their input played an integral role in the development of a thoughtful and meaningful Plan.

LCA Vision

To be an industry-leading provider of world-class water services, today and tomorrow.

LCA Mission

We will deliver exceptional value to our customers through our high-quality, affordable and reliable water and wastewater services. We will meet the needs and expectations of existing and future customers by:

- *Operating in a fiscally responsible manner.*
- *Providing a rewarding, respectful, empowering and safe work environment for our employees with opportunities for professional fulfillment.*
- *Practicing and advancing environmental stewardship that protects and preserves water resources for current and future generations.*
- *Serving as a strategic and respected partner, investing in solutions for our community's evolving service needs.*

LCA Values

Our actions are rooted in the following core values:

We act with integrity.

We are accountable.

We are respectful of others.

We are dependable.

We foster teamwork.

We improve continually.

LCA's Critical Goal Categories (CGCs)

CGC # 1 – Organizational Synergy

Develop a dynamic and unified organizational culture in which employees at all levels seek ways to utilize our complementary strengths to improve performance and teamwork while achieving LCA's mission.

How we focus on this Critical Goal Category:

- Develop a unified organizational culture
- Create clear expectations for employees and managers
- Create opportunities for employees to work together on organizational goals
- Create an empowered workforce
- Develop a consistent management approach & support managers with resources and training
- Develop a consistent approach to managing and retaining critical data, documents and employee knowledge

How we measure success:

- Employee survey results
- Reduced employee turnover

CGC # 2 – Capital Asset Management

Achieve system sustainability through properly managing, maintaining and optimizing the use of existing assets, proactively planning to meet the needs of future generations of customers, and evaluating new technology to enhance performance and quality.

How we focus on this Critical Goal Category:

- Develop plans to meet projected 10-year growth needs (facilities, supplies, infrastructure, IT, etc.)
- Enhance automation and use technology to increase integration / data management / accessibility / data integrity
- Create customer growth
 - Attract water intensive/high-strength users
 - Acquisitions/consolidation – realize economies of scale/scope
- Optimize utilization of existing infrastructure/investments

How we measure success:

- Customer growth (e.g. X% growth per year, 5-year average)
- Capital investment per customer
- Planned vs. unplanned maintenance

CGC # 3 – Operations & Financial Management

Provide high-quality, affordable, reliable services to our community through expert system operations and professional financial management.

How we focus on this Critical Goal Category:

- Optimize water resources & supply
- Enhance automation and maximize use of existing technology
- Comply with concession operating requirements
- Standardize and integrate operations
- Actively develop enhanced risk management / security / emergency response plans
- Evaluate alternatives for operation of the Authority's Wastewater Pretreatment Plant
- Improve cost effectiveness & productivity

How we measure success:

- Increased efficiency (e.g. increase by X% per year, 5-year average)
- Rate affordability (e.g. rates are < X% of median household income)
- Cost per 1000 gallons
- Maintain 99.95% service reliability
- Employee safety

CGC # 4 – Workforce Sustainability

Create a supportive and empowering work environment where employees actively seek to contribute toward LCA's mission, with resources and programs established to ensure organizational sustainability through a stable and engaged workforce.

How we focus on this Critical Goal Category:

- Develop staffing plans, including succession plans as applicable, to meet current and future organizational needs
- Recruit, retain and develop a highly qualified, engaged workforce
- Develop, implement and enforce an employee safety program
- Develop flexibility and opportunity for operational employees to work interchangeably across divisions

How we measure success:

- Non-retirement turnover rate
- Vacancy rate
- Employee satisfaction
- Employee safety
- Bench strength

CGC # 5 – Environmental & Regulatory Compliance

Serve as a steward of our water resources and protect the public's health through compliance with regulatory requirements and establishing programs to promote resource conservation and protection.

How we focus on this Critical Goal Category:

- Comply with all applicable laws
- Monitor and respond to upcoming legislative and regulatory changes, and industry trends, that impact LCA operations
- Compliance with the EPA Administrative Order
- Promote water conservation / watershed protection / water resource management through stakeholder outreach
- Protect our water supply from potential sources of contamination
- Develop electronic permit management system
- Monitor source water quality and respond to changes to maintain or improve public health protection and/or reduce future treatment costs

How we measure success:

- Number of violations / NOVs
- Incident rate / severity of SSOs

CGC # 6 – Community & Customer Relations

Actively engage the community and our customers in our plans and programs to ensure LCA is positioned to meet the needs of existing and future customers.

How we focus on this Critical Goal Category:

- Seek & respond to customer/public input as a tool for planning and continuous improvement
- Provide a satisfying customer and public input experience
- Foster a work environment where employees consider customer service and public mission as part of our everyday operation
- Track formal support and opposition LCA receives for our plans, permit applications and other high-profile projects

How we measure success:

- Customer satisfaction
- Reduction in “controllable” customer contacts

MEMORANDUM

Date: January 19, 2015

To: Aurel M. Arndt, C.E.O.
From: Phil DePoe, Frank Leist
Subject: Allentown Division
WWTP: Digester Cover Replacements – Design Phase

MOTIONS / APPROVALS REQUESTED:

No.	Item	Amount
1	Capital Project Authorization – Design Phase	\$162,694
2	Professional Services Authorization – GHD Inc. (1), (2)	\$82,694

- (1) *Included in the Capital Project Authorization.*
(2) *Does not includes Construction phase related engineering services.*

PROJECT OVERVIEW:

Failing process equipment is affecting the ability to effectively utilize the biogas produced by anaerobic digesters located at the City of Allentown's Kline's Island Wastewater Treatment Plant. The proposed scope of this project is the phased replacement of two anaerobic digester covers (Primary Digester No. 1 and Secondary Digester). The digester covers are of carbon steel construction and after 40 years of use have reached the end of their expected service life. Other miscellaneous improvements are proposed with the project. This project is identified as a Schedule 7 Project in the Lease Agreement.

Note: The cover on Primary Digester No. 2 actually failed and was replaced in 2009-2010 by the City.

FINANCIAL:

The project will be presented to the city for approval as a Major Capital Project and it will be funded by LCA.

PROJECT STATUS:

Pending Board approval of the Design Phase.

THIS APPROVAL - DESIGN PHASE

Lehigh County Authority (LCA) intends to retain the services of an engineering consulting firm to provide design related services. Approval for construction related engineering services, covered separately in the proposal, will be requested with the Construction Phase. The following table summarizes the professional services to be performed:

Professional Services ⁽¹⁾
1. Perform evaluation on digester cover systems, gas mixing system, and related piping systems
2. Prepare report on evaluations and provide digester cover system, gas mixing system, and piping system recommendations
3. Prepare construction bid documents

4. Provide bidding services (if authorized by LCA)
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1. For Design Phase Only.

CONSULTANT SELECTION PROCESS:

On October 10, 2014, a detailed Request for Proposals (RFP) was issued to the following seven engineering firms: T&M Associates, GHD, OMNI Environmental, Buchart Horn, Gannett Fleming, JMT, and Arcadis. They were also later invited to the WWTP to share their experience in digester cover projects and ask questions related to this specific project. Proposals from six of the engineering firms were received on November 14, 2014 - the results of which follow:

Consultant	Cost ⁽¹⁾
GHD	\$115,788
JMT	\$139,860
Buchart Horn	\$148,220
T&M Associates	\$198,730
Gannett Fleming	\$256,570
Arcadis	\$272,910
OMNI Environmental	No Proposal

(1) Total Proposal Cost

Based upon our review of all aspects of both the Technical and Cost Proposals submitted by the six firms, we recommend award of the Design Phase services to GHD. Their proposal is on scope and represents what we believe is the best overall value for the Authority. GHD will perform the services outlined in their proposal dated November 14, 2014 (last revised December 2014 via numerous correspondences).

GHD - COMPANY INFORMATION & REFERENCE CHECK:

GHD is a global leader in wastewater collection, conveyance and treatment, with their Pennsylvania offices serving the wastewater engineering needs of authorities, municipalities, and other clients for 35 years.

GHD has previously worked for LCA on the following projects (all located at the LCA Wastewater Pretreatment Plant):

- Energy Audit & Biogas Recovery Evaluations
- Digester Mixer Replacements
- Truck Waste Receiving Station

PROJECT SCHEDULE: The project is anticipated to be bid ready by the beginning of August 2015 with an anticipated project completion date of August 2017.

FUTURE AUTHORIZATIONS- CONSTRUCTION PHASE

After the construction contract(s) bids are received, a Capital Project Authorization (CPA) Amendment will be presented to the Board for approval of the Construction Phase; and will include construction contract award(s), professional services amendment for construction related services, staff costs and other related components.

CAPITAL PROJECT AUTHORIZATION

PROJECT NO.:	<u>AD-S-15-1</u>	BUDGET FUND:	<u>Allentown Div\Wastewater\Capital</u>
PROJECT TITLE:	<u>Allentown Division WWTP: Digester Cover Replacements –Design Phase</u>	PROJECT TYPE:	<input checked="" type="checkbox"/> Construction <input type="checkbox"/> Engineering Study <input type="checkbox"/> Equipment Purchase <input type="checkbox"/> Amendment
THIS AUTHORIZATION:	<u>\$162,694</u>		

DESCRIPTION AND BENEFITS:

Failing process equipment is affecting the ability to effectively utilize the biogas produced by anaerobic digesters located at the City of Allentown's Kline's Island Wastewater Treatment Plant. The proposed scope of this project is the phased replacement of two anaerobic digester covers (Primary Digester No. 1 and Secondary Digester). The digester covers are of carbon steel construction and after 40 years of use have reached the end of their expected service life. This project is identified as a Schedule 7 project in the Lease Agreement and will be funded by LCA.

GHD Inc. will be used for the engineering consulting services. The project is anticipated to be bid ready by the beginning of August 2015. Notice to Proceed for the two cover placements shall be given at the end of September 2015. The first cover replacement shall be in service by the middle of 2016 and the remaining cover replacement shall be in service by the middle of 2017.

Please reference the cover Memo for additional information.

Authorization Status:

REQUESTED THIS AUTHORIZATION	
Planning & Design Phase	
Staff	\$ 60,000
Engineering Consultant	82,694
Miscellaneous	10,000
Contingencies	10,000
Total This Authorization	\$ 162,694

Future Authorization	
Construction Phase	\$2,142,306

Total Estimated Project	\$2,305,000
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REVIEW AND APPROVALS:

_____ Project Manager	_____ Date	_____ Chief Executive Officer	_____ Date
_____ Chief Capital Works Officer	_____ Date	_____ Chairman	_____ Date



Lehigh County Authority

1053 Spruce Street * P.O. Box 3348 * Allentown, PA 18106-0348
(610)398-2503 * FAX (610)398-8413 * Email: service@lehighcountyauthority.org

PROFESSIONAL SERVICES AUTHORIZATION

Professional: GHD INC.
3655 East Swamp Road
Doylestown, PA 18902

Date: January 19, 2015

Requested By: Phil DePoe

Approvals

Department Head: _____

Chief Executive

Officer: _____

Allentown Division – WWTP: Digester Cover System Replacements – Design Phase

GHD Inc. will perform the design and bid related (if authorized by LCA) services for the evaluation and recommendation of the Primary No. 1 and Secondary Digester cover system replacements at the City of Allentown's Wastewater Treatment Plant (WWTP).

Professional Services ⁽¹⁾
1. Perform evaluation on digester cover systems, gas mixing system, and related piping systems
2. Prepare report on evaluations and provide digester cover system, gas mixing system, and piping system recommendations
3. Prepare construction bid documents
4. Provide bidding services (if authorized by LCA)

(1) For Design Phase Only.

Please reference the cover Memo for additional information.

Design Phase:

Cost Estimate (not to be exceeded without further authorization): \$82,694

Time Table and Completion Deadline: As required to meet various critical deadlines as set forth in the proposal.

(For Authority Use Only)

Authorization Completion:

Approval: _____ **Actual Cost:** _____ **Date:** _____

**PROFESSIONAL SERVICES AUTHORIZATION
INDEMNIFICATION
Allentown Division
WWTP: Digester Cover System Replacements**

(To be signed by Professional and returned to the Authority)

I am or represent the Professional indicated above, and as such I am authorized to:

☐ Accept the terms of the professional services authorization dated January 19, 2015 attached; and

☐ Agree to indemnify and hold harmless LCA, the City of Allentown, their employees, agents, officials, representatives, attorneys, and assigns from any and all liability, arising out of all activities conducted by the Consultant in connection with this contract and/or the Consultant's performance hereof, including but not limited to payment of all fees for its/their attorneys and all incidental litigation expenses in the event LCA or any of its employees, agents, officials, representatives, attorneys, and assigns are sued upon a claim emanating from the Consultant's performance thereof. Professional shall not, however, be liable for any portion of a judgment nor associated litigation expenses, including attorney's fees, ultimately determined to be the result of the negligence of the Authority.

Name (signature):

Name (printed)

Title:_____

MEMORANDUM

Date: January 19, 2015

To: Authority Board
From: Jason Peters, Frank Leist
Subject: Suburban Division - Water Main Replacement Program, Cycles 1-3
Design Phase,

MOTIONS / APPROVALS REQUESTED:

No.	Item	Amount
1	Capital Project Authorization – Design Phase Cycles 1-3	\$353,358
2	Professional Services Authorization – Gannett Fleming, Inc. (1), (2)	\$178,358

(1) *Included in the Capital Project Authorization.*

(2) *Does not include Construction phase related engineering services.*

PROJECT OVERVIEW: The Suburban Division water systems serve multiple townships, municipalities, boroughs, and communities in Lehigh and Northampton Counties. It is the intention of this Project to replace approximately one mile of water main in the Suburban Division per year due to aging infrastructure that has reached the end of its useful life to prevent excessive leakage or disruptive water main breaks that can impact our customers. Given this is an on-going program like the Allentown Division – Water Main Replacement Program (AD-WMRP) Lehigh County Authority (LCA) intends to retain the services of an engineering consulting firm for a 3 Cycle period so as to assure continuity and efficiencies for the program.

PROJECT STATUS:

Pending Board approval of the Design Phase for Cycles 1-3

THIS APPROVAL-DESIGN PHASE- CYCLES 1 -3

LCA intends to retain the services of an engineering consulting firm to provide, design related services for Cycles 1-3 of the Suburban Division Main Replacement Program. Optional construction related engineering services, is not requested at this time and will be requested annually as needed, on a cycle by cycle basis when the Construction Phase is presented to the Board for approval. The following table summarizes the professional services to be performed:

Professional Services ⁽¹⁾
1. Coordinate with local municipalities, outside agencies and utilities.
2. Prepare plans and specifications for segments of main to be replaced.
3. Prepare and obtain regulatory and municipal permits as required.
4. Provide bidding services.
5. Provide construction engineering services. <i>(optional future authorization)</i>
6. Provide construction management services. <i>(optional future authorization)</i>
7. Provide construction inspection services. <i>(optional future authorization)</i>

(1) THE FOLLOWING SERVICES ARE NOT INCLUDED: The design and permitting of ADA ramps at intersections pursuant to the Americans with Disabilities Act that may be required in some cases by street paving restoration; permitting for railroad borings, creek/river crossings; design of water mains that are affixed to bridges. If deemed necessary, a cost will be negotiated for the required service.

CONSULTANT SELECTION PROCESS:

To assure continuity and efficiencies for the program it is necessary to establish a long-term relationship with an engineering consulting firm. It was our goal to first select a firm based upon qualifications and then upon the best overall value.

In November 2014, a Request for Proposals (RFP) was sent to five national/regional engineering consulting firms, where they were asked to attend a mandatory pre-proposal open house. Four of the five firms attended.

LCA requested that the firms develop a detailed scope of work and provide prices for water main replacement design and optional construction services; for three cycles of main replacement (3-miles) that will extend through the construction of main replacements in 2018. The cycles are as follows:

Cycle	Main Replaced	Design	Construction
1	1-mile	2015	2015
2	1-mile	2015-2016	2016
3	1-mile	2016-2017	2017

Design and Construction Related Services

During the development of the RFP and with knowledge gathered from AD-WMRP the LCA Project team divided the division into three-Main Replacement Areas (Area), based on the variation of design requirements. LCA had requested that the consultants provide a separate price per linear-foot or lump sum for each Area dependent on the task for the following services; design, bid, construction engineering, construction management and inspection services; it was understood that design and bid services would initially be award to the successful consultant, where the construction related services are optional and would be awarded separately by the type of service solely at LCA's discretion.

Three of the four firms proposed. The results of the proposals for design/bid services equated to the 3-miles of main that will be replaced over the three cycles are shown in Table 1 below:

Table 1		
Cost for Design & Bidding phases for 3 Miles of Water Main Replacement		
Firm	Township Road Area	
	Total Cost	Total # Man Hours
Barry Isett	\$ 139,762.00	1410
Gannett Fleming	\$ 178,358.00	1619
Arro	\$ 255,446.00	1825
Keystone Consulting Engineers	no proposal	

Based upon our review of all aspects of both the Technical and Cost Proposals submitted by the three firms, we recommend award of the Design Phase for Cycles 1-3 of the project to Gannett Fleming (GF). Their proposal represents what we believe is the best overall value for the Authority. Because GF is our consultant for the AD-WMRP, synergies and economies of scale resulting in cost savings will be realized in the design phases immediately; and starting in 2016 in the construction phases where it is our intent to annually bid one contract for the replacement of 3-miles of water main, with 2-miles in the Allentown Division and 1-mile in the Suburban Division. GF has proven their commitment to meet the client's needs in the AD-WMRP producing a high caliber product meeting all project milestones. In addition, GF is very responsive to the LCA Project team in times of urgency due to unpredictable circumstances found in the field ensuring a completed product that meets the needs of LCA. Therefore, the LCA Project team feels that Gannett Fleming, although being marginally higher in the cost per cycle of effort than the lowest proposer, will provide the best overall quality, value and expertise for the project. GF will perform the services outlined in their proposal dated December 22, 2014 and supplemental information to their proposal sent via email January 13, 2015.

As a note: Gannett Fleming will be utilizing Arthur A. Swallow Associates (ASA) a local firm that is located 1003 - 1005 N. 19th Street Allentown. PA 18104. ASA has also has worked for LCA, most recently providing the survey and base plans for the ADP and Oakland Park Main Replacement Project.

GANNETT FLEMING COMPANY INFORMATION:

Gannett Fleming, Inc. was founded in 1915 and is headquartered in Camp Hill Pennsylvania. Gannett Fleming is a global infrastructure firm that provides planning, design, technology, and construction management services for a diverse range of markets and disciplines. With nearly 2,000 highly qualified individuals across a global network of 60 offices, including a dozen offices in Pennsylvania.

Gannett Fleming's quality policy is to "provide professional services that meet the requirements of clients and involve all personnel in continually improving work processes." As part of that commitment, Gannett Fleming has successfully achieved their goal of obtaining ISO 9004:2008 certification. This internationally recognized quality certification helps Gannett Fleming to conduct services in a manner consistent with ISO 9001:2008 standards and requirements that enhances their efficiencies and effectiveness to provide quality service and deliverables to meet their clients requirements.

Gannett Fleming is currently providing professional; services for the AD-WMRP (Cycles 1-3), Lynn Township Wastewater Treatment Plant –Phase 1& 2 Upgrades and the Water Filtration Plant Coagulant study. Previously Gannett Fleming created the LCA Central Lehigh Division Hydraulic Model.

PROJECT SCHEDULE: A proposed schedule of three (3) cycles for the Program has been developed by the LCA Project Team and Gannett Fleming and assumes Board approval of the Design Phase at the January 26th Board meeting. Note that the construction period of each cycle is assumed to begin in early to mid-March and end in early to mid-October of each cycle year except for cycle 1 construction phase beginning mid to late August with design of the next cycle's mains overlapping the construction phase of the previous cycle.

FUTURE AUTHORIZATIONS: Capital Project Authorization (CPA) Amendment(s) will be presented to the Board at a later date for:

Construction Phase(s): Approvals will be requested separately for each cycle on an annual basis in late February or early March after bids are received.



LEHIGH COUNTY AUTHORITY

Engineering Consulting Services for Suburban Division Water Main Replacement Project

December 2014



Gannett Fleming

*Excellence Delivered **As Promised***

ISO 9001:2008
CERTIFIED



Gannett Fleming

*Excellence Delivered **As Promised***

December 22, 2014

Mr. Jason M. Peters
Lehigh County Authority (LCA)
1053 Spruce Street
P. O. Box 3348
Allentown, PA 18106-0348

RE: Request for Proposals (RFP)
Suburban Division Water Main Replacement Project

Dear Jason:

To help LCA continue to provide safe and reliable drinking water to the community, Gannett Fleming has prepared this Proposal to summarize our approach and qualifications related to the replacement of aging water mains. For more than 50 years, LCA and Gannett Fleming have worked together on projects involving water infrastructure improvements and replacements. We view the Suburban Division Water Main Replacement Project as an extension of the current services we are providing to LCA for the Allentown Division Water Main Replacement Project. The LCA-Gannett Fleming Project Team success with the Allentown Division Water Main Replacement Project best demonstrates our approach and qualifications and the value that we can bring to this project. Our Project Team offers LCA the following benefits for this project:

- **Cohesive Project Team** – We understand your expectations and can begin providing services immediately, eliminating any “learning curve” for either Gannett Fleming or LCA. LCA will further benefit from streamlined communications dealing with one Project Team for both the Allentown and Suburban Division Main Replacement Projects.
- **Depth of Qualified Staff** – As demonstrated on the Allentown Division Project, we have sufficient qualified resources to meet stringent schedule deadlines. The identified Project Team for the Suburban Division Project is the same as the Project Team currently serving LCA on the Allentown Division Project.
- **Consistent Technical Quality** – We will apply our proprietary technical specifications, which were used on the Allentown Division Project, to develop the technical specification for the Suburban Division Water Main Replacement Project. Doing so will result in consistent quality documents, reduced schedule, and minimized review time for LCA.
- **Joint Project Efficiencies** – Treating the Suburban Division Project as an extension of the Allentown Division Project will result in several benefits and efficiencies for LCA, including:
 - Minimized project oversight
 - Minimized review needs

Gannett Fleming

RE: Request for Proposals – Suburban Division Water Main Replacement Project

December 22, 2014

Page 2 of 2

- Economies of scale for construction
- Single bid process

In summary, we urge LCA to consider the overall value of Gannett Fleming's services, including LCA in-house staff time commitments, when reviewing our Proposal. We are confident that, in doing so, LCA will see that Gannett Fleming provides a best fit solution for the Suburban Division Water Main Replacement Project. We take a vested interest in the success of all our projects and will work closely with LCA to continue meeting your requirements. We have enjoyed teaming with LCA on the Allentown Division Water Main Replacement Project and look forward to expanding our relationship with you.

Should you have any questions regarding the information presented in this Proposal, please do not hesitate to contact me at 717-763-7212, extension 2352.

Sincerely,

GANNETT FLEMING, INC.

A handwritten signature in black ink, reading "Dale R. Glatfelter". The signature is fluid and cursive, with the first name "Dale" being the most prominent.

