



Case Study

DC Water, Washington, D.C.

Demand Lead Service Line Replacements



Background

DC Water focuses on providing vital, safe, and high-quality services to their customers while also protecting and enhancing the environment. DC Water distributes drinking water and collects and treats wastewater for more than 672,000 residents and 17.8 million annual visitors in the District of Columbia. DC Water also provides wholesale wastewater treatment services for 1.6 million people in Montgomery and Prince George's counties in Maryland, and Fairfax and Loudoun counties in Virginia.

Drinking water for the District of Columbia comes from the Potomac River. The U.S. Army Corps of Engineers Washington Aqueduct, a federal drinking water treatment plant, collects water from the Potomac River at Great Falls and Little Falls. The Aqueduct treats this water to make sure it meets federal drinking water requirements and is safe to drink. DC Water purchases treated drinking water from the Washington Aqueduct and distributes it to customers through a series of more than 1,300 miles of pipe that run underground. To distribute drinking water, DC Water operates more than 1,350 miles of pipe, four pumping stations, five reservoirs, four elevated water storage tanks, 43,860 valves and 9,500 public hydrants.

Lead Exposure

DC Water's drinking water is lead-free when it leaves the treatment plant and travels through water mains in the street, but lead can be released into the clean tap water as it passes through lead service pipes and household plumbing that contains lead.

DC Water operates a robust program to address lead, called the Demand Lead Service Line Replacement Program (Demand LSR Program). The primary purpose of the Demand LSR Program is to replace identified public side lead service lines and support homeowners with replacing private side lead service lines. This program includes monitoring for lead at the tap, controlling corrosion, replacing lead service pipes, educating customers on the health impacts of lead, and helping them identify and remove lead sources on their property.

Case Study Description

DC Water selected the Demand LSR for this Utility Analysis & Improvement Methodology (UAIM) case study because it is very important to DC Water and its customers. The goal of using the Demand LSR was to improve and streamline the business process and optimize communication and data management and usage. Further, the existing Demand LSR Program standard operating procedure doesn't reflect the details of how work is currently performed.

Following the UAIM methodology, the case study was completed in the following steps:

1. **Define.** Identified the Demand LSR Program business processes for improvement and set up a meeting with representative staff who are involved in the Demand LSR Program.
2. **Measure.** Conducted an As-Is workshop and created the As-Is workflow using Visio software that was then transferred and uploaded into the Signavio modeling tool.

3. **Analyze.** Identified improvement opportunities with staff as part of the As-Is workshop and reflected these by color coding steps in the As-Is workflow that could be improved.
4. **Improve.** Prepared a To-Be workflow using Visio software that was then transferred and uploaded into the Signavio modeling tool. Facilitated a workshop with the same group of staff involved in the As-Is workshop to present the To-Be workflow, and obtain validation and agreement that the To-Be workflow was the desired state.
5. **Execute.** Developed a Change Management Plan that lists the prioritized set of actions required to move from the As-Is to the To-Be state.
6. **Sustain.** Established a Change Management Plan leader to facilitate update meetings with those responsible for actions listed in the Change Management Plan and to ensure actions are being implemented.

The process is triggered by a customer calling to discuss suspected lead pipe in their home and to request information about what they should do. Calls are routed to a Demand LSR Coordinator, who oversees deciding if the customer/lead service line is eligible for the LSR Program using a set of established criteria. Prioritization of requests for lead pipe replacement is based on time of request and tracked in a spreadsheet. Customers are responsible for work on the private line and DC Water is responsible for work on the public side; these activities must be coordinated. Currently, DC Water can respond to 375 requests per year.

