# Envision™ Overview

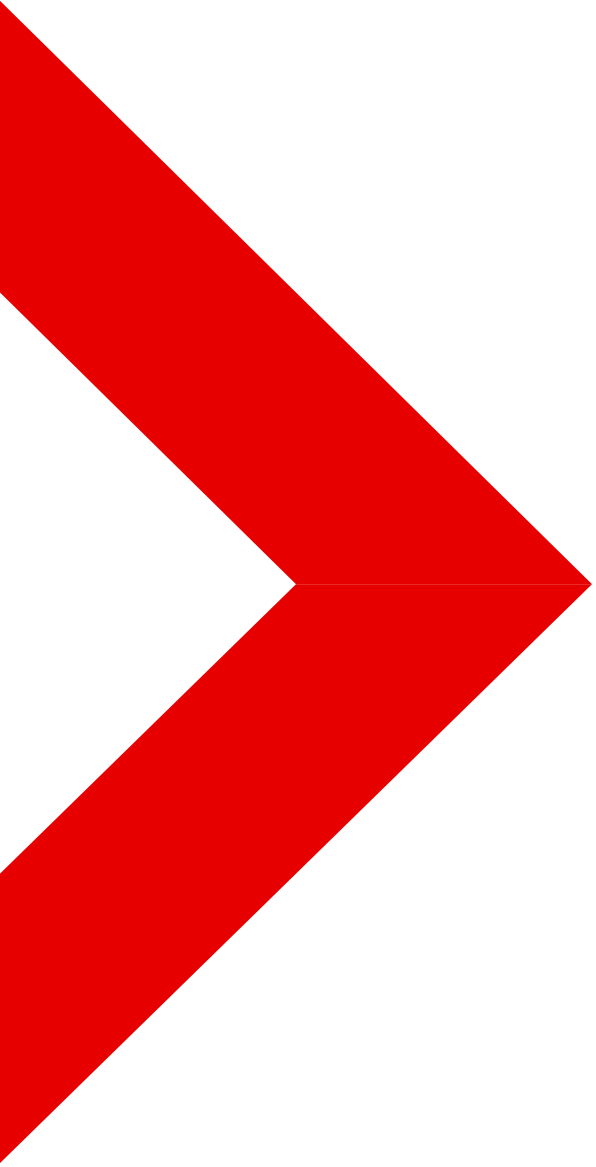**David Taylor,** President
Taylor | Future Solutions, LLC

**Anthony Kane,** Vice President
Institute for Sustainable Infrastructure

TAYLOR **FUTURE SOLUTIONS,** LLC

*Sustainable Community and Transport Strategies*

# INTRODUCTIONS AND PURPOSE

# Introductions

- **Anthony Kane**, VP, Research and Development, ISI
  - Oversees and directs the research and further development of Envision
  - Formerly research director at the Zofnass Program for Sustainable Infrastructure at Harvard University where he helped develop Envision
  - Bachelor of Architecture and Master in Design Studies

- **David Taylor**, ENV SP, President, Taylor | Future Solutions
  - Heads a consultancy that offers sustainable community and transport strategies to public and private clients
  - Formerly director of Sustainable Transportation Solutions at HDR
  - Actively involved with key professional associations in leadership roles
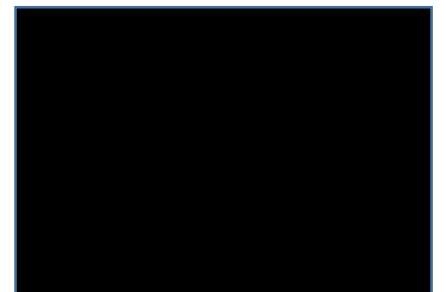
# Purpose

- Understand the rationale for Envision™

- Set the stage for advancing sustainability in your infrastructure investments

- Give you an understanding of Envision™ and how it can benefit decision-making in your projects

- Show examples of how Envision™ is being applied

- Reinforce its importance to your project development process

- Provide you with information for accessing the suite of tools

# INFRASTRUCTURE AND THE NEED FOR A PLANNING AND RATING SYSTEM

# The Importance of Infrastructure

- **World is a dangerous place and infrastructure provides:**




- **Realities of today's world**




- **The new fact of life**

- A basis for public health
- A quality of life worth


- Population growth
- Diminished resources
- Climate change
- Resilience and adaptation


- It is not enough that infrastructure works, is constructed on time and within budget, or even that it lasts – it must now be *sustainable*
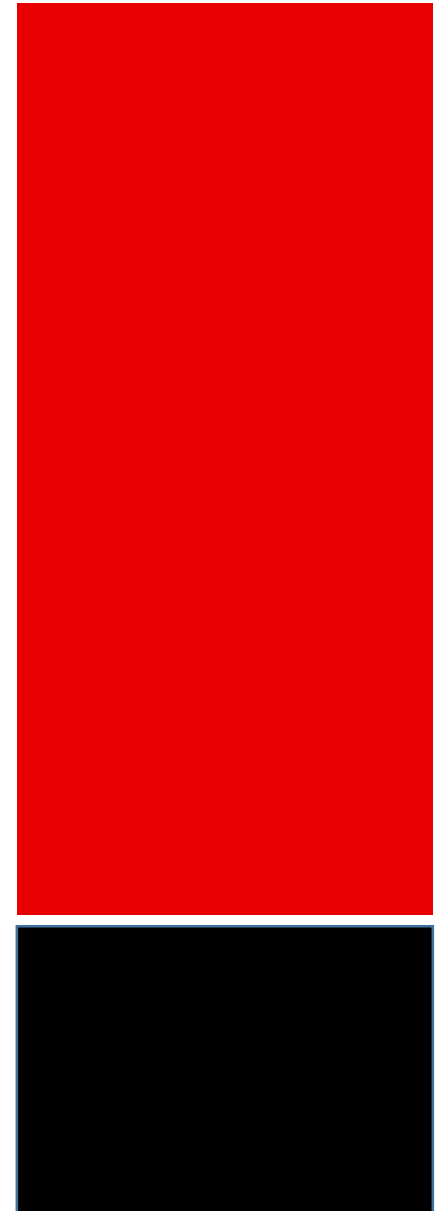
# State of Infrastructure and Need for Rating

- North American infrastructure in decline

- 900 rating systems worldwide

- No single system for all civil infrastructure across project development phases