DALE R. GLATFELTER, PE

Vice President

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Confidentiality Agreement

Confidentiality Agreement



CONFIDENTIALITY CONDITIONS

DISCLOSURE

1. The Authority will provide information to the Consultant solely for purposes of the Suburban Division Water Main Replacement Project("Project"), and the Consultant agrees not to use the Authority's information for any other purpose.
2. Consultant acknowledges that it will have access to certain sensitive information about the Authority and its operations in connection with its official duties on behalf of the Authority.
3. The Consultant agrees that it has not done, nor will it do in the future, or after the termination of any relationship between the parties, without the written consent of Authority, any of the following:
 - 3.1. Consultant will not disclose any information to a third party, including any affiliate; and
 - 3.2. Consultant will not copy, digest, summarize, or use information or materials relating to the information or any part thereof, or any knowledge learned from the information for any purposes except for purposes of preparing a reply to the Authority's Request for Proposals, and/or for work on the Project, if selected as the Consultant.
4. Consultant agrees to protect the Authority's information with at least the same degree of care as the Consultant applies to protect its own sensitive information and trade secrets.
5. Consultant agrees to mark copied information with a conspicuous mark of "*Confidential*," or a substantially similar conspicuous mark.

RETURN AND DESTRUCTION OF CONFIDENTIAL INFORMATION

6. The Authority may at any time and for any reason request in writing that:
 - 6.1. Consultant returns the Authority's information.
 - 6.2. Consultant destroys the Authority's information.

The information to be returned or destroyed shall include all documentation in whatever form or media, as well as all copies, relating to the information, including, but not limited to, any notes concerning the information. Consultant shall not retain any drawings, prototypes, copies, extracts, reproductions, or other documentation relating in any manner to the information. Any exceptions regarding materials to be returned shall be delineated, in writing, and signed by the parties.

7. Consultant agrees to comply with such a request within two weeks from receiving the request.
8. Unless the parties agree otherwise by separate written agreement, the Consultant agrees to return or destroy the Authority's information within fifteen (15) days of learning that it has not been selected as Consultant for the Project, and if selected as the Consultant for the Project, within sixty (60) days of Project completion.

MISCELLANEOUS

9. Nothing in the Contract shall be construed to constitute a license to Consultant to make use, sell, or promote any information relating to the Project in whole or in part.
10. Waiver or non-enforcement by the Authority of one or more terms above shall not constitute a continuing waiver as to any particular term or terms of this Contract.

Consultant hereby agrees to the Confidentiality Conditions,

Consultant Name:

Michael Brown, Gannett Fleming, Inc.

Authorized Signature:

M. Brown

Title:

Senior Project Manager

Title Page



Title Page

Company Name: Gannett Fleming, Inc.

Address: 207 Senate Avenue, Camp Hill, PA 17011

Telephone: 717-763-7211

Fax: 717-763-8150

Email: dglatfelter@gfnet.com

Contact: Dale R. Glatfelter, PE

Date: December 22, 2014

1. Project Understanding and Approach



1. Project Understanding and Approach

1.1. Project Understanding

LCA wishes to engage an engineer to provide design, bid, and construction phase services for replacement of aging water mains on a yearly basis. LCA intends to replace a minimum of one mile of main per year.

We are extremely familiar with this type of arrangement as we are currently managing LCA's Allentown Division Water Main Replacement Project. We recently completed Cycle 1, involving just over one mile of main replacement, on schedule and within budget. We are currently working on design for two miles of main replacement as part of Cycle 2.

Our technical expertise, coupled with our understanding of LCA's design, bid, and construction requirements gained during the Allentown Division Main Replacement Project, provides advantages to LCA. LCA is familiar with Gannett Fleming's quality and service and will receive the same level of quality and service on the Suburban Division Water Main Replacement Project. Additionally, LCA could realize cost savings by combining the Allentown Division and the Suburban Division Water Main Replacement Projects.

By combining the Allentown Division and the Suburban Division Water Main Replacement Projects, LCA could realize cost savings.

1.2. Project Approach

Our approach to the water main design, bid, and construction phase services is based on our experience with the Allentown Division Project, as well as our significant experience with water main projects throughout Pennsylvania. This experience, including our familiarity with local and state permitting needs, allows us to anticipate and develop efficient plans to address issues that would

otherwise affect the ability to meet the main replacement program schedule requirements. Further, our demonstrated approach includes active coordination with LCA throughout the design and construction process. This coordination is necessary to avoid rework and associated delays and ultimately complete projects that meet stakeholder expectations.

1.2.1. General Tasks

Gannett Fleming will hold a project kickoff meeting at project onset to verify project objectives and miscellaneous design details. Additionally, we will hold a meeting at the end of each cycle to discuss lessons learned from the prior cycle as well as initiate the next cycle. In preparation for each of these meetings, Gannett Fleming will establish a project schedule outlying key milestones, including anticipated submission dates and associated review periods for LCA.

1.2.2. Design Phase

1.2.2.1. Conceptual Design

The design phase begins with conceptual design, which will establish the specific design parameters for a given section of pipe. The primary goal of the



Figure 1-1: Trenchless Technologies. We will consider trenchless technologies, including pipe bursting, so that each project uses the most efficient and least impactful construction methodology.

1. Project Understanding and Approach

Engineering Consulting Services for

Suburban Division Water Main Replacement Project

conceptual design, which includes a basis of design, survey, and alignment studies, is to establish early approval from LCA, which is critical to the success of a project. As part of the conceptual design, we will consider traditional versus alternative construction methods, such as trenchless technologies, to determine the best construction methodology for a specific project.

1.2.2.2. Basis of Design

The initial step in the conceptual design process is to identify and tabulate the key elements of the design, including pipe size. Generally speaking, we will replace most of the retired pipe with pipe of the same size. However, as needed, we can use the Central Lehigh Division system computer model, developed and maintained by Gannett Fleming, to verify the existing pipe is not over- or under-sized. The model will help ensure an optimal main replacement is established.

The basis of design will consider standard LCA design details, which, in many cases, will be consistent with details used for the Allentown Division Project, thus streamlining the design process.

The basis of design will also include an estimated schedule for the given main replacements. The key elements of the basis of design include:

- Pipe size
- Pipe materials
- Pipe joints and restraint methods
- Fitting types
- Valve types (gate or butterfly)
- Air valves
- Blow-off valves
- Hydrants
- Valve spacing and configurations at intersections.

We will look for and discuss with LCA any opportunities to optimize the approach through an alternative process, which may include the use of multiple contracts, construction by LCA staff, and/or use of design sub-consultants.

Our approach and associated cost estimate are based on a traditional design-bid approach involving multiple sections of pipe totaling a minimum of one mile for Cycle 1 bid as a single construction contract. However, Gannett Fleming will review individual projects as part of the basis of design to confirm this is the best-fit method for each cycle. We will discuss with LCA any opportunities to optimize the approach through an alternative process, which may include the use of multiple contracts, construction by LCA staff, and/or use of design sub-consultants. In particular, combining the Suburban Division Water Main Replacements with the Allentown Division Water Main Replacements as a single project with separate contracts will be considered with LCA due to potential for cost savings in engineering and construction.

1.2.2.3. Survey

Consistent with the Allentown Division Water Main Replacement Project, Gannett Fleming has enlisted Arthur A. Swallow Associates (AASA) as a sub-consultant to provide surveying services for this project. The principal and owner of the firm, Art Swallow, PLS, has extensive experience in the Lehigh Valley and has been a contracted surveyor with the COA for the past nine years. AASA's demonstrated local knowledge, quality, and responsiveness have proved to be a significant asset to the Project Team for the Allentown Division Project.

1. Project Understanding and Approach

*Engineering Consulting Services for
Suburban Division Water Main Replacement Project*



Figure 1-2: Gannett Fleming will work with AASA to request field marking and mapping of the existing utilities within the identified project area by entering the area boundaries into the PA One Call web ticket system.

AASA can fully equip three survey crews with Trimble RTK GPS equipment, in addition to conventional and robotic instrumentation, in order to prepare detailed mapping to be used as a base for the pipe design plans. We will perform data processing and produce drawings using the latest versions of AutoCAD with civil engineering and survey special routines.

AASA is fully knowledgeable and capable of efficiently delivering surveys to meet Gannett Fleming's and LCA's data requirements. Gannett Fleming will work with AASA to request field marking and mapping of the existing utilities within the identified project area by entering the area boundaries into the PA One Call web ticket system.

Our Project Team's familiarity with the PA One Call system and experience with local utilities will maximize the yield of the necessary data to be collected for design. We will send a set of preliminary base plans to any utility that fails to mark their facilities in the field requesting that they mark their utility locations on the base mapping in accordance with the PA Underground Utility Line Protection Law, Act 287, as amended. Alternately, we will make direct calls to the utilities to encourage

them to provide timely, accurate utility location information.

As needed and as authorized as an additional service by LCA, Gannett Fleming will work with AASA to resolve issues associated with easements and rights-of-way associated with the main replacements. AASA's local knowledge and experience will help ensure this service is provided in an efficient manner.

Based on our experience with the Allentown Division Project, as well as other pipeline design and construction work, traditional survey typically provide sufficient information to support design in most project sites. However, if warranted due to the unknown nature or location of underground utilities and in consideration of the criticality of disturbance in a given area, we can use a subsurface utility engineering (SUE) sub-contractor to perform test pits in critical locations. Alternatively, LCA could consider ground penetrating radar (GPR). Both methods are costly, and SUE is more accurate but is intrusive. GPR is not intrusive, but its accuracy declines in very congested areas. The revised Act 287 Law requires project owners to use sufficient quality levels of SUE or other similar techniques whenever practicable to properly determine the existence and positions of underground facilities when designing known complex projects having an estimated cost of \$400,000 or more. For the purpose of our cost estimate, SUE and GPR are not included.

The work product of the survey will be a final base plan detailing the features, contours, and existing utility locations within the project area on a minimum scale of 1 inch = 50 feet or larger, if deemed necessary for a given area.

1.2.2.4. Alignment Study (Preliminary Design)

After the base plan is prepared, we will establish a pipe alignment that best fits the situation, minimizing interference with existing utilities and existing physical features while minimizing length of service replacements. As part of this study, we will consider alternative construction technologies for pipe upgrade, such as pipe bursting and pulling,

1. Project Understanding and Approach

Engineering Consulting Services for

Suburban Division Water Main Replacement Project

slip lining, directional drilling, horizontal drilling, lining in place, and replacement in place.

We will present the preliminary alignment and recommended construction method to LCA to obtain concurrence before proceeding to the substantial completion and final design phases. We will hold a meeting with LCA staff to review LCA comments. Concurrence by LCA at this stage of the project will mitigate rework and schedule disruptions.

1.2.3. Contract Documents Preparation Phase

The design process will proceed with the advancement of plan and profile drawings, standard design and connection details, and contract specifications and bid form. We will prepare these documents, taking into consideration LCA standards and the conceptual design submittal. Design drawings and specifications will provide sufficient detail to minimize the impact of unknown conditions that may be encountered in the field during construction. We will develop an opinion of probable construction cost and an updated estimated construction schedule and finalize approvals required by regulatory agencies and local governments.

If temporary water service is needed for the selected construction method, the means to provide such service is typically left up to the construction contractor within specified guidelines. Normally, polyvinyl chloride (PVC) pipe with spline-coupled joints is laid along the curb or back of sidewalks, and high-density polyethylene (HDPE) above-grade service lines are connected to outside hose bibs or to the customer meter pits. Based on the assumption that the majority of construction in the main replacement program will involve conventional construction trenching methods with service replacements, our cost estimate includes an evaluation of the appropriate construction method but assumes standard construction technology without the need for temporary water service.

We will prepare specifications to meet the requirements of the Pennsylvania bidding laws and prepare documents in accordance with the current LCA-approved Engineers Joint Contract Documents Committee (EJCDC) documents. Gannett Fleming worked with LCA to develop a rigorous set of contract documents during Cycle 1 of the Allentown Division Water Main Replacement Project. These documents will form the basis of the contract documents for the Suburban Division Water Main Replacement Project.

The design process will culminate in presentation of a substantial complete design submission to LCA. This submission will consist of pre-final plan and profile drawings, specifications, bid form, opinion of probable construction cost, and estimated construction schedule. Gannett Fleming will hold a meeting with LCA staff to review LCA comments. We will then incorporate the LCA review comments in the final design documents and submit it for approval. For the purpose of the cost estimate, we assume that final LCA approval will only entail verification that previously presented comments have been adequately addressed. We have not included effort to address newly-raised comments involving design details previously presented in the conceptual design and/or substantial completion submissions.

Gannett Fleming worked with LCA to develop a rigorous set of contract documents during Cycle 1 of the Allentown Division Water Main Replacement Project. These documents will form the basis of the contract documents for the Suburban Division Water Main Replacement Project, helping to expedite the schedule.

As requested, Gannett Fleming will provide two hard-copy sets of the Project Documents as well as an electronic copy. We will also provide electronic drawings in AutoCAD version 2011, as specified by LCA.

1.2.4. Permitting

Gannett Fleming will use our past experience on the Allentown Division Project and other pipe projects, as well as our familiarity with local and County departments and agencies throughout the Lehigh Valley, to facilitate efficient permit application preparation and permit acquisition necessary to complete the projects. We will address permitting needs as early as possible in the design process to minimize schedule disruptions. We will also address the need for ADA ramps early in the project as part of the PennDOT Highway Occupancy Permit (HOP) process. Through our experience with the City of Easton, we know the requirement for these ramps can add considerably to the cost and can adversely affect the schedule of a project. For the purpose of our proposed cost estimate, we have not included ADA ramp design due to unknown requirements. We anticipate the following permit applications and considered them in the engineering fees:

- Lehigh County Conservation District Erosion and Sedimentation Control Plan approval
- Street opening permits
- PennDOT HOP (where applicable)

We anticipate that land disturbance for each main replacement within a given cycle will be limited to less than one acre. Therefore, National Pollutant Discharge Elimination System (NPDES) requirements are not anticipated. If needed, and as authorized by LCA, Gannett Fleming will provide NPDES permitting support as part of the project.

Through our experience with the City of Easton, we know the requirement for ADA-compliant ramps can add considerably to the cost and can adversely affect the schedule of a project, if not anticipated and properly addressed.

Other permits that may be required with select locations, but not anticipated on a normal basis, include:

- Pennsylvania Department of Environmental Protection (PA DEP) General Permit 5 (GP-5) for new stream crossings and GP-11 for replacement main stream crossing,
- PA DEP Public Water Supply Permit, Minor Amendment, and
- PennDOT Bridge Occupancy License.

We have not included effort and associated costs for obtaining these additional permits in our technical and cost proposals but can provide assistance to LCA on an as-needed basis.

We will include copies of the permits obtained for the project in the bid package to ensure the prospective contractors understand the regulatory requirements at the time of the bid.

1.2.5. Bidding Phase

Gannett Fleming will prepare the bid advertisement in accordance with public bidding laws, and LCA will pay the advertising costs. Consistent with the bidding process for the Allentown Division Project, Gannett Fleming will use PennBid as a cost-effective means for bid phase services, including the distribution of contract documents and the associated administration of the bid process. As needed, we will provide CD or hard-copy contract documents to prospective bidders at cost.

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Gannett Fleming will maintain a list of bidders, addresses, e-mail, and contact information in Microsoft Excel format. Our firm maintains an ongoing list of potential contractor contacts for pipe projects. We will notify select contractors from this list in advance of the proposed project. Gannett Fleming will respond to questions by prospective bidders and equipment suppliers concerning information in the contract documents.

We will schedule and conduct a mandatory pre-bid meeting to cover the project. Following the meeting, we will prepare minutes and distribute them to attendees and other appropriate parties.

Gannett Fleming will prepare appropriate addenda and issue these to the prospective bidders to interpret, clarify, or expand upon the contract documents.

We will attend the bid opening, prepare bid tabulation sheets in Microsoft Excel format, and evaluate the bids received for compliance with the bidding requirements.

Gannett Fleming will review qualifications and experience data, bid bonds, insurances and other information provided by the apparent low bidder for general conformance with contract documents.

Following bid review, Gannett Fleming will provide a recommendation with respect to acceptance of the bid and award of a construction contract. We will also prepare necessary agreements and performance and payment bonds in an editable electronic version for the contract for execution by LCA and the successful bidder.

1.2.6. Construction Phase

Our objective during construction phase services is to assist our clients in acquiring quality facilities and infrastructure by using a well-organized project strategy to achieve all requirements set forth by the client.

Gannett Fleming understands that, like most projects, these construction projects present a

number of challenges. Through our review of available information and experience with similar construction projects in similar areas, we have developed a proposed scope of services consisting of the following specific areas of focus.

1.2.6.1. Construction Engineering and Management

Gannett Fleming will coordinate receipt of bonds, insurances, signed agreements, and other documents both in paper and scanned electronic version from successful bidders and review for compliance with the contract. When all are found to be acceptable, we will distribute copies of the agreement first to the contractor(s) and subsequently to LCA for execution. We will assemble the final package of the contract from these documents and issue to the contractor(s) with a Notice to Proceed letter.

Gannett Fleming will provide two conformed, fully executed sets of Contract Documents to LCA, as well as provide the prime contractor with an electronic (.pdf) set of contract documents and addenda in accordance with the Contract Documents.

Construction engineering consists of the design engineer checking and approving shop drawings and supporting the construction manager in addressing and responding to contractor requests for information (RFIs), reviewing change order requests for cost reasonableness, and providing design clarifications when needed.

Gannett Fleming staff will coordinate the shop drawing/submittal review process. We will receive the transmittal of all submittals from the construction contractors, perform an initial review of each submittal for compliance with the contract documents, and expeditiously deliver acceptable submittals to the design team for their review and approval. We are capable of ushering both hard and electronic copies of any submittal through the review process. Shop drawings will not be approved without accompanying steel origin certificates per LCA requirement. Following review, we will distribute each submittal to the contractor, LCA, and

construction management staff in accordance with the review disposition. If at any time during the review process, the contractor proposes a deviation from the contract documents, Gannett Fleming will review and evaluate its validity. If it is determined to be a beneficial departure from the requirements of the original design, we will notify LCA of our recommendation. Only after consultation and agreement between LCA and Gannett Fleming would the contractor be notified that their proposal is accepted or denied. Should a proposed deviation be accepted that results in an increase/decrease to the original scope of work, Gannett Fleming would initiate the change order process to negotiate an adjustment in contract value and/or time.

Gannett Fleming will also provide interpretations and clarifications of the Contract Documents and prepare work directives to the contractor.

Communication

Open lines of communication are necessary to facilitate cooperation among LCA, field staff, the contractors, and, of significant importance, the surrounding residents. Gannett Fleming will provide a proactive approach to communication with the community stakeholders that will aid in the swift resolution of problems that may arise during construction and mitigate contract delays. Our field personnel will each carry a cell phone at all times while on site, and our management staff will also be available either in their respective office location or by cell phone.

Construction Management Tools

Gannett Fleming employs an array of computer-based tools to provide effective management of construction projects. These include web-based

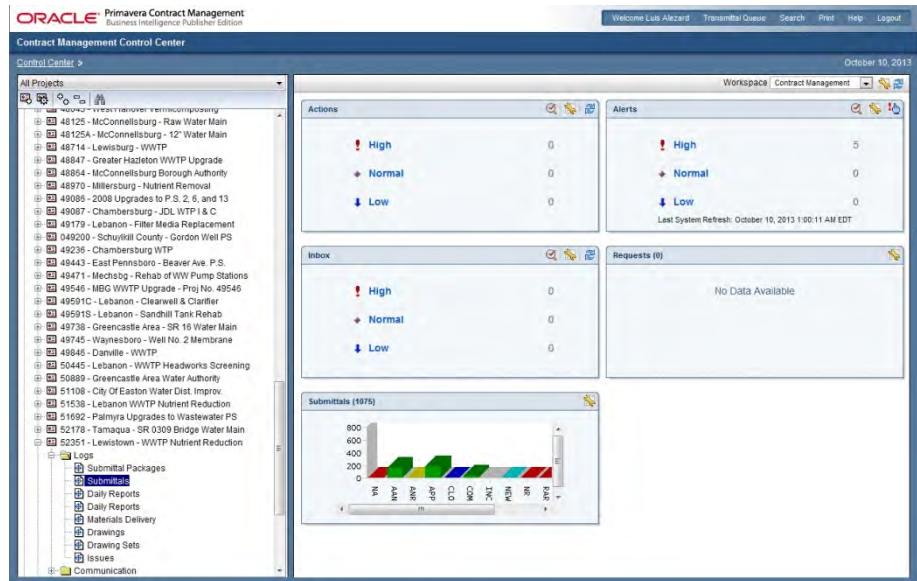


Figure 1-3: Gannett Fleming proposes to utilize Contract Manager to maintain submittal, RFI, and change order logs as well as overall project files/information including contacts, meeting minutes, change order documentation, general project communication, etc. for the pipe replacement projects.

document management systems such as Oracle Contract Manager and Projectmates. We also have a wide array of specialized forms and spreadsheets that we have developed over decades of providing construction management services, all of which may be customized to meet the needs of LCA and the water main replacement projects.

Gannett Fleming proposes to utilize Contract Manager to maintain submittal, RFI, and change order logs as well as overall project files/information including contacts, meeting minutes, change order documentation, general project communication, etc. for the pipe replacement projects.

Construction Meetings

Progress meetings are a vital part of successfully managing a construction project. Gannett Fleming's Construction Manager will schedule and conduct monthly construction-related meetings through coordination with LCA. We will provide meeting agendas and supporting information at least two working days prior to the meeting. The Construction Manager will also prepare and distribute minutes

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within three working days following the meeting.
Proposed meetings will include:

- Pre-construction meeting with the successful contractor
- Monthly progress meetings throughout the duration of construction (estimate three meetings for each cycle)
- Conditional acceptance walk-through meeting at the conclusion of construction

The monthly progress meetings will provide a forum for all parties to collaborate on the success of the projects where we will review and update construction activities including, but not limited to: the schedule, submittals, RFIs, quality control tests, sediment and erosion control issues, safety, coordination with public utilities, community outreach, and overall coordination of the work. Updated submittal and RFI logs, maintained by Gannett Fleming, will also be distributed and reviewed. As previously discussed, these meetings will also serve as a venue to inform LCA of the progress of each contract and to assist in the resolution of problems encountered on the projects. We may conduct additional meetings between Gannett Fleming and the contractors on an as-needed basis to resolve any problems or questions that may arise in the field.

Progress Reports

Gannett Fleming will provide a Progress Report on the first business day of each month. It is our intent to coordinate the delivery of the Progress Report with the regularly scheduled monthly progress meetings and provide the Progress Report before the meeting. This will allow LCA to have the most up-to-date project information that is available. We will work with LCA to customize the report format and content to include only the elements of the project deemed necessary; elements may include but are not limited to the following:

- Summary of work progress
- Tasks scheduled for completion in coming month
- Compliance with construction schedule

- Change order log
- RFI log
- Submittal log
- Cash flow analysis
- Safety issues (if applicable)
- Erosion and Sediment Control Report

Payment Requests

Gannett Fleming will review the contractor's monthly payment applications and change order requests, in coordination with the contract requirements and provisions of the schedule of values. If there is any dispute in amount or percentage of individual items being requested for payment by the contractor, Gannett Fleming and the contractor will review and resolve said items; only at that time will the request for payment be forwarded to LCA with recommendation for payment by Gannett Fleming.

