

## Case Study:

# Using INVEST to Measure Sustainability for the DeIDOT Pavement and Rehabilitation Program

## Delaware

**Lead Agency:** Delaware Department of Transportation (DeIDOT)

**INVEST Modules:** Operations and Maintenance

**Link:** <http://deldot.gov/>

DeIDOT used the INVEST Operations and Maintenance (OM) module to score its Pavement and Rehabilitation Program and other OM activities. Even though DeIDOT has actively employed sustainable practices (such as the use of recycled materials) for over 20 years, the agency had never quantified these efforts prior to INVEST. By using INVEST, DeIDOT was able to measure the sustainability achievement of its Pavement and Rehabilitation Program and identify areas for improvement across many aspects of project delivery. Some of the INVEST OM criteria addressed DeIDOT or statewide initiatives not specifically associated with the Pavement and Rehabilitation Program, which focuses specifically on pavement preservation. In those cases, DeIDOT gathered information from the other relevant program areas to complete the evaluation.

## Scoring

To do the scoring, DeIDOT brought together several subject matter experts within the agency, including representatives from the following sections: Planning, Traffic Safety, Business Management, Maintenance and Operations, and Engineering Support. With the combined input from the subject matter experts, DeIDOT calculated a score of 146 out of 210 possible points, as displayed in the chart on page 2, which equates to the platinum level in INVEST.

## Highlights from Specific Criteria:

Sustainability highlights from the OM INVEST evaluation included:

- **OM-7 Pavement Management System and OM-8 Bridge Management System.** DeIDOT scored very highly on these criteria because the agency has extensive pavement and bridge management systems that track performance and condition across the State. DeIDOT uses the data to inform and prioritize maintenance actions. The summary information is also available to the general public via a dashboard on the DeIDOT website at [www.deldot.gov](http://www.deldot.gov).
- **OM-4 Recycle and Reuse.** DeIDOT did not score as highly on this criterion, even though the agency has employed these practices for decades. This is because the agency does not yet have a formal mandate or target for construction material recycling. Despite the lack of a formal target, DeIDOT has incorporated recycled materials, including recycled asphalt pavement, recycled asphalt shingles, recycled concrete aggregate,

Repair work for the I-495 Bridge in Delaware



gate, tire-derived aggregate, crumb rubber, cellulose fibers, and plastic from bottles for over 20 years in highway construction. DelDOT also has used industrial byproducts, such as ground granulated blast furnace slag, silica fume, and fly ash in the Portland cement concrete used for projects. In the past decade, DelDOT has also used in-place roadway reclamation and recycling operations for maintaining roadways. The process keeps pavements in place for pulverizing, stabilizing, and reshaping while minimizing the construction footprint of the work. The reclaimed and recycled pavement provides a stable construction platform for the overlay of structural pavement materials. DelDOT will investigate opportunities to formalize the commitment to recycling and reuse through agency targets.

Criterion	Points Scored	Maximum Points Possible
OM-01 Internal Sustainability Plan	8	15
OM-02 Electrical Energy Efficiency and Use	5	15
OM-03 Vehicle Fuel Efficiency and Use	11	15
OM-04 Recycle and Reuse	6	15
OM-05 Safety Management	13	15
OM-06 Environmental Commitments Tracking System	13	15
OM-07 Pavement Management System	15	15
OM-08 Bridge Management System	15	15
OM-09 Maintenance Management System	7	15
OM-10 Highway Infrastructure Preservation and Maintenance	10	15
OM-11 Traffic Control Infrastructure Maintenance	2	15
OM-12 Road Weather Management Program	15	15
OM-13 Transportation Management and Operations	13	15
OM-14 Work Zone Traffic Control	13	15
<b>TOTAL POINTS</b>	<b>146</b>	<b>210</b>

#### Lessons Learned through INVEST Evaluation:

DelDOT identified many areas where it was performing well with respect to sustainability, but the agency also identified some potential future improvements, such as the following:

- **OM-01 Internal Sustainability Plan.** While senior leadership within the State is committed to sustainability, there are opportunities to improve tracking and monitoring in some areas. For example, although DelDOT recycles materials, the agency has not yet tried to measure the extent and impact of recycling.
- **OM-02 Electrical Energy Efficiency and Use.** DelDOT (and the State overall) has targets for reducing energy consumption and increasing renewable energy use statewide. DelDOT can use the results of this module to advance those goals while balancing the economic impacts.
- **OM-03 Vehicle Fuel Efficiency and Use.** The State has set goals to reduce fossil fuel use and DelDOT has used alternative fuels for their fleet. However, DelDOT plans to increase the use of alternative fuels in fleet vehicles where available and economically practical.

- **OM-04 Recycle and Reuse.** Based on this criterion, DeIDOT has identified an opportunity to establish recycling and/or reuse targets for construction materials and/or industrial byproducts. DeIDOT already implements recycling and reuse, but has not yet set targets.
- **OM-11 Traffic Control Infrastructure Maintenance.** DeIDOT policy requires traffic control plans. However, they are project specific, do not include performance metrics, and do not explicitly reference sustainability. DeIDOT plans to review this area and consider improvements based on the INVEST evaluation.

**Key Outcomes of Using INVEST:**

The INVEST OM scoring module helped DeIDOT to identify several opportunities to enhance the agency's sustainability efforts. Now DeIDOT plans to further assess and pursue these improvements. DeIDOT also plans to conduct subsequent evaluations of its programs with the INVEST System Planning and Project Development modules. The future outlook is promising based on senior leadership's commitment to sustainability both within DeIDOT and across the State.