Sustainable Transportation
Performance Measures

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EPA Office of Sustainable Communities

Conference on Performance Measures for Transportation and Livable Communities

Austin, Texas – 7 September 2011
1. The Partnership for Sustainable Communities and EPA’s role
2. The Partnership and performance measures
3. Recent EPA work on performance measures for sustainable communities
EPA and Sustainable Communities

• For EPA, conversation began in early 1990s
• Brownfield redevelopment
• Focus on private sector
• “Sustainable” had no traction
• “Smart growth” helped build coalition
Environmental and Social Benefits of Sustainable Communities

- Reduced Emissions and Improved Air Quality
- Reduced Water Demand and Water Impacts
- Reclaimed Abandoned and Hazardous Lands
- More Walkable, Healthier Neighborhoods
- Enhanced Quality of Life and Strengthened Social Fabric
Economic Benefits of Sustainable Communities

• Reduced infrastructure expenses
• Energy and water cost savings
• Attraction of local economic development
• Reduced health care costs
• Better connection of workers to education and job opportunities
• Reduced household expenditures
• Revitalization of neighborhoods and communities
Our mission

The US EPA Office of Sustainable Communities will **support development** that …

- **saves money** for the public and for households,
- **provides choice** in where to live and how to travel,
- **makes people healthier**, and
- **protects the environment** by conserving land and energy and improving air and water quality.
Since 1996, we have been working to address these challenges by:

- Changing the conversation
- Working with the willing
- Changing the rules
EPA Office of Sustainable Communities

Changing the Conversation

February 4-6, 2010
Seattle, Washington

This
Is
Smart
Growth

Getting to Smart Growth
The Built Environment for Sustainability
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Working with the Willing
Technical assistance to localities
Governor’s Institute for Community Design
Work with states to revise stormwater permit requirements
EPA Office of Sustainable Communities

OSC Technical Assistance and Workshops 2005 - 2010

Legend:
- Red dot: Smart Growth Technical Assistance
- Green dot: Greening America's Capitals
- Blue stripes: Region 8 Partnership Summit on Rural Development
- Brown stripes: Region 9 Partnership Summit on TOD
- Pink area: Governor's Institute Workshop
- Light green area: State Stormwater Technical Assistance

Map created: 1/14/2011
Public Support for Sustainable Communities

National opinion survey from 2011:

- Majority of Americans – regardless of political affiliation - support sustainable communities (79% overall)

- Majority of Americans believe their region needs more sustainable communities (66% overall)

- Most Americans believe that sustainable communities are an important part of rebuilding the national economy (80% overall)

The poll also found overwhelming public support for the Partnership’s core principles.

Partnership for Sustainable Communities

Align HUD, DOT & EPA programs
Develop livability measures and tools
Redevelop underutilized sites
Redefine housing affordability
Provide a vision for sustainable growth
Enhance integrated planning & investment
Partnership Livability Principles

- Enhance Economic Competitiveness
- Provide More Transportation Choices
- Promote Equitable Affordable Housing
- Support Existing Communities
- Coordinate Policies and Leverage Investments
- Value Communities and Neighborhoods
Why Measure Performance?

• Quantify the consequences of decisions
• Predict, evaluate, and monitor accomplishment of public objectives
• Communicate to decision makers
Performance Measures: Structure and Examples

Broad Outcomes
- Lower Household Transportation Costs
- Lower Transportation Related Emissions
- Improved Mobility

Indicators of Progress
- Shorter car trips
- More walking, biking and transit use
- Improved safety

Key Strategies
- Range of housing opportunities in major activity centers
- More walkable neighborhoods
- Redevelopment in more accessible places
Principle #1 – More Transportation Choices

Develop more convenient reliable, safe and economical transportation alternatives

**Broad outcomes …**
- Lower HH Transportation Costs
- Improved Public Health
- Reduced Oil Dependence
- Improved Air Quality
- Reduced GHG Emissions

**Indicators of Progress…**
- More trips made on foot or by bike
- Increased transit ridership
- Shorter car trips

**Key strategies…**
- Expanded Transit Services
- Improved Transit Performance
- More Homes and Jobs Near Transit
- More Housing Opportunities Near Major Activity Centers
- More Homes and Jobs in Walkable Places

**Unique to this Principle**
- Shared by another principle
Principle #2 – Equitable Affordable Housing

Expand access to location and energy efficient housing choices

**Broad outcomes**
- Lower Combined Cost of Housing & Transportation
- Improved Public Health
- Reduced Oil Dependence
- Improved Air Quality
- Reduced GHG Emissions

**Indicators of Progress**
- More trips made on foot or by bike
- Increased transit ridership
- Shorter car trips

**Key strategies**
- More Homes in Walkable Neighborhoods
- More Housing Opportunities Near Major Activity Centers
- More Affordable Housing in Major Employment Centers

Unique to this Principle

Shared by another principle
So Where Are We Now?

