

State of Michigan

Flint Water Crisis Integrity Oversight Monitor Program Report October 1, 2018 – March 30, 2019



Internal Audit Services
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State of Michigan
Flint Water Crisis
Integrity Oversight Monitor Program Report

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Background Information

On January 5, 2016, a state of emergency was declared for Genesee County due to ongoing health and safety issues caused by lead in the City of Flint's (the City) drinking water.

Public Act (PA) 268 created the drinking water declaration of emergency reserve fund within the State of Michigan (SOM) Department of Treasury (Treasury). Under PA 268, the Department of Technology, Management and Budget (DTMB) is authorized to contract with an Integrity Oversight Monitor (IOM) to ensure compliance with applicable state laws and regulations, detect misconduct, and promote best practices in the expenditure of the funds appropriated for the City's water emergency. The State Budget Office (SBO) has designated the Office of Internal Audit Services (OIAS) as the overall IOM coordinator. In this role, OIAS performs some of the IOM activities and coordinates and contracts with external IOMs to perform the oversight of select activities and programs. Currently, the IOM is composed of OIAS and Deloitte LLP (Deloitte) and therefore throughout the remainder of the report, the IOM refers to the engagement work performed jointly by OIAS and Deloitte, under the direction of OIAS.

The IOM is required to report semi-annually to the Governor, State Legislature, and others on its oversight services. This report serves as the March 30, 2019, semi-annual report and includes the following:

- A. Details of the Integrity Oversight Monitor's services;
- B. Details of findings of malfeasance or inefficiency; and
- C. Recommendations for corrective actions by any governmental entities.

Scope and Methodology

We conducted our monitoring engagement in conformance with the *International Standards for the Professional Practice of Internal Auditing*.

We conducted our monitoring activities for the period of October 1, 2018 through March 30, 2019. Our engagement included: obtaining and reviewing appropriate records and documents; observing select activities; meetings with various employees and contractors for the City and the SOM; and other auditing procedures as we considered necessary to satisfy our objectives. During this six-month reporting period, the IOM's efforts have focused primarily on water service line replacement, including assisting the City and the Department of Environmental Quality (DEQ) with a financial forecast and testing invoices against contracts and supporting documentation.

Recovery Program Oversight

There are several oversight activities performed related to the water crisis recovery programs including activities by the State Budget Office, the Michigan Office of the Auditor General, and the Office of Internal Audit Services.

State Budget Office Tracking Activities

Previously, OIAS assisted the SBO with establishing a statewide process for tracking and reporting of expenditures and outcome metrics directly related to the Flint water emergency. The process driven by SBO included collaboration with OIAS and the SBO Office of Financial Management (OFM) to establish the report format and reporting process requiring state agencies to submit Flint water expenditures and outcomes. OIAS prepared a process flow map to document the roles and responsibilities of SBO, OFM and OIAS. The resulting reporting process requires state agencies to report their respective Flint related expenditures to SBO for inclusion in the Flint tracking report on a quarterly basis.

SBO maintains the unaudited “Flint Water Emergency - Financial and Activities Tracking and Reporting Document” (the Tracker, see Appendix A for reference), which is an Excel based tracking tool. The individual state departments administering Flint water emergency programs, along with city personnel involved in the programs, provide their individual program information quarterly to SBO. The Tracker includes program information on appropriation amounts, amounts spent to date, achievements/outputs achieved to date, and planned outputs. The SBO began posting the Tracker to a public facing website on March 4, 2016. Although the Tracker is unaudited, it provides meaningful information on the programs, and provides a mechanism for coordination for the state departments involved in the programs. Per our internal review, we believe reliability of the expenditure information in the tracker is reasonable (accurate and complete) based on comparisons with the State’s accounting records and audits performed by the OAG. As of the issuance of this report, the latest available Tracker posted on the website was dated June 30, 2018. SBO collected information for the quarter ending September 30, 2018, however that information has not yet been posted for the public due to priority conflicts associated with the State’s fiscal year-end financial reporting and budget development process.

Office of the Auditor General (OAG)

The OAG performs periodic post audits of the Flint expenditures incurred by State departments and provides applicable state departments and the legislature with a report of audit findings and recommendations. Pursuant to the requirements of Section 203 of PA 3 of 2016, the OAG provides its audit reports to the “chairs of the Senate and House Appropriations Committees at a minimum of every six months until the funds are expended”. OAG audit activities further help to reduce the overall program’s compliance, control, and detection risk. As of March 5, 2019, the OAG has issued six Flint Emergency Expenditure Reports.

Additionally, the OAG released an audit report entitled “Flint Water Service Line Replacement Expenditures” in June 2018 as required by PA 340 of 2016. The audit did not identify any material weaknesses or reportable conditions. See Appendix A: References at the end of this report for a link to most recent OAG reports related to the Flint water crisis.

Below is a summary of those reports:

Release Date	Number of Material Weaknesses*	Number of Reportable Conditions	Unsupported or Unallowed Costs
Flint Emergency Expenditure Reports			
July 2016	0	0	\$0
January 2017	0	1	\$517,670
July 2017	0	1	\$3,875
January 2018	0	0	\$0
July 2018	0	1	\$33,151
January 2019	0	0	\$0
Flint Water Service Line Replacement Expenditures			
January 2019	0	0	\$0
Total	0	3	\$554,696
Expenditures Reviewed by OAG (of \$429,000,000)			\$175,065,529
% of Expenditures Unsupported or Unallowed			.32%

*A matter that in the auditor’s judgement, is more severe than a reportable condition and could impair the ability of management to operate a program in an effective and efficient manner and/or could adversely affect the judgment of an interested person.

Source: Office of the Auditor General Website

Overall, the OAG has not reported any instances of fraud, waste, or abuse related to the Flint appropriations and unsupported or unallowed costs have been immaterial (.32%)

Office of Internal Audit Services (OIAS)

In addition to monitoring activities, OIAS also provides consulting services on various Flint water crisis recovery programs for the City and State departments including the DEQ, Department of Health and Human Services (DHHS), and the Michigan Department of Education (MDE). Services have included: process reviews and mapping; assisting entities by recommending appropriate documentation for procurement and construction management processes and supporting documentation for related expenditures; and documenting the City’s process for billing and collecting payments from water customers.

Due to the urgency of the recovery program and the need for certain technical skillsets, OIAS contracted with two external IOM contractors to date. Ernst & Young was contracted in 2017 to perform an initial risk assessment for all Flint recovery programs. Additionally, Deloitte was contracted in 2017 and is currently under contract with OIAS to help monitor activities associated with the service line replacement activities. Deloitte provides specialized skillsets associated with construction management and similar type recovery programs.

The remainder of this report details the monitoring activities of the IOM through the period ending March 30, 2019.

IOM Monitoring

Objective 1: To assess risks of various recovery programs funded by SOM and Federal resources to address the Flint water crisis in order to determine the scope of IOM activities.

To accomplish this objective, the IOM leveraged a risk assessment framework that was previously developed for Flint related projects and updated it with information from current IOM activities, feedback from the Departments, and public OAG reports.

Conclusion:

We determined that the service line replacement project and the Environmental Protection Agency (EPA) Intended Use Plan (IUP) projects remain the highest risk of all Flint water crisis recovery programs. Our conclusion was based on the following factors:

- A high percentage of FY 2018 Flint Expenditures was related to service line replacement (SLR), and SLR is a complex construction process given the number of service lines to be addressed throughout the City by multiple contractors simultaneously.
- IUP projects have a large dollar amount appropriated and there are many parties required to be involved for successful completion. The overall quality of drinking water for residents is also impacted by whether the City succeeds in completing these projects.
- The other Flint water crisis recovery programs have been monitored by OIAS and audited by the OAG with no significant issues or material weaknesses noted.

Program Funding

As of March 30, 2019, the State and EPA have appropriated a combined \$430 million for the Flint water crisis emergency through various Public Acts and general appropriations, which includes \$100 million of federal funds from the EPA through the Water Infrastructure Improvements for the Nation Act of 2016 (WIIN). A summary of the Public Acts, general appropriations and federal funds are detailed in the following table:

Appropriation	Effective Date	Amount
PA 143 of 2015	October 15, 2015	\$9,350,000
PA 3 of 2016	January 29, 2016	27,688,500
PA 24 of 2016	February 26, 2016	30,000,000
PA 249 of 2016	June 27, 2016	21,830,100
PA 268 of 2016	June 29, 2016	140,579,500
PA 340 of 2016	December 14, 2016	13,117,000
PA 107 of 2017	July 14, 2017	41,642,000
PA 108 of 2017	July 14, 2017	8,730,100
PA 207 of 2018	June 21, 2018	32,591,300
Appropriation Transfer from DHHS (2016)		4,470,600
Total Non-WIIN State Appropriations		\$ 329,999,100
PA 33 of 2017 (EPA WIIN Appropriation)		100,000,000
Total Appropriations		\$ 429,999,100

**Source: Compiled by OIAS based on review of the SOM appropriation bills/ tracker

We performed a risk assessment for programs under two categories: Non-WIIN State Appropriations and EPA WIIN Appropriations.

