

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



Presentation Roadmap

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



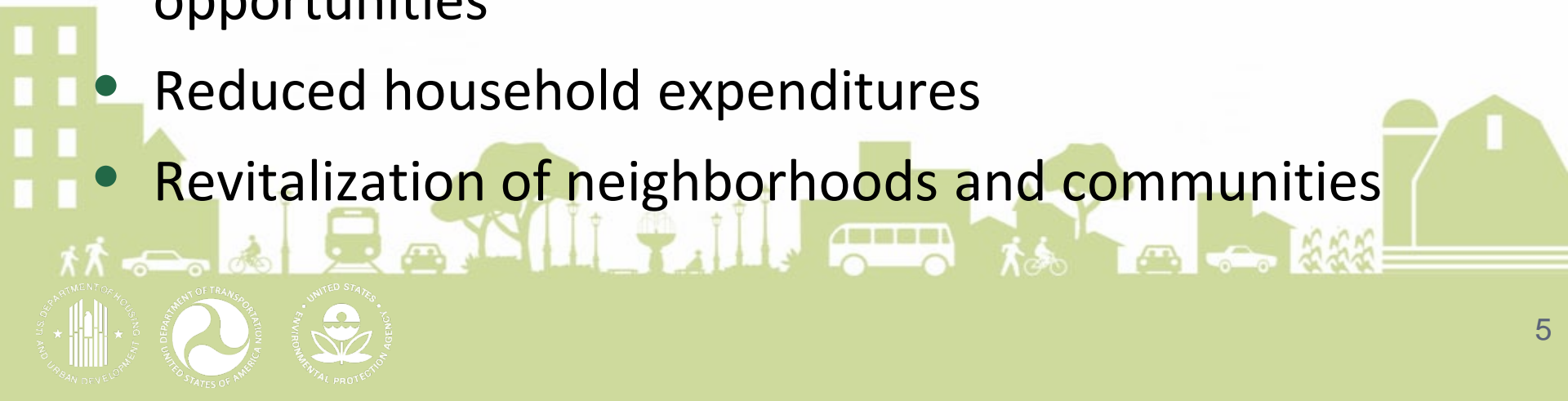
EPA and Sustainable Communities

- For EPA, conversation began in early 1990s
- Brownfield redevelopment
- Focus on private sector
- “Sustainable” had no traction
- “Smart growth” helped build coalition



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.



EPA Office of Sustainable Communities

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

Presented by the
Local Government Commission

This
Is
Smart
Growth

2009

NATIONAL AWARD FOR Smart Growth ACHIEVEMENT

Getting to Smart Growth
HOW TO GET THERE AND WHY IT'S WORTH THE TRIP

SMART GROWTH NETWORK

EPA

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
UNITED STATES OF AMERICA
ENVIRONMENTAL PROTECTION AGENCY

EPA Office of Sustainable Communities

Changing the Rules



EPA Regulations: *Atlantic Station*

Image courtesy of www.atlanticstation.com

National (Voluntary) Code: *International Green Construction Codes*

Voluntary Standards:
Thompson Middle School, Newport, RI
Image courtesy of Wayne Soverns, Jr.



