



ARROYO CENTER

CHILDREN AND FAMILIES
EDUCATION AND THE ARTS
ENERGY AND ENVIRONMENT
HEALTH AND HEALTH CARE
INFRASTRUCTURE AND
TRANSPORTATION
INTERNATIONAL AFFAIRS
LAW AND BUSINESS
NATIONAL SECURITY
POPULATION AND AGING
PUBLIC SAFETY
SCIENCE AND TECHNOLOGY
TERRORISM AND
HOMELAND SECURITY

The RAND Corporation is a nonprofit institution that helps improve policy and decisionmaking through research and analysis.

This electronic document was made available from www.rand.org as a public service of the RAND Corporation.

Skip all front matter: [Jump to Page 1](#) ▼

Support RAND

[Purchase this document](#)

[Browse Reports & Bookstore](#)

[Make a charitable contribution](#)

For More Information

Visit RAND at www.rand.org

Explore the [RAND Arroyo Center](#)

View [document details](#)

Limited Electronic Distribution Rights

This document and trademark(s) contained herein are protected by law as indicated in a notice appearing later in this work. This electronic representation of RAND intellectual property is provided for non-commercial use only. Unauthorized posting of RAND electronic documents to a non-RAND website is prohibited. RAND electronic documents are protected under copyright law. Permission is required from RAND to reproduce, or reuse in another form, any of our research documents for commercial use. For information on reprint and linking permissions, please see [RAND Permissions](#).

This product is part of the RAND Corporation technical report series. Reports may include research findings on a specific topic that is limited in scope; present discussions of the methodology employed in research; provide literature reviews, survey instruments, modeling exercises, guidelines for practitioners and research professionals, and supporting documentation; or deliver preliminary findings. All RAND reports undergo rigorous peer review to ensure that they meet high standards for research quality and objectivity.

TECHNICAL REPORT

Army Tactical Wheeled Vehicles

Current Fleet Profiles and Potential Strategy Implications

*Carolyn Wong • Louis R. Moore • Elvira N. Loredó • Aimee Bower
Brian Pascuzzi • Keenan D. Yoho*

Prepared for the United States Army
Approved for public release; distribution unlimited



ARROYO CENTER

The research described in this report was sponsored by the United States Army under Contract No. W74V8H-06-C-0001.

Library of Congress Control Number: 2011923086

ISBN: 978-0-8330-5093-9

The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors.

RAND® is a registered trademark.

© Copyright 2011 RAND Corporation

Permission is given to duplicate this document for personal use only, as long as it is unaltered and complete. Copies may not be duplicated for commercial purposes. Unauthorized posting of RAND documents to a non-RAND Web site is prohibited. RAND documents are protected under copyright law. For information on reprint and linking permissions, please visit the RAND permissions page (<http://www.rand.org/publications/permissions.html>).

Published 2011 by the RAND Corporation
1776 Main Street, P.O. Box 2138, Santa Monica, CA 90407-2138
1200 South Hayes Street, Arlington, VA 22202-5050
4570 Fifth Avenue, Suite 600, Pittsburgh, PA 15213-2665
RAND URL: <http://www.rand.org>
To order RAND documents or to obtain additional information, contact
Distribution Services: Telephone: (310) 451-7002;
Fax: (310) 451-6915; Email: order@rand.org

Summary

The Army's medium and heavy tactical wheeled vehicle (TWV) fleets (both active and reserve components) are critical to sustaining its global operations: these are the vehicles that move supplies and equipment to and around the battlespace. The Army has maintained a significant program and made major investments in its medium and heavy TWV fleets because they are such critical assets. More than \$16 billion (fiscal year 2009 dollars) have been invested over the last five years to procure medium and heavy TWVs. Nevertheless, the program has not been able to keep up with the demands of its aging fleets. Today there are medium and heavy vehicles that are over 30 years old. Perhaps more important, the pace and requirements of current operations, particularly in Iraq and Afghanistan, and predeployment training are stressing these fleets even more. Both the actual and imposed aging of these vehicles suggest that the Army needs to update its TWV strategy, a key element toward managing its investments prudently. In order to update the TWV strategy effectively, the Army must be able to make informed decisions about its investments in replacing, upgrading, and using its TWV fleets. Informed decisions are dependent on a clear understanding of how many of what types of vehicles the Army currently has and some indication of their age and condition, as well as what the Army's requirements are likely to be at points in the future.