Non-WIIN State Appropriations

Below is a summary of expenditures as reported by the various departments that are involved with the City's recovery efforts. In addition to the specific appropriations detailed above, SOM departments have utilized funding from their annual operating budgets to continue to address the recovery efforts needed.

Fiscal Year (October – September 30)	Expenditures on Flint Specific Appropriations	Expenditures from Operating Budget	Total Expenditures on Recovery Efforts
2016	\$71,965,948	\$29,893,651	\$101,859,599
2017	\$111,224,926	\$22,984,849	134,209,775
2018	\$38,141,688	\$14,570,434	52,712,122
Total	\$221,332,563	\$67,448,933	\$288,781,496
Funds Obligated/Encumbered			<u>\$76,199,715</u>

Source: Unaudited Flint Expenditure Tracker

As noted in the table above, \$221.3 million or 67.1% of the \$330.0 million Flint-specific appropriations have been expended as of September 30, 2018. Spending on Flint decreased 60.7% from fiscal year 2017 to fiscal year 2018. The fiscal year 2018 decrease in spending is partially attributed to several programs that received funds, in the initial emergency appropriation, which spent all allocated funds and no new funds were appropriated. Additionally, there were several programs that indicated that they are unable to spend the funding as quickly as intended based on the requirements in the appropriation.

In January 2017, the IOM contracted with Ernst & Young LLP to perform a risk assessment for all State programs that were involved in the Flint recovery effort. That risk assessments became the basis for our IOM risk level identified above and included factors such as:

- Inherent Risk – The risk posed by an error or omission due to a factor other than a failure or control. The complexity of the program, including the number of funding sources, beneficiaries, and agencies impacts the inherent risk.
- Compliance Risk – The risk an organization is not in compliance with laws or regulations. Different sources of funding include different regulations. Compliance risk increases as the level of regulations tied to the funding increase, including requirements for procurement and grants management.
- Program Risk – The risk of a potential outcome that causes a program to fail to meet its goals. A lack of clear and measurable program goals increases program risk.
- Control Risk – The risk that an organization’s internal control system will fail to prevent, detect, or correct errors. Considerations include the control environment, assessed through the frequency and results of audits along with corrective actions taken impact control risk.
- Detection Risk – The risk that procedures in place will not detect fraud, waste, and abuse within the program. The level and extent of monitoring programs, extent of testing, and role of audits are all considerations.

Based on this framework, we assessed all programs receiving Flint-specific appropriations as high, medium, or low.

High Risk Programs

The replacement of lead and galvanized steel water service lines continues to be the highest risk related to the Flint appropriations. The risk was classified as high during the IOM risk assessment in January 2017 and has remained high through this reporting period. This program remains a high risk due to the direct impact that the replacement of the water service lines has on the overall quality of resident’s drinking water, making successful execution critical. Because of the magnitude of the project, there has been a high demand on the City’s resources and the City has had issues with management and oversight of the project as evidenced in previous IOM reports and the Deloitte Status Quarterly Report attached (See Appendix B). Service line replacement made up 35.0% of the total SOM expenditures and encumbrances for FY18.

Based on the high risk, we continue to monitor this program. See objective 2 for additional details.

Medium and Low Risk Programs

In addition to service line replacement, the SOM appropriations were made to 33 additional programs to support the recovery efforts in the City. Of these 33 programs, 21 were deemed medium risk and 12 low risk as part of our ongoing risk assessment. While the priority of IOM efforts has been the high risk programs noted above, the IOM performed limited review of select medium and low risk programs based on department request and potential issues the IOM becomes aware of. Some of these programs have been reported in previous IOM reports including a Wayne State University Grant, Early On, Great Start Readiness Program, Nutrition Assistance, TANF Reserve for Future Needs, Medicaid, Population Health, and Nutrition Aid. During this reporting period, we did not allocate monitoring resources to these programs as previous issues had been resolved and no emerging issues were identified. The IOM will continue to monitor these programs and devote resources as needed to address issues.

EPA WIIN Appropriation

On March 17, 2017, the EPA awarded \$100 million in funding under the Water Infrastructure Improvements for the Nation Act of 2016 to the DEQ to fund drinking water infrastructure upgrades in Flint. On August 13, 2018, DEQ submitted an amended IUP seeking authority to utilize the WIIN funding for additional projects identified by the City to remediate the emergency drinking water situation. The following summarizes the IUP project components:

Project Description	Estimated Construction Start Date	EPA Commitment Amount
Service line replacement	Funded/In Progress	\$20,000,000
Secondary water source	April 2019	\$9,163,300
Dort & Cedar storage/pumping	April 2019	\$10,125,000
Chemical feed building	March 2019	\$3,400,000
Northwest transmission main	April 2019	\$12,296,900
Water main replacement	August 2018*	\$14,442,300
Water meter replacement	January 2019	\$18,460,000
Water quality monitoring	January 2019	\$612,500
Service line replacement	July 2019**	\$10,000,000
Local assistance/capacity development	Funded March 2017	\$1,500,000
Total		\$100,000,000

*Number adjusted based on memo from the EPA indicating that the WIIN fund appropriation would not cover the entirety of the project.

**The \$10 million service line replacement figure is contingent on the sufficiency of the \$87 million calculated in the Settlement Agreement of *Concerned Pastors for Social Action v. Khouri*.

The EPA approved the IUP as communicated in its letter dated September 11, 2018. A copy of the letter is included on the Flint Water Portal Website described under Appendix A: References at the end of the report.

Service Line Replacement

As part of the IUP projects, the State received \$30 million dollars in total funding from the EPA to support the replacement of water service lines. These dollars will be used in conjunction with the State funds identified above under “*High Risk Programs*”. **Based on the high risk, we continue to monitor this program. See objective 2 for additional details.**

Non-Service Line Replacement Projects

We performed an initial high-level risk assessment for all the non-service line replacement IUP projects in order to assess where the IOM could best assist both the DEQ and the City. Based on the complexity, financial cost, and schedule of projects, **we believe the water meter replacement project to be a higher risk.** This project will lead to direct replacement of lead fixtures within homes as well as accurate, real-time capturing of water usage and revenue generation for the City.

During this reporting period, the IOM reviewed the procurement documents that were prepared by the City for compliance with federal procurement requirements. **Based on the magnitude of the \$100,000,000 budget, we determined the risk associated with the IUP funding (for service line replacement and other IUP projects) is high, and therefore the IOM will continue to monitor. We will continue to evaluate the risk level of individual projects to determine the extent of monitoring procedures to be performed as such projects commence during the next six months.**

Objective 2: To monitor the City's water service line replacement project funding status and construction, procurement, and payment activities.

To accomplish this objective, the IOM:

- Supported the development of a financial forecast in conjunction with the City's Chief Financial Officer (CFO) to project costs for the remainder of the project.
- Monitored funding status and performed independent review of the invoices received by the DEQ.
- Met with key parties of the service line replacement project including DEQ, The City's Departments of Finance and Public Works, the restoration contractor, and the project manager for phase V (2018).
- Performed monitoring site visits and alerted the City and project manager to any issues identified.

Due to the complexity of the service line replacement construction and engineering activities and the specialized skillset needed, OASIS contracted with Deloitte to augment OIAS staff. Additionally, Deloitte subcontracted with Tetra Tech, which allows for OIAS to monitor service line replacement with daily inspection of the work being completed by the City's contractors.

Conclusion:

We determined that the water service line replacement project continues to progress towards completion, however there are some funding, construction and payment activity risks that could impact the project's success. Our conclusion is based on the following factors:

- The City continues to replace water service lines ahead of the schedule established in the Settlement Agreement of *Concerned Pastors for Social Action v. Khouri*
- During our review of contractor invoices, we noted no instances of fraud or other significant discrepancies
- Issues identified by Tetra Tech have been communicated to DEQ, and the City for resolution. A listing of the field observations is included in the Deloitte Quarterly Status Report (See Appendix B)
- The addition of new reporting requirements under the Stipulation to the Settlement Agreement
- Turnover in key finance positions; change by the City to a new program manager for Phase VI in 2019; and the end of a finance staff augmentation contract could disrupt construction and invoice reimbursement processes in place

