Sustainable Transportation Analysis & Rating System (STARS) Performance Measures

Transportation Research Board
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What is STARS?

Sustainable Transportation Analysis & Rating System

Like LEED + Living Building Challenge, but for transportation

Framework for developing and/or rating:
Projects
Plans
Programs

Voluntary, national system for public agencies & private sector consultants
What is STARS?

Performance-based system focused on:
• Access
• Climate + Energy
• Cost Effectiveness and local economic benefit

Multimodal: Compares performance across all modal strategies (unique to STARS)

Full life cycle analysis (unique to STARS)

12 credits developed in 2010; pilot project phase 2011
Triple Bottom Line Metrics

Equity

Environment  Economy

Climate and Energy  Cost Effectiveness Analysis

Integrated Process and Access
Who Is Developing STARS?

- North American Sustainable Transportation Council
- Portland Bureau of Transportation
- Santa Cruz County Regional Transportation Commission
- CH2M HILL
- Parsons Brinckerhoff
- Confluence Planning
- ECONorthwest
- David Evans & Associates
- Brightworks
- National peer reviewers (public, private, academic)
Credit Structure

Five “required” credits
24 optional credits
12 “core” credits developed for pilot phase
Not all credits applicable to all projects
Credits accrued to earn certification

Certification earned at:
• Completion of evaluation
• Implementation
• Performance: Operations
3 to 5 Step Process

Create a Multi-Disciplinary Team & Host Team Training & Sustainability Workshops

Backcast goals: Access, Climate + Energy, Econ

Evaluate Strategies
3 to 5 Step Process

Create a Multi-Disciplinary Team & Host Team Training & Sustainability Workshops
Backcast goals: Access, Climate + Energy, Econ Evaluate Strategies
Select Alternatives & Implement Monitor & Improve Performance
Analyze Strategies to Achieve Objectives

- Transportation Demand Management (TDM)
- Transportation System Management (TSM)
- Private Vehicle Capacity
- Transit, Bike & Pedestrian Capacity
- Land Use
Modal Access
Mode Split
Vehicle Miles Reduced
Travel Time Consistency
Travel Quality: Safety, User Satisfaction, Physical Activity
Modal Capacity
STARS Performance Measures

- Greenhouse Gas Emissions
- Fossil Fuel Consumption
- Cost Effectiveness
## STARS Performance Dashboard

<table>
<thead>
<tr>
<th>Category</th>
<th>Without STARS</th>
<th>With STARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel Time Consistency</td>
<td>-6%</td>
<td>+9%</td>
</tr>
<tr>
<td>Vehicle Miles Traveled</td>
<td>+8%</td>
<td>-7%</td>
</tr>
<tr>
<td>Mode Split</td>
<td>+7%</td>
<td>+12%</td>
</tr>
<tr>
<td>Greenhouse Gas Emissions</td>
<td>No change</td>
<td>-11%</td>
</tr>
<tr>
<td>Economic Benefit</td>
<td>Base case</td>
<td>+ $7m/year</td>
</tr>
</tbody>
</table>
Potential Benefits

Simplifies and standardizes projects and plans around “Triple Bottom Line” goals

Allows direct comparison of alternatives and projects using Triple Bottom Line metrics

Identifies “Green Dividend” — money leaving the local economy is retained by reducing fuel spending

Saves time and money via simplified process and focused goals and objectives

Increases healthy transportation: walking, cycling, transit by employees & residents

Helps meet economic, climate, livability and equity goals
Economic Benefits

- 24.3 Median commute miles per day for 33 most populous US metro areas
- 20.3 Average daily miles for Portland area commute
- 2.9 B Miles saved compared to median
- Transportation costs saved compared to median: $1.1 B
- $15 per hour Estimated value of time spent commuting
- 100 million hours less traveled per year saves: $1.5 B
- Total savings per year: $2.6 B
CA Highway 1 (Santa Cruz County)
C-TRAN Fourth Plain Boulevard

Sustainable Transportation Council Role:
• Sustainability workshops for project team & stakeholders
• Guidance to consulting team analyzing solutions
• Potential certification

Cost is $5K to $75K
STARS Pilot Projects

Characteristics of Best Potential Pilots:

- Congested corridor
- Cost constraints
- Interest in mix of road/auto, transit, bike, ped, operational & land use solutions
- Interest in sustainability: health, local economic benefit, reducing greenhouse gas emissions, equity
- Roadway corridor, transit corridor or multimodal corridor project
- Range of public opinions about potential solutions
Status & Next Steps

STARS-Project
• Pilot Project Application Manual published
• Applying 12 core credits to five projects in 2011
• Developing training program and credit certification team
• 2012 national roll-out

STARS-Plan
• Phase 1 goals, outcomes and process being developed in early 2011
Questions?

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