Sustainable Transportation

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What I'll talk about

- Definitions
- Principles
- Programs and Initiatives
- References

Sustainability

- Providing an acceptable quality of life for today's communities without endangering the ability of future generations to provide an acceptable quality of life themselves.
- Sustainable highways are those that from conception to completion, through maintenance and operation, satisfy life-cycle functional requirements while improving the natural, built, and social environment

Sustainable Transportation

- Allows for basic access and development needs in a manner that is consistent with human and ecosystem health goals, offers mode choice regardless of age or ability, is affordable and operates fairly and efficiently, limits emissions and the use of new and nonrenewable resources.

Definition – Sustainable Development

- A governance system that avoids deterioration of public capital assets, minimizes use of natural resource and maximizes quality of life.
- Sustain public assets: flood control levees, roads, water & sewer systems, bridges, other urban infrastructure and monetary wealth

Three Pillars

- People
- Planet
- Profit

People

- Public Outreach
- Context Sensitive Solutions
- Safety

Planet

- Environmental laws apply to highway projects
- Restoration of Natural Environment
- Rehabilitation of sites (e.g. brownfields)
- Recycling
  - Road construction has a high percentage of recycled materials

Profit

- Limited Resources → Better financial decisions
- Natural resources and communities have value—even if not “monetary”
- Recycling materials, renewable energy saves resources in the long run

Challenges & Opportunities

- Clear measures not yet identified for evaluating sustainability
  - Several initiatives underway
- Sustainability is very complex
  - Context of roadways
  - Need efforts at both project level and system level
  - Trade-offs between one benefit and another

FHWA Sustainability Initiatives

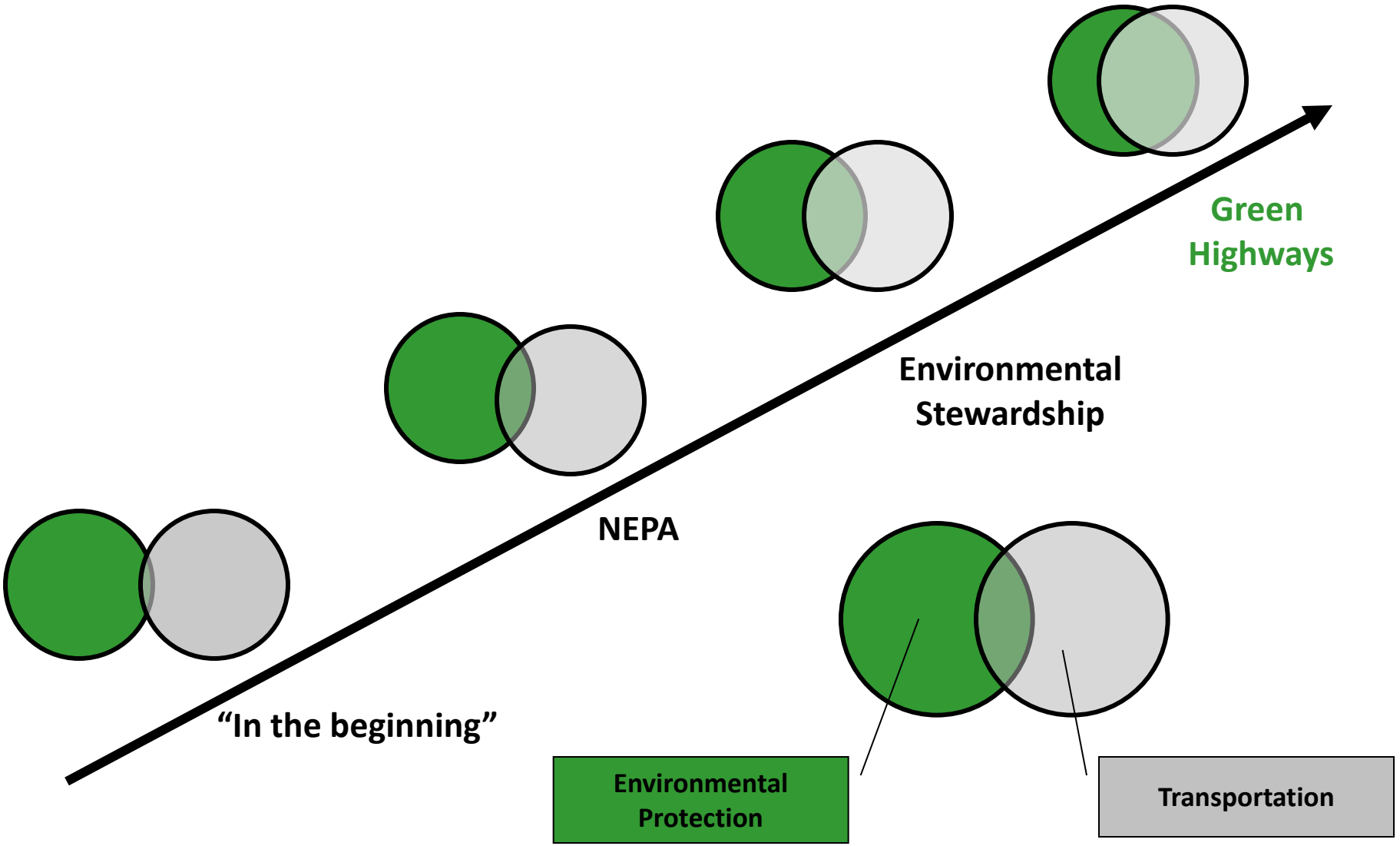
- Green Highways
- Context Sensitive Solutions
- Bicycle and Pedestrian Programs
- Transportation Enhancement Programs
- Exemplary Human Environment Initiative

