

# Using FHWA's INVEST to Evaluate System Level Planning and Programming The Arizona DOT Experience



Transportation  
Planning  
Conference  
Houston, Texas

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Sustainable Transportation for the 21st Century

Connie Hill – FHWA  
Steven Olmsted - Arizona DOT

# Arizona Universe

## Arizona

Population estimate July 1, 2015	6,828,065
Population, percent change since April 1, 2010	6.8%
Maintenance lane miles	140,000
International border	1
Square miles	114,000

## Arizona Department of Transportation

Maintenance lane miles	30,000
System operates	Sea level to 6,000'
Temperatures	0°F to over 120°F
Long range transportation need est.	\$100 billion
Long range transportation revenue est.	\$25 billion

# ADOT Long-Range Transportation Plan

- ***What Moves You Arizona*** is ADOT's Long-Range Transportation Plan
- The LRTP defines visionary, yet pragmatic, investment choices Arizona will make over the next 25 years to maintain and improve its multimodal transportation system
- It is part of a continuous process of planning, implementation, operation, and preservation and will evolve over time to reflect and be responsive to future changes in needs, resources, and priorities
- Incorporates the comprehensive land use and 2050 vision developed in ***Building a Quality Arizona (bqAZ)*** as a framework for the State's desired future
- The Plan is not rigid or fixed
- Documents existing conditions with an eye toward future trends

# ADOT's Sustainable Transportation Program

- ADOT has initiated a comprehensive Sustainable Transportation Program, comprising several milestones which run the gamut from recognizing and rewarding exemplary sustainable actions within ADOT to building local partnerships, creating linkages to the academic community, and contributing to the ongoing national dialogue on transportation sustainability.
- A core element of this platform is continuing to partner with FHWA to test, improve, promote, and use INVEST
- Operationalizing Sustainable Transportation and FHWA's INVEST Operations & Maintenance Implementation – **2<sup>nd</sup>** Annual Arizona Department of Transportation Sustainable Transportation Program Final Report (May 2016)

<https://www.sustainablehighways.org/779/72/arizona-dot-using-invest-to-integrate-sustainability.html>

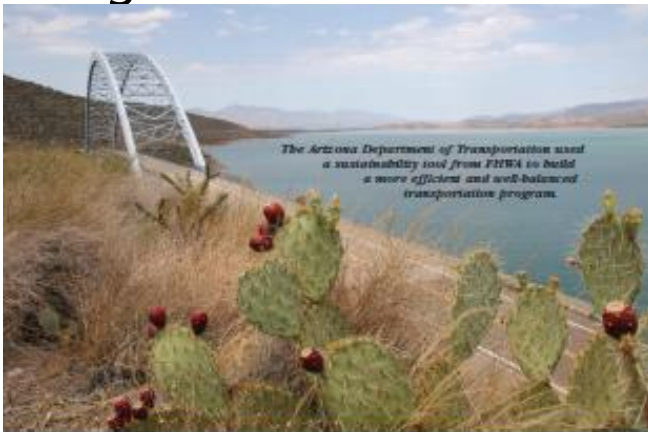
# ADOT & INVEST

## Documents existing conditions with an eye toward future trends

- 2011 INVEST Beta testing
- 2013 INVEST grant to develop INVEST Project Development Module
- 2015 1<sup>st</sup> Annual Sustainability Report <https://www.sustainablehighways.org/files/3210.pdf>
- 2015 INVEST grant to develop Operations & Maintenance Module
- FHWA Sustainable Highways Program and the Infrastructure Voluntary Evaluation Sustainability Tool (INVEST) Implementation Program have been and continue to be a valuable opportunity for ADOT to acquaint itself with an accessible and comprehensive platform for assessing programs and practices
- INVEST has already helped ADOT to validate strategic directions, increase knowledge across core functions, and advance a decision-making **framework** around sustainability best practices

# Framework

More on the Program and Framework in May/June 2016 issue of *Public Roads Magazine*



The Arizona Department of Transportation used a sustainability tool from FHWA to build a more efficient and well-balanced transportation program.

## Investing in Today and Tomorrow

By Alan B. Hansen,  
Emily Lester,  
and Steven Olmsted

Sustainability best management practices can help State and local public agencies improve use of their economic, social, and environmental resources. However, integrating sustainability best practices into State departments of transportation performance can be daunting. Traditional design and construction dynamics—where a given discipline focuses solely on its

own area of expertise—is not always conducive to adopting the collaborative and collaborative process that is embodied in sustainability practices. The largest hurdle is recognizing that sustainability in practical applications to State DOT activities, is ill defined. In addition, the sustainability concept of the interrelationship of all aspects of a project does not necessarily fit the traditional

DOT project delivery process of plan, design, bid, build, and maintain. To strengthen the Arizona Department of Transportation's (ADOT) continuous improvement culture, it emboldened tools and strategies for integrating sustainability best practices into life cycle asset management. Staff developed a Sustainable Transportation Program and established links of the

