# Alternative Water Source Program: Strategy for Sustainable and Resilient Design

**Alternative Water Source Program Mission Statement**

*To provide a **sustainable, reliable, and high-quality water supply** for Joliet, and potentially the region, by 2030 in order to support the public health, safety, and economic interest of the community.*

In support of the overall mission of the Alternative Water Source Program (AWSP), the Program Team has drawn upon principles from the Institute for Sustainable Infrastructure's Envision Framework[1] and crafted a strategy for sustainable and resilient design. The Envision framework encourages changes in the planning, design, and delivery of projects to create more sustainable, resilient, and equitable infrastructure. For the AWSP, the Program Team has adopted specific sustainability and resiliency priorities from all five categories included in the Envision framework as listed below. These priorities will be used by the Program Team throughout AWSP implementation to maintain a focus on sustainability and resiliency.

***Quality of Life***

**Advancing Equity and Social Justice** – Ensure that equity and social justice are fundamental considerations within project process and decision making through stakeholder engagement and discussion among Program Team members.

**Minimize Construction Impacts** – Identify and manage the temporary impacts of construction on adjacent neighborhoods and properties at Program sites through outreach and coordination during design, as well as incorporation of impact mitigation measures into construction documents.

***Leadership***

**Provide for Stakeholder Involvement** – Develop, monitor, and refine plans for early and sustained stakeholder engagement and involvement in project decision making.

**Foster Collaboration and Teamwork** – Schedule and conduct regular meetings to promote early and consistent collaboration between designers, contractors, operators, and Regional Water Commission members. Drive focus on the common goal of Program delivery by 2030.

***Resource Allocation***

**Reduce Operational Energy Consumption** – Incorporate measures for managing energy usage at AWSP facilities into project designs. When the project is complete, energy use will likely be the largest recurring cost of operation for the water system. Reducing energy usage may be the best way to reduce the long-term cost of operation of the system.

**Commission and Monitor Energy Systems** – Prepare standard guidelines and design details for monitoring energy use at AWSP facilities after they are constructed. Monitoring the system is important for maintaining operational efficiency over the life of the project. Commissioning provides assurance that the system is functioning as intended at startup,

[1] *Envision Sustainable Infrastructure Framework. Version 3.* Institute for Sustainable Infrastructure. 2018. https://sustainableinfrastructure.org/wp-content/uploads/EnvisionV3.9.7.2018.pdf

***Resource Allocation (continued)***

while monitoring equipment and software allows operators to identify and isolate issues to maintain that energy efficiency over the life of the project.

**Preserve Water Resources** – Reduce regional use of the deep aquifer and plan for the efficient use of the new Lake Michigan source through promotion of best practices for water loss management and water conservation. Water quality and availability are a concern across the US and around the world. Increased usage, limited ground water recharge, and variability in the hydrologic cycle present significant challenges for many communities.

**Reduce Operational Water Consumption** – Perform annual reviews of non-revenue water and customer water use trends to confirm that water is being used efficiently. Decreasing non-revenue water and reducing overall water consumption means less water treated and pumped, and more water for future generations.

**Monitor Water Systems** – Perform regular reviews of water system performance (water loss audits, reviews of power usage, pressure variation tracking, etc.) to monitor/identify changes in performance. Similar to the benefits of monitoring energy usage, monitoring flow and usage of water and detecting leaks early can save money in operations, reduce non-revenue water, and decrease energy consumption associated with treatment and pumping.

***Natural World***

**Managing Stormwater –** Minimize the impact of project improvements on stormwater runoff quantity, rate, and quality. Identify opportunities for incorporating stormwater best management practices into site designs for individual AWSP projects.

**Preserve Sites of High Ecological Value –** Implement National Environmental Policy Act (NEPA) guidelines and requirements including the mitigation hierarchy of Avoidance, Minimization, Protection, and Offsetting.

***Climate and Resilience***

**Evaluate Risk and Resilience** – Conduct and review regularly a comprehensive risk evaluation to understand potential hazards or threats to program success. Risk is a factor of the probability of a threat/hazard occurrence, the potential impact on the Program, and the associated consequence of failure.

**Improve Infrastructure Integration** – Enhance the operational relationships and strengthen the functional integration of the project into connected, efficient, and diverse infrastructure systems.

The Alternative Water Source Program is a multi-faceted effort with multiple design teams. This strategy for sustainable and resilient design is intended to facilitate and provide a consistent framework for incorporating sustainability and resiliency into the planning, design, construction, and operation of the required infrastructure improvements.