

Beyond Ratings:

The Potential Cost Savings of Sustainability Practices

The Value of Sustainability

To better quantify the economic benefits of sustainability, FHWA has conducted exploratory research to help build a business case for implementing sustainability practices. The findings of this research helps practitioners go beyond rating the sustainability of transportation projects and programs and provides information that quantifies some of the economic benefits realized by agencies that have implemented sustainability practices. Six representative practices were selected from the INVEST tool and researched to find real world examples of costs savings. These practices were explored to provide sufficient information to present triple bottom line benefits in tangible and comparable metrics (e.g., time saved, costs saved in dollar value, etc.).



Sustainability Linkage and the Triple Bottom Line

Sustainability goes beyond being “green”. Practices are truly sustainable when they successfully address and balance the economic, environmental and social equity dimensions – the “Triple Bottom Line”. A sustainable approach seeks to meet all of these needs while hitting economic targets for cost-effectiveness. By exploring the ways that transportation agencies and system users benefit from incorporating sustainability into highway development, this research helps illustrate how a full range of transportation practices contributes to the triple bottom line.



Basis for Savings



Agency Cost Savings: generate direct savings to agency’s capital, operations, maintenance and service costs and budgets.



Economic Benefits or Savings for Users: generate economic benefits and savings to the users of the infrastructure by improving or enhancing mobility and efficiency (e.g., travel time) to-and-from centers of economy.









Environmental Benefits or Savings: generate environmental benefits or savings by reducing impact or enhancing the environment and ecology.



Social Equity Benefits or Savings: generate social equity or savings by reducing impact or enhancing factors such as safety, security, and accessibility.



Potential Cost Savings of Sustainable Practices

 SP-6	Safety Planning: state agencies can save tens of millions of dollars by reducing and saving on the emergency response, property damage, administrative, legal, and liability costs of crashes.
 SP-9	Travel Demand Management (TDM): TDM helps manage congestion and parking demand more efficiently, which can save state agencies tens of millions of dollars by reducing the need for additional roadway capacity.
 PD-14	ITS for System Operations: state agencies can save tens of millions of dollars by implementing ITS for system operations and reducing the need for additional major capital investment and operational costs created by congestion.
 PD-20	Recycle Materials: state agencies can save, at the least, millions of dollars by saving 10 to 50 percent of their annual paving costs.
 OM-8	Bridge Management System (BMS): state agencies can save tens of millions of dollars by extending the useful service-life of bridges through more efficient maintenance.
 OM-12	Road Weather Management Program (RWMP): state agencies can save tens of millions of dollars each year by implementing a RWMP, which can reduce their winter maintenance costs by 10 to 15 percent.

Sustainability in Action

The benefits and savings dollar estimates were based on currently available real data.

For example, for SP-6: Safety Planning, the National Highway Traffic Safety Administration (NHTSA) reported that in the year 2012 the cost to the TBL caused by vehicle accidents was close to \$1 trillion. Even considering that some states contributed much more or less to that number, the potential savings that a single state could generate by effective safety planning could easily add up to the millions.

Another example can be presented using a case study for PD-20: Recycle Materials. A 2012 FHWA study found that more than 68.3 tons of Reclaimed Asphalt Pavement (RAP) was used in the U.S., generating savings of approximately \$2.2 billion for U.S. tax payers.



Potential savings will vary due to factors such as program size, geography, climate, and levels of congestion. The research generated order of magnitude estimates of potential savings in dollar equivalent

Learn More

To learn more about FHWA's Sustainable Highways Initiative, INVEST and this research effort, please visit: www.sustainablehighways.dot.gov

