

FY 2010 RESEARCH PROBLEM STATEMENT

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TITLE ([more info](#))

Updating Fleet Condition Model Age and Use Standards

PROBLEM (Description of need) ([more info](#))

ODOT Fleet Services provides management of ODOT's fleet, which consists of approximately 5,000 pieces of active equipment representing \$340 - \$390 million dollars worth of assets. This equipment includes a variety of small and large trucks, cars, as well as heavy machinery such as graders, bulldozers, and many types of tractors. This equipment represents a substantial investment and is a vital set of resources used to maintain Oregon roads and highways.

An important and difficult part of managing such a large amount of equipment is deciding when to replace existing equipment. ODOT Fleet Services, ODOT Research, and OSU are completing (12/2008) a new Fleet Condition Model software tool that automatically generates rankings of equipment to replace in ODOT's fleet, as well as providing a variety of reports utilized by Fleet Services. As part of the Fleet Condition Model development, a study was conducted of effective measures for prioritizing equipment to replace. The outcome of this study showed that both equipment age and equipment usage are effective measures for prioritizing equipment to replace. The new Fleet Condition Model uses a combination of equipment age divided by an age standard, and total equipment usage divided by a usage standard to compute a "replacement index". A higher value gives a higher replacement priority.

Currently there are approximately 150 separate age standards for different equipment classes, and about 80 different use standards. Many of these standards need to be updated and validated for effectiveness. With out-of-date and invalide standards the new Fleet Condition Model will not generate effective results. Furthermore, there is currently no widely accepted procedure, if any, for how these standrds should be established.

The problem presented is to both update the standards as well as develop a data based methodology that can be used to update the standards on a periodic basis.

PROPOSED RESEARCH, DEVELOPMENT OR TECHNOLOGY TRANSFER ACTIVITY ([more info](#))

The proposed research will focus on updating the age and use standards. The envisioned methodology utilized will consist of further analysis of ODOT fleet usage and cost data (by equipment class). The results of the data analysis will be used in simulations of multiple equipment classes over time utilizing different age and use standards. A search for optimal age and use standard values will be conducted.

The product of the research will be a table of upated age and use standards that can be immediately incorprated into the Fleet Condition Model. Full documentation of the methodology and procedures used to develop these standards will be provided.

BENEFITS [\(more info\)](#)

The research will assist the Oregon Department of Transportation and DOTs nation-wide to better assess and manage equipment needs. Long-term operational costs of operating and maintaining ODOT's equipment fleet can be reduced with proper replacment decisions. Other DOTs throughout the nation can benefit from the procedures utilized to develop the updated standards.

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Problem Statement Number: