

INVEST Memorandum
US 93, Tegner St – Wickenburg Ranch Way
Arizona Department of Transportation



SEPTEMBER 2019

INVEST Score: Silver (61 points)

Background

The project is located along United States Highway (US 93, near the town on Wickenburg, Yavapai County, Arizona. The Arizona Department of Transportation (ADOT), in coordination with the Federal Highway Administration (FHWA), previously completed a design concept report (DCR) and accompanying environmental assessment (EA) for safety and traffic improvements along US Highway 93 (US 93) from State Route 89 (SR 89) to Wickenburg Interim Bypass near Wickenburg, Maricopa and Yavapai counties in 2010. The preferred design alternative that was identified in the DCR and evaluated in the EA was the construction of a four-lane divided roadway for approximately five miles, with other improvements such as roundabouts, medians, and frontage roads. The project is now in final design and includes the Preferred Alternative recommendations and additional safety improvements for signage, drainage, and pavement. The project cost is estimated at \$49,000,000.

What is INVEST?

INVEST (Infrastructure Voluntary Evaluation Sustainability Tool) was developed by the Federal Highway Administration (FHWA) as a practical, web-based, collection of voluntary best practices, called criteria, designed to help transportation agencies integrate sustainability into their programs (policies, processes, procedures, and practices) and projects.

The INVEST web-based tool allows users to self-evaluate programs or projects using these criteria to obtain a snapshot of the sustainability of the program or project in time. The tool also allows the user to include notes on scoring and implementation actions that can assist the user in integrating criteria and making progress over time. Although many agency efforts could already be considered sustainable, INVEST is focused on "above and beyond" efforts. Efforts that are typically required, such as National Environmental Policy Act (NEPA) resource analysis areas, are not included within the INVEST criteria.

INVEST considers the full lifecycle of projects and has four modules to self-evaluate the entire lifecycle of transportation services, including System Planning for States or Regions (SPS or SPR), Project Development (PD), and Operations and Maintenance (OM). Each of these modules is based on a separate collection of criteria and can be evaluated separately.

Purpose of the Memorandum

ADOT, in partnership with FHWA has utilized the latest version of INVEST (1.3) on numerous agency projects and programs in varying stages of development to document, explore, and identify sustainability elements of projects for incorporation, as well as provide feedback on the current INVEST 1.3 version of the tool. The goal of this project INVEST memorandum is to document the use of the INVEST scoring application



on the US 93, Tegner St – Wickenburg Ranch Way using the Project Development (PD) using the Rural Extended Scorecard.

INVEST Scoring

INVEST may be used to score a project based on total points achieved. In the INVEST tool, FHWA does not recognize a project as having met the achievement level of sustainability based on scores; but rather recognizes that the user has self-evaluated their project and met the indicated achievement level.

The total points a project earns can be compared to several “achievement levels” that serve as relative benchmarks for sustainability accomplishments. The figure below shows the minimum number of points necessary to meet each achievement level for the PD module.

For the PD Rural Extended scorecard, a total of 153 points are available, broken down into the following scoring for each achievement level:

US 93 INVEST PD Module Criteria Scoring Results and Basis for Scores

According to the INVEST User Guide;

The Project Development module spans the entire project development process. It includes early project planning, alternatives analysis, environmental documentation, preliminary and final design, and construction. Although the criteria span all phases of project development, including construction activities, the project owner typically has control over the decisions and actions necessary to meet all of the criteria. Scoring The Project Development Module of INVEST has 7 project scorecards available for the evaluation of projects. This approach allows for flexibility, since not all of the criteria will apply to every project. Six of the scorecards are based on both the type of project (paving, basic, extended, or scenic/recreational) and the location (rural or urban) and include a defined subset of the 33 total criteria relevant to the type and location of the project. There is also a custom scorecard that includes 11 core criteria plus user-selected criteria to make a custom self-evaluation for projects that don't fit well into the five defined scorecards. The Project Development module contains the 33 criteria listed below, used in various combinations to create the 7 different scorecards.