People Helping People Build a Safer World™



**SPRING 2010 GROUP A
FINAL ACTION HEARINGS
DALLAS, TX**



EPA Office of Sustainable Communities

Working with the Willing

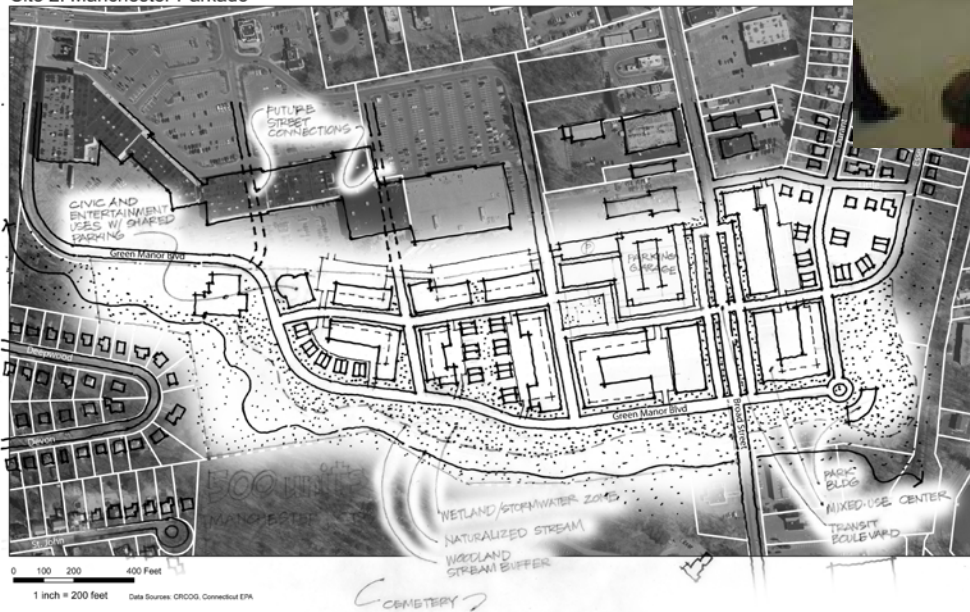
Technical assistance to localities

Governor's Institute for Community Design

Work with states to revise stormwater permit requirements



Site 2: Manchester Parkade

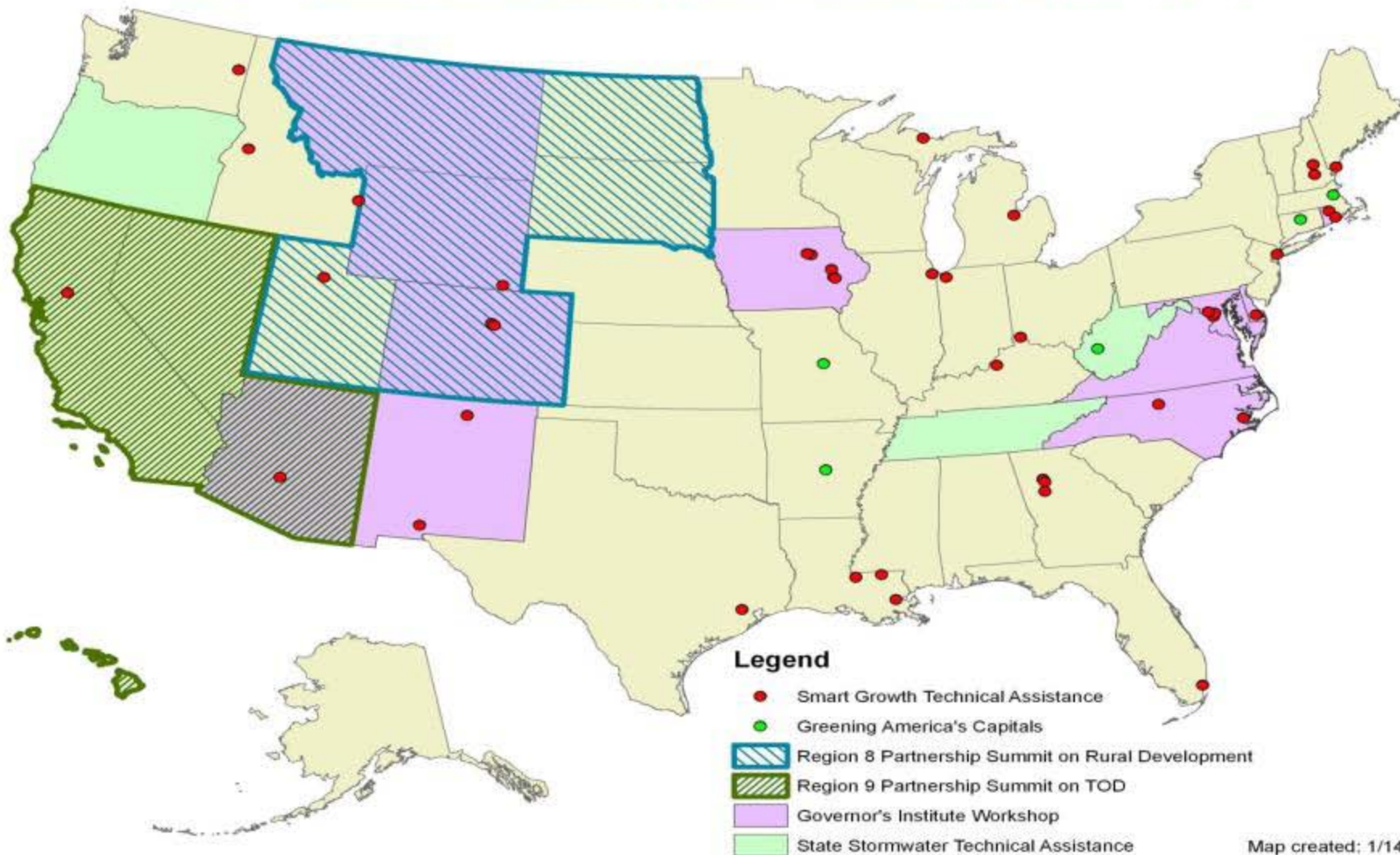


Connecticut Technical Assistance on Sustainable Housing, May 2009

Images courtesy of CRCOG, WRT

EPA Office of Sustainable Communities

OSC Technical Assistance and Workshops 2005 - 2010



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)*

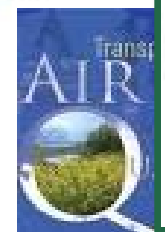
The poll also found overwhelming public support for the Partnership's core principles.



Source: "Building for the 21st Century: American support for sustainable communities", March 2011.