In conjunction with processing monthly pay requests, Gannett Fleming will take receipt of certified payroll statements from each construction contractor. We have experience with the requirements of both the Pennsylvania Prevailing Wage Act (State-funded projects) and the Davis-Bacon Act (federally-funded projects). We will review certification statements for general compliance and maintain a log to record their receipt as needed; we will transmit payroll statements to LCA to be maintained in the project files. Although not currently included in our cost estimate, Gannett Fleming is also capable to assist LCA in conducting employee interviews.

Record Drawings

Gannett Fleming will maintain up-to-date "red-line" drawings if conducting full-time observation services and will update the drawings as work proceeds to reflect the actual condition of the installed work. We will make a copy of these red-line drawings available to the contractor for their use in developing the record drawings. We will also use the red-line drawings for review of the contractor-submitted record drawings. It is our experience that many contractors do not always

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have accurate record drawings. This process facilitates acquiring a more complete, accurate set of record drawings from the contractor.

Due to the nature of the work, we do not anticipate receiving any Operations & Maintenance (O&M) Manuals; the exception may be for specific valves, hydrants, etc. If O&M Manuals are required, we will review them for completeness and compliance with the contract documents prior to submission to LCA.

Project Close-Out

Substantial completion may be defined as the date determined by the construction manager and approved by LCA when the work has progressed to the point that is it sufficiently complete in accordance with the contract documents so that LCA may occupy and use the portions of the work for the use of which it is intended. At the time of substantial completion, all systems are to be operable and have met the performance requirements of the contract documents. When the contractor has achieved a point that they consider the project to be substantially complete, they will make a request for a substantial completion inspection, verbally or in writing, to Gannett Fleming. LCA, Gannett Fleming, and the contractor will then conduct a substantial completion inspection, at which time all components of the project phase will be inspected to verify their compliance with the contract documents and a punch list of outstanding items will be compiled and distributed.

Final completion may be defined to be the date when all punch list items identified during the substantial completion inspection have been corrected to satisfy the requirements of the contract documents and are approved by Gannett Fleming and LCA. Final completion will include the demonstration of complete operation of all systems as prescribed by the contract documents. Upon completion of the operational demonstration and the submission of all required contract documents, the project may be considered complete.



Figure 1-4: The primary goal of our on-site personnel will be to provide quality assurance observations to guard against defect and deficiencies in the work.

Contract Closeout

At the completion of each project, Gannett Fleming will collect from each contractor all final close-out documents identified in the contract documents, and, following verification of completeness, transmit the documents to LCA. Documents may include:

- Final pay request
- Contractor's affidavit for final payment
- Final waiver of lien
- Supplier/subcontractor release forms
- Engineer's completion certificate
- Pennsylvania Department of Environmental Protection certification of completion.

1.2.6.2. Construction Observation Services (at LCA's discretion)

Based on our experience, we assume that full-time construction observation services would be required for the duration of construction. Gannett Fleming's construction observation duties will include quality assurance observations of work conducted to guard against defects and deficiencies in the work; verification that materials provided by the contractor are in accordance with the project specifications and notification to the contractor and LCA when they are not in compliance; monitoring

1. Project Understanding and Approach

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the contractor's activities to protect completed and unfinished areas from damage; and observation and notification of the contractor and LCA of potentially unsafe conditions on the project site, although the ultimate responsibility of safety is that of the contractor.

Our field staff will accurately record the events of each workday on site, documented in a daily report of the construction activities. We will attach photographs to daily reports, when required, to better describe the work performed or situation encountered. The information recorded on the daily report typically includes the following:

- Work hours
- Description and progress of work
- Weather conditions and high/low temperatures
- Ground conditions
- Site conditions
- Precipitation (date of last precipitation and amount)
- Manpower and equipment
- Subcontractors
- Materials delivered and used
- Issues discussed/encountered
- Quality assurance/quality control procedures
- Testing (field or laboratory)
- Visitors

Gannett Fleming will verify that all items on the punch list have been completed or corrected. Should items not be addressed or if new deficiencies arise during the performance periods, we will identify and track such items.

We will advise LCA as to the readiness of the project for substantial and final inspection when all criteria have been met by the contractor for final completion and acceptance. In addition, all required affidavits, guarantees, manuals, record drawings, spare parts, etc. will be collected by our field staff and transferred to LCA upon completion of the project.

Another manner in which to increase the accuracy of record drawings is through the use of global positioning system (GPS) equipment. GPS data acquisition would not only provide a high level of

accuracy in the preparation of record drawings but would also provide an electronic data set that may be integrated into CADD and/or GIS files, etc. If requested, Gannett Fleming field staff will provide GPS data collection to support the development of record drawings. Gannett Fleming can provide its own equipment, but will work with LCA in determining the most economical means of collecting GPS field data.

Project Safety

Though overall project safety is a contractor requirement, Gannett Fleming will immediately notify the contractors and LCA when we observe a condition or act which we believe to be unsafe. Due to the work taking place within or adjacent to active, well-traveled roadways, providing a safe work area for both construction and vehicular travel is paramount. We will work closely with the contractors to see that proper traffic controls are installed and that standard safe construction procedures are followed. We will issue a stop work order to prevent injury to persons or damage to property if we observe an unsafe or hazardous condition or act. If there is a situation where there is a health and human safety concern, we have a licensed safety professional on staff to provide guidance for serious safety issues.

Construction Duration

For the sake of estimating construction costs per linear foot, we assume an average approximate production rate of 75 LF per pipe crew per day based on recent experience with the Allentown Division Project and other past work. For the basis of a cost estimate, we are assuming 1 pipe crew for each Cycle, resulting in construction duration of approximately 70 working days or roughly 4 months for construction of 1 mile of main.

We further assume that up to four weeks of each construction period would include, but not be limited to, the following non-construction activities: mobilization/demobilization, shop drawing reviews, material procurement and delivery, roadway

1. Project Understanding and Approach

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restoration, property restoration, and punch list completions.

The construction duration can vary significantly based on location of the projects, quality of the contractor, weather, and other issues. Thus, although estimates are provided to establish a cost per linear foot for construction observation services, as with the Allentown Division Project Construction Phase services, we recommend that LCA consider establishing cycle-specific observation service cost estimates based on daily rates. With sufficient staffing and appropriate experience, LCA may be able to offset Gannett Fleming's proposed construction observation services.

As demonstrated during our work on the Allentown Division Project, Gannett Fleming considers itself part of an overall Project Team with LCA and, thereby, truly strives to produce a project that results in the best overall outcome for the owner. As such, we will work with LCA throughout the main replacement program to determine the most appropriate method for construction observation services for each project.

1.2.6.3. Construction Claims Management

As indicated previously, Gannett Fleming will utilize a team concept with a proactive approach for this project that has historically resulted in the successful completion of numerous projects similar to this with no claims from the contractors. Our philosophy is to resolve "issues" before they turn into "claims" requiring an expenditure of unnecessary time and dollars. As such, our cost estimate does not include effort in assisting LCA in managing and resolving claims. However, in the unlikely event that disputes arise that cannot be resolved by the change order process, we are experienced in the negotiation and settlement of claims. We have been involved in mediation, arbitration, and litigation. We have used many members of our staff as expert witnesses in cases not involving our services. Because we have experienced various claims resolution scenarios, we have trained our field staff to maintain the types of records

necessary to benefit LCA should a claim situation arise.

Gannett Fleming's team concept and proactive approach has historically resulted in the successful completion of numerous similar projects with no claims from the contractors.

2. Project Team



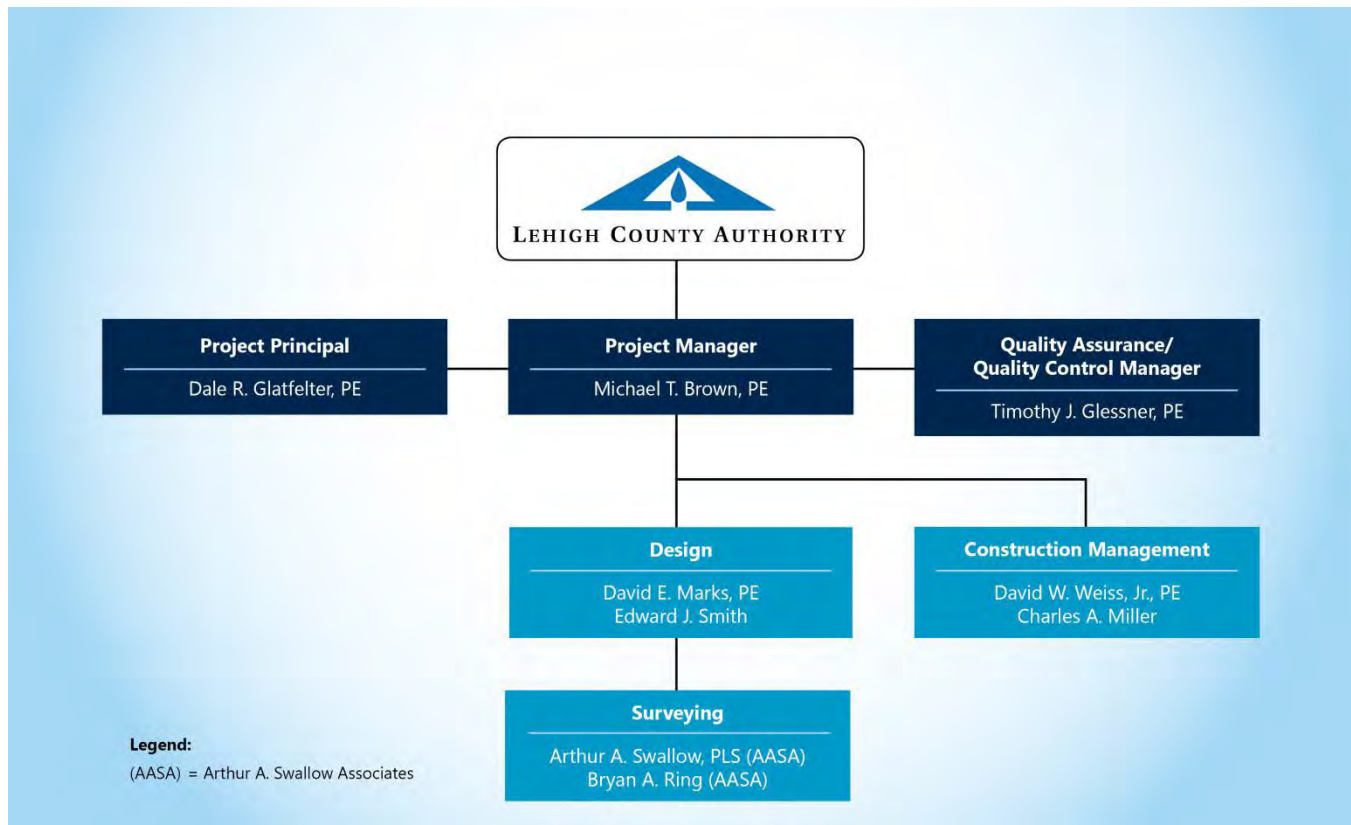
2.1. Project Team

Gannett Fleming envisions the Suburban Division Water Main Replacement Project as an extension of the Allentown Division Water Main Replacement Project. As such, we will assign the currently assembled Project Team for the Allentown Division Project as the Project Team for the Suburban Division Project, as presented in Figure 2-1: Organizational Chart. This consistency will lead to efficiencies for both Gannett Fleming and LCA. Mike Brown will continue to serve as Project Manager, while Ed Smith will continue to serve as Lead Designer. We have included resumes for all anticipated Project Team Members at the end of this Section.

2.2. Availability

All Project Team members are located in our Camp Hill headquarters and are less than 90 minutes from LCA. Gannett Fleming is committed to giving the LCA Suburban Division Project the same attention and resources we provide on the Allentown Division Project. As such, we will give the Suburban Division Project sufficient priority to ensure the availability of our assigned Project Team to meet LCA's schedule needs. Further, as we have demonstrated during the Allentown Division Project, Gannett Fleming has sufficient depth of qualified experience throughout our organization to supplement the assigned Project Team as necessary to meet stringent deadlines.

Figure 2-1: Organizational Chart. Project Manager Mike Brown will lead our Project Team to conduct the Suburban Division project as an extension of the Allentown Division project.



2. Project Team

Engineering Consulting Services for
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2.3. Approach to Quality Control and Customer Satisfaction

Gannett Fleming takes a proactive stance in fostering, developing, and monitoring quality through all of our projects. We were among the first Top 100 *Engineering News-Record* (ENR) firms to become ISO 9001:2008 certified. As a result, we have established and embrace firm-wide procedures for executing our projects to streamline operations and promote quality.

Gannett Fleming's Project Management and Quality Guidelines describe the basic procedures for project execution. Key elements of our management approach include:

- Partnering with LCA staff throughout the project for initial understanding of project requirements, applying your ongoing feedback and lessons learned to improve the process, and garnering your input at key project intervals.
- Preparing a project management plan (Project Execution Plan) for each project that defines the project team and written work plan identifying the schedule, deliverables, project budget, roles and responsibilities, lines of reporting and communications, and public outreach (if required).
- Assigning a QA/QC Manager to each assignment as well as establishing internal QA/QC submittals and associated deadlines. Through this process, Gannett Fleming pledges its commitment to meeting our clients' QC requirements.
- Conducting a project kick-off meeting involving key stakeholders to ensure LCA's objectives are clearly understood by all Project Team members.
- In addition to our normal internal QA/QC procedures, Gannett Fleming also proposes to establish a yearly (cycle) closeout meeting with LCA to discuss the replacement program. The primary purpose of this yearly meeting will be to foster mutual cooperation among the stakeholders and establish a continuous quality improvement of the program.

- Clear and concise communications and reporting of progress. Simply stated, these processes and activities are how Gannett Fleming does business, and we have applied this approach to hundreds of projects. The various forms, work instructions, and procedures comprising our quality management system (QMS) are available to all employees via our company intranet. Gannett Fleming routinely performs internal audits of offices and projects to ensure compliance with our QMS.

Gannett Fleming solicits Client Satisfaction Evaluations (CSEs) from every client. Our CSE form includes six individual measurement points and one "overall performance" assessment. Clients evaluate our performance on a scale of 5 (highest) to 1 (lowest).

Figure 2-4 below presents the CSE statistics for projects for which Mike Brown has served as Project Manager over the past five years. These statistics demonstrate his commitment to our customers and his ability to complete tasks on time, within budget, and to the highest quality standards.

Measurement Points	Score
Technical Quality	4.8
Timeliness	4.8
Cost Effectiveness	5.0
Dependability/Reliability	5.0
Cooperation	5.0
Communication	5.0
Performance	5.0

Figure 2-4: Past Performance. On a scale of 1 to 5, our clients rated Mike Brown's performance as project manager a 5.0 in overall performance for the past 5 years.

2.4. Sub-Consultants

Consistent with the Allentown Division Water Main Replacement Program, Gannett Fleming has enlisted AASA as a sub-consultant to provide surveying services for this project. The principal and owner of the firm, Art Swallow, PLS, has extensive experience in the Lehigh Valley and has been a contracted surveyor with the COA for the past 9 years. AASA's demonstrated local knowledge, quality, and

responsiveness have proven to be a significant asset to the Project Team for the Allentown Division Project.

AASA's demonstrated local knowledge, quality, and responsiveness have proven to be a significant asset to the Project Team for the Allentown Division Project.

AASA can fully equip three survey crews with Trimble RTK GPS equipment in addition to conventional and robotic instrumentation. Data processing and drawings are produced using the latest versions of AutoCAD with civil engineering and survey special routines.

Over the last 11 years, AASA has implemented GPS technology as a tool to perform a wide range of surveying and mapping projects. They completed over 300 projects in Pennsylvania and New Jersey with the observation of approximately 6,000 survey quality control points and thousands of mapping quality points for topographic features.

AASA's past experience with surveying services for LCA, their experience on the Allentown Division Water Main Replacement Project, as well as general local knowledge and experience, make them uniquely qualified to provide surveying for the Suburban Division Water Main Replacement Project.

2.5. Excluded Services

Gannett Fleming does not exclude any of the services outlined in the RFP. We have included a summary of qualifying assumptions that were used to develop the man-hour and associated cost estimate in the Cost Proposal.

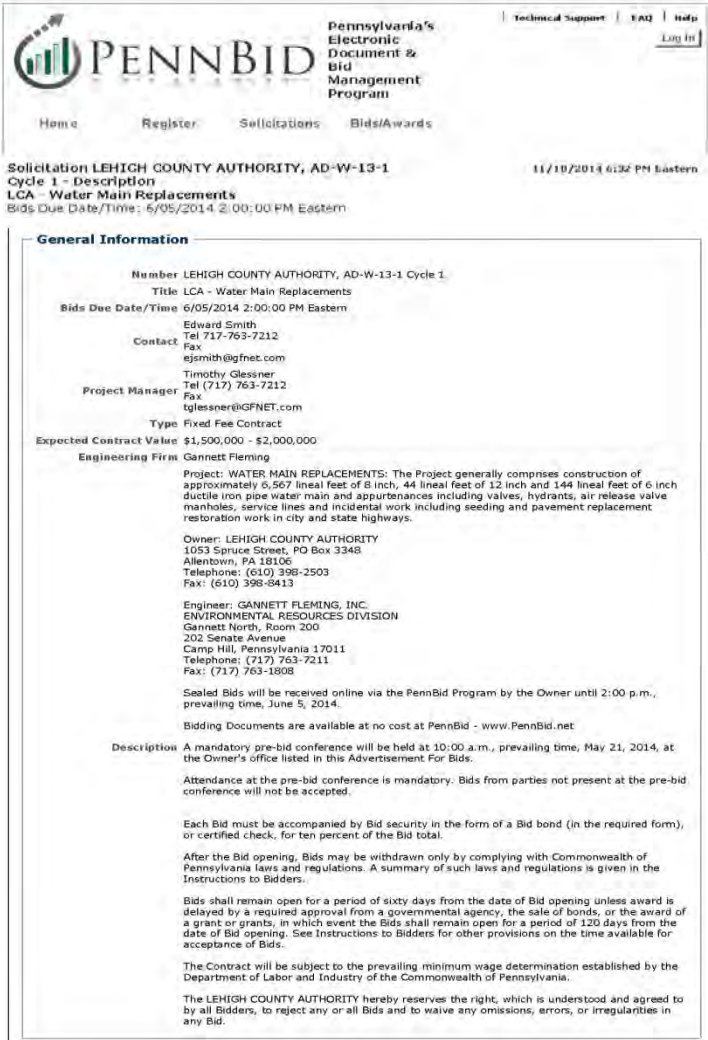
2.6. Services to be Performed by LCA

The approach outlined in Section 1 of this Proposal addresses all tasks necessary to complete the design and bid phase services for the main replacements. We understand that LCA will identify the mains to be replaced in each Cycle. Beyond that, we anticipate that LCA's level of involvement will be similar to that associated with the Allentown Division Water Main Replacement Project. We assume that LCA will provide up-to-date GIS data, as-built information, and intersection details for the areas to be replaced to support survey and design.

3. PennBid Experience



Gannett Fleming has standardized the use of electronic bidding tools, such as PennBid, as an efficient and effective means to handle the bid phase process. Most recently, Gannett Fleming successfully used PennBid for LCA's Allentown Division Cycle 1 Water Main Replacement Project bid phase services. Gannett Fleming is also experienced with and very knowledgeable with LCA's general and front-end specifications.



PennBid Pennsylvania's Electronic Document & Bid Management Program

Home Register Solicitations Bids/Awards

Solicitation LEHIGH COUNTY AUTHORITY, AD-W-13-1
Cycle 1 - Description
LCA - Water Main Replacements
Bids Due Date/Time: 6/05/2014 2:00:00 PM Eastern

11/10/2014 6:32 PM Eastern

General Information

Number LEHIGH COUNTY AUTHORITY, AD-W-13-1 Cycle 1
Title LCA - Water Main Replacements
Bids Due Date/Time 6/05/2014 2:00:00 PM Eastern

Contact: Edward Smith
Tel 717-763-7212
Fax ejsmith@gfnet.com

Project Manager: Timothy Glessner
Tel (717) 763-7212
Fax tglessner@GFNET.com

Type Fixed Fee Contract
Expected Contract Value \$1,500,000 - \$2,000,000
Engineering Firm Gannett Fleming

Project: WATER MAIN REPLACEMENTS: The Project generally comprises construction of approximately 6,567 lineal feet of 8 inch, 44 lineal feet of 12 inch and 144 lineal feet of 6 inch ductile iron pipe water main and appurtenances including valves, hydrants, air release valve manholes, service lines and incidental work including seeding and pavement replacement restoration work in city and state highways.

Owner: LEHIGH COUNTY AUTHORITY
1053 Spruce Street, PO Box 3348
Allentown, PA 18106
Telephone: (610) 398-2503
Fax: (610) 398-9413

Engineer: GANNETT FLEMING, INC.
ENVIRONMENTAL RESOURCES DIVISION
Gannett North, Room 200
202 Senate Avenue
Camp Hill, Pennsylvania 17011
Telephone: (717) 763-7211
Fax: (717) 763-1808

Sealed Bids will be received online via the PennBid Program by the Owner until 2:00 p.m., prevailing time, June 5, 2014.

Bidding Documents are available at no cost at PennBid - www.PennBid.net

Description: A mandatory pre-bid conference will be held at 10:00 a.m., prevailing time, May 21, 2014, at the Owner's office listed in this Advertisement For Bids.

Attendance at the pre-bid conference is mandatory. Bids from parties not present at the pre-bid conference will not be accepted.

Each Bid must be accompanied by Bid security in the form of a Bid bond (in the required form), or certified check, for ten percent of the Bid total.

After the Bid opening, Bids may be withdrawn only by complying with Commonwealth of Pennsylvania laws and regulations. A summary of such laws and regulations is given in the Instructions to Bidders.

Bids shall remain open for a period of sixty days from the date of Bid opening unless award is delayed by a required approval from a governmental agency, the sale of bonds, or the award of a grant or grants, in which event the Bids shall remain open for a period of 120 days from the date of Bid opening. See Instructions to Bidders for other provisions on the time available for acceptance of Bids.

The Contract will be subject to the prevailing minimum wage determination established by the Department of Labor and Industry of the Commonwealth of Pennsylvania.

The LEHIGH COUNTY AUTHORITY hereby reserves the right, which is understood and agreed to by all Bidders, to reject any or all Bids and to waive any omissions, errors, or irregularities in any Bid.

Figure 3-1: PennBid Solicitation. Gannett Fleming is using PennBid for LCA's Allentown Division Cycle 1 Water Main Replacement Project.

4. Similar Projects



4. Similar Projects

4. Similar Projects

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Proper management and operation of system facilities is essential to providing safe and adequate water service to customers in a reliable and cost-effective manner. Gannett Fleming has experience in the planning, management, and operation of water systems involving all system components. Gannett Fleming's relevant water main replacement projects that are ongoing or completed in the past five years are included below and demonstrate our ability to meet LCA's objectives for the Suburban Division Water Main Replacement Project. Figure 4-1: Project Worksheet included at the end of this Section summarizes these projects.