Definition: Green Highways

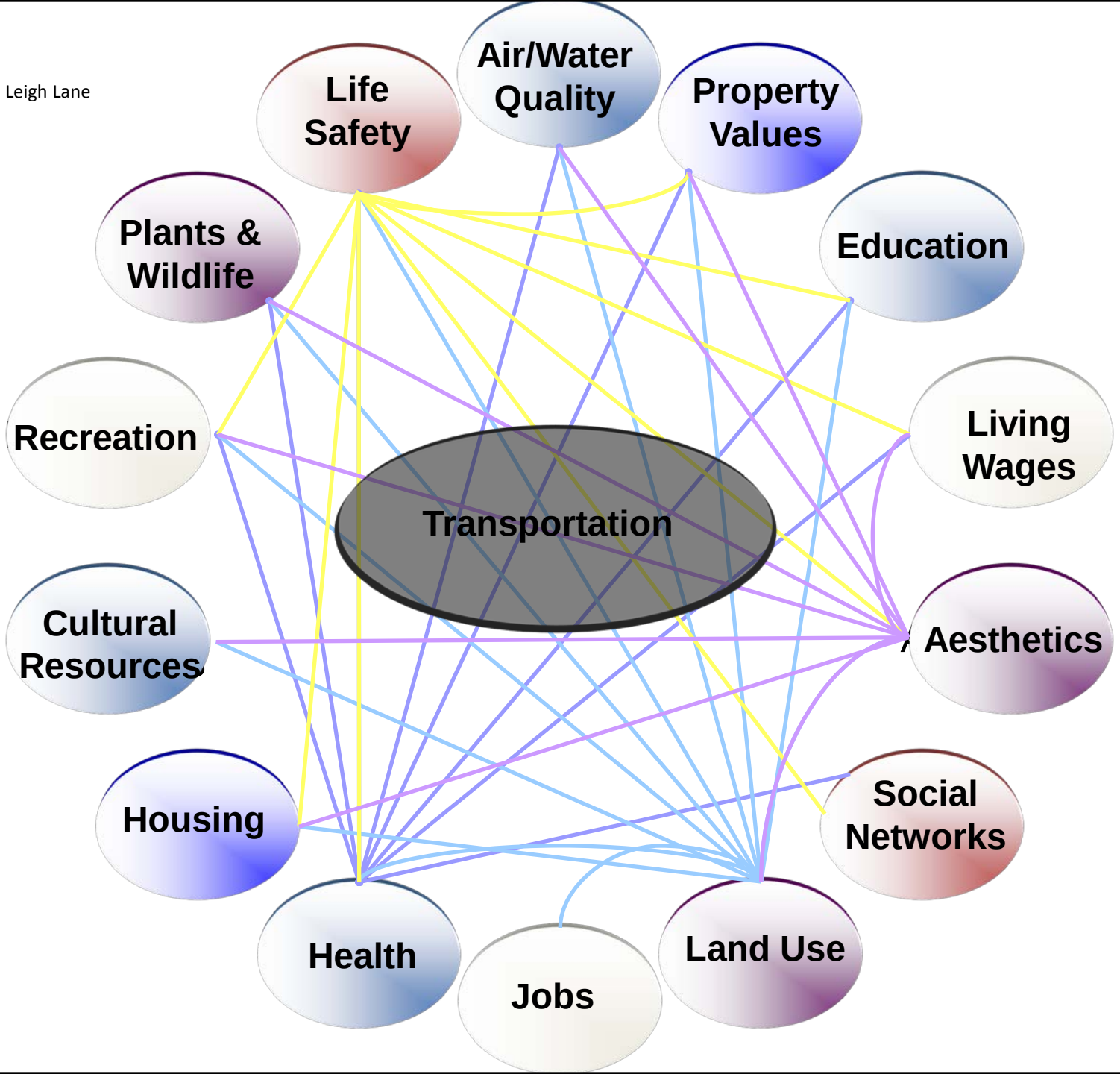
- Differs from project to project, and location to location
- Integrates transportation functionality and ecological sustainability
- Strives to leave the project area "better than before"