<http://www.smartgrowthamerica.org/documents/building-for-the-21st-century.pdf>



BUILDING A FRAMEWORK FOR HEALTHY HOUSING



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



**Provide More
Transportation Choices**



**Promote Equitable
Affordable Housing**



**Enhance Economic
Competitiveness**



**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

Unique to this Principle

Shared by another principle

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



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

Unique to this Principle

Shared by another principle

Key strategies...

More Homes in Walkable Neighborhoods

More Housing Opportunities Near Major Activity Centers

More Affordable Housing in Major Employment Centers

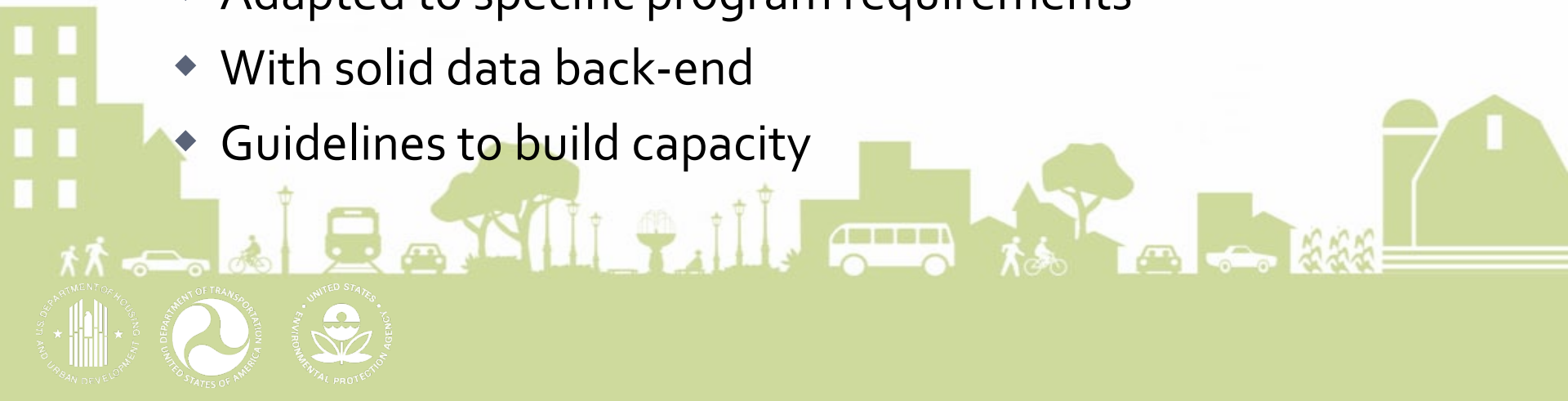
So Where Are We Now?