Early goal (2009-10)
- Single set for Partnership work
- Grantees as well as program results

Current thinking
- Pool of measures
- Adapted to specific program requirements
- With solid data back-end
- Guidelines to build capacity
New Guidebook

Highlights best practices by MPOs and States

Sustainable transportation goals
• Safety
• Environmental
• Economic
• Equity
### Performance Measurement in Decision Making Steps

#### Decision Making Steps

<table>
<thead>
<tr>
<th>Phase</th>
<th>Task 1</th>
<th>Task 2</th>
<th>Task 3</th>
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<tbody>
<tr>
<td>Land use visioning</td>
<td>Identify range of land use scenarios</td>
<td>Compare alternative land use scenarios and select preferred scenario</td>
<td>Communicate benefits of selected scenario</td>
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<tr>
<td>Long range transportation planning</td>
<td>Set vision and goals – compare infrastructure and policy packages</td>
<td>Evaluation and prioritize projects</td>
<td>Evaluate final plan and communicate benefits</td>
</tr>
<tr>
<td>Programming (and grant awards)</td>
<td>Evaluation and prioritize projects</td>
<td>Evaluation and prioritize projects</td>
<td>Evaluate final program and communicate benefits</td>
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<tr>
<td>Corridor studies</td>
<td>Identify range of solution sets to be considered</td>
<td>Evaluate alternatives and select solution set</td>
<td>Evaluate final plan and communicate benefits</td>
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<tr>
<td>Environmental review</td>
<td>Identify range of alternatives to be considered</td>
<td>Evaluate alternatives and select preferred alternative</td>
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<tr>
<td>Performance Monitoring</td>
<td>Observe activity trends</td>
<td>Evaluate performance of investments</td>
<td>Identify problems with achieving objectives</td>
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Examples of Sustainable Transportation Performance Measures
Transit Accessibility

Measures the ability of people to reach destinations using transit

Metrics
- Distance to stops
- Destinations accessible

Source: Atlanta Regional Commission
VMT per Capita

Measures the amount of vehicle activity, normalized by population

Metrics

- VMT per capita
- Light-duty VMT per capita
- VMT per employee

Source: Metropolitan Transportation Commission
Transportation Affordability

Measures the cost of transportation relative to income

Measured costs can include

- Transit fares
- Vehicle costs (own & operate)
- Housing costs

Source: Metropolitan Transportation Commission
Bicycle Counts and Crashes

Source: City of Portland
Application of Sustainable Transportation Performance Measures
Long Range Planning

Visioning stage of transportation planning

- Explore impacts of major alternatives in policy and investment direction
- Test ability to achieve regional sustainability goals

<table>
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<tr>
<th>Topic Area</th>
<th>Target</th>
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<tr>
<td>Safety</td>
<td>By 2035, reduce the number of pedestrian, bicyclist, and motor vehicle occupant fatalities plus serious injuries each by 50% compared to 2005.</td>
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<tr>
<td>Congestion</td>
<td>By 2035, reduce vehicle hours of delay (VHD) per person by 10% compared to 2005.</td>
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<tr>
<td>Freight reliability</td>
<td>By 2035, reduce vehicle hours of delay truck trip by 10% compared to 2005.</td>
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<td>Climate change</td>
<td>By 2035, reduce transportation-related carbon dioxide emissions by 40% below 1990 levels.</td>
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<td>Active transportation</td>
<td>By 2035, triple walking, biking, and transit mode share compared to 2005.</td>
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<td>Basic infrastructure</td>
<td>By 2035, increase by 50% the number of essential destinations accessible within 30 minutes by trails, bicycling and public transit or within 15 minutes by sidewalks for all residents compared to 2005.</td>
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<td>Clean air</td>
<td>By 2035, ensure zero percent population exposure to at-risk levels of air pollution.</td>
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<td>Travel</td>
<td>By 2035, reduce vehicle miles traveled per person by 10% compared to 2005.</td>
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<td>Affordability</td>
<td>By 2035, reduce the average household combined cost of housing and transportation by 25% compared to 2000.</td>
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<tr>
<td>Access to daily needs</td>
<td>By 2035, increase by 50% the number of essential destinations accessible within 30 minutes by bicycling and public transit for low-income, minority, senior, and disabled populations compared to 2005.</td>
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Source: Portland Metro
Corridor Level Evaluation

Source: Hillsborough County MPO (Tampa, FL)
## Performance Monitoring

<table>
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<tr>
<th>What We Track</th>
<th>How is the DVRPC Region Performing?</th>
<th>Trend</th>
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<tr>
<td><strong>TR 3:</strong> Is transit ridership increasing?</td>
<td>While transit ridership has experienced some fluctuation, it has increased in the last 5 years.</td>
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<td><strong>TR 4:</strong> Has the number of deficient bridges in need of rehabilitation or replacement decreased?</td>
<td>The number of bridges identified as structurally deficient in the DVRPC region has remained steady, but remains twice as high as the acceptable level set by FHWA in its current strategic plan.</td>
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<td><strong>TR 5:</strong> Are roads better maintained?</td>
<td>The region saw a slight increase in road miles considered to be deficient, mostly due to NJDOT’s stricter standards.</td>
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<td><strong>TR 6:</strong> Are fewer people driving to work alone?</td>
<td>The number of people driving to work by themselves continues to increase and is now 73% of all commuters.</td>
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<td><strong>TR 7:</strong> Are people driving less?</td>
<td>There are more cars and more drivers driving more miles every year in the region. The region appears to be more auto-dependent.</td>
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*Source: Delaware Valley Regional Planning Commission*
Thank you

For more information:

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epa.gov/smartgrowth
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