

2-23-2018

Use of Envision Rating System to Promote Infrastructure Resilience and Sustainability

Ifetayo Venner

USE OF ENVISION RATING SYSTEM TO PROMOTE INFRASTRUCTURE RESILIENCE AND SUSTAINABILITY

2/22/2018

What is Envision?



Envision

- Identify ways in which sustainable approaches can be used to plan, design, construct, operate, maintain, and deconstruct/decommission infrastructure projects
- Apply to projects not currently addressed by an existing sustainability rating system
- Fill the gap between existing, sector-specific systems

Envision



ISI Founding Organizations



- Launched in 2012 – v2
- v3 release in 2018

Applicable Projects: Components that make up the built environment



ENERGY

Geothermal
Hydroelectric
Nuclear
Coal
Natural Gas
Oil/Refinery
Wind
Solar
Biomass



WATER

Potable water and
WW Treatment
Water Reuse
Storm Water
Management
Capture/Storage
Collection &
Distribution
Flood Control



WASTE

Solid waste
Recycling
Hazardous
Waste
Collection &
Transfer
Brownfield
Restoration



TRANSPORT

Airports
Roads
Highways
Bridges
Bikes
Pedestrians
Railways
Public Transit
Ports
Waterways

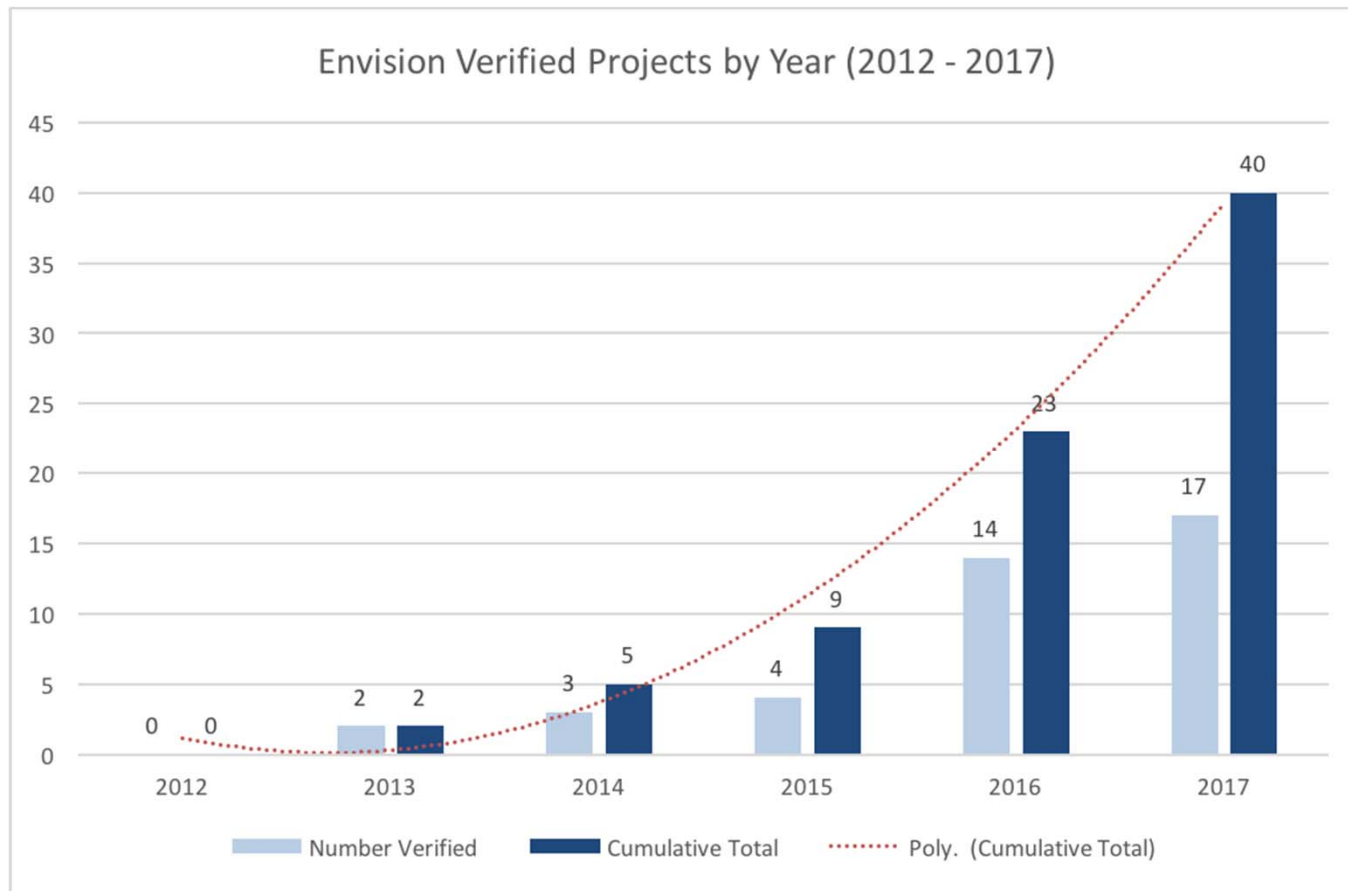


LANDSCAPE INFORMATION

Public Realm
Parks
Ecosystem
Services
Telecommunications
Internet
Phones
Satellites
Data Centers
Sensors