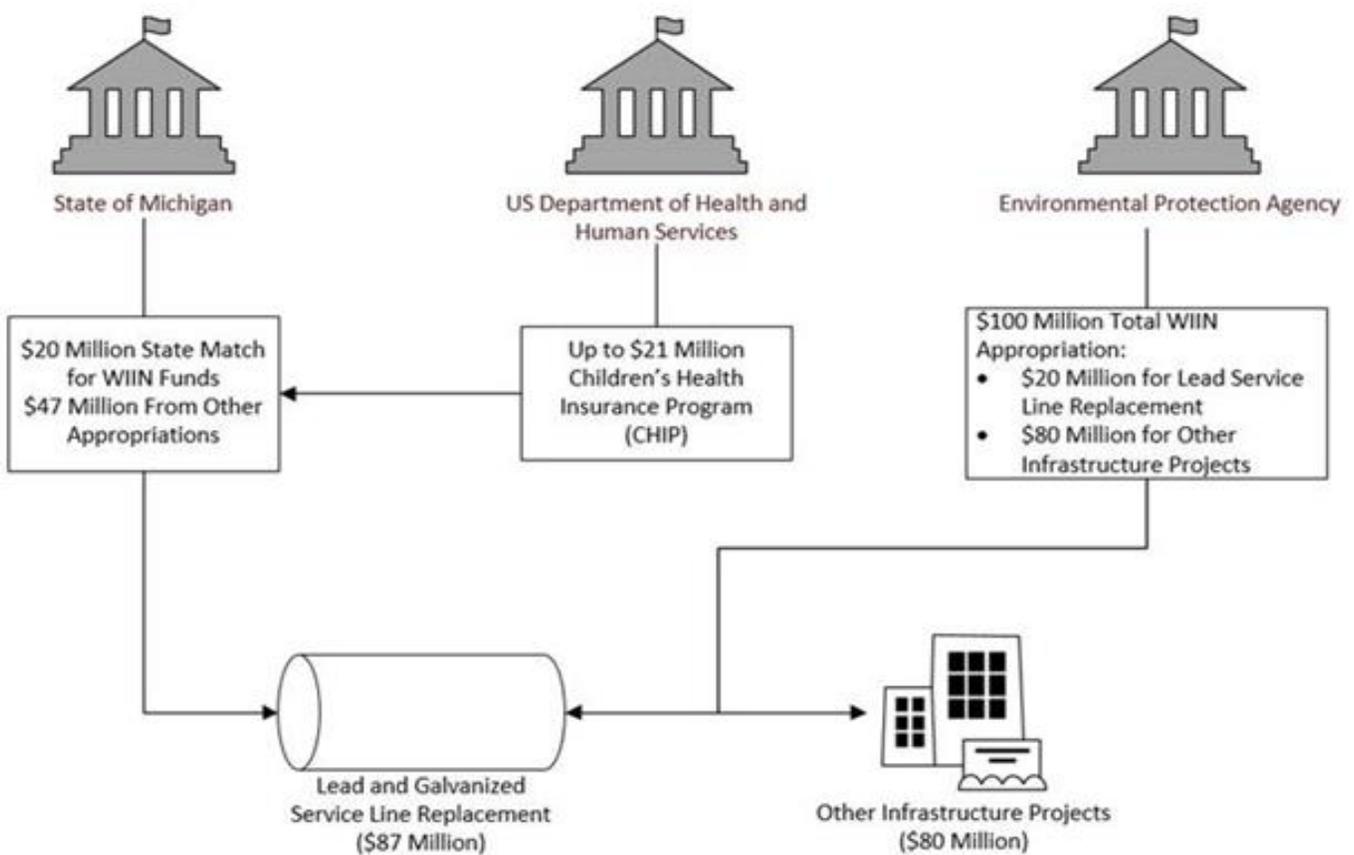
Background and Notable Updates

In March 2017, a Settlement Agreement was approved that required the State to secure \$87 million. Additionally, \$10 million in contingency funds for the replacement of lead and galvanized steel water service lines was provided for through WIIN grant funds. In February 2019, a Stipulation to the Settlement Agreement was created for the remaining work changing the

requirements for prioritizing homes, requiring construction monitoring status reporting, and processing invoices by the City for timely payment. Significant elements of the Stipulation to the Settlement Agreement include:

- Prioritization of site selection requiring the City to follow a list of exploratory and replacement addresses
- Monthly construction reporting and monitoring by the City and required use of the predictive model developed by the University of Michigan to prioritize addresses most likely to have lead or galvanized steel service lines. Once 2,000 excavations are completed, the model is required to be updated.
- Monthly submission by the City to the SOM of all contractor invoices received
- Reporting and forecasting of total costs and discussions between the City and SOM on available funding when less than \$15 million of funding remains

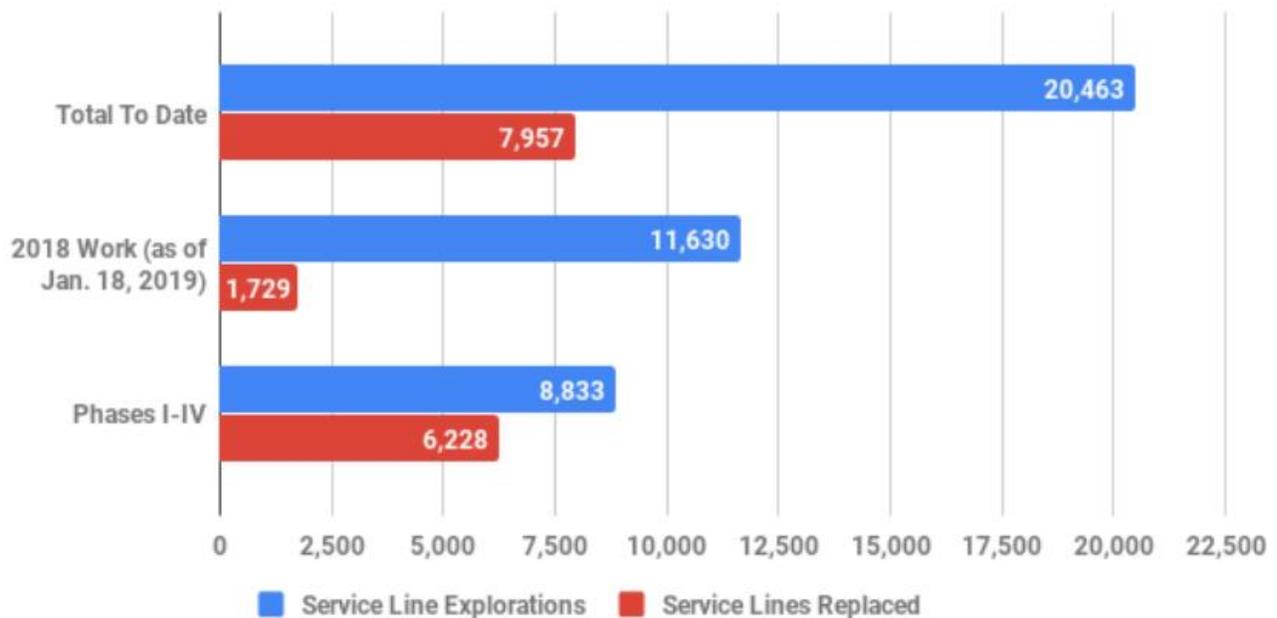
The following is a diagram of Flint Water Emergency Funding based on the EPA approved plan and the Settlement Agreement of *Concerned Pastors for Social Action v. Khouri*:



Source: OIAS generated diagram based on the Settlement Agreement of Concerned Pastors for Social Action v. Khouri and information provided by the EPA in their memo on September 11, 2018.

Funding for the replacement of lead service lines program includes approximately \$67.0 million of State appropriations to DEQ and SOM Department of Health and Human Services (DHHS). This includes the State’s \$20.0 million match for the WIIN grant and \$47.0 million of other appropriations. The \$47.0 million of other State appropriations includes a combination of up to \$21.0 million which is the maximum available over three years from grant agreements issued by DHHS under the Children’s Healthcare Improvement Program (CHIP) funding for homes that are eligible based on specific Medicaid requirements, and the remainder from State general fund appropriations. By utilizing the CHIP funds, a higher portion of WIIN funds will be available for other projects within the City to fully remediate the water emergency. Additionally, \$10.0 million of the \$80 million appropriated for other infrastructure projects may be used as contingency funds for lead and galvanized service line replacement if the \$87.0 million is not sufficient. As of January 2019, the City has explored 20,463 addresses (with a target of approximately 28,400) and replaced 7,957 (see below).

FAST Start Program - City of Flint Service Line Explorations and Replacements as of: 1/18/19



Source: City of Flint FAST Start Pipe Replacement Program Website. Information presented is unaudited.

Service Line Replacement Risks

To facilitate risk assessment and monitoring efforts, we categorized the service line replacement project into four key areas: funding, procurement, construction, and payment activities. For each category, we identified risks that we believe could impact the successful completion of the service line replacement project and provided recommendations to address those items.

Funding Risks

Available Funding

A best practice recommended for large construction projects is monitoring of total actual and projected costs with available funding through financial forecasting. During this reporting period, OIAS worked with Deloitte and the City to develop an initial internal financial forecast for the remainder of the water service line replacement project which the City and State could maintain. There have been challenges with forecasting due to time delays between the work getting completed and invoices being submitted by the contractor, processed by the project manager and the City, and reviewed by DEQ. Additionally, following is a description of are several variable key assumptions that significantly impact the accuracy of the forecast.

