

Sustainable Infrastructure and Rating Systems



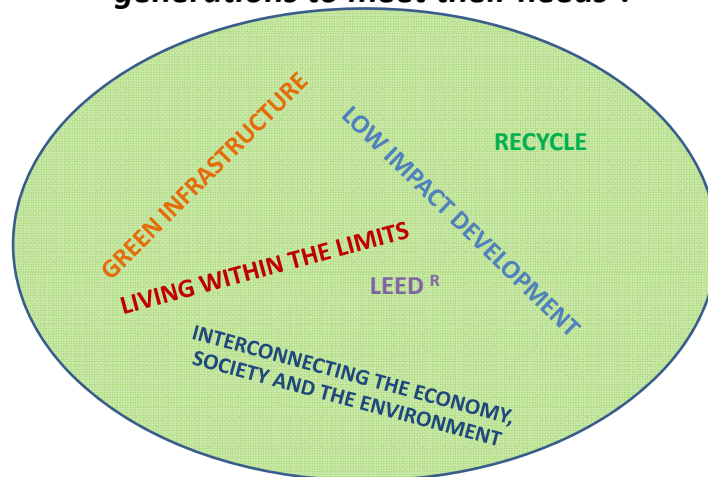
2012 CoSA/Consultants Annual Seminar
January 27, 2012

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Sustainability

Sustainable projects are those that "meet present needs without compromising the ability of future generations to meet their needs".



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- **501 (c) (3) Partnership Founding Partners**

 - APWA Center for Sustainability
 - ASCE Committee on Sustainability
 - ACEC Green Scorecard





- **ISI Formation**


 - National Benchmark for Sustainable Infrastructure
 - Sustainable Civil Infrastructure Projects
- **Focus** – Project Performance Verification Using Civil Infrastructure Rating System

 - Sustainable Professional Accreditation
 - Education and Training

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What Infrastructure Categories Does the Rating System Assess?

INFRASTRUCTURE CATEGORIES

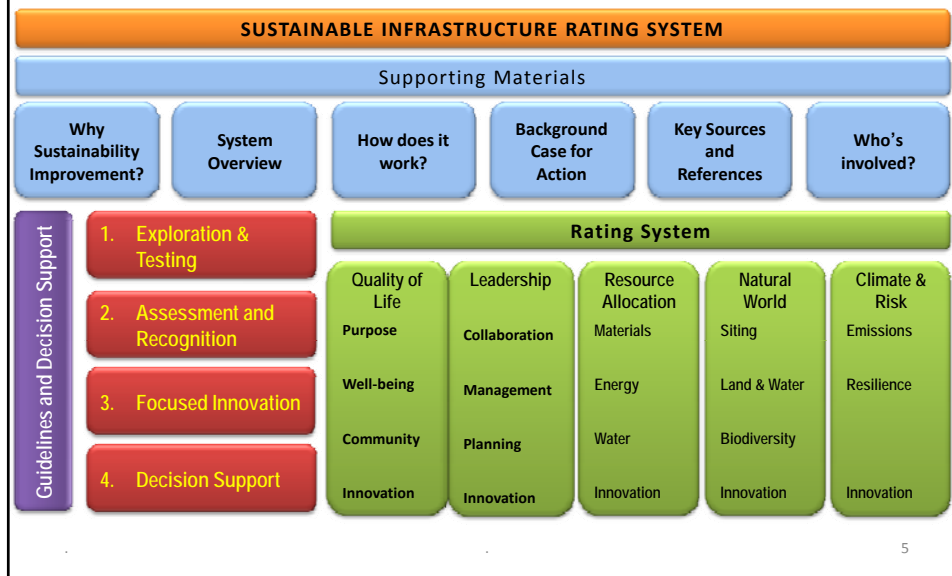
 ENERGY	 WATER	 WASTE	 TRANSPORTATION	 LANDSCAPE	 INFORMATION
					
<p>geothermal hydroelectric nuclear coal natural gas oil/refinery wind solar biomass other</p>	<p>potable water distribution capture and storage water reuse stormwater management flood control other</p>	<p>solid waste recycling hazardous waste collection and transfer other</p>	<p>airports roads/highways bike/pedestrians railways public transit ports waterways other</p>	<p>public realm parks ecosystem services other</p>	<p>telecommunications internet /phones satellites data centers sensors other</p>