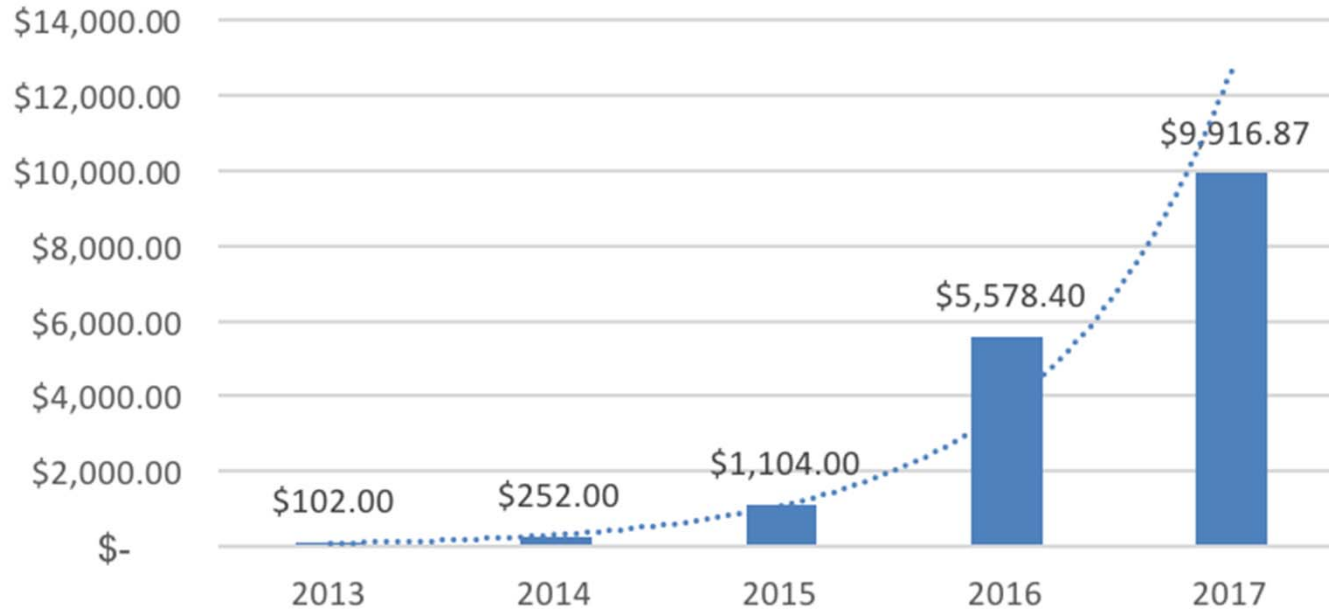


Envision 5 years after – Verified Projects

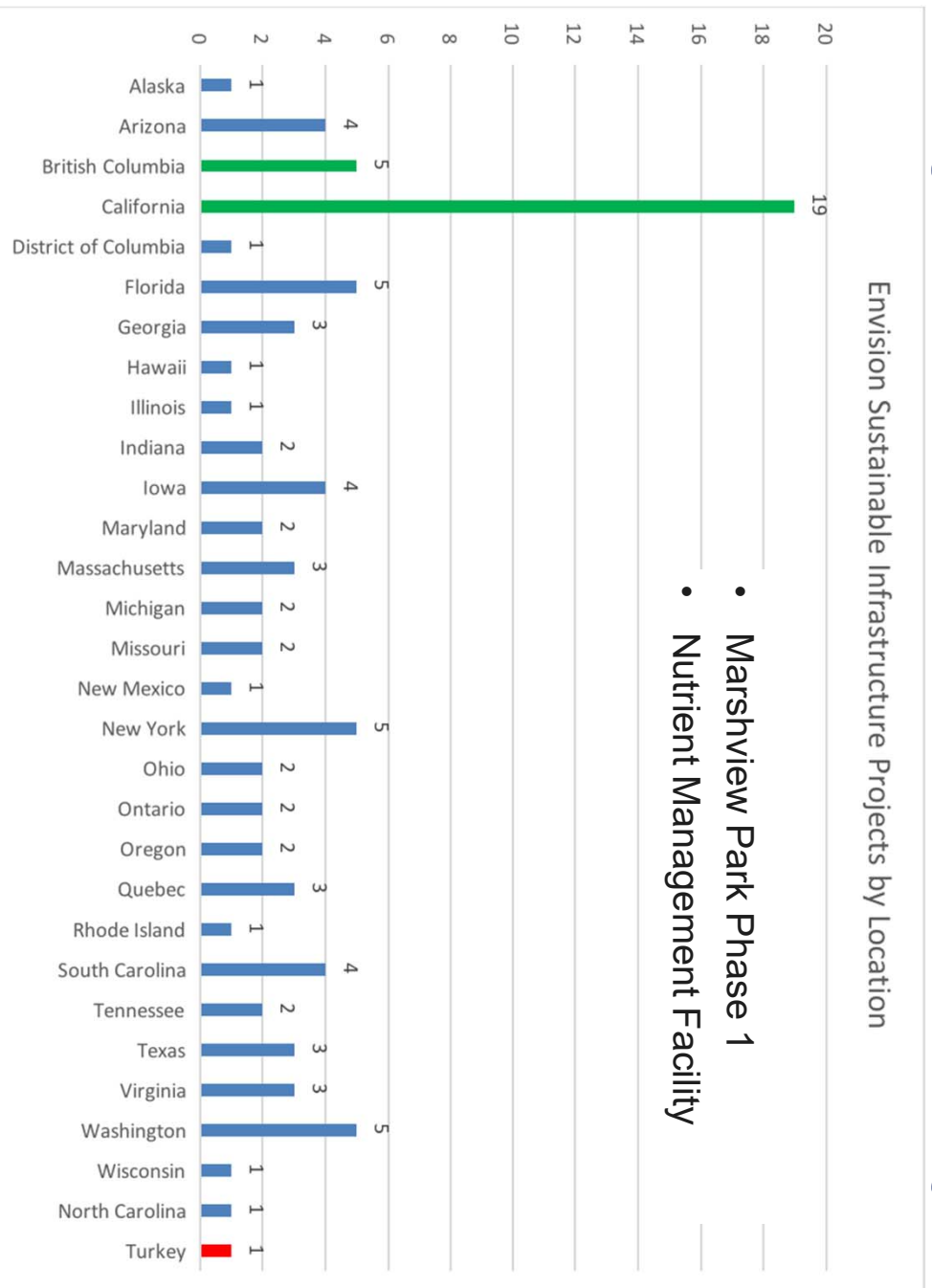


Envision 5 years after - \$ value of Verified Projects

Cumulative Value of Envision Verified Projects
(in \$ millions)

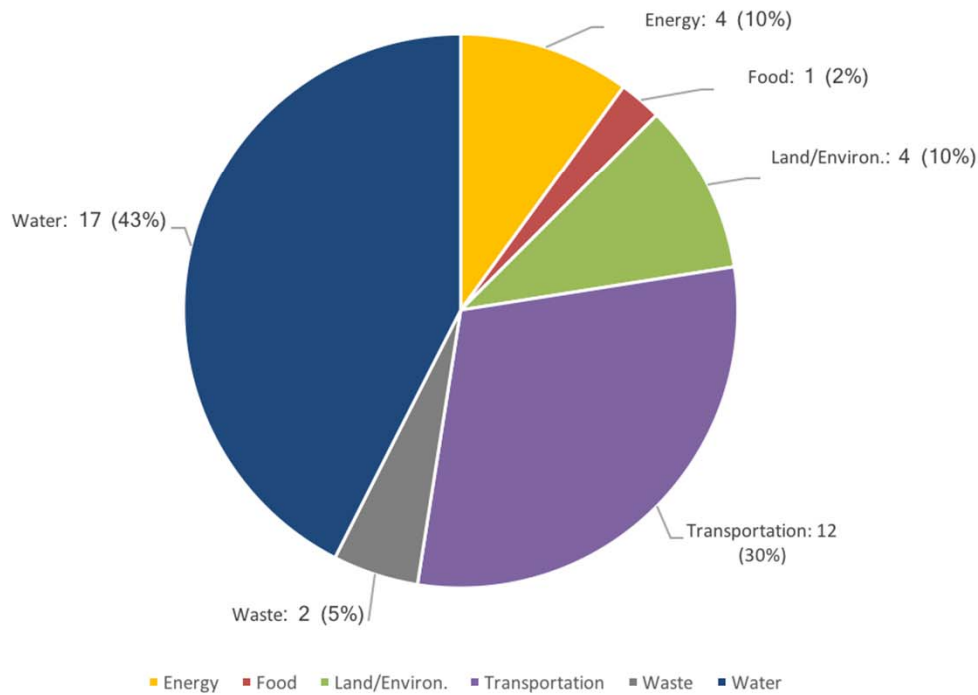


Envision 5 years after – Location of Projects

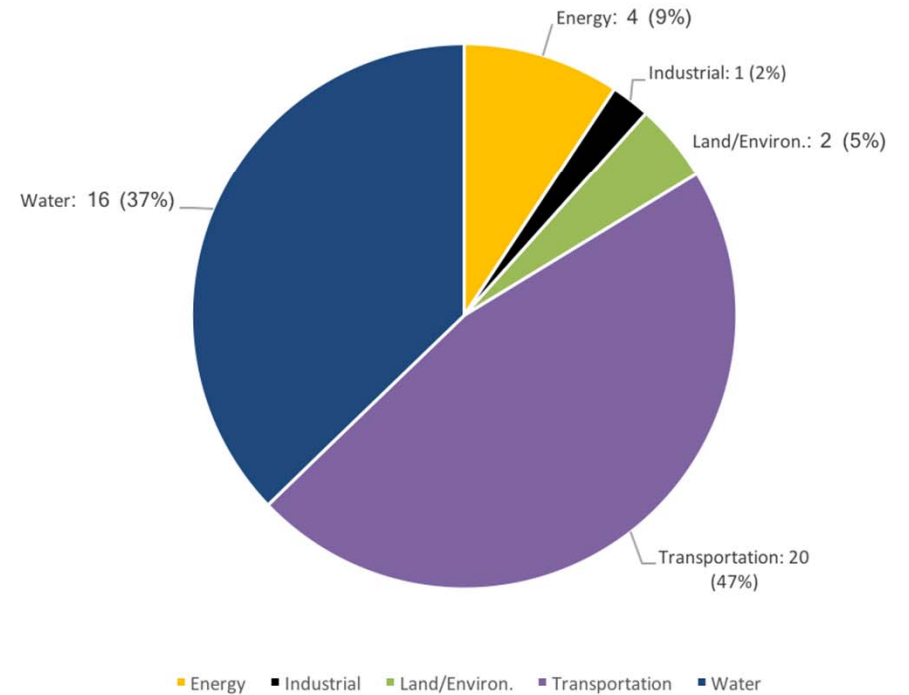


Envision 5 years after – Sector Use

Verified (Complete) Projects by Sector

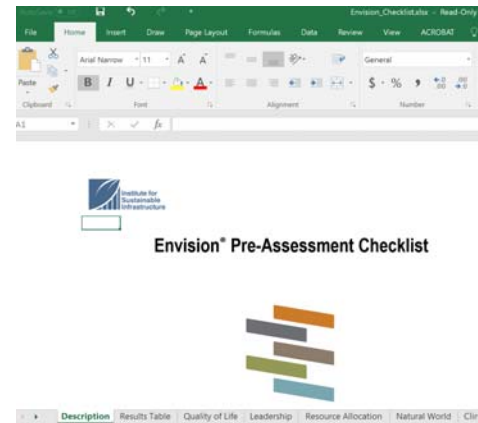


Registered Projects by Sector



Envision Toolkit

- Credentialing program
 - Envision Sustainability Professional
 - 4788 ENV SPs in North America
 - 180 in VA
- Pre-assessment checklist
- Envision Rating Tool
- Project verification and recognition
 - Platinum-Gold-Silver-Bronze