- The expected copper-to-copper hit rate in phase VI (2019). During phase V (2018), there were concerns that the project manager site selection process was not based on a predictive model used in phases I-IV. While the City believes that the trend of finding a lower number of homes with lead or galvanized steel service lines will continue, some parties involved believed that based on the predictive model, contractors will find more lead or galvanized steel service lines than they did during phase 2018. Costs to replace lead/galvanized steel significantly impact overall program costs.
- The City's targeted number of homes that they want to perform exploratory excavation for and replacement where necessary. The original Settlement Agreement required the State and City to at a minimum complete 18,000 excavations. The City plans to address lead lines for all active water accounts currently estimated to be 28,400, however the number of active accounts fluctuates as residents move, pay, or do not pay utility bills.
- The unit costs for exploratory excavation, line replacement and restoration work are not yet established for the final phase. Contractors are currently submitting bids for 2019 work.
- We assume the City intends for contractors to continue use of traditional, open-cut excavation methods instead of using significantly lower cost hydrovac excavation methods.

An initial forecast for completing the service line replacement leveraging actual cost data that was available and estimates considering the key assumptions outlined above, indicate there is a risk that the funding currently available may not be sufficient to complete work for all addresses. Utilizing the IOM funding tracker and estimates from the City about outstanding reimbursement requests, we estimated that the City has expended roughly 77.7% of their total \$97.0 million in available funding. As of January 18, 2019, the City has completed excavations and restorations at 72% of its 28,400 goal.

We recommend the City continue to refine the financial forecasts as information becomes available. In the event the funding appears insufficient, the City should work with the NRDC, project manager, DEQ, and any other related parties to focus on prioritization of homes likely to have lead or galvanized steel service lines and explore additional options to address funding shortcomings.

Procurement Risks

We have no current concerns associated with specific procurement risks. However, the City is in the process of securing a new PMO and contractors for Phase VI. During this time period, the IOM provided the City with a procurement checklist to ensure best practices and federal compliance guidelines are being followed. Therefore, we will continue to monitor procurement and recommend items as needed. During this reporting period, we also addressed a prior issue of performance bonding related to CHIP funds and worked with DHHS and the Center for Medicare & Medicaid Services to resolve this issue.

Construction Risks

Project Manager Turnover

In January 2019, the City ended its contract with its project manager used for Phase V activities completed in calendar year 2018. The City re-bid the project manager contract, with the selection of a new project manager made in March 2019. As a result of the turnover, a significant amount of institutional knowledge is required to be transitioned, and resources must be devoted for the new project manager to learn the processes to avoid disrupting the progress of construction.

An initial coordination meeting occurred on March 20, 2019 with the DEQ, the IOM, the City's Department of Public Works (DPW), new project manager, and the City's Finance Department to transfer project knowledge and discuss lessons learned and pain points with the goal of minimizing disruption. A commitment was established that these meetings continue initially on a bi-weekly basis. We recommend that the City continue holding coordination meetings at a frequency necessary to ensure ongoing, real time updates of progress and financial forecasts.

Inventory and Recordkeeping of Work Completed

When the state of emergency was declared, the City did not have adequate records that would allow for the responding parties to accurately identify the impacted homes. As a result, the contracts that were issued to the project managers for the various phases included language that the project manager would record the work that was being done. The goal was that after the service line replacement project was complete, the City would have an accurate inventory of the water line infrastructure. During phases I-IV, the City was utilizing an access database where the vendors were recording the work being performed. When the project manager for phase V (2018) was contracted, they worked to incorporate previous work completed and phase V work into an ArcGIS database that would be transferred to the City after the project.

In January 2019, when the contract for the phase V project manager ended, the project manager and the City worked to transfer the record of work complete. However, the City was unsatisfied with the quality of the records (of work completed) that the project manager had provided. As a

result, the City had to work with an additional contractor to clean up the data and get it into a state ready for use.

Based on issues identified, we have concerns about the reliability of this data for future use. We recommend that the City continue to leverage their Cityworks contractor to review and data imported into Cityworks. As part of that cleanup, the City should reference back to the paper record of the work performed and reconcile with data from the ArcGIS database.

Licensed Plumbers

In prior IOM reports, we described an issue with ensuring that the City was following the Michigan Skilled Trades Act by utilizing licensed plumbers when the water meters in the homes needed to be moved. During the last reporting period, we reported that the City had changed its stance and has since required licensed plumbers to inspect the work being performed. During this reporting period, we verified that the City had a licensed plumber on staff by reviewing information on the Michigan Licensing and Regulatory Affairs website. **We have determined that this issue has been resolved and will validate corrective action taken by testing during Phase VI construction.**

Payment Activity Risks

Finance Department Turnover and End of Staff Augmentation Contract

Over the past two years, the City has experienced significant staff turnover in their Finance Department. The City's Chief Financial Officer, who has been instrumental in the City's invoicing process, is departing at the end of March 2019. The Deputy Chief Financial Officer only recently started in her position in January 2019. Additionally, there are new incremental reporting requirements under the Stipulation to the Settlement Agreement which increases the demand on finance resources. In November 2018, the City's CFO, with funding support by the SOM, contracted with a consulting firm to perform process improvement for the City's reimbursement request process as well as augment Finance staff to help process backlogged payment reimbursement requests to the State. The current staff augmentation and consulting contract is expected to end in March 2019.

As a result of turnover and the level of staff experience and the additional reporting requirements, we have **concerns about the City's ability to process invoices and maintain current financial forecasts in a timely manner and meets its reporting obligations.**

We recommend that the DEQ and the City's DPW continue to work with the Deputy Chief Financial Officer and the Phase VI project manager to transfer project knowledge and minimize disruption to both construction and the reimbursement request process.

We also recommend consideration be given to extending the staff augmentation contract as the City addresses staff transition in the Finance Department.

Objective 3: To monitor the City's IUP projects' funding status and construction, procurement, and payment activities.

The non-service line replacement IUP projects are in the initial design and contracting stage. During this reporting period, the IOM provided the City with a procurement checklist to ensure best practices and federal compliance guidelines are being followed. We also reviewed procurement activities including the review of requests for proposals and have been providing feedback to the City relative to such procurement process. We noted minor issues with the procurement documents that have been communicated to the City.

Conclusion:

The IUP projects are still in their infancy and will be an area of focus for the IOM during the next reporting period. We plan to further refine our risk assessment for the IUP projects so that we can devote monitoring resources utilizing a risk-based approach.

Other Water Quality Matters

A matter beyond recovery activities related to the overall quality level of drinking water and day-to-day operations was raised during the reporting period DEQ raised concerns that the water treatment plant was not adequately staffed resulting in excessive amounts of overtime for employees. In December 2018, the City and DEQ reached a voluntary agreement to correct the issues. The details of the agreement are presented on page 8 of the attached Deloitte Quarterly Status Report (See Appendix B). The IOM has not devoted monitoring resources to address this concern as it is more related to day-to-day operations than recovery efforts. DEQ continues to track this matter as it relates to the overall quality level of the drinking water.

Appendix A: References

1. The Tracker - State of Michigan Flint Water Emergency Expenditure Dashboard:
https://www.michigan.gov/flintwater/0,6092,7-345-73947_78591---,00.html
2. OAG Flint Water Service Line Replacement Expenditures Performance Audit Report issued June 30, 2018 <https://audgen.michigan.gov/wp-content/uploads/2018/06/r761301717-0005.pdf>
3. OAG Flint Emergency Expenditures Performance Audit Report issued January 31, 2019
<https://audgen.michigan.gov/wp-content/uploads/2019/02/r000201819-2212.pdf>
4. State of Michigan Flint Water Portal: contains important information about the State's compliance with the U.S. EPA and related correspondence, including between DEQ and the City of Flint on recovery efforts/progress: https://www.michigan.gov/flintwater/0,6092,7-345-76292_76364-475028--,00.html



MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET

State Budget Office – Office of Internal Audit Services

Design and Construction Independent Oversight Monitor for the Expenditure of Funds Appropriated for the Flint Water Emergency

Quarterly Progress Report Q4, 2018

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Deloitte.



Mr. Doug Roosa
Director, Public Safety and Quality of Life Divisions
Office of Performance and Transformation
Internal Audit Services
Lansing, MI 48929

Thursday, 28 March 2019

Quarterly Status Report – Q4 2018

Dear Mr. Roosa,

Please find the attached Quarterly Progress Report submitted in accordance with Deloitte's¹ contract for design and construction independent monitoring dated October 18, 2017.

Sincerely,

A handwritten signature in black ink that reads "Mark Blumkin". The signature is written in a cursive, flowing style.

Mark Blumkin
Managing Director
Deloitte Transactions and Business Analytics LLP

¹ As used in this document, "Deloitte" means Deloitte & Touche LLP, Deloitte Financial Advisory Services LLP, and Deloitte Transactions and Business Analytics LLP, which provides a wide range of advisory services. Please see www.deloitte.com/us/about for a detailed description of the legal structure of Deloitte LLP and its subsidiaries. Certain services may not be available to attest clients under the rules and regulations of public accounting.