- Inconsistent understanding of how to address triple bottom line impacts

- Need to keep pace with ever-changing sustainability concepts

- Envision is designed to fill the gap
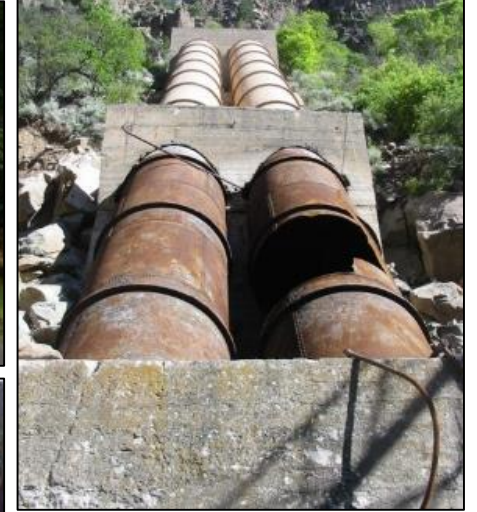
# America's State of Bad Repair

- ASCE's 2013 Report Card
  - 16 categories rated
  - Overall grade of D+ (Up from "D" in 2012)
  - $3.6 trillion investment needed by 2020 to maintain a state of good repair
- World Economic Forum *Global Competitiveness Report*
  - US ranked 25rd worldwide, just ahead of Qatar

**Challenge: Delivering Future Sustainable Infrastructure**
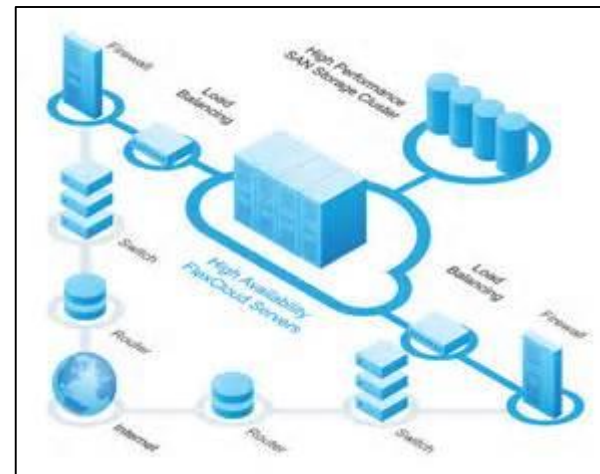
# Needed - A System for All Horizontal Infrastructure



| ENERGY | WATER | WASTE | TRANSPORTATION | LANDSCAPE | INFORMATION |
|--------|-------|-------|----------------|-----------|-------------|
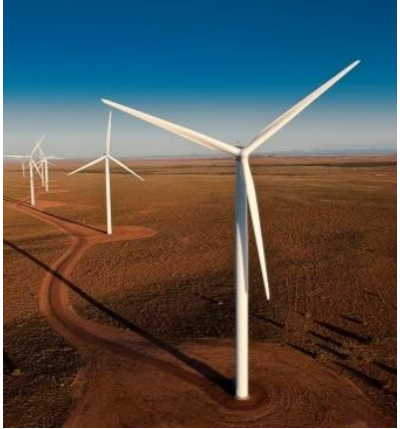
**ENERGY**
- Geothermal
- Hydroelectric
- Nuclear
- Coal
- Natural Gas
- Oil/refinery
- Wind
- Solar
- Biomass
- Other

**WATER**
- Potable water distribution
- Capture and storage
- Water reuse
- Storm water management
- Flood control
- Other

**WASTE**
- Solid waste
- Recycling
- Hazardous waste
- Collection and transfer
- Other

**TRANSPORTATION**
- Airports
- Roads/highways
- Bike/pedestrians
- Railways
- Public transit
- Ports
- Waterways
- Other

**LANDSCAPE**
- Public realm
- Parks
- Ecosystem services
- Other

**INFORMATION**
- Telecommunications
- Internet/phones
- Satellites
- Data centers
- Sensors
- Other
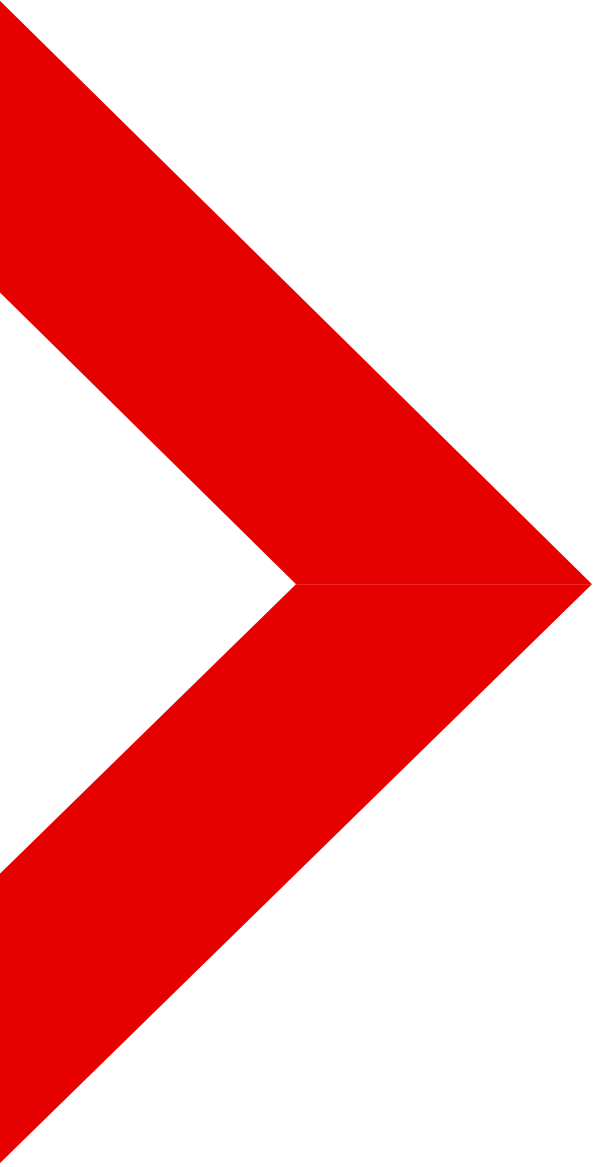
# THE ENVISION RATING SYSTEM

# Envision™ - Collaborative Development

## ISI Founders
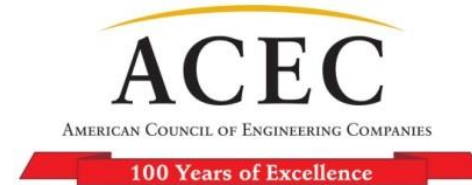


## Envision Developers

# What is Mission of Envision™?

- To help infrastructure owners make more informed decisions about the sustainability their infrastructure projects