4.1. Allentown Division - Water Main Replacement Project, Allentown, PA

Client: Lehigh County Authority

Completion Date: Ongoing

Engineering Fee: \$631,876

Construction Cost: \$1,927,323

Construction Change Order Costs: Anticipated to be ~ 3.75%

Contact: Jason M. Peters, Capital Works Assistant;
610-398-2503

Similar Tasks:

- Engineering
- Permitting
- Contract document preparation
- Bidding
- Construction
- Inspection

As part of its lease agreement with the City of Allentown (COA), LCA is required to replace a minimum of one mile of water main in the first year of the lease and a minimum of two miles of water main in each year thereafter within the Allentown Division System, which includes approximately 300 miles of main. LCA retained Gannett Fleming to manage and execute Cycles 1, 2, and 3 of this program. This program includes the development of a pipe prioritization program that identifies the mains for replacement in a given cycle; design and

bid phase services for the main replacements, including coordination with local utilities and permitting agencies, and development of full bid documents; and construction phase services, including construction observation services.



Gannett Fleming recently completed Cycle 1 on budget and within an aggressive schedule, meeting the requirements of the LCA-COA Lease Agreement.



Figure 4-2: Gannett Fleming developed and administered the Pipe Prioritization Assessment Program for the Allentown Division Water Main Replacement Project.

4. Similar Projects

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4.2. Consulting Engineering Services, Northampton, PA

The Northampton Borough Municipal Authority (NBMA) provides water service in the Borough of Northampton, the Borough of North Catasauqua, and Allen Township in Northampton County, and the Borough of Coplay, Whitehall Township, and North Whitehall Township in Lehigh County. NBMA has approximately 15,000 service connections, 180 miles of pipeline, 4 storage facilities, 4 pressure zones, and serves an average of 3.5 mgd of water per day.

Gannett Fleming has served as the consulting engineer to the NBMA for over 40 years providing supply, treatment, storage, and distribution planning, design, and construction services. We provide routine assistance in capital planning, regulatory compliance, and main repair/replacement.



Gannett Fleming has completed a comprehensive distribution system evaluation for NBMA included prioritized pipeline replacement projects, as well as general pipeline replacement and renewal guidance.

Gannett Fleming has guided NBMA through several comprehensive water supply planning studies. The outcome of these studies have established prioritized capital improvement plans addressing water treatment plant expansions and source of supply increases, and water distribution piping, pumping, and storage improvements. Most recently, Gannett Fleming completed a comprehensive water distribution system evaluation for NBMA. We provided recommendations that included prioritized pipeline replacement projects, as well as general pipeline replacement and renewal guidance. Gannett Fleming has many of the projects identified through the various studies through from study phase to start-up, providing the Authority design, bid, and construction phase services.

Gannett Fleming completes an annual engineering report for NBMA. The report documents inspection findings and recommendations for repair, replacement, and modifications of system facilities and infrastructure, which is incorporated into NBMA's Annual Budget Report.

The following project is representative of the types of water main projects performed for NBMA:

4.2.1. Water Distribution System Study and Pennsylvania Department of Transportation (PennDOT) Utility Relocation Projects, Northampton, PA

Client: Northampton Borough Municipal Authority
Completion Date: 2013
Contract Cost: Not Available
Fee: \$109,132
Change Order Costs: None
Contact: Steve Kerbacher, 610-262-6711

Similar Tasks:

- Engineering
- Permitting
- Contract document preparation

The NBMA was in need of a water system evaluation and development of a 30-year capital improvement plan. Gannett Fleming completed the evaluation that included a comprehensive update and enhancement of the NBMA's computer model, which included updating the physical piping network, updating system demands using parcel mapping and customer billing records, developing and observing a hydrant-flow testing plan, verifying the steady-state model calibration, developing and calibrating an extended-period model simulation, and developing a water-age simulation. Aspects of the system evaluation included system demand projections, physical and capacity evaluations of system facilities, evaluation of the distribution and transmission network, and preparation of a prioritized 30-year capital improvement plan to address identified system needs.

As part of this project, Gannett Fleming also assisted with three utility relocation projects involving PennDOT. These projects included 3,200 feet of 12-inch main on MacArthur Road in connection with its improvement between Lehigh and Center Streets, 960 feet of new 12-inch main in connection with replacement of the Lehigh Street Bridge at the Lehigh River, and 440 feet of 12-inch and 8-inch main in connection with the replacement of the Center Street Bridge at Coplay Creek.

We coordinated with PennDOT and other utilities, designed the new mains, updated PennDOT construction drawings, satisfied the Pennsylvania Department of Environmental Protection permitting requirements, coordinated and complied with Norfolk Southern Railroad requirements, provided easement assistance, and assisted in securing PennDOT reimbursements for this project.

4. Similar Projects

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Suburban Division Water Main Replacement Project*

4.3. Consulting Engineering Services, Easton, PA

The Easton Suburban Water Authority (ESWA) serves approximately 30,000 customers in and around Easton at an average daily flow of approximately 12 mgd. The ESWA system includes approximately 5,300 pipes, 400 miles of main, 7 pressure zones, 12 storage tanks, and 6 pump stations.

Gannett Fleming has served as the consulting engineer to ESWA for over 40 years. During this period, Gannett Fleming has led numerous planning studies, designs, and construction of new facilities and facility upgrades for numerous water mains, pump stations, and tanks, and ESWA's water treatment plant. Recently, we completed a comprehensive distribution planning study for the City portion of the system that identified, evaluated, and developed a prioritized pipeline improvement plan and corresponding opinions of probable cost to address system existing and future needs. Subsequently, Gannett Fleming provided pipeline design services and construction phase services for approximately 20,000 feet of transmission and distribution main ranging in size from 8 to 24-inch through the downtown portion of the City of Easton.



Figure 4-3. Davis Street Pumping Station Improvement. The project involved construction of 6,225 LF of 24-inch, 550 LF of 16-inch, 9,700 LF of 12-inch, and 6,550 LF of 8-inch ductile iron water mains and related customer service lines in city streets.

The following project is representative of the types of water main projects performed for ESWA:

4.3.1. Water Distribution System and Davis Street Pumping Station Improvement, Easton, PA

Client: Easton Suburban Water Authority

Completion Date: 2011

Contract Cost: \$8,600,000

Fee: \$1,160,358

Change Order Costs: Total, excluding owner requests, was \$24,534

Contact: Craig M. Swinsburg, 610-258-7181, ext. 218

Similar Tasks:

- Engineering
- Permitting
- Contract document preparation
- Bidding
- Construction
- Inspection

In 1957, the City of Easton incorporated the ESWA to provide water service to the City's surrounding municipalities with water from the City's water treatment plant. Fifty years later, the City of Easton and ESWA entered into a 25-year Lease Agreement allowing ESWA to assume management, capital improvement, and operational responsibilities for the entire distribution system within the City's limits, along with operation and maintenance of the water treatment plant.

The City's oldest water mains date back to 1887 and are cast iron. Due to their age, condition, and insufficient size, the cast irons pipes need replaced throughout the City. ESWA contracted with Gannett Fleming to provide engineering and construction management services for distribution system improvements totaling \$7.6 million. The contract was separated into three phases involving the replacement of existing pipes with new 6,350 LF of 24 inch, 700 LF of 16 inch, 9,700 LF of 12 inch, 6,550 LF of 8 inch, 700 LF of 6 inch, and 200 LF of 4 inch ductile iron water mains. The planned

distribution system replacements also involved sidewalk improvements and Americans with Disabilities Act (ADA)-compliant ramps.

Gannett Fleming provided construction management services throughout the project, including pay estimates, shop drawings, Requests for Information, value engineering, contractor coordination, and field inspection. Throughout the project, Gannett Fleming also coordinated with sanitary, electrical, natural gas, cable, and phone utilities. To maintain traffic flow throughout the City streets, Gannett Fleming assisted ESWA with a maintenance of traffic (MOT) plan, coordinated road closures with local emergency services, and notified property owners of planned work.

Similar to other U.S. cities more than 250 years old, City records were not available or were incomplete or inaccurate, limiting our ability to determine historic underground utilities and features. Throughout the contract, the contractor uncovered unanticipated structures, including abandoned trolley track and brick culverts, which had to be removed, ultimately delaying the schedule.

Several of the affected streets were State-owned and restricted work duration between the hours of 9 a.m. and 3 p.m. In addition, and depending upon traffic patterns and road closures, work areas had to be backfilled and temporarily paved at the end of each work day to allow flow of traffic to resume. On-street parking by residents is normally a major concern when performing such a project within City streets. Gannett Fleming worked closely with ESWA to notify homeowners of upcoming work areas prior to start of construction within their areas and coordinated with homeowners to address concerns during construction.

Several times, utility companies mismarked their lines, and Gannett Fleming responded quickly to the location to diagnose the situation and determine what design changes were required, such as rerouting or changing elevation of the water main to address the issue and allow construction to resume. Another challenge involved planning work around

City-sponsored events such as parades and festivals, which, at times, limited work areas and duration during the construction season.

To mitigate lost time, Gannett Fleming and ESWA worked with the contractor to institute night and weekend work as necessary to work around the above construction progress restrictions. We also worked with each of the contractors to institute test pits excavation in upcoming work areas to determine soil conditions, locate underground utilities, uncover any anticipated abandoned structures, and develop an overall plan for pipeline installation.

Although full of challenging circumstances that caused schedule delay, Gannett Fleming worked with the contractor(s) to determine viable solutions to challenges, provide means to make up lost time, and successfully completed the project to ESWA's satisfaction.



**To mitigate lost time,
Gannett Fleming and ESWA
worked with the contractor to
institute night and weekend work
as necessary to work around
construction progress restrictions.**

4. Similar Projects

*Engineering Consulting Services for
Suburban Division Water Main Replacement Project*

4.4. Consulting Engineering Services, Newtown, PA

The Newtown Artesian Water Company (NAWC) serves Newtown Borough, Newtown Township, and part of Middletown Township in Bucks County, Pennsylvania. The water distribution system serves approximately 10,000 customers in three service levels at an average daily demand of approximately 2.4 mgd. System facilities include one bulk supply interconnection, three well stations (five wells), four storage facilities, and three booster pumping stations.

The NAWC has retained Gannett Fleming since 1995 to provide consulting engineering services in connection with operation, management, and improvement of the NAWC water distribution system. We provide routine assistance in capital planning, regulatory compliance, and main repair/replacement. Our planning services have included projecting future water demands by compiling and analyzing historical system data and mapping, determining existing and potential service territory, developing a water demand projection spreadsheet model to predict demands, and predicting demands. The model is routinely used in support of planning, including evaluation of system service extensions, design, and in connection with facility/system operational changes.

The following project is representative of the types of water main projects performed for NAWC:

4.4.1. State Street Water Main Replacement, Newtown, PA

Client: Newtown Artesian Water Company

Completion Date: 2009

Contract Cost: \$900,000 for Phases I and II; Phase III on hold

Fee: \$112,114

Change Order Costs: None for Phases I and II

Contact: George A. Forsyth, Jr., 215-968-6781

Similar Tasks:

- Engineering
- Permitting
- Contract document preparation

Gannett Fleming prepared construction drawings for 6,400 LF of 12-inch and 8-inch water main that included surveying the route, preparing preliminary and final construction drawings, detour plans, a Pennsylvania Department of Environmental Protection General Stream Crossing Permit for a stream crossing that involved the use of horizontal directional drilling techniques, and designs to satisfy Pennsylvania Department of Transportation ADA curb requirements at multiple intersections.

4.5. Main Replacement Engineering Services, Southeastern PA

AQUA Pennsylvania, Inc. serves 420,000 customers in 30 counties across Pennsylvania. System facilities include 12 water treatment facilities, 200 wells, and more than 5,600 miles of main.

Since 2003, Gannett Fleming has been under contract to AQUA Pennsylvania to design the replacement of numerous water mains. Our services have included survey, preparation of base plans, preliminary layout of the new main and the preparation of final design drawings in accordance with AQUA Design Specifications.

Our firm has also submitted permit applications on behalf of AQUA to the Pennsylvania Department of Transportation (Highway Occupancy), Pennsylvania Department of Environmental Protection (GP-5 Stream Crossing), and the County Conservation Districts (erosion and sedimentation control). Our work has also included horizontal directional drilling under streams and conventional boring under railroads and, where required, we prepared traffic control details and detour plans.

Representative projects include:

- 12,500 feet of 16-inch main in Route 420, Springfield Township, Delaware County
- 13,900 feet of 12-inch main in Chester Pike (Route 13), Ridley Township, Delaware County
- 7,500 feet of 16-inch and 12-inch main in Sproul Road (Route 320), Springfield Township, Delaware County
- 4,000 feet of 24-inch main in Thomson Avenue, Springfield Township, Delaware County
- 5,500 feet of 16-inch main in Cheltenham Avenue, Cheltenham Township, Montgomery County
- 4,700 feet of 12-inch main in Burmont Road, Upper Darby Township, Delaware County
- 10,500 feet of 16-inch main in Route 52, various townships, Chester County
- 2,600 feet of 12-inch main in Baltimore Pike, Springfield Township, Delaware County

- 4,600 feet of 12-inch main in Delmar Drive, Folcroft Borough, Delaware County
- 8,200 feet of 16-inch and 12-inch main in Baltimore Pike & Route 352, Middletown Township, Delaware County.

The following project is representative of the services performed for AQUA Pennsylvania on water main projects:

4.5.1. Neshaminy Transmission Main Route, Phase I, II, and III, Bucks County, PA

Client: AQUA Pennsylvania, Inc.

Completion Date: Ongoing

Contract Cost: \$7,500,000 for Phase II; Phase III cost not yet available

Fee: \$543,284

Change Order Costs: None for Phase II

Contact: Dennis Mahoney, 610-645-1143

Similar Tasks:

- Engineering
- Permitting
- Contract document preparation

Gannett Fleming performed a study that evaluated several potential routes for a proposed 36-inch ductile iron transmission main, including identifying alternative routes, assessing constructability and permitting requirements, preparing preliminary order-of-magnitude cost estimates for the various routes, developing a report and exhibits describing the routes, and making recommendations on the most cost-effective route.



Gannett Fleming performed a study that evaluated several potential transmission main routes and included making recommendations on the most cost-effective route.

4. Similar Projects

Engineering Consulting Services for Suburban Division Water Main Replacement Project

We prepared construction plans and profiles for a proposed 19,600 feet of 36-inch ductile iron transmission main for Phase II of the Neshaminy Transmission Main Project, starting at the intersection of Bristol Road with Grove Road, going on Bristol Road, Spruce Road, Weldon Street, Brownsville Road, Street Road and Philmont Avenue to Bustleton Avenue. Our work also included performing site investigations; developing base and final plans; locating existing utilities; laying out the proposed water main; developing profiles for the entire main and detailed profiles for three tunneling creek crossings and two directionally drilled creek crossings; and performing the final dimensioning of mains, including erosion and sedimentation control drawings.

For Phase III, the firm prepared construction plans and profiles for proposed 18,600 feet of 36-inch ductile iron transmission main beginning on Philmont Avenue (S.R. 2040) west of the intersection of Philmont Avenue and Bustleton Avenue, at the terminus of Stage 2 of the Neshaminy Transmission Main, going on Philmont Avenue to Huntingdon Pike, extending west on Welsh Road (the extension of Philmont Road) to the intersection of Welsh Road and the driveway to Aqua's Bethayres Pumping Station, approximately 1,200 feet west of Huntingdon Pike. Our work included performing site investigations; developing base and final plans; locating existing utilities; laying out the proposed water main; developing profiles for the entire main and detailed profiles for two tunneling creek crossings and five jack-and-bore creek crossings; and performing the final dimensioning of mains, including erosion and sedimentation control drawings.

4.6. Main Replacement Engineering Services, Nationwide

American Water serves approximately 16.2 million people in more than 30 states and Ontario, Canada.

Gannett Fleming has a 50+-year relationship with American Water companies, providing engineering services on water and wastewater projects. This includes our service relationship, through the first Master Services Agreement with American Water, and also includes numerous large design-build projects. Gannett Fleming, through its Valuation and Rates Division, has also served many of the American Water subsidiaries in rate cases and public utility commission issues. American Water has awarded more than 60 projects to Gannett Fleming since October of 2006, including over 25 miles of new and replacement pipelines.

The following project is representative of the services performed for Pennsylvania American Water on water main projects:

4.6.1. Water Main Replacement on the S.R. 0039 Bridge over Swatara Creek, Harrisburg, PA

Client: American Water

Completion Date: 2010

Contract Cost: Unknown; private bid

Fee: \$44,933

Change Order Costs: None

Contact: Dave Kaufman, 717-531-3303

Similar Tasks:

- Engineering
- Permitting

Gannett Fleming designed the replacement of 350 LF of a 20-inch, flanged-steel water main on the S.R. 0039 Bridge over the Swatara Creek with new, 18-inch ductile iron main.

Gannett Fleming also obtained Pennsylvania Department of Transportation (PennDOT) permits, performed analysis to rehang the pipe on the bridge,

obtained stream crossing permit, redesigned hangers and pipe-expansion joint, and selected wax-based corrosion protection coating system.



Figure 4-4: Gannett Fleming designed the Water Main Replacement on S.R. 0039 Bridge that was completed on schedule.

4. Similar Project

*Engineering Consulting Services for
Suburban Division Water Main Replacement Project*

Figure 4-1: Project Worksheet. The following table includes the project name, tasks performed, completion date, contract cost, change order cost, and contact name and telephone number for Gannett Fleming's water main replacement projects performed within the past five years of a similar nature to LCA's Suburban Division Water Main Replacement Project.

Project Name, Client, Location	Tasks	Completion Date	Contract Cost	Change Order Cost	Contact Name Phone Number
Allentown Division - Water Main Replacement Program, Lehigh County Authority, Allentown, PA	Engineering, permitting, contract document preparation, bidding, construction, and inspection	Ongoing (Estimated 2016)	\$1,927,323	Anticipated to be ~ 3.75%	Jason M. Peters, Capital Works Assistant 610-398-2503
Water Distribution Study and Pennsylvania Department of Transportation (PennDOT) Utility Relocation Projects, Northampton Borough Municipal Authority, Northampton, PA	Engineering, permitting, contract document preparation, bidding, construction, and inspection	2013	N/A	None	Steve Kerbacher 610-262-6711
Water Distribution System and Davis Street Pumping Station, Easton Suburban Water Authority, Easton, PA	Engineering, permitting, contract document preparation, bidding, construction, and inspection	2011	\$8,600,000	\$24,534	Craig M. Swinsburg 610-258-7181, ext. 218
State Street Water Main Replacement, Newtown Artesian Water Company, Newtown, PA	Engineering, permitting, contract document preparation	2009	\$900,000	\$0	George A. Forsyth, Jr. 215-968-6781
Neshaminy Transmission Main Route, Phase I, II, and III, AQUA Pennsylvania, Inc., Bucks County, PA	Engineering, permitting, and contract document preparation	Ongoing	\$7,500,000 for Phase II; N/A for Phase III \$543,284 (Fee)	None for Phase II	Dennis Mahoney 610-645-1143
Water Main Replacement on the S.R. 0039 Bridge over Swatara Creek, American Water, Harrisburg, PA	Engineering and permitting	2010	Unknown; private bid \$44,933 (Fee)	None	Dave Kaufman 717-531-3303

5. Estimated Man-Hours



5. Estimated Man-Hours

5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 1 – Township Roads												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/CADD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
1		General Phase Tasks:										
a	LF	Project Schedule	0.0008		0.0008							0.0015
b	LF	Project Progress Meetings	0.0008		0.0027							0.0034
2		Permitting/Approval Phase Tasks:										
a	LF	Prepare & Submit all permits & address all comments	0.0008		0.0068		0.0015				0.0019	0.0110
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	0.0023	0.0095		0.0061				0.0015	.0201
3		Contract Document Preparation Phase Tasks:										
a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾										
b	LF	Conduct field survey										
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾										
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0059	0.0045	0.0248		0.0267					0.0619
4		Construction Administration Phase Tasks:										
a	LF	Schedule & conduct all construction meetings						0.0030	0.0091			0.0121
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments						0.0076	0.0061			0.0136
c	LF	Prepare record drawing in ACAD & PDF formats			0.0004		0.0015		0.0008			0.0027
d	LF	Conduct walk through at substabtial/final completion ⁽²⁾							0.0023			0.0023

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5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 1 – Township Roads												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/CADD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
e	LS	Review all contractor submittals & provide interpretation and recommendations ⁽³⁾	0.0023	0.0015	0.0102		0.0015	0.0076	0.0102			0.0333
5		Inspection Phase Tasks: (a LCA's discretion)										
a	LF	Provide daily construction observation and as-builts field plans ⁽⁴⁾								0.0909		0.0909
b	LF	Provide GPS data collection (only if approved by LCA Project Manager) ⁽⁵⁾										0.0000
Totals			0.0112	0.0083	0.0551	0.0000	0.0373	0.0182	0.0284	0.0909	0.0034	0.2528

5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 1 - State Roads												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/CA DD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
6		General Phase Tasks:										
a	LF	Project Schedule	0.0008		0.0008							0.0015
b	LF	Project Progress Meetings	0.0008		0.0027							0.0034
7		Permitting/Approval Phase Tasks:										
a	LF	Prepare & Submit all permits & address all comments	0.0023	0.0015	0.0174		0.0076				0.0034	0.0322
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	0.0023	0.0095		0.0061				0.0015	0.0201
8		Contract Document Preparation Phase Tasks:										
a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾										
b	LF	Conduct field survey										
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾										
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0059	0.0045	0.0256		0.0275					0.0634
9		Construction Administration Phase Tasks:										
a	LF	Schedule & conduct all construction meetings						0.0030	0.0091			0.0121
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments						0.0076	0.0061			0.0136
c	LF	Prepare record drawing in ACAD & PDF formats			0.0004		0.0015		0.0008			0.0027
d	LF	Conduct walk through at substabial/final completion ⁽²⁾							0.0023			0.0023

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5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 1 - State Roads												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/CA DD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
e	LS	Review all contractor submittals & provide interpretation and recommendations ⁽³⁾	0.0023	0.0015	0.0102		0.0015	0.0076	0.0102			0.0333
5		Inspection Phase Tasks: (a LCA's discretion)										
a	LF	Provide daily construction observation and as-builts field plans ⁽⁴⁾								0.0909		0.0909
b	LF	Provide GPS data collection (only if approved by LCA Project Manager) ⁽⁵⁾										
Totals			0.0127	0.0098	0.0665	0.0000	0.0441	0.0182	0.0284	0.0909	0.0049	0.2756

5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 1 – Outside of Road Right-of-Ways												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/CADD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
11		General Phase Tasks:										
a	LF	Project Schedule	0.0008		0.0008							0.0015
b	LF	Project Progress Meetings	0.0008		0.0027							0.0034
12		Permitting/Approval Phase Tasks:										
a	LF	Prepare & Submit all permits & address all comments	0.0008		0.0068		0.0015				0.0019	0.0110
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	0.0023	0.0095		0.0061				0.0015	0.0201
13		Contract Document Preparation Phase Tasks:										
a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾										0.0000
b	LF	Conduct field survey										0.0000
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾										0.0000
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0051	0.0042	0.0210		0.0252					0.0555
14		Construction Administration Phase Tasks:										
a	LF	Schedule & conduct all construction meetings						0.0030	0.0091			0.0121
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments						0.0076	0.0061			0.0136
c	LF	Prepare record drawing in ACAD & PDF formats			0.0004		0.0015		0.0008			0.0027