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



EPA
U.S. Environmental Protection Agency

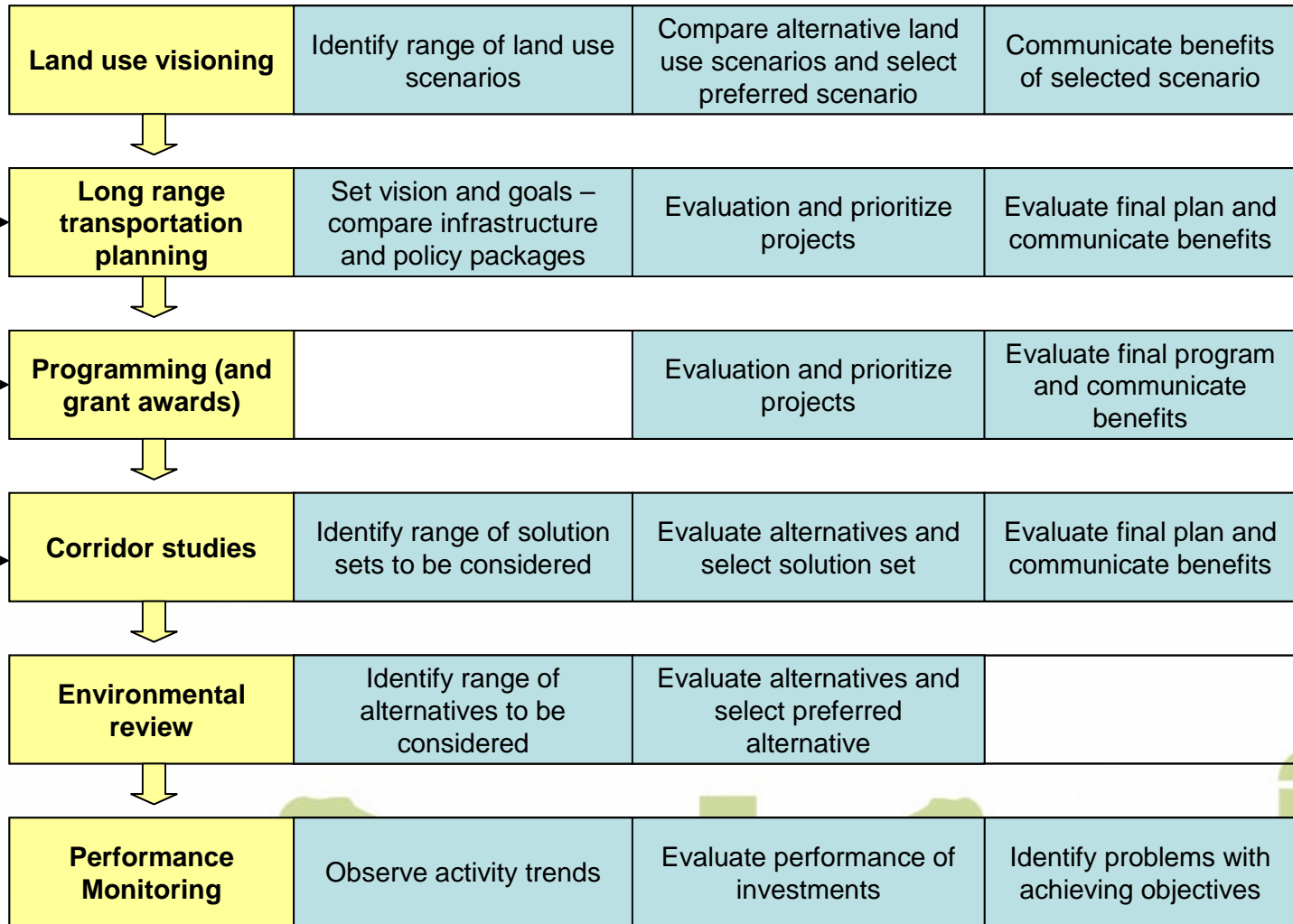
U.S. EPA Report
August 2014
www.epa.gov/transport