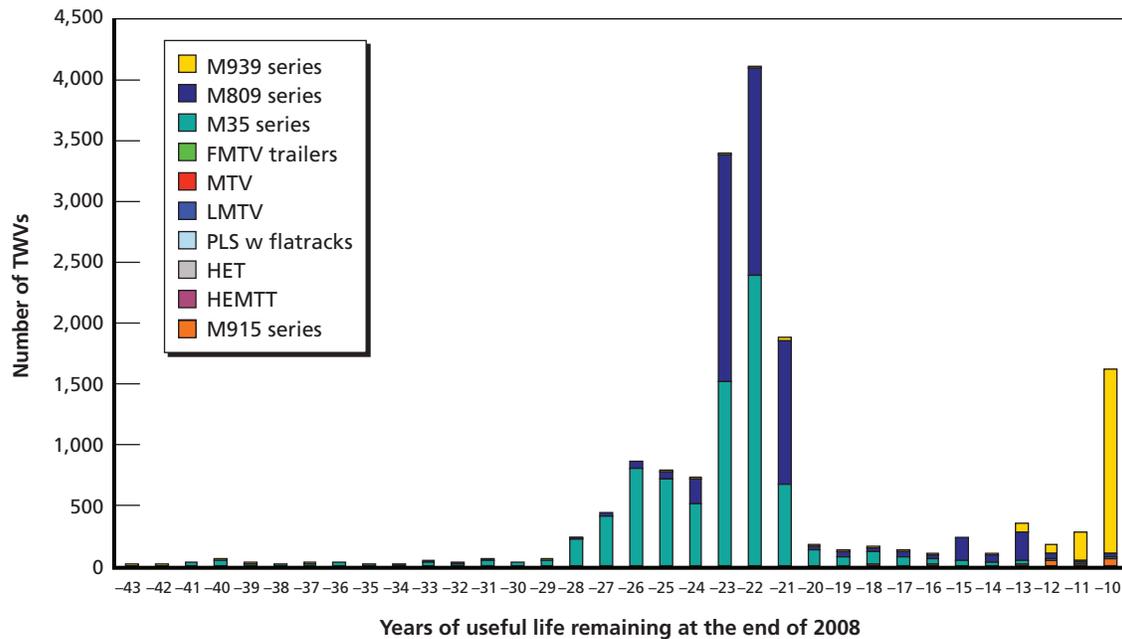
This study produced status profiles of the Army's medium and heavy tactical wheeled vehicle fleets. The status profiles show how many medium and heavy TWVs of each type the Army has and the years of useful life remaining for each group.

The study team integrated diverse data elements supplied by a TWV Integrated Product Team (IPT) and other sources to construct a data base that could be used to generate status profiles of the medium and heavy TWV fleets.

For the purposes of this study, the expected useful life (EUL) of a vehicle is the time until it reaches a point of such extensive and widespread wear that it is more economical to recapitalize or replace the vehicle than to continue to maintain and repair it. The study team used the EUL concept to transform the status data base to an easily interpretable graph whereby vehicles with different EULs can be placed on a common timeline. In all, the study team determined the statuses of 40 models of heavy TWVs and 117 models of medium TWVs. The aggregate status profile of the Army's oldest vehicles is shown in Figure S.1. The overview status profile of the Army's medium and heavy TWV fleets is shown in Figure S.2.

This overview of the status of the medium and heavy TWV fleets (Figure S.2) shows that the Army is in the middle of a window of opportunity. That is, the Army has just entered a period where relatively few groups of medium and heavy TWVs are exceeding their EUL. An effective Army strategy would seek to exploit this window of opportunity to take care of those vehicles that have already exceeded EUL before the next wave hits in about five years. Although five years seems like a lengthy amount of time, that might only be an illusion. Pro-

Figure S.1
The Army's Oldest TWVs



NOTE: Assumes 15-year EUL for medium TWVs and 20-year EUL for heavy TWVs.

RAND TR890-S.1

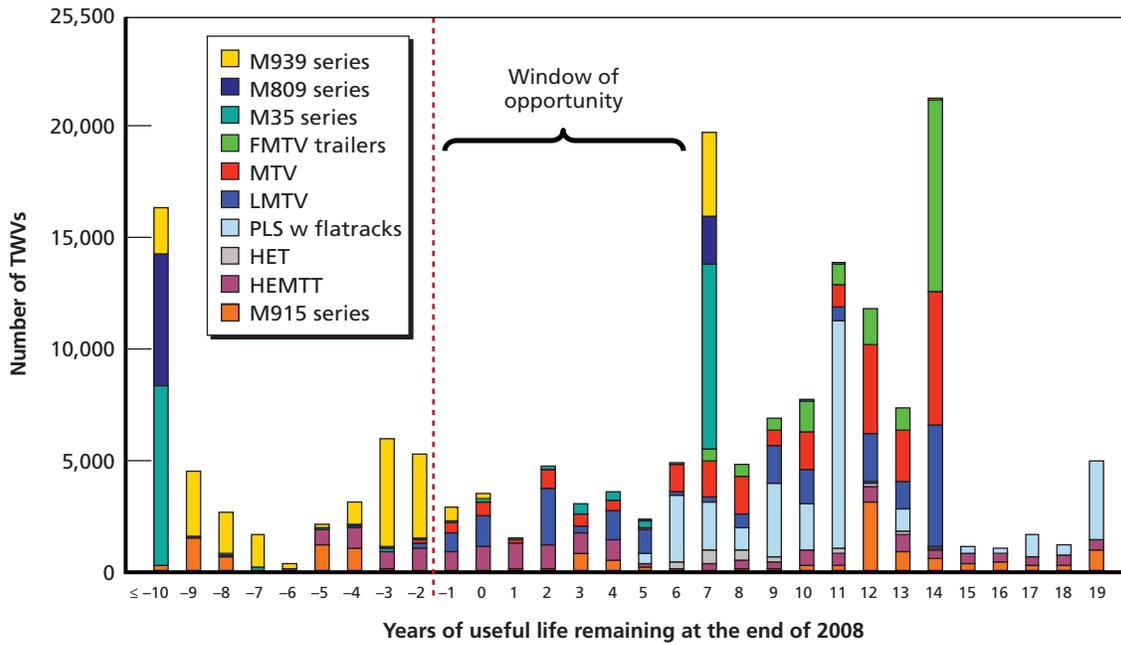
gram Objective Memorandum (POM) 2011 is near, and POM 2012 will soon command the Army’s attention, so from a planning point of view, the Army’s real window of opportunity is closer to two or three years. Hence, to take maximum advantage of the current window of opportunity, the Army needs to initiate immediate efforts to devise a TWV strategy that will serve it well into the future. The graph in Figure S.2 indicates a likely starting point to base the Army’s updated TWV strategy.

This study has provided the Army with starting points for the medium and heavy TWV fleets, but the status profiles provided must be periodically updated to ensure that they reflect actual quantities, usage, and age. Our study experience indicates the following:

- Keeping the status profiles current is key to their continued utility to help inform Army TWV strategy decisions.
- Improvements in data-collection processes and mechanisms can facilitate periodic updates of the TWV status profiles.
- Research on the EUL concept can lead to more accurate computation of EUL estimates.
- Detailed analyses can inform a holistic Army TWV strategy.
- Further research focused on the Army’s knowledge base can lead to methods and recommended modifications for determining lifetime conditions of the medium and heavy TWV fleets.

Finally, we recommend that future research focus on the development of techniques that will enable the Army to visualize the impacts of strategic options and the effects of programming decisions. Such techniques would allow the Army to make more informed decisions in

Figure S.2
Where the Army Is: A Five-Year Window of Opportunity



NOTE: Assumes 15-year EUL for medium TWVs and 20-year EUL for heavy TWVs.
 RAND TR890-5.2

responding to programmatic changes as well as in designing TWV strategies that are effective and efficient in meeting the Army’s future requirements.