



# INVEST

## Self-assessment tool for transportation sustainability

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Federal Highway Administration



# INVEST 1.0 – FHWA’s Sustainability Tool



**Version 1.0**  
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## Welcome to INVEST Version 1.0!

### Announcements

The Federal Highway Administration (FHWA) is seeking to partner with State departments of transportation (DOTs), metropolitan planning organizations (MPOs), Federal lands, and local governments on utilizing INVEST 1.0, FHWA's voluntary self-assessment tool, to assess and enhance the sustainability of their projects and programs. For more information, see the [solicitation](#).

FHWA launched INVEST 1.0 on October 10, 2012. View the [webcast launch](#), including remarks from Deputy Administrator Greg Nadeau, video footage of INVEST in action in four parts of the country, an overview of how the tool works, and interviews with transportation agencies that piloted the tool.

### What do you want to do?

#### Learn

A guided tour through the INVEST website to learn about sustainable highways and integrating sustainability best practices into projects and programs.

#### Browse

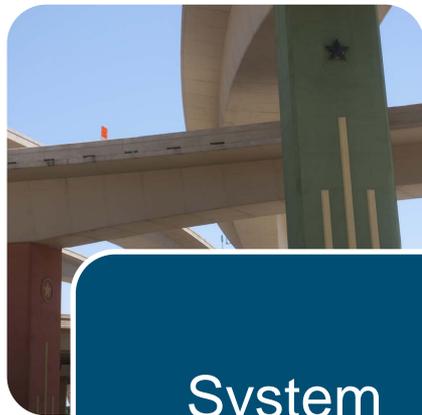
A gateway to browse the complete set of INVEST criteria that can be used to evaluate the sustainability of projects and programs.

INVEST, the FHWA Sustainable Highways Self-

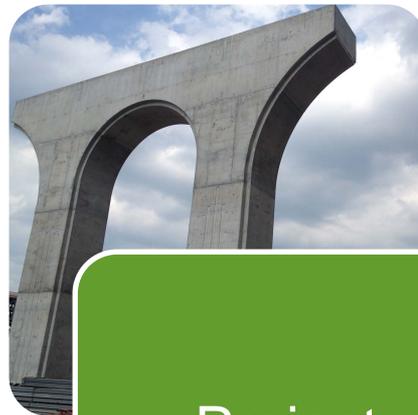
- Translates broad sustainability principles into specific actions
- Web-based self-assessment tool
- Helps transportation agencies assess and improve sustainability (economic, social, environmental outcomes)
- Voluntary
- Free, easy to use
- Practical
- Users: state DOTs, MPOs, local governments, contractors, others

[www.sustainablehighways.org](http://www.sustainablehighways.org)

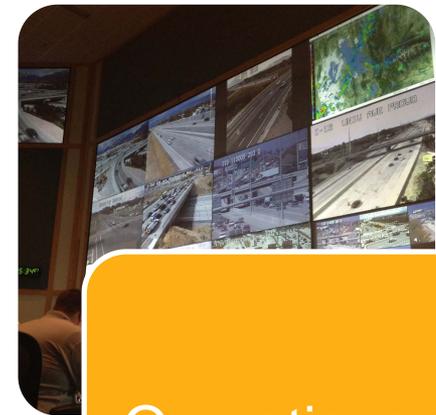
# Supporting the Entire Life Cycle



System  
Planning &  
Processes



Project  
Development



Operations &  
Maintenance

# Evolution of INVEST – Collaborative effort



## Beta Test Version

- Released Fall 2010
- Over 700 comments from AASHTO, EPA, SMEs, others

## Pilot Test Version

- Released Fall 2011
- Over 1200 comments from pilot test participants, SMEs, FTA, others