Performance Measurement in Decision Making Steps

Decision Making Steps

Phases in Transportation Decision Making



Examples of Sustainable Transportation Performance Measures

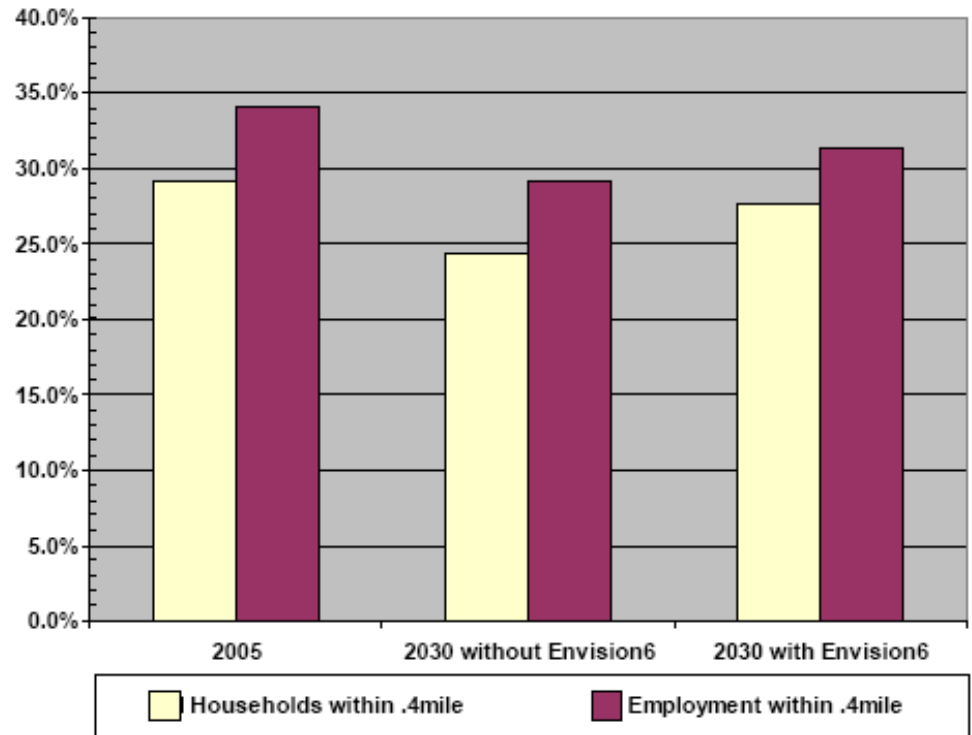


Transit Accessibility

Measures the ability of people to reach destinations using transit