- Offer a system of tools for the planning, designing, constructing, operating and rating of civil infrastructure
  - A self-assessment Checklist
  - The Envision™ Rating Tool
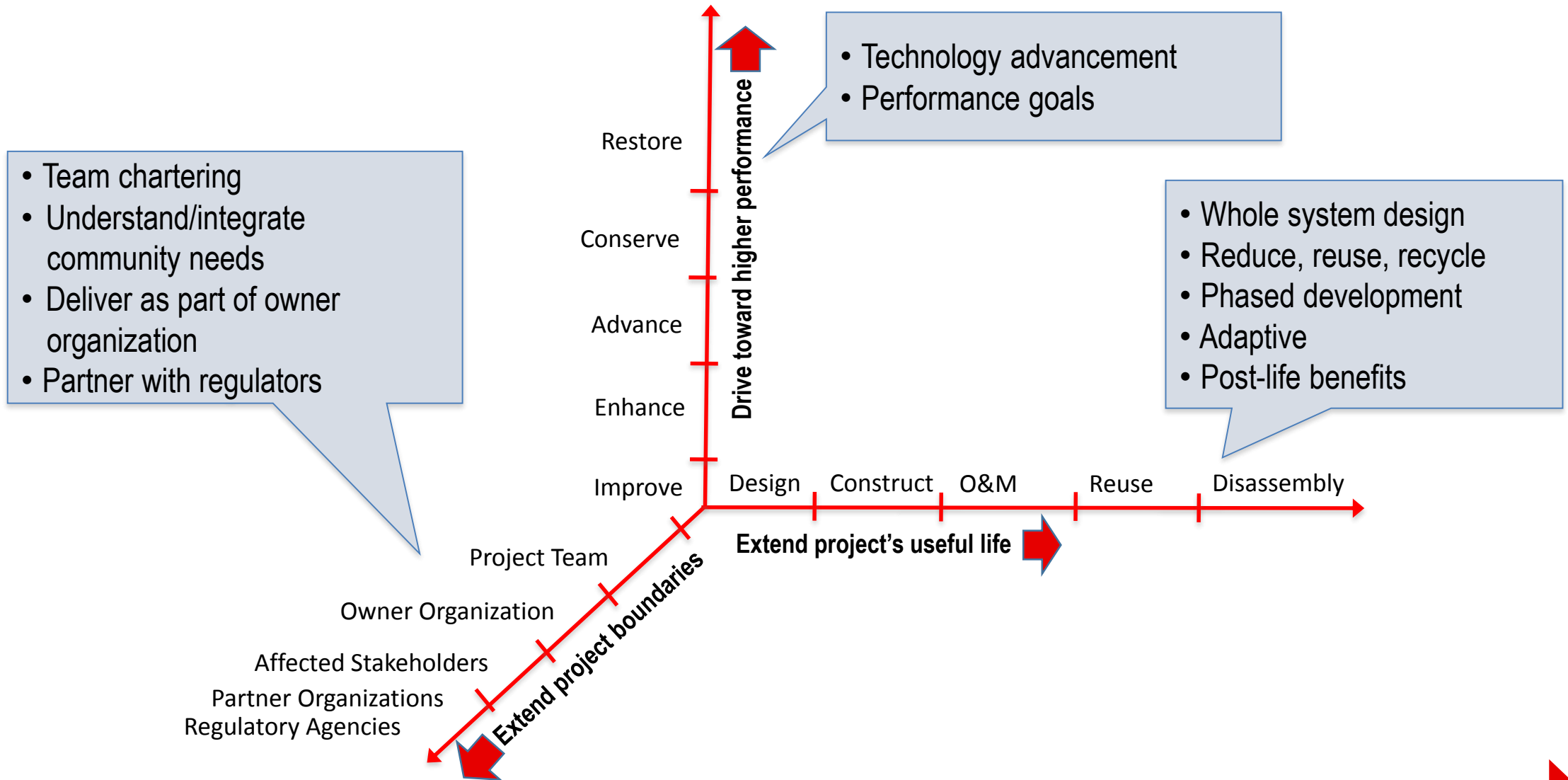  - A credential program for individuals
  - A Project Verification Program

# Envision and Project Development

# 5 Categories/14 Subcategories/60 Credits

**QUALITY OF LIFE** ➡ Purpose, Community, Wellbeing **13 Credits**

**LEADERSHIP** ➡ Collaboration, Management, Planning **10 Credits**

**RESOURCE ALLOCATION** ➡ Materials, Energy, Water **14 Credits**

**NATURAL WORLD** ➡ Siting, Land & Water, Biodiversity **15 Credits**

**CLIMATE AND RISK** ➡ Emissions, Resilience **8 Credits**

# 1 PURPOSE

QL1.1 Improve Community Quality of Life

QL1.2 Stimulate Sustainable Growth and Development

QL1.3 Develop Local Skills and Capabilities

# 2 WELLBEING

QL2.1 Enhance Public Health and Safety

QL2.2 Minimize Noise and Vibration

QL2.3 Minimize Light Pollution

QL2.4 Improve Community Mobility and Access

QL2.5 Encourage Alternative Modes of Transportation

QL2.6 Improve Accessibility, Safety & Wayfinding

# 3 COMMUNITY

QL3.1 Preserve Historic and Cultural Resources

QL3.2 Preserve Views and Local Character

QL3.3 Enhance Public Space

QL0.0 Innovate or Exceed Credit Requirements
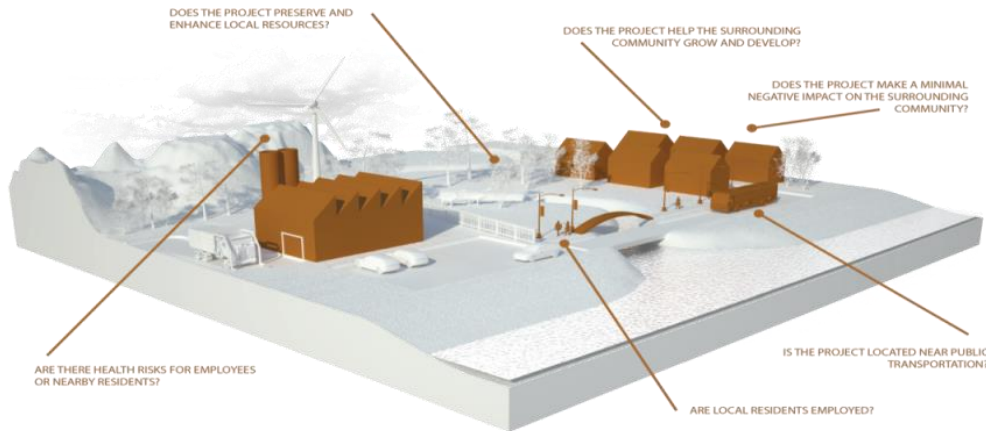
# LEADERSHIP