QUALITY OF LIFE 13 credits in progress, 13 credits completed Project progress 0 of 138 Possible points

Purpose	<input type="checkbox"/> QL1.1 Improve Community Quality of Life					N/A	0	2	5	10	20	25						
	<input type="checkbox"/> QL1.2 Stimulate Sustainable Growth and Development					N/A	0	1	2	5	13	16						
	<input type="checkbox"/> QL1.3 Develop Local Skills and Capabilities					N/A	0	1	2	5	12	15						
Wellbeing	<input type="checkbox"/> QL2.1 Enhance Public Health and Safety					N/A	0	2	–	–	16	–						
	<input type="checkbox"/> QL2.2 Minimize Noise and Vibration					N/A	0	1	–	–	–	8	11					
	<input type="checkbox"/> QL2.3 Minimize Light Pollution					N/A	0	1	2	4	8	11						
	<input type="checkbox"/> QL2.4 Improve Community Mobility and Access					N/A	0	1	4	7	14	–						
	<input type="checkbox"/> QL2.5 Encourage Alternative Modes of Transportation					N/A	0	1	3	6	12	15						
	<input type="checkbox"/> QL2.6 Improve Site Accessibility, Safety and Wayfinding					N/A	0	–	3	6	12	15						
Community	<input type="checkbox"/> QL3.1 Preserve Historic and Cultural Resources					N/A	0	1	–	7	13	16						
	<input type="checkbox"/> QL3.2 Preserve Views and Local Character					N/A	0	1	3	6	11	14						
	<input type="checkbox"/> QL3.3 Enhance Public Space					N/A	0	1	3	6	11	13						

23 February 2018

How Can You Use It?



How is Envision being used?

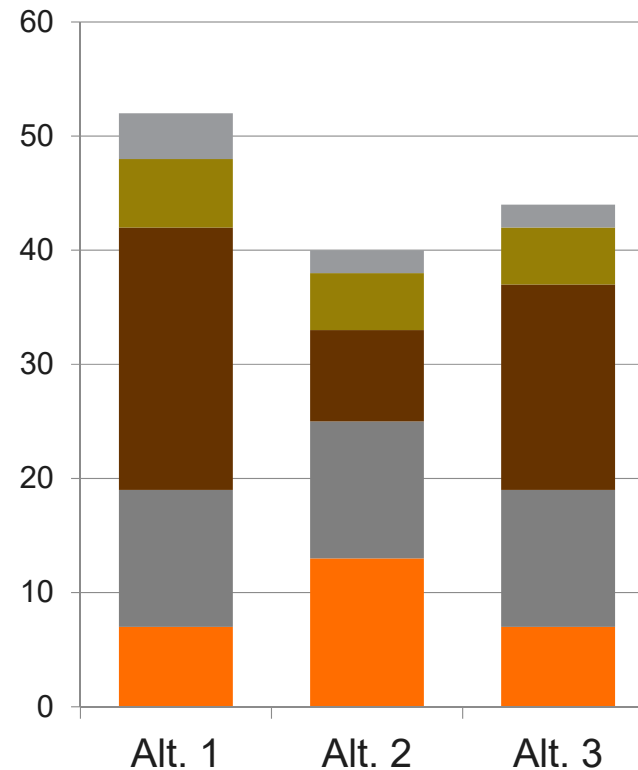
- To compare alternatives
- To assess the sustainability of past and current projects
- To identify ways to improve the sustainability of projects
- To identify the areas where projects are performing well, along with areas for improvement
- To compare the sustainability of similar projects, referencing a standard, industry accepted system

How is Envision being used?

- To identify and/or set a baseline for sustainability and demonstrate improvements in sustainability as enhancements are made to projects of a similar typology
- To receive public recognition for sustainability achievements by an independent, recognized system
- Verifiable way to show community / rate payers that project addressed community concerns and was more sustainable than typical projects

How Can You Use Envision? As a Planning Tool

- Engage stakeholders
- Assess community values
- Build consensus around "right" project solution
- Define project scope
- Evaluate conceptual projects or alternatives

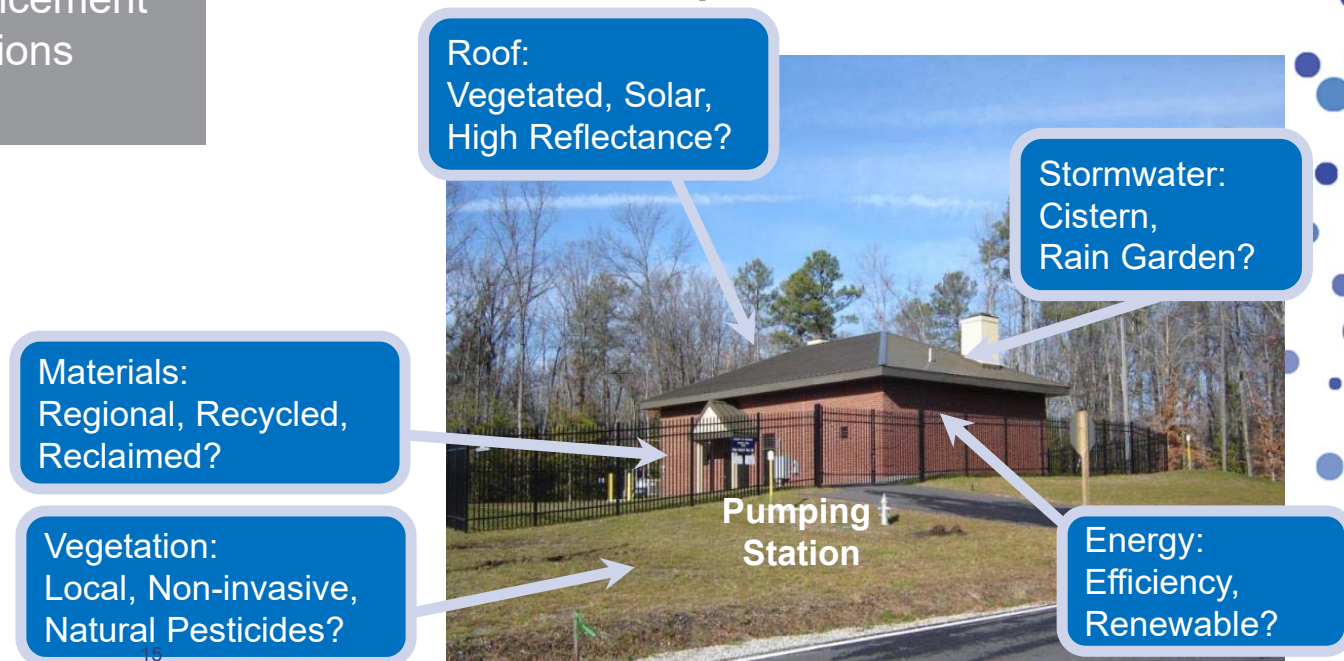


How Can You Use Envision? As a Design Tool

Inherent to Project:

- Noise and Odor Control
- Stakeholder Involvement
- Infrastructure Renewal
- Capacity Enhancement
- Flexible Operations
- Resiliency