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Web-based Tool: System Architecture



envision™

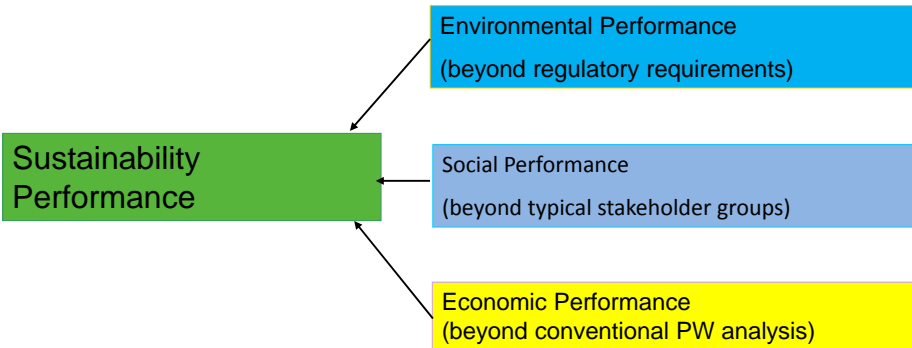
Sustainable Infrastructure Rating System



For Access to Website:

www.sustainableinfrastructure.org

Sustainability Performance Goals



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Performance and Pathway Contribution

Does this project effectively contribute to sustainability?

- Performance contribution
 - Sought out all reasonable opportunities to improve sustainable performance
 - Raised the bar in one or more dimensions of sustainable performance
 - Achieved what was reasonable
- Pathway contribution
 - Considers how the project aligns with overall community needs
 - Enhances quality of life