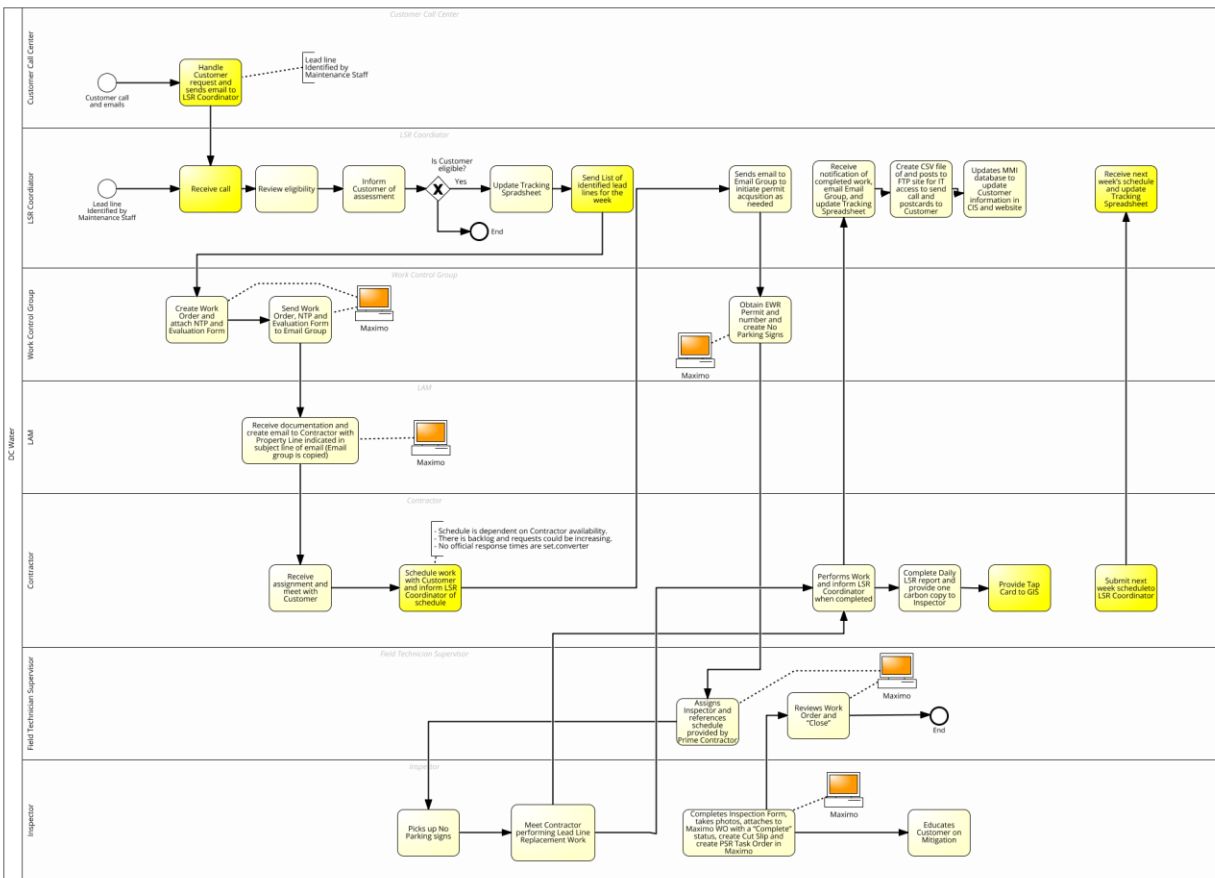


Figure 1. As-Is workflow with challenges or “issues” highlighted

The primary challenges with the As-Is process include:

- Staff heavily rely on email for communication to track work and push the workflow forward; they are not taking advantage of their existing Maximo system functionality to track work, records costs, and push the workflow forward.
- It is challenging to get the supporting contractor to provide a work schedule look-ahead or to track contacts with customers, and update DC Water when a lead line is left in the ground or where it is disposed.
- Customer Service misroutes calls to the Demand LSR Coordinator and Customer Service doesn't have access to information to tell them program and work status.
- There is a backlog of approximately 200–300 LSR requests to the Demand LSR Coordinator; however, these may not all be valid.
- The amount of LSR work being performed is expected to increase over time due to public understanding of the program.
- Work is documented on paper (Tap Cards and Daily Inspection Forms) so there is a delay in getting data into a geographic information system to track program and work status.
- Priorities are set based on time of request, as opposed to criticality of the situation.

As part of identifying the To-Be process, it was recognized that improvements could be realized through changes in technology usage (how data and information was being recorded and tracked), and organizational/process changes.

Technology Changes

- DC Water owns and uses Maximo for much of its maintenance work. Maximo can replace email communication to push forward workflow, can be a repository of data from which reports can be pulled and used to inform decision-making, and can provide up to date information about work progress to Customer Service reps who are interacting with customers.
- Getting the Contractor to provide data and information in a manner that could be imported into Maximo was also identified as a way to keep all data and information in one place so that DC Water could easily pull status reports about program and work status.
- The use of electronic data-capture out in the field as opposed to tracking information on paper was also identified as an efficiency opportunity so that data would not have to be typed in later.

Organizational/Process Changes

- An LSR prioritization strategy should be developed based on criticality as opposed to “first come first serve” basis.
- Customer Service staff require education to reduce the call volume sent to the Demand LSR Coordinator, to tighten up communication to the customer, and reduce routing of calls. To do this, the technology improvements that support better data management and housing of data in one spot is necessary so that Customer Service staff can be effective communicators of accurate information to the customer.
- In anticipation of increased volume of LSR requests, it is recommended that an additional person be trained as a back-up to the Demand LSR Coordinator.