Metrics

- ◆ Distance to stops
- ◆ Destinations accessible



Source: Atlanta Regional Commission

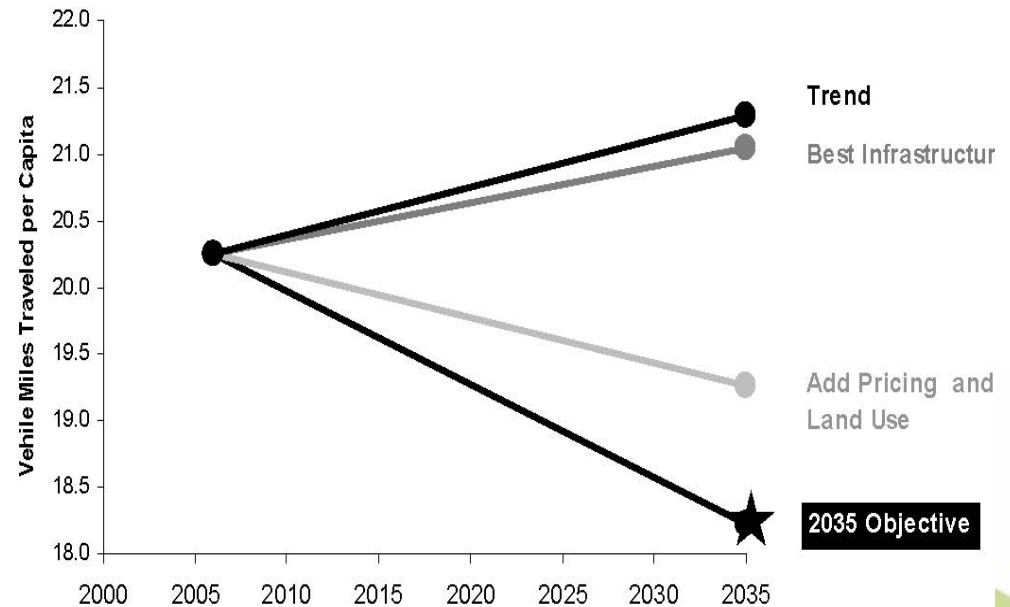


VMT per Capita

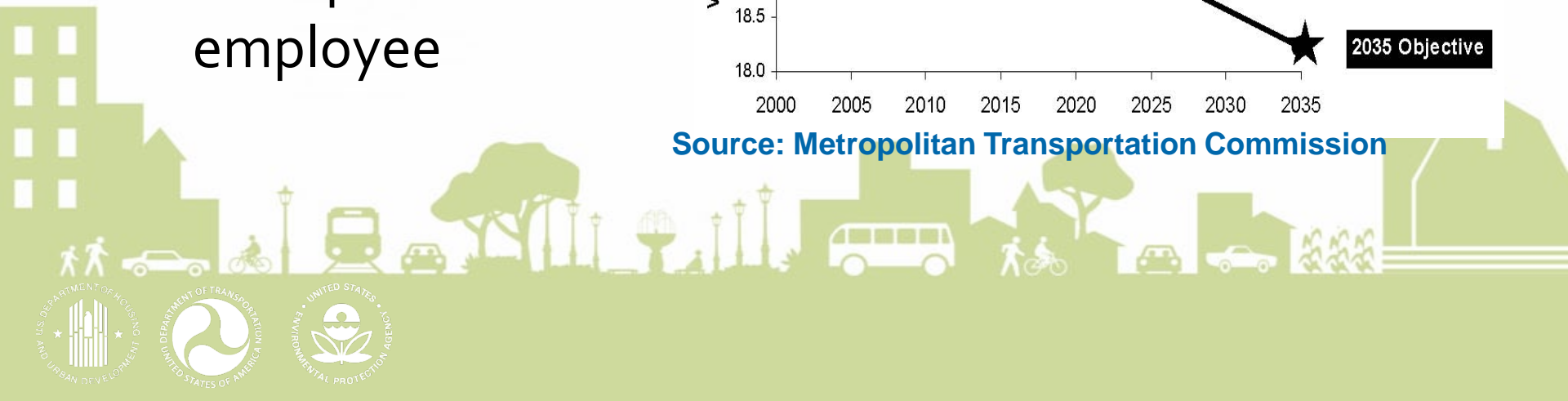
Measures the amount of vehicle activity, normalized by population