## Version 1.0

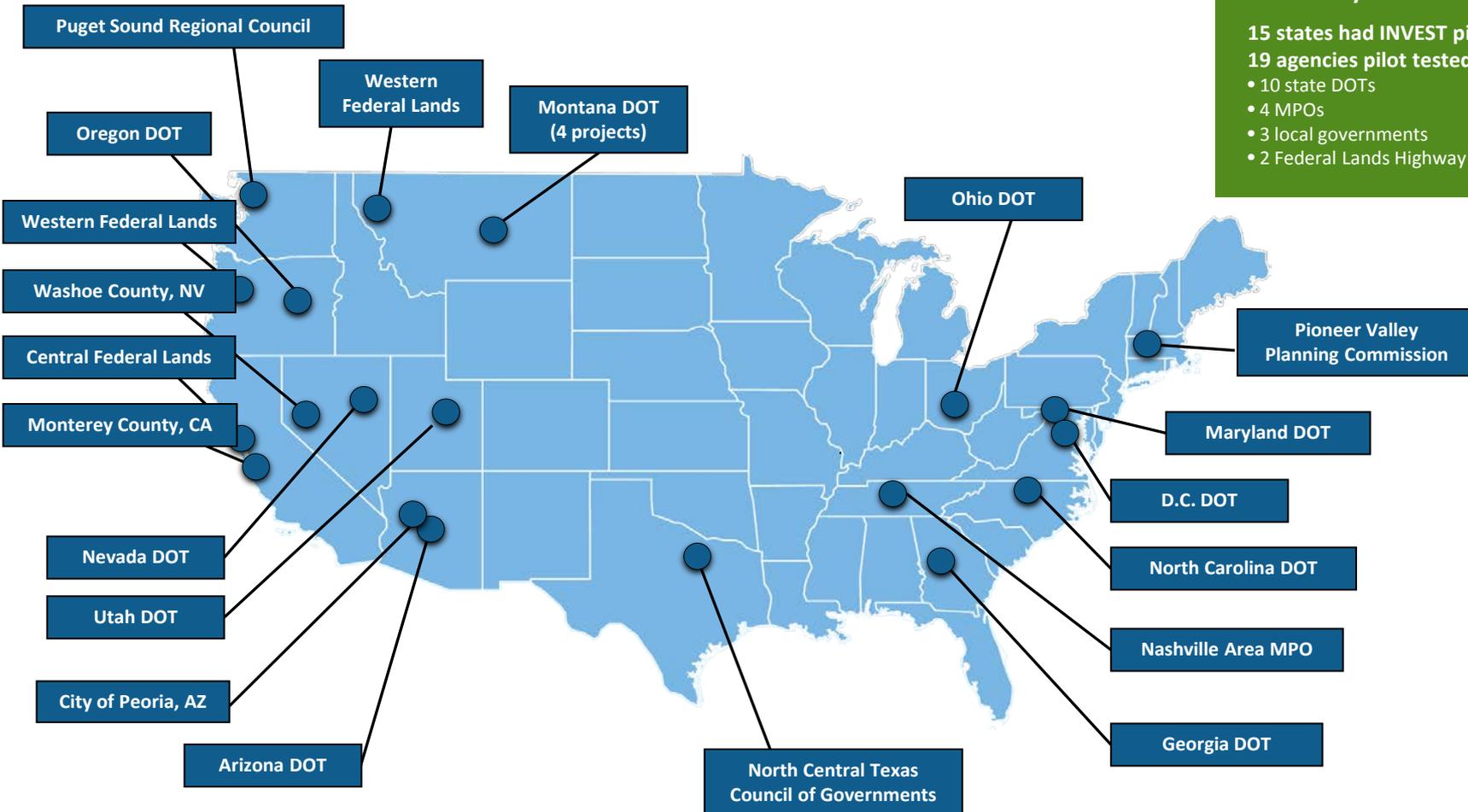
- Released October 2012

# INVEST Pilot Sites



## By the Numbers

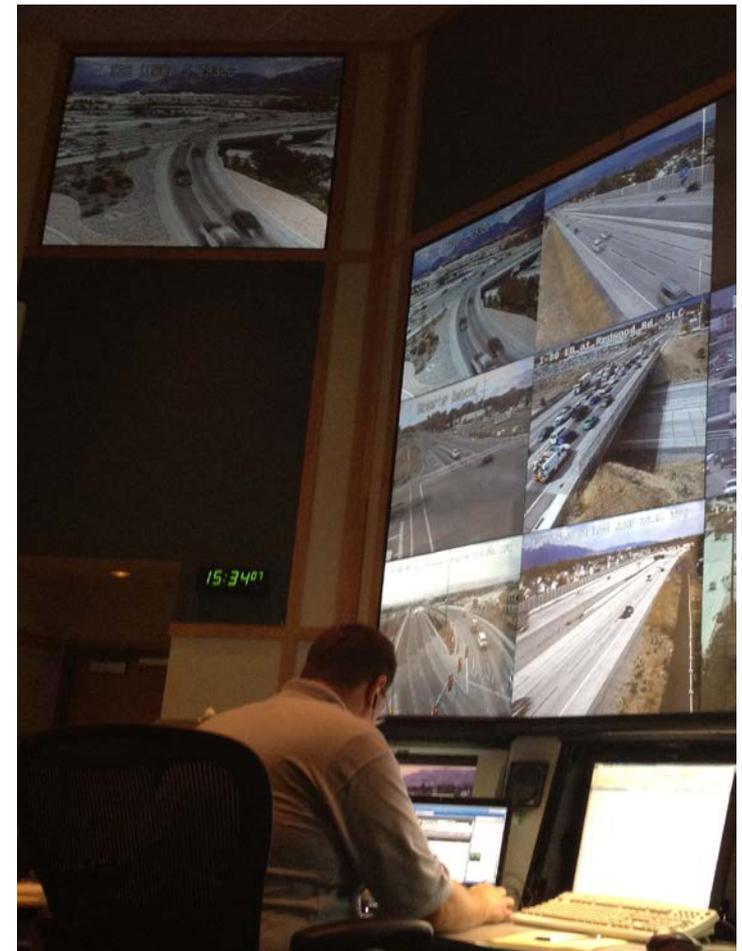
- 15 states had INVEST pilot projects
- 19 agencies pilot tested INVEST:
  - 10 state DOTs
  - 4 MPOs
  - 3 local governments
  - 2 Federal Lands Highway Divisions



## Maintaining a State-Wide Highway System

*INVEST Role: Operations & Maintenance*

- Traffic monitoring & coordination across 6K+ center-line miles of highways
- Key goals: preserve infrastructure, optimize mobility, improve safety, strengthen the economy
- Budget pressures driving need for more sustainable practices
- Used INVEST to ID inexpensive ways to promote sustainability, like better data about pavement conditions



# OM-12 Road Weather Management System

## Implement Standard Operating Procedure (SOP) for Snow and Ice Control (2 points)

- › Salt reduction
- › Anti-icing program
- › Chemical storage BMPs
- › Equipment calibration
- › Fuel efficiency through planning and route optimization

- **SCORE: 2 points**



### Utah Snow SOP highlights all 3 areas of sustainability:

- › Saves \$124,000 per year compared to standard practice (economic)
- › Reduces the amount of salt used by 30 percent (environmental)
- › Improves road safety and accessibility (social)

# Why Use INVEST?

- Improve economic, social, and environmental outcomes of value to your state or region
- Save money
- Identify practical best practices you can implement
- Helpful framework for internal discussion
- Helps you communicate to stakeholders and demonstrate achievement based on objective standards
- Standard benchmark for continuous improvement



# System Planning Criteria



- SP-1 Integrated Planning: Economic Development and Land Use
