



# Implementing the NSS Vision

We, a consensus of the members of the Sacramento L-5 Society, local chapter of the National Space Society, endorse the NSS vision: “People living and working in thriving communities beyond the Earth, and the use of the vast resources of space for the dramatic betterment of humanity.” To implement that vision, we believe it is incumbent upon NSS to develop high-level action items. At a minimum we believe those action items need to:

## 1. Extol the benefits of the space program.

Properly funded implementation of the NSS vision would create prosperity and jobs in vast profusion across the globe. We in NSS know that the U.S. space program has always more than paid its own way, both with tangible and intangible benefits to the country and the world. However, we are convinced that the general populace has not been properly informed of the exact magnitude of these many past benefits, and how future vast benefits may be gained by adequate funding and implementation of the NSS vision.

*Tangible past and future benefits include:*

Enhanced national security; long-lasting, good-paying jobs in private industry, R&D, space tourism, education; satellite technology, including communication and information distribution, GPS, weather, mapping, and environmental observation and monitoring; many useful spin-offs (see *spinoff.nasa.gov/index.html* for examples); access to unlimited space-based mineral and energy resources; development of the capacity to protect the planet from space debris; development of the potential to ensure the survival of the human race in the event of a cosmic catastrophe.

*Intangible past and future benefits include:*

Education and inspiration for the young; ambition and optimism for the future; innovation and creativity; expansion of the boundaries of human knowledge; a feeling of being united as a species (e.g., when a U.S. astronaut first stepped out onto the surface of the Moon, the whole world rejoiced).

## 2. Expand space-related education.

*Our children are the hope of the future.*

We call for: Expanded astronomy and STEM curriculums in schools; development of a new curriculum dedicated to the history of human space exploration; increased space-related educational programming on TV and media; introduction of the foundations of STEM and space education at an early age; increased space-related hands-on learning.

## 3. Work toward standardized space property rights.

Colonization and utilization of space and space resources will depend on the standardization of property and asset rights in space. We believe it is essential that the governments sponsoring the development of space resources share the opportunity for using these resources with the world at large as well as with those private individuals and companies who take risks in the development of those resources.

## 4. Define the roles of NASA and the private sector.

As a means of increasing budgetary efficiency, NASA should focus on space science and on long-term solutions of hard problems and enabling technologies, such as protection from radiation during space flight, processes for Moon/Mars/asteroid mining and in-situ resource utilization, and long-term R&D on advanced propulsion technologies and space transportation infrastructure.

At the same time, NASA should increase its support of and collaboration with private space industry. Private industry should become more responsible for exploring and developing new launch capabilities and services for increasingly cheap access to LEO and beyond as well as investing in large-scale commercial projects, such as space tourism and mining in space.

Besides advancing the cause of space settlement, these private industry projects would create many well-paid private sector jobs and earn billions of



Artist rendition of the Space Station Freedom in orbit. Freedom was to be a permanently crewed orbiting base to be completed in the mid 1990's. It was to have a crew of four. Freedom was an effort for international cooperation that attempted to incorporate the technological and economic assistance of the United States, Canada, Japan, and nine European nations. The image shows four pressurized modules (three laboratories and a habitat module) and six large solar arrays, which were expected to generate 56,000 watts of electricity for both scientific experiments and the daily operation of the station. Space Station Freedom never came to fruition. Instead, in 1993, the original partners, as well as Russia, pooled their resources to create the International Space Station.

dollars for the country through an expanded tax base, technology transfer payments, and income from the granting of outer space mineral rights.

### **5. Support nonprofit space development.**

We call for establishing a nonprofit space development clearinghouse as a support platform for ongoing objective analyses of proposed space development technologies. The clearinghouse would operate in an "open-source" manner, with all data, analysis, and simulation tools available to anyone who wants to independently verify and/or correct others' conclusions. All content, including ranking of alternatives, would be constantly updated as new data becomes available. The clearinghouse would become a reputable "advisory board" for decision-makers and all major players involved in space-related development, and specifically would work in conjunction with and "feed" specialized crowdsource funding operations, whether for-profit or nonprofit.

### **6. Broaden political support for space efforts.**

Finally, we contend that the space program has become too much of a political hostage, which

is bad for the space program, for the country, and for the world. If we are to create a sustained commitment to space development, it is essential to find effective ways to cooperate politically. To this end, we believe it is time to formulate and insist on a long-term national strategy on space that is agreed to by both major political parties and not subject to the vagaries of whichever political party happens to be in power. Accordingly, we call for the introduction of a bill supported by both political parties that would guarantee an enhanced, sustained, generational commitment to space development and the implementation of the NSS vision.

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*This piece is the opinion of the Sacramento L-5 Society and not necessarily of the National Space Society.*

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