Satisfaction
Triple Win Plans & Projects

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Session Overview
STARS Overview
Case Studies
Lessons Learned
Game
Action Plans

What’s the Problem?
Conflicts
• Stakeholders
• Staff
• Electeds
• Performance measures
Lack of Time & Money
Lack of Targets
Narrow benefit/cost

Solutions
Planet
People
Prosperity

Economic Benefit

<table>
<thead>
<tr>
<th>Benefit Summary</th>
<th>Value</th>
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<tbody>
<tr>
<td>Miles saved</td>
<td>$1.1B</td>
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<tr>
<td>Hourly savings</td>
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<tr>
<td>Yearly savings</td>
<td>$2.6B</td>
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<tr>
<td>Total savings</td>
<td>$1.5B</td>
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Solutions
Triple Win
Backcasting
Mode neutral “heavy lifter” performance measures
Comprehensive benefit/cost
What is STARS?
Sustainable Transportation Analysis & Rating System

What is STARS?
Framework to shape, measure and prioritize plans, projects and strategies to achieve specific outcomes

STARS Principles
The Natural Step sustainability
Achieve Multiple Outcomes
Transparent
Accurate
Integrated/Systemic

Twelve Credit Categories
• Integrated process
• Community engagement
• Access
• Safety
• Health
• Equity
• Climate and energy
• Resilience
• Ecological function
• Cost effectiveness
• Economic benefit
• Innovation

How Does STARS Work?
1. Foundation
   STARS Workshop | Baseline Data | Survey Users

2. Frame
   Establish goals, performance measures and targets

3. Test
   Test strategies to meet targets | Make decisions | Get rated

4. Follow-up
   Monitor on-going performance
Five Ways to Use STARS

- Full STARS
- Assess
- Tune-Up
- Workshop
- Analyze

Who’s Using STARS

Case Study Slides

- Project overview
- Why they used STARS
- Performance dashboard
- Performance measures
- Innovative methodologies
- Lessons learned (dialogue)

Santa Cruz County Regional Transportation Plan – Project Overview

- Population = 260k
- 30 miles south of San Jose

Santa Cruz County Regional Transportation Council

Why They Used STARS

- Prior Plan Goals and Outcomes Not Aligned with Community Values
  - Reduce GHG Emissions
  - Improve Access and Mobility
  - Improve Transportation Choices
  - Supports Economic Vitality
- Develop a New Plan that Achieves Triple Bottom Line Targets
Performance Measures
- Pedestrian, Bicycle, and Transit Access
- Multimodal Network Quality
- Health
- GHG Emissions
- Fuel Consumption/Fuel Expenditures
- Safety
- Maintenance

Access Evaluation
- Pedestrian, Bicycle, and Transit Access
  - Goal: Increase share of population within 30 minutes of key destinations
- Transportation Disadvantaged Populations
  - Youth, Elderly, Low Income
  - Minority Populations

## Bicycle, Pedestrian, Transit Access

### Existing Conditions

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<tr>
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<td>15,200</td>
<td>4,300</td>
<td>10,900</td>
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<tr>
<td>Transportation Disadvantaged</td>
<td>5,800</td>
<td>1,600</td>
<td>4,200</td>
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<td>Minority</td>
<td>8,900</td>
<td>2,500</td>
<td>6,400</td>
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### Preferred Scenario

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### Regional Transportation Plan

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Bicycle, Pedestrian, Transit Access

Multimodal Network Quality
- MMNQ Complements Access
- Target: Improve MMNQ
- Measures Quality of Pedestrian and Bicycle Network
- Considered 6 methodologies
- “Pedestrian/Bicycle Environmental Quality” Measure Developed for Santa Cruz County

Multimodal Network Quality: Bicycle Existing Conditions

Multimodal Network Quality: Bicycle Preferred Scenario
Multimodal Network Quality