- SP-2 Integrated Planning: Natural Environment
- SP-3 Integrated Planning: Social
- SP-4 Integrated Planning: Bonus
- SP-5 Access & Affordability
- SP-6 Safety Planning
- SP-7 Multimodal Transportation and Public Health
- SP-8 Freight and Goods Movement
- SP-9 Travel Demand Management
- SP-10 Air Quality
- SP-11 Energy and Fuels
- SP-12 Financial Sustainability
- SP-13 Analysis Methods
- SP-14 Transportation Systems Management & Operations
- SP-15 Linking Asset Management and Planning
- SP-16 Infrastructure Resiliency
- SP-17 Linking Planning and NEPA



# Project Development Criteria



- |      |                                       |       |   |
|------|---------------------------------------|-------|---|
| PD-1 | Economic Analyses                     | PD-10 | Pedestrian Access                                     |
| PD-2 | Lifecycle Cost Analysis               | PD-11 | Bicycle Access  |
| PD-3 | Context Sensitive Project Development | PD-12 | Transit & HOV Access                                  |
| PD-4 | Highway and Traffic Safety            | PD-13 | Freight Mobility                                      |
| PD-5 | Educational Outreach                  | PD-14 | ITS for System Operations                             |
| PD-6 | Tracking Environmental Commitments    | PD-15 | Historical, Archaeological, and Cultural Preservation |
| PD-7 | Habitat Restoration                   | PD-16 | Scenic, Natural, or Recreational Qualities            |
| PD-8 | Stormwater                            | PD-17 | Energy Efficiency                                     |
| PD-9 | Ecological Connectivity               | PD-18 | Site Vegetation                                       |