Executive Summary

The following report is part of the Construction Integrity Oversight Monitoring services provided by Deloitte & Touche LLP (“Deloitte”) for the City of Flint (“COF” or “The City”) service line replacement program. The assessment of Q4, 2018 was concentrated on the cost management, procurement, construction oversight, and grant administration functions of the COF. Key activities for the quarter included:

- Continued to coordinate with OIAS for engineering and construction cost testing for Phase IV reimbursement requests and Phase V Contractor invoicing submitted to AECOM.
- Continued updates to program-wide funding tracker that monitors budgets, contracts, expenditures, and funding balances which may be leveraged for monitoring and reporting purposes.
- Conducted site inspections for replacement and restoration activities performed by contractors. Communicated preliminary observations, issues, and concerns with AECOM inspectors, COF and OIAS.
- Reviewed Natural Resource Defense Council (NRDC) brief regarding site selection and prioritization of addresses.
- Developed and refined cost projections for the service line replacement (SLR) program through Phase VI completion considering various scenarios and assumptions to determine adequacy of current funding levels.
- Continued oversight of existing City processes and procedures for effectiveness and efficiency.
- Reviewed procurement documentation for 3 of the Intended Use Plan projects that were advertised by the COF.
- Held bi-weekly project update meetings with OIAS, Tetra Tech, and Deloitte to discuss key issues observed within daily site inspections.
- Attended several meetings with key stakeholders of the State, AECOM, and the City to discuss ongoing construction progress, funding tracker updates, City reimbursement requests, content development for November’s Enterprise Risk and Control Committee’s (ERCC) meeting, Phase VI Service Line Replacement (SLR) cost projections, and procurement of construction performance data.
- Met with OIAS and DEQ on 10/29/18 to discuss COF/AECOM methodologies for prioritization of addresses, site selection processes, and the ongoing Natural Resources Defense Council (NRDC) litigation
- Continued communication of observations, findings, and recommendations to program stakeholders including Office of Internal Audit Services (OIAS), Department of Environmental Quality (DEQ), City of Flint (COF), and AECOM and discussions of implementation status updates for recommended mitigation strategies.

Deloitte will continue to monitor the ongoing program funding, expenditure, payment invoice, and procurement processes while providing program-related guidance. Additionally, construction oversight and the performance of site investigations will continue for Deloitte and Tetra Tech where observations, findings, and recommendations will be communicated with AECOM, COF, DEQ, and OIAS.

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Activities for the Period Ended December 31, 2018

1. Task A: Lead Service Line Replacement Procedure and Process Review

During Q4, 2018, observations, findings, and recommendations identified within daily site investigation reports and monthly and quarterly status reporting were communicated with program stakeholders and monitored for implementation status. As part of Task A during Q4, 2018, attention was given to the procedures and processes for individual work threads including cost management, grant administration and compliance, procurement, and construction oversight.

A detailed itemization of current observations, findings, and recommendations can be found in **Appendices A and B**. A summary of critical observations, findings, and recommendations from Q4, 2018 are shown below:

1.1. Cost Management

1.1.1. City of Flint Reimbursement Requests

Observations and Findings:

Cost management including contractor pay application, COF force account invoice, and reimbursement request review continue to be a priority and focal point for the Deloitte team. Deloitte, in conjunction with OIAS, continued to review contractor pay applications for Phase IV through reimbursement request 12 considering contractual obligations, grant requirements and industry leading practices. An additional focus was made towards the 10% sampling review of the City’s Phase IV force account restoration invoicing where material purchase orders, daily time cards, and vendor agreements were reviewed against the City’s submitted backup documentation. OIAS and the City discussed details of wage and fringe calculations that were submitted with restoration backup documentation to gain a better understanding of the methodologies utilized during the development of the rates. Through Q4, 2018, the City had submitted through reimbursement request 12 for Phase IV and reimbursement request 3 for Phase V.

As of Q4, 2018, the COF was behind schedule regarding reimbursement request submittals for both replacement and restoration work for Phases IV and V. Through discussions with the DEQ and the City, a small balance of invoices for Phase IV contractor restoration still remains to be submitted. Additionally, the City submitted reimbursement requests for Phase V through approximately October of 2018. The City was significantly further behind schedule during Q2 of 2018 with the submission of reimbursement requests however made substantial progress during Q3 and Q4 to get back on schedule with timely submittals. Below is a summary of approximate SLR program costs to date:

PROJECT DETAILS											
	Funding Type	Appropriated Amount	Original Commitment	Committed Costs	Anticipated Costs	EAC	Expenditures To Date	Pending Costs	ETC	% Complete	% Complete KPI
Service Line Replacement											
AECOM Professional Services	WIIN	4,143,450	4,143,450	4,143,450	1,100,000	5,243,450	4,143,450		1,100,000	79%	79%
Lead Service Line Replacement Phase I	STATE	2,669,889	2,669,889	2,669,889	-	2,669,889	2,669,889		-	100%	100%
Lead Service Line Replacement Phase II & III-Advance	State	5,000,000	5,000,000	5,000,000	-	5,000,000	5,000,000		-	100%	100%
Lead Service Line Replacement Phase IV											
	WIIN	20,000,000	18,136,366	18,136,366	-	18,136,366	32,090,074		11,546,292	74%	74%
	CHIP	8,000,000	5,500,000	5,500,000	-	5,500,000	6,770,414		11,365,952	37%	37%
	STATE	20,000,000	20,000,000	20,000,000	-	20,000,000	5,319,659		180,341	97%	97%
							20,000,000		-	100%	100%
Lead Service Line Replacement Phase V & VI											
	STATE	37,000,000	38,525,276	38,525,276	-	35,525,276	3,597,329	21,047,868	31,927,947	10%	10%
	CHIP	8,000,000	8,000,000	8,000,000	(3,000,000)	5,000,000	3,022,057		27,503,219	10%	10%
							575,272		4,424,728	12%	12%
Subtotal		96,813,339	93,974,981	93,974,981	1,100,000	92,074,981	47,500,742		44,574,239		

*Information shown in the table above is as of 1/23/19

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Additional key observations from the current SLR costs to date include but are not limited to:

- Committed costs for Phase V have exceeded appropriated funding values. It is anticipated that actual Phase V CHIP costs will not reach the full funding appropriation value where it appears that less CHIP addresses were visited than expected.
- Actual put in place quantities for the Phase V exploratory excavation line items are exceeding contractual bid quantities. The City will not pursue a change order to align actual quantities put in place to contractual quantities.
- Phase V actual costs are inclusive of information included in reimbursement requests submitted by the City. Approximately \$21M of pending costs have been invoiced to the City by Contractors but not formally approved by the State in reimbursement requests.

1.1.2. Program Funding Oversight and Monitoring

Observations and Findings:

OIAS, DEQ and Deloitte continued updates to a program-wide funding tracker that monitors budgets, contracts, expenditures, and funding balances for the Flint program. Leveraging the tracker, levels of state and federal funding for the FY18 Intended Use Plan and Phase VI service line replacement activities were assessed to determine if available funds are sufficient to cover the anticipated costs of design and construction. The amount of WIIN funding currently available is not sufficient for the estimated costs of the Intended Use Plan. Between \$70M to \$80M of funding will be appropriated towards non-service line replacement water infrastructure construction projects associated with the Intended Use Plan, however estimated costs of these projects total over \$120M. It has been documented by the State that any funding shortages in this regard will be addressed by reducing the scope and cost of the \$68M water main replacement project.

Service line replacement costs for Phase IV continue to be submitted and finalized with the City and DEQ. It appears that actual costs for Phase IV will be less than available funding and a surplus will be available to be allocated to Phase VI SLR activities, as required. The DEQ, City, and IOM team coordinated to develop detailed cost projections for the service line replacement program considering actual costs to date through Phase V and estimates for Phase VI. The intent of the projection exercise was to develop an accurate representation of final costs of the SLR program and determine if available funding will be sufficient to complete remaining construction activities. Through the development of the SLR cost projections, it was determined that the balance of funding available from Phases I-V combined with the \$10M WIIN reserve may not be adequate to cover the anticipated remaining costs for Phase VI. Various key assumptions were incorporated into the cost forecasts including but not limited to CHIP expenditures, lead service line hit rate, and total number of addresses to be explored. The final scope of Phase VI is yet to be determined as construction RFP's are beginning to be developed and are anticipated to be advertised early in 2019.

Recommendations:

- Continue 10% sample testing for Phase IV restoration force account billings reviewing accuracy and completeness of backup support.
- Verify a process has been implemented for force account billings for Phase V and Phase VI that monitors the designation of different funding sources.

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- Review the current state of the cost invoice review process and determine if it aligns with details of the August 2018 process scoping session.
- Continue to apply construction cost audit methodology to all program invoicing for compliance with contractual and regulatory requirements on a periodic basis in coordination with the OIAS team.
- Continue to review details of fringe benefit calculations associated with Phase IV restoration force account invoicing.
- Monitor Phase V reimbursement requests as they are documented to better understand final costs. Utilize final cost information to determine more accurate budgets for Phase VI SLR work.
- Coordinate with OIAS and DEQ while developing a final strategy for Phase VI SLR funding. Determine an accurate representation of remaining active water accounts to establish an approximation of total locations to be excavated for the program.

