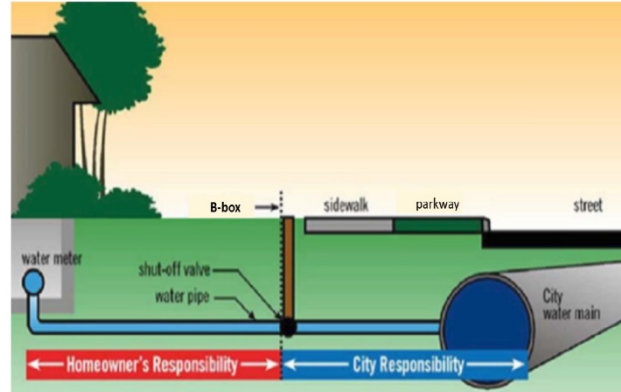


Corrosion Control/Water Source Transfer Plan

Different water sources have different raw water quality and different water quality treatment which result in differing water chemistry. Similar water sources (such as Lake Michigan Water) with similar water treatment (such as conventional coagulation, sedimentation and filtration treatment) will have similar water chemistry. **Understanding the water chemistry between the different water sources is key to making sure that Joliet’s customers are not impacted by the water source switch.**

The corrosivity of the water is a concern for communities with lead services. The more corrosive the water is, the more potential there is for lead to leach from the lead service line into the drinking water going to that home. Conversely, if the water is less corrosive, it can be scale-forming which can reduce the carrying capacity of the pipes in the water distribution system.



Due to the depletion of the City’s existing water source (deep well aquifer), the City needs to switch to a new water source by 2030. Earlier this year, the City selected Lake Michigan Water as its new water source: either Lake Michigan Water from Chicago Department of Water Management or Lake Michigan Water through a new Indiana intake. With either alternative, the new source water quality will be different than the City’s existing source water quality.

The City of Joliet recognizes that switching water sources can present a major risk which must be mitigated. Discussions with the Illinois Environmental Protection Agency (IEPA) about mitigating the risk associated with switching water sources (also called water source transfer) began almost 2 years ago during the Phase I and Phase II Studies. The primary way to mitigate the risks associated with switching water sources is through the development of a Water Source Transfer Plan. Given the complexity of this issue, the City’s consultant for the Alternative Water Source Program engaged a national corrosion control expert, David Cornwell from Cornwell Engineering Group, to advise the City and program consultant on this issue.

Although the switch will not occur until 2030, the development of the Water Source Transfer Plan has already begun. The schedule for the Water Source Transfer Plan over the next 10 years includes the following components:

- 2020 Evaluation: Analysis of the water quality of existing water source and analysis of the impact of the water quality of the new water source, resulting in the development and submittal of **Water Source Transfer Test Plans** to IEPA for both alternatives.
- 2021 to 2022 Pipe Loop Test: After the water source alternative is selected, the Water Source Transfer Test Plan for the selected alternative will be implemented. The test plan will likely include pipe loop testing consisting of conditioning harvested lead services with the existing water source (approximately 4 to 6 months) and then exposing it to the new water source (approximately 6 to 9 months) to determine whether corrosion control is maintained through the switch. **The goal of the pipe loop testing is to determine the corrosion control measures required to achieve no impact.**
- 2023 to 2029 Design/Construction: The corrosion control identified through the pipe loop testing is incorporated into the **design and construction** of the new water source.



- 2030 Water Source Switch: Prior to the water source switch, the City and program consultant will develop **a plan for the phased switch from the existing water source to the new water source.** The plan may include flushing, special sampling/testing, filters or other IEPA approved methods to mitigate the risk associated with the switch. The City will prepare customers for the switch through public outreach. The City will then implement the phased switch to minimize mixing of water from the old water source and the new water source.
- 2030 to 2032 Monitoring Water Quality in the Distribution System: The City and program consultant will develop and implement **a monitoring plan** to include monthly/quarterly testing of water quality in distribution system and lead service lines in order to verify that no impact occurs with the water source switch. The plan will include contingency provisions in the event that the corrosion control is impacted.

In summary, while the water source transfer is a concern and major risk, the City and consultant team have developed a plan to mitigate the risk and minimize the potential impact to the customers.