Table 1. INVEST User Guide P.4

Project Development by Criteria Scorecard							
	Paving	Urban Basic	Urban Extended	Rural Basic	Rural Extended	Scenic and Recreational	Custom Core Criteria ⁽¹⁾
PD-1 Economic Analyses			●		●		
PD-2 Life-Cycle 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 & 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		●	●	●	●	●	
PD-19 Reduce, Reuse, and Repurpose Materials	●	●	●	●	●	●	●
PD-20 Recycle Materials	●	●	●	●	●	●	●
PD-21 Earthwork Balance			●		●	●	
PD-22 Long-Life Pavement	●	●	●	●	●	●	●
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		●	●				
Total Number of Criteria in Scorecard	11	27	34	23	29	27	11

(1) Indicates the core criteria that must be included in the custom scorecard. The user may choose as many additional criteria as desired.

The Project Development – Rural Extended Scorecard was used for the INVEST scoring of this project. Project Development (PD) is traditionally the second step in the lifecycle of a transportation project, where specific projects are planned, designed, and constructed. The PD module in the current INVEST tool includes a total of thirty-three criteria that are generally organized from planning to design to construction. The PD criteria are further organized into seven scorecards for the evaluation of projects. The scorecards are designed to identify applicable criteria based on the project type (paving, small/spot improvements, new facility/corridor project) and location (urban/rural). Six of these scorecards pre-identify criteria that are most likely to be applicable for the project type and location.

The Rural Extended scorecard is for rural projects for a new roadway facility; structure projects where nothing of its type currently exists; and major reconstruction projects that add travel lanes to an existing roadway or bridge. As this project is a project that will add capacity of US 93 and includes new right-of-way, temporary construction easements, or major construction work needed, ADOT evaluated this based off the 28 criteria available for the scorecard.

To achieve a minimum bronze rating for the Project Development Rural Extended scorecard, a project needs to be awarded a minimum of 46 points. Based on the assessment completed for the INVEST scoring, the project received a score of 61 points, which identifies the project as a silver rating. Attached to this memorandum is the “Project Scorecard,” which shows all points and information related to the scoring of the project.

Several notable points were documented for the following categories:

- **Context Sensitive Project Development:** Due to the fact that the project passes through the Town of Wickenburg, context sensitive project development was needed to ensure the community cohesion and character of the community remained. This design required consideration of color, texture, aesthetic considerations, and input from the Town of Wickenburg and other stakeholders. Landscaping for roundabout features, art, and implementation of features such a multi-use path were part of the project design to ensure context sensitive development.
- **Highway and Traffic Safety:** One of the major purposes of this project was to improve traffic and safety operations through this stretch of US 93 to reduce the potential for crashes and allow for improved intersection movements. During the initial design concept and final design stages of this project, information related to safety was provided to the public by ADOT regarding the proposed improvements. A thorough safety and traffic analysis was completed as part of the project for each alternative assessed.
- **Habitat Restoration / Ecological Connectivity:** Biological analysis was a large focus for the project team since this the project was in areas near critical habitat and sensitive resources within the Hassayampa



River. The design team avoided worked to avoid impacts to sensitive water and biological resources during design.

- **ITS for System Operations:** Due to the fact that this major project had a purpose of increasing the safety and traffic operations of US 93, ITS systems such as managed lanes, roundabouts, variable speed limits, and vehicle restrictions were implemented to facilitate proper speeds and safety through the project area.
- **Site Vegetation, Maintenance, and Irrigation:** Consideration and implementation of re-seeding with non-invasive and non-noxious species is a standard Best Management Practice (BMP) for ADOT and is followed for every project where needed. This is a success area for ADOT for many years.

Summary

The evaluation of this project introduced opportunities for improvements in sustainability elements for future projects within this area. Some opportunities that could be considered that were not in this final design stage include items such as light pollution minimization, low impact development for storm water management, earthwork balance, and recycling of materials. Due to the rural location of this project, some of these sustainability criteria such as scenic, natural, and recreational qualities were difficult to implement. However, the rural project area could benefit from considerations of reduced light pollution, and low impact development near the Hassayampa River. Additionally, an ADOT agency goal in future projects would be to introduce sustainability earlier into the early design concept and NEPA stage, with an emphasis on education internal engineering disciplines and to the public.

Appendix: US 93 PD Module Scorecard