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5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 1 – Outside of Road Right-of-Ways												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/ CADD	Admin Asst	Const Mgr	Inspec- tor	Clerical	Sub- Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
d	LF	Conduct walk through at substabtial/final completion ⁽²⁾							0.0023			0.0023
e	LS	Review all contractor submittals & provide interpretation and reccomendations ⁽³⁾	0.0023	0.0015	0.0102		0.0015	0.0076	0.0102			0.0333
5		Inspection Phase Tasks: (a LCA's discretion)										
a	LF	Provide daily construction observation and as-builts field plans ⁽⁴⁾								0.0909		0.0909
b	LF	Provide GPS data collection (only if approved by LCA Project Manger) ⁽⁵⁾										0.0000
Totals			0.0104	0.0080	0.0513	0.0000	0.0358	0.0182	0.0284	0.0909	0.0034	0.2464

5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 1												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/CA DD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
16		Contract Document Preparation Phase Tasks:										
a	LS	Prepare Project Manual at 30%, 60%, 90%, & completion	0.0002	0.0002	0.0008	0.0030						0.0042
b	LS	Prepare Technical Specification at 30%, 60%, 90%, & completion	0.0004	0.0006	0.0023	0.0030						0.0063
17		Bidding Phase Tasks:										
a	LS	Prepare bid advertisement	0.0002		0.0004	0.0009					0.0004	0.0019
b	LS	Distribute contract doc's, respond to RFI's, & issue Addenda's	0.0002	0.0002	0.0008	0.0021	0.0006				0.0015	0.0053
c	LS	Conduct mandatory Pre-Bid Meeting and bid openings			0.0030							0.0030
d	LS	Review bidder qualifications & provide recommendation with respect to bids	0.0004	0.0013							0.0004	0.0021
e	LS	prepare necessary agreement and performance bonds	0.0002					0.0009	0.0006			0.0017
18		Construction Administration Phase Tasks:										
a	LS	Coordinate receipt & issuance of all contract documents						0.0030	0.0008			0.0038
Totals			0.0015	0.0023	0.0072	0.0091	0.0006	0.0040	0.0013	0.0000	0.0023	0.0282

5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 2 – Township Roads												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/CADD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
1		General Phase Tasks:										
a	LF	Project Schedule	0.0008		0.0008							0.0015
b	LF	Project Progress Meetings	0.0008		0.0027							0.0034
2		Permitting/Approval Phase Tasks:										
a	LF	Prepare & Submit all permits & address all comments	0.0008		0.0068		0.0015				0.0019	0.0110
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	0.0023	0.0095		0.0061				0.0015	0.0201
3		Contract Document Preparation Phase Tasks:										
a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾										
b	LF	Conduct field survey										
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾										
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0059	0.0045	0.0248		0.0267					0.0619
4		Construction Administration Phase Tasks:										
a	LF	Schedule & conduct all construction meetings						0.0030	0.0091			0.0121
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments						0.0076	0.0061			0.0136
c	LF	Prepare record drawing in ACAD & PDF formats			0.0004		0.0015		0.0008			0.0027
d	LF	Conduct walk through at substabial/final completion ⁽²⁾							0.0023			0.0023

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5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 2 – Township Roads												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/ CADD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
e	LS	Review all contractor submittals & provide interpretation and recommendations ⁽³⁾	0.0023	0.0015	0.0102		0.0015	0.0076	0.0102			0.0333
5		Inspection Phase Tasks: (a LCA's discretion)										
a	LF	Provide daily construction observation and as-builts field plans ⁽⁴⁾								0.1212		0.0909
b	LF	Provide GPS data collection (only if approved by LCA Project Manager) ⁽⁵⁾										
Totals			0.0112	0.0083	0.0551	0.0000	0.0373	0.0182	0.0284	0.1212	0.0034	0.2528

5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 2 - State Roads												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/CA DD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
6		General Phase Tasks:										
a	LF	Project Schedule	0.0008		0.0008							0.0015
b	LF	Project Progress Meetings	0.0008		0.0027							0.0034
7		Permitting/Approval Phase Tasks:										
a	LF	Prepare & Submit all permits & address all comments	0.0023	0.0015	0.0174		0.0076				0.0034	0.0322
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	0.0023	0.0095		0.0061				0.0015	0.0201
8		Contract Document Preparation Phase Tasks:										
a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾										
b	LF	Conduct field survey										
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾										
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0059	0.0045	0.0256		0.0275					0.0634
9		Construction Administration Phase Tasks:										
a	LF	Schedule & conduct all construction meetings						0.0030	0.0091			0.0121
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments						0.0076	0.0061			0.0136
c	LF	Prepare record drawing in ACAD & PDF formats			0.0004		0.0015		0.0008			0.0027
d	LF	Conduct walk through at substabial/final completion ⁽²⁾							0.0023			0.0023

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5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 2 - State Roads												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/CA DD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
e	LS	Review all contractor submittals & provide interpretation and recommendations ⁽³⁾	0.0023	0.0015	0.0102		0.0015	0.0076	0.0102			0.0333
5		Inspection Phase Tasks: (a LCA's discretion)										
a	LF	Provide daily construction observation and as-builts field plans ⁽⁴⁾								0.1212		0.0909
b	LF	Provide GPS data collection (only if approved by LCA Project Manager) ⁽⁵⁾										
Totals			0.0104	0.0080	0.0513	0.0000	0.0358	0.0182	0.0284	0.1212	0.0034	0.2464

5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 2 – Outside of Road Right-of-Ways												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/CA DD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
11		General Phase Tasks:										
a	LF	Project Schedule	0.0008		0.0008							0.0015
b	LF	Project Progress Meetings	0.0008		0.0027							0.0034
12		Permitting/Approval Phase Tasks:										
a	LF	Prepare & Submit all permits & address all comments	0.0008		0.0068		0.0015				0.0019	0.0110
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	0.0023	0.0095		0.0061				0.0015	0.0201
13		Contract Document Preparation Phase Tasks:										
a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾										0.0000
b	LF	Conduct field survey										0.0000
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾										0.0000
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0051	0.0042	0.0210		0.0252					0.0555
14		Construction Administration Phase Tasks:										
a	LF	Schedule & conduct all construction meetings						0.0030	0.0091			0.0121
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments						0.0076	0.0061			0.0136
c	LF	Prepare record drawing in ACAD & PDF formats			0.0004		0.0015		0.0008			0.0027
d	LF	Conduct walk through at substabial/final completion ⁽²⁾							0.0023			0.0023

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5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 2 – Outside of Road Right-of-Ways												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/CA DD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
e	LS	Review all contractor submittals & provide interpretation and recommendations ⁽³⁾	0.0023	0.0015	0.0102		0.0015	0.0076	0.0102			0.0333
5		Inspection Phase Tasks: (a LCA's discretion)										
a	LF	Provide daily construction observation and as-builts field plans ⁽⁴⁾								0.1212		0.0909
b	LF	Provide GPS data collection (only if approved by LCA Project Manager) ⁽⁵⁾										
Totals			0.0104	0.0080	0.0513	0.0000	0.0358	0.0182	0.0284	0.1212	0.0034	0.2464

5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 2												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/CA DD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
16		Contract Document Preparation Phase Tasks:										
a	LS	Prepare Project Manual at 30%, 60%, 90%, & completion	0.0002	0.0002	0.0008	0.0030						0.0042
b	LS	Prepare Technical Specification at 30%, 60%, 90%, & completion	0.0004	0.0006	0.0023	0.0030						0.0063
17		Bidding Phase Tasks:										
a	LS	Prepare bid advertisement	0.0002		0.0004	0.0009					0.0004	0.0019
b	LS	Distribute contract doc's, respond to RFI's, & issue Addenda's	0.0002	0.0002	0.0008	0.0021	0.0006				0.0015	0.0053
c	LS	Conduct mandatory Pre-Bid Meeting and bid openings			0.0030							0.0030
d	LS	Review bidder qualifications & provide recommendation with respect to bids	0.0004	0.0013							0.0004	0.0021
e	LS	prepare necessary agreement and performance bonds	0.0002					0.0009	0.0006			0.0017
18		Construction Administration Phase Tasks:										
a	LS	Coordinate receipt & issuance of all contract documents						0.0030	0.0008			0.0038
Totals			0.0015	0.0023	0.0072	0.0091	0.0006	0.0040	0.0013	0.0000	0.0023	0.0282

5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 3 – Township Roads												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/CADD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
1		General Phase Tasks:										
a	LF	Project Schedule	0.0008		0.0008							0.0015
b	LF	Project Progress Meetings	0.0008		0.0027							0.0034
2		Permitting/Approval Phase Tasks:										
a	LF	Prepare & Submit all permits & address all comments	0.0008		0.0068		0.0015				0.0019	0.0110
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	0.0023	0.0095		0.0061				0.0015	0.0201
3		Contract Document Preparation Phase Tasks:										
a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾										
b	LF	Conduct field survey										
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾										
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0059	0.0045	0.0248		0.0267					0.0619
4		Construction Administration Phase Tasks:										
a	LF	Schedule & conduct all construction meetings						0.0030	0.0091			0.0121
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments						0.0076	0.0061			0.0136
c	LF	Prepare record drawing in ACAD & PDF formats			0.0004		0.0015		0.0008			0.0027
d	LF	Conduct walk through at substabial/final completion ⁽²⁾							0.0023			0.0023

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5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 3 – Township Roads												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/ CADD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
e	LS	Review all contractor submittals & provide interpretation and recommendations ⁽³⁾	0.0023	0.0015	0.0102		0.0015	0.0076	0.0102			0.0333
5		Inspection Phase Tasks: (a LCA's discretion)										
a	LF	Provide daily construction observation and as-builts field plans ⁽⁴⁾								0.0909		0.0909
b	LF	Provide GPS data collection (only if approved by LCA Project Manager) ⁽⁵⁾										0.0000
Totals			0.0112	0.0083	0.0551	0.0000	0.0373	0.0182	0.0284	0.0909	0.0034	0.2528

5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 3 – State Roads												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/CA DD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
6		General Phase Tasks:										
a	LF	Project Schedule	0.0008		0.0008							0.0015
b	LF	Project Progress Meetings	0.0008		0.0027							0.0034
7		Permitting/Approval Phase Tasks:										
a	LF	Prepare & Submit all permits & address all comments	0.0023	0.0015	0.0174		0.0076				0.0034	0.0322
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	0.0023	0.0095		0.0061				0.0015	0.0201
8		Contract Document Preparation Phase Tasks:										
a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾										
b	LF	Conduct field survey										
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾										
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0059	0.0045	0.0256		0.0275					0.0634
9		Construction Administration Phase Tasks:										
a	LF	Schedule & conduct all construction meetings						0.0030	0.0091			0.0121
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments						0.0076	0.0061			0.0136
c	LF	Prepare record drawing in ACAD & PDF formats			0.0004		0.0015		0.0008			0.0027
d	LF	Conduct walk through at substabial/final completion ⁽²⁾							0.0023			0.0023

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5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 3 – State Roads												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/CA DD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
e	LS	Review all contractor submittals & provide interpretation and recommendations ⁽³⁾	0.0023	0.0015	0.0102		0.0015	0.0076	0.0102			0.0333
5		Inspection Phase Tasks: (a LCA's discretion)										
a	LF	Provide daily construction observation and as-builts field plans ⁽⁴⁾								0.0909		0.0909
b	LF	Provide GPS data collection (only if approved by LCA Project Manager) ⁽⁵⁾										
Totals			0.0127	0.0098	0.0665	0.0000	0.0441	0.0182	0.0284	0.0909	0.0049	0.2756

5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 3 – Outside of Road Right-of-Ways												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/CA DD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
11		General Phase Tasks:										
a	LF	Project Schedule	0.0008		0.0008							0.0015
b	LF	Project Progress Meetings	0.0008		0.0027							0.0034
12		Permitting/Approval Phase Tasks:										
a	LF	Prepare & Submit all permits & address all comments	0.0008		0.0068		0.0015				0.0019	0.0110
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	0.0023	0.0095		0.0061				0.0015	0.0201
13		Contract Document Preparation Phase Tasks:										
a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾										0.0000
b	LF	Conduct field survey										0.0000
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾										0.0000
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0051	0.0042	0.0210		0.0252					0.0555
14		Construction Administration Phase Tasks:										
a	LF	Schedule & conduct all construction meetings						0.0030	0.0091			0.0121
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments						0.0076	0.0061			0.0136
c	LF	Prepare record drawing in ACAD & PDF formats			0.0004		0.0015		0.0008			0.0027
d	LF	Conduct walk through at substabial/final completion ⁽²⁾							0.0023			0.0023

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5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 3 – Outside of Road Right-of-Ways												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/CA DD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
e	LS	Review all contractor submittals & provide interpretation and recommendations ⁽³⁾	0.0023	0.0015	0.0102		0.0015	0.0076	0.0102			0.0333
5		Inspection Phase Tasks: (a LCA's discretion)										
a	LF	Provide daily construction observation and as-builts field plans ⁽⁴⁾								0.0909		0.0909
b	LF	Provide GPS data collection (only if approved by LCA Project Manager) ⁽⁵⁾										0.0000
Totals			0.0104	0.0080	0.0513	0.0000	0.0358	0.0182	0.0284	0.0909	0.0034	0.2464

5. Estimated Man-Hours

Engineering Consulting Services for
Suburban Division Water Main Replacement Project

Cycle 3												
Task / Phase			Consultant Man-Hours									
Task Nos.	Unit Pay Type	Description	PM	Sr PM I	Design Tech	Sr Tech	Tech/CA DD	Admin Asst	Const Mgr	Inspector	Clerical	Sub-Total
			Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs	Mhrs
16		Contract Document Preparation Phase Tasks:										
a	LS	Prepare Project Manual at 30%, 60%, 90%, & completion	0.0002	0.0002	0.0008	0.0030						0.0042
b	LS	Prepare Technical Specification at 30%, 60%, 90%, & completion	0.0004	0.0006	0.0023	0.0030						0.0063
17		Bidding Phase Tasks:										
a	LS	Prepare bid advertisement	0.0002		0.0004	0.0009					0.0004	0.0019
b	LS	Distribute contract doc's, respond to RFI's, & issue Addenda's	0.0002	0.0002	0.0008	0.0021	0.0006				0.0015	0.0053
c	LS	Conduct mandatory Pre-Bid Meeting and bid openings			0.0030							0.0030
d	LS	Review bidder qualifications & provide recommendation with respect to bids	0.0004	0.0013							0.0004	0.0021
e	LS	prepare necessary agreement and performance bonds	0.0002					0.0009	0.0006			0.0017
18		Construction Administration Phase Tasks:										
a	LS	Coordinate receipt & issuance of all contract documents						0.0030	0.0008			0.0038
Totals			0.0015	0.0023	0.0072	0.0091	0.0006	0.0040	0.0013	0.0000	0.0023	0.0282

6. Schedule



6. Schedule

Gannett Fleming has developed a proposed schedule for three cycles of the main replacement program. Per feedback from LCA, we have based the schedule on receiving authorization to proceed in January 2015. The Cycle 1 schedule meets LCA's desired schedule outlined in the RFP. (Note that our ability to meet the Cycle 1 schedule could be negatively impacted by weather delays, as survey field work is scheduled during winter months.) We have established the schedule for Cycles 2 and 3 to coincide with the schedule for the Allentown Division Main Replacement Project to allow for bidding as a combined project, if desired by LCA.

ID	Task Name	Start	Finish	Qtr 4	2015				2016				2017		
					Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3
1	Cycle 1 Design Phase	Tue 1/13/15	Wed 5/27/15												
2	Survey	Tue 1/13/15	Fri 2/13/15												
3	35% Submission	Mon 2/16/15	Fri 3/13/15												
4	LCA 35% Review	Mon 3/16/15	Mon 3/23/15												
5	Substantial Complete LCA Submission	Tue 3/24/15	Fri 5/8/15												
6	LCA Substantial Complete Review	Fri 5/8/15	Wed 5/20/15												
7	Final Submission	Thu 5/21/15	Wed 5/27/15												
8	Cycle 1 Bid Phase	Fri 5/29/15	Tue 7/7/15												
9	Advertise for Bid	Fri 5/29/15	Fri 5/29/15												
10	Pre-Bid Meeting	Mon 6/1/15	Fri 6/5/15												
11	Bid Opening	Fri 6/26/15	Fri 6/26/15												
12	Notice of Intent	Tue 7/7/15	Tue 7/7/15												
13	Cycle 1 Construction Phase	Tue 7/21/15	Tue 12/29/15												
14	Notice to Proceed	Tue 7/21/15	Tue 7/21/15												
15	Pre-Con Meeting	Fri 7/24/15	Fri 7/24/15												
16	Construction Phase	Wed 8/12/15	Tue 12/29/15												
17	Cycle 2 Design Phase	Mon 6/1/15	Fri 9/25/15												
18	Cycle 2 Bid Phase	Wed 9/30/15	Tue 11/24/15												
19	Cycle 2 Construction Phase	Wed 12/9/15	Tue 9/13/16												
20	Cycle 3 Design Phase	Wed 6/1/16	Tue 9/27/16												
21	Cycle 2 Bid Phase	Fri 9/30/16	Thu 11/24/16												
22	Cycle 2 Construction Phase	Fri 12/9/16	Thu 9/14/17												



Gannett Fleming

*Excellence Delivered **As Promised***

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P14-4531



LEHIGH COUNTY AUTHORITY

Engineering Consulting Services for Suburban Division Water Main Replacement Project

December 2014



Gannett Fleming

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Establishing cost estimates per linear foot for design, bid, and construction phase services on unknown pipeline construction projects requires the development of certain assumptions with respect to these anticipated projects. Our base approach to the design, bid, and construction phase services and associated cost estimate are based on our experience and anticipation of the typical projects that will be included in the main replacement program. A summary list of key assumptions and qualifiers for our scope of services and associated cost estimate is provided below to clarify items included and not included. Our proposed costs only apply to the scope and associated assumptions described in this Proposal. It is acknowledged that deviations from these assumptions and qualifications may be necessary throughout the main replacement program.

1. Assumptions and Qualifiers for Cost Estimate

- Engineering services contract will be based on an overall not-to-exceed fee for the project for authorized tasks. The project not-to-exceed fee will be established based on the costs per foot provided in the cost tables.
- One construction contract assumed per construction cycle totaling a minimum one mile of main per year. The contract will be written based on LCA procuring their own pipe material.
- Conventional trench excavation without the need for temporary water services is assumed for construction method.
- Subsurface utility engineering (SUE), ground penetrating radar (GPR), and other forms of advanced testing and sampling is not included as the need for these technologies and techniques is generally anticipated to be atypical for these projects.
- Delineation of wetlands is not anticipated in proposed projects.
- Railroad crossing permit applications are not anticipated in proposed projects.
- Stream crossing permit applications (GP-5 and GP-11) are not anticipated in proposed projects.
- Pennsylvania Department of Transportation (PennDOT) bridge replacements are not anticipated as part of proposed projects.
- Construction is assumed to disturb less than one acre, and, therefore, National Pollutant Discharge Elimination System (NPDES) Storm Water permits are not required. However, as requested, a cost per linear foot to submit NPDES permit applications is provided.
- Permit fees will be the responsibility of LCA.
- The need to address American with Disabilities Act (ADA) curb cuts is not known and thus not included for the purpose of the cost estimates.
- LCA reviews for the design submittals will be combined into a single set of review comments. A single joint review meeting will be held for each submittal.
- LCA review of final submission will only entail verification that previously presented comments have been adequately addressed. Effort is not included to address newly raised comments addressing design details previously presented in the conceptual design and/or substantial completion submissions.
- Quality assurance/quality control (QA/QC) testing is to be observed by Gannett Fleming but will be conducted by others.
- Construction engineering and construction management costs assume that construction observation services are to be provided by Gannett Fleming. If construction observation services are to be provided by a third party, costs may increase due to need additional coordination. Gannett Fleming will work with LCA to establish associated costs, as needed.
- Annual construction period is to be from approximately March 15 through October 15, and will consist of 210 calendar days and 150 working days. It is assumed for the base cost estimate that a work week consists of 40 hours with no weekends, holidays, or overtime.
- Construction meetings will include a pre-construction meeting, monthly progress meetings (three for each cycle), and a conditional acceptance walk-through.

*Engineering Consulting Services for
Suburban Division Water Main Replacement Project*

- It is estimated that up to four weeks of each construction period will include, but not be limited to, the following non-installation activities:
 - Mobilization/demobilization
 - Shop drawing reviews
 - Material procurement and delivery
 - Roadway restoration
 - Property restoration
 - Punch list.
- Based on experience with Cycle 1 of the Allentown Division Water Main Replacement Project, the expected production rate is estimated to be 100 linear feet per day per pipe crew, assuming one pipe crew per cycle.
- Level of effort is based upon one Resident Project Representative (RPR) assigned to observe and record the activities of up to two pipe crews. Thus, one RPR is assumed per cycle.
- The use of two pipeline crews per Cycle for expedited construction would minimize the construction duration, thereby minimizing the effort associated with construction observation services.
- Full-time construction observation effort is assumed for the duration of construction.
- Effort in assisting LCA in managing and resolving contractor claims is assumed not to be required for these projects.
- Effort and/or equipment cost for global positioning system (GPS) data collection in support of record drawings assumes use of LCA GPS equipment to minimize cost. However, as needed, Gannett Fleming can provide GPS equipment at an additional cost.
- Employee interviews in support of payment requests are not included.
- Projects that require a PennDOT Highway Occupancy Permit (HOP) will be considered a state road project for the entire length of main. Linear foot costs for projects that involve some combination of local road and outside of road right-of-way will be based on the percentage of each for the given project.

2. Potential Cost Reductions

Our cost proposal, which follows this Section, and the associated man-hours estimate provided in Section 5 of the Technical Proposal are based on the scope of services in Section 1 of the Technical Proposal and the assumptions described above. We established our scope of services and assumptions to meet the requirements of the Request for Proposal (RFP). However, our engineering effort, and subsequently costs, could be reduced for certain tasks if LCA chooses to combine the Suburban and the Allentown Division Water Main Replacement Projects. In particular, our effort in developing bid documents and bid phase services is primarily driven by the number of projects bid and thus could be combined. Additional potential effort reduction and corresponding opportunities for engineering cost savings that could be negotiated with LCA if the Suburban and the Allentown Division Projects are combined into a single project are as follows:

- Meetings and associated effort in addressing reviews could be consolidated.
- Some aspects of construction engineering and management services could be consolidated.
- If more than one pipe crew is working simultaneously, a single RPR could cover both crews, thereby reducing the cost per linear foot of daily observation services. (As noted in our Technical Proposal, it is recommended that LCA consider construction observation services on a project specific basis after construction duration and other parameters are better defined).

In addition to those items noted above, Gannett Fleming would work with LCA to establish the most cost-effective means to provide daily observation services. Options that could be considered include subcontracting to a local firm, use of a less-experienced staff member, and long-term “subcontracting” of Gannett Fleming staff directly to LCA.

2014 Billing Rate Schedule ⁽¹⁾

Classification	Rate ⁽²⁾
Project Principal	\$185.00
Senior Project Manager II	\$170.00
Senior Project Manager I	\$160.00
Project Manager	\$150.00
Senior Project Engineer II	\$155.00
Senior Project Engineer I	\$135.00
Project Engineer	\$115.00
Staff Engineer	\$105.00
Junior Engineer	\$95.00
Environmental Scientist/Operations Specialist II	\$115.00
Environmental Scientist/Operations Specialist II	\$105.00
Design Technician	\$110.00
Senior Technician	\$100.00 ⁽³⁾
Technician/CADD Operator	\$60.00 ⁽³⁾
GIS Manager	\$175.00
Senior GIS Technician	\$105.00
GIS Technician	\$85.00
Senior Construction Manager	\$180.00
Administrative Assistant	\$85.00 ⁽³⁾
Clerk/Typist/Secretary	\$45.00 ⁽³⁾

⁽¹⁾ Billing Rates subject to annual adjustment in January of each year.