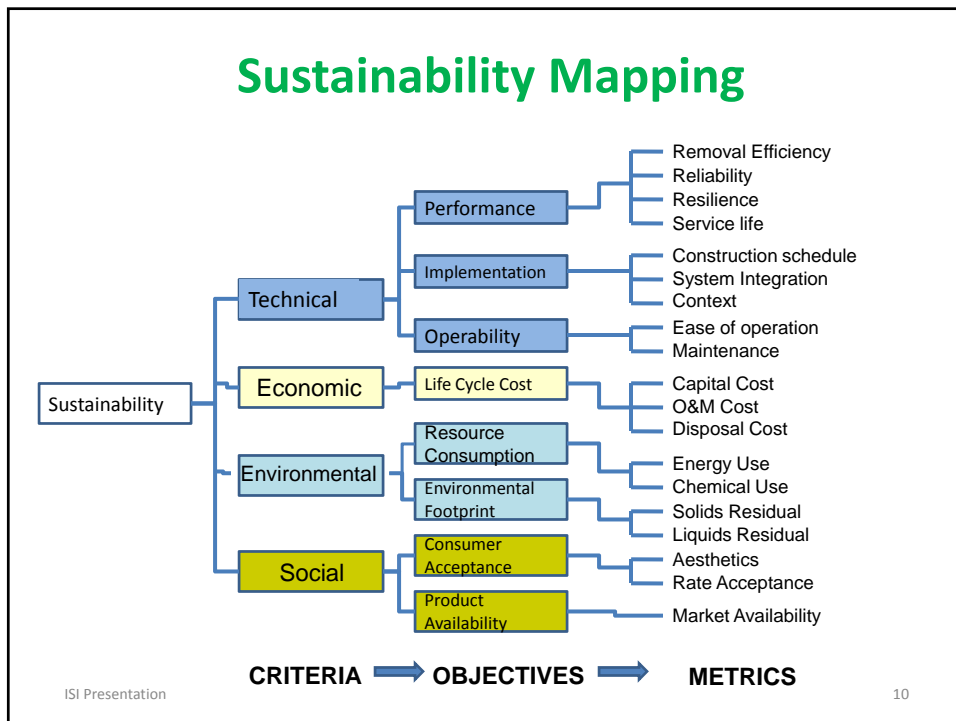
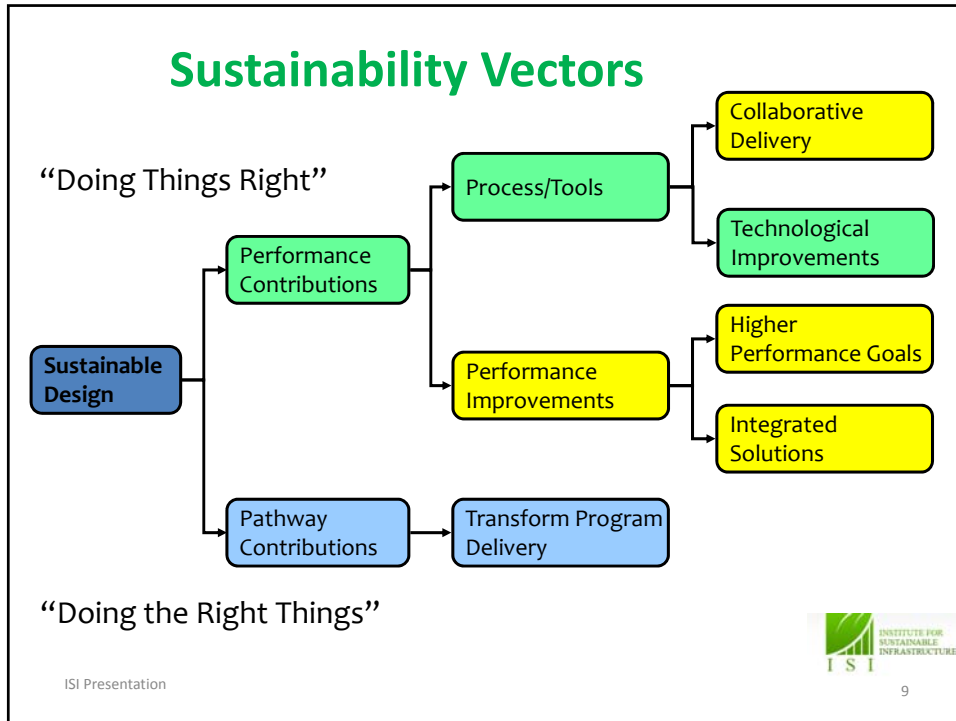
Use of recycled concrete and asphalt in highway construction