## 1 COLLABORATION

LD1.1 Provide Effective Leadership & Commitment

LD1.2 Establish a Sustainability Management System

LD1.3 Foster Collaboration and Teamwork

LD1.4 Provide for Stakeholder Involvement

## 2 MANAGEMENT

LD2.1 Pursue By-Product Synergy Opportunities

LD2.2 Improve Infrastructure Integration

## 3 PLANNING

LD3.1 Plan Long-Term Maintenance and Monitoring

LD3.2 Address Conflicting Regulations and Policies

LD3.3 Extend Useful Life

LD0.0 Innovate or Exceed Credit Requirements
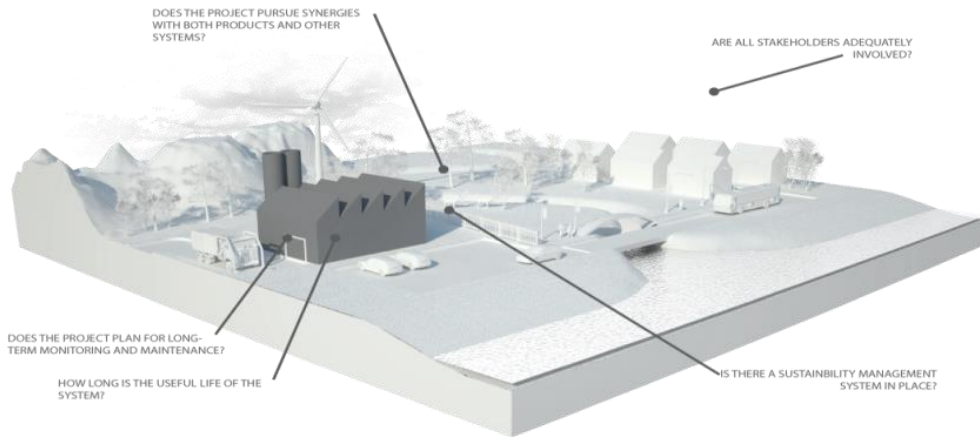
# RESOURCE ALLOCATION

## 1 MATERIALS

RA1.1 Reduce Net Embodied Energy

RA1.2 Support Sustainable Procurement Practices

RA1.3 Use Recycled Materials

RA1.4 Use Regional Materials

RA1.5 Divert Waste from Landfills

RA1.6 Reduce Excavated Materials Taken Off Site

RA1.7 Provide for Deconstruction and Recycling

## 2 ENERGY

RA2.1 Reduce Energy Consumption

RA2.2 Use Renewable Energy

RA2.3 Commission and Monitor Energy Systems

## 3 WATER

RA3.1 Protect Fresh Water Availability

RA3.2 Reduce Potable Water Consumption

RA3.3 Monitor Water Systems

RA0.0 Innovate or Exceed Credit Requirements
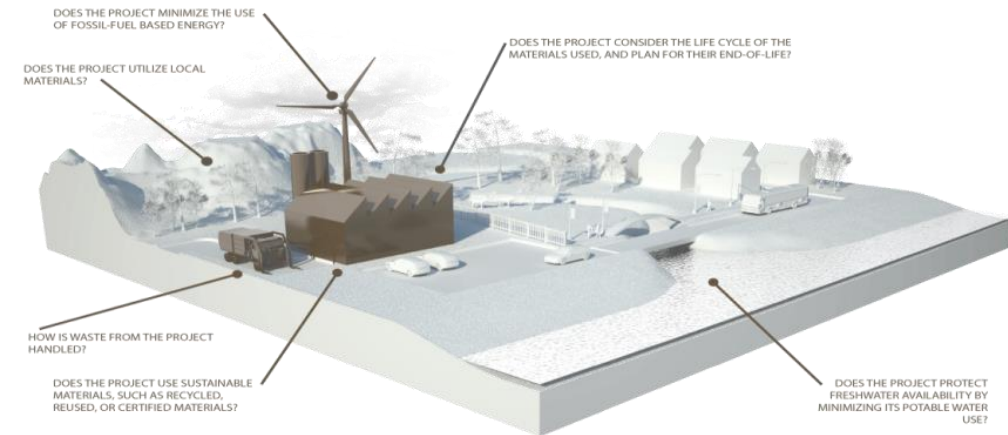
# NATURAL WORLD

**1 SITING**

NW1.1 Preserve Prime Habitat

NW1.2 Preserve Wetlands and Surface Water

NW1.3 Preserve Prime Farmland

NW1.4 Avoid Adverse Geology

NW1.5 Preserve Floodplain Functions

NW1.6 Avoid Unsuitable Development on Steep Slopes

NW1.7 Preserve Greenfields

**2 LAND+WATER**

NW2.1 Manage Stormwater

NW2.2 Reduce Pesticides and Fertilizer Impacts

NW2.3 Prevent Surface and Groundwater Contamination

**3 BIODIVERSITY**

NW3.1 Preserve Species Biodiversity

NW3.2 Control Invasive Species

NW3.3 Restore Disturbed Soils

NW3.4 Maintain Wetland and Surface Water Functions

NW0.0 Innovate or Exceed Credit Requirements
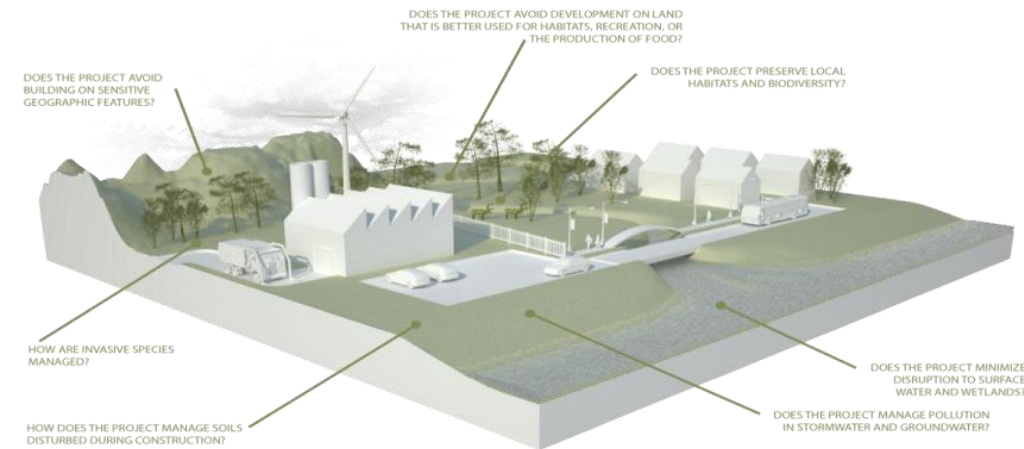
# 1 EMISSIONS

