



# Alternative Water Source Program Public Service Committee Update

## Sustainable and Resilient Design Strategy

September 20, 2021

# 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.

Sustainability and Resiliency are critical to the success of the Alternative Water Source Program

# DEFINITIONS



## Sustainability

- *Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.<sup>1</sup>*

<sup>1</sup> *Brundtland Commission Report. 1987 UN World Development Commission on Environment and Development.*

## Resiliency

- *The ability to successfully adapt to and/or recover readily from a significant disruption.<sup>2</sup>*

<sup>2</sup> *Envision Sustainable Infrastructure Framework – Version 3. Institute for Sustainable Infrastructure.*

# ENVISION FRAMEWORK

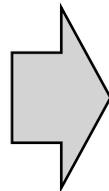
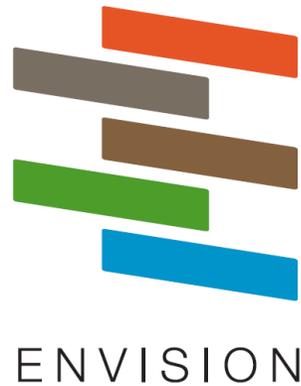


- Background: Result of collaboration between Harvard Graduate School of Design and Institute for Sustainable Design
- Objective: Foster improvement in the sustainable performance and resiliency of physical infrastructure
- Framework
  - Rating structure with 64 indicators grouped into 5 categories
  - Online assessment tool and calculator
  - Formal process for independent verification/certification



Joliet intends to use elements of the Envision framework, but not to pursue formal certification of projects.

# ALTERNATIVE WATER SOURCE PROGRAM (AWSP) APPROACH



 **Technical Memo**  
*Preliminary Discussion Draft*

To: Allison Swisher, Director of Public Utilities      From: Matt Zick, Joe Johnson, Theresa O'Grady

File: AWSP Sustainability Memo\_20210820.docx      Date: August 20, 2021

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Reference: Joliet Alternative Water Source Program – Sustainable and Resilient Design Strategy

**INTRODUCTION**

The City of Joliet's existing drinking water source, the deep groundwater aquifer, is being depleted and will no longer be able to supply the needs of the City by 2030. Therefore, 3 years ago, the City of Joliet embarked on a series of studies to evaluate potential alternative water sources to meet the long-term needs of the community and the region both in terms of water quality and quantity. In January 2021, the City selected their alternative water source as purchasing treated Lake Michigan Water from the City of Chicago via the Southwest Pump Station. Concurrently with that selection, the City of Joliet embarked on the Alternative Water Source Program for implementation of the new water source by 2030.

The purpose of this memo is to introduce program level goals and strategies related to the sustainable and resilient design of the infrastructure required for the AWSP and provide a framework for how the credits and goals of the Envision system can be applied to the AWSP to help guide the planning, design, implementation, and operation of the water system.

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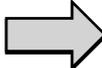
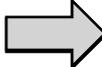
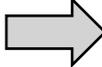
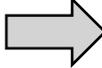
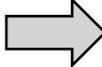
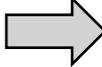
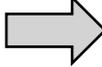
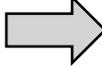
**APPROACH**

Envision is a product of the Institute for Sustainable Infrastructure (ISI) and is a framework that encourages systemic changes in the planning, design, and delivery of projects to yield sustainable, resilient, and equitable infrastructure. ISI was formed in 2010 as a collaboration between the American Public Works Institute (APWI), the American Society of Civil Engineers (ASCE), the American Council of Engineering Companies (ACEC) and Harvard's Zofnass Program for Sustainable Infrastructure at the Graduate School of Design. The Envision framework provides a flexible system of criteria and performance objectives to aid decision makers and help project teams identify sustainable, resilient, and equitable approaches throughout the complete project life cycle, from planning and design to construction and operation, and even on to end of life. The *Third Edition of the Envision: Sustainable Infrastructure Framework Guidance Manual*<sup>1</sup> is the basis for much of the material contained herein, and for assessing the opportunities to incorporate sustainable and resilient features into all aspects of the AWSP projects.

For the purpose of the AWSP, an initial workshop was conducted to review the complete system with regard to the following categories: Quality of Life, Leadership, Natural World, Resource Allocation, and Risk and

<sup>1</sup> Envision Sustainable Infrastructure Framework, Version 3. Institute for Sustainable Infrastructure, 2018. <https://sustainableinfrastructure.org/wp-content/uploads/EnvisionV3.9.7.2018.pdf>

## Sustainable and Resilient Design Strategy

-   CIP#1 – Chicago Connection Facilities
-   CIP#2 – Water Transmission Main
-   CIP#3 – Intermediate Pump Station
-   CIP#4 – Receiving Pump Station
-   CIP#5 – System-wide SCADA
-   CIP#6 – Regional Transmission System
-   CIP #7 – Cal-Sag Mega Crossing
-   CIP #8 – Joliet Distribution Improvements

# SUSTAINABILITY STRATEGY



## Envision Categories



Quality of Life



Leadership



Resource Allocation



Natural World



Climate and Resilience

## Select Identified Priorities

- *Provide for Stakeholder Involvement*
- *Develop Local Skills and Capabilities*
- *Reduce Operational Energy Consumption*
- *Preserve Water Resources*
- *Managing Stormwater*
- *Preserve Sites of High Ecological Value*
- *Evaluate Risk and Resilience*
- *Improve Infrastructure Integration*

# SUSTAINABILITY/RESILIENCY STRATEGY



Design Phase Guidelines

Construction Phase Guidelines

Operational Phase Guidelines

# STRATEGY: NEXT STEPS



## Preliminary Engineering

- Identification of opportunities by CIP Teams
- Sustainability/Resiliency Progress Review
- Sustainability/Resiliency Element Documentation (Preliminary Engineering Report)

## Final Design and Construction

- Monitoring and Reporting





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