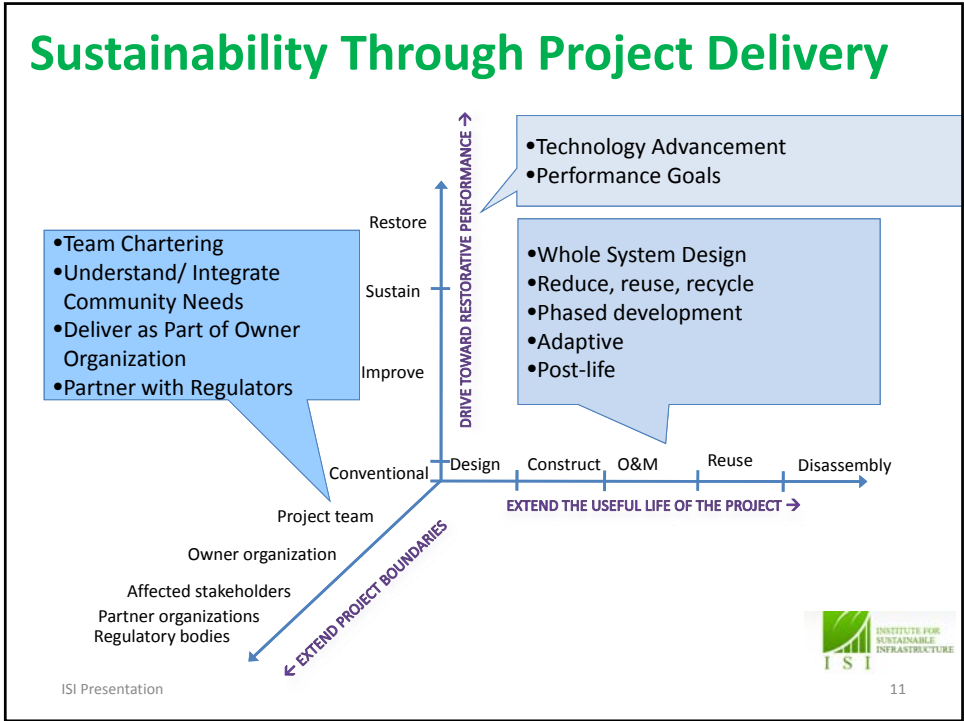


Highway traffic congestion






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Project Credits

 QUALITY OF LIFE	 LEADERSHIP	 RESOURCE ALLOCATION	 NATURAL WORLD	 CLIMATE AND RISK
<p>QL1.1 Community Quality of life</p> <p>QL1.2 Stimulate Sustainable Growth</p> <p>QL1.3 Local Skills</p> <p>QL2.1 Public Health and Safety</p> <p>QL2.2 Noise and Vibration</p> <p>QL2.3 Light Pollution</p> <p>QL2.4 Mobility and Access</p> <p>QL2.5 Alternative Transportation Modes</p> <p>QL2.6 Site Accessibility</p> <p>QL3.1 Historic and Cultural</p> <p>QL3.2 Views, Local Character</p> <p>QL3.3 Public Space</p> <p>QL0.0 Innovation</p>	<p>LD1.1 Effective Leadership</p> <p>LD1.2 Sustainability Management System</p> <p>LD1.3 Collaboration</p> <p>LD1.4 Stakeholder Involvement</p> <p>LD2.1 By-Product Synergy</p> <p>LD2.2 Integration</p> <p>LD3.1 Long Term Monitoring and Maintenance</p> <p>LD3.2 Regulatory/Policy Conflicts</p> <p>LD3.3 Extend Useful Life</p> <p>LD0.0 Innovation</p>	<p>RA1.1 Embodied Energy</p> <p>RA1.2 Procurement</p> <p>RA1.3 Recycling</p> <p>RA1.4 Regional Materials</p> <p>RA1.5 Divert Waste</p> <p>RA1.6 Reduce Material Export</p> <p>RA1.7 Deconstruction</p> <p>RA2.1 Reduce Energy Consumption</p> <p>RA2.2 Renewable Energy</p> <p>RA2.3 Monitor Energy Systems</p> <p>RA3.1 Water Availability</p> <p>RA3.2 Water Consumption</p> <p>RA3.3 Monitor Water Systems</p> <p>RA0.0 Innovation</p>	<p>NW1.1 Prime Habitat</p> <p>NW1.2 Wetlands Surface Water</p> <p>NW1.3 Prime Farmland</p> <p>NW1.4 Geologic Hazards</p> <p>NW1.5 Floodplains</p> <p>NW1.6 Steep Slopes</p> <p>NW1.7 Greenfields</p> <p>NW2.1 Storm water</p> <p>NW2.2 Pesticides</p> <p>NW2.3 Water Contamination</p> <p>NW3.1 Biodiversity</p> <p>NW3.2 Invasive Species</p> <p>NW3.3 Disturbed Soils</p> <p>NW3.4 Maintain Water Functions</p> <p>NW0.0 Innovation</p>	<p>CR1.1 Greenhouse Gas Emissions</p> <p>CR1.2 Air Pollutants</p> <p>CR2.1 Climate Threat</p> <p>CR2.2 Traps and Vulnerabilities</p> <p>CR2.3 Long-term Adaptability</p> <p>CR2.4 Short-term Hazards</p> <p>CR2.5 Heat Islands</p> <p>CR0.0 Innovation</p>