(Above) The Roosevelt Lake Bridge on U.S. 188 in Roosevelt, AZ, is the longest two-lane, single-span, steel-arch bridge in North America. It is an example of the diversity of infrastructure and roadway ADOT manages. Photo: Amy Lester, ADOT

## ADOT's Sustainable Transportation Program: 13-Milestone Framework

First Annual Sustainability Report

Relevant University Links

National Conferences

Develop Case Studies

Local Public Agencies/Metropolitan Planning Organizations/Councils of Governments Collaboration

Design Excellence Award Program

Begin State Engineer's Office Activity Journal

INVEST Project Development Rollout

Establish Working Group

FHWA Support/INVEST

Executive Management

Universe of Variables

Champion(s)

Source: Emily Lester and Steven Olmsted, ADOT.

# ADOT Multimodal Planning Division

- Planning responsibility for a statewide transportation network that can compete in the global marketplace while keeping up with population growth, and future economic and quality of life needs
- Includes multimodal forms of transportation — such as public transit, pedestrian, bicycling and aviation — to complement Arizona’s roadways
- Includes developing a Five-Year Transportation Facilities Construction Program
- Phase One planning process — the vision — the sky is the limit If money was no object, what would Arizona’s transportation future look like? ***Building a Quality Arizona (bqAZ)***
- Phase Two — must take revenues and funding into account - ***What Moves You Arizona***

# ADOT Multimodal Planning Division

## Multimodal Planning Division Studies & Programs examples

<https://www.azdot.gov/planning/CurrentStudies>

- Arizona Smart Growth Scorecard
- Arizona-Sonora Border Master Plan
- Arizona State Freight Plan
- Arizona Tribal Transportation
- Bicycle and Pedestrian Program
- Climbing and Passing Lane Prioritization Study
- **Complete Transportation Guidebook**
- Corridor Profile Studies
- Grand Canyon National Park Airport Master Plan
- I-11 and Intermountain West Corridor Study
- Key Commerce Corridors
- Linking the Long-Range Plan and Construction Program
- Passenger Rail Study: Tucson to Phoenix
- Planning Assistance for Rural Areas (PARA) Program
- State Long-Range Transportation Plan



# ADOT Planning, Sustainability & INVEST

Programmatic Approaches



Complete Transportation  
GUIDEBOOK



# ADOT Planning, Sustainability & INVEST

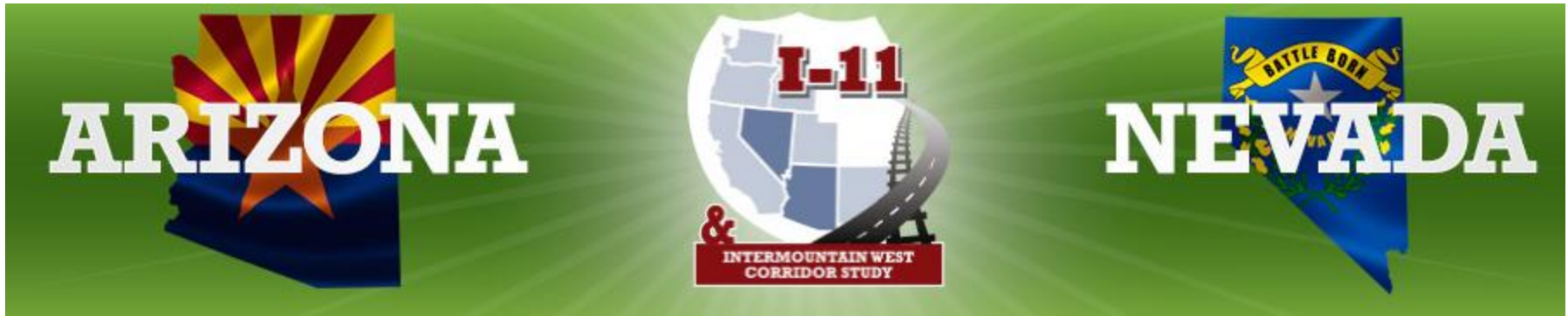
## Programmatic Approaches

### Linking Complete Transportation Systems and Sustainable Transportation

- May of 2016 ADOT issued nationally the *Complete Transportation Guidebook*
- It is intended to open a dialogue about where our stakeholders and project development teams can engage on design elements of a complete transportation system
- It is a guidebook on the major multimodal forces impacting transportation and a discussion of potential solutions
- The Guidebook is a reference tool for integrating sustainable practices into transportation planning, scoping, and design throughout the ADOT project development process
- ADOT understands how transportation infrastructure shapes our communities and quality of life – *INVEST will be used to continually score 'complete' projects*
- The Guidebook provides strategies and techniques for identifying transportation choices that provide mobility to connect communities and economic opportunity to maximize a limited set of resources, time, and money

