ground testing activities, launch and operations infrastructure, and workforce expertise;

(2) shall, to the extent practicable, minimize the modification and development of ground infrastructure and maximize the utilization of existing software, vehicle, and mission operations processes;

(3) shall complete construction and activation of the A–3 test stand with a completion goal of September 30, 2013;

(4) may procure, develop, and flight test applicable components; and

(5) shall take appropriate actions to ensure timely and cost-effective development of the Space Launch System and the multi-purpose crew vehicle, including the use of a procurement approach that incorporates adequate and effective oversight, the facilitation of contractor efficiencies, and the stream-lining of contract and procurement requirements.

(Pub. L. 111–267, title III, § 304, Oct. 11, 2010, 124 Stat. 2816.)

§ 18325. NASA launch support and infrastructure modernization program

(a) In general

The Administrator shall carry out a program the primary purpose of which is to prepare infrastructure at the Kennedy Space Center that is needed to enable processing and launch of the Space Launch System. Vehicle interfaces and other ground processing and payload integration areas should be simplified to minimize overall costs, enhance safety, and complement the purpose of this section.

(b) Elements

The program required by this section shall include—

(1) investments to improve civil and national security operations at the Kennedy Space Center, to enhance the overall capabilities of the Center, and to reduce the long term cost of operations and maintenance;

(2) measures to provide multi-vehicle support, improvements in payload processing, and partnering at the Kennedy Space Center; and

(3) such other measures, including investments to improve launch infrastructure at NASA flight facilities scheduled to launch cargo to the ISS under the commercial orbital transportation services program as the Administrator may consider appropriate.

(c) Report on NASA launch support and infrastructure modernization program

(1) Report required

Not later than 120 days after October 11, 2010, the Administrator shall submit to the appropriate committees of Congress a report on the plan for the implementation of the NASA launch support and infrastructure modernization program.

(2) Elements

The report required by this subsection shall include—

(A) a description of the ground infrastructure plan tied to the Space Launch System and potential ground investment activities at other NASA centers related to supporting the development of the Space Launch System;

(B) a description of proposed initiatives intended to be conducted jointly or in cooperation with Cape Canaveral Air Force Station, Florida, or other installations or components of the United States Government; and

(C) a description of plans to use funds authorized to be appropriated by this chapter to improve non-NASA facilities, which plans shall include a business plan outlining the nature and scope of investments planned by other parties.

(Pub. L. 111–267, title III, § 305, Oct. 11, 2010, 124 Stat. 2817.)

§ 18326. Development of technologies and in-space capabilities for beyond near-Earth space missions

(a) Development authorized

The Administrator may initiate activities to develop the following:

(1) Technologies identified as necessary elements of missions beyond low-Earth orbit.

(2) In-space capabilities such as refueling and storage technology, orbital transfer stages, innovative in-space propulsion technology, communications, and data management that facilitate a broad range of users (including military and commercial) and applications defining the architecture and design of such missions.

(3) Spacesuit development and associated life support technology.

(4) Flagship missions.

(b) Investments

In developing technologies and capabilities under subsection (a), the Administrator may make investments—

(1) in space technologies such as advanced propulsion, propellant depots, in situ resource utilization, and robotic payloads or capabilities that enable human missions beyond low-Earth orbit ultimately leading to Mars;

(2) in a space-based transfer vehicle including these technologies with an ability to conduct space-based operations that provide capabilities—

(A) to integrate with the Space Launch System and other space-based systems;

(B) to provide opportunities for in-space servicing of and delivery to multiple space-based platforms; and

(C) to facilitate international efforts to expand human presence to deep space destinations;

(3) in advanced life support technologies and capabilities;

(4) in technologies and capabilities relating to in-space power, propulsion, and energy systems;

(5) in technologies and capabilities relating to in-space propellant transfer and storage;

(6) in technologies and capabilities relating to in situ resource utilization; and

(7) in expanded research to understand the greatest biological impediments to human deep space missions, especially the radiation challenge.