⁽²⁾ Fully loaded rate, including salary; payroll burdens, such as insurances, health benefits, and other employee benefits; overhead; and profit.

⁽³⁾ Authorized overtime to be invoiced at a rate of 1.5 times the listed rate.

STANDARD TERMS AND CONDITIONS

This schedule describes Gannett Fleming's Standard Terms and Conditions for professional services. Proposal cost estimates are valid for 30 days from the date of the proposal, unless an alternate period is specified therein. Acceptance of a proposal by the Client constitutes a valid and binding contract subject to the following terms and conditions.

1. AGREEMENT DOCUMENTS

This Agreement, titled _____ dated _____ and any attachments thereto, including Gannett Fleming's _____ dated _____, is the complete agreement between the Client and Gannett Fleming. No other document shall be part of this Agreement unless specifically agreed to by the Client and Gannett Fleming in writing.

2. STANDARD OF CARE

All services will be provided in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently providing the same or similar services under similar circumstances and in accordance with applicable standards in effect at the time services are provided. All estimates, recommendations, opinions, and decisions of Gannett Fleming will be made upon the basis of the information available to Gannett Fleming and Gannett Fleming's experience, technical qualifications, and professional judgment. OTHER THAN AS EXPRESSLY AGREED, GANNETT FLEMING PROVIDES NO WARRANTY, EITHER EXPRESS OR IMPLIED, OR GUARANTEES REGARDING THE OUTCOME OF ITS SERVICES.

3. CLIENT RESPONSIBILITIES

By virtue of entering into this Agreement and providing the described services, Gannett Fleming does not assume responsibility for any conditions at the Client's site(s) that may present a danger, either potential or real, to health, safety, or the environment. Moreover, the Client hereby agrees that it is the Client's responsibility to notify any and all appropriate federal, state, or local authorities, as required by law, of the existence of any such potential or real danger and otherwise to disclose to all appropriate or affected individuals or entities, in a timely manner, any information that may be necessary to prevent any danger to health, safety, or the environment.

4. PAYMENT TERMS

Invoices will be rendered to the Client on a monthly basis. Invoices are due and payable upon receipt. Payments by credit card are subject to an additional fee of 5% of the invoice amount for costs of handling. Any questions regarding the invoiced terms or amounts shall be addressed to Gannett Fleming within 30 days of the date of the invoice. Otherwise, the invoice shall be considered correct, payable, and not disputed by the Client. If the invoice is not paid in full within 30 days after the date of the invoice, the Client further agrees to pay interest of 1% per month (compounded) from the date of invoice on the unpaid balance until the invoice is paid in full. If Gannett Fleming retains a collection agency or attorney to collect receivables due more than 30 days, the Client agrees to pay the fees imposed by such collection agency or attorney, as well any other costs of collection.

5. INDEMNIFICATION

The Client shall indemnify, defend, and hold harmless Gannett Fleming, Gannett Fleming's independent professional associates and consultants, and Gannett Fleming's employees from and against all claims, damages, losses, and expenses, including, but not limited to, fees and charges of attorneys and court and arbitration costs arising out of or resulting from the project, or claims against Gannett Fleming arising from the work of others, unless the claims, damages, losses, or expenses result from the proven negligence or willful misconduct of Gannett Fleming. This indemnification shall not be limited in amount or type of damages, compensation or benefits payable under workers' compensation acts, disability benefit acts, or other employee benefit acts.

6. ALLOCATION OF RISK

The Client hereby agrees, to the fullest extent permitted by law, that the allocation of risk for Gannett Fleming's total liability to the Client for any and all injuries, claims, losses, expenses, or damages whatsoever, arising out of or in any way related to Gannett Fleming's services under this Agreement, including, but not limited to negligence, errors, omissions, strict liability, breach of contract, or breach of warranty, shall not exceed the amount of Gannett Fleming's fees or \$250,000, whichever is less. A higher allocation may be negotiated between the parties and accepted in writing by Gannett Fleming.

7. INSURANCE

Gannett Fleming shall procure and maintain insurance for protection from claims under workers' compensation acts, claims for damages because of bodily injury including personal injury, sickness or disease or death of any and all employees or of any person other than such employees, and from claims or damages because of injury to or destruction of property, at least in the following amounts and with insurers that have at least an "A" operating and "Class VII" financial rating as listed in "Best's Key Rating Guide, latest edition. Workers' Compensation coverage shall be through the State Workmen's Insurance Fund, or in any insurance company, or mutual association or company, authorized to insure such liability in Pennsylvania. Insurance coverage shall be primary coverage; except for professional liability; remain in full force and effect until final acceptance of improvements by the Lehigh County Authority. Should any of the insurance policies be cancelled before the expiration thereof, notice will be delivered in accordance with the policy provisions. Gannett Fleming shall provide written notice to the Lehigh County Authority and the City of Allentown, Department of Finance, Risk Manager at any time Gannett Fleming becomes aware of any cancellation or material changes in the insurance policies. Certificates of Insurance should be provided annually and stay current and in effect through all stages of the work, except that the professional liability insurance shall be maintained in effect for a minimum of one year beyond the completion of construction. All policies except Workers' Compensation and Professional Liability shall name the Lehigh County Authority and the City of Allentown as additionally insureds on the policy. The original Certificate(s) of Insurance has been provided to the Authority.

Type of Coverage	Minimum Limits
Workers' Compensation (Including coverage under United States Longshoremen's and Harbor Workers Act, where applicable)	Statutory
(1) Employer's Liability	
Each Accident	\$500,000
Disease; Each Employee	\$500,000
Disease; Aggregate	\$1,000,000
Comprehensive General (Public) Liability, including the following:	\$1,000,000 per occurrence
(1) XCU coverage covering explosion, collapse, underground damage.	\$200,000,000 aggregate
(2) Blasting hazards where applicable.	
(3) Personal Injury	
Aggregate:	
(4) Bodily Injury and Property Damage	
Motor Vehicle Liability	
(1) Bodily Injury and Property Damage, which shall include the following coverages:	\$1,000,000 per occurrence
(aa) Owned	\$2,000,000 aggregate
(bb) Non-Owned	
(cc) Hired Vehicles	
Excess/Umbrella Liability	\$500,000,00 per occurrence and in aggregate
Professional Liability	\$2,000,000

8. CLIENT PARTICIPATION

The Client's personnel directly or indirectly involved in this Agreement shall participate as the Client's employees. Gannett Fleming assumes no liability for claims related to injury to such employees.

9. ACCESS

The Client shall arrange for and guarantee access to and make all provisions for Gannett Fleming to enter upon public and private property as required for Gannett Fleming to perform its services.

10. UNKNOWN CONDITIONS, DELAY AND EXTRA WORK CHARGES

The measures for providing the services described in this Agreement were developed to accommodate existing conditions at the site and constitute the best assessment by Gannett Fleming of the means to perform the services. Should Gannett Fleming determine that, due to conditions unknown by Gannett Fleming on the date of scheduled services, the measures for preparation and for providing the services described in this Agreement will not fulfill the requirements of the assignment, Gannett Fleming will notify the Client. Such notification will include a description of the conditions, a recommendation as to the measures to accommodate such

Client Agreements-

A8-Standard-Terms&Conditions-Client short form

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conditions, and a cost estimate, if applicable. Should the Client decide not to carry out such recommended measures, this Agreement will be subject to revision or, if appropriate, termination upon payment of services rendered to date.

11. RE-USE OF DOCUMENTS

All reports, original final reproducible drawings, plans, specifications, calculations, studies, software program tapes, models, notes, and memoranda assembled or prepared by Gannett Fleming pursuant to this Agreement are instruments of service in respect to the Project, and Client shall retain an ownership and property interest therein, whether or not the Project is completed ("Client Documents and Information"), provided, that Gannett Fleming shall have the right to their use with approval of Client. Gannett Fleming shall upon payment for services rendered furnish Client, upon its request, originals or reproducible copies of technical specifications and copies of all other documents and data listed above and hereby assigns all right, title and interest in and to the Client Documents and Information to the Client. Gannett Fleming shall endorse, by its professional seal, all plans and engineering data furnished by it. Rights to intellectual property developed, utilized, or modified in the performance of the service shall remain property of Gannett Fleming.

Client acknowledges that Gannett Fleming may provide information related to the Client Documents and Information in computer assisted design and drafting format [CADD] to the Client. CADD is derived in part from software for which Gannett Fleming is licensed. These licenses are not transferrable. If such is the case, Gannett Fleming will inform Client of such licenses and the costs for Client to obtain its own license for Client's use of these CADD Service Instruments. Any unlicensed reuse of CADD may subject the user to liabilities to the software licensor.

12. MISCELLANEOUS

All Gannett Fleming's services under this Agreement are intended solely for the Client's benefit. Nothing contained herein shall confer any rights upon or create any duties on the part of Gannett Fleming toward any person or persons not a party to this Agreement, including, but not limited to, the Client's contractors, subcontractors, suppliers, agents, insurers, or sureties. Gannett Fleming is not responsible for the safety of any party at the worksite who is not under Gannett Fleming's direct control.

13. ADDITIONAL SERVICES

Appropriate and reasonable additional services (not already stipulated in this Agreement) will be provided if authorized by the Client and agreed to by Gannett Fleming. Such additional services will be provided for additional compensation agreed to at the time the services are authorized. Gannett Fleming will, at mutually agreed upon rates, provide assistance to and on behalf of the Client, in the form of technical information, analysis, and expert witnesses in claims and/or litigation in connection with this Agreement, including any claims or litigation brought by the Client against third parties or brought against the Client by third parties.

14. PROPERTY RIGHTS

All Intellectual Property rights to any tangible property and tangible work products created by Gannett Fleming pursuant to or in the course of this Agreement shall belong exclusively to Gannett Fleming, as well as all systems, programs, and specifications, and other materials and hardware or ideas,

concepts, know-how, or techniques relating to data processing, systems, or programs developed and used by Gannett Fleming herein. The same shall continue to belong exclusively to Gannett Fleming whether or not specifically adapted for the Client's use. Nothing herein precludes development and marketing by Gannett Fleming of any competitive system, program, data processing materials, or other Intellectual Property, irrespective of whether same are similar or related to that developed or incorporated for the Client pursuant to this Agreement. The Client is granted a personal, nonexclusive, nontransferable license to use the software, data, and related materials based on the terms and conditions of this Agreement.

15. CONSEQUENTIAL DAMAGES

The Client hereby agrees that to the fullest extent permitted by law Gannett Fleming shall not be liable to the Client for any special, indirect, or consequential damages whatsoever, whether caused by Gannett Fleming's negligence, errors, omissions, strict liability, breach of contract, breach of warranty, or other cause or causes whatsoever, including, but not limited to, delay of use of equipment or facility, loss of profit or revenue, or cost of using alternative or replacement equipment or facilities.

16. DISPUTES

Any claim, controversy, or dispute between the parties to this Agreement arising out of or in connection with this Agreement, or any breach thereof, shall, upon the request of either party, be submitted to the senior officers of each party responsible for this Agreement. In the event that the senior officers cannot agree, either party may request mediation and, if both parties agree, the matter shall be submitted to mediation. Upon written notice, the parties shall select a mediator acceptable to both parties in order to resolve the dispute. Any suits brought under this Agreement or in any way arising out of this Agreement must be filed within one year from the time mediation was terminated unsuccessfully or from the time the cause of action arose (if no mediation is undertaken) or it shall be time barred.

17. TERMINATION OF AGREEMENT

This Agreement may be terminated by either party upon thirty (30) days written notice, by mutual consent or in the event of substantial failure by the other party to perform in accordance with the terms of the Agreement through no fault of the terminating party. The Client may terminate this Agreement for its convenience, in whole or in part, by thirty (30) days written notice to Gannett Fleming specifying the extent to which performance of services is terminated and the date upon which such termination becomes effective.

18. COMPENSATION UPON TERMINATION

In the event of termination by the Client, Gannett Fleming shall be paid for unbilled services, including expenses, rendered to the date of termination. In the event of any such termination, Gannett Fleming shall also be paid for all reasonable termination expenses, lost revenue, and lost profits. "Termination expenses" means expenses attributable to termination, including termination settlement costs incurred by Gannett Fleming relating to commitments that had become firm prior to termination.

19. OVERTIME

Overtime will be billed at a premium rate of 1.5 times the straight direct labor rate for employees subject to premium

overtime for project time in excess of the standard work day established for the project, Monday through Friday, and for work on weekends and holidays.

20. NONDISCRIMINATION & AFFIRMATIVE ACTION

In connection with its performance under this Agreement, Gannett Fleming shall be subject to all applicable federal, state and local laws, including City of Allentown laws) regarding non-discrimination, including (i) the Civil Rights Act of 1964, 42 U.S.C. §2000 et seq. (1981); (ii) the Civil Rights Act of 1991, P.L. 102-166; (iii) Executive Order Number 11246, 30 Fed. Reg. 12,319 (1965), reprinted in 42 U.S.C. §2000(e) note, as amended by Executive Order Number 11375, 32 Fed. Reg. 14,303 (1967) and by Executive Order Number 12086, 43 Fed. Reg. 46,501 (1978); (iv) the Age Discrimination Act, 42 U.S.C. §6101-6106 (1981); (v) the Age Discrimination in Employment Act, 29 U.S.C. §§621-34 (1967); (vi) the Rehabilitation Act of 1973, 29 U.S.C. §§793-794 (1981); (vii) the Americans with Disabilities Act, 42 U.S.C. §1201 et seq. (1990); and (viii) the Pennsylvania Human Relations Act, Act of October 27, 1955 (P.L. 744, No. 222) as amended, 43 P.S. §§951-963, so that neither GANNETT FLEMING nor its subcontractors will discriminate against any employee or applicant for employment because of race, color, creed, religion, age, sex, marital status, sexual orientation or affectional preference, national origin, ancestry, citizenship, physical or mental handicap or because he or she is a disabled veteran or veteran of the Vietnam era. Gannett Fleming shall take affirmative action to ensure that qualified applicants are employed and that employees are treated during employment without regard to their race, color, creed, religion, age, sex, marital status, sexual orientation or affectional preference, national origin, ancestry, citizenship, physical or mental handicap or because he or she is a disabled veteran or veteran of the Vietnam era. Such actions shall include recruiting and hiring, selection for training, promotion, fixing rates or other compensation, benefits, transfers and layoff or termination.

***** End of Standard Terms and Conditions *****

LEHIGH COUNTY AUTHORITY
SUBURBAN DIVISION - WATER MAIN REPLACEMENT PROJECT
Consultant Proposal Manhour/Cost Allocation Work Sheet

Task / Phase			CYCLE 1 MAIN REPLACEMENTS																				Sub	not to exceed fee Total cost
Task Nos.	Unit Pay Type	Description	PM		Sr PM I		Design Tech		Sr Tech		Tech/CADD		Admin Asst		Con. Mgr.		Inspector		Clerical		Sub-Total		Sub Consultant Cost	
			Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost		
Not To Exeed Fee																								
Engineering Services																								
Township Roads																								
1		General Phase Tasks:																						
a	LF	Project Schedule	0.0008	\$0.12			0.0008	\$0.08													0.0015	\$0.20		\$0.20
b	LF	Project Progress Meetings	0.0008	\$0.12			0.0027	\$0.29													0.0034	\$0.41		\$0.41
2		Permitting/Approval Phase Tasks:																						
a	LF	Prepare & Submit all permits & address all comments	0.0008	\$0.12			0.0068	\$0.75			0.0015	\$0.09							0.0019	\$0.09	0.0110	\$1.04		\$1.04
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	\$0.12	0.0023	\$0.36	0.0095	\$1.04			0.0061	\$0.36							0.0015	\$0.07	0.0201	\$1.95		\$1.95
3		Contract Document Preparation Phase Tasks:																						
a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾																						\$0.00
b	LF	Conduct field survey																					\$2.49	\$2.49
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾																						\$0.00
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0059	\$0.91	0.0045	\$0.73	0.0248	\$2.73			0.0267	\$1.60									0.0619	\$5.97		\$5.97
4		Construction Administration Phase Tasks:																						
a	LF	Schedule & conduct all construction meetings											0.0030	\$0.27	0.0091	\$1.59					0.0121	\$1.86		\$1.86
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments											0.0076	\$0.68	0.0061	\$1.06					0.0136	\$1.74		\$1.74
c	LF	Prepare record drawing in ACAD & PDF formats					0.0004	\$0.04			0.0015	\$0.09			0.0008	\$0.13					0.0027	\$0.27		\$0.27
d	LF	Conduct walk through at substabtial/final completion ⁽²⁾													0.0023	\$0.40					0.0023	\$0.40		\$0.40
e	LS	Review all contractor submittals & provide interpretation and reccomendations ⁽³⁾	0.0023	\$0.35	0.0015	\$0.24	0.0102	\$1.13			0.0015	\$0.09	0.0076	\$0.68	0.0102	\$1.79					0.0333	\$4.28		\$4.28
5		Inspection Phase Tasks: (a LCA's discretion)																						
a	LF	Provide daily construction observation and as-builts field plans ⁽⁴⁾															0.0909	\$9.55			0.0909	\$9.55		\$9.55
b	LF	Provide GPS data collection (only if approved by LCA Project Manger) ⁽⁵⁾																			0.0000	\$0.00		\$0.00
Totals			0.0112	\$1.73	0.0083	\$1.33	0.0551	\$6.06	0.0000	\$0.00	0.0373	\$2.24	0.0182	\$1.64	0.0284	\$4.97	0.0909	\$9.55	0.0034	\$0.15	0.2528	\$27.67	\$2.49	\$30.16
State Roads																								
6		General Phase Tasks:																						
a	LF	Project Schedule	0.0008	\$0.12			0.0008	\$0.08													0.0015	\$0.20		\$0.20
b	LF	Project Progress Meetings	0.0008	\$0.12			0.0027	\$0.29													0.0034	\$0.41		\$0.41
7		Permitting/Approval Phase Tasks:																						
a	LF	Prepare & Submit all permits & address all comments	0.0023	\$0.35	0.0015	\$0.24	0.0174	\$1.92			0.0076	\$0.45							0.0034	\$0.15	0.0322	\$3.12		\$3.12
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	\$0.12	0.0023	\$0.36	0.0095	\$1.04			0.0061	\$0.36							0.0015	\$0.07	0.0201	\$1.95		\$1.95
8		Contract Document Preparation Phase Tasks:																						
a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾																						\$0.00
b	LF	Conduct field survey																					\$2.49	\$2.49
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾																						\$0.00
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0059	\$0.91	0.0045	\$0.73	0.0256	\$2.81			0.0275	\$1.65									0.0634	\$6.10		\$6.10
9		Construction Administration Phase Tasks:																						
a	LF	Schedule & conduct all construction meetings											0.0030	\$0.27	0.0091	\$1.59					0.0121	\$1.86		\$1.86
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments											0.0076	\$0.68	0.0061	\$1.06					0.0136	\$1.74		\$1.74
c	LF	Prepare record drawing in ACAD & PDF formats					0.0004	\$0.04			0.0015	\$0.09			0.0008	\$0.13					0.0027	\$0.27		\$0.27
d	LF	Conduct walk through at substabtial/final completion ⁽²⁾													0.0023	\$0.40					0.0023	\$0.40		\$0.40
e	LS	Review all contractor submittals & provide interpretation and reccomendations ⁽³⁾	0.0023	\$0.35	0.0015	\$0.24	0.0102	\$1.13			0.0015	\$0.09	0.0076	\$0.68	0.0102	\$1.79					0.0333	\$4.28		\$4.28
5		Inspection Phase Tasks: (a LCA's discretion)																						
a	LF	Provide daily construction observation and as-builts field plans ⁽⁴⁾															0.0909	\$9.55			0.0909	\$9.55		\$9.55
b	LF	Provide GPS data collection (only if approved by LCA Project Manger) ⁽⁵⁾																						\$0.00
Totals			0.0127	\$1.97	0.0098	\$1.58	0.0665	\$7.31	0.0000	\$0.00	0.0441	\$2.65	0.0182	\$1.64	0.0284	\$4.97	0.0909	\$9.55	0.0049	\$0.22	0.2756	\$29.88	\$2.49	\$32.37
Outside of road right-of-ways																								
11		General Phase Tasks:																						
a	LF	Project Schedule	0.0008	\$0.12			0.0008	\$0.08													0.0015	\$0.20		\$0.20
b	LF	Project Progress Meetings	0.0008	\$0.12			0.0027	\$0.29													0.0034	\$0.41		\$0.41
12		Permitting/Approval Phase Tasks:																						
a	LF	Prepare & Submit all permits & address all comments	0.0008	\$0.12			0.0068	\$0.75			0.0015	\$0.09							0.0019	\$0.09	0.0110	\$1.04		\$1.04
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	\$0.12	0.0023	\$0.36	0.0095	\$1.04			0.0061	\$0.36							0.0015	\$0.07	0.0201	\$1.95		\$1.95
13		Contract Document Preparation Phase Tasks:																						\$0.00

a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾																			0.0000	\$0.00		\$0.00
b	LF	Conduct field survey																			0.0000	\$0.00	\$2.49	\$2.49
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾																			0.0000	\$0.00		\$0.00
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0051	\$0.79	0.0042	\$0.67	0.0210	\$2.31			0.0252	\$1.51									0.0555	\$5.28		\$5.28
14		Construction Administration Phase Tasks:																						
a	LF	Schedule & conduct all construction meetings										0.0030	\$0.27	0.0091	\$1.59						0.0121	\$1.86		\$1.86
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments										0.0076	\$0.68	0.0061	\$1.06						0.0136	\$1.74		\$1.74
c	LF	Prepare record drawing in ACAD & PDF formats					0.0004	\$0.04			0.0015	\$0.09			0.0008	\$0.13					0.0027	\$0.27		\$0.27
d	LF	Conduct walk through at substabtial/final completion ⁽²⁾													0.0023	\$0.40					0.0023	\$0.40		\$0.40
e	LS	Review all contractor submittals & provide interpretation and reccomendations ⁽³⁾	0.0023	\$0.35	0.0015	\$0.24	0.0102	\$1.13			0.0015	\$0.09	0.0076	\$0.68	0.0102	\$1.79					0.0333	\$4.28		\$4.28
5		Inspection Phase Tasks: (a LCA's discretion)																						
a	LF	Provide daily construction observation and as-builts field plans ⁽⁴⁾															0.0909	\$9.55			0.0909	\$9.55		\$9.55
b	LF	Provide GPS data collection (only if approved by LCA Project Manger) ⁽⁵⁾																			0.0000	\$0.00		\$0.00
Totals			0.0104	\$1.61	0.0080	\$1.27	0.0513	\$5.65	0.0000	\$0.00	0.0358	\$2.15	0.0182	\$1.64	0.0284	\$4.97	0.0909	\$9.55	0.0034	\$0.15	0.2464	\$26.99	\$2.49	\$29.48
16		Contract Document Preparation Phase Tasks:																						
a	LS	Prepare Project Manual at 30%, 60%, 90%, & completion	0.0002	\$0.03	0.0002	\$0.03	0.0008	\$0.08	0.0030	\$0.32											0.0042	\$0.46		\$0.46
b	LS	Prepare Technical Specification at 30%, 60%, 90%, & completion	0.0004	\$0.06	0.0006	\$0.09	0.0023	\$0.25	0.0030	\$0.32											0.0063	\$0.72		\$0.72
17		Bidding Phase Tasks:																						
a	LS	Prepare bid advertisement	0.0002	\$0.03			0.0004	\$0.04	0.0009	\$0.10								0.0004	\$0.02	0.0019	\$0.19		\$0.19	
b	LS	Distribute contract doc's, respond to RFI's, & issue Addenda's	0.0002	\$0.03	0.0002	\$0.03	0.0008	\$0.08	0.0021	\$0.22	0.0006	\$0.03						0.0015	\$0.07	0.0053	\$0.46		\$0.46	
c	LS	Conduct mandatory Pre-Bid Meeting and bid openings					0.0030	\$0.33													0.0030	\$0.33		\$0.33
d	LS	Review bidder qualifications & provide reccomendantion with respect to bids	0.0004	\$0.06	0.0013	\$0.21												0.0004	\$0.02	0.0021	\$0.29		\$0.29	
e	LS	prepare necessary agreement and performance bonds	0.0002	\$0.03									0.0009	\$0.09	0.0006	\$0.10					0.0017	\$0.21		\$0.21
18		Construction Administration Phase Tasks:																						
a	LS	Coordinate receipt & issuance of all contract documents											0.0030	\$0.27	0.0008	\$0.13					0.0038	\$0.41		\$0.41
Totals			0.0015	\$0.23	0.0023	\$0.36	0.0072	\$0.79	0.0091	\$0.95	0.0006	\$0.03	0.0040	\$0.36	0.0013	\$0.23	0.0000	\$0.00	0.0023	\$0.10	0.0282	\$3.07	\$0.00	\$3.07

(1) Costs for deed research and preperation of esement documents cannot be provided on a per foot basis as the cost is directly related to the number of properties involved, which could vary significantly dependig on location. Effort is also contingent on need for additional survey. It is assumed deed research and preperation of esement documents wil not be required for the majority of projects.