CR1.1 Reduce Greenhouse Gas Emissions

CR1.2 Reduce Air Pollutant Emissions

# 2 RESILIENCE

CR2.1 Assess Climate Threat

CR2.2 Avoid Traps and Vulnerabilities

CR2.3 Prepare For Long-Term Adaptability

CR2.4 Prepare for Short-Term Hazards

CR2.5 Manage Heat Island Effects

CR0.0 Innovate or Exceed Credit Requirements
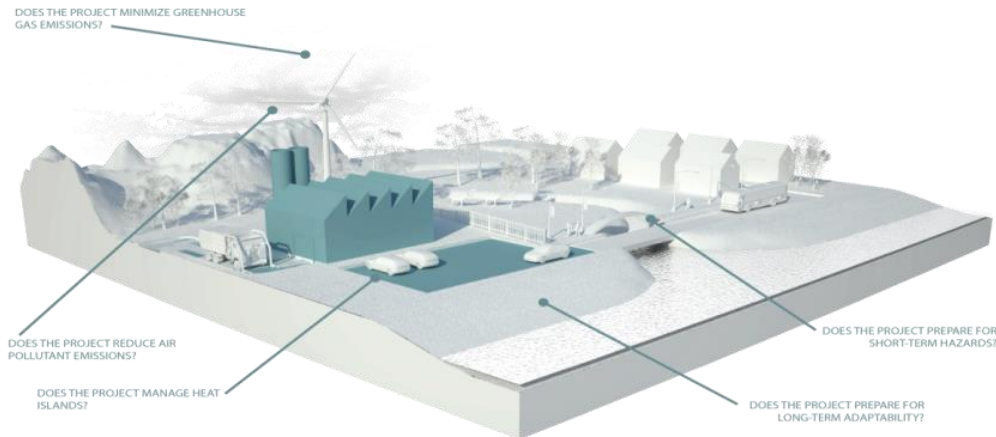
# Rating System

- Available for no cost on ISI website
  - More in-depth assessment of sustainability aspects of project
  - Evaluation criteria describe five levels of achievement
  - Quantitative and qualitative questions
  - Recognizes innovation
- For Verification

- [www.Sustainableinfrastructure.org](http://www.Sustainableinfrastructure.org)
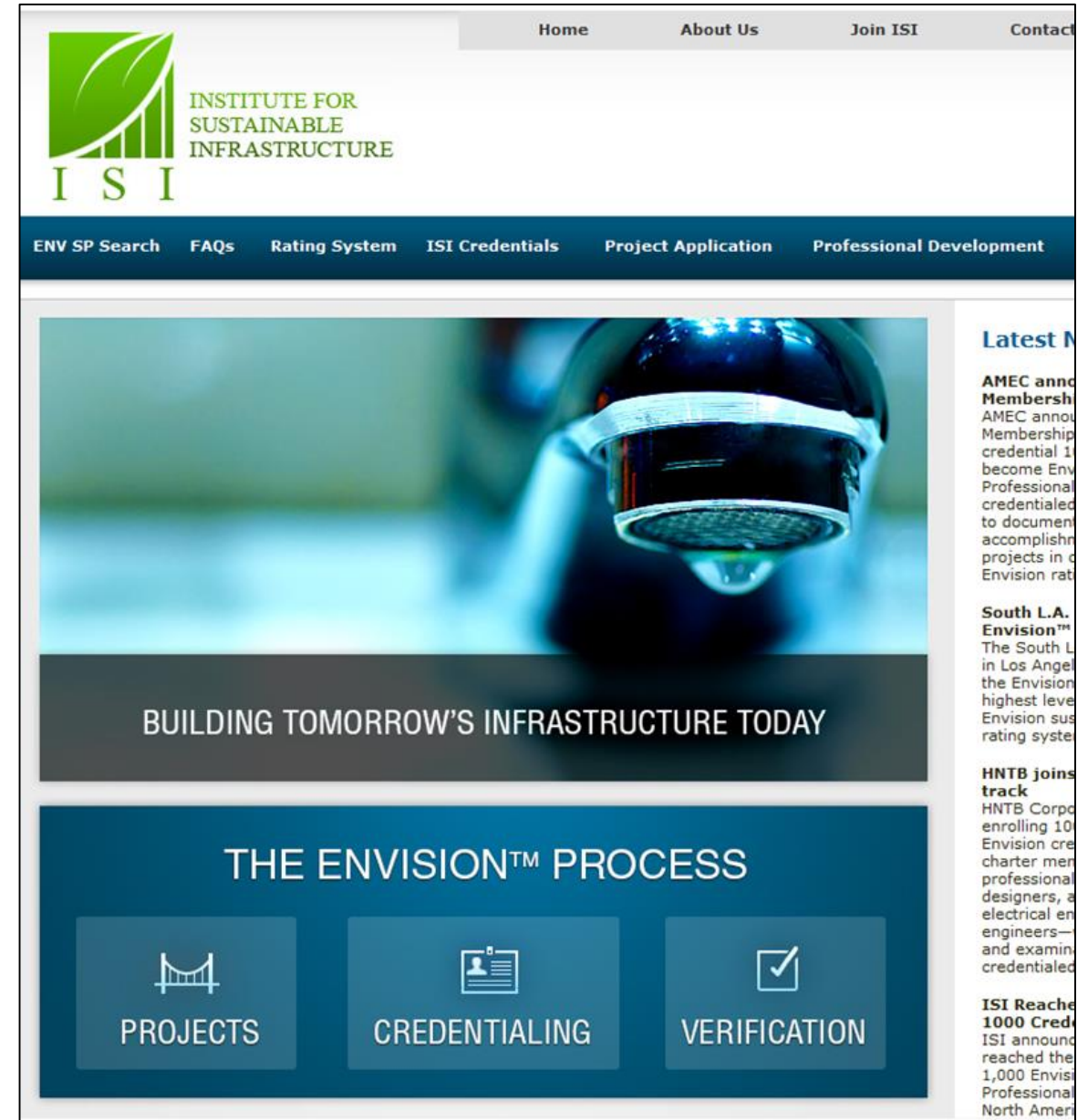
# Envision Guidance Manual Structure

- Intent
- Metric
- Levels of Achievement
- Description
- Advancing to higher achievement levels
- Evaluation criteria and documentation
- Sources

# Credit Levels of Achievement

Number of points earned in each credit depends on the Level of Achievement:

- **Improved:** Performance that is above conventional
- **Enhanced:** Sustainable performance that is on the right track; indications that superior performance is in reach
- **Superior:** Sustainable performance that is noteworthy
- **Conserving:** Performance that has achieved essentially zero impacts
- **Restorative:** Performance that restores natural or social systems

**QL1.1 IMPROVE COMMUNITY QUALITY OF LIFE**

No Negative Impact

Non-linear Scale

| | Improved | Enhanced | Superior | Conserving | Restorative |
|---|---|---|---|---|---|
| Value | 2 | 5 | 10 | 20 | 25 |
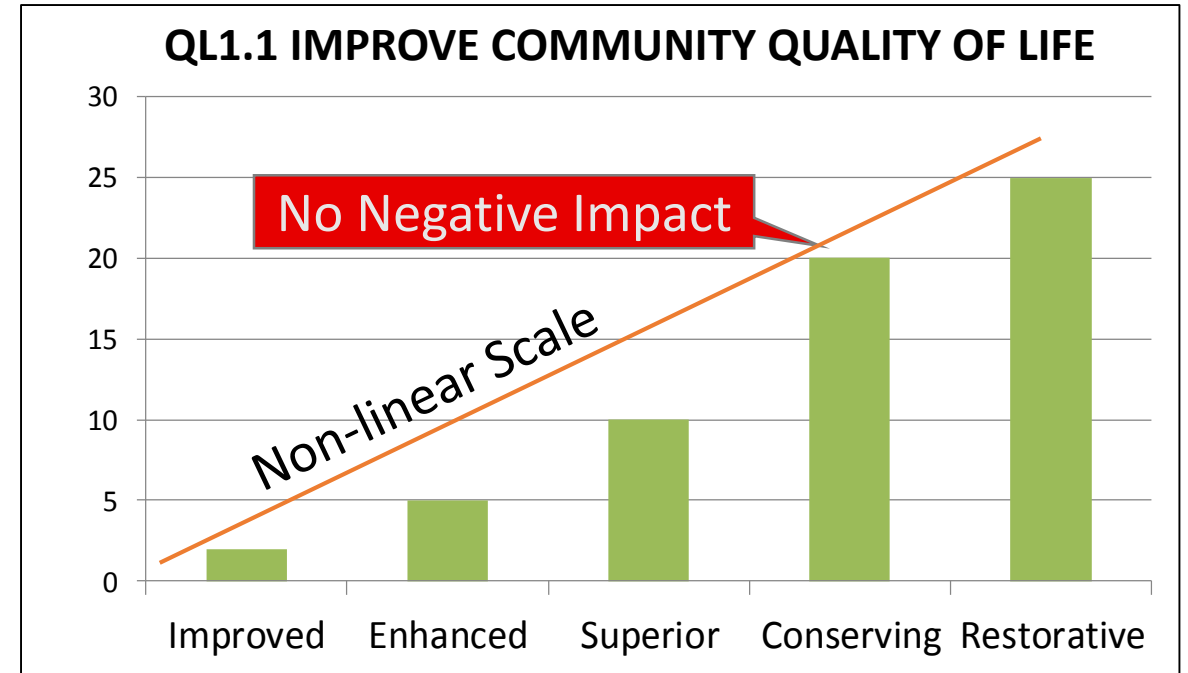
# Envision – Online Scoring Sheet

# Envision – Summary Score

| Credit Category | Applicable Points | Earned Points | Innovation Points | Total Points Pursued | Percentage of Applicable Points |
|---|---|---|---|---|---|
| QUALITY OF LIFE | 181 | 84 | 0 | 84 | 46% |
| LEADERSHIP | 121 | 56 | 4 | 60 | 50% |
| RESOURCE ALLOCATION | 155 | 74 | 0 | 74 | 48% |
| NATURAL WORLD | 203 | 89 | 0 | 89 | 44% |
| CLIMATE AND RISK | 122 | 49 | 0 | 49 | 40% |
| Total Project Points | 782 | 352 | 4 | 356 | 46% |



Envision™ ENV SP current Scores

Legend: Unachieved Points, Total Points Pursued
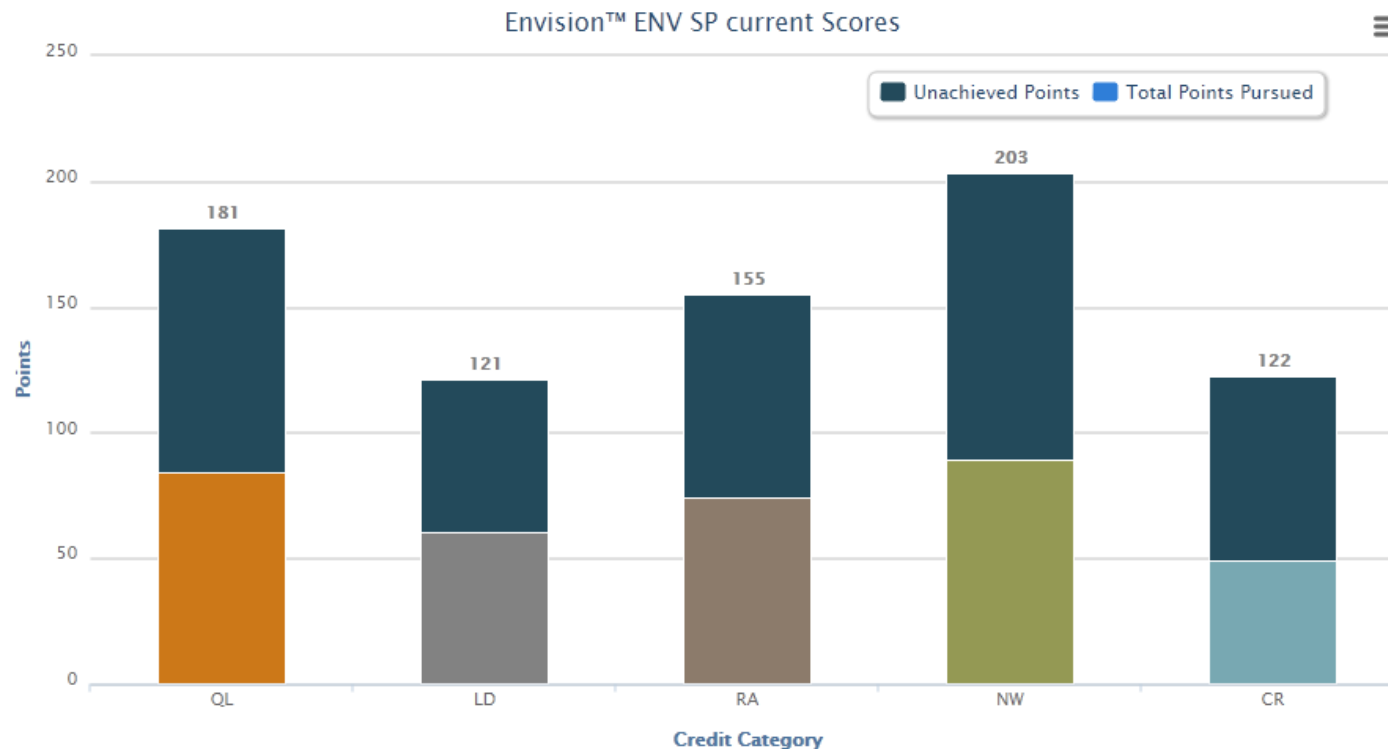
GOLD

# Verification

- An optional third-party review with a fee

- ENV SP must submit the project for verification

- Confirms the project meets Envision criteria

- Enables projects to become eligible for awards

- 4 awards, 2 Platinum, 2 Gold

- 30 projects in the pipeline

| Recognition Level | Total Applicable Points* (%) |
|---|---|
| Bronze Award | 20 |
| Silver Award | 30 |
| Gold Award | 40 |
| Platinum Award | 50 |

# Envision Credentialing and Verifiers

- Envision Sustainability Professional (ENV SP)
  - Training and exam available on ISI website
    - Webinars on ISI website
    - In-person workshops (available soon)
  - Discounts for public sector, university faculty and ISI Members
- Provisional credential for students
- Separate training course for ENV SPs as third party verifiers and trainers
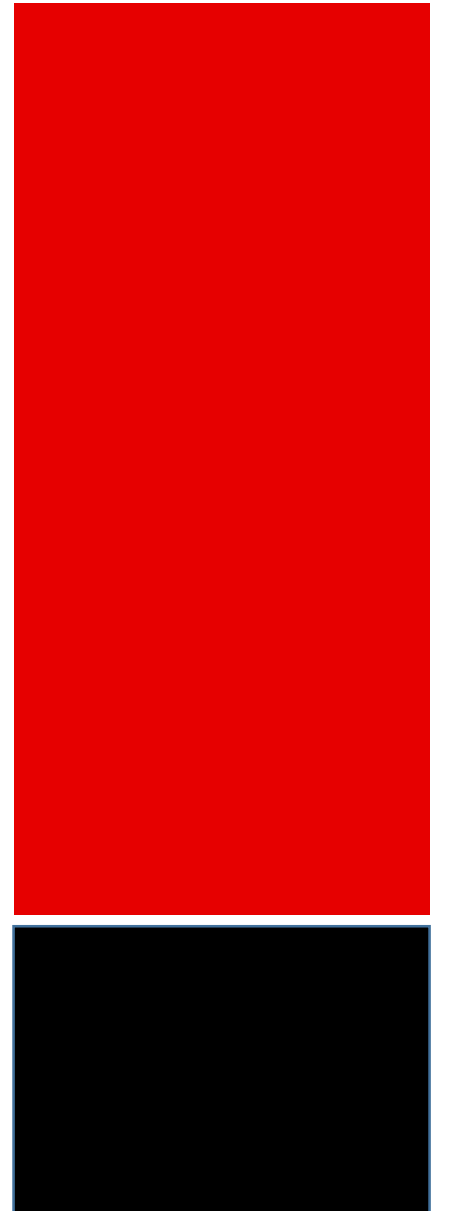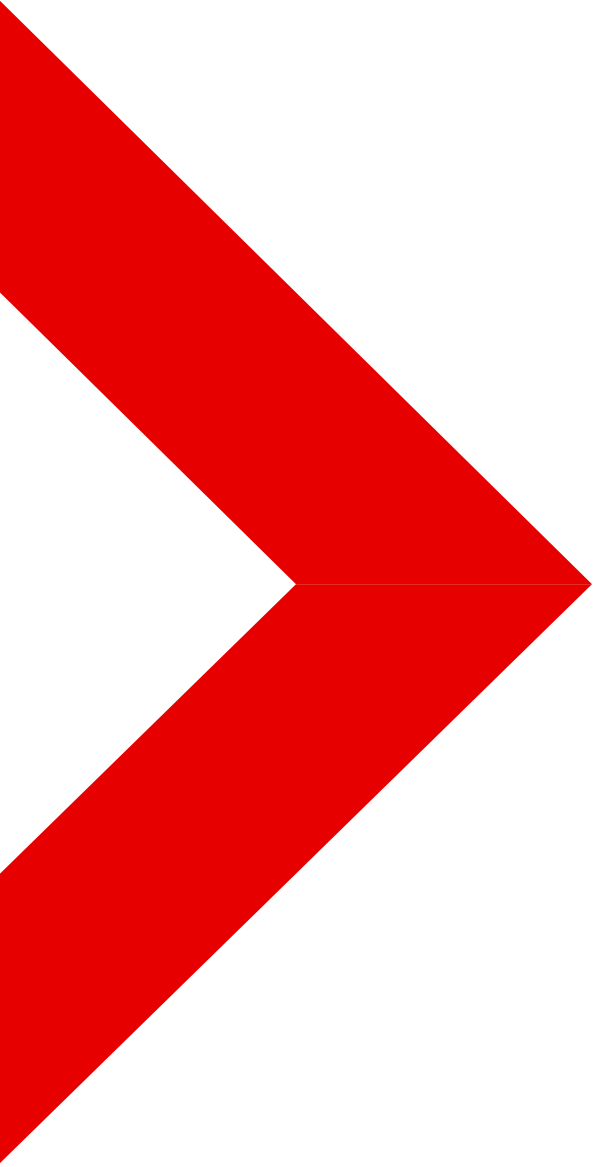
# WHAT IS HAPPENING

# ENVISION IN THE MARKET

**RATED PROJECTS**

**ENVISION USERS**

**ENVISION SUSTAINABILITY PROFESSIONALS**

**ISI MEMBERSHIP**

- 4 Project Awards
- Currently 30 in the Envision rating pipeline

- Hundreds of municipalities and agencies using Envision for self-assessment including:
  - NYC Department of Environmental Protection
  - CA Department of Water Resources
  - Port of Long Beach
  - Kansas City, MO
  - LA County Department of Public Works