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Five Degrees of Performance

- Improved - *Performance that is at/ above conventional*
- Enhanced - *Indications that superior performance is within reach.*
- Superior - *Sustainable performance that is noteworthy.*
- Conserving - *Performance that has achieved essentially zero impact.*
- Restorative - *Performance that restores natural or social systems.*

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News FAQs Rating System Credentialing Project Verification Education & Training Case Studies Comments

Project Verification

Envision™ Sustainable Infrastructure Rating System

Instructions Projects **Section Menu** QL LD RA NW CR Section Totals Summary
Report

"Prairie Waters Project"

Input Portal

Section Menu

Please click on the links to take you to the relevant sections:

QUALITY OF LIFE
 LEADERSHIP
 RESOURCE ALLOCATION
 NATURAL WORLD
 CLIMATE AND RISK

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Scoring Module

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Envision Tool Portal

« Guidance Manual Home

Guidance Manual

Q1.1.1 IMPROVE COMMUNITY QUALITY OF LIFE

INTENT:
Improve the net quality of life of all communities affected by the project and mitigate negative impacts to communities.

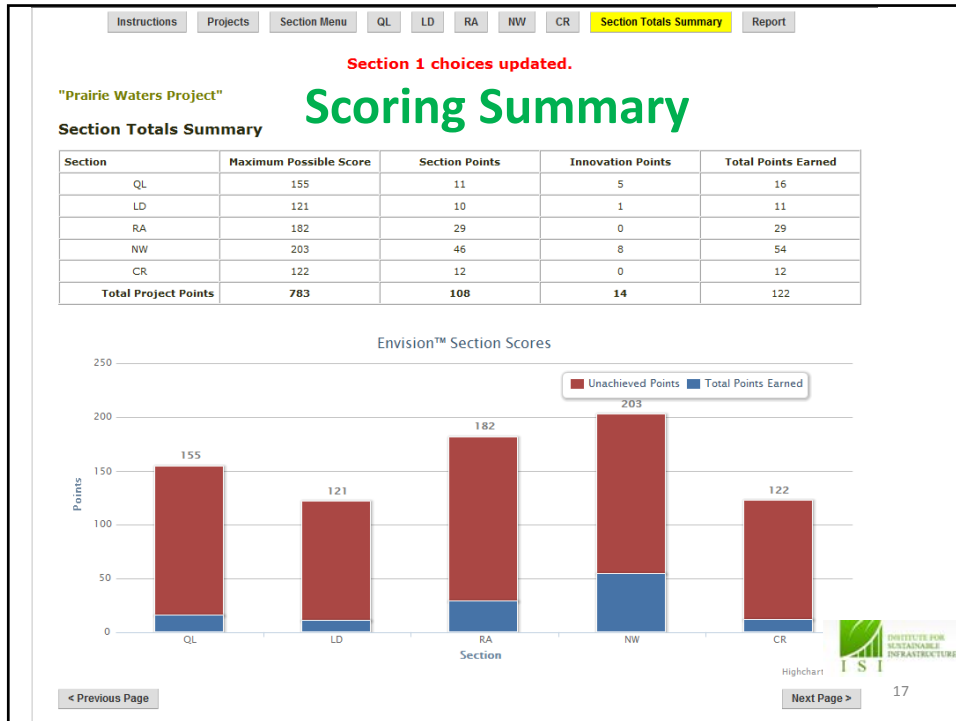
METRIC:
Measures taken to assess community needs and improve quality of life while minimizing negative impacts.