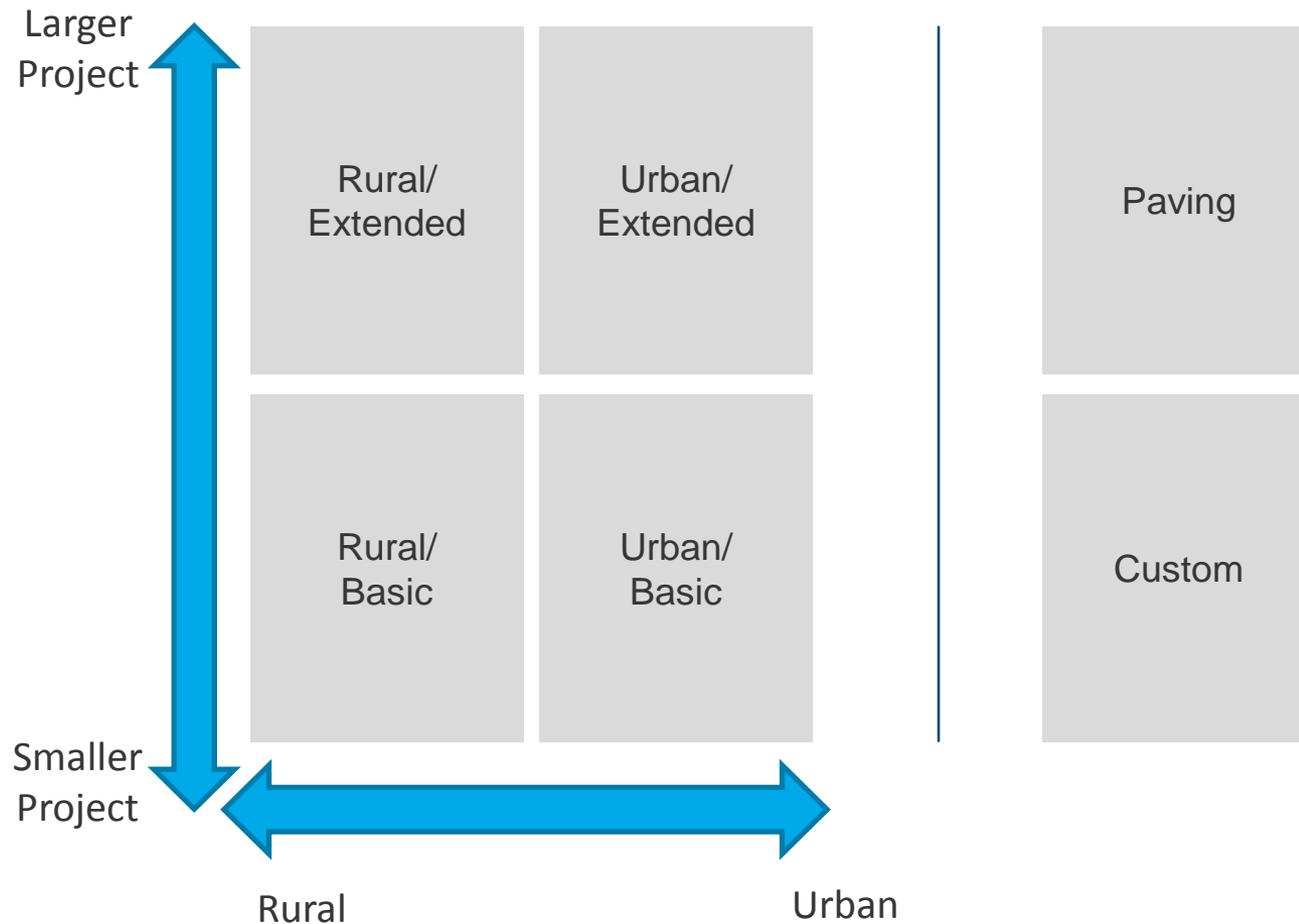


# Project Development Criteria (cont.)



- |       |  |       |                                   |
|-------|--|-------|-----------------------------------|
| PD-19 | Reduce and Reuse Materials                         | PD-27 | Construction Noise Mitigation     |
| PD-20 | Recycle Materials                                  | PD-28 | Construction Quality Control Plan |
| PD-21 | Earthwork Balance                                  | PD-29 | Construction Waste Management     |
| PD-22 | Long-Life Pavement Design                          |       |                                   |
| PD-23 | Reduced Energy and Emissions in Pavement Materials |       |                                   |
| PD-24 | Contractor Warranty                                |       |                                   |
| PD-25 | Construction Environmental Training                |       |                                   |
| PD-26 | Construction Equipment Emission Reduction          |       |                                   |

# Multiple Scorecards to Fit Your Project



# Operations & Maintenance Criteria



- |      |   |       |   |
|------|---|-------|---|
| OM-1 | Internal Sustainability Plan              | OM-8  | Bridge Management System                            |
| OM-2 | Electrical Energy Efficiency and Use      | OM-9  | Maintenance Management System                       |
| OM-3 | Vehicle Fuel Efficiency and Use           | OM-10 | Highway Infrastructure Preservation and Maintenance |
| OM-4 | Reuse and Recycle                         | OM-11 | Traffic Control Infrastructure Maintenance          |
| OM-5 | Safety Management                         | OM-12 | Road Weather Management Program                     |
| OM-6 | Environmental Commitments Tracking System | OM-13 | Transportation Management and Operations            |
| OM-7 | Pavement Management System                | OM-14 | Work Zone Traffic Control                           |

# Scoring in INVEST

## System Planning Criteria by Sustainability Principle

Criterion Number and Title
SP-1: Integrated Planning: Economic Development and Land Use
SP-2: Integrated Planning: Natural Environment
SP-3: Integrated Planning: Social
SP-4: Integrated Planning: Bonus
SP-5: Access & Affordability
SP-6: Safety Planning
SP-7: Multimodal Transportation and Public Health
SP-8: Freight and Goods Movement
SP-9: Travel Demand Management
SP-10: Air Quality
