

A Proposal for the Establishment of a Technical Services Program for Advancing Equipment Technology

Background

Equipment fleet comprises a significant asset investment and is a large portion of all public works agencies' budgets and expenses, and the effectiveness of such equipment fleet operations affects the public works agencies' abilities to adequately perform normal public works activities and successfully respond to emergency situations.

The technology associated with roadway construction and maintenance equipment used by public works agencies is continuously advancing. This phenomenon not only applies the technology installed by the manufacturers, but it also applies to technology and innovation associated with maintaining the equipment and managing the fleet of equipment.

Newer equipment models contain microprocessors that control everything on the equipment from delivering fuel flow to the engine to turning on the headlights and operating the mounted equipment. In addition to controlling the various functions of the equipment, the onboard computers also maintain historical records of various operating parameters, such as, engine speed, top road speed, fuel consumption, and idle time. Some of these systems are so advanced that the equipment maintenance technicians must use equipment diagnostic software installed on laptop computers to accurately diagnose equipment malfunctions and perform some preventive maintenance checks. Some agencies also install Automatic Vehicle Location (AVL) hardware and software on the vehicle that can transmit equipment functional parameters in addition to the vehicle location data.

The increasing national focus on the dependence on foreign oil, rising energy costs, and climate change are primary motivators in developing alternative fuels applications for public works fleets. The critical mission of maintaining the transportation system at all times, including emergency preparedness related to natural disasters or terrorist attacks, will require the availability of alternative fuels to support public works fleets under all potential circumstances.

Equipment management information technology has also advanced to web-based integrated management information systems that contain a wealth of management information, are modular in design, utilize bar-coding input and remote processing, and incorporate comprehensive functionality that provides vital equipment management information to equipment managers at any location and at any time of the day or night. This technology enables equipment managers to access data stored on the vehicles' onboard computers that is either uploaded through data transmissions from telemetric devices such as AVL or of from an automated fuel system terminal that downloads the vehicle data during fueling operations.

Asset Management Best Practices techniques involved in the functional management of an equipment fleet in functional areas, such as, Fleet Operations Emergency Preparedness, Performance Planning, Charge-back Programs, Customer Relationships, Utilization Management, Equipment Replacement, Warranty Management, Alternative Fuels, Fleet

Operations Environmental Management, and Equipment Manager and Technician Training are also evolving.

The volume and rate of occurrence of this advancing technology is such that it is nearly impossible for individual public works agencies' equipment management organizations to stay abreast of the latest technologies, evaluate the technologies, and implement the most beneficial technologies to gain the advantages that the new technologies provide.

Scope

A Technical Service Program is needed to take advantage of these increasing technologies in the field of equipment management to assist in resolving operational issues and to improve the effectiveness and efficiency of equipment management organizations. Such a program would provide the means of evaluating equipment management technologies available for use by the public works agencies in the United States, as well as providing the resources needed to determine the suitability of the technologies to the agencies, and the assistance needed to initiate the applications of the most beneficial technologies. A voluntary AASHTO Technical Service Program – under which identification and evaluation by AASHTO Member Departments would volunteer to sponsor – could be supported financially with public sector funds voluntarily contributed by AASHTO Member Departments, Federal agencies, toll authorities, counties, and cities. A voluntary assessment of \$3,000 per sponsor annually would be needed to establish and fund the ongoing activities of the program.

The AASHTO Highway Subcommittee on Maintenance would oversee this program. The Equipment Focus Group of this subcommittee, which consists of equipment managers from volunteer organizations, would support and coordinate the activities of this program. The Equipment Focus Group would report progress and accomplishments of the program to the AASHTO Subcommittee on Maintenance at the annual summer meeting.

Mission

The mission of the Technical Services Program for Advancing Equipment Technology will be to systematically identify recent and new equipment management technologies, evaluate the technologies, develop guidance in implementing potentially useable technologies, and publicize the results of these activities so that equipment managers in public works agencies in the United States are knowledgeable of the most available, practical, and cost-effective modern equipment management technologies and can apply such technologies to individual state and municipal equipment management programs.

Goals

The goals of the proposed Technical Services Program for Advancing Equipment Technology are to:

1. Employ an automatic mailing list server to distribute equipment management information within the nationwide equipment management community, to facilitate technology discussions amongst groups of equipment managers, and to serve as a mechanism for answering equipment managers' questions.
2. Identify, catalogue, and evaluate available equipment management technologies and best practices.

3. Increase awareness of the available equipment management technologies and best practices.
4. Find resources for equipment management professionals seeking technical assistance, training in the use of the technologies, and quick and easy access to equipment management technologies.
5. Implement new beneficial innovative technology into service generally within two years.
6. Improve levels of equipment management through Asset Management principles with significant benefit/cost improvements.
7. Synergize local, state, and federal levels of government equipment management to produce improvements.
8. Provide all needed funding via a pooled funding mechanism.
9. Provide resources needed for public works equipment managers to participate in, document, and disseminate information from existing forums established for equipment management information exchange:
 - a. AASHTO Subcommittee on Maintenance, Equipment Focus Group (annually)
 - b. TRB Committee AHD60 – Maintenance Equipment (annually)
 - c. TRB Equipment Management Workshop (biannually)
 - d. Other national fleet management associations, such as –
 - i. National Association of Fleet Administrators (NAFA)
 - ii. National Conference of State Fleet Administrators (NCSFA)
 - iii. Association of Equipment Management Professionals (AEMP)
 - iv. American Public Works Association (APWA)

Guiding Principles

The guiding principles for the Technical Services Program for Advancing Equipment Technology are:

1. Encourage innovative ways to streamline equipment management processes.
2. Promote environmental stewardship whenever a related opportunity arises.
3. Provide partnership-building opportunities.
4. Distribute information related to individual technologies to public works agencies using a method that lends itself to straight-forward application.
5. Apply a systematic Asset Management approach to accomplish the goals.

Proposed by:

Erle Potter, VaDOT
Equipment Focus Group Leader

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