ARA is in its fifth decade of providing asset management services to the transportation community. We are a full-service technology provider with experience and demonstrated expertise in transportation asset management planning, implementation, and monitoring/analysis.

Through the systematic use of management processes, engineering and economic analysis, communication strategies, and other tools, ARA helps transportation agencies understand the effect of their decisions on the capacity, quality, and future needs of their transportation system. ARA also helps agencies allocate resources to maximize their return on investment, improve system performance, extend the life of critical assets, and increase customer satisfaction.

Design

ARA works closely with transportation agencies to understand their asset management needs and processes, the mandated goals for these systems, and best practices to ensure the system produces useful answers and products for data-driven decision making. This includes the mandates specified in various federal transportation laws including MAP-21 and international standards such as ISO 55000.

Specifically, MAP-21 identifies the critical elements of transportation asset management plans (TAMP) produced by transportation agencies in the United States. Our staff has helped develop TAMPs in agencies ranging from small municipalities to the largest state highway agencies, including:

- **Assistance with PennDOT's asset management plan, addressing funding, condition, performance, and predictive modeling for pavements, bridges, and other asset types**
- **TAMP development support for state highway agencies in New Hampshire, Massachusetts, South Carolina, and Florida**

In addition to this work, ARA has participated in several research projects to expand the practice of asset management for transportation agencies, including development of the Guide to Asset Management for the Transportation Association of Canada, a national policy document and a synthesis of best practices across North America.

Implementation & Maintenance

Beyond asset management policy, the implementation, expansion, and maintenance of asset management systems is a critical process for any transportation agency. This process can quickly become complex with the need to ensure a system that matches the business practices of the individual agency, collection of up-to-date condition data to support decision making, and data analysis to understand the trends in conditions and the effect of the agency's policies. To support this work, ARA provides tools and services to ensure the system products are accurate and applicable to the agency's assets and needs.

Testing

High-quality data updated on a regular schedule is the basis of any effective asset management program. ARA offers a wide range of testing services and equipment to provide the data that drives the asset management decision making process while minimizing any adverse impact to the agency or its patrons. This equipment includes:

- **Pavement surface evaluation systems, using the Laser Crack Measurement System (LCMS)**
- **High-speed profilers**
- **Falling & heavy weight deflectometers**
- **Pavement skid measurement equipment**
- **Pavement coring and dynamic cone penetrometer testing**
- **Handheld pavement marking retroreflectivity meters for construction acceptance and research**
- **Vehicle-mounted pavement marking retroreflectivity meters for network-level marking management**
- **Signage retroreflectivity meters**
- **Ground penetrating radar**

In addition to the equipment ARA owns and operates, ARA works with other purveyors of condition data including agency data, third party data, and crowdsourced data. ARA can assist an agency in the design and operation of their in-house data collection operation as we have done for the Florida DOT since 2003.

Software

Another key tool used by asset management programs is software-based data management and analysis. ARA uses a wide variety of tools to support various management systems, including:

- **An agency's in-house software**
- **Enterprise GIS**
- **Government software developers such as Paver and StreetSaver**
- **Commercial software vendors**

ARA also maintains our open source iAM asset management data analysis software to answer questions that other in-place systems may not be able to provide. iAM is not a replacement to an agency's existing tools, it supplements them providing the advanced analysis capabilities some agencies require. Features of iAM include dynamic segmentation, multi-variant modeling, multi-year maintenance and rehabilitation planning, and cross-asset analyses. The software is asset agnostic—with the proper setup it can work for pavements, bridges, markings, retaining walls, lighting, or any other asset an agency might be required to maintain.

Experience

- Pavement management system implementation and support at the Maryland State Highway Administration since 2001

- PennDOT bridge and pavement management support services since 2014

- Florida DOT statewide pavement testing since 2003

- Infrastructure management consultant and asset management services for the Illinois Tollway since 1999

- Pavement management implementations and updates at Metro Nashville, TN since 2003

ARA For more information on ARA's transportation asset management capabilities, please visit www.ara.com.