If such work is needed, Gannett Fleming wil develop a not-to-exceed cost for the particular project using the active fee schedule. Costs typically range from approximately \$2,500 to \$3,500 per property.

(2) Based on anticipated permits as noted in assumptions, regulatory inspection walk-throughs are not included in base cost.

(3) Effort involved in reviewing contractor submittals and providing interpretation is heavily reliant on the extent of work involved. AS such, this task was moved to a linear foot cost base instead of a lump sum cost base.

(4) Daily observations services include routine mark-up of as-builts plans. There is no means to feasible separate out the effort for as-built field plans. As such, these tasks were combined.

(5) GPS field data collection can be a routine responsibility of Gannett Fleming's resident project representative. A such, there are no costs are associated with GPS field collection of as-built data if GPS equipment is provided by LCA consistent with our assumptions. Gannett Fleming can provide equipment at a cost if desired by LCA.

LEHIGH COUNTY AUTHORITY
SUBURBAN DIVISION - WATER MAIN REPLACEMENT PROJECT
Consultant Proposal Manhour/Cost Allocation Work Sheet

Task / Phase			CYCLE 2 MAIN REPLACEMENTS																						
			Consultant Manhours / Cost Per Linear Foot																				Sub Sub Consultant Cost	not to exceed fee Total cost	
			PM		Sr PM I		Design Tech		Sr Tech		Tech/CADD		Admin Asst		Con. Mgr.		Inspector		Clerical		Sub-Total				
Task Nos.	Unit Pay Type	Description	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost			
Not To Exeed Fee																									
Engineering Services																									
Township Roads																									
1		General Phase Tasks:																							
a	LF	Project Schedule	0.0008	\$0.12			0.0008	\$0.09													0.0015	\$0.21		\$0.21	
b	LF	Project Progress Meetings	0.0008	\$0.12			0.0027	\$0.30													0.0034	\$0.42		\$0.42	
2		Permitting/Approval Phase Tasks:																							
a	LF	Prepare & Submit all permits & address all comments	0.0008	\$0.12			0.0068	\$0.78			0.0015	\$0.09							0.0019	\$0.09	0.0110	\$1.08		\$1.08	
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	\$0.12	0.0023	\$0.38	0.0095	\$1.08			0.0061	\$0.38							0.0015	\$0.07	0.0201	\$2.02		\$2.02	
3		Contract Document Preparation Phase Tasks:																							
a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾																						\$0.00	
b	LF	Conduct field survey																					\$2.58	\$2.58	
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾																						\$0.00	
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0059	\$0.94	0.0045	\$0.75	0.0248	\$2.82			0.0267	\$1.66									0.0619	\$6.18		\$6.18	
4		Construction Administration Phase Tasks:																							
a	LF	Schedule & conduct all construction meetings												0.0030	\$0.28	0.0091	\$1.65					0.0121	\$1.93		\$1.93
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments												0.0076	\$0.71	0.0061	\$1.10					0.0136	\$1.80		\$1.80
c	LF	Prepare record drawing in ACAD & PDF formats					0.0004	\$0.04			0.0015	\$0.09			0.0008	\$0.14					0.0027	\$0.27		\$0.27	
d	LF	Conduct walk through at substabtial/final completion ⁽²⁾													0.0023	\$0.41					0.0023	\$0.41		\$0.41	
e	LS	Review all contractor submittals & provide interpretation and reccomendations ⁽³⁾	0.0023	\$0.36	0.0015	\$0.25	0.0102	\$1.16			0.0015	\$0.09	0.0076	\$0.71	0.0102	\$1.85					0.0333	\$4.43		\$4.43	
5		Inspection Phase Tasks: (a LCA's discretion)																							
a	LF	Provide daily construction observation and as-builts field plans ⁽⁴⁾															0.1212	\$11.92			0.0909	\$9.88		\$9.88	
b	LF	Provide GPS data collection (only if approved by LCA Project Manger) ⁽⁵⁾																						\$0.00	
Totals			0.0112	\$1.79	0.0083	\$1.38	0.0551	\$6.27	0.0000	\$0.00	0.0373	\$2.32	0.0182	\$1.69	0.0284	\$5.15	0.1212	\$11.92	0.0034	\$0.16	0.2528	\$28.64	\$2.58	\$31.22	
State Roads																									
6		General Phase Tasks:																							
a	LF	Project Schedule	0.0008	\$0.12			0.0008	\$0.09													0.0015	\$0.21		\$0.21	
b	LF	Project Progress Meetings	0.0008	\$0.12			0.0027	\$0.30													0.0034	\$0.42		\$0.42	
7		Permitting/Approval Phase Tasks:																							
a	LF	Prepare & Submit all permits & address all comments	0.0023	\$0.36	0.0015	\$0.25	0.0174	\$1.98			0.0076	\$0.47							0.0034	\$0.16	0.0322	\$3.23		\$3.23	
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	\$0.12	0.0023	\$0.38	0.0095	\$1.08			0.0061	\$0.38							0.0015	\$0.07	0.0201	\$2.02		\$2.02	
8		Contract Document Preparation Phase Tasks:																							
a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾																						\$0.00	
b	LF	Conduct field survey																					\$2.58	\$2.58	
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾																						\$0.00	
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0059	\$0.94	0.0045	\$0.75	0.0256	\$2.91			0.0275	\$1.71									0.0634	\$6.31		\$6.31	
9		Construction Administration Phase Tasks:																							
a	LF	Schedule & conduct all construction meetings												0.0030	\$0.28	0.0091	\$1.65					0.0121	\$1.93		\$1.93
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments												0.0076	\$0.71	0.0061	\$1.10					0.0136	\$1.80		\$1.80
c	LF	Prepare record drawing in ACAD & PDF formats					0.0004	\$0.04			0.0015	\$0.09			0.0008	\$0.14					0.0027	\$0.27		\$0.27	
d	LF	Conduct walk through at substabtial/final completion ⁽²⁾													0.0023	\$0.41					0.0023	\$0.41		\$0.41	
e	LS	Review all contractor submittals & provide interpretation and reccomendations ⁽³⁾	0.0023	\$0.36	0.0015	\$0.25	0.0102	\$1.16			0.0015	\$0.09	0.0076	\$0.71	0.0102	\$1.85					0.0333	\$4.43		\$4.43	
5		Inspection Phase Tasks: (a LCA's discretion)																							
a	LF	Provide daily construction observation and as-builts field plans ⁽⁴⁾															0.1212	\$11.92			0.0909	\$9.88		\$9.88	
b	LF	Provide GPS data collection (only if approved by LCA Project Manger) ⁽⁵⁾																						\$0.00	
Totals			0.0127	\$2.04	0.0098	\$1.63	0.0665	\$7.57	0.0000	\$0.00	0.0441	\$2.74	0.0182	\$1.69	0.0284	\$5.15	0.1212	\$11.92	0.0049	\$0.23	0.2756	\$30.92	\$2.58	\$33.50	
Outside of road right-of-ways																									
11		General Phase Tasks:																							
a	LF	Project Schedule	0.0008	\$0.12			0.0008	\$0.09													0.0015	\$0.21		\$0.21	
b	LF	Project Progress Meetings	0.0008	\$0.12			0.0027	\$0.30													0.0034	\$0.42		\$0.42	
12		Permitting/Approval Phase Tasks:																							
a	LF	Prepare & Submit all permits & address all comments	0.0008	\$0.12			0.0068	\$0.78			0.0015	\$0.09							0.0019	\$0.09	0.0110	\$1.08		\$1.08	
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	\$0.12	0.0023	\$0.38	0.0095	\$1.08			0.0061	\$0.38							0.0015	\$0.07	0.0201	\$2.02		\$2.02	
13		Contract Document Preparation Phase Tasks:																						\$0.00	

a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾																			0.0000	\$0.00		\$0.00
b	LF	Conduct field survey																			0.0000	\$0.00	\$2.58	\$2.58
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾																			0.0000	\$0.00		\$0.00
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0051	\$0.82	0.0042	\$0.69	0.0210	\$2.39			0.0252	\$1.56									0.0555	\$5.47		\$5.47
14		Construction Administration Phase Tasks:																						
a	LF	Schedule & conduct all construction meetings										0.0030	\$0.28	0.0091	\$1.65						0.0121	\$1.93		\$1.93
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments										0.0076	\$0.71	0.0061	\$1.10						0.0136	\$1.80		\$1.80
c	LF	Prepare record drawing in ACAD & PDF formats					0.0004	\$0.04			0.0015	\$0.09		0.0008	\$0.14						0.0027	\$0.27		\$0.27
d	LF	Conduct walk through at substabtial/final completion ⁽²⁾												0.0023	\$0.41						0.0023	\$0.41		\$0.41
e	LS	Review all contractor submittals & provide interpretation and reccomendations ⁽³⁾	0.0023	\$0.36	0.0015	\$0.25	0.0102	\$1.16			0.0015	\$0.09	0.0076	\$0.71	0.0102	\$1.85					0.0333	\$4.43		\$4.43
5		Inspection Phase Tasks: (a LCA's discretion)																						
a	LF	Provide daily construction observation and as-builts field plans ⁽⁴⁾															0.1212	\$11.92			0.0909	\$9.88		\$9.88
b	LF	Provide GPS data collection (only if approved by LCA Project Manger) ⁽⁵⁾																						\$0.00
Totals			0.0104	\$1.67	0.0080	\$1.32	0.0513	\$5.84	0.0000	\$0.00	0.0358	\$2.22	0.0182	\$1.69	0.0284	\$5.15	0.1212	\$11.92	0.0034	\$0.16	0.2464	\$27.93	\$2.58	\$30.51
16		Contract Document Preparation Phase Tasks:																						
a	LS	Prepare Project Manual at 30%, 60%, 90%, & completion	0.0002	\$0.03	0.0002	\$0.03	0.0008	\$0.09	0.0030	\$0.33										0.0042	\$0.48		\$0.48	
b	LS	Prepare Technical Specification at 30%, 60%, 90%, & completion	0.0004	\$0.06	0.0006	\$0.09	0.0023	\$0.26	0.0030	\$0.33										0.0063	\$0.74		\$0.74	
17		Bidding Phase Tasks:																						
a	LS	Prepare bid advertisement	0.0002	\$0.03			0.0004	\$0.04	0.0009	\$0.10								0.0004	\$0.02	0.0019	\$0.19		\$0.19	
b	LS	Distribute contract doc's, respond to RFT's, & issue Addenda's	0.0002	\$0.03	0.0002	\$0.03	0.0008	\$0.09	0.0021	\$0.23	0.0006	\$0.04						0.0015	\$0.07	0.0053	\$0.48		\$0.48	
c	LS	Conduct mandatory Pre-Bid Meeting and bid openings					0.0030	\$0.35												0.0030	\$0.35		\$0.35	
d	LS	Review bidder qualifications & provide reccomendantion with respect to bids	0.0004	\$0.06	0.0013	\$0.22												0.0004	\$0.02	0.0021	\$0.30		\$0.30	
e	LS	prepare necessary agreement and performance bonds	0.0002	\$0.03								0.0009	\$0.09	0.0006	\$0.10					0.0017	\$0.22		\$0.22	
18		Construction Administration Phase Tasks:																						
a	LS	Coordinate receipt & issuance of all contract documents										0.0030	\$0.28	0.0008	\$0.14					0.0038	\$0.42		\$0.42	
Totals			0.0015	\$0.24	0.0023	\$0.38	0.0072	\$0.82	0.0091	\$0.99	0.0006	\$0.04	0.0040	\$0.37	0.0013	\$0.24	0.0000	\$0.00	0.0023	\$0.11	0.0282	\$3.18	\$0.00	\$3.18

(1) Costs for deed research and preperation of esement documents cannot be provided on a per foot basis as the cost is directly related to the number of properties involved, which could vary significantly dependig on location. Effort is also contingent on need for additional survey. It is assumed deed research and preperation of esement documents wil not be required for the majority of projects.

If such work is needed, Gannett Fleming wil develop a not-to-exceed cost for the particular project using the active fee schedule. Costs typically range from approximately \$2,500 to \$3,500 per property.

(2) Based on anticipated permits as noted in assumptions, regulatory inspection walk-throughs are not included in base cost.

(3) Effort involved in reviewing contractor submittals and providing interpretation is heavily reliant on the extent of work involved. AS such, this task was moved to a linear foot cost base instead of a lump sum cost base.

(4) Daily observations services include routine mark-up of as-builts plans. There is no means to feasible separate out the effort for as-built field plans. As such, these tasks were combined.

(5) GPS field data collection can be a routine responsibility of Gannett Fleming's resident project representative. A such, there are no costs are associated with GPS field collection of as-built data if GPS equipment is provided by LCA consistent with our assumptions. Gannett Fleming can provide equipment at a cost if desired by LCA.

LEHIGH COUNTY AUTHORITY
SUBURBAN DIVISION - WATER MAIN REPLACEMENT PROJECT
Consultant Proposal Manhour/Cost Allocation Work Sheet

Task / Phase			CYCLE 3 MAIN REPLACEMENTS																				Sub Consultant Cost		not to exceed fee Total cost
			Consultant Manhours / Cost Per Linear Foot																						
			PM		Sr PM I		Design Tech		Sr Tech		Tech/CADD		Admin Asst		Con. Mgr.		Inspector		Clerical		Sub-Total				
Task Nos.	Unit Pay Type	Description	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost			
Not To Exeed Fee																									
Engineering Services																									
Township Roads																									
1		General Phase Tasks:																							
a	LF	Project Schedule	0.0008	\$0.13			0.0008	\$0.09												0.0015	\$0.22		\$0.22		
b	LF	Project Progress Meetings	0.0008	\$0.13			0.0027	\$0.31												0.0034	\$0.44		\$0.44		
2		Permitting/Approval Phase Tasks:																							
a	LF	Prepare & Submit all permits & address all comments	0.0008	\$0.13			0.0068	\$0.80			0.0015	\$0.10							0.0019	\$0.09	0.0110	\$1.12		\$1.12	
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	\$0.13	0.0023	\$0.39	0.0095	\$1.12			0.0061	\$0.39							0.0015	\$0.07	0.0201	\$2.09		\$2.09	
3		Contract Document Preparation Phase Tasks:																							
a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾																						\$0.00	
b	LF	Conduct field survey																					\$2.67	\$2.67	
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾																						\$0.00	
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0059	\$0.97	0.0045	\$0.78	0.0248	\$2.92			0.0267	\$1.72									0.0619	\$6.39		\$6.39	
4		Construction Administration Phase Tasks:																							
a	LF	Schedule & conduct all construction meetings											0.0030	\$0.29	0.0091	\$1.70					0.0121	\$2.00		\$2.00	
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments											0.0076	\$0.73	0.0061	\$1.14					0.0136	\$1.87		\$1.87	
c	LF	Prepare record drawing in ACAD & PDF formats					0.0004	\$0.04			0.0015	\$0.10			0.0008	\$0.14					0.0027	\$0.28		\$0.28	
d	LF	Conduct walk through at substabtial/final completion ⁽²⁾													0.0023	\$0.43					0.0023	\$0.43		\$0.43	
e	LS	Review all contractor submittals & provide interpretation and reccomendations ⁽³⁾	0.0023	\$0.38	0.0015	\$0.26	0.0102	\$1.21			0.0015	\$0.10	0.0076	\$0.73	0.0102	\$1.92					0.0333	\$4.59		\$4.59	
5		Inspection Phase Tasks: (a LCA's discretion)																							
a	LF	Provide daily construction observation and as-builts field plans ⁽⁴⁾															0.0909	\$10.23			0.0909	\$10.23		\$10.23	
b	LF	Provide GPS data collection (only if approved by LCA Project Manger) ⁽⁵⁾																			0.0000	\$0.00		\$0.00	
Totals			0.0112	\$1.86	0.0083	\$1.43	0.0551	\$6.49	0.0000	\$0.00	0.0373	\$2.40	0.0182	\$1.75	0.0284	\$5.33	0.0909	\$10.23	0.0034	\$0.16	0.2528	\$29.64	\$2.67	\$32.31	
State Roads																									
6		General Phase Tasks:																							
a	LF	Project Schedule	0.0008	\$0.13			0.0008	\$0.09													0.0015	\$0.22		\$0.22	
b	LF	Project Progress Meetings	0.0008	\$0.13			0.0027	\$0.31													0.0034	\$0.44		\$0.44	
7		Permitting/Approval Phase Tasks:																							
a	LF	Prepare & Submit all permits & address all comments	0.0023	\$0.38	0.0015	\$0.26	0.0174	\$2.05			0.0076	\$0.49							0.0034	\$0.16	0.0322	\$3.34		\$3.34	
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	\$0.13	0.0023	\$0.39	0.0095	\$1.12			0.0061	\$0.39							0.0015	\$0.07	0.0201	\$2.09		\$2.09	
8		Contract Document Preparation Phase Tasks:																							
a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾																						\$0.00	
b	LF	Conduct field survey																					\$2.67	\$2.67	
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾																						\$0.00	
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0059	\$0.97	0.0045	\$0.78	0.0256	\$3.01			0.0275	\$1.77									0.0634	\$6.53		\$6.53	
9		Construction Administration Phase Tasks:																							
a	LF	Schedule & conduct all construction meetings											0.0030	\$0.29	0.0091	\$1.70					0.0121	\$2.00		\$2.00	
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments											0.0076	\$0.73	0.0061	\$1.14					0.0136	\$1.87		\$1.87	
c	LF	Prepare record drawing in ACAD & PDF formats					0.0004	\$0.04			0.0015	\$0.10			0.0008	\$0.14					0.0027	\$0.28		\$0.28	
d	LF	Conduct walk through at substabtial/final completion ⁽²⁾													0.0023	\$0.43					0.0023	\$0.43		\$0.43	
e	LS	Review all contractor submittals & provide interpretation and reccomendations ⁽³⁾	0.0023	\$0.38	0.0015	\$0.26	0.0102	\$1.21			0.0015	\$0.10	0.0076	\$0.73	0.0102	\$1.92					0.0333	\$4.59		\$4.59	
5		Inspection Phase Tasks: (a LCA's discretion)																							
a	LF	Provide daily construction observation and as-builts field plans ⁽⁴⁾															0.0909	\$10.23			0.0909	\$10.23		\$10.23	
b	LF	Provide GPS data collection (only if approved by LCA Project Manger) ⁽⁵⁾																						\$0.00	
Totals			0.0127	\$2.11	0.0098	\$1.69	0.0665	\$7.83	0.0000	\$0.00	0.0441	\$2.84	0.0182	\$1.75	0.0284	\$5.33	0.0909	\$10.23	0.0049	\$0.24	0.2756	\$32.01	\$2.67	\$34.67	
Outside of road right-of-ways																									
11		General Phase Tasks:																							
a	LF	Project Schedule	0.0008	\$0.13			0.0008	\$0.09													0.0015	\$0.22		\$0.22	
b	LF	Project Progress Meetings	0.0008	\$0.13			0.0027	\$0.31													0.0034	\$0.44		\$0.44	
12		Permitting/Approval Phase Tasks:																							
a	LF	Prepare & Submit all permits & address all comments	0.0008	\$0.13			0.0068	\$0.80			0.0015	\$0.10							0.0019	\$0.09	0.0110	\$1.12		\$1.12	
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	\$0.13	0.0023	\$0.39	0.0095	\$1.12			0.0061	\$0.39							0.0015	\$0.07	0.0201	\$2.09		\$2.09	
13		Contract Document Preparation Phase Tasks:																						\$0.00	

a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾																			0.0000	\$0.00		\$0.00
b	LF	Conduct field survey																			0.0000	\$0.00	\$2.67	\$2.67
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾																			0.0000	\$0.00		\$0.00
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0051	\$0.85	0.0042	\$0.71	0.0210	\$2.48			0.0252	\$1.62									0.0555	\$5.66		\$5.66
14		Construction Administration Phase Tasks:																						
a	LF	Schedule & conduct all construction meetings										0.0030	\$0.29	0.0091	\$1.70						0.0121	\$2.00		\$2.00
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments										0.0076	\$0.73	0.0061	\$1.14						0.0136	\$1.87		\$1.87
c	LF	Prepare record drawing in ACAD & PDF formats					0.0004	\$0.04			0.0015	\$0.10			0.0008	\$0.14					0.0027	\$0.28		\$0.28
d	LF	Conduct walk through at substabtial/final completion ⁽²⁾													0.0023	\$0.43					0.0023	\$0.43		\$0.43
e	LS	Review all contractor submittals & provide interpretation and reccomendations ⁽³⁾	0.0023	\$0.38	0.0015	\$0.26	0.0102	\$1.21			0.0015	\$0.10	0.0076	\$0.73	0.0102	\$1.92					0.0333	\$4.59		\$4.59
5		Inspection Phase Tasks: (a LCA's discretion)																						
a	LF	Provide daily construction observation and as-builts field plans ⁽⁴⁾															0.0909	\$10.23			0.0909	\$10.23		\$10.23
b	LF	Provide GPS data collection (only if approved by LCA Project Manger) ⁽⁵⁾																			0.0000	\$0.00		\$0.00
Totals			0.0104	\$1.73	0.0080	\$1.36	0.0513	\$6.05	0.0000	\$0.00	0.0358	\$2.30	0.0182	\$1.75	0.0284	\$5.33	0.0909	\$10.23	0.0034	\$0.16	0.2464	\$28.91	\$2.67	\$31.58
16		Contract Document Preparation Phase Tasks:																						
a	LS	Prepare Project Manual at 30%, 60%, 90%, & completion	0.0002	\$0.03	0.0002	\$0.03	0.0008	\$0.09	0.0030	\$0.34											0.0042	\$0.49		\$0.49
b	LS	Prepare Technical Specification at 30%, 60%, 90%, & completion	0.0004	\$0.06	0.0006	\$0.10	0.0023	\$0.27	0.0030	\$0.34											0.0063	\$0.77		\$0.77
17		Bidding Phase Tasks:																						
a	LS	Prepare bid advertisement	0.0002	\$0.03			0.0004	\$0.04	0.0009	\$0.11								0.0004	\$0.02	0.0019	\$0.20		\$0.20	
b	LS	Distribute contract doc's, respond to RFT's, & issue Addenda's	0.0002	\$0.03	0.0002	\$0.03	0.0008	\$0.09	0.0021	\$0.23	0.0006	\$0.04						0.0015	\$0.07	0.0053	\$0.50		\$0.50	
c	LS	Conduct mandatory Pre-Bid Meeting and bid openings					0.0030	\$0.36													0.0030	\$0.36		\$0.36
d	LS	Review bidder qualifications & provide reccomendantion with respect to bids	0.0004	\$0.06	0.0013	\$0.23												0.0004	\$0.02	0.0021	\$0.31		\$0.31	
e	LS	prepare necessary agreement and performance bonds	0.0002	\$0.03								0.0009	\$0.09	0.0006	\$0.11						0.0017	\$0.23		\$0.23
18		Construction Administration Phase Tasks:																						
a	LS	Coordinate receipt & issuance of all contract documents										0.0030	\$0.29	0.0008	\$0.14						0.0038	\$0.43		\$0.43
Totals			0.0015	\$0.25	0.0023	\$0.39	0.0072	\$0.85	0.0091	\$1.02	0.0006	\$0.04	0.0040	\$0.38	0.0013	\$0.25	0.0000	\$0.00	0.0023	\$0.11	0.0282	\$3.29	\$0.00	\$3.29

(1) Costs for deed research and preperation of esement documents cannot be provided on a per foot basis as the cost is directly related to the number of properties involved, which could vary significantly dependig on location. Effort is also contingent on need for additional survey. It is assumed deed research and preperation of esement documents wil not be required for the majority of projects.

