

Project Charter

Providing Clean, Accessible, and Safe Water for Flint, Michigan

H2O Civil & Engineering Firm (Group 1)

[Date]

PMAN 634 9040 Foundations of Project Management (2188), Fall Semester

[Group Member Names]

Change History

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Providing Clean, Accessible, and Safe Water for Flint, Michigan

Help to Others (H2O), Inc. is a licensed general civil and environmental engineering firm with 20 years of experience that has provided solutions and general contracting services to clients across the globe. H2O is a Fortune 500 company based out of Flint, Michigan. The firm has handled various industrial, design, consulting, manufacturing and construction projects for both the public and private sectors. H2O, Inc. is a leader in providing value-added construction services through skillful and knowledgeable employees. H2O is known for their quality and expertise in clean water and infrastructure based projects. Additionally, H2O is a frontrunner in repairing and restoring pipeline systems in various parts of the world in a systemic and proficient manner.

In 2014, the City of Flint, located in Genesee County, Michigan experienced an insurmountable crisis that led to the inability to provide clean and safe water for their residents. This crisis was due to a decision to change the primary source of water from Lake Huron and the Detroit River to the Flint River in order to cut costs and provide an alternative to building its own pipeline which would connect to the Karegnondi Water Authority. This detrimental decision caused leaking lead to contaminate water pipes – exposing at least two-thirds of the population to the unsafe, contaminated, lead tainted water. The situation was so dire that the City of Flint was declared to be in a Federal State of Emergency for one year and a half. As such, the Michigan state legislature issued \$97 million to address the water crisis – which will include replacing lead or galvanized steel water lines in the City of Flint (Kennedy, 2016). In order to rebuild the infrastructure of 18,000 contaminated lead pipes, three firms have been contracted to complete the vast project. Our firm, H2O, Inc. is one of three companies that secured the government bid

to locate, remove and replace 6,000 of the 18,000 pipes that have been exposed to the hazardous level of lead in Zone 1 of the City of Flint (North section of Flint) (Reilly, 2017).

Purpose for the Project

This project focuses on the water crisis of Flint, Michigan. Currently the City of Flint suffers from a lack of safe water that is needed for everyday use; hence, the purpose of this project is to provide clean, accessible, and non-toxic water to the residents of this city. Based on the Michigan Department of Environmental Quality, lead is a toxic metal that can be harmful to human health even at low exposure levels (EPA, 2018). In regards to the City of Flint, the EPA reported dangerous levels of lead in the tap water of the city; and all people are recommended to use bottled water instead – until the pipes have been completely replaced. However, based on the level of poverty that exists within the city, residents are not financially capable of providing purified bottle water for their family for an extended period of time. Moreover, the Governor of Michigan ended the free bottled water program in April of 2018, as the program was only a temporary solution through a FEMA and National Guard aid package. Furthermore, the health danger that is threatening the residents of Flint is the primary reason for this project. This is an urgent situation that needs to be taken care of in the most systematic way possible. Our company H2O, Inc. is responsible for replacing the pipes in Zone 1 of the city. Achievements of this project will not only benefit the residents, government, and economy of this city, but will also help the environment by reducing the amount of utilized plastic water bottles which can harm environment in the long-run.

Project Scope Statement

Due to the current Flint city water crisis and the class-action lawsuit that was brought upon the state of Michigan for unsafe drinking water conditions, Help to Others, Inc. (H2O) was

contracted by the government to replace one-third (Zone 1) of the city's lead or galvanized service lines by the end of 2021. In September 2015, reports of "lead contamination in the water supply, elevated levels of child lead poisoning, and physician recommendations for Flint residents to stop using their tap water" began to surface to the public and lead to media attention on local, national, and international levels (Kruger et al., 2017, p.57).

