

Arizona Department of Transportation's Experience with Sustainability Tools



Arizona Department of Transportation
Intermodal Transportation Division

Transportation Research Board

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Arizona Asset Universe

Arizona

140,000 maintenance lane miles

7,800 bridges

1 International border

ADOT

30,000 maintenance lane miles connecting those 140,000

4,700 bridges

10 maintenance and construction districts

1,500 facility buildings

Spread over 114,000 square miles

Our agency operates from sea level to 6,000 feet

Temperatures below 0°F to over 120°F

ADOT Sustainability Process Identification

2008

Arizona Governor's Executive Order #2008-02 directed ADOT and its partners to:

- **Support Smart Growth and sustainable land use**
- **Involve the economic development and business communities**
- **Involve the environmental and conservation community**

This resulted in a more holistic planning approach. Linking transportation, CSS, economic development and the environment.

ADOT Goal - develop a transportation system that includes linkages and modes allowing users to have transportation options beyond what may have been previously considered. Options that are healthy for the overall quality of life, the environment and the economy.

ADOT Sustainability Process Identification

2010

ADOT – *Building a Quality Arizona* (bqAZ) – statewide transportation planning framework - Arizona will reach 16 million by 2050

2011

ADOT - *What Moves You Arizona* – Long Range Transportation Plan

2012

- **FHWA Sustainable Highways Initiative**
- **The Infrastructure Voluntary Evaluation Sustainability Tool
U.S. DOT Federal Highway Administration (INVEST)**
- **FHWA INVEST – ADOT contributed to the System Planning Beta testing**

ADOT Sustainability & INVEST

2013

Maintaining optimum health and performance of ADOT's infrastructure is critical to Arizona's economic vitality, quality of life, and natural and built environments. ADOT recognized the critical need to plan and prioritize resources more efficiently in order to maintain and operate a robust, economically beneficial transportation network. ADOT also recognized, in relation to investment and return dynamics, the importance of delivering transportation solutions in a more sustainable manner to achieve economic, social and environmental goals.

ADOT needed to reenergize topic - FHWA INVEST grant opportunity

ADOT – Why INVEST

2014

Conduct ADOT INVEST Implementation

- Connects sustainability principles to actual ADOT activities
- Measures sustainability specifically for transportation
- Helps stakeholders in the industry go above and beyond

Specific to ADOT

- Introduce all these concepts and perpetuate them into activities
- Look for ways to appropriately use these types of tools
- New standard in life-cycle assessment (LCA), design considerations, sustainable consideration gap analysis
- Seek organizational entry points

ADOT INVEST PD Module

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

ADOT INVEST PD Module - continued

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		

ADOT INVEST Achievements

- 2014**
- INVEST Direct**
- **ADOT Statewide Project Management training**
 - **ADOT Environmental Planning Group training**
 - **Arizona Local Public Agency outreach training**
 - **Score fifty (50) ADOT construction program projects**
 - **ADOT & sustainability improved understanding**
 - **State DOT national leadership opportunity**
 - **ADOT INVEST grant #1 final report – January 2015**
 - **ADOT MPD INVEST System Planning (SP) reintroduction**
 - **ADOT INVEST grant #2 Operation & Maintenance (OM)**

ADOT INVEST Achievements - continued

2014

INVEST Indirect

- **ADOT State Engineer's Office monthly activity briefings**
- **Local Public Agency partnering tool**
- **ADOT INVEST PD case studies (ADOT & City of Sedona, AZ)**
- **State University outreach development**
- **Wider ADOT sustainability proliferation (Executive Management, Design, Roadway, District, and other State DOT knowledge sharing)**
- **ADOT/USGS partnership development on water issues**
- **ADOT Excellence Award Program**

ADOT INVEST & Collaboration

ADOT is very proud of INVEST as a collaborative tool. It far exceeded what was originally envisioned.

- **The tool provided essential insight in determining the extent of our current best management practices, identified areas in which ADOT excels and where gaps exist.**
- **It also created an exceptional opportunity to partner not only within our agency but magnify the conversation to outside stakeholders.**
- **Since the beginning of our evaluation in early 2013, ADOT has coordinated multiple in house training opportunities spanning several disciplines such as Project Management, Materials Group and Environmental, as well as, continues to provide online training and discussion based forums across the state to aid multiple levels of government in utilizing the tool.**

ADOT INVEST & Collaboration - continued

INVEST not only led to a more substantial, sustainable design, but also aided in furthering lines of communication among members of ADOT. It sparked new natures of discussion which ultimately led to all individuals involved learning more about various aspects of the development process. This type of learning opportunity is and will continue to be essential in ensuring timely and effective project delivery. INVEST was irrefutably acknowledged as a beneficial tool which may continue to broaden lines of discussion, facilitate essential communication and lead to further modernization of design.

ADOT INVEST – Next

2015 - Goals for INVEST O&M Grant

Agency level - Review and assess criteria within the tool to determine applicability to current standards and practices within our DOT. Identify areas in which to enhance our Agency Strategic and Transportation Asset Management Plans.

District level - Use the tool to determine rural and urban district efficiencies and areas of possible improvement.

National Contribution - Expand on the exceptional 2011/2012 O&M work of Minn-DOT and UDOT.

Collaborate - with local public agencies (LPA) to further develop sustainable objectives and potential uses within multiple levels of evaluation and governance, and share the LPA program framework development process with FHWA.

ADOT, Sustainability & INVEST – Next

2015

- MPO, COG, Tribe outreach
- I-11 Corridor EIS - Sustainability & NEPA
- Loop 202 INVEST PD integration
- Complete Highways Guidebook
- INVEST PD-21 sustainable earthwork case study
- ADOT/USGS partnership
- Asset management risk modeling/gap analysis
- Assess FHWA performance based practical design project linkage
- Sustainable pavement and materials program development
- Transportation sustainable return on investment viability

Questions?

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