Procurement

1.1.3. Bonding Requirements for Program Procurements

Observations and Findings:

2 CFR 200.325 directs bonding requirements for federally funded construction or facility improvement contracts which includes 100% of the contract value for performance and payment bonding as well as 5% of the bid proposal value for a bid security. DEQ requested guidance from the EPA regarding the applicability of 2 CFR 200.325 and federal procurement standards towards WIIN funded projects within the Flint program. The EPA issued an opinion to the DEQ that funds available through the Drinking Water Revolving Fund (DWRF) did not have to follow federal procurement guidelines due to the program being a loan program. OIAS and DEQ are inquiring further with the Michigan Department of Health and Human Safety (DHHS) to determine if a similar opinion would be issued regarding the applicability of federal procurement standards towards CHIP funded projects within the Flint program.

1.1.4. Bid Evaluations and Procurement Methodologies

Observations and Findings:

The DEQ submitted the City's 2018 Project Plan to the EPA on August 13 consisting of the over \$120M of proposed water infrastructure improvements to the City. On September 11, 2018, the EPA distributed formal correspondence approving the amendments to the Intended Use Plan and new Project Plan. Additionally, the City advertised a solicitation of prequalification for professional engineering services related to the above-mentioned water infrastructure improvements. Seven responses were received on the due date of August 23, 2018 and the City prequalified all seven firms. The Project Plan included a proposed design and construction schedule as seen below:

DWRP Project Plan						
Project No.	Description	Start Design	Advertise Construction Bid	Start Construction	Construction Complete	Duration (months)
1	Water Meter Replacement	7/1/2018	10/1/2018	1/1/2019	12/31/2019	12
2	Dort and Cedar Street Storage and Pumping Station Improvements	7/1/2018	1/1/2019	4/1/2019	7/31/2020	16
3	Flint Secondary Water Source (back-up water supply)	7/1/2018	1/1/2019	4/1/2019	12/31/2019	9
4	Northwest Transmission Main Replacement	7/1/2018	1/1/2019	4/1/2019	12/31/2020	21
5	Distribution System Water Quality Monitoring	7/1/2018	10/1/2018	1/1/2019	7/1/2019	6
6	Water Main Replacement	7/1/2018	9/1/2018	11/1/2018	6/30/2020	20
7	Chemical Feed Building	7/1/2008	12/1/2018	3/1/2019	12/31/2019	10
8	Service Line Replacement	1/1/2019	6/1/2019	7/1/2019	12/31/2019	6

Data in this table taken from the Drinking Water Revolving Fund Project Plan Submittal as submitted by the City to the DEQ

Through Q4, 2018, design services for three IUP projects have been advertised by the City including the Water Meter Replacement, Dort and Cedar Street Storage and Pumping Station Improvements, and the Flint Secondary Water Source (back-up water supply). The current and anticipated procurement timeline is behind schedule when compared to the initial schedule submitted in the April 2018 Project Plan. In terms of Phase VI SLR, the DEQ requested that the COF undergo a competitive bidding process for any Phase VI SLR construction thru correspondence dated September 28, 2018.

Recommendations:

- Verify federal procurement requirements pertaining to bonding from the DHHS for CHIP funded projects within the Flint program. Revised procurement requirements for Phase VI accordingly based on the responses received from DHHS.
- Monitor, evaluate, and maintain documentation of the proposal selection process for IUP project professional design services for adherence to all procurement requirements.
- Establish a realistic construction procurement strategy for the upcoming water infrastructure improvements. Monitor timelines of this strategy and compare against the benchmark schedule located within the Project Plan.
- Follow the DEQ’s recommendation to undergo a competitive bid process for Phase VI SLR work.

1.2. Construction Oversight

1.2.1. Site Investigations

Observations and Findings:

During Q4, 2018, OIAS and Deloitte in conjunction with Deloitte’s subcontractor Tetra Tech continued periodic site investigations to monitor construction for compliance with regulatory and contractual obligations. Observations and issues from site inspections conducted for the continuation of Phase IV and Phase V hydrovac, exploratory excavation, and replacement work were communicated with AECOM inspectors and the COF and include but are not limited to:

- Traffic control issues related to street work continue to be problematic despite previous mitigation discussions with the COF and AECOM.

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- Contractors were provided a list of additional SLR's at the beginning of October with the expectation for them to be completed by November 1, 2018. Contractors were instructed that if any issues arise preventing completion of assigned work to notify AECOM in writing by October 10, 2018 with associated reasoning.
- Contractors were instructed by AECOM that all sites and potential issues of associated settlements must be maintained and in good condition until locations are handed off to Goyette, the restoration Contractor. Settlement from backfilling continues to be problematic.
- Backfilling compaction continues to be a significant concern throughout this construction season especially within street paving work areas.
- Contractors were directed to install storm water protection to applicable catch basins to prevent soil entering the storm sewer. Additionally, direction was given to stockpile any excavation spoils in locations where they would not be at risk to erode into adjacent catch basins.
- Contractors were directed to prioritize assigned SLR's over other types of construction work. The SLR's have a target completion date by the end of 2018.
- The COF confirmed that Phase IV restoration work is complete with the exception of hydrovac restoration where this work will continue into spring 2019. The remaining Phase V restoration will also continue into spring of 2019.
- Contractors requested that cold patch be used for restoring pavement similar to the process approved during Phase IV. The COF stated that cold patch can be used for temporary restoration work this year until the areas are permanently restored next spring.
- Curb box misalignment is a concern of the City where at some locations are unable to adequately access the shutoff valve for the properties. It was observed that roughly 100 locations are displaying curb box misalignment issues.
- Contractors requested that the City provide curb box extensions making it easier to set boxes up to grade; City to provide a limited number of extensions.
- It was observed that a contractors stated they were waiting more than 4 hours for City inspectors to show up and approve a service line excavation and/or replacement. Contractors subsequently requested if the City would allow AECOM inspectors to approve the work if City inspectors are not able to provide a timely response and inspection. The City indicated they will investigate contractor concerns and provide a formal response.
- Contractors will be required to repair storm sewers accidentally damaged by drilling through the conduit at no cost to the City.
- Where possible, water services are to cross under the storm pipe with at least 24" clearance; if water service line can be provided with 48" covers, then it can cross over the storm sewer pipe rather than under.
- Tetra Tech's certified plumbing inspector has inspected roughly 10% of the basements that required a new copper connection to date. Major concerns observed were sealing penetration thru the wall and floor, not plugging or abandoning existing water services, and issues with crawl space service pipe connections to the meter.

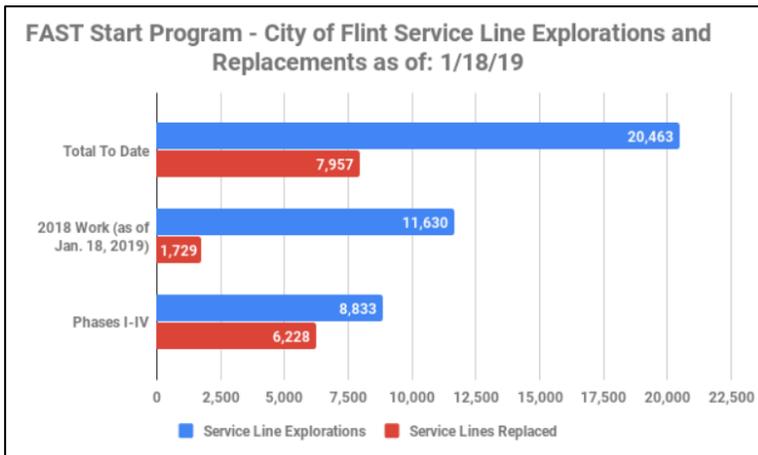
The COF continues to conduct bi-weekly contractor coordination meetings to communicate critical observations and issues as seen in the field by the inspection staff and also discuss any program

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administrative concerns. Additionally, OIAS, COF, and AECOM participate in monthly status update meetings where critical observations and mitigation strategies are discussed. Tetra Tech continues to provide site inspection reports which include information such as level of workforce, equipment utilization, site conditions, relevant photographs, and observations or concerns. A total of 105 site inspections have been performed by Tetra Tech during construction year 2018 and a summary with associated issues can be seen below:

Summary of Tetra Tech Site Investigations for Construction Year 2018			
Issue Type	Number Issues	Specific Issues by Type	Recurrence
Quality	15	Temporary restoration incomplete	3
		Address mismarked as needed for SLR	1
		Unnecessary damage to surrounding concrete	1
		Contractor caused damage to sanitary sewer	1
		Contractor damaged gas service line to home	1
		Contractor caused damage to home cable line	1
		Catch basin not covered by silt protection	5
		Open saw cut too shallow	1
		Dirt and debris left over weekend	1
Safety	24	Field conditions created unsafe working conditions	1
		Lack of use of PPD	1
		Lack of road/traffic control	19
		Water main break	1
		Backfill uneven causing unsafe conditions for public	1
		Unsafe road cutting techniques	1
Environmental	1	Trees in the way of hydrovac excavation	1
Noncompliance with Specifications	5	Inspectors sitting on chair on the job	1
		Lack of certified plumber on site	1
		Contractors not inspecting homes after replacement	1
		Permits were not pulled for work	1
		City of Flint inspectors not certified	1
Total	45		