LEVELS OF ACHIEVEMENT

IMPROVED	ENHANCED	SUPERIOR	CONSERVING	RESTORATIVE
(2) Internal focus. The project team has located and reviewed the most recent and relevant community planning information. Some, but not systematic outreach to stakeholders and decision makers has taken place. Some relatively easy, but not particularly important or meaningful changes made to the project. No significant adverse community effects are caused by the project (A, B, C)	(5) Community linkages. More substantive efforts to locate, review, assess and incorporate the needs, goals and plans of the host community into the project. Most potential negative adverse impacts of the project on the host community are reduced or eliminated. Key stakeholders are involved in the project decision-making process. (A, B, C)	(10) Broad community alignment. All relevant community plans are reviewed and verified through stakeholder input. The project team works to achieve good project alignment with community plans, recognizing that the scope of the project is a limiting factor. Potential negative impacts on nearby affected communities are reduced or eliminated. (A, B, C)	(20) Holistic assessment and collaboration. The project makes a net positive contribution to the quality of life of the host and nearby affected communities. The project team makes a holistic assessment of community needs, goals and plans, incorporating meaningful stakeholder input. Project meets or exceeds important identified community needs and long-term requirements for sustainability. Remaining adverse impacts are minimal, mostly accepted as reasonable tradeoffs for benefits achieved. The project has broad community endorsement. (A, B, C)	(25) Community renaissance. Through rehabilitation of important community assets, upgraded and extended access, increased safety, improved environmental quality and additional infrastructure capacity, the project substantially reinvigorates the host and nearby communities. Working in genuine collaboration with stakeholders and community decision-makers, the project owner and the project team scope the project in a way that elevates community awareness and pride. Overall quality of life in these communities is markedly elevated. (A, B, C, D)

DESCRIPTION

This credit addresses the extent to which the project contributes to the quality of life of the host community: the community in which the constructed works is situated and directly affects. This determination is based on how well the project team has identified and assessed community needs, goals and objectives, and incorporated them into the project. Relevant community plans are assumed to be a viable expression of those needs, goals, objectives and aspirations. In a real sense, they are the community's expression of their desired quality of life.



Project Verification

Envision™ Sustainable Infrastructure Rating System

Instructions Projects Section Menu QL LD RA NW CR Section Totals Summary Report

"Prairie Waters Project"

Report Output

Report (All Sections)

[See only Notes](#)

Section and Objective Numbers	Objectives	Required/ Applicable?	Level Of Achievement	Score	Max Available Points
QUALITY OF LIFE					
TQ	QL1.1 Improve community quality of life. Improve the net quality of life of all communities affected by the project and mitigate negative impacts to communities.	REQUIRED	Improved	2	25
	Notes:				
	QL1.2 Stimulate sustainable growth and development. Support and stimulate sustainable growth and development, including improvements in job growth, capacity building, productivity, business attractiveness and livability.	REQUIRED	Improved	1	16
Notes:					
QL1.3 Develop local skills and capabilities. Expand the knowledge, skills and capacity of the community workforce to improve their ability to grow and develop.	EXCLUDE	-----	--	--	
Notes:					
QL2.1 Enhance public health and safety.	REQUIRED	Improved	2	16	

Project Phases

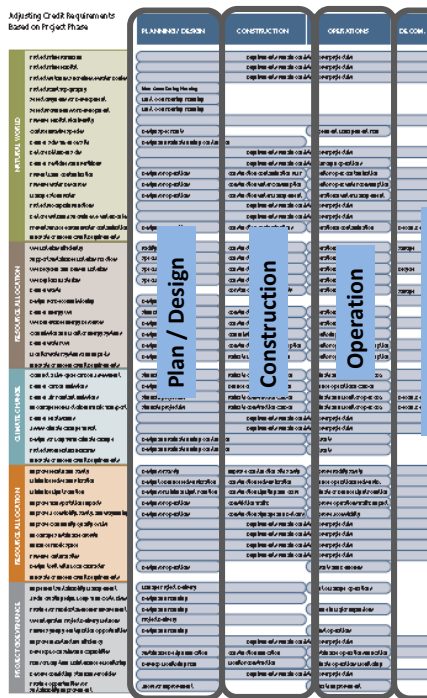
Metrics will change as project moves from planning through design, construction and repurposing

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Sustainability Indicators and Metrics Change

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Project Use of envisionTM and Accreditation

- Professionals should seek training and certification in broad sustainability principles
- Various training opportunities but ISI will certify users competence in applying envisionTM tools
- Use envisionTM to enhance project performance
- Owners may apply for recognition of envisionTM
- Achievements and performance through third party verification – (Stage 2 and higher applications)
- Professional standards requirements for accredited sustainability professionals and verifiers

Questions