THE ENVISION™ RATING SYSTEM

Guidance for Sustainable and Integrated Infrastructure Design

Presented by: Ethan Griesbach
Presentation Overview

- What is Envision™?
- Who is Responsible?
- Infrastructure: Why/When is Envision™ applied?
- How is Envision™ applied?
- Where has Envision™ been applied?
- Q&A
What is Envision™?
Envision™: Provides Four Primary Objectives

1. Holistic framework for sustainable infrastructure planning:
   - Assesses environmental, social and economic benefits/impacts of projects.
   - Compliments Ontario Environmental Assessment regulatory process.

2. System for evaluating, grading and providing recognition:
   - Assesses the sustainability indicators over the course of a project’s lifecycle.
   - Allows proponent to grade project and see where they can do more/less.

3. Asks are we doing the project right, and is this the correct project:
   - Pathway – align with overall community needs and enhance quality of life?
   - Performance – efficiency and effectiveness.

4. Encourage integrated infrastructure systems:
   - Many credits impact multiple areas.
   - Go beyond traditional project boundaries to identify synergies.
Envision™: 5 Categories, 14 Subcategories and 60 Credits + Innovation

- **Purpose, Community, Wellbeing**
- **Collaboration, Management, Planning**
- **Materials, Energy, Water**
- **Siting, Land & Water, Biodiversity**
- **Emission, Resilience**
Each Credit has Multiple Levels of Achievement

1. **Improved**: Performance that is above conventional. Slightly above regulatory requirements.

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**: performance that advances sustainable infrastructure practices or show exceptional performance beyond expectations.

*Point scores are designed to provide incentives for proceeding to the next level of achievement.*
Envision™: Credit Evaluation Criteria

QL1.1 IMPROVE COMMUNITY QUALITY OF LIFE

No Negative Impact

Non-linear Scale

Improved  Enhanced  Superior  Conserving  Restorative
**Envision™ Levels of Award Achieved Through Verification**

- Award achieved through Independent third-party verification:

<table>
<thead>
<tr>
<th>Recognition Level</th>
<th>Minimum Applicable Points (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bronze Award</td>
<td>20</td>
</tr>
<tr>
<td>Silver Award</td>
<td>30</td>
</tr>
<tr>
<td>Gold Award</td>
<td>40</td>
</tr>
<tr>
<td>Platinum Award</td>
<td>50</td>
</tr>
</tbody>
</table>
Developed and Managed in Joint Collaboration

ISI Founders (2010)
Infrastructure: Why/When is Envision™ Applied?
Infrastructure Today Requires Enhancements
Problem with existing infrastructure systems:
- Having negative impact on our natural resources, social and economic systems.
- Use of natural resources outpacing natural rate of return (Living Plant Report ‘14, WWF).
- Depleted resources and systems with “traps and vulnerabilities” lessen quality of life.

Why we need infrastructure systems:
- World Economic Forum - infrastructure determines productivity of a country.
- Efficient (performance) systems enable economy/society to prosper/grow.
- Infrastructure systems have enabled our current high quality of life... sustainable?

How can Envision™ assist?
- Framework, that details ‘how to’ design sustainable infrastructure systems.
- Evaluates and rates projects sustainable indicators to identify gaps and shortcomings.
- Provides performance and pathway assessment of projects.
When? Project Design and EA Phase

- Planning and design team reviews requirements of Envision™:
  - Each of the 60 credits has a respective evaluation criteria.
  - Credits apply to design, planning, construction and maintenance phases.

- Evaluation of project design and not actual performance:
  - Some credits require maintenance, monitoring and contingency plans.
  - A Envision™ Rating system, for existing infrastructure is in development.

