Overview of Sustainability Rating System Trends in Transportation

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Sustainability Rating System
Functions

• Promote engineering awareness and integration into the transportation process and at the project level
• Management tool for accountability and project comparison
• Internal recognition for sustainable actions on highway projects (certifications)
• Scoping and design reference tool
• Public relations tool on sustainable practices
• Track sustainability program progress and areas for adjustment
• Tool for transportation decision making process
Rating Systems Chronology

- LEED (1998)
- GreenLITES (2008)
- Sustainable SITES (2009)
- GreenRoads (2010)
- ILAST (2010)
- STARS (2010)
- BE2ST (2010)
- INVEST (2011-2012)
- Envision (2012)
- Greenway (2012)
Leadership in Energy and Environmental Design (LEED)

- US Green Building Council (USGBC)
- 7 Criteria Categories: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, Innovation in Design, Regional Priority
- Building Design Emphasis
- Checklist Approach
- Cost for Accreditation and Certification
- 4 levels of certification via documentation to USGBC
Leadership in Transportation and Environmental Sustainability (GreenLITES)

- New York State Department of Transportation
- 5 Criteria Categories: Sustainable Sites, Water Quality, Material Resources, Atmosphere, Innovation
- Transportation specific checklist
- Internal certification; 4 levels of certification
- Context specific (climate, guidance)
- Mandatory with management participation
- Internal verification
- Operation and maintenance
Sustainable Sites Initiative (SITES™)

• American Society of Landscape Architects
• 9 Criteria Categories: Site selection, Pre-design assessment and planning Site design-water, Site design-soil and vegetation, Site design-materials selection, Site design-human health, and well-being, Construction Operations and maintenance, Monitoring and innovation
• Voluntary national guidelines and performance benchmarks for sustainable land design, construction, and maintenance practices.
GreenRoads/C4C Initiative

- University of Washington; C4C
- 7 Criteria Categories: Basic Project Requirements (Plans), Environment & Water, Access & Equity, Construction Activities, Materials and Resources, Pavement Technologies, Custom Credits
- Checklist approach
- Prerequisite plans
- Verification by independent reviewers
- Life cycle analysis and inventory
- Design, construction, operation and maintenance emphasis
Illinois - Livable and Sustainable Transportation Rating System and Guide (I-LAST)

- Illinois Department of Transportation
- Checklist approach for planning and design
- High emphasis on environmental criteria
- Voluntary actions not an official policy; no internal certification
- Rating criteria and rational measure of effectiveness described in detail.
Sustainable Transportation Access Rating System (STARS)

- Developed by Portland (Oregon) Bureau of Transportation; Santa Cruz County Regional Transportation Commission
- Mix of transportation and land use strategies to solve transportation issues
- STARS is an integrated planning/NEPA/design framework
- Users to set and achieve clearly-stated goals and objectives
Building Environmentally and Economically Sustainable Transportation Infrastructure-Highways (BE²ST in-Highways)

- Recycled Materials Resource Center and University of Wisconsin-Madison
- Emphasis on recycling, material use and construction
- Life cycle analysis techniques to provide a quantitative assessment of the impacts associated with a highway construction project.
- The methodology is grounded in quantitative metrics rather than an arbitrary point system
FHWA Infrastructure Voluntary Evaluation Sustainability Tool (INVEST)

- Federal Highway Administration
- Input from AASHTO, ASCE, ACEC and APWA
- 3 Criteria Categories: System Planning and Processes, Project Development, Operations and Maintenance
- Extensive list of criteria (61)
- All phases of transportation process from planning through operation and maintenance
- Framework for stakeholder communication
- Voluntary on federal projects
Envision

- Institute for Sustainable Infrastructure Ranking System/Harvard Zofnass Program for Sustainable Infrastructure
- 5 Criteria Categories: Quality of Life, Leadership, Resource Allocation, Natural World, Climate and Risk
- American Society of Civil Engineers, American Council of Engineering Companies, American Public Works and Harvard University
- Subjective scoring based upon levels of achievement for each criteria
- Extensive reference list and suggested sustainable practices
- Assessor training and verification for certification
Greenways

- Department of Civil & Environmental Engineering at Jackson State University (Mississippi) (Pilot 2012)
- 5 Criteria Categories: Materials, Environment/Water, Traffic Efficiency, Lifecycle/Maintenance, Community/Multimodal
- Rating system for green highway construction
- Cradle to grave energy/life cycle costs
- Outline plan and funding for maintenance
International Rating Systems

• (CEEQUAL) Civil Engineering Environmental Quality Assessment and Award Scheme (2003)
  – Institution of Civil Engineer Research and Development Enabling Fund (UK)
  – 12 criteria: Project management land use landscape, Ecology and biodiversity, The historic environment, Water resources and the water, environment, Energy and carbon, Material use, Waste management, Transport Effects on neighbors, Relations with the local community other stakeholders

• Integrated VicRoads (Roads Corporation of Victoria) Environmental Sustainability Tool (2012 pilot tested)
Trend Summary

• Continued “open source sharing”
• No one ranking system has emerged
• Increase in external certification type systems - complexity / verifications
• Increased emphasis on community impacts
• Stakeholder interaction and CSS
• Design to all transportation elements
• Smaller/easy to use DOT specific rating systems
• Life cycle costs and carbon/ghg emissions
Things to Consider When Selecting or Developing a Rating System

• Will the sustainability ranking system and program have upper management commitment, support and participation?

• Does the rating system criteria and scoring reflect the goals and objectives of an established sustainability program?

• Does the rating and scoring system mean anything to the project or to the project manager (such as salary performance indicator or project recognition)?

• Are the scoring criteria flexible and able to reflect the local environmental conditions of the state or regions?

• Will the rating system take too long or be too complex to fill out by a Project Team or a contractor?

• Will it be the right tool for decision making?