Through the collaboration with local, city and state government officials and independent contractors, H2O will locate, remove and replace the pipes exposed to lead in Zone 1 of Flint, Michigan. The project will include pre-construction processes, in addition to five work phrases. The pre-construction phase will consist of securing project funding from the city of Flint, obtaining the necessary zoning and construction permits, acquiring material for the project and securing contracts from local and independent contractors to begin the work. The first phase will involve reconstructing pipeline from the main water treatment facility in Flint. The second phase will be to replace lead service lines and water mains, and to install water pump replacements. Phase three will involve the installation of water testing stations throughout the zone. The fourth phase will cover replacing residential pipelines and the replacement of water meters. The fifth and final phase will encompass training city and utility employees how to properly maintain the new pipeline system, setting up a consistent inspection timeline to ensure proper water flow and cleanliness, finalizing road repairs of affected areas, and preparing/presenting a press release to communicate the finalization of the project.

All phases of the project will be reviewed and accepted by the city of Flint prior to the commencement of the project. H2O will adhere to all regulations and maintain accountability throughout the life of the project. It should be noted that H2O will only be responsible for Zone 1 of the project and will not be responsible for any work in Zones 2 or 3. Assuming the availability

of resources and securing licensing and permits, the project's timeline will span over 2 years, weather permitting, as winter temperatures in Flint can be as low as 10 degrees Fahrenheit, which can potentially bring construction to a standstill. The proposed budget of the project is \$32 million, which will be issued from the state legislature to address the growing water crisis.

Project Objectives and Success Criteria

The following objectives are measurable goals that must be accomplished in order for the overall project to be considered successful:

- Objective 1: Secure funding from city of Flint to initiate work; obtain the necessary zoning licenses and construction permits (location of 6,000 pipes); and secure contracts with local and independent sub-contractors, along with materials needed for each phase of the project.
- Objective 2: Ensuring that the water is safely turned on and off throughout the process and that residents are not without water for more than 6 hours on any given day
- Objective 3: Completion of pipeline reconstruction from Flint city main water treatment facility (remove pipes)
- Objective 4: Replacement of Zone 1 water mains and lead service lines - including the installation of appropriately sized pumps to generate water flow
- Objective 5: Complete installation of water testing stations
- Objective 6: Replacement of residential pipelines and water meters
- Objective 7: Proper training for upkeep and maintenance of the new pipeline system
- Objective 8: Set up bi-annual inspection timeline to ensure that the water is flowing properly and water is safe and clean and within regulated norms for the city/state

- Objective 9: Finalize road repair construction and prepare press release for media distribution once project is complete

Project Requirements

Help To Others - H2O, Inc. is committed to strict compliance and adherence with the laws and regulations of the city, during each stage of this project. In addition to complying with the International Building Code – IBC ("Table of Contents | ICC publicACCESS", 2015), and the United States Environmental Protection Agency's (EPA) rules ("Federal Environmental Requirements for Construction", n.d.), H2O will ensure that all the following requirements are met at the state level with The Bureau of Construction Codes of the Michigan Department of Licensing and Regulatory Affairs – DLARA ("Construction code in Michigan", n.d.):

- Michigan Construction Code, Public Act 230 of 1972, as amended, (Act 230).
- Boiler Act, Public Act 290 of 1965, as amended (Act 290).
- Elevator Safety Board, Public Act 227 of 1967, as amended (Act 290).
- Licensing laws for electricians, plumbers, and mechanical contractors.
- Barrier Free Design, Public Act 1 of 1966, as amended (Act 1).
- Building Officials and Inspectors Registration Act, Public Act 54 of 1986, as amended (Act 54).
- Planning and Zoning approved - City of Flint ("Planning and Zoning", n.d.)

Moreover, H2O, Inc. is committed to meet its internal requirements:

- The project must be conducted in five (5) different phases
- The project must stay within the allocated budget
- All the tasks must be completed within their timeframe
- All suppliers and third-parties must be approved by Help To Others (H2O)

- All materials will be secured at the best price available, as long as they meet the needs of their intended purpose
- Materials will be environmentally friendly

Overall Project Risks

The involvement of several stakeholders and the health hazards make this more intricate than typical construction projects. The two major sources of risk diagnosed for this project are engineering and non-engineering related (Mishra & Mishra, 2016).