SP-11: Energy and Fuels
SP-12: Financial Sustainability
SP-13: Analysis Methods
SP-14: Transportation Systems Management & Operations
SP-15: Linking Asset Management and Planning
SP-16: Infrastructure Resiliency
SP-17: Linking Planning and NEPA

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[Home > Score > Scorecard > View Criterion](#)

### Criterion Details

#### SP-1 Integrated Planning: Economic Development and Land Use

[Download as pdf](#)

#### Goal

Integrate statewide and metropolitan Long Range Transportation Plans (LRTP) with statewide, regional, and/or local land use plans and economic development forecasts and goals. Proactively encourage and facilitate sustainability through the coordination of transportation, land use, and economic development planning.

#### Sustainability Linkage

Integrating transportation planning with economic development and land use supports the economic triple bottom line principle by creating opportunities to improve access and mobility, and increase the social, environmental, and economic returns on both public and private investments in transportation projects and programs.



#### Scoring Requirements

**Background**

This criterion recognizes that each state and MPO has different land use and economic development regulatory, policy, and institutional frameworks, plans, and goals, and allows for flexibility in the activities and types of plans agencies use to measure integration. The intent of this criterion is to encourage agencies to integrate sustainability into transportation, land use, and economic development planning.

### Criterion Scoring

#### Test 1

**Has the agency developed goals and objectives for the integration of metropolitan and/or statewide transportation planning with economic development and land use planning above and beyond current requirements?**

Yes (1 point)

No

**Are the goals and objectives consistent with applicable economic development and land use plans above and beyond current requirements?**

Yes (1 point)

No

**Does the agency regularly engage land use and economic development agencies in its jurisdiction throughout the transportation planning process?**

Yes (2 points)

No

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# How INVEST Measures Sustainability



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## System Planning Scorecard

Program or Process: Test 1 [edit](#)

[View full scorecard](#) to save or print from your browser.