- Identify opportunities for incremental improvements in sustainable performance

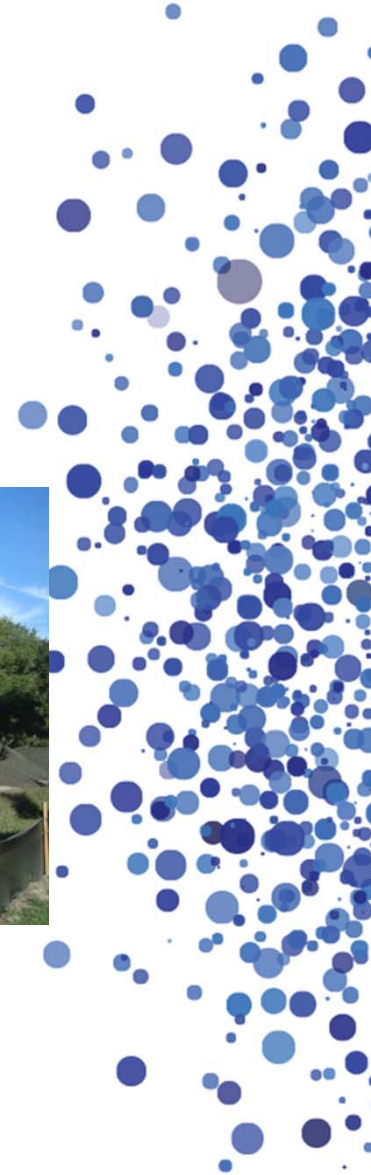


How Can You Use Envision? For Construction and O&M

Envision looks at the entire project life cycle

Credits to be executed in construction

- Construction Waste Management
- Credits related to long-term O&M procedures and setting aside resources
- Future
 - Construction Verification



How Can You Use Envision? As a Communication Tool

Envision™ Sustainable Infrastructure Rating System



Purpose of Envision™
To foster a dramatic and necessary improvement in the performance and resiliency of our physical infrastructure across the full dimensions of sustainability. Envision™ provides the framework and incentives needed to initiate this systemic change. As a planning and design guidance tool, Envision™ is meant to provide industry-wide sustainability metrics for all infrastructure types—an approach similar to its vertical facility counterpart, LEED.

Envision™ Background
Envision™ was created by a strategic alliance of the Zofnass Program for Sustainable Infrastructure at the Harvard University Graduate School of Design and the Institute for Sustainable Infrastructure (ISI). ISI is a not-for-profit education and research organization, dedicated to developing and maintaining a civil infrastructure rating system, and was formed by the American Council of Engineering Companies, the American Public Works Association and the American Society of Civil Engineers.



Overview
- Designed as a project assessment tool and to offer guidance for sustainable infrastructure design
- Can be used as a decision-making checklist or to document processes, decisions and design to apply for a third-party verified Envision™ award
- Objective framework of criteria and performance achievement that helps identify ways in which sustainable approaches can be used to plan, design, construct and operate infrastructure projects

Where Does Envision™ Apply?
- Covers roads, bridges, pipelines, railways, airports, dams, levees, landfills, water treatment systems and other civil infrastructure
- Does not include buildings or facilities, except process-focused, industrial-type facilities
- Primarily focused on the U.S. and Canada, Envision™ benefits and criteria could be adapted to other locations
- Used by infrastructure owners, design teams, community groups, environmental organizations, construction, regulators and policy makers

Structure
Credit Categories & Subcategories
The Envision™ rating system has 90 sustainability criteria—called credits—divided into five categories, each with two to three subcategories:
1 | Quality of Life – Purpose, Wellbeing, Community
2 | Leadership – Collaboration, Management, Planning
3 | Resource Allocation – Materials, Energy, Water
4 | Natural World – Soiling, Land & Water, Biodiversity
5 | Climate and Risk – Emissions, Resilience

Credit Levels of Achievement
1 | Improved – Performance that is above conventional
2 | Enhanced – Sustainable performance that adheres to Envision™ principles
3 | Superior – Sustainable performance that is noteworthy
4 | Conserving – Performance that has achieved essentially zero impact
5 | Restorative – Performance that restores natural or social systems

Innovation Points
Possible points awarded in each category for both exceptional performance and application of methods that push innovation in sustainable infrastructure.

Project Award Levels
To qualify for an award, projects must achieve a minimum percentage of the total applicable Envision™ points. Projects can be recognized at four award levels.

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

First-Ever Envision™ Project Award



The 141,000-square-foot William Jack Hernandez Sport Fish Hatchery is the heart of Alaska's sport fish stocking program and the largest indoor sport fish hatchery in North America.

- Includes more than 100 fish rearing tanks
- Raises Chinook and Coho salmon, rainbow trout, Arctic char, and Arctic grayling
- Produces more than six million fish per year
- Stocks 200 different locations
- State-of-the-art water recirculation technologies use approximately five percent of the water and energy required in a conventional hatchery

HDR was the prime consultant for this state-of-the-art hatchery.
For more information visit www.hdrinc.com



- Outreach Language
- Transparent Approach Toward Triple Bottom Line
- Award Confirms Achievement



Envision Structure



Envision Structure

- 5 Categories - 14 Subcategories
- Checklist - 55 groups of questions
- Rating System - 60 Credits
 - 5 Innovation credits
- 5 Levels of Achievement
 - Improved-Enhanced-Superior-
 - Conserving-Restorative



Quality of Life

Addresses a project's impact on communities from the health and wellbeing of individuals to the wellbeing of the larger social fabric as a whole



QUALITY OF LIFE

13 Credits

1 PURPOSE

QL1.1 Improve Community Quality of Life

QL1.2 Stimulate Sustainable Growth & Development

QL1.3 Develop Local Skills & Capabilities

2 WELLBEING

QL2.1 Enhance Public Health & Safety

QL2.2 Minimize Noise and Vibration

QL2.3 Minimize Light Pollution

QL2.4 Improve Community Mobility & Access

QL2.5 Encourage Alternative Modes of Transportation

QL2.6 Improve Accessibility, Safety, & Wayfinding

3 COMMUNITY

QL3.1 Preserve Historic & Cultural Resources

QL3.2 Preserve Views & Local Character

QL3.3 Enhance Public Space

Leadership

Comprised of the tasks that demonstrate effective leadership and commitment by all parties involved in a project.



LEADERSHIP

10 Credits

1 COLLABORATION

- LD1.1 Provide Effective Leadership & Commitment
- LD1.2 Establish A Sustainability Management System
- LD1.3 Foster Collaboration & 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 For Long-Term Monitoring & Maintenance
- LD3.2 Address Conflicting Regulations & Policies
- LD3.3 Extend Useful Life

Resource Allocation

Measures the use of renewable / non-renewable resources.



RESOURCE ALLOCATION

14 Credits

1 MATERIALS

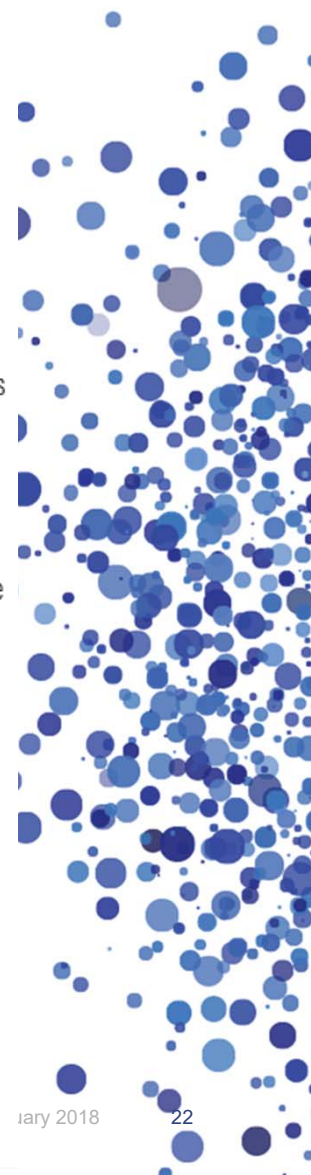
- RA1.1 Reduce Net Embodied Energy
- RA1.2 Support Sustainable Procurement Practices
- RA1.3 Use Recycled Materials
- RA1.4 Use Regional Materials
- RA1.5 Divert Waste From Landfills
- RA1.6 Reduce Excavated Materials Taken Off Site
- RA1.7 Provide For Deconstruction & Recycling

2 ENERGY

- RA2.1 Reduce Energy Consumption
- RA2.2 Use Renewable Energy
- RA2.3 Commission & Monitor Energy Systems