Metrics

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



Source: Metropolitan Transportation Commission

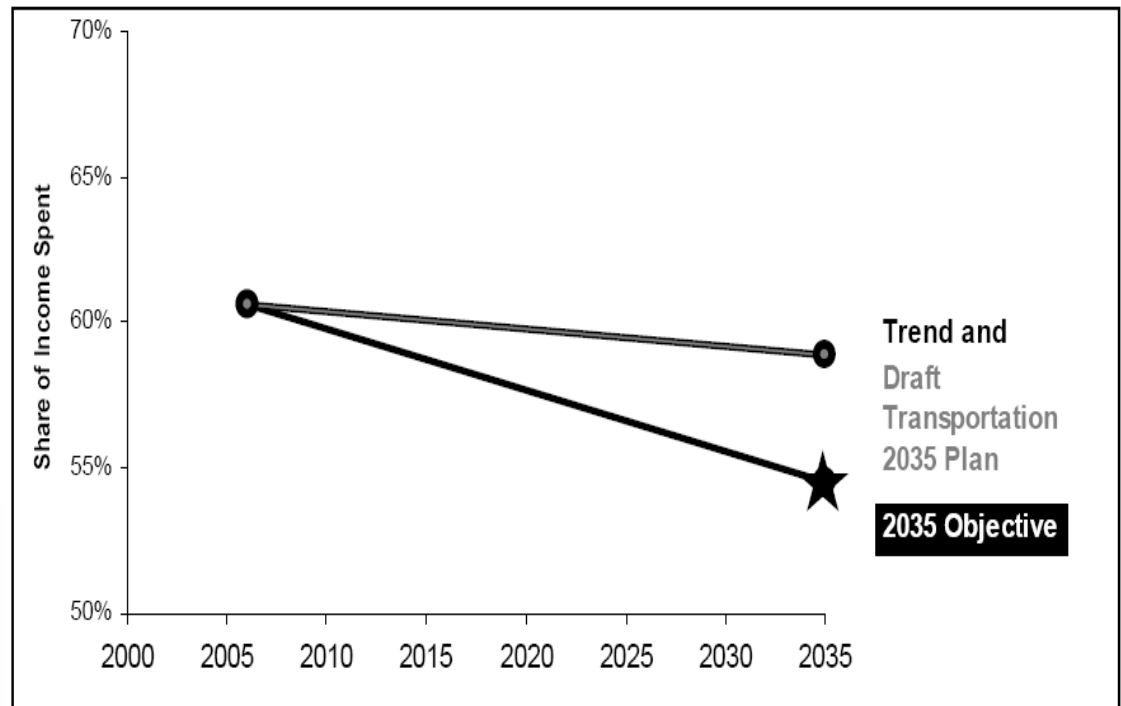


Transportation Affordability

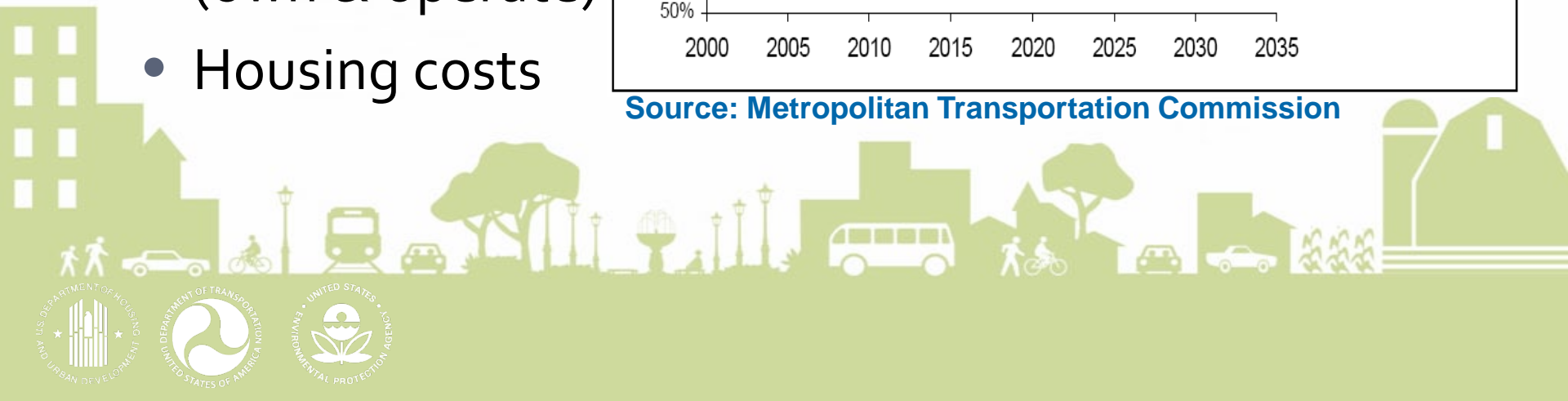
Measures the cost of transportation relative to income

Measured costs can include

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

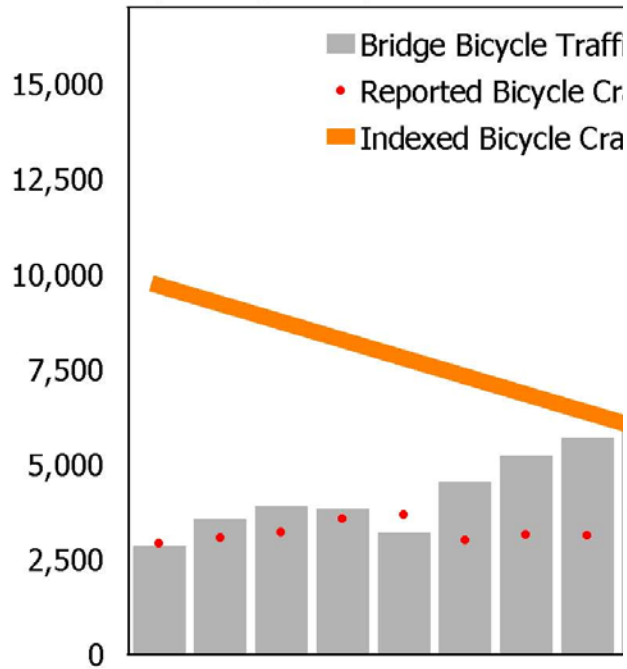


Source: Metropolitan Transportation Commission



Bicycle Counts and Crashes

Cyclists per Day



Bridge Bicycle Traffic	2,850	3,555	3,885	3,830	3,207	4,520	5,225	5,690
Reported Bicycle Crashes	155	163	171	189	195	160	167	166
Indexed Bicycle Crash Rate (Trend Line)	544	459	440	493	514	354	320	292