Through Q4, 2018**, the City has surpassed the 18,000 excavation threshold of the Settlement Agreement entitled *Concerned Pastors for Social Action, et al. v. Khouri, et al.* A summary of progress to date can be seen below:



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*Data provided by City of Flint FAST Start Program [website](#)

**Data date for SLR program metrics is 1/18/19

During December, 2018, the COF and DEQ reached a [voluntary agreement](#) on water systems replacing the DEQ order issued to the COF on October 22, 2018. The agreement indicates that the COF and DEQ will work collaboratively to achieve the City's water system long-term goal of self-reliance. A high level summary of the agreement can be seen below:

- The City and the DEQ agree that the DEQ may grant the City a reasonable extension of the deadlines specified in this agreement. The City will submit extension requests to the DEQ in writing no later than ten (10) business days prior to the deadline.
- The City will report any violations of the terms of this agreement no later than the close of five (5) business days following detection of such violation(s) and will send a written report to the DEQ within ten (10) business days following detection of such violation(s). The written report will include a detailed description of the violation(s), as well as a description of any actions proposed or taken to correct the violation(s).
- The City agrees that if it does not meet the deadlines identified without obtaining an extension, that the DEQ is empowered to assess and to require the City to pay monetary penalties. The City acknowledges the following penalties will apply until the day the deadline is met: \$200 per violation per day for one to seven days of violation; \$300 per violation per day for eight to 14 days of violation; and \$500 per violation per day for each day for violation thereafter.

To achieve that shared goal, the COF and DEQ agreed to various stipulations including but not limited to:

Summary of the Voluntary Agreement Between the City of Flint and the Michigan Department of Environmental Quality	
Deadline	Terms of the Agreement
N/A	The City will implement the timeline for the approval of outstanding Standard Operating Procedures that the DEQ approved on 12/11/18 (Attachment B).
1/31/2019	The City will formally adopt the cross-connection program that the DEQ approved on 12/11/2018 (Attachment A).
1/31/2019	The City agrees it will execute a contract for emergency services at the Cedar Street Reservoir that will guarantee the provision of a generator that is compatible with the reservoir's electrical system. The City agrees to maintain the contract until the date it successfully implements its redundancy plan involving the Dort Reservoir and Genessee County.
2/5/2019	The City will use its best efforts to implement the timeline for filling vacant positions identified in the updated organizational chart the City provided the DEQ on 12/12/18. (Attachment D).
Every 6 months from the approval date of the TMF	The City provided DEQ with a 7/25/2018, Technical, Management, and Financial (TMF) Capacity proposal in which the City explains its plan to achieve its technical, managerial, and financial (TMF) capacity by fiscal year (FY) 2023 (Attachment C). The City's TMF proposal describes the steps the City plans to take leading up to FY 2023 to achieve TMF capacity without raising customer rates. Beginning every six (6) months from the date of approval of the TMF plan by the MDEQ, until the City achieves TMF capacity, the City agrees to provide a signed statement to the DEQ that describes the City's progress towards completing its plan to achieve TMF capacity by FY 2023. The Progress Report will also include an evaluation showing the City can achieve TMF capacity by FY 2023 without increasing customer rates.
3/31/2019	The City agrees to complete the design of chemical feed system improvements and submit them for DEQ review and approval.
3/31/2019	The City agrees that it will complete a preliminary inspection of the Cedar Street Reservoir using a remotely operated vehicle (which does not require taking the reservoir out of service), or by using a method that allows the City to inspect one chamber of the reservoir at a time without taking the reservoir out of service. The City will then submit to the DEQ the inspection report and plan for completing any necessary improvements of the Cedar Street Reservoir identified by the inspection.
45 Days from the Date the Dort Reservoir is Live	The City agrees to complete a full inspection of the Cedar Street Reservoir within 45 days of the date the Dort Reservoir is brought into service. The City agrees to submit to the DEQ an inspection report and plan for completing any necessary improvements of the Cedar Street Reservoir identified by both inspections after the Dort Reservoir is brought into service.
7/1/2019	The City agrees that it will complete the design of upgrades to the Cedar Street Reservoir pumps and submit the design to the DEQ for review and approval.
7/1/2019	The City agrees to submit a plan explaining how it will provide both the services currently provided by John Young once his contract is no longer funded, and the services previously provided by Nick Pizzi now that his contract is no longer funded.
12/31/2019	The City agrees to complete construction of the chemical feed system improvements.
3/31/2020	The City agrees to complete the upgrades to the Cedar Street Reservoir.
N/A	The City confirms that it has authorized the contractor who serves as the Operator in Charge of its water plant to direct city employees in the plant not employed by that contractor to make any changes to plant operations required by the contractor, subject to the ultimate authority of the City Director of Public Works.

Recommendations:

- Verify that the City has processes and controls in place to monitor the requirements of the new COF and DEQ voluntary agreement.
- Continue to develop a strategy for service line replacement scope of work associated with all potential excavations or replacements that may occur after the requirements of the Settlement Agreement are fulfilled (Phase VI).
- Continue site investigations going into Phase VI operations and coordinate with OIAS, DEQ, COF, and AECOM to discuss observations, findings, and risks.
- Continue to communicate with the AECOM and COF inspection staff while attending bi-weekly contractor meetings and facilitating monthly status update meetings in efforts of ongoing monitoring and oversight of critical constructions observations and findings.
- Document issues and concerns noted during field investigations and monitor mitigation efforts.

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1.2.2. Plumbing Certification

Observations and Findings:

The Flint service line replacement program inherently includes a scope of work focused on water lines and associated plumbing connections as they relate to both the City water mains and specific residences. The Skilled Trades Regulation Act 407 of 2016, Article 11 for plumbers and plumbing contractors, includes language that provides State guidance on specifications and details around plumbing scopes of work and associated licenses and certifications. The Michigan Skilled Trades Act specifically 339.6107, Sec. 1107 2(b), provides an exception to the requirement for licensed individuals to perform the work is provided for “the installation of a building sewer or water service pipe, if a permit is secured from the responsible enforcing agency and inspections are performed”. Per their local authority or jurisdiction, the City of Flint is the responsible enforcing agency and is requiring permits only when the meter is moved more than 2 feet. From discussions with the City during a meeting with AECOM, COF, and OIAS on 9/19, the City does not require a certified plumber for service line replacement work up to the water meter associated with that specific residence. When a meter requires a relocation, a licensed plumber for the contractor performs the installation and a certified plumbing inspector will perform the final inspection. A permit must be pulled per City specifications for any meters relocated more than two feet. AECOM’s ArcGIS site includes a location for each applicable residence to indicate if a permit was required and pulled. It was verified that the City does have a certified plumbing inspector on staff, while AECOM does not staff any certified plumbing inspectors on their staff. A process flow diagram was communicated to the City of proper inspections procedures. It was discussed that the appropriate permit and inspection process is typically followed unless the Contractor does not pull a permit; the permit triggers the necessity for the City’s certified plumbing inspector to perform an inspection. It was also discussed with the City that Contractors do not always obtain permits for meter relocations and it is inherently difficult for the City and/or AECOM inspectors to monitor this situation.

Tetra Tech continues to provide inspections of pipe connections at meter locations inside the home utilizing a 10% sample size methodology for relocations of more than two feet. Tetra Tech leveraged industry best practices for the basis of their inspection results but also referred to the State of Michigan Plumbing Code rules, Part 7, as part of the Construction Codes of the Department of Licensing and Regulatory Affairs. The results of their inspections through Q4, 2018 can be seen below:

Contractor	No. of Inspections	Approved	Denied
Lang Contractors	23	21	2
Goyette Mechanical	19	17	2
W.T. Stevens*	30	23	5
Super Construction	2	2	0
Waldorf & Son	28	28	0
Totals	102	93	9

*2 Locations for W.T. Stevens inconclusive due to service not being complete at time of inspection

Justification of the denied inspections for W.T. Stevens during Q4 2018 was documented as the following: four instances of the service line pipe not sealed properly at intersection with the basement wall and one instance of the water service pipe laying on the concrete ground with other debris.

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Recommendations:

- Verify that the replacement contractors for Phase V and VI have licensed plumbers on staff.
- Maintain documentation of all plumbing permits required for meter relocations greater than two feet. Determine controls to be implemented to mitigate risk of Contractors not pulling permits when required.
- Continue to provide a 10% inspection sampling of homes where water meters are relocated more than two feet and permits are required and document observations and findings.
- Document results and share with AECOM and COF. Discuss findings with associated contractors.