3 WATER

- RA3.1 Protect Fresh Water Availability
- RA3.2 Reduce Potable Water Consumption
- RA3.3 Monitor Water Systems



Natural World

Assesses the effect of the project on the preservation and renewal of ecosystem functions. Understand and minimize negative impacts while considering ways in to interact with natural systems in a synergistic and positive way



1 SITING

- NW1.1 Preserve Prime Habitat
- NW1.2 Protect Wetlands & 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 Pesticide & Fertilizer Impacts
- NW2.3 Prevent Surface & Groundwater Contamination

3 BIODIVERSITY

- NW3.1 Preserve Species Biodiversity
- NW3.2 Control Invasive Species
- NW3.3 Restore Disturbed Soils
- NW3.4 Maintain Wetland & Surface Water Functions

Climate and Risk

Minimize emissions that may contribute to increased short- and long-term risks and ensuring that infrastructure projects are resilient to short-term hazards or altered long-term future conditions



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 & Vulnerabilities
- CR2.3 Prepare For Long-Term Adaptability
- CR2.4 Prepare For Short-Term Hazards
- CR2.5 Manage Heat Island Effects

Changes

Version 2

- 5 categories
- 60 credits
- Climate and Risk
- Maximum Total Points – 809
- Envision Award at 95% design completion.
- No Credential Maintenance

Version 3

- 5 categories
- 64 credits
- Risk and Resilience
- Maximum Total Points - 1000
- Provisional Award at 95% design completion. Envision Award at 95% construction completion
- Annual Credential Maintenance

Changes

- Additional credits eg. equity and social justice, construction phase water and energy consumption
- Enhanced clarity on Levels of Achievement
- Currently registered projects can use v2 or v3. Cut off date for switching to v3 will be *Q4 2018*.
- New projects can register under v2 or v3 until *Q4 2018*
- Projects registered under v2 must complete verification by *Q4 2020*

Input Portal

Institute for Sustainable Infrastructure

ENVISION JOIN WHO USES ENVISION LEARNING CENTER

Blog About ISI

Hello Ifetayo Venner

PROJECTS

TOOLS

Home » Projects

Projects Overview


Search Projects

Project Name	Project Lead	Project Status	Modified	
Sheldon Avenue	Ifetayo Venner, ARCADIS, Principal Engineer Edit Team	Verification <i>Status: Awaiting Verifier results...</i>	04/15/2016	
Upper Proctor Creek Capacity Relief Project	Caroline Smith, City of Atlanta - Department of Watershed Management,	Unregistered <i>Status: Awaiting Registration by Project Leader.</i>	03/07/2016	

Need to manage your firm's project teams?

Learn more about the benefits of becoming a Sustaining Member Organization.

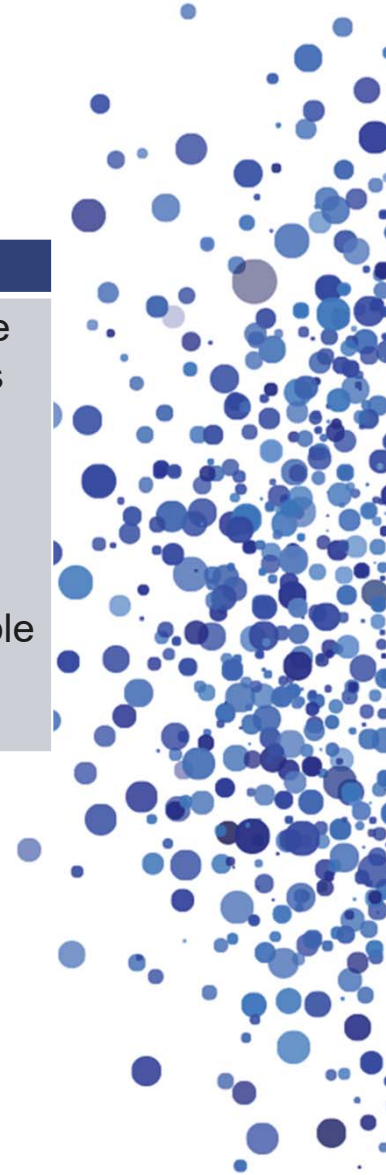
Project Input

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Determining Levels of Achievement

Improved	Enhanced	Superior	Conserving	Restorative
Performance that is above conventional. Slightly exceeds regulatory requirements.	Sustainable performance that is on the right track.	Sustainable performance that is noteworthy but not conserving.	Performance that has achieved essentially zero negative impact.	Performance that restores natural or social systems. Not applicable to all objectives.

- Progression is not necessarily linear.
- Some credits will not include every level.



Credits

RA1.1 REDUCE NET EMBODIED ENERGY

INTENT:

Conserve energy by reducing the net embodied energy of project materials over the project life.

LEVELS OF ACHIEVEMENT

IMPROVED	ENHANCED	SUPERIOR	CONSERVING	RESTORATIVE
<p>(2) Life-cycle energy assessment.</p> <p>The embodied energy of the materials used in the project has been acquired by a validated source or determined by a life-cycle energy assessment. The assessment involves calculating the initial embodied energy from material extraction, refinement, and manufacture. Materials considered should be those that are used in significant quantities in any phase of the project life.</p> <p>(A)</p>	<p>(8) At least 10% reduction.</p> <p>Using the embodied energy data determined by a life-cycle energy assessment, the project team works to design the project to reduce embodied energy by at least 10% over the project life. This involves reducing the quantity of material and selecting materials with lower embodied energy over the project life. Energy savings are achieved as compared to industry norms.</p> <p>(A, B)</p>	<p>(12) At least 40% reduction.</p> <p>Using the embodied energy data determined by a life-cycle energy assessment, the project team works to design the project to reduce embodied energy by at least 40% over the project life. This involves reducing the quantity of material and selecting materials with lower embodied energy over the project life. Energy savings are achieved as compared to industry norms.</p> <p>(A, B)</p>	<p>(18) At least 70% reduction.</p> <p>Using the embodied energy data determined by a life-cycle energy assessment, the project team works to design the project to reduce embodied energy by at least 70% over the project life. This involves reducing the quantity of material and selecting materials with lower embodied energy over the project life. Energy savings are achieved as compared to industry norms.</p> <p>(A, B)</p>	

DESCRIPTION

This credit addresses the need to reduce the large amounts of energy that can be consumed long before a project begins operations. This energy is associated with the extraction, processing, manufacturing, and transport of materials and components. Consumption of natural resources is a primary concern and greatly contributes to greenhouse gas emissions, congestion, and environmental pollution and degradation. Reducing initial net embodied energy does not mean building poorly or for the short term. Maintenance and repairs can consume large amounts of material over time. It is common that a well-built project that invests more material and resources initially will result in less material being consumed over the life of the project. Therefore, projects should be designed to consider total consumption of construction and repair material over the project's lifespan.

In fulfilling this credit, estimation of the net embodied energy of project materials is required. The estimation may be carried out by a life-cycle assessment (LCA) and should include the required energy for material extraction, transportation, refinement, manufacturing, and undertaken processes until the material is ready to be transported to the construction site. The estimation must consider the materials to be used in the project's construction as well as the materials to be used for maintenance and operation through all phases of the project life. Project teams consider the durability of materials and systems to reduce the net embodied energy over the entire project life. Because of the relative newness of this assessment and the scarcity of information covering embodied energy, the scope of this credit will be limited to materials that are used in significant quantities and make up the majority portion of the completed project.

Project teams pursuing multiple credits that require a LCA may find conducting a single comprehensive LCA more efficient. This will provide a single holistic evaluation of the environmental loads and impacts of the project over its entire life cycle, from the extraction of raw materials to the project's end of life. Conducting a full LCA will provide, among other results, estimation of carbon and pollutant emissions that can be used on CR1.1, and CR1.2, respectively. The LCA should be conducted in accordance with ISO (International Organization for Standardization) 14040 and ISO 14044 standards.

Submissions should include material embodied energy data provided by the supplier or presented in recognized material databases such as GRANTACE Selector (Granta, 2013). When material or product embodied energy data are not included in the cited sources, they may be determined by conducting a streamlined LCA of materials extraction and processing in accordance with the cited ISO standards. It is important to note that the development of a full LCA may be cost prohibitive and, consequently, is not required. Project teams may reference existing databases.