- Compliments Ontario EA regulatory process:
  - Provides methods to evaluate potential positive/negative effects of a proposal.
  - Guidance and resource, for methods of assessment that can be used.
  - Methods: cumulative effects, ecosystem approach, rehabilitation, consultation, and life cycle assessment.
How Is Envision™ Applied?
Envision™ Three Tools/Steps of Assessment

1) Self-Assessment Checklist:
   - Quick review of project sustainability
   - Informs project team as to what could be added or removed to improve performance

2) Guidance Manual:
   - Framework with guidance for levels of achievement for each of the 60 credits

3) Workbook – Scoring Tool:
   - Project team enters response for each of the 60 credits
   - Retains response and tabulates score for project
   - Used by project verifiers and authenticator.
Envision™ Verification Process

- Independent review to confirm that a project meets the Envision™ evaluation criteria.
- Institute for Sustainable Infrastructure assigns an independent verifier.
- At least one credentialed Envision™ Sustainability Professional (ENV SP) must be part of the project team for projects registered for Verification.
Example: Leadership Category

**LD2.2 IMPROVE INFRASTRUCTURE INTEGRATION**

**INTENT:**
Design the project to take into account the operational relationships among other elements of community infrastructure which results in an overall improvement in infrastructure efficiency and effectiveness.

**LEVELS OF ACHIEVEMENT**

<table>
<thead>
<tr>
<th>IMPROVED</th>
<th>ENHANCED</th>
<th>SUPERIOR</th>
<th>CONSERVING</th>
<th>RESTORATIVE</th>
</tr>
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<tbody>
<tr>
<td>(1) Narrow optimization focus. Project improvements in resource conservation, use of renewable resources are substantive, but are confined to individual components. Individual gains are present, but are suboptimal because of the lack of component integration. Little or no exploration of synergies among components. (A)</td>
<td>(3) Internal systems focus. Project owner and designer look at the project and its delivered works as a system. Project gains in resource conservation, and the use of renewable resources are significant due to efforts to optimize performance across the project and its delivered works. Efforts are made to integrate the design to eliminate design conflicts and find system synergies that enhance overall performance. (A)</td>
<td>(7) Infrastructure bundling and synergies. Project is planned and designed taking into account the other related community infrastructure elements, i.e., how its design and operation will work in harmony and synergy with other infrastructure elements external to the project. Additional investments are planned to create linkages, improve synergies, and by doing so improve overall performance. Factor in infrastructure deficit, i.e., need to repair and refurbish existing infrastructure. (A, B)</td>
<td>(13) Full infrastructure integration. The project owner and designer place the project in a community context and participate in multi-sectoral regional strategic planning for sustainability - integrated community sustainability plans. They assess the existing community physical infrastructure as well as its non-physical assets. Project is planned and designed in a way that takes into account not only the physical infrastructure elements but also related community infrastructure elements. The project incorporates and takes advantage of valuable community assets, e.g., knowledge and social capital. Project integrates with the community’s asset management program. (A, B)</td>
<td>(16) High performance through restorative actions. At the early stages of project development, the project owner and the project team work with the community to identify existing community assets in the natural or built environment which, when restored, would improve the economic growth and development capacity of the community. The project is planned and designed to incorporate restoration of those assets as part of a comprehensive strategic sustainability plan. Project is planned and designed, not only taking into account the other related community infrastructure elements, but sustaining and/or restoring community assets in a way that enhances overall community efficiencies and effectiveness. Integration with restoration of natural systems and resources. Integration with and restoration of the community’s knowledge and social capital assets. (A, B, C)</td>
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Example: Resource Allocation Category

RA1.6 REDUCE EXCAVATED MATERIALS TAKEN OFF SITE

INTENT:
Minimize the movement of soils and other excavated materials off site to reduce transportation and environmental impacts.

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<th>RESTORATIVE</th>
</tr>
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<tbody>
<tr>
<td>(2) Reuse 30 to 50%. Percentage of excavated material suitable for reuse beneficially reused on site. (A)</td>
<td>(4) Reuse 51 to 80%. Percentage of excavated material suitable for reuse beneficially reused on site. (A)</td>
<td>(5) Reuse 81 to 95%. Percentage of excavated material suitable for reuse beneficially reused on site. (A)</td>
<td>(6) Reuse 96 to 100%. 100% of excavated material suitable for reuse retained and reused on site. (A)</td>
<td></td>
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RELATED CREDITS

- NW3.3 Restore Disturbed Soils
- CR1.1 Reduce Greenhouse Gas Emissions
Example: Natural World Category

NW2.1 MANAGE STORMWATER

INTENT:
Minimize the impact of infrastructure on stormwater runoff quantity and quality.