Source: City of Portland



Application of Sustainable Transportation Performance Measures



Long Range Planning

Visioning stage of transportation planning

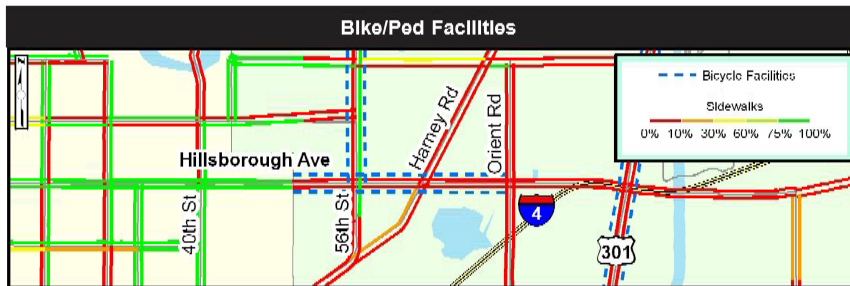
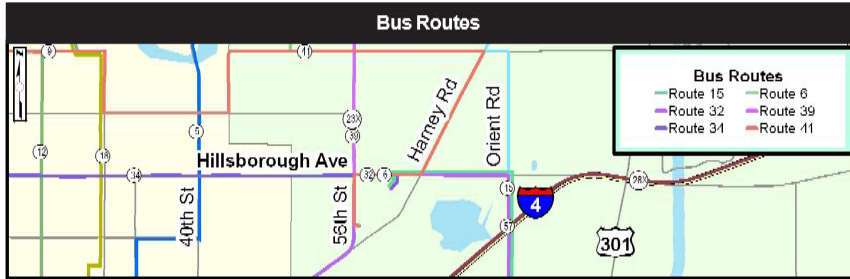
- Explore impacts of major alternatives in policy and investment direction
- Test ability to achieve regional sustainability goals

Topic Area	Target
Safety	By 2035, reduce the number of pedestrian, bicyclist, and motor vehicle occupant fatalities plus serious injuries each by 50% compared to 2005.
Congestion	By 2035, reduce vehicle hours of delay (VHD) per person by 10% compared to 2005.
Freight reliability	By 2035, reduce vehicle hours of delay truck trip by 10% compared to 2005.
Climate change	By 2035, reduce transportation-related carbon dioxide emissions by 40% below 1990 levels.
Active transportation	By 2035, triple walking, biking, and transit mode share compared to 2005.
Basic infrastructure	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.
Clean air	By 2035, ensure zero percent population exposure to at-risk levels of air pollution.
Travel	By 2035, reduce vehicle miles traveled per person by 10% compared to 2005.
Affordability	By 2035, reduce the average household combined cost of housing and transportation by 25% compared to 2000.
Access to daily needs	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.

Source: Portland Metro



Corridor Level Evaluation



	2000	2004
Corridor Length (mi.)	2.50	2.51
Weighted V/MSV Ratio	1.25	1.10

Transit Service				
Route Number	Passengers/Revenue Hour	Headway (minutes)		
		AM	Mid	PM
6	24.32	30	30	30
15	15.58	45	45	45
32	14.87	35-60	35-60	35-60
39	18.04	60	60	60
41	11.04	60	60	60






Sidewalk Availability	
% North Side	% South Side
29.3%	29.3%

Bicycle Facility Availability	
% North Side	% South Side
70.3%	70.3%

Source: Hillsborough County MPO (Tampa, FL)



Performance Monitoring

What We Track	How is the DVRPC Region Performing?	Trend
TR 3: Is transit ridership increasing?	While transit ridership has experienced some fluctuation, it has increased in the last 5 years.	
TR 4: Has the number of deficient bridges in need of rehabilitation or replacement decreased?	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.	
TR 5: Are roads better maintained?	The region saw a slight increase in road miles considered to be deficient, mostly due to NJDOT's stricter standards.	
TR 6: Are fewer people driving to work alone?	The number of people driving to work by themselves continues to increase and is now 73% of all commuters.	
TR 7: Are people driving less?	There are more cars and more drivers driving more miles every year in the region. The region appears to be more auto-dependent.	

Source: Delaware Valley Regional Planning Commission



Thank you

For more information:

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epa.gov/smartgrowth
sustainablecommunities.gov