ADVANCING TO HIGHER ACHIEVEMENT LEVELS

Benchmark: The project team does not consider estimations of the project material's embodied energy assessed by means of an LCA and no demonstrable energy savings are achieved compared to industry norms.

Performance Improvement: To advance to higher levels of achievement, project teams make efforts to increase reductions in net embodied energy compared to industry norms.

18 POINTS

RESOURCE ALLOCATION

MATERIALS



METRIC:

Percent reduction in net embodied energy from a life-cycle energy assessment.

EVALUATION CRITERIA AND DOCUMENTATION

A. Has the project team considered estimations of materials' embodied energy assessed by means of an LCA?

1. Results of the energy LCA.
2. Documentation demonstrating the assessment was performed in accordance with recognized and accepted methodologies, data sources, or software. Because of the relative newness of this assessment and the scarcity of information covering embodied energy, the scope of this credit will be limited to materials that are used in significant quantities and that make up a significant portion of the completed project.
3. Report on the selection of the life-cycle energy assessment model used and/or databases referenced.
4. Narrative describing how strategies to reduce net embodied energy will not increase operational or maintenance energy over the project or shorten the lifespan of the project.

B. To what extent have the owner and project team reduced the net embodied energy of the project?

1. Design documents or elements that will reduce the net embodied energy of the project and a rationale for why they were chosen. This may involve reducing the quantity of material and selecting materials with lower embodied energy.
2. Calculations showing the overall reduction of embodied energy over industry norms.


SOURCES

CEEQUAL Assessment Manual for Projects Version 4, December 2008, Roger K. Venables, Sections 7.1.1, 7.1.2.
Canadian Architect, Measures of Sustainability, Embodied Energy, www.canadianarchitect.com/ast/perspectives_sustainability/measure_of_sustainability/measure_of_sustainability_embodied.htm.

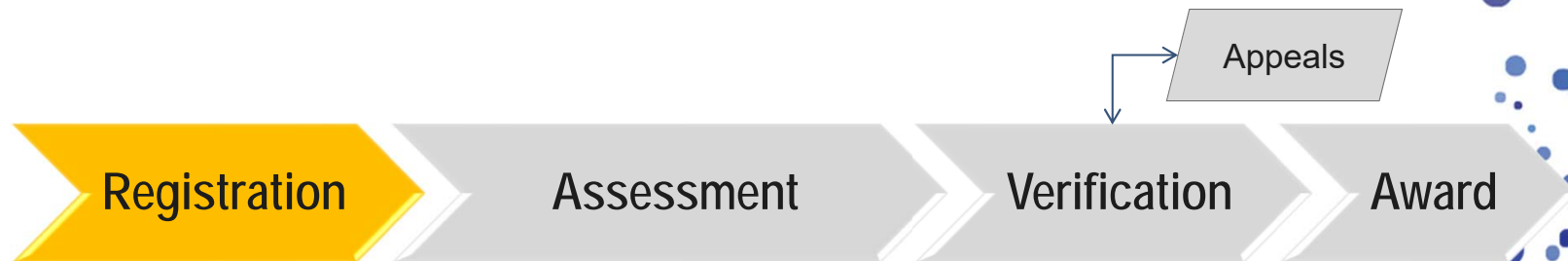
RELATED ENVISION CREDITS

- RA1.2 Support Sustainable Procurement Practices
- RA1.3 Use Recycled Materials
- RA1.4 Use Regional Materials
- RA1.5 Divert Waste from Landfills
- RA2.1 Reduce Energy Consumption
- RA2.2 Use Renewable Energy
- RA3.2 Reduce Potable Water Consumption
- NW2.3 Prevent Surface and Groundwater Contamination
- CR1.1 Reduce Greenhouse Gas Emissions
- CR1.2 Reduce Air Pollutant Emissions
- CR2.1 Assess Climate Threat
- CR2.5 Manage Heat Island Effects

Project Input

 QUALITY OF LIFE 13 credits		13 credits in progress, 13 credits completed	Project progress	0 of 138 Possible points																										
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Verification and Award Steps



Envision Sustainability Professional (ENV SP)

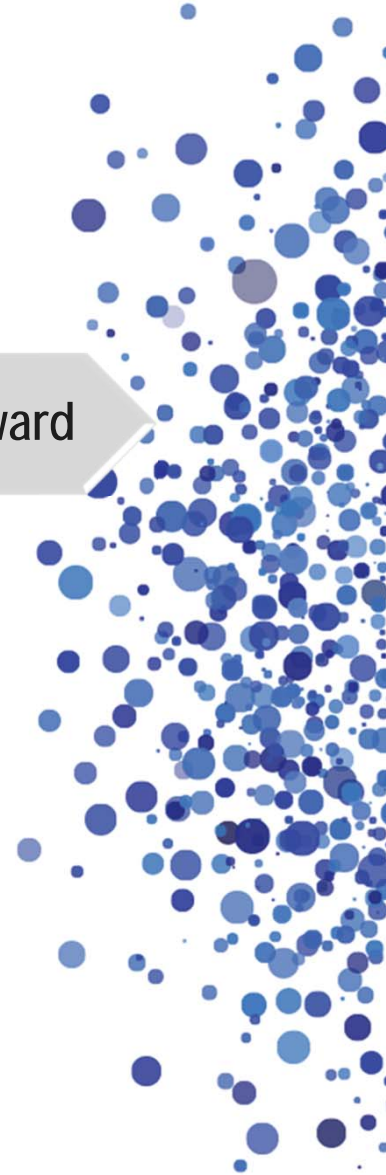
- Project team point of contact
- Project registration and fee (\$1000)

Verification and Award Steps



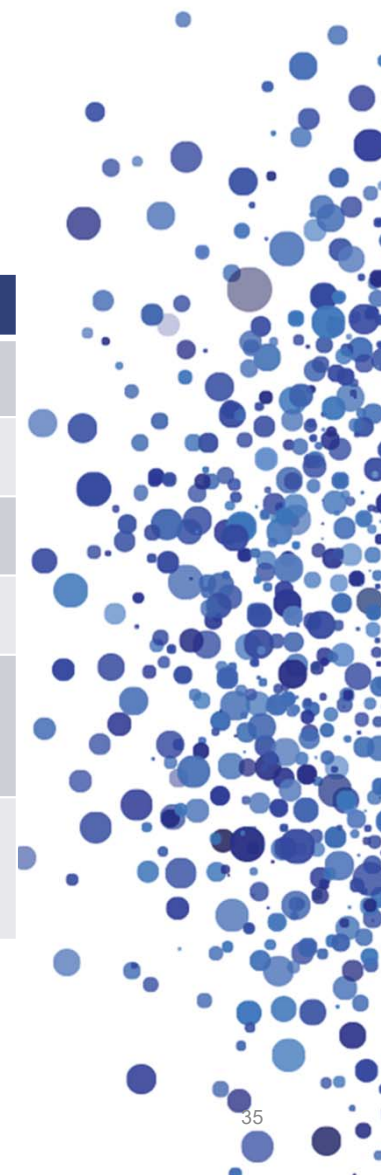
Envision Sustainability Professional (ENV SP)

- Project assessment and documentation
- Pay verification fee (see table)

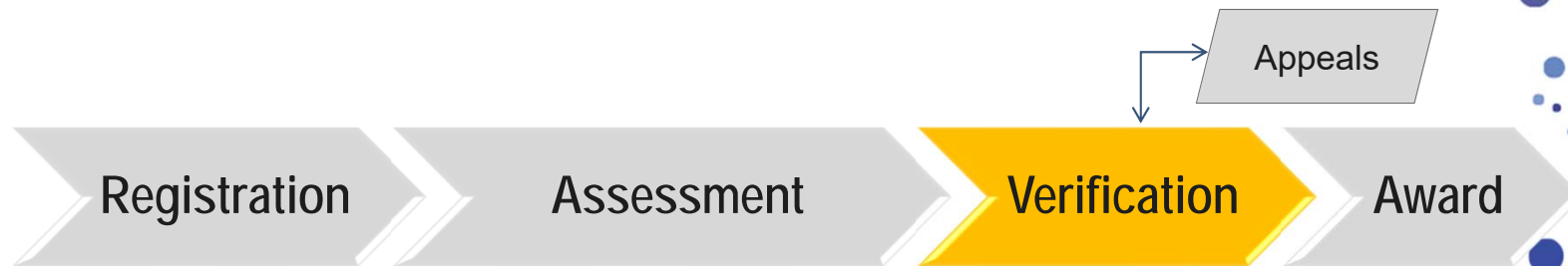


Verification Fee

Project Size, \$	Non-Member Price	ISI Member Price
Up to 2 million	\$3000	\$2400
2 to 5 million	\$8500	\$7000
5 to 25 million	\$17,000	\$14,000
25 to 100 million	\$25,000	\$21,000
100 to 250 million	\$33,000	\$28,000
Over 250 million	Contact ISI for large or multi-phase projects.	



