



Guide to Transportation Related Sustainability Programs

The IAAP Sustainability Committee developed this document to help members become familiar with transportation related sustainability programs that may be relevant to the markets in which they operate. The highlighted programs include:

- Federal Highway Administration's (FHWA) Infrastructure Voluntary Evaluation Sustainability Tool (INVEST)
- Illinois State Toll Highway Authority's (ISTHA) Building Green
- IDOT District 1's Illinois-Livable and Sustainable Transportation Rating System and Guide (I-LAST)
- Chicago Department of Transportation's Sustainable Urban Infrastructure Guidelines and Policies (SUIG)
- Chicago Department of Aviation Sustainable Airport Manual (CDOASAM)

For each program, this guide outlines the program's purpose, describes its relevance to IAAP members, identifies potential opportunities as well as challenges, and provides a link to the program's website for more information.

FHWA INVEST

Program Purpose

FHWA's INVEST (Infrastructure Voluntary Evaluation Sustainability Tool) is designed to provide information and techniques to help agencies integrate sustainability best practices into their projects and programs. INVEST is intended to provide guidance for practitioners to evaluate the sustainability of their transportation projects and programs, as well as to encourage sustainability progress within the field of transportation. It is not required and it is not intended to encourage comparisons between transportation agencies. INVEST was developed with input from state and local transportation agency officials, staff and professional organizations such as AASHTO and ASCE. FHWA will continue to update INVEST as the transportation sustainability field continues to advance.

Relevant to IAAP Members

INVEST includes a collection of sustainability best practices, called criteria, intended to help transportation practitioners evaluate programs and projects in the area of sustainability. The goals of INVEST include identifying these criteria, assisting agencies in researching and applying the criteria, and establishing an evaluation method to measure the progress toward more sustainable highway projects.

The Project Development Criteria in INVEST are most relevant to IAAP members and are detailed in the opportunities and challenges listed below.

Opportunities for IAAP Members

IAAP members may find opportunities to promote the utilization of high quality aggregates in the Project Development Criteria. Opportunities to demonstrate the way that sustainable business practices are incorporated into IAAP members' operations exist in this program as well. PD-01 Economic Analysis and PD-02 Lifecycle Cost Analysis are the Development Criteria consistent with these items. Their descriptions are as follows:

PD-01 Economic Analyses

Using the principles of benefit-cost analysis (BCA) or economic impact analysis (EIA), provide evidence that the user benefits environmentally, economically, and socially, and justify the full life-cycle costs.

PD-02 Lifecycle Cost Analyses

Reduce life-cycle costs and resource consumption through the informed use of life-cycle cost analyses of key project features during the decision-making process for the project.

Challenges for IAAP Members

IAAP members will find challenges in the FHWA Invest program that are similar to those found in ISTHA's and IDOT's programs. Relative Invest Design Criteria include the following categories:

PD-19 Reduce and Reuse Materials

Reduce lifecycle impacts from extraction and production of virgin materials by recycling materials.

PD-20 Recycle Materials

Reduce lifecycle impacts from extraction, production, and transportation of virgin materials by recycling materials.

Program Link

<https://www.sustainablehighways.org>

ISTHA Building Green

Program Purpose

“The Illinois Tollway seeks to minimize the environmental impact of roadway construction by reducing, recycling and reusing materials. The Illinois Tollway is committed to using renewable energy and green technology, as well as adopting research initiatives and best practices to reduce energy use and costs.”

Relevant to IAAP Members

One of the primary objectives of this program is to increase the use of recycled, reused and reclaimed materials. The Illinois Tollway has been using FWHA INVEST to score the sustainability of its programs since 2014 to evaluate all Move Illinois construction projects of \$10 million or greater in cost. New ISTHA projects will quantify resources preserved and materials recycled, as well as eliminate landfill waste. In an effort to reduce work zone waste, recycled concrete, asphalt, roof shingles and tires will often be used as base materials, as backfill materials and as ingredients in new pavements.

Opportunities for IAAP Members

The IAAP has successfully worked with the ISTHA to allow the use of fines as fine aggregate in some concrete pavements. The ISTHA recognizes fines as “waste” created by the production of other coarse aggregates. Allowing the use of this material in concrete pavements is consistent with ISTHA objectives to promote waste reduction.

Challenges for IAAP Members

The ISTHA’s goal to use 100% recycled materials on construction projects reduces the demand for virgin aggregates. IAAP members should advocate for recycled materials performance and quality standards that are equivalent to those required for virgin aggregates.

Program Link

<https://www.illinoistollway.com/sustainability>

I-LAST™

Program Purpose

The purpose of I-LAST (Illinois-Livable and Sustainable Transportation Rating System and Guide) is to provide a comprehensive list of practices that has the potential to bring sustainable results to highway projects, establish a simple and efficient method of evaluating transportation projects with respect to livability, sustainability, and effect on the natural environment, record and recognize the use of sustainable practices in the transportation industry and encourage the use of innovative and experimental sustainable concepts.

Relevant to IAAP Members

IAAP members in IDOT District 1 will benefit from being familiar with the I-LAST Rating System Scorecard. Categories within the Scorecard include: Planning, Design, Environmental, Water Quality, Transportation, Lighting, Materials, Innovation, and Construction. While this program is currently limited to IDOT District 1 projects, it may be expanded to other districts at some time in the future.

The materials category is the section most relevant to IAAP producers. The intent of this category is to consider designs that will allow contractors to reduce waste generation, and reuse and recycle materials in beneficial ways. The anticipated benefits of this section include but are not limited to: preserving natural resources and protecting the environment by reducing the use of natural resources and increasing the use of recycle/reuse materials; finding ways to reduce the carbon footprint for the project by minimizing hauling; building cost effective pavement systems by using recycle and/or reuse materials; and Providing support for innovative thinking to create sustainable pavement systems.