- 2,300 trained ENV SPs
- 25% from over 200 public sector organizations

- 100 ISI Charter Member organizations

Institute for Sustainable Infrastructure
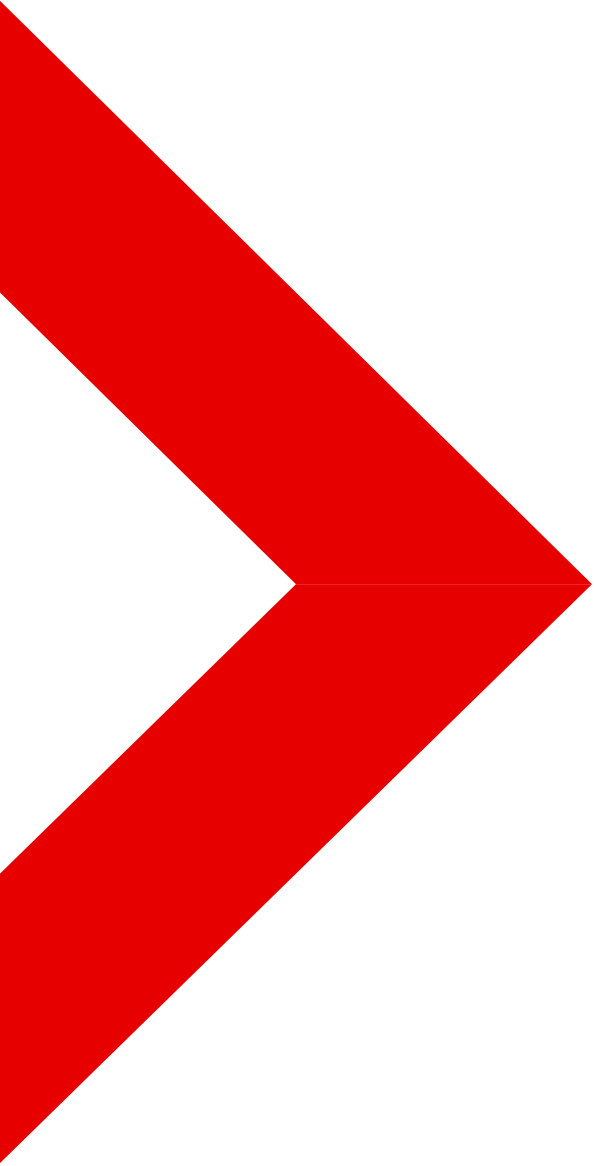
# A FINAL REMINDER

# At Least Remember that -

- Envision is NOT a "rear view mirror" tool – design, then look back and check
- Envision's power is guiding the FRONT-END of project development
- Use Envision to help prepare the scope
- The project will be properly delivered and sustainable – without having to sell it that way
- If the owner decides to certify the project, the technical work is largely complete
-  www.sustainableinfrastructure.org

# Q&A
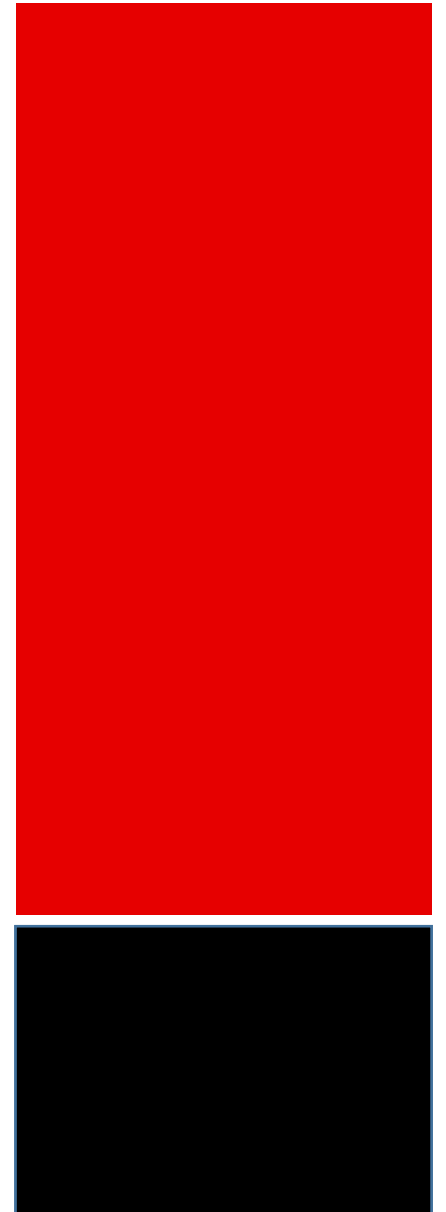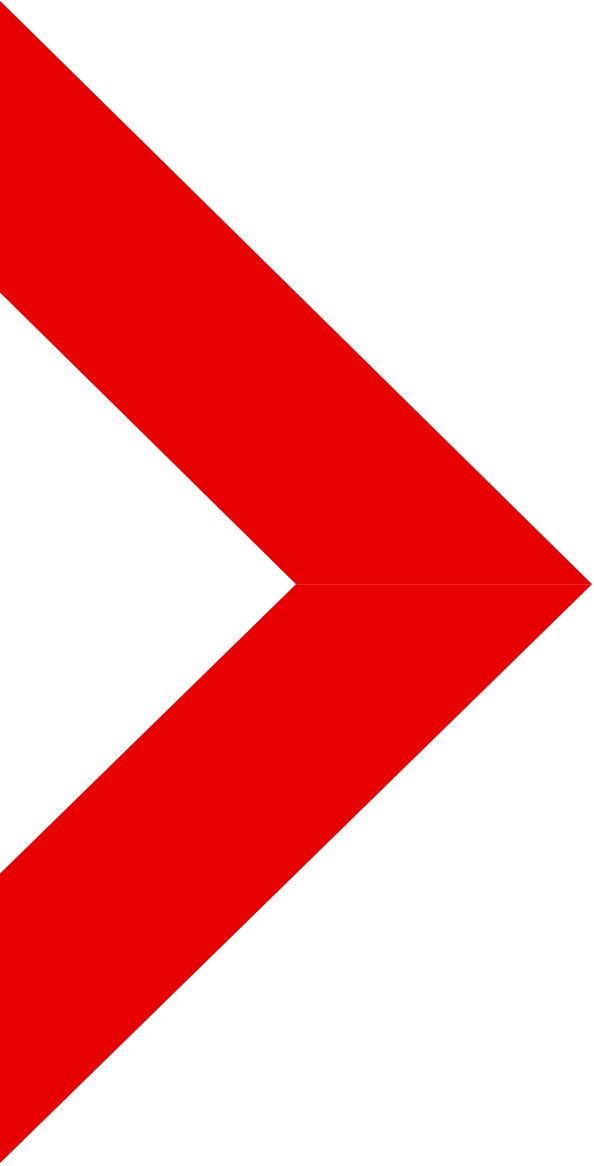
# Envision<sup>TM</sup> Overview



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