Verification and Award Steps



Verifier

- Assigned by ISI
- Project verification

ISI Staff

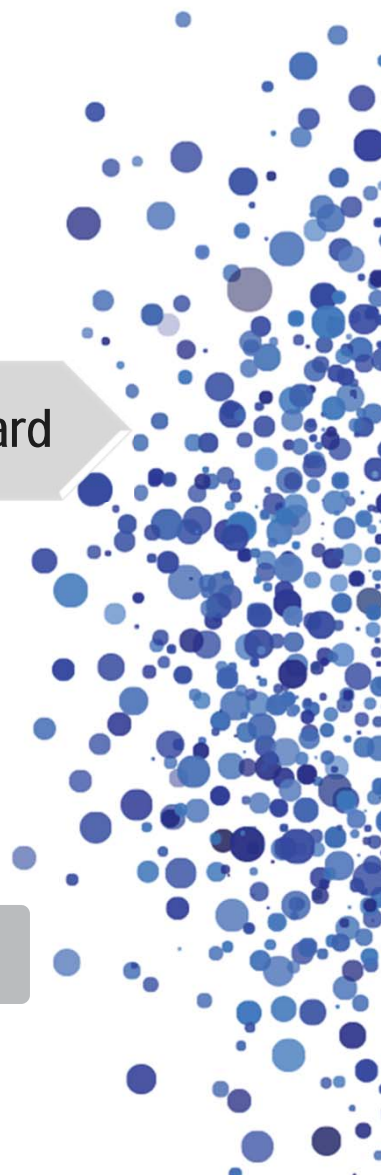
- Oversight to the verification program
- Quality control

Verification

Possible request for clarification

ENV SP Response

Final Verification



Project Scoring

SCORES - SHELDON AVENUE

My Account Home [Home](#) » [Projects](#) » Sheldon Avenue

My Projects

My Credentialing

My Membership

My Invoices

Sheldon Avenue
Staten Island, NY

Action ▾

35
Silver

Project Stage
Complete

Select All/None

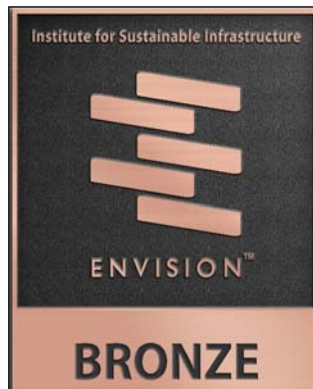
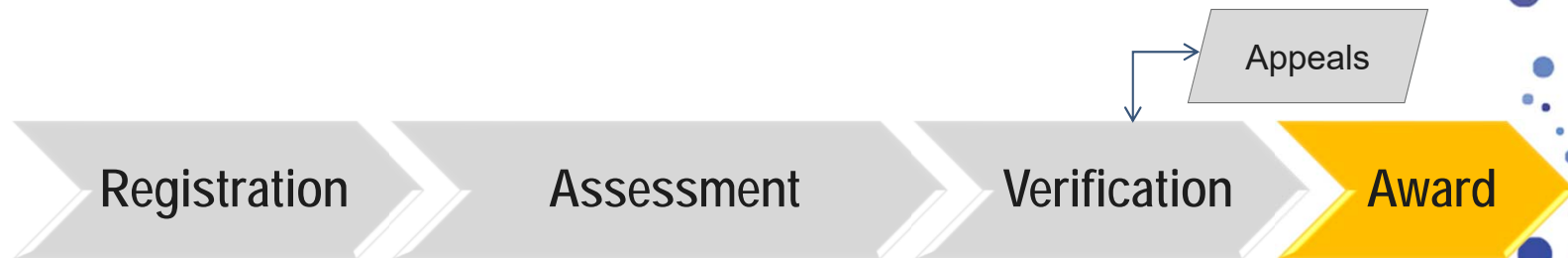
Generate printable view of selected credits

Download selected credit attachments

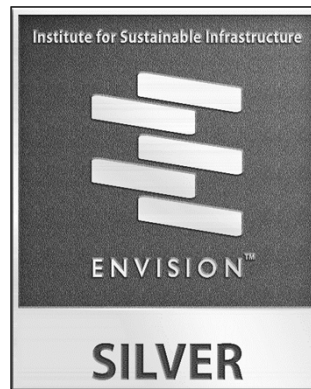
Project Scoring

Credit Category	Submitted Score Information			Verified Score Information		
	Applicable	Submitted	Percentage	Applicable	Verified	Percentage
QUALITY OF LIFE	138	59	43%	138	43	31%
LEADERSHIP	121	52	43%	121	52	43%
RESOURCE ALLOCATION	80	28	35%	80	4	5%
NATURAL WORLD	164	59	36%	164	59	36%
CLIMATE AND RISK	122	60	49%	122	60	49%
Total Points / %	625	258	41%	625	218	35%

Verification and Award Steps



20%



30%



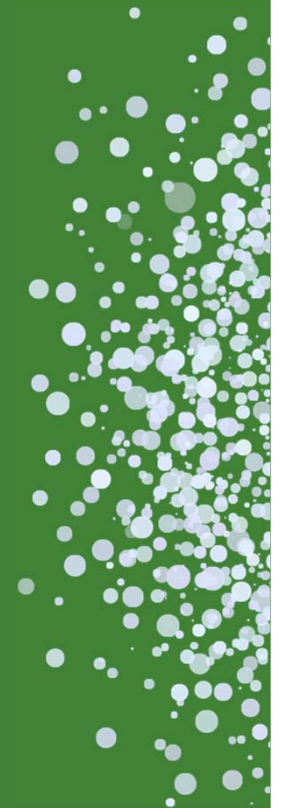
40%



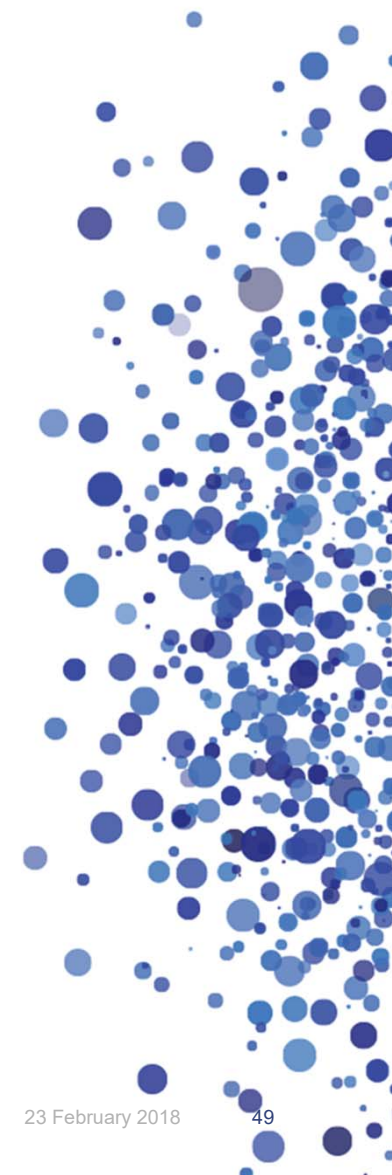
50%



Agency Use of Envision



New York City Department of Design and Construction



OneNYC

Growth

Vision 1: Our Growing, Thriving City

New York City will continue to be the world's most dynamic urban economy where families, businesses, and neighborhoods thrive.

Equity

Vision 2: Our Just and Equitable City

New York City will have an inclusive, equitable economy that offers well-paying jobs and opportunity for all to live with dignity and security.