Opportunities for IAAP Members

I-LAST guidelines promote the reuse of locally produced by-products in the construction of embankments, hot mix asphalt and Portland cement concrete mixtures. Locally available materials are preferred when developing specifications for projects.

Extended pavement life design and rehabilitation strategies are important aspects of the rating tool. This creates an opportunity for IAAP members to promote the life cycle cost benefits resulting from the use of high quality virgin aggregates in pavement and infrastructure design.

Challenges for IAAP Members

The I-LAST rating system encourages many non-traditional aggregate materials and construction methods that reduce or eliminate the use of traditional aggregates. Some examples are as follows:

- Allow rubblization of concrete shoulder and concrete pavements.
- Allow flexibility in design with the use of recycled or salvaged non-hazardous material.
- Allow the use of recycled asphalt pavement (RAP) in the construction of new hot mix asphalt pavements.
- Allow Soil stabilization with geosynthetics.
- Allow Soil stabilization with cementitious and recycled materials

IAAP members must engage with specifying agencies utilizing the I-LAST tool to ensure alternative aggregates are held to the same standards and performance characteristics as traditional aggregates.

Program Link

<http://www.idot.illinois.gov/transportation-system/environment/index> (click the Community tab) and <http://www.idot.illinois.gov/assets/uploads/files/transportation-system/reports/desenv/enviromental/i-last%20v%202%2002.pdf>

CDOT SUIG

Program Purpose

The Sustainable Urban Infrastructure Guidelines and Policies (SUIG) will embrace and expand upon the environmental benefits of Complete Streets and Placemaking guidelines. The goal of the policy is to help create and maintain a city where all Chicagoans benefit from a high quality of life without depleting our natural resources.

This mission statement is further supported by three purpose and need statements, which express the high-level outcomes and goals of the principles, objectives, requirements and processes outlined in the following chapters.

- To create a safe, livable, and sustainable city with great streets and healthy places.
- To provide simple, pointed design, construction, and maintenance guidance for the creation of a sustainable urban infrastructure for all Chicagoans.
- To prepare the city's infrastructure to respond to the challenges of climate change and enact policies to reduce its negative impacts.

Relevant to IAAP Members

CDOT's SUIG recommends a transportation modal hierarchy of 1. Pedestrian 2. Bicycle 3. Transit and 4. Automobile. As a result, design guidelines for street construction emphasize aspects tailored more toward pedestrian and bicycle transportation than vehicle transportation.

Elements of infrastructure design emphasizing stormwater management are frequently incorporated into SUIG. Slowing and/or controlling the rate of stormwater runoff into the City's stormwater infrastructure promotes the use of permeable pavements, bioswales, and other non-traditional systems.

Opportunities for IAAP Members

Design criteria for alternative stormwater management within SUIG specifies an increase in the use of clean/permeable aggregate products incorporated into pavement systems. Additionally, design aspects of bioswale systems require the use of unique natural aggregate products.

Challenges for IAAP Members

The incorporation of recycled products is prevalent within SUIG design. Modal hierarchy emphasizing design tailored toward pedestrian and bicycle transportation may reduce quantities of aggregates used in the design of higher volume automobile and truck transportation.

Program Link

http://www.cityofchicago.org/city/en/depts/cdot/supp_info/sustainable_urbaninfrastructureguidelines.html

CDOASAM

Program Purpose

The Sustainable Airport Manual (SAM) is an integral part of Chicago's ongoing efforts toward implementing more environmentally sustainable buildings and civil infrastructure, incorporating best practice guidance for planning, operations, and maintenance of all City airport facilities and functions, and those of its tenants.

The purpose of the Sustainable Airport Manual (SAM) is to integrate airport-specific sustainable planning and practices early in the design process, through planning, construction, operations, maintenance and all airport functions with minimal impact to schedule or budget. The intent is for the user to consider the SAM in every step of the project in order to achieve greater success.

Sustainable practices can potentially reduce the environmental impact of the built environment while at the same time creating financial and operational benefits for a project, and social benefits for the community at large. Together, these aspects of sustainability are commonly referred to as the "triple bottom line." The SAM provides direction and is a guideline for incorporation of as many sustainable elements into a project as are feasible, beyond those elements that are required through an individual project's contract specifications and design standards.

Relevant to IAAP Members

The intention of the SAM is to certify the sustainability of airport-related activities associated with the planning, design, construction, maintenance and daily operations of the airport. Within the Manual's main body, each administrative procedure credit has five subsections: Intent, Requirements, Submittals, Technology/Strategy, and Case Studies. In order to achieve points, certain requirements need to be met, as outlined in each credit.

The Design/Construction section of the SAM document has several items that are relevant to IAAP Members.

Opportunities for IAAP Members

Stormwater Design: Quality Control on pages DC-26 through DC-31 discusses reducing imperviousness, which would require an increase in the use of clean/permeable aggregate products incorporated into pervious pavement systems. Page DC-32 discusses reducing heat islands, which also has a bullet for an open-grid pavement system, which would be at least 50% pervious – again requiring clean/permeable aggregate. Pages DC-98 and DC-100 discuss material reuse and recycled content, respectively, which will be a benefit for concrete and asphalt recycling facilities within the Chicagoland Area. Page OM-18 discusses Erosion Control, which aggregate companies will be able to provide material and expertise for these systems.

Challenges for IAAP Members

The incorporation of recycled products is prevalent within the airports design; however, the CDOASAM prefers the use of recycled aggregate and materials from the airport itself, first. Stormwater Design and Heat Islands are only a small part of Design and Construction, therefore, there are several other sections and credits that these specific modalities will be competing for.

Program Link

<https://www.flychicago.com/community/environment/sam/Pages/default.aspx>