INVEST
ECONOMIC • SOCIAL • ENVIRONMENTAL

Enhancing Sustainability with INVEST

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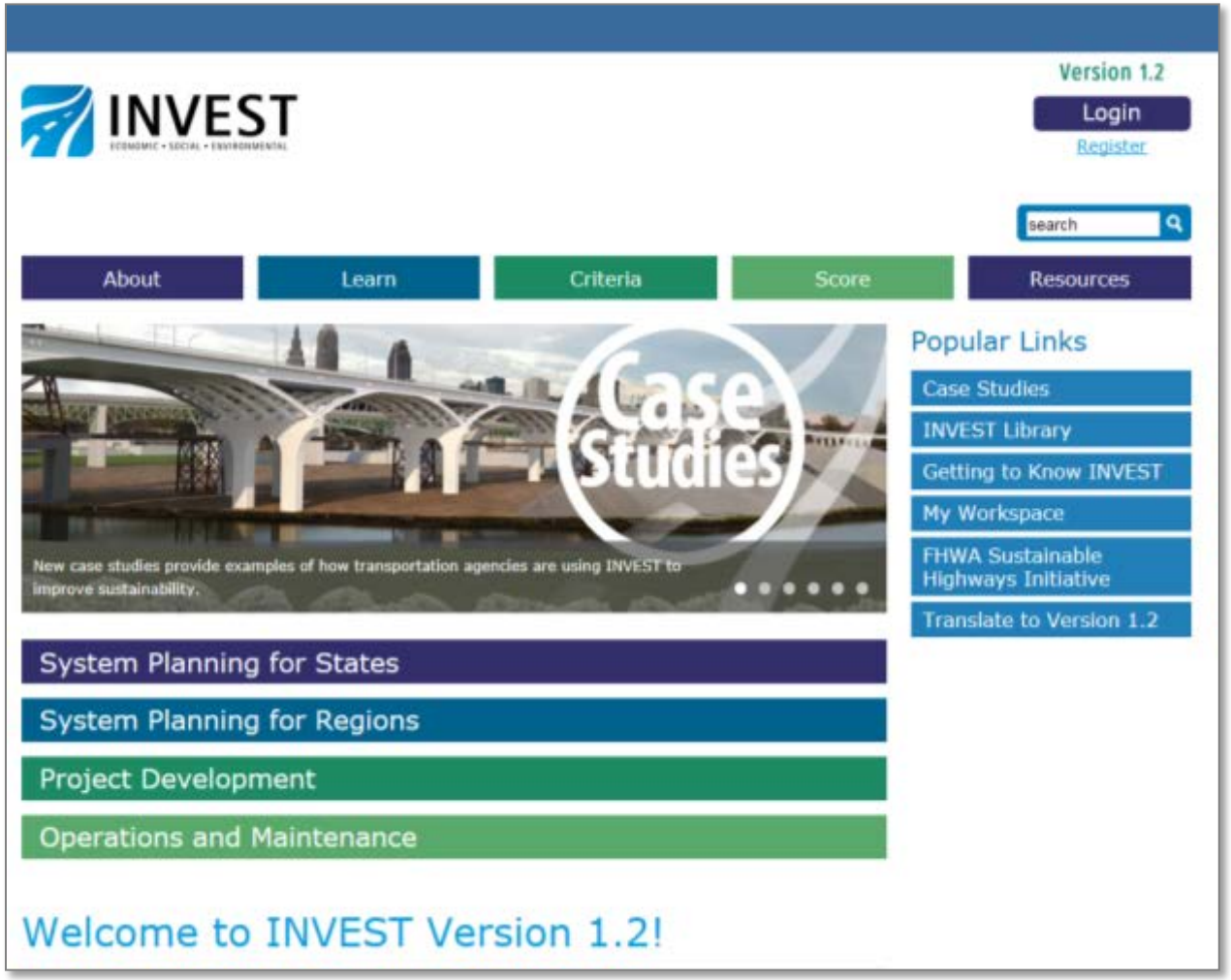
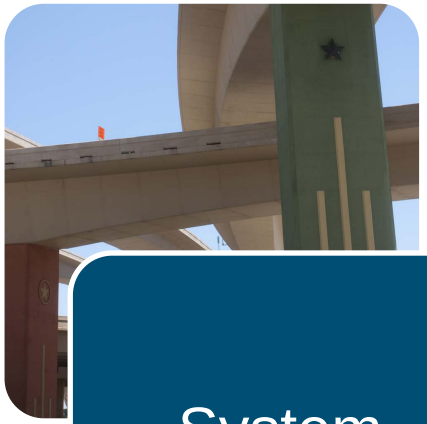
U.S. Department of Transportation
Federal Highway Administration

INVEST – FHWA's Sustainability Tool



- Infrastructure Voluntary Evaluation Sustainability Tool (INVEST)
- Web-based self-assessment tool
- Specific to transportation
- Helps stakeholders go above and beyond
- Practical - connects sustainability principles with action
- Nationally vetted – pilot tested across the country, 3000+ comments
- Voluntary
- Free, easy to use
- Flexible

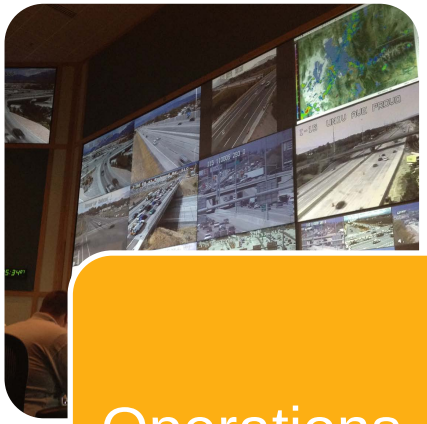
Supporting the Entire Life Cycle



System Planning

Project Development

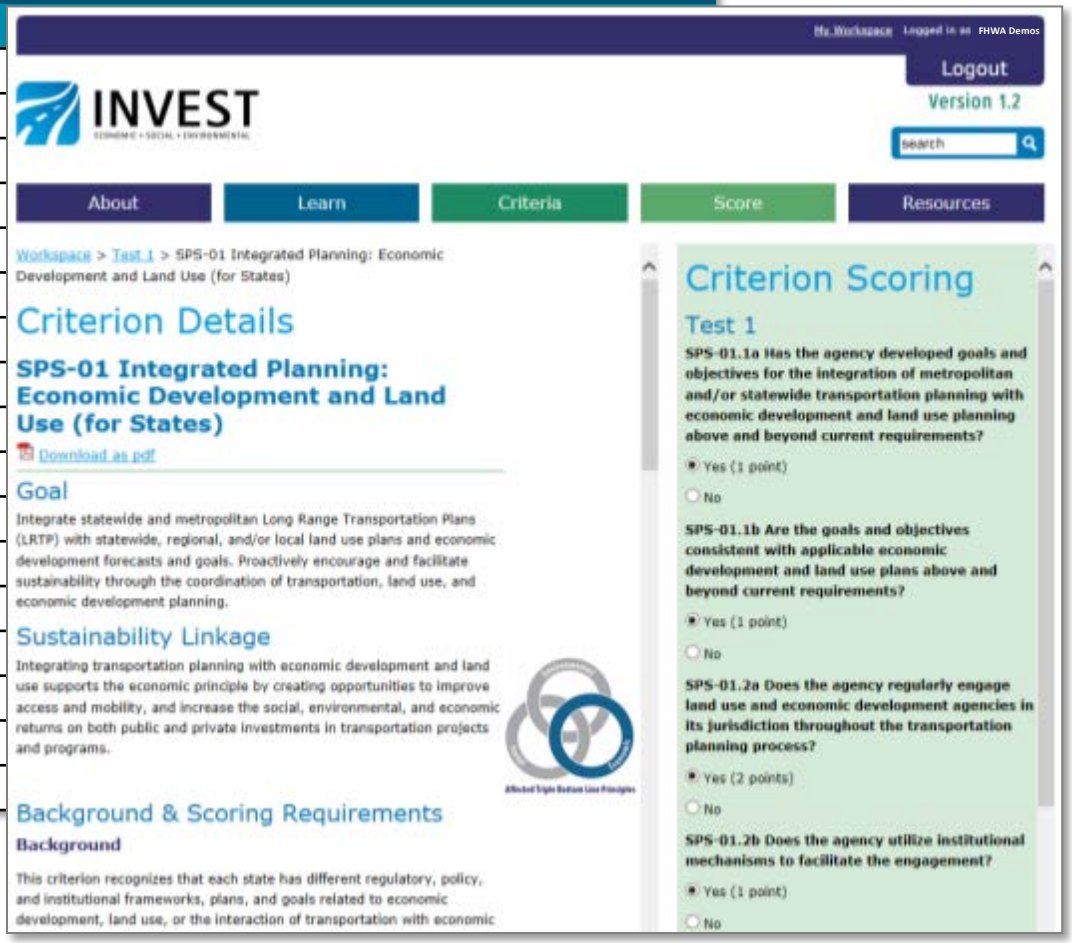
Project Planning
Project Design
Project Construction