Sustainability

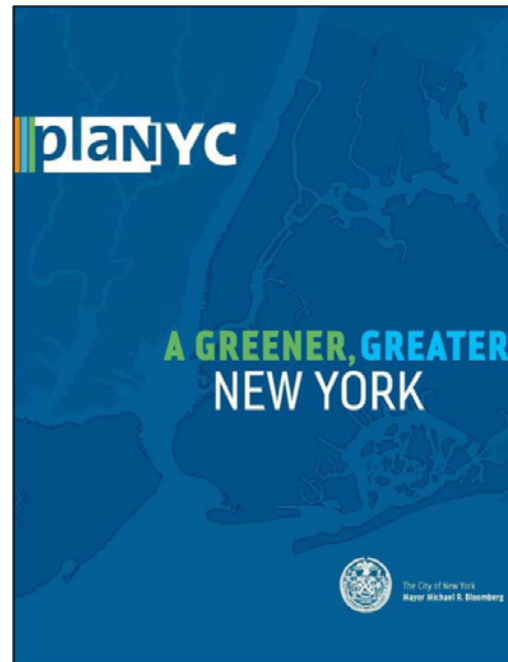
Vision 3: Our Sustainable City

New York City will be the most sustainable big city in the world and a global leader in the fight against climate change.

Resiliency

Vision 4: Our Resilient City

Our neighborhoods, economy, and public services are ready to withstand and emerge stronger from the impacts of climate change and other 21st century threats.





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DEPARTMENT OF DESIGN AND CONSTRUCTION

REQUEST FOR PROPOSALS

**REQUIREMENTS CONTRACT FOR ENGINEERING DESIGN AND
RELATED SERVICES FOR GREEN INFRASTRUCTURE PROJECTS, CITYWIDE**

SUSTAINABILITY

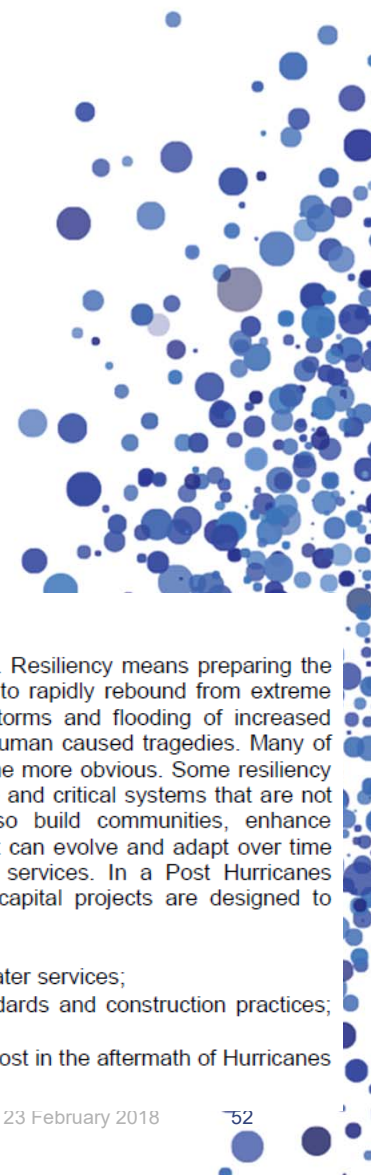
New York City is continuing to move aggressively to reduce its impact on the environment – meeting tomorrow's needs without compromising resources available to future generations. DDC is helping the City rapidly minimize greenhouse gas emissions through dramatically reduced building energy use in both new construction and renovation. On building sites and infrastructure projects, DDC designs natural systems and habitats through the five boroughs to manage stormwater and bring the many benefits of nature to citizens. The City has set a high bar, pledging a reduction in greenhouse gas emissions of 80 percent from 2005 levels by 2050, and reducing commercial waste 90 percent by 2030. DDC's High Performance Infrastructure Guidelines and Design and Construction Excellence 2.0 Guiding Principles are the foundation of DDC's goals to bring excellence in design to all projects by:

- Significantly lowering the City's carbon footprint by reducing the City's greenhouse gas emissions;
- Working to link carbon reduction opportunities to new and existing public buildings and infrastructure projects; and
- Investigating energy retrofits

RESILIENCY

Resilience design delivers projects capable of adapting to change. Resiliency means preparing the City's public buildings and infrastructure to maintain service, and to rapidly rebound from extreme events. The chief hazards to the City's built environment are storms and flooding of increased frequency and greater severity, extreme heat, extreme cold and human caused tragedies. Many of these risks will loom larger as the effects of global warming become more obvious. Some resiliency challenges develop over time, such as hazards from sea level rise and critical systems that are not maintained. Design can not only make us safe, but can also build communities, enhance neighborhoods and invite investment. Well-coordinated tactics that can evolve and adapt over time will achieve robust buildings, infrastructure, neighborhoods and services. In a Post Hurricanes Irene/Sandy environment, DDC wants to ensure that all future capital projects are designed to heightened expectations of resiliency by:

- Mitigating neighborhood flooding and offering high-quality water services;
- Assuring that areas at risk are built to updated code standards and construction practices; and
- Recreating a sense of community and neighborhood safety lost in the aftermath of Hurricanes Irene/Sandy



14. The Consultant shall prepare and submit a Preliminary Design Report concerning, the Project. The report shall document all issues and concerns identified; existing substandard features and the measures proposed to address the issues and substandard features identified; alternative schematic designs considered and design recommendations that have been accepted by the Commissioner, including sustainable Design alternatives, if any, as described in Section 2.3 and 4.10.4.E of these General Requirements and those alternatives that improve the Envision Sustainability DDC Baseline Rating of the applicable project typology.

4.41 ENVISION

The consultant shall be familiar Envision Sustainable Infrastructure Rating System - an in-depth guidance platform and rating system used to assess and improve the sustainability metrics of all types and sizes of infrastructure projects. The Consultant shall assign an Envision Sustainability Professional [ENV SP] to track the project and collect all relevant data in response to the Envision Rating System credit categories. Information about the Envision Process can be found by going to the Institute for Sustainable Infrastructure (ISI) website located at www.sustainableinfrastructure.org

Using the Envision Rating System the consultant will perform a schematic assessment of the assets associated with or affecting the project, using both the Envision™ Checklist, an educational tool that helps users become familiar with the sustainability aspects of infrastructure project design, as well as any project typology specific Envision baseline data that the agency can supply. The overall objective is to identify, but is not limited to, resources, energy reduction, process optimization and technology opportunities that are measurable and will improve the long term economic, environmental and social sustainability of the project.

All projects shall prepare a document showing opportunities for maximizing the sustainable impact of each projects outlining methods to improve the project via planning and design, making recommendations as to areas where the Project can improve.

During the Preliminary and Final design of the Project the Consultant shall prepare an Envision Scoresheet from the Institute of Sustainable Infrastructure – where all documents, including but not limited to, meeting minutes, presentations, data compilations, studies, and reports which are prepared in the performance of this Project, shall be compiled. Any, and all improvements to the Baseline Rating of the specified project typology will be documented in the Envision Scoresheet. If required, the Consultant shall officially submit the project's Envision Scoresheet to ISI for verification. The Consultant shall work with ISI's verifier to provide further documentation, use their feedback to improve the overall score of the project and to confirm the level of achievement of the project.



Fact Sheet



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Stormwater

Sustainability

Sustainability

These factsheets were produced by various WEF Committee's and are available for download.

- [Use of the Envision Sustainable Infrastructure Rating System Infrastructure](#)

For more information visit the [Sustainability Topic Page](#).



FACT SHEET

Use of the Envision Sustainable Infrastructure Rating System for Water Infrastructure

The Envision Sustainable Infrastructure Rating System is a triple bottom line based sustainability rating system specifically developed for use in civil infrastructure. The water infrastructure sector has successfully leveraged Envision to achieve application of sustainable practices in the planning, design, and long-term operation of a full range of facilities.

23 February 2018

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Institute for Sustainable Infrastructure

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Institute for Sustainable Infrastructure

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Hello Ifetayo Venner

ENVISION: A RATING SYSTEM FOR SUSTAINABLE INFRASTRUCTURE

The industry now has detailed guidance and metrics for sustainable infrastructure projects of every size and type.

Learn More

23 February 2018

Presenter



IFETAYO VENNER

Wastewater & Water Sustainability Lead – Arcadis NA

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c 813 317 7174
e lfetayo.venner@arcadis.com