1.2.3. Site Selection

Observations and Findings:

Early in 2018, a team of scientists at The University of Michigan (UM) developed a predictive model based upon COF water card data, previous lead testing results, home age, area demographics, and home value to that projects high density areas of existing lead service lines. The Natural Resource Defense Council (NRDC) filed a supplemental brief on October 1, 2018 from a motion filed August 21, 2018 regarding the site selection process utilized by AECOM and the COF. The Concerned Pastors for Social Action (“Plaintiffs”) in the motion argue that the City was not utilizing all available information related to existing service line composition and prioritizing locations with copper to copper connections over ones comprised of lead or galvanized steel. AECOM responded with a memorandum to program stakeholders on October 31, 2018 which detailed their site selection process that was utilized during Phase V. Subsequent Flint City Council meetings were called to investigate this issue in further detail.

Recommendations:

- Review the NRDC supplemental brief in further detail and develop a memorandum to file to formally document a summary of the motion and brief while highlighting critical information.
- Review the AECOM memorandum to file from October 31, 2018 and develop a summary highlighting key facts and processes utilized in site selection process for Phase V.
- Compare the site selection processes as described in the NRDC brief and the AECOM memorandum to as-built data from AECOM’s ArgGIS site to identify gaps and discrepancies in the site selection process that was used during Phase V.

2. Task B: Program Documentation Review and Compliance

As part of the program’s process for documentation of construction activities, AECOM has developed an ArcGIS site to maintain historical records and document as-built information. The intent of this site was to serve as a repository of information for construction activities that occurred by address with the capability to query information and generate targeted reporting. OIAS and Deloitte were given read-only access to the site during Q3, 2018, and performed a detailed review of the site’s capabilities based on the granted level of access. The ArcGIS site is progressing through the transition into the program’s official documentation of as-built information and official construction records where the City will own and manage the data.

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2.1. Program Documentation Review: ArcGIS Reporting

Given the constraints of read-only access, full access to the raw data and various scenarios of targeted reporting based upon desired data analysis of critical as-built information were requested from AECOM during Q4, 2018. Thru the end of Q4, 2018, AECOM had not provided either full access to the raw ArcGIS data or any of the requested reporting scenarios. A significant amount of AECOM's contractual scope of work is based upon the documentation of data and analysis of as-built information.

Recommendations:

- Continue to request full access to the raw ArcGIS data information from AECOM to verify the data management strategy.
- Generate summary information within the ArcGIS site for work performed to date that is easily accessible to site users.
- Discuss with COF, OIAS, and AECOM to determine appropriate reporting scenarios and key performance indicators that can be regularly generated on a go-forward basis.
- Determine a strategy for the handover and maintenance of the site and all associated documentation by AECOM for the COF upon completion of the program.

2.2. Service Line Replacement Procurement Audit

A procurement review checklist focusing on adherence to regulatory compliance requirements for state and federal funding and construction industry standards was developed during Q1, 2018. The intent of the checklist is to assess procurement documentation against federally and state funded procurement requirements as well as construction industry leading practices. During Q4 2018, Deloitte, in coordination with OIAS staff, finalized the review of the Phase V restoration procurement documentation and observations and observations were shared with the COF, DEQ. Deloitte and OIAS will continue the procurement review as discussed in section 1.1.4 going forward into Phase VI and for the IUP projects.

3. Task C: Program Expenditure Review and Oversight

3.1. Design and Construction Cost Audit Methodology Development & Plan

An engineering and construction cost audit methodology was developed during Q1 based on Deloitte's experience with expenditure review and monitoring for major publicly funded construction programs. The audit approach includes the review and assessment of contractual obligations, grant requirements, and industry leading practices for construction and engineering services. In addition, the construction audit process may help to identify critical control deficiencies that might exist and recommend improvements to prevent over-billings, grant compliance issues, fraud, waste and abuse. During Q4 2018, OIAS continued to lead the review of remaining Phase IV reimbursement requests and began the review of Phase V.

4. Task D: Forensic Review and Oversight

Through Q4, 2018, a total of 105 daily site inspections were completed by Tetra Tech in coordination with

Deloitte documenting observations such as construction operations, workforce, equipment utilization, site conditions, and key observations and concerns. An overview of the observations documented in the field can be referenced in section 1.2.1. Additionally, a Michigan certified plumbing inspector continued to be incorporated into the site investigation strategy as described in section 1.2.2 of this report. Tetra Tech maintains ongoing communication with AECOM's inspection staff to discuss any critical issues witnessed in the field; observations, risks, and mitigation strategies are also discussed with AECOM at the bi-weekly contractor and monthly status update meetings.

5. Recommendation Implementation and Go-Forward Strategy

The COF and the Program Manager should consider the recommendations within this report for implementation. Q1 of 2019 will focus on facilitating the implementation of recommendations as well as the continuation of Task A Procedure and Process Review, Task B, Records Review and Compliance, Task C, Expenditure Review and Monitoring and Task D, Forensic Review and Oversight.

Planned activities for Q1, 2019 will include:

- Perform the review of procurement documentation for design and construction related to Phase VI SLR and the Intended Use Plan for adherence to regulatory compliance requirements and industry leading practices.
- Continue to update and monitor the SLR cost projections as actual financial information is submitted and approved.
- Continue to conduct engineering and construction cost reviews in coordination with OIAS for reimbursement requests including invoices submitted by contractors, the program manager, and the COF.
- Reconcile program funding for all phases and determine accurate budgets for Phase VI service line replacement construction activities and all other water infrastructure projects included in the 2018 Intended Use Plan.
- Coordinate with the DEQ to monitor and report financial performance at program-wide level and communicate progress updates and dashboard reporting to program stakeholders.
- Perform periodic site inspections of service line replacement construction activities and generate subsequent investigation reports. Site investigations are anticipated to continue until construction shuts down for the winter months.
- Continue to attend monthly coordination and weekly contractor status update meetings to facilitate monitoring and oversight of construction activities.
- Review issues and concerns observed from contractors, the Program Manager, and the City and monitor the implementations of mitigation efforts.

Appendix A

PREVIOUS OUTSTANDING OBSERVATIONS AND RECOMMENDATIONS

Description	Follow-up Next Steps	Primary Responsibility	Status	Resolutions
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NA for 2018 Q4

Appendix B

OBSERVATIONS AND RECOMMENDATIONS COMPLETED PENDING VERIFICATION OF IMPLEMENTATION

Description	Follow-up Next Steps	Primary Responsibility	Status	Resolutions
1. Develop a process for retainage release requests at 50% completion and 100% completion, with details and/or checklists of requirements that constitute completion.	Verify documentation of retainage release requests (informal or formal).	COF and AECOM	Complete	Retainage release process identified within SLR RFP. The Contract Closeout section provides guidance on industry standard processes for substantial completion, punch listing, and final inspections prior to release of final retainage. Retainage – 00 52 13 Agreement Article 6.02. Closeout – 00 71 00 Contract Closeout.
2. Improve the process and controls going forward to facilitate consistent and accurate entry of time to appropriate codes and funding sources.	Monitor data management program application as Phase V construction commences. Verify how City is recording Phase V time when submitted for reimbursement.	COF and AECOM	Complete	AECOM developed a data management program where time can be input in the field via tablets.
3. Develop and implement a program dashboard for tracking of Key Performance Indicators (KPI's).	Monitor data management program application as Phase V construction commences.	AECOM	Complete	AECOM developed a data management program where KPI's can be actively monitored and reported.
4. Strengthen contractor accountability for field operations. Monitor contractor performance, quality, and completion of the work.	Monitor data management program application as Phase V construction commences. Verify if quality issues are being documented in program	COF and AECOM	Complete	AECOM developed a data management program that has the capability to monitor and track contractor performance as part of quality control.
5. Review WIIN, DWRF, and other government funding source compliance specifications and analyze against program cost information to monitor for adherence to regulatory and statutory requirements.	Deloitte working with DEQ to update funding tracker and maintain on a go-forward basis.	COF and Deloitte	Complete	Development of funding tracker is substantially complete. Deloitte and OIAS will continue to review procurement documentation for compliance.
6. Follow guidance from SHPO regarding the potential for the project to affect historic properties and proper protocols in the event of disturbed locations.	Verify and monitor as Phase VI construction commences. SHPO zones not worked on during Phase V.	AECOM and DEQ	Complete	Specific area applicable to SHPO restrictions has been identified, approximately 145 sites. An archeologist must be present for any work at these locations. The State of Michigan will cover the cost for the required archeologist.

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Appendix B

OBSRVATIONS AND RECOMMENDATIONS COMPLETED PENDING VERIFICATION OF IMPLEMENTATION

Description	Follow-up Next Steps	Primary Responsibility	Status	Resolutions
7. Develop a contractor evaluation and performance tracker to be maintained in a centralized database allowing access to the details of contractor’s previous performance.	Verify if AECOM if any type of contractor evaluation documentation is occurring.	AECOM	Complete	AECOM developed a data management program that has the capability to monitor and track contractor performance as part of quality control.

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