Criteria	Points
<b>SP-01 <a href="#">Integrated Planning: Economic Development and Land Use</a></b> 15/15 Integrate statewide and metropolitan Long Range Transportation Plans (LRTP) with statewide, regional, and/or local land use plans and economic development forecasts and goals. Proactively encourage...	
<b>SP-02 <a href="#">Integrated Planning: Natural Environment</a></b> 15/15 Integrate ecological considerations into the transportation planning process, including the development of the long range transportation plan (LRTP) and TIP/STIP. Proactively support and enhance...	
<b>SP-03 <a href="#">Integrated Planning: Social</a></b> 15/15 The agency's Long Range Transportation Plan (LRTP) is consistent with and supportive of the community's vision and goals. When considered in an integrated fashion, these plans, goals and visions...	

**Download**

- [Compendium - Web Version](#)
- [Compendium - Print Version](#)
- [Scorecard](#)

**Score** 79  
Your Rating: Bronze

96 points needed for Silver  
120 points needed for Gold  
144 points needed for Platinum

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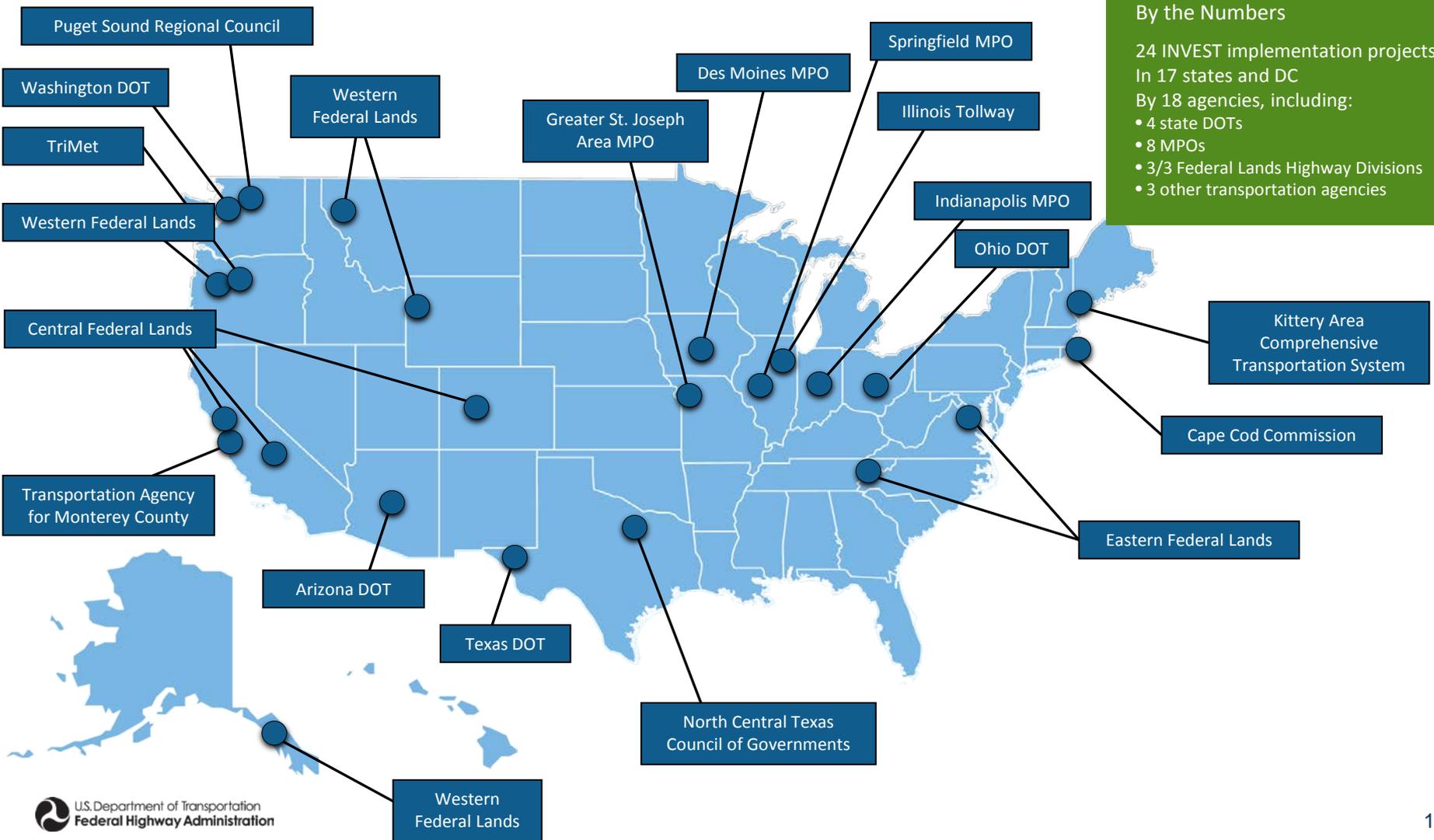