Virtual Green Highway
Bioretention Swale
Forest Buffer
Wildlife Crossing
Stream Restoration
Soil Amendments
Porous Pavement
Wetland Restoration

Goals & Missions of Environmental Protection and Transportation are Merging!



Courtesy: Leigh Lane
NCSU



Green Highways

A bulldozer is leveling a pile of shredded tires that are being reused as lightweight fill for a bridge abutment and slope. Recycling is one aspect of creating greener highways.

The Green Highways Partnership's conservation and ecosystem team focuses on such best practices as restoration of streams like this one in Prince George's County, MD. The goal here was to

Green Highways

U.S. Department of Transportation
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Research

FOCUS

Accelerating Infrastructure Innovations

This document is an archived publication and may contain dated technical, contact, and link information

Federal Highway Administration > Publications > Focus > April 2008 > Green Highways: Partnering to Build More Environmentally Sustainable Roadways

April 2008

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Green Highways: Partnering to Build More Environmentally Sustainable Roadways

Going green is an everyday goal for the members of the Green Highways Partnership (GHP), a collaborative effort among the Federal Highway Administration (FHWA), U.S. Environmental Protection Agency (EPA), other Federal agencies, State transportation and environmental agencies, industry, trade associations, members of academia, and contractors to encourage environmentally friendly road building. These green practices include using recycled materials in highway construction, improving stormwater management to prevent toxins from leaching into streams and rivers, and protecting critical habitats and ecosystems during the planning and construction of highway infrastructure.

Context Sensitive Solutions

Marquette Interchange Aesthetic Treatment Honoring Community Heritage

Bicycle and Pedestrian Programs

Transportation Enhancements

Exemplary Human Environment Initiative

Secretary LaHood - DOT/HUD/EPA Sustainability Partnership

Livability is, “investing in a way that recognizes the unique character of each community. The era of one-size-fits-all transportation projects must give way to one where preserving and enhancing unique community characteristics, be they rural or urban, is a primary mission of our work rather than an afterthought.”

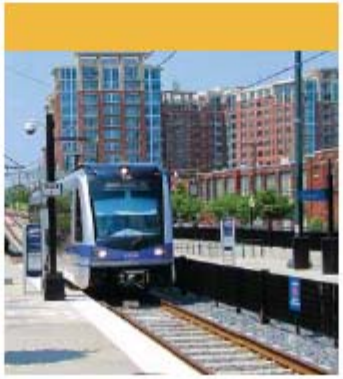
Highway's Role in Livability

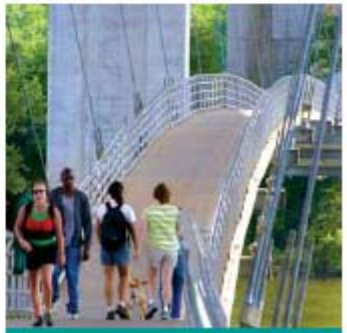
- Provide oversight and stewardship for transportation projects
- Support projects that reconnect communities
- Encourage highway projects that incorporate multiple travel modes
- Support travel demand and operational strategies
- Support ITS design and development
- Improve freight movement
- Improve road safety

U.S. Department of Transportation
Federal Highway Administration
Federal Transit Administration

Livability in Transportation Guidebook

Planning Approaches that Promote Livability





Transportation Planning for Sustainability Guidebook

Prepared for US DOT Federal Highway Administration

U.S. Department of Transportation
Federal Highway Administration

Federal Highway Administration, U.S. Department of Transportation

Sustainable Highways Self-Evaluation Tool

Home | Learn | Browse | Score

Welcome!

FHWA Sustainable Highways Self-Evaluation Tool

The Sustainable Highways Self-Evaluation Tool identifies characteristics of sustainable highways and provides procedures and techniques to help agencies and organizations apply and integrate sustainability best practices into highway and other roadway projects and programs within system planning, project development, and operations and maintenance. While the words "highway" and "roadway" are both used in this tool, the FHWA Sustainable Highways Self-Evaluations Tool is designed to be applied to all roadway projects, not just highways.