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<tr>
<td>IMPROVED</td>
<td>(4) Increased storage capacity. Project employs low impact development (LID) measures to reduce generation of storm runoff to pre-development conditions. The target water storage capacity for greyfields, 30% improvement in water storage capacity. For brownfields, 20% improvement. Greenfields site maintains 100%. (A)</td>
<td>(9) Extended storage capacity. Project employs low impact development (LID) measures to reduce generation of storm runoff to pre-development conditions. The target water storage capacity for greyfields, 60% improvement in water storage capacity. For brownfields, 40% improvement. Greenfields site maintains 100%. (A)</td>
<td>(17) Sustainable stormwater management. Project employs low impact development (LID) measures to reduce generation of storm runoff to pre-development conditions. The target water storage capacity for greyfields is the pre-development water storage capacity. For greyfields, 90% improvement in water storage capacity. For brownfields, 60% improvement. (A)</td>
<td>(21) Enhanced stormwater management. Project employs substantial low impact development (LID) measures to reduce generation of storm runoff. Runoff is maintained on site and/or exceeds undisturbed climax ecosystem. Stormwater management programs and storm water handling structures are designed to capture and repurpose more than 100% of storm water on-site as part of overall water management regime. (B)</td>
<td></td>
</tr>
</tbody>
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Example: Climate and Risk Category

**CR2.3 PREPARE FOR LONG-TERM ADAPTABILITY**

**INTENT:**
Prepare infrastructure systems to be resilient to the consequences of long-term climate change, perform adequately under altered climate conditions, or adapt to other long-term change scenarios.

**LEVELS OF ACHIEVEMENT**

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(16) Highly resilient and adaptive. Plans and designs have been created and implemented to prepare for long term climate change including the effects of increased intensity and frequency of extreme weather events, water scarcity, sea level rise, extended droughts and heat waves, and increased ambient temperature. (A)</td>
<td></td>
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</table>

**RELATED CREDITS**
- CR2.1 Assess Climate Threat
- CR2.2 Avoid Traps and Vulnerabilities
Where has Envision™ been Applied?
Case Study #1: South L.A. Wetland Park

- 2014 - Envision™ Platinum Award

- Key Features:
  - Brownfield redevelopment;
  - Habitat restoration - creation of open water and march areas;
  - Reduced pollutants in urban runoff by diverting flow through a 4.5 acre treatment wetland; and
  - Restorative and multimodal infrastructure, that provides many ecosystem services.
Case Study #2: Placer County Snow Creek Restoration

- 2014 – Envision™ Platinum Award

- Key Features:
  
  - Brownfield redevelopment;
  
  - Integrates several infrastructure networks (trail and local stormwater systems); and
  
  - Reduce sediments, phosphorus and nitrogen from stormwater to improve Lake Tahoe water quality.

<table>
<thead>
<tr>
<th>Credit Category</th>
<th>Applicable Points</th>
<th>Earned Points</th>
<th>Innovation Points</th>
<th>Total Points Pursued</th>
<th>Percentage Applicable Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of life</td>
<td>149</td>
<td>114</td>
<td>0</td>
<td>114</td>
<td>77%</td>
</tr>
<tr>
<td>Leadership</td>
<td>121</td>
<td>58</td>
<td>0</td>
<td>58</td>
<td>48%</td>
</tr>
<tr>
<td>Resource allocation</td>
<td>111</td>
<td>38</td>
<td>0</td>
<td>38</td>
<td>34%</td>
</tr>
<tr>
<td>Natural world</td>
<td>177</td>
<td>163</td>
<td>0</td>
<td>163</td>
<td>92%</td>
</tr>
<tr>
<td>Climate &amp; risk</td>
<td>122</td>
<td>55</td>
<td>0</td>
<td>55</td>
<td>45%</td>
</tr>
<tr>
<td>Total Points</td>
<td>680</td>
<td>428</td>
<td>0</td>
<td>428</td>
<td>63%</td>
</tr>
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In Summary...

1. Holistic framework for sustainable infrastructure planning

2. System for evaluating, grading and providing recognition

3. Asks are we doing the project right, and is this the correct project

4. Encourage integrated infrastructure systems

www.sustainableinfrastructure.org

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Thank you
Questions/Comments?
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