If such work is needed, Gannett Fleming wil develop a not-to-exceed cost for the particular project using the active fee schedule. Costs typically range from approximately \$2,500 to \$3,500 per property.

(2) Based on anticipated permits as noted in assumptions, regulatory inspection walk-throughs are not included in base cost.

(3) Effort involved in reviewing contractor submittals and providing interpretation is heavily reliant on the extent of work involved. AS such, this task was moved to a linear foot cost base instead of a lump sum cost base.

(4) Daily observations services include routine mark-up of as-builts plans. There is no means to feasible separate out the effort for as-built field plans. As such, these tasks were combined.

(5) GPS field data collection can be a routine responsibility of Gannett Fleming's resident project representative. A such, there are no costs are associated with GPS field collection of as-built data if GPS equipment is provided by LCA consistent with our assumptions. Gannett Fleming can provide equipment at a cost if desired by LCA.



Gannett Fleming

*Excellence Delivered **As Promised***

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P14-4531

Task / Phase			CYCLE I MAIN REPLACEMENTS																				Sub	
Task Nos.	Unit Pay Type	Description	PM		Sr PM I		Design Tech		Sr Tech		Tech/CADD		Admin Asst		Cm. Mgr.		Inspector		Clerical		Sub-Total		Sub Consultant Cost	not to exceed fee Total cost
			Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost		
Not To Exceed Fee																								
Engineering Services																								
Township Roads																								
1		General Phase Tasks:																						
a	LF	Project Schedule	0.0008	\$0.12			0.0008	\$0.08													0.0015	\$0.20	\$0.20	
b	LF	Project Progress Meetings	0.0008	\$0.12			0.0027	\$0.29													0.0034	\$0.41	\$0.41	
2		Permitting/Approval Phase Tasks:																						
a	LF	Prepare & Submit all permits & address all comments	0.0008	\$0.12			0.0068	\$0.75			0.0015	\$0.09						0.0019	\$0.09	0.0110	\$1.04	\$1.04		
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	\$0.12	0.0023	\$0.36	0.0095	\$1.04			0.0061	\$0.36						0.0015	\$0.07	0.0201	\$1.95	\$1.95		
3		Contract Document Preparation Phase Tasks:																						
a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾																					\$0.00	
b	LF	Conduct field survey																					\$2.49	\$2.49
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾																					\$0.00	\$0.00
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0059	\$0.91	0.0045	\$0.73	0.0248	\$2.73			0.0267	\$1.60									0.0619	\$5.97	\$5.97	
4		Construction Administration Phase Tasks:																						
a	LF	Schedule & conduct all construction meetings										0.0030	\$0.27	0.0091	\$1.59						0.0121	\$1.86	\$1.86	
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments										0.0076	\$0.68	0.0061	\$1.06						0.0136	\$1.74	\$1.74	
c	LF	Prepare record drawing in ACAD & PDF formats				0.0004	\$0.04				0.0015	\$0.09									0.0027	\$0.27	\$0.27	
d	LF	Conduct walk through at substantial/final completion ⁽²⁾											0.0008	\$0.13							0.0023	\$0.40	\$0.40	
e	LS	Review all contractor submittals & provide interpretation and recommendations ⁽³⁾	0.0023	\$0.35	0.0015	\$0.24	0.0102	\$1.13			0.0015	\$0.09	0.0076	\$0.68	0.0102	\$1.79					0.0333	\$4.28	\$4.28	
5		Inspection Phase Tasks: (a LCA's discretion)																						
a	LF	Provide daily construction observation and as-built field plans ⁽⁴⁾															0.0909	\$9.55			0.0909	\$9.55	\$9.55	
b	LF	Provide GPS data collection (only if approved by LCA Project Manager) ⁽⁵⁾																			0.0000	\$0.00	\$0.00	
Totals			0.0112	\$1.73	0.0083	\$1.33	0.0551	\$6.06	0.0000	\$0.00	0.0373	\$2.24	0.0182	\$1.64	0.0284	\$4.97	0.0909	\$9.55	0.0034	\$0.15	0.2528	\$27.67	\$2.49	\$30.16
State Roads																								
6		General Phase Tasks:																						
a	LF	Project Schedule	0.0008	\$0.12			0.0008	\$0.08													0.0015	\$0.20	\$0.20	
b	LF	Project Progress Meetings	0.0008	\$0.12			0.0027	\$0.29													0.0034	\$0.41	\$0.41	
7		Permitting/Approval Phase Tasks:																						
a	LF	Prepare & Submit all permits & address all comments	0.0023	\$0.35	0.0015	\$0.24	0.0174	\$1.92			0.0076	\$0.45						0.0034	\$0.15	0.0322	\$3.12	\$3.12		
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	\$0.12	0.0023	\$0.36	0.0095	\$1.04			0.0061	\$0.36												

16		Contract Document Preparation Phase Tasks:																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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(1) Costs for deed research and preparation of esement documents cannot be provided on a per foot basis as the cost is directly related to the number of properties involved, which could vary significantly depending on location. Effort is also contingent on need for additional survey. It is assumed deed research and preparation of esement documents will not be required for the majority of projects.
If such work is needed, Gannett Fleming will develop a not-to-exceed cost for the particular project using the active fee schedule. Costs typically range from approximately \$2,500 to \$3,500 per property.

(2) Based on anticipated permits as noted in assumptions, regulatory inspection walk-throughs are not included in base cost.

(3) Effort involved in reviewing contractor submittals and providing interpretation is heavily reliant on the extent of work involved. AS such, this task was moved to a linear foot cost base instead of a lump sum cost base.

(4) Daily observations services include routine mark-up of as-builts plans. There is no means to feasible separate out the effort for as-built field plans. As such, these tasks were combined.

(5) GPS field data collection can be a routine responsibility of Gannett Fleming's resident project representative. A such, there are no costs are associated with GPS field collection of as-built data if GPS equipment is provided by LCA consistent with our assumptions. Gannett Fleming can provide equipment at a cost if desired by LCA.

Task / Phase			CYCLE 2 MAIN REPLACEMENTS																				Sub			
Task Nos.	Unit Pay Type	Description	PM		Sr PM I		Design Tech		Sr Tech		Tech/CADD		Admin Asst		Cm. Mgr.		Inspector		Clerical		Sub-Total		Sub Consultant Cost	not to exceed fee Total cost		
			Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost				
Not To Exceed Fee																										
Engineering Services																										
Township Roads																										
1		General Phase Tasks:																								
a	LF	Project Schedule	0.0008	\$0.12			0.0008	\$0.09													0.0015	\$0.21		\$0.21		
b	LF	Project Progress Meetings	0.0008	\$0.12			0.0027	\$0.30													0.0034	\$0.42		\$0.42		
2		Permitting/Approval Phase Tasks:																								
a	LF	Prepare & Submit all permits & address all comments	0.0008	\$0.12			0.0068	\$0.78			0.0015	\$0.09						0.0019	\$0.09	0.0110	\$1.08		\$1.08			
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	\$0.12	0.0023	\$0.38	0.0095	\$1.08			0.0061	\$0.38						0.0015	\$0.07	0.0201	\$2.02		\$2.02			
3		Contract Document Preparation Phase Tasks:																								
a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾																						\$0.00		
b	LF	Conduct field survey																					\$2.58	\$2.58		
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾																						\$0.00		
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0059	\$0.94	0.0045	\$0.75	0.0248	\$2.82			0.0267	\$1.66									0.0619	\$6.18		\$6.18		
4		Construction Administration Phase Tasks:																								
a	LF	Schedule & conduct all construction meetings											0.0030	\$0.28	0.0091	\$1.65					0.0121	\$1.93		\$1.93		
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments											0.0076	\$0.71	0.0061	\$1.10					0.0136	\$1.80		\$1.80		
c	LF	Prepare record drawing in ACAD & PDF formats				0.0004	\$0.04				0.0015	\$0.09			0.0008	\$0.14					0.0027	\$0.27		\$0.27		
d	LF	Conduct walk through at substantial/final completion ⁽²⁾													0.0023	\$0.41					0.0023	\$0.41		\$0.41		
e	LS	Review all contractor submittals & provide interpretation and recommendations ⁽³⁾	0.0023	\$0.36	0.0015	\$0.25	0.0102	\$1.16			0.0015	\$0.09	0.0076	\$0.71	0.0102	\$1.85					0.0333	\$4.43		\$4.43		
5		Inspection Phase Tasks: (a LCA's discretion)																								
a	LF	Provide daily construction observation and as-built field plans ⁽⁴⁾															0.1212	\$11.92			0.0909	\$9.88		\$9.88		
b	LF	Provide GPS data collection (only if approved by LCA Project Manager) ⁽⁵⁾																						\$0.00		
Totals			0.0112	\$1.79	0.0083	\$1.38	0.0551	\$6.27	0.0000	\$0.00	0.0373	\$2.32	0.0182	\$1.69	0.0284	\$5.15	0.1212	\$11.92	0.0034	\$0.16	0.2528	\$28.64	\$2.58	\$31.22		
State Roads																										
6		General Phase Tasks:																								
a	LF	Project Schedule	0.0008	\$0.12			0.0008	\$0.09													0.0015	\$0.21		\$0.21		
b	LF	Project Progress Meetings	0.0008	\$																						

16		Contract Document Preparation Phase Tasks:																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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(5) GPS field data collection can be a routine responsibility of Gannett Fleming's resident project representative. A such, there are no costs are associated with GPS field collection of as-built data if GPS equipment is provided by LCA consistent with our assumptions. Gannett Fleming can provide equipment at a cost if desired by LCA.

Task / Phase			CYCLE 3 MAIN REPLACEMENTS																	Sub Consultant Cost		not to exceed fee Total cost		
Task Nos.	Unit Pay Type	Description	PM		Sr PM I		Design Tech		Sr Tech		Tech/CADD		Admin Asst		Com. Mgr.		Inspector		Clerical		Sub-Total			
			Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost	Mhrs	Cost		
Not To Exceed Fee																								
Engineering Services																								
Township Roads																								
1		General Phase Tasks:																						
a	LF	Project Schedule	0.0008	\$0.13			0.0008	\$0.09													0.0015	\$0.22	\$0.22	
b	LF	Project Progress Meetings	0.0008	\$0.13			0.0027	\$0.31													0.0034	\$0.44	\$0.44	
2		Permitting/Approval Phase Tasks:																						
a	LF	Prepare & Submit all permits & address all comments	0.0008	\$0.13			0.0068	\$0.80			0.0015	\$0.10						0.0019	\$0.09	0.0110	\$1.12	\$1.12		
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	\$0.13	0.0023	\$0.39	0.0095	\$1.12			0.0061	\$0.39						0.0015	\$0.07	0.0201	\$2.09	\$2.09		
3		Contract Document Preparation Phase Tasks:																						
a	LF	Courthouse deed research (only if approved by LCA Project Manager) ⁽¹⁾																					\$0.00	
b	LF	Conduct field survey																					\$2.67	
c	LF	Prepare & submit all newly created easement documents (only if approved by LCA Project Manager) ⁽¹⁾																					\$0.00	
d	LF	Prepare Plans at 30%, 60%, 90%, & completion	0.0059	\$0.97	0.0045	\$0.78	0.0248	\$2.92			0.0267	\$1.72								0.0619	\$6.39		\$6.39	
4		Construction Administration Phase Tasks:																						
a	LF	Schedule & conduct all construction meetings										0.0030	\$0.29	0.0091	\$1.70					0.0121	\$2.00		\$2.00	
b	LF	Review & prepare all progress reports, payrolls, change orders, & contractor payments										0.0076	\$0.73	0.0061	\$1.14					0.0136	\$1.87		\$1.87	
c	LF	Prepare record drawing in ACAD & PDF formats				0.0004	\$0.04				0.0015	\$0.10			0.0008	\$0.14				0.0027	\$0.28		\$0.28	
d	LF	Conduct walk through at substantial/final completion ⁽²⁾													0.0023	\$0.43				0.0023	\$0.43		\$0.43	
e	LS	Review all contractor submittals & provide interpretation and recommendations ⁽³⁾	0.0023	\$0.38	0.0015	\$0.26	0.0102	\$1.21			0.0015	\$0.10	0.0076	\$0.73	0.0102	\$1.92				0.0333	\$4.59		\$4.59	
5		Inspection Phase Tasks: (a LCA's discretion)																						
a	LF	Provide daily construction observation and as-built field plans ⁽⁴⁾															0.0909	\$10.23		0.0909	\$10.23		\$10.23	
b	LF	Provide GPS data collection (only if approved by LCA Project Manager) ⁽⁵⁾																		0.0000	\$0.00		\$0.00	
Totals			0.0112	\$1.86	0.0083	\$1.43	0.0551	\$6.49	0.0000		\$0.00	0.0373	\$2.40	0.0182	\$1.75	0.0284	\$5.33	0.0909	\$10.23	0.0034	\$0.16	0.2528	\$29.64	\$32.31
State Roads																								
6		General Phase Tasks:																						
a	LF	Project Schedule	0.0008	\$0.13			0.0008	\$0.09													0.0015	\$0.22	\$0.22	
b	LF	Project Progress Meetings	0.0008	\$0.13			0.0027	\$0.31													0.0034	\$0.44	\$0.44	
7		Permitting/Approval Phase Tasks:																						
a	LF	Prepare & Submit all permits & address all comments	0.0023	\$0.38	0.0015	\$0.26	0.0174	\$2.05			0.0076	\$0.49						0.0034	\$0.16	0.0322	\$3.34		\$3.34	
b	LF	Prepare & submit NPDES permits & address comments (only if approved by LCA Project Manager)	0.0008	\$0.13	0.0023	\$0.39	0.0095	\$1.12			0.0061	\$0.39						0.0015	\$0.07	0.0201	\$2.09		\$2.09	
8		Contract Document Preparation Phase Tasks:																						
a	LF	Courthouse deed research (only																						

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Gannett Fleming

*Excellence Delivered **As Promised***

January 13, 2015

Mr. Jason M. Peters
Lehigh County Authority
1053 Spruce Street
P. O. Box 3348
Allentown, PA 18106-0348

**RE: Request for Proposals
Suburban Division Water Main Replacement Project
Supplemental Information**

Dear Jason:

As noted in our proposal dated December 19, 2014, which was submitted in response to the subject request for proposal (RFP), certain cost savings can be achieved in our engineering services by combining the Lehigh County Authority (LCA) Suburban Division Water Main Replacement Project (Suburban Division Project) with the existing Allentown Division Water Main Replacement Project (Allentown Division Project). These savings are based on the following assumptions:

1. The Suburban Division Project will be administratively considered an extension of the Allentown Division Project. A kickoff meeting would not be required specifically for the Suburban Division Project.
2. Based on the proposed schedule, Cycle 1 of the Suburban Division Project would be bid as a completely separate project from Cycle 2 of the Allentown Division Project.
3. Cycles 2 and 3 of the Suburban Division Project would be combined with Cycles 3 and 4 of the Allentown Division Project. Collectively these projects would be put out to bid as one (1) project, with two (2) separate contracts. Correspondingly, submittals and subsequent reviews for the Suburban and Allentown Division Projects would be combined.

Based on the assumptions noted above, we propose the following reductions in relation to our December 19, 2014 submitted costs if the Suburban and Allentown Division Projects are combined:

1. Cycle 1 Linear Foot Design Tasks (Task Nos. 1, 2, and 3; 6, 7, and 8; or 11, 12, and 13): \$0.21 per linear foot. Reduction associated with reduced administrative effort and elimination of kickoff meeting.
2. Cycle 2 Linear Foot Design Tasks (Task Nos. 1, 2, and 3; 6, 7, and 8; or 11, 12, and 13): \$1.44 per linear foot. Reduction associated with combined submittals, combined reviews, combined contract documents, etc.

3. Cycle 2 Lump Sum Design Task (Task No. 16): \$3,330. Reduction associated with combined contract documents.
4. Cycle 2 Lump Sum Bid Phase Task (Task No. 17): \$4,100. Reduction associated with advertisement and administration of single project bid.
5. Cycle 2 Linear Foot Construction Administration Task (Task No. 4, 9, or 14): \$2.46 per linear foot. Reduction associated with administering one (1) construction project.
6. Cycle 2 Lump Sum Construction Administration Task (Task 18): \$540. Reduction associated with one (1) construction project.
7. Cycle 3 Linear Foot Design Tasks (Task Nos. 1, 2, and 3; 6, 7, and 8; or 11, 12, and 13): \$1.49 per linear foot. Reduction associated with combined submittals, combined reviews, combined contract documents, etc.
8. Cycle 3 Lump Sum Design Task (Task No. 16): \$3,450. Reduction associated with combined contract documents.
9. Cycle 3 Lump Sum Bid Phase Task (Task No. 17): \$4,250. Reduction associated with advertisement and administration of single project bid.
10. Cycle 3 Linear Foot Construction Administration Task (Task No. 4, 9, or 14): \$2.54 per linear foot. Reduction associated with administering one (1) construction project.
11. Cycle 3 Lump Sum Construction Administration Task (Task 18): \$560. Reduction associated with one (1) construction project.

Please note that these cost reductions do not reflect further potential reductions associated with construction inspection phase services nor do they reflect LCA internal cost savings associated with reduced effort managing one (1) combined project.

If you have any questions regarding this summary, please contact Mike Brown at 717-763-7612, extension 2809. We look forward to continuing to work with you on this assignment as well as the Allentown Division Project.

Sincerely,

GANNETT FLEMING, INC.



DALE R. GLATFELTER, PE
Vice President

CAPITAL PROJECT AUTHORIZATION

PROJECT NO.:	SD-W-15-1	BUDGET FUND:	Suburban Div\Water\Capital
PROJECT TITLE:	Suburban Division -Water Main Replacement Program Cycles 1-3	PROJECT TYPE:	<input checked="" type="checkbox"/> Construction <input type="checkbox"/> Engineering Study <input type="checkbox"/> Equipment Purchase <input type="checkbox"/> Amendment
THIS AUTHORIZATION:	\$ 353,358		

DESCRIPTION AND BENEFITS:

The Suburban Division water systems serve multiple townships, municipalities, boroughs, and communities in Lehigh and Northampton Counties. It is the intention of this Project to replace approximately one mile of water main in the Suburban Division per year due to aging infrastructure that has reached the end of its useful life to prevent excessive leakage or disruptive water main breaks that can impact our customers.

Please reference the cover Memo for additional information.

Authorization Status:

REQUESTED THIS AUTHORIZATION	
Design Phase	
Staff	\$90,000
Engineering Consultant Design & Bid phase Services	\$178,358
Miscellaneous ⁽¹⁾	\$50,000
Contingencies	\$35,000
Total This Authorization	\$353,358

Future Authorization	
Construction Phase	\$3,000,000

Total Estimated Project	\$3,353,358
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(1) Includes subsurface investigations such as geo-tech work, soft digs, ground penetrating radar if required; also permit fees and other miscellaneous costs.

REVIEW AND APPROVALS:

Project Manager	Date	Chief Executive Officer	Date
Chief Capital Works Officer	Date	Chairman	Date



Lehigh County Authority

1053 Spruce Street * P.O. Box 3348 * Allentown, PA 18106-0348
(610)398-2503 * FAX (610)398-8413 * Email: service@lehighcountyauthority.org

PROFESSIONAL SERVICES AUTHORIZATION

Professional: GANNETT FLEMING, INC.
P.O. Box 67100
Harrisburg, PA 17106

Date: January 16, 2015

Requested By: Jason Peters

Approvals

Department Head: _____

Chief Executive Officer: _____

Suburban Division – Water Main Replacement Program – Design Phase Cycles 1-3

Gannett Fleming, Inc. will perform the design and bid related services for Cycles 1-3 of the Suburban Division – Water Main Replacement Program in the following Professional Services.

Professional Services⁽¹⁾
1. Coordinate with local municipalities, outside agencies and utilities
2. Prepare plans and specifications for segments of main to be replaced
3. Perform permitting services (regulatory and municipal).
4. Perform bidding services.

(1) THE FOLLOWING SERVICES ARE NOT INCLUDED: The design and permitting of ADA ramps at intersections pursuant to the Americans With Disabilities Act that may be required in some cases by street paving restoration; permitting for railroad borings, creek/river crossings; design of water mains that are affixed to bridges . If deemed necessary, a cost will be negotiated for the required service.

Please reference the attached Gannett Fleming, Inc. technical and cost proposal for both Engineering related services along with supplemental information to their proposal sent via email by Michael Brown of Gannett Fleming. Please reference the cover Memo for additional information.

Design Phase:

Cost Estimate (not to be exceeded without further authorization): \$178,358

Time Table and Completion Deadline: As required to meet various critical deadlines as set forth in the proposal.

(For Authority Use Only)

Authorization Completion:

Approval: _____ **Actual Cost:** _____ **Date:** _____