<table>
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<tr>
<th>Condition</th>
<th>Pedestrian Network</th>
<th>Bicycle Network</th>
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<tr>
<td>Max Possible Score</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Existing System Score</td>
<td>56</td>
<td>26</td>
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<tr>
<td>With Preferred Scenario Projects</td>
<td>72</td>
<td>37</td>
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Health

- More Active Transportation = Healthier Population
- 28% of all auto trips are less than 5 minutes ~ 2 miles or less
- Target – shift 33% of those trips to active transportation modes
- Post-process travel model to account for impacts of active transportation investments

Health

• Post-processing of model required
• Importance of speed consistency

Santa Cruz County RTP STARS Analysis Results Summary

GHG Emissions

• 5% Reduction in Per Capita GHG Emissions
• GHG Emissions Calculation Recipe
  – Total trips
  – Trip length
  – Trips by mode
  – Speed and speed consistency
  – Vehicle performance

GHG Emissions

• Santa Cruz is Congested
• Widen Freeway or Other Roads?
  – Induced Travel
  – Right of Way
• HOV Lanes
• TDM
• Arterial TSM
• TSP
• Tolling?
• Bike and Ped Infrastructure
Summary of Results
Santa Cruz Preferred Scenario

Summary of Results
Butte County Preferred Scenario

Lessons Learned

Why C-TRAN Chose to Use STARS

STARS quantifies non-typical project benefits and costs, including:
- Net cost to taxpayers
- Local economic benefit
- Climate & energy implications

Fourth Plain TIP Dashboard

<table>
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<tr>
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<th>TSM</th>
<th>BRT</th>
<th>...over the 20 year lifetime of the project...</th>
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<td>$12.91</td>
<td>$8.02</td>
<td>per boarding ride</td>
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<tr>
<td></td>
<td>$33.5 M</td>
<td>$93.4 M</td>
<td>amount saved by local taxpayers</td>
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<tr>
<td></td>
<td>$71.6 M</td>
<td>$125.3 M</td>
<td>transportation costs saved</td>
</tr>
<tr>
<td></td>
<td>$61,000</td>
<td>981,700</td>
<td>gallons of gasoline saved</td>
</tr>
<tr>
<td></td>
<td>5,000</td>
<td>8,700</td>
<td>metric tons of CO2 (GHG) not emitted</td>
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Determining Cost Effectiveness using a Triple Bottom Line Analysis

Public Cost
• Capital Cost
• O&M Cost

Social Cost
• Cost of Carbon

Private Cost
• Cost of Fuel in the Study Area
• Non-Fuel Vehicle Operating Cost

Lessons Learned

Conduct a workshop
Taxpayer perspective > agency perspective
Power of backcasting
Engage decision-makers early & continuously

4 Types of Transportation Cyclists

Low Stress Analysis Results

New walk trips
New bike trips
Vehicle miles reduced
Mode shift
Economic benefit
Greenhouse gas reduction

Lessons Learned

STARS can provide valuable information at small scale
Increasing walking and cycling requires much more than building sidewalks and bike lanes
Game!!

• Thinking in triple win terms
• Group exercise
• Performance Measures (blue)
• Targets (yellow)
• Rate them as:
  – Single Win: Achieve only one goal
  – Double Win: Achieve two goals
  – Triple Win: Achieve three goals

Call for Projects

Assess
Tune-Up
Workshop
Analyze

Action Plan

What did you hear that you may want to investigate or use?
What plans or projects might they apply to?
What actions will you take next?

How were the STARS findings used?

• Evaluation Criteria
  • Helped to determine the LPA
• Funding
  • $3 million Regional Mobility Grant from WSDOT
  • Section 5309 Very Small Starts Grant

Satisfaction

Triple Win Plans & Projects

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(206) 576-4217

“How Heavy Lifter” Performance Measures

1. VMR = climate, fuel consumption, economic benefit
2. Mode share = health
3. Fatalities & Injuries = equity, health, VMT
4. Multimodal Score = VMT, mode share, health, safety, economic benefit
5. Cost Effectiveness = all of the above