Operations & Maintenance

Scoring in INVEST

System Planning for States Criteria by Sustainability Principle
Criterion Number and Title
SPS-01: Integrated Planning: Economic Development and Land Use
SPS-02: Integrated Planning: Natural Environment
SPS-03: Integrated Planning: Social
SPS-04: Integrated Planning: Bonus
SPS-05: Access and Affordability
SPS-06: Safety Planning
SPS-07: Multimodal Transportation and Public Health
SPS-08: Freight and Goods Access & Mobility
SPS-09: Travel Demand Management
SPS-10: Air Quality & Emissions
SPS-11: Energy and Fuels
SPS-12: Financial Sustainability
SPS-13: Analysis Methods
SPS-14: Transportation Systems Management and Operations
SPS-15: Linking Asset Management and Planning
SPS-16: Infrastructure Resiliency
SPS-17: Linking Planning and NEPA



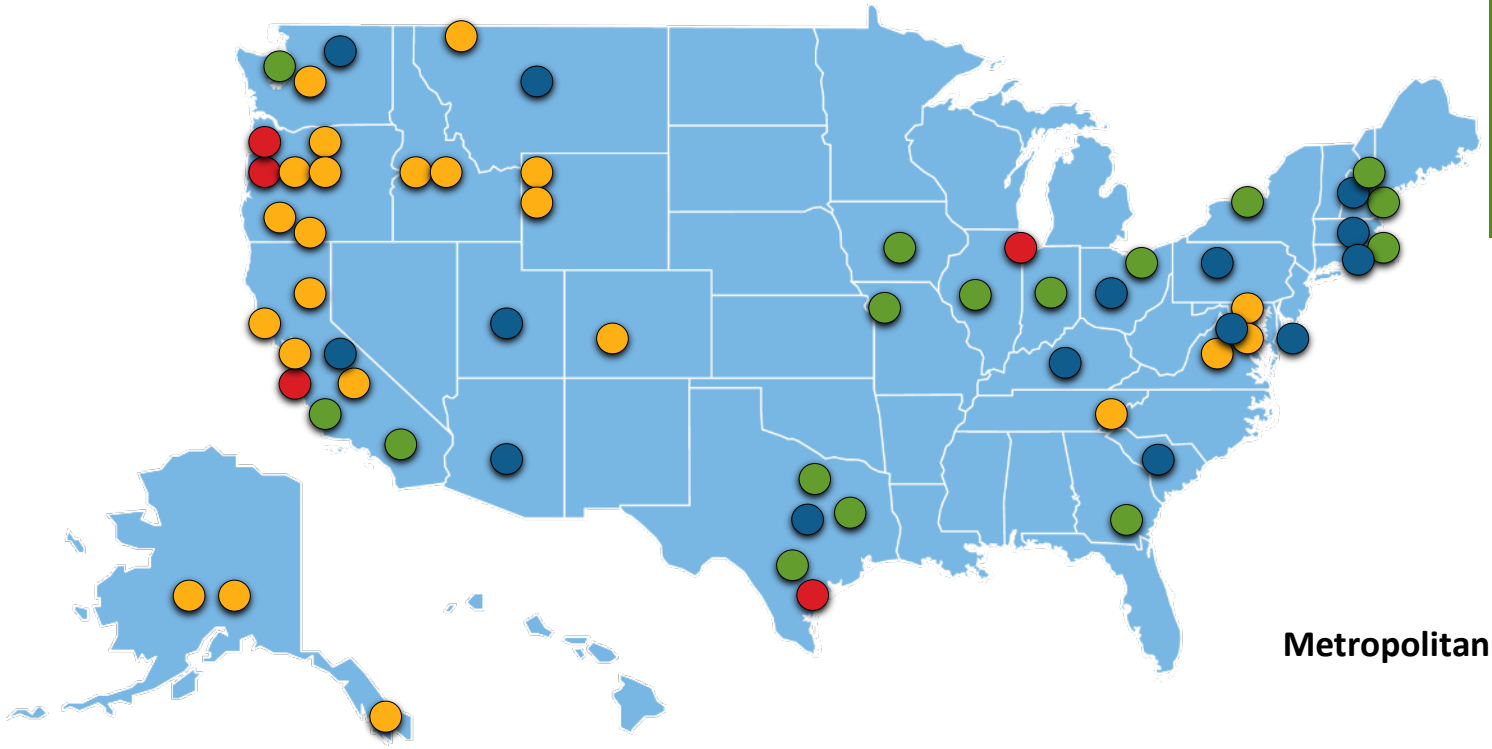
Why Use INVEST?

