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Author: Dr. George Nield

Federal Aviation Administration Office of Commercial Space Transportation (FAA/AST), United States

Mr. John Sloan

Federal Aviation Administration Office of Commercial Space Transportation (FAA/AST), United States

THE ROLE OF COMMERCIAL SPACE TRANSPORTATION IN AN INTERNATIONAL MOON
VILLAGE

Abstract

The Director General of the European Space Agency has proposed that an international Moon Village be established as an appropriate and worthwhile follow-on to the International Space Station (ISS). This paper describes one possible implementation of the Moon Village, including specifically how commercial space transportation could support such an endeavor. It also provides some initial FAA perspectives on transportation safety that would be applicable to the project.

A successful Moon Village would involve both public and private sector entities, and would be focused on carrying out a number of different missions, including exploration, scientific research, technology development, in-situ resource extraction, and even tourism. Each participant would provide specialized contributions as part of a broad, interdependent coalition. A new lunar economic structure may evolve in which both governments and corporate entities would exchange goods and services.

Examples of basic products (goods and services) could include constructing and operating habitats; generating and distributing electrical power; providing food, water, and oxygen; supplying communications, navigation, and transportation services; and controlling and maintaining all of the necessary hardware and software. As the community grows, products would become more diversified, and could include health care, security, and leisure time activities.

To create a Moon Village and sustain it, transportation will be crucial. Transportation will be needed not only from the Earth to the Moon and back, but also across the lunar surface, and in support of operations in cis-lunar space. Because of the Moon's low gravity and the potential ability to use lunar resources to generate rocket fuel, the Moon may also prove to be an appropriate staging area for missions to Mars or other deep-space destinations. Based on recent experience by the United States in supplying cargo (and plans to transport crew) to the ISS, there would be a number of advantages in using vehicles owned and operated by the private sector in support of the Moon Village. For example, the use of commercial space services can result in lower costs, increased innovation, greater risk tolerance, the creation of new markets, and the identification of new sources of funding. These advantages could allow the Moon Village to develop more quickly and less expensively than would be possible using more traditional government acquisition techniques.