The non-engineering risks identified are of three different categories

- Unpredictable :
 - Country political, economic and social stability.
 - Environmental and geological risks.
 - Natural hazardous risks
- Predictable :
 - Failure to meet administrative deliverables timing
 - Failure to meet internal requirements (listed above)
- Legal :
 - Statutory Clearance before planning the project (Federal, State, City).

The engineering risks, on the other hand, tend to be more predictable:

- Design risk
- New technology implementation
- Poor safety procedures
- Construction delays
- Improper coordination between teams

- Resource risk (lack of availability of resources)

However, H2O is working tirelessly to mitigate all possible risks factors related to the pipeline project.

Milestone Schedule (summary)

In order to ensure that the project stays within the given timeline, H2O will utilize the following milestone phases (I - V) throughout the duration of the project:

Phase	Milestones	Completion Deadline
Pre-Construction Permit and Contract Approvals	<i>Zoning and Construction Permit Approvals:</i> Main Contract Approval; Land Zoning and Excavation Permit; Road Excavation and Construction Repairs Permit	Project created in early October 2018; pending approvals of funding, contracts, and permits. City of Flint Water Pipeline Project to be advertised by January 2019 following approvals, consequently. All permits and contracts must be approved <i>no later than:</i> December 3, 2018
	<i>Contract Approvals:</i> Water Main and Service Line Replacement Contract; Pipeline Replacement and Enhancement Contract; Appropriate Water Pump Replacement Contract; Installation of Water Testing Stations Contract; Replacement of Water Meters Contract; Material Approval Submittal	
I	Completion of Phase I: Pipeline reconstruction from main water treatment facility in city of Flint	<i>*Weather permitting</i> , land excavation and water treatment facility reconstruction will begin late April 2019. June 10, 2019

II	Completion of Phase II: Water main replacements; Replacement of lead service lines; Water pump replacements	March 31, 2020
III	Completion of Phase III: Installation of water testing stations	June 12, 2020
IV	Completion of Phase IV: Residential pipeline replacements; Replacement of water meters	June 30, 2021
V	Completion of Phase V: Proper training for upkeep and maintenance of the new pipeline system Set up bi-annual inspection timeline to ensure that the water is flowing properly and water is safe and clean and within regulated norms for the city/state Road repairs and press release to follow completion of project	December 1, 2021

Budget or Pre-Approved Financial Resources (summary)

Phase	Details	Estimated Cost
	Pre-Construction Permit and Contract Approvals	\$ 950,000.00
I	Phase I: <i>Pipeline reconstruction from main water treatment facility in city of Flint</i>	\$ 8,600,000.00
II	Phase II: <i>Water main replacements; Replacement of lead service lines</i>	\$ 4,700,000.00

III	Phase III: <i>Installation of water testing stations; Water pump replacements</i>	\$ 4,250,000.00
IV	Phase IV: <i>Residential pipeline replacements; Replacement of water meters</i>	\$ 6,500,000.00
V	Phase V: <i>Proper training; Set up bi-annual inspection timeline and Road repairs</i>	\$ 7,000,000.00
	Total	\$ 32,000,000.00

Criteria for Project Approval

When Help 2 Others (H2O) secured the government contract for the pipeline project, the firm was aware of the daunting regulatory and comprehensive task at hand. H2O must comply with all zoning and regulatory inspections throughout each phase of the project. The firm must procure environmentally friendly materials, secure all licenses and permits, provide a detailed timeline of each phase, and provide weekly updates to the City of Flint to determine project progress. Additionally, in order to determine the success of the project, the City of Flint requires that H2O meet all goals/objectives within a two week timeframe of each date that is set forth. Due to the firm having permits that have expiration dates, it is essential that H2O stays within that specified timeframe to keep from exceeding the approved budget.

Once the city spokesperson signs off on the project, H2O will begin with phase 1 of the project. Each phase must be strictly adhered to and signed off by the city spokesperson. H2O will not be able to proceed to the next phase until the previous phase is signed off on and approved. Once all phases are complete, including testing and restoration of the city streets, the project will be given the final approval from the city spokesperson, city water engineers, and the Governor of

Michigan. At that time residents of Flint, Michigan will once again have access to clean, accessible and safe water.