- Demonstrate achievements on outcomes your stakeholders care about
- Benchmark for continuous improvement
- Save time – use existing, objective and comprehensive framework
- Save money by identifying practices that reduce costs
- Facilitate communication

INVEST is the only tool that meets all of the following:

- Specific to transportation
- Covers full life-cycle
- Self-evaluation, no third party certification
- Free

INVEST Usage



INVEST Usage By the Numbers

Entities that have informed FHWA they are using INVEST:*

- 15 State DOTs
- 16 MPOs
- 23 Federal Lands Units
- 5 other transport agencies in US (local, transit, tollway)
- 1 foreign government

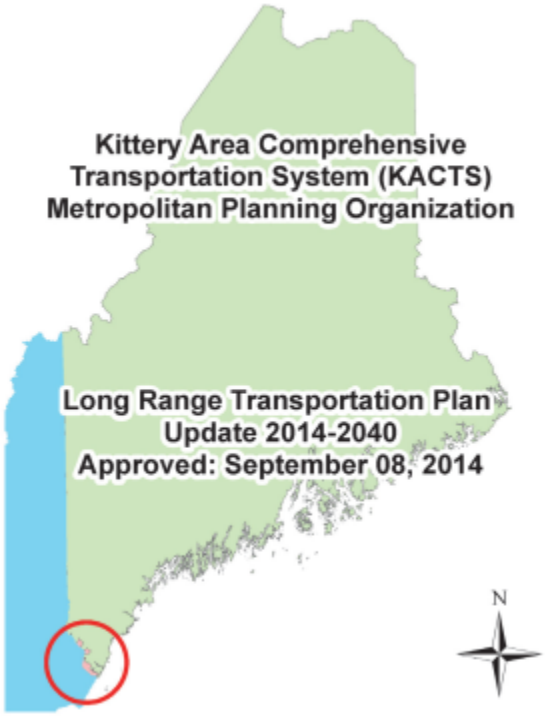
State DOT
Metropolitan Planning Org. (MPO)
Federal Lands Unit
Other

A sampling of possibilities …

If you are . . .	You might . . .
State department of transportation	• Maximize sustainability of operations and maintenance practices • Incorporate into contracting to provide incentives to contractors for sustainability
Metropolitan Planning Organization	Score your current long range transportation plan (LRTP), use that info to improve your next LRTP
Local government	Update your guidelines for local roads projects to incorporate sustainability considerations
Federal Land Management Agency	Use the Scenic and Recreational Roads Scorecard to identify sustainability improvements for a road project in an ecologically sensitive area
Contractor	Suggest INVEST to your client and use in projects & proposals
Academic	Use INVEST as a teaching tool
Tollway Authority	Identify practices that save money

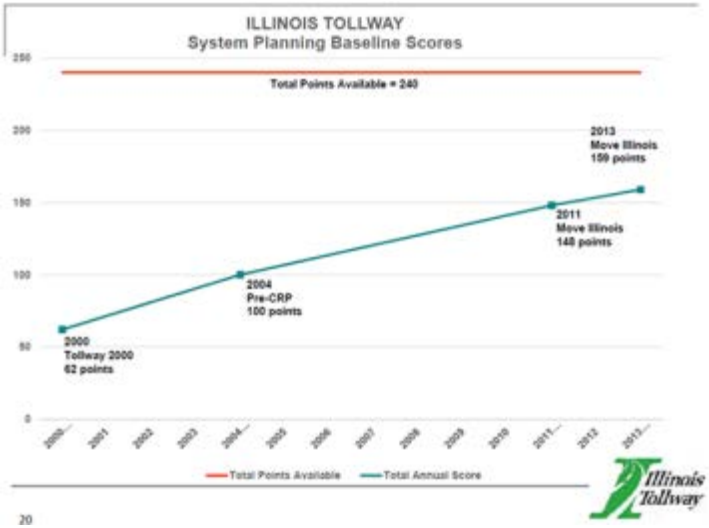
Example: Kittery Area MPO System Planning (SP) Module

- Scored 2010 long range transportation plan (LRTP)
- Used results to guide development of 2014 LRTP
- Score increased from 17 to 83 (out of 250)
- Examples of improvements between 2010 and 2014 plans as a result of using INVEST:
  - **SP-1 Integrated Planning: Economic Development and Land Use.** Developed specific strategies to engage partner agencies, offered incentives for development, established performance measures.
  - **SP-10 Air Quality.** Identified specific strategies to reduce greenhouse gas (GHG) emissions and air pollution (reduce vehicle idling, convert trash truck fleets to CNG). Commits to inventory, analyze, and tax transportation GHGs.