# Evaluate – Score - Improve

- Evaluate – Using the collaborative process can provide the most important outcome
- Score – Provides recognition for implementing sustainability best practices and identifying gaps
- Improve – Using the process to improve in practice and identify cost effective measures



# INVEST Implementation Sites



**By the Numbers**

24 INVEST implementation projects  
In 17 states and DC  
By 18 agencies, including:

- 4 state DOTs
- 8 MPOs
- 3/3 Federal Lands Highway Divisions
- 3 other transportation agencies

- Most MPOs are applying INVEST to:
  - › evaluate past LRTP
  - › target areas in planning process for enhancing sustainability
  - › scoring LRTP update to measure progress
- DOTs, others using INVEST on
  - › Projects or sets of projects
    - Arizona DOT evaluation on roundabouts statewide
    - Washington State DOT looking at corridor studies and specific projects
  - › Complete agency practices (SP, PD and OM)
    - Illinois Tollway evaluating all aspects, considering making INVEST evals a standard for all major projects, programs
  - › TriMet (Portland, OR) first major application on major transit project

# North Central Texas Council of Governments (NCTCOG)



## Large Multi-Modal Transportation Plan *INVEST Role: System Planning & Processes*

- Rapid regional growth: 6.5M to 10M
- Projected funding shortfall of \$45B
- Need to increase mobility, cut some improvements & reprioritize others
- Influence travel behavior & demand, improve transportation / land use links
- Extend life of existing assets, increase spending on O&M
- Used INVEST to validate assumptions, ID improvements in asset management and infrastructure resiliency



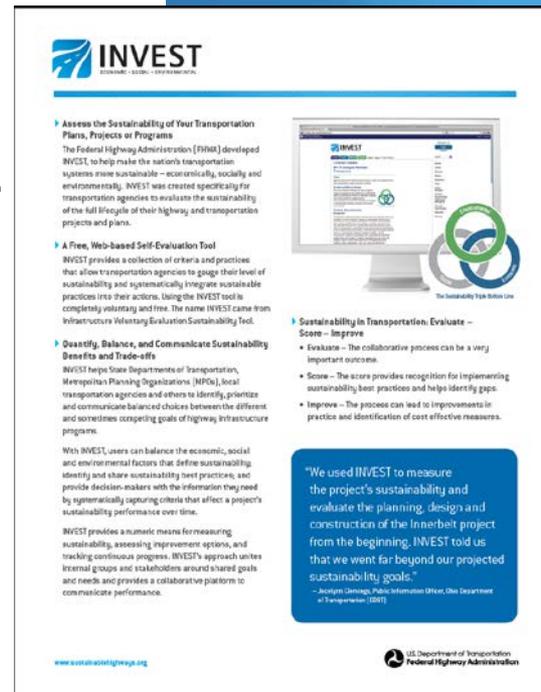
# How NCTCOG Used INVEST to Improve



- Sustainability “Texas-style”
- Identified 4 areas for improvement
  - › Linking asset management and planning
  - › Develop sustainability performance measures
  - › Planning and environment linkages
  - › Infrastructure resiliency
- Analyzing best practices in these areas for applicability to their context, implementing and incorporating into next long range transportation plan

# Resources Available

- INVEST Toolkit
  - › Fact sheet
  - › Presentation Slides
  - › User Guide
- Full day, in-person INVEST training
- Funding for using INVEST and developing case studies





**Try INVEST at:**

[www.sustainablehighways.org](http://www.sustainablehighways.org)

**Contacts:**

Division: Justin Luther (Justin.Luther@dot.gov)

Headquarters: Tina Hodges (tina.hodges@dot.gov)  
Mike Culp (michael.culp @dot.gov)

**Discussion:**

How might INVEST help you in your work?

How can FHWA be of assistance?

Any questions on INVEST?



# INVEST: Sustainability throughout the Project Lifecycle



Affected Triple Bottom Line Principles



Voluntary • Private • Free • Flexible • Practical