Project Authority

The project will be managed by H2O- Help 2 Others Civil & Engineering Firm (the performing organization). The project will be under the thorough and constant review of the City of Flint, Michigan (the customer). Weekly meetings will be conducted with a representative of the City of Flint, along with the Project Management Team to provide comprehensive status updates. The meetings will address conflicts and constraints that have arisen during the life of the project. The meetings will also serve as a platform to ensure that H2O is within budget and is on schedule with the timeline of the project. In the case that authority is needed to override the decisions of H2O, The City of Flint will have will have the final say.

H2O has full authority of procuring the materials, resources, and suppliers for the pipeline project. The Project Manager will be chosen by H2O and the Project Manager along with the project management team will assess the situation, locate the corroded pipes, replace the corroded pipes, and apply the necessary resources to every other element of the project.

The City of Flint must sign off on each phase of the project. The phases will be provided to the City of Flint by H2O's project management team. Success will be determined by the City of Flint once all 6,000 pipes have been replaced in Zone 1, and all the other items in the scope of the project have been completed. Once all five phases of the project are complete, the project will be closed.

Project Manager and Authority Level

Monica Saunders, a representative of H2O Civil & Engineering Firm, has been selected to take on the role as Project Manager for the pipeline project. Ms. Saunders will be responsible

for the duration of the project's life-cycle. Additionally, she will monitor the day-to-day tasks related to the procurement of supplies and materials, hiring subcontractors, ensuring that the budget is adhered to, ensuring that all phases of the project are managed effectively and efficiently, and ensuring that H2O is fully transparent and accountable at all times, including maintaining constant communication with the City of Flint. Any conflicts or constraints will be brought directly to Monica Saunders in order to come up with an appropriate and swift resolution. The weekly meetings with the City of Flint will be headed by Monica Saunders, where all other necessary parties will be present. Any changes to work orders need to be approved directly by Monica Saunders. Lastly, Ms. Saunders will be the primary contact for H2O.

Project Sponsor or Customer and Authority Level

Mohamed Diagabate, a city spokesperson, will function as the representative for the City of Flint. Mr. Diagabate will be in on the weekly meetings with H2O's project management team. Mr. Diagabate will represent the city and will be the primary point of contact for the city. Mr. Diagabate will be responsible for reviewing project reports that will identify project progress as well as identify any issues H2O may have that could affect deliverables. Mr. Diagabate will override decisions, if needed, and provide regular feedback to Ms. Saunders. Lastly, Mr. Diagabate and the Governor of Michigan, with the aid of city water engineers, will inspect the deliverables, sign off on the project once complete, and conduct the press release to the media upon completion of the project.

References

- Basic Information about Lead in Drinking Water. (2018). Retrieved from <https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water>
- Construction Code in Michigan. (2018). Retrieved from https://www.michigan.gov/documents/deq/deq-ess-caap-manufguide-chap37_313473_7.pdf
- Federal Environmental Requirements for Construction [Brochure]. (n.d). Retrieved from <https://www.cem.va.gov/pdf/fedreqs.pdf>
- Kennedy, M. (2016). Federal state of emergency over lead-laced water ends in Flint, Mich. Retrieved from <https://www.npr.org>
- Kruger, D. J., Cupal, S., Kodjebacheva, G. D., & Fockler, T. V. (2017). Perceived water quality and reported health among adults during the Flint, MI water crisis. *Californian Journal of Health Promotion*, 15(1), 56–61. Retrieved from EBSCO database
- Mishra, S., & Mishra, B. (2016). Risk Evaluation Factors In Construction Projects. *International Journal of Modern Trends in Engineering & Research*, 3(12), 72-76. doi:10.21884/ijmter.2016.3153.kdd1q
- Planning and Zoning. (n.d.). Retrieved from <https://www.cityofflint.com/planning-and-development/planning-and-zoning-2/>
- Reilly, C. M. (2017). Potable to poisonous: An analysis of the Flint, Michigan water crisis. Retrieved from <https://commons.lib.jmu.edu>.
- Table of Contents | ICC publicACCESS. (2015). Retrieved from <https://codes.iccsafe.org/public/document/toc/542/>