Example: Illinois Tollway
Project Development (PD) Module

- **Mainstreamed** INVEST into standard procedures. Developed agency-specific INVEST Manual with responsible parties, actions, timelines. Tollway scores, improves, and tracks progress at 30%, 60%, and 95% design; pre-construction; substantially complete.
- Scored 35 projects with PD to provide baseline. Then scored and improved in-progress projects that are part of $12 billion capital program.
- Used SP & OM modules to score 4 most recent funding programs. Found upward trend. Identified SP-11, SP-17, OM-1, OM-6, & OM-8 for improvement.



Example: Utah DOT
Operations and Maintenance (OM) Module

- Scored OM program with INVEST
- Developed prioritized set of recommendations
- Implemented recommendations and tracked progress
- **OM-13 Transportation Management and Operations.** Signal timing improvements (traffic adaptive signal system, dynamic dilemma zone detection) reduced congestion and crashes. $3M cost, $5M savings.
- **OM-7 Pavement Management System.** Automated data collection and incorporated LIDAR data. $39 million annual savings, cost benefit ratio 3.5.

Tips for Usage

1. Do not expect a high score
2. Emphasize sustainability improvements, not the score
3. Select a lead staff member
4. “Play” with the tool – browse criteria, create a test project, read case studies
5. Assemble a cross-discipline scoring team
6. Conduct workshop - score each criterion; develop recommendations for improvement
7. Analyze, prioritize, and implement recommendations from scoring workshop
8. Track progress, document and share successes

Time Required

- Easy to use, not time intensive, can do in-house, or hire contractor
- Time required varies, but plan on …
  - Point person browses tool – 8 hours
  - Point person identifies and contacts staff subject matter experts (SMEs) for each criterion – 16 hours
  - SMEs review criteria, gather documentation, develop initial scoring recommendation – 2-3 hours per SME. With 10 SMEs that would be 20-30 hours.
  - Hold scoring workshop – 15 staff in full day workshop: 15 x 8 = 120 hours
  - Point person writes up the recommendations – 8 hours
  - Staff analyze pros and cons of recommendations; management decides to implement or not (varies)
  - Implement recommendations (varies)
  - Re-score (8 hours)
  - Document and share successes (8 hours)
  - Total: 190 staff hours, + time to analyze and implement recommendations

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APPENDIX

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Appendix: System Planning for States Criteria

SPS-1	Integrated Planning: Economic Development and Land Use
SPS-2	Integrated Planning: Natural Environment
SPS-3	Integrated Planning: Social
SPS-4	Integrated Planning: Bonus
SPS-5	Access and Affordability
SPS-6	Safety Planning
SPS-7	Multimodal Transportation and Public Health
SPS-8	Freight and Goods Access and Mobility
SPS-9	Travel Demand Management
SPS-10	Air Quality and Emissions
SPS-11	Energy and Fuels
SPS-12	Financial Sustainability
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SPS-14	Transportation Systems Management and Operations
SPS-15	Linking Asset Management and Planning
SPS-16	Infrastructure Resiliency
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Appendix: System Planning for Regions Criteria

SPR-1	Integrated Planning: Economic Development and Land Use
SPR-2	Integrated Planning: Natural Environment
SPR-3	Integrated Planning: Social
SPR-4	Integrated Planning: Bonus
SPR-5	Access and Affordability
SPR-6	Safety Planning
SPR-7	Multimodal Transportation and Public Health
SPR-8	Freight and Goods Access and Mobility
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Appendix: Project Development Criteria

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

Appendix: Project Development Criteria

PD-19	Reduce, Reuse, and Repurpose Materials
PD-20	Recycle Materials
PD-21	Earthwork Balance
PD-22	Long-Life Pavement Design
PD-23	Reduced Energy and Emissions in Pavement Materials
PD-24	Permeable Pavement
PD-25	Construction Environmental Training
PD-26	Construction Equipment Emission Reduction
PD-27	Construction Noise Mitigation
PD-28	Construction Quality Control Plan
PD-29	Construction Waste Management
PD-30	Low Impact Development
PD-31	Infrastructure Resiliency Planning and Design
PD-32	Light Pollution
PD-33	Noise Abatement

Appendix: Operations & Maintenance Criteria

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

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Try INVEST at:
www.sustainablehighways.org

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