What do you want to do?

Learn ▸

A guided tour through this website to learn about sustainable highways and integrating sustainability best practices into Systems Planning, Project Development and Operations & Maintenance.

NCHRP 08-74 [Active]

Sustainability Performance Measures for State Departments of Transportation and Other Transportation Agencies

Project Data	
Funds:	$500,000
Staff Responsibility:	Lori L. Sundstrom
Research Agency:	Texas A&M Research Foundation
Principal Investigator:	Josias Zietsman
Effective Date:	7/9/2009
Completion Date:	7/8/2011

BACKGROUND

State departments of transportation and other transportation agencies are struggling with how to integrate sustainability into their investment and operating decisions. In part, this is because there are multiple definitions of sustainability, and they are variously applied at different scales and at different points in system planning and programming; project development, design, construction, and maintenance; and operations. Transportation agencies are incorporating the principles of Context Sensitive Solutions and environmental stewardship into their decisionmaking, and sustainability potentially presents at least a variation and at most an entirely new way of evaluating agency performance. Agencies need assistance in developing sustainability goals and objectives and related performance measures.

STARS (Sustainable Transportation Access Rating System) - Printable Version

STARS (Sustainable Transportation Access Rating System) is a performance-based planning and rating system helping transportation projects to:

- Improve access to jobs/school, housing and goods;
- Cut imported petroleum use and greenhouse gas emissions;
- Reduce transportation capital and operating costs.

STARS overview
3-Page summary of the Sustainable Transportation Access Rating System

STARS handout
One-page summary of the Sustainable Transportation Access Rating System

STARS Powerpoint
Slides from a presentation outlining the Sustainable Transportation Access Rating System

STARS Pilot Project Manual Overview
The STARS Pilot Project Manual is designed to help transportation professionals, elected officials, and citizens improve a transportation project's short-term and long-term performance. Click here to read chapter 1 to learn how a project could become a STARS Certified Pilot Project. Contact Peter Hurley for a copy of the full 127 page manual.

For more information please contact Peter Hurley at (503) 823.5007 or peter.t.hurley (at) portlandoregon.gov

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What's New

Safe Routes to School Spring newsletter is online (click for 1.25 mb PDF).

Sunday Parkways Dates, locations, and new hours announced. The short version? 4th Sunday of the month, May through September.

New Recreational Bike rides in Portland route maps -flat or hilly, short or long, there's a ride for you.

Bike Sharing explained - click here.

You can get there from here! New pedestrian bridge coming to SW Portland, connecting Lair Hill to South Waterfront. Folks on wheels will be able to use it too!

Great story on Gateway Green- unused land soon to be a park for kids, folks who like to walk, bike.

Check out the

STARS: Sustainable Transportation Access Rating System

STARS (Sustainable Transportation Access Rating System) is being designed as a voluntary transportation project planning and evaluation tool similar to the Leadership in Energy and Environmental Design (LEED) for building projects. STARS is still in the development stage and is expected to be fully operational in 2011. Although other scorecard type systems have been developed for transportation projects, STARS is taking a more comprehensive approach to incorporating a broad array of sustainability measures at the project level.

The RTC is is collaborating with a team of STARS developers in the Pacific Northwest, using the Highway 1 High Occupancy Vehicle (HOV) Lane project as a test bed for developing 12 credits of a total of 28 planned to comprise the fully operational STARS program. Through this process, the RTC is looking for ways to:

- Improve access opportunities for people and goods
- Maximize the benefit-to-cost ratio of potential project strategies
- Reduce transportation-related climate and energy pollution

The focus of STARS is on access, rather than mobility. Access is mode-neutral and assumes that there are multiple ways to meet a community's needs (e.g., compact communities, transit, virtual communications, driving). The purpose for using STARS for the Highway 1 HOV project is to:

- Clarify which project elements and potential strategies produce the greatest access, climate and energy, and cost-effective benefits
- Identify which project elements can be improved
- Incorporate elements into the project that better meet the performance goals over the full life cycle
- Provide a deeper understanding of potential benefits and costs of project options.

References

- Transportation Planning for Sustainability Guidebook
  - http://www.fhwa.dot.gov/hep/climate/sustainability/sustain.pdf
- Livability in Transportation Guidebook
  - http://www.fhwa.dot.gov/livability/case_studies/guidebook/livabilitygb10.pdf
- Sustainable Highways
  - http://www.sustainablehighways.org/

- NCHRP Report 08-74: Sustainability Performance Measures
  - http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=2500

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Buckle Up, Every Trip, Every Time