# ADOT Planning, Sustainability & INVEST

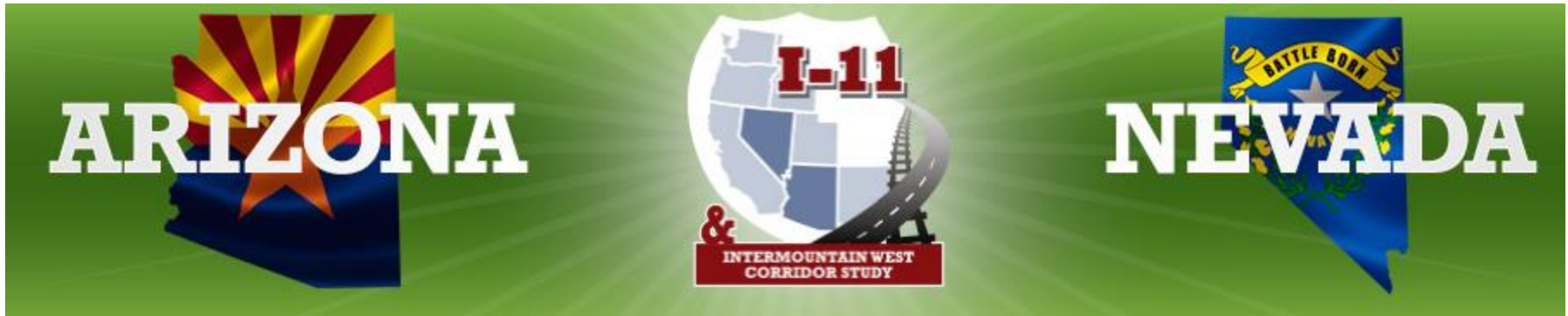
## Programmatic Approaches –



- Congress recognized the importance of the corridor between Phoenix, AZ, and Las Vegas, NV, and designated it as future I-11 in the MAP- 21. In summer 2014, the Arizona and Nevada DOTs completed a 2-year I-11 and Intermountain West Corridor Study
- In 2015, ADOT became one of the first State DOTs to link the INVEST tool and the requirements of the National Environmental Policy Act (NEPA) for federally funded transportation projects

# ADOT Planning, Sustainability & INVEST

## Programmatic Approaches –



- FAST Act extended the Arizona portion of the corridor to the border of Mexico through its statutory listing of high-priority corridors. The I-11 and Intermountain West Corridor Study pointed to the need for a new multimodal freight corridor to drive trade, commerce, job growth, economic development, and connections to other markets.
- ADOT began the tier 1 EIS in 2016 - FHWA Arizona Division & ADOT will use INVEST as part of the alternatives screening

# ADOT Sustainability Transportation – Why?

## ADOT's Sustainable Transportation Program

Maintaining optimum health and performance of this infrastructure is critical to Arizona's economic vitality, quality of life, and natural and built environments. ADOT recognizes the critical need to plan and prioritize resources more efficiently in order to maintain and operate a robust, economically beneficial transportation network. Through continuous improvement practices, ADOT strives to strategically invest resources to achieve the highest possible return. ADOT also recognizes, 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 has moved from the early stages of identifying sustainable strategies to operationalizing a sustainable transportation program into core administrative, planning, design, construction, operations and maintenance activities.

# ADOT Sustainability Transportation – Why?

## ADOT's Sustainability Process Identification

The window of opportunity to fulfill all that is desired before a project's completion requires extensive coordination not only within a core group of individuals delivering the project but also those who are considered stakeholders during the project development process. Guidebook for Sustainability Performance Measurement for Transportation Agencies, "Often, a goal will support more than one principle. Yet no one goal in itself is sufficient to achieve sustainability - it takes multiple goals, pursued in concert, to promote sustainability. When a final set of goals is defined, it's important to crosscheck the package of goals to ensure that all of the principles are well addressed. In doing so, take care not to force-fit the goals to make them map to the principles. A balanced goal set, however, achieves comprehensive coverage of the basic principles of sustainability..."

# ADOT's Future with Sustainable Transportation

ADOT developed a roadmap for its 2016–2017 program development initiatives to set the entire Sustainable Transportation Program into operation. The roadmap consists of operational focus areas identifying 36 reasonable entry points. The focus areas identify candidate projects and activities that cumulatively reflect the current program goals.

ADOT chose each focus area for one or all of three reasons: (1) it addresses a true operational need, (2) it aligns with the strategic focus areas in ADOT's mission statement, and (3) it could contribute to both Arizona's and the national state of the practice in connection to sustainable transportation. It aligns with ADOT's strategic focus areas of innovation and financial resources, as well as solidifies a documentable approach to reach a level of sustainable outcome.

# Questions?

## Arizona Department of Transportation Sustainable Transportation Program Team

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