Successful Strategies

Successful strategies employed by DC Water for this project include the following:

1. Used a facilitator and business process optimization and documentation expert to guide the As-Is and To-Be workshops. The facilitator also led development of the Change Management Plan.
2. Invited the right representative staff to the As-Is and To-Be workshops as opposed to relying on a single staff member to communicate the program. As is the case with most business processes, staff involved in implementing a process see things differently and have different perspectives on what works and what doesn't work. DC Water also ensured that a representative from the IT Department was involved to help identify and understand technology improvements.
3. Assigned staff and due dates to the prioritized Change Management Plan and identified a Change Management Leader to oversee implementation of the actions.

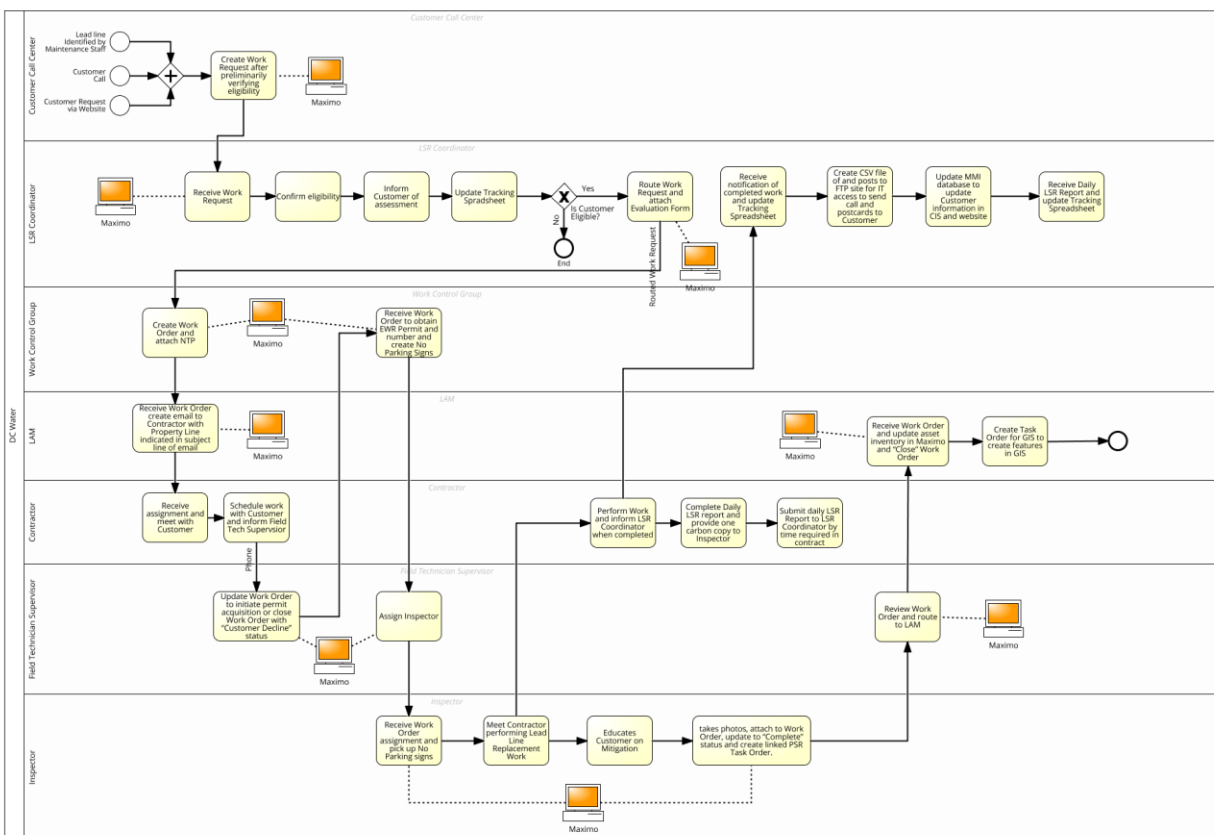


Figure 2. To-Be workflow with challenges or “issues” addressed

Lessons Learned & Ongoing Challenges

Lessons learned and ongoing challenges experienced by DC Water for this project include:

1. The Change Management Leader has little time to oversee implementation of the Change Management Plan; therefore, it is easy for the identified improvements not to be implemented.
2. A cost/benefit analysis between the As-Is and To-Be state would have been helpful to highlight risk cost reduction, program cost savings, and improved customer service that can be incurred due to moving toward the To-Be state.
3. An Executive Sponsor (someone involved in deciding where money is being spent at DC Water) is necessary to ensure improvements are implemented and results communicated to internal and external stakeholders.
4. Use of a consultant to help implement the improvement actions can offset an existing busy